Appendix I
Hydrology and Water Quality

ESA

Appendix I.1
Flood and Drainage Analysis

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FLOOD AND DRAINAGE ANALYSIS

for

Sargent Quarry

Project Location:
South of Gilroy, CA
Santa Clara County
APNs 810-38-014, 017, and 018

Operator:
Sargent Ranch Management Company LLC
San Diego, CA
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STATE OF CALIFORNIA

January 2022

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1. Introduction and Background

1.1 Description of Project Area

This drainage analysis is prepared for the proposed Sargent Ranch Quarry Site located approximately 5 miles south of the town of Gilroy, California, west of Highway 101 at 36°55’01” N Latitude’ 121°33’47” W Longitude. The quarry will primarily be accessed from Highway 101 on Old Monterey Road. Refer to Figure 1A AND 1B, Appendix A for Regional and Site maps, respectively.

Sargent Ranch Management Company, LLC will operate the Sargent Quarry. The operation is new and no previous mining has occurred on the site. The Sargent Ranch property encompasses 5,274 acres in Santa Clara county.

The project area is approximately 403 acres including approximately 298 acres of active mining operations and 105 acres of potential geotechnical setback area. It is estimated that this site contains approximately 35.016 million tons of sand and gravel aggregate and that the operation could have a mining term of 30 years depending on consumption rates.

1.2 Objective

The objective of this drainage report is to quantify storm water flow rates and flood limits for the pre- and post-mining conditions and reclamation and to design water conveyance facilities to safely convey the water around and through the quarry site. Scour, sediment transport and water quality are also addressed.

1.3 Existing Conditions

The Project site has a land use designation of “Agricultural Ranchlands” and is surrounded by agricultural and ranching lands to the north, south, and west. Hwy 101 bounds the site on the east. There are no structures in the proposed development area.

Site topography consists of gently rolling to moderately steep hillsides with moderate to well defined drainages. Elevations within the project area range from approximately 800 feet along the ridges to approximately 150 feet at the lower eastern portions of the site. Vegetation includes a light to moderate growth of grasses, shrubs and some riparian habitat in the drainage areas.

Two major creeks, Tar Creek and Sargent Creek, and other smaller drainages affect the mining areas and access to the site. Tar Creek runs west to east, just north of the project site and enters a concrete box culvert under the railroad track and Hwy 101. Tar Creek then continues to flow to the east through riparian vegetation for about 1700 feet before entering Pajaro River. Sargent Creek runs north to south and bisects the southern portion of the mining site where the first two phases of mining operation will take place. An impoundment of Sargent Creek exists about 2,000 feet upstream of the proposed Phase 1 quarry access road crossing of the creek. The impoundment was created when cattle ranchers using the property built a 6 ft high earthen dam at least 50 years ago. The depth of water behind the dam is about 5 feet at the deepest. Normal season flow generally is entirely retained by the impoundment based on discussions with Verne Freeman, project manager for the Sargent Ranch Quarry. Refer to Figure 1B, Appendix A for the location of the creeks.

The site is not located within the 100-year flood zone as shown on the latest FEMA FIRM - Flood Insurance Rate Map Community Panel No. 060337, Appendix E

The 100-year flood zone derived in this study is based on the 2007 Santa Clara Drainage Manual hydrologic method for determining flows from a drainage area greater than 200 acres in area. The FEMA FIRM did not include Tar Creek in the mapping which is of the Pajaro River flood event.

1.4 Project Description (Mining Phases and Reclamation)

The Project involves the mining of sand and gravel, and ultimately, reclamation of the quarry disturbed areas from mining activities. Of the project site's 403 acres, approximately 298 acres comprise the area of proposed mining. The proposed processing plant is located near Highway 101, just south of Tar Creek and is roughly 14 acres in size. The mining quarries will be excavated in four phases. Phases 1 and 2 are located just south of Tar Creek about 2,000 feet southwest of the existing Old Monterey Road terminus (not a county road on ranch property) at the ranch. The Plant and office sites are located at the northern end of the property. Phases 3 and 4 of the quarry will be located about 8,800 feet south west of the existing terminus of Old Monterey Road at the ranch. The remaining portions of the site would not be utilized for mining, processing, or reclamation activities and would be maintained in their current conditions. Refer to Figure 1B in Appendix A.

Access to the plant site from the north will be on Old Monterey Road, which exits Hwy 101 approximately 0.8 miles north of the plant site. Northbound trucks leaving the plant site will utilize and existing road going under Hwy 101 before merging onto northbound 101 approximately one quarter mile north of the plant.

The northerly access from Old Monterey Road will cross over Tar Creek prior to entering the plant site. A bridge with a span of 70 feet is proposed for this crossing to avoid impacts to the riparian vegetation. The bridge and plan site are shown on Figure 3C with relation to Tar Creek. The access to the Phases 3 and 4 quarry will include a crossing over Sargent Creek. This crossing will include the installation of an arch culvert pipe spanning the drainage channel.

Reclamation activities would be conducted on mining phases that are completed. When Phases 3 and 4 mining activities cease the road and culverts in Sargent Creek will be removed and the disturbed area will be revegetated in accordance with requirements of the CADFW and ACOE as conditions of approval in the 1601 and 404 permits to be obtained for work in waters of the U.S.

2. Design Methodology and Assumptions

The objective of this drainage report is to quantify storm water flow rates and flood limits for the pre- and post-mining conditions and reclamation and to design water conveyance facilities to safely convey the water around and through the quarry site. Scour, sediment transport and water quality are also addressed.

The quarry and plant site will not operate if a rain event of one-half inch or more is forecasted which will be monitored due to Industrial SWPPP requirements. Poor outside operating conditions will occur on the quarry roads and within the quarry itself that will hinder the ability to mine and process material. However, the storm drain conveyance structures and creek crossings are designed to convey the 100-year storm event.

The drainage analysis is based on the Santa Clara County Drainage Manual 2007. The drainage manual requires a channel to be designed to safely convey a 10-year storm event with one foot of freeboard from HGL to the lowest adjacent bank. However, the manual also states flows up to the 100-year event exceeding the 10-year event shall be conveyed in streets provided that development is not subject to flooding. Since the Tar Creek bridge would be flooded and the quarry inaccessible the 100-year storm event was designed to convey the stormwater under the bridge.

The Unit Hydrograph Method was used to estimate peak discharges. WIN TR-55 software developed by Natural Resources Conservation Service (NRCS) was used to determine the runoff rates based on the SCS Curve Numbers.

Latest HEC-RAS version 5.0.7 software is used to model the flows in Tar Creek and Sargent Creek. Cross-sections of the creeks are imported from AutoCAD Civil 3D.

Facility sizing is performed using AutoCAD Hydroflow Express Extension, which utilizes Manning's Equation. All hydrologic calculations are included in Appendix B and facility sizing are included in Appendix C.

3. Hydrologic Analysis

Hydrologic analysis is included Sargent Creek and Tar Creek in the vicinity of the site and various location where other smaller drainage areas contribute flows that enter the proposed site. Major areas of concern include the following:

- Sargent Creek access road crossing just north of Pits #3 and #4
- Tar Creek flood limits at the plant site
- Drainage tributary to Pit #1
- Drainage tributary to Pit #3

3.1 Watershed Areas

All of the property that is subject to quarry activity is part of the Uvas-Llagas watershed, which is part of the larger Pajaro River Watershed. The USGS 7.5-minute maps and Aerial Survey were used to determine the tributary watershed areas for the site. Tributary areas to Sargent and Tar Creeks are also divided into smaller subareas, as shown in the Figures in Appendix A and summarized in Table 1 below.

Table 1 – Watershed Areas

Sub-Area	Acres
Sargent Creek (Figure 2A)	
Area SC 1	104 ac
Area SC 2	281 ac
Area SC 3	503 ac
Total Tributary Area	888 ac
Tar Creek (Figure 3A)	
Area TC 1	53 ac
Area TC 2	284 ac
Area TC 3	859 ac
Area TC 4	696 ac
Area TC 5	487 ac
Area TC 6	499 ac
Area TC 7	1065 ac
Area TC 8	235 ac
Total Tributary Area	4,178 ac
Pit #1 Drainage (Figure 4)	
Area C1	43 ac
Pit #3 Drainage (Figure 5)	
Area S1	75 ac

3.2 Land Use and SCS Curve Number

The land use designation was determined by inspection of aerial imagery. All of the watershed areas include Agricultural Rangeland. The deep drainages are densely covered by riparian shrubs and trees. Areas above the top of bank are covered by low brush and grassland.

Web Soil Survey site at http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm was used to determine hydrologic soil type for each sub-areas. Refer to Appendix D for Soils Maps and descriptions. Most of the soils within the watershed areas are Type C and D. Combined with the land use, a weighted SCS Curve Number was calculated for each watershed. Summary of the calculations are tabulated in Table 2 below.

3.3 Time of Concentration, Tc

Time of concentration, Tc, for each sub-area was calculated as the travel time from the upstream most point in the tributary area. The SCS Travel Method utilizing TR-55 software was used to determine the Tc. First, the time of the sheet flow was determined from the most upstream end of the watershed, not exceeding 100 feet in length, followed by shallow concentrated flow calculations, and finally channelized flow (if applicable) to reach the point of concentration. There is an existing cattle pond upstream along Sargent Creek, above Pits #3 and #4, as shown in 2B, Appendix A. Tc for Sargent Creek was determined based on the assumption that this existing pond was full and no additional time of concentration was added as an El Niño type wet winter has a greater possibility of a 100-year event which could conservatively also have enough rain prior to the event to have filled the impoundment. All calculations are attached in Appendix B.

Table 2 – Weighted SCS CN and Tc

Sub-Area	CN	Ti	Tc
Sargent Creek (Figure 2A)			
Area SC 1	72	11 min	11 min
Area SC 2	69	12 min	24 min
Area SC 3	71	14 min	38 min
Tar Creek (Figure 3A)			
Area TC 1	71	66 min	66 min
Area TC 2	71	10 min	76 min
Area TC 3	58	26 min	102 min
Area TC 4	73	18 min	120 min
Area TC 5	73	16 min	136 min
Area TC 6	72	27 min	163 min
Area TC 7	61	37 min	200 min
Area TC 8	71	48 min	248 min
Pit #1 Drainage (Figure 4)			
Area C1	71	21 min	21 min
Pit #3 Drainage (Figure 5)			
Area S1	73	14 min	14 min

3.4 Rainfall Intensity

The rainfall precipitation data for the 100-year storm event was determined from the Santa Clara County Mean Annual Precipitation (MAP) Isohyets Map, Figure A-2 and Intensity-Duration-Frequency Curves (IDF), Figure B-6 (attached in Appendix D). IDF curves for 25-inches MAP value was selected at the watershed's centroid. The SCS Type I-unit hydrograph distribution was used for generating the runoff hydrographs. 100-year storm event with the 24-hour storm duration generates 6.96 in of rainfall.

3.5 Hydrologic Results (Runoff Rates)

Summary of the runoff rates calculations and watershed parameters are shown below:

Table 3 – Summary of Existing Runoff Rates and Parameters

Watershed	Acres	SCS CN	Tc	I_{100}	**Q_{100} (cumulative)**
Sargent Creek (Figure 2A)					
Area SC 1	104 ac	72	11 min	6.96 in	**265 cfs**
Area SC 2	281 ac	69	24 min	6.96 in	**767 cfs**
Area SC 3	503 ac	71	38 min	6.96 in	**1914 cfs**
Total Tributary Area	888 ac				**Outlet 1914 cfs**
Tar Creek (Figure 3A)					
Area TC 1	53 ac	71	66 min	6.96 in	**57 cfs**
Area TC 2	284 ac	71	76 min	6.96 in	**739 cfs**
Area TC 3	859 ac	58	102 min	6.96 in	**1516 cfs**
Area TC 4	696 ac	73	120 min	6.96 in	**2226 cfs**
Area TC 5	487 ac	73	136 min	6.96 in	**2985 cfs**
Area TC 6	499 ac	72	163 min	6.96 in	**3683 cfs**
Area TC 7	1065 ac	61	200 min	6.96 in	**4493 cfs**
Area TC 8	235 ac	71	248 min	6.96 in	**4711 cfs**
Total Tributary Area	4,178 ac				**Outlet 4711 cfs**
Pit #1 Drainage (Figure 4)					
Area C1	43 ac	71	21 min	6.96 in	**86 cfs**
Pit #3 Drainage (Figure 5)					
Area S1	75 ac	73	14 min	6.96 n	**186 cfs**

4. Hydraulic Analysis

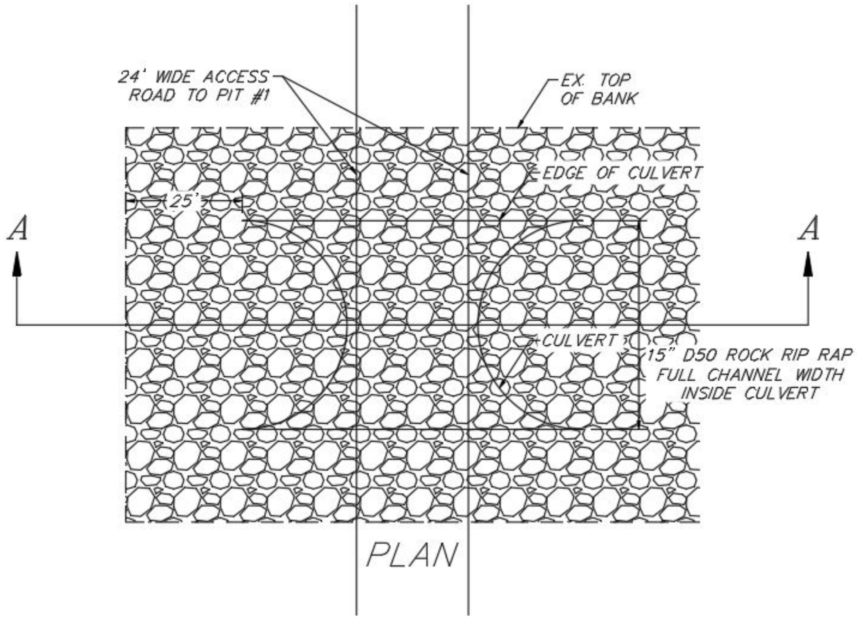
4.1 Sargent Creek Access Road Crossing

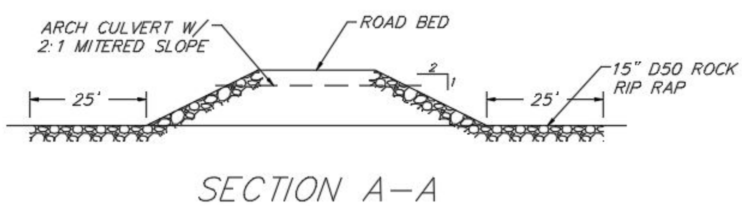
Flow in Sargent Creek is modeled using HEC-RAS version 5.0.7 software.

Sargent Creek alignment is defined from 1' aerial contours and then entered into HEC-RAS software as the main channel reach. The reach is modeled starting from the northern upstream end of the Creek, stretching approximately 11,800 ft to the south. Cross-sections are imported into HEC-RAS at 200 ft intervals for the entire length of the reach. Manning's coefficient of 0.08 was chosen as an average coefficient for the bottom and the banks of the channel. The coefficient was determined from Table F-1 of the drainage manual for open channels with unmaintained vegetation as tall as flow depth. Since most of the floodplain consists of tall grass and shrubs n-value of 0.08 was assumed. Refer to Figure 2B, Appendix A for the HEC-RAS schematic of Sargent Creek in the vicinity of the access road.

An arch culvert crossing is proposed at HEC-RAS station 3860. The culvert is designed to convey the flow for the 100-year intensity storm with free board equal to 1/3 of the culvert rise. The culvert will span the creek bed leaving the channel bottom undisturbed to convey flows in a more natural manner than a fully closed conduit. Based on the Hydrologic Analysis, the existing 100-year flow in Sargent Creek at that location is 265 cfs. The velocity under existing (no crossing) conditions is calculated as 6.0 ft/s. As seen from the calculation in Appendix C, a low-profile culvert with 35' span and 11' rise is adequate to convey the 100-year flows. The culvert increases the velocity in the channel to 8.2 cfs during the 100-year event. The slopes and the inside edge of the culvert will be armored with rip-rap to mitigate potential scouring from the higher creek velocities at the culvert during the 100-year event.

The outfall velocity of 8.2 fps will be reduced to normal flow velocity of 6 fps a short distance and will only affect a very small portion of the stream channel due to the length of the culvert being only 66 feet of the stream channel's total length of 12,000 feet before it leaves the site and enters the Pajaro River. The culvert will not significantly affect scour during storm events of lesser intensity than the 100 yr event analyzed either. The limits of rip-rap are shown on the detail on the next page:





4.2 Tar Creek Flood Limits

The 100-year flow in Tar Creek was also modeled using HEC-RAS version 5.0.7 software. Tar Creek alignment is defined from aerial contours and then entered into HEC-RAS software as the main channel reach. The reach is modeled starting approximately 8400' northwest of the plant site and ending at the Creek crossing with Hwy 101. Cross-sections are imported into HEC-RAS at 200 ft intervals for the majority of the reach. In the vicinity of the plant site, the intervals are entered every 100 ft for more accurate analysis at that location. Manning's coefficient of 0.08 was also chosen for the bottom and the banks of the channel based on similar vegetation density as the

Sargent Creek floodway. Refer to Figure 3B, Appendix A for the HEC-RAS schematic of Tar Creek in the vicinity of the site plant.

The plant site is located just north of the downstream terminus of Tar Creek affecting stations 800 to 400. The existing flow in the Creek at that location is 4,711 cfs during the storm of 100-year intensity. The existing velocities vary from 2.5 to 3.6 ft/s with floodplain widths ranging from 800' to 500'. The 100-year calculated flood limits of Tar Creek extend approximately 350' south into the plant site, as shown in Figure 3B, Appendix A. The existing 100-year water surface elevations at the site vary from 162.7 ft to 158.9 ft flowing approximately 2-3 feet deep at the northern edge of the plan site.

To mitigate the flood limits from encroaching into the plant site, a 5' high berm is proposed along the northern boundary of the plant, from HEC RAS station 1000 to 350. Another 4' high berm is proposed on the north side of Tar Creek to channel the flows under a 5-foot long, 70'-wide bridge and bring the plant access road above the flood plain. The proposed berms will be armored against scour with rip-rap.

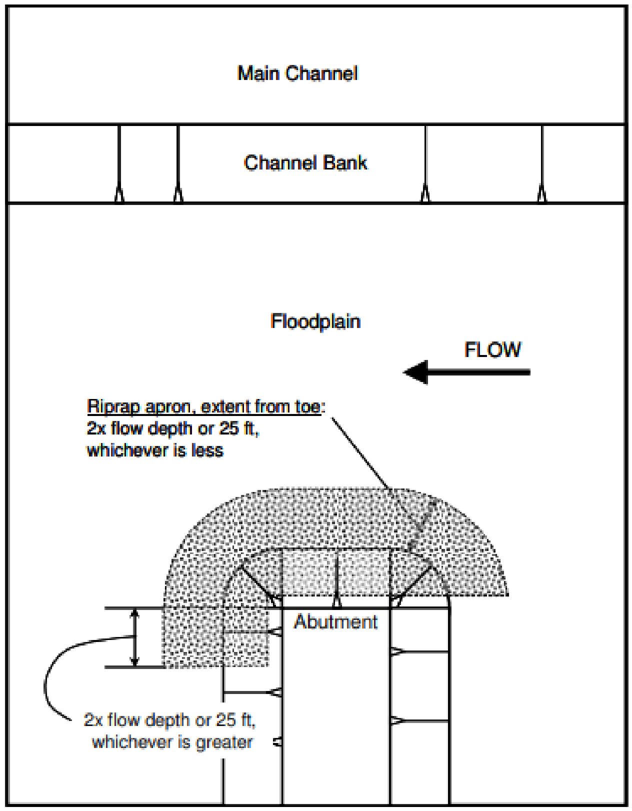
HEC RAS modeling determined that with the berms, the velocities decrease by approximately 0.5-1.0 feet per second upstream of the bridge and the water surface elevation rises by about 0.8-1.0 feet for 300 feet upstream of the bridge. The bridge is designed to convey the 100-year flood flow with 0.7 feet of free board. Since the drainage manual states the 10-year event must be conveyed with one foot of freeboard the 0.7 feet of freeboard for the 100-year event is adequate. In the vicinity of the plant site, the water surface elevation rises by approximately 0.2-1.1 feet and the velocities increase by 0.3-1.9 feet per second. The depth of flow along the berm protecting the plant site will be 3 feet leaving approximately 2 feet to the top of the berm.

The proposed quarry improvements affect the flood limits of Tar Creek only in the vicinity of the plant. Three hundred (300) feet upstream of the plant, the post-development 100-year water surface elevation is 0.6 ft higher than the existing and 700 feet upstream the proposed and existing water surface elevation are identical. There are no developed structures upstream of the plant. The proposed and existing velocities and water surface elevation are also identical at the downstream limit of the plant (HEC RAS Station 300) before Tar Creek reaches the existing culvert under railroad track and Hwy 101.

The bridge will create a backwater during storm events exceeding a 5-year event. This will cause a similar condition where scour is reduced upstream due to the reduced velocity in the upstream of the bridge. Due to the rip-rap placement along the berm protecting the quarry processing plant site the scour will also be reduced through this section of the creek when a storm event a 5-year event occurs. The storm events below a 5 yr event will pass within the bridge span and stay in the creek bed without a change in scour between existing and proposed conditions.

4.2.1 Tar Creek Bridge Scour

A scour analysis for the proposed bridge abutments and piers was performed to determine the necessary rip-rap reinforcement. The scour analysis and rip-rap sizing are based on the Federal Highway Administration Bridge Scour Analysis, HIRE equation. Contraction, pier and abutment scour is analyzed to determine a total scour of 5 feet in depth at the bridge piers and 18-20 feet at the bridge abutments. Based on the calculations in Appendix D, the minimum size rip-rap reinforcement for the bridge piers is 7-inch rock size with the thickness of 2 feet. However, 12-inch rip rap will be used as it is a readily available project from a rock quarry. The extent of the pier rip-rap shall be 6 feet around the perimeter of each pier, based on the pier width of 3 feet. Rip-rap reinforcement for the bridge abutments shall consist of 12-inch rock size placed at a thickness of 1.2 feet and extending 7.6 feet horizontally, 6 feet vertically, and 25 feet downstream of the abutments, as shown below:



4.2.2 Tar Creek Sediment Transport and Water Quality

Sediment transport analysis was performed for Tar Creek to determine the effect of the development on the water quality at the downstream end of the creek before the outfall to Pajaro River. The analysis is based on the Federal Highway Administration publications, utilizing Kodoate Method, Power Function Relationship. This method is applicable to the small particle transport analysis, such as silt and fine sand. Based on the Web Soil Survey, most of Tar Creek's surficial soil is loam clay and thus, Kodoate Method is a conservative approach to sediment transport. Refer to Appendix D for the sediment transport calculations.

Sediment transport is calculated in tons per day upstream and downstream of the proposed bridge where the bridge and plant site berm affect the width and depth of the floodway. The post- and pre-development values are compared based on the average velocities, depth of flow, and width of the floodplain. As shown below and in Appendix D, the sediment transported by the floodway upstream of the bridge is decreased for the post-development conditions due to a decrease in velocities caused by the bridge constricting the floodway. Sediment transport is also decreased downstream of the bridge at the plant site due to the decrease in the width of the flood plain that reduces the scour surface area of the floodplain. By armoring the berms and bridge piers against scour, the sediment loading at those locations is mitigated providing an additional reduction in floodway surface area from scour and sediment transport.

	Proposed		**Existing**	
	Upstream of Bridge	**Downstream of Bridge**	**Upstream of Bridge**	**Downstream of Bridge**
Average Width Floodplain (ft)	222	412	213	610
Average Depth of flow (ft)	11.7	11.0	11.7	10.7
Average Velocity (ft/s)	6.3	4.2	6.5	3.7
q_s (ton/ft/day)	671	222	707	158
Qs (ton/day)	148,787	91,355	150,261	96,444
Total Qs (ton/day)	**240,000**		**247,000**	

4.3 Drainage at Pit #1

Pit #1 is located west of the plant site and will be excavated during Phases 1 and 2 of the mining project. There is a significant drainage that will be disturbed during the Pit #1 excavation. Based on the Hydrologic Analysis, this drainage contributes 86 cfs during the storm of 100-year intensity. The concentrated flow is proposed to be conveyed via a 36" culvert located between Pit #1 and Overburden Stockpile, as shown in Figure 4, Appendix A. The culvert will extend further southeast under the access road and outlet at the natural drainage depression, as in historic conditions. The flow through the culvert is inlet controlled, the velocity in the culvert is 12.4 ft/s. Refer to Appendix C for culvert sizing. Due to the velocity at the outlet, 18-inch rock in a layer 2 feet thick will be placed for 25-feet downstream of the outlet. The rock will protrude above the flowline of the channel to dissipate the flow and reduce velocity in the outflow. The length of rip-rap is similar to the requirement for the Sargent Cr culvert based on the HEC-23 Circular recommendation that the minimum length of the rip-rap be 25 feet or 2X depth of flow. The depth of flow is 3 feet in the culvert.

4.4 Drainage at Pit #3

Pit #3 is located at the southern portion of the mining site. A drainage area totaling 75 ac is tributary to the northwest portion of Pit #3. The calculated 100 yr flow is 186 cfs. This flow will be diverted into a 12' wide, 2' deep swale running along several benches on the northern side of Pit #3. The ditch will be constructed when it is necessary to intercept the drainage course at Pit #3. The pit will be excavated from the top of the westerly ridge down to the branch where the swale will be constructed at an elevation of 300 feet. Refer to Figure 5, Appendix A for swale location. The proposed swale will outlet into an existing natural drainage swale on the east side of the Pit. The flow will continue under the access road via 3-36" culverts and outlet into Sargent Creek just upstream of the existing drainage swale outfall into Sargent Creek. The outfall doesn't modify flow conditions in Sargent Creek from existing conditions. Refer to Appendix C for swale and culverts sizing. The length of rip-rap is similar to the requirement for the Sargent Cr culvert based on the HEC-23 Circular recommendation that the minimum length of the rip-rap be 25 feet or 2X depth of flow. The depth of flow is 3 feet in the culvert.

Appendix A – Drainage Exhibits

NOT TO SCALE

DATE:
08/31/2016

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 1A – REGIONAL LOCATION

triad/holmes assoc
civil engineering
land surveying

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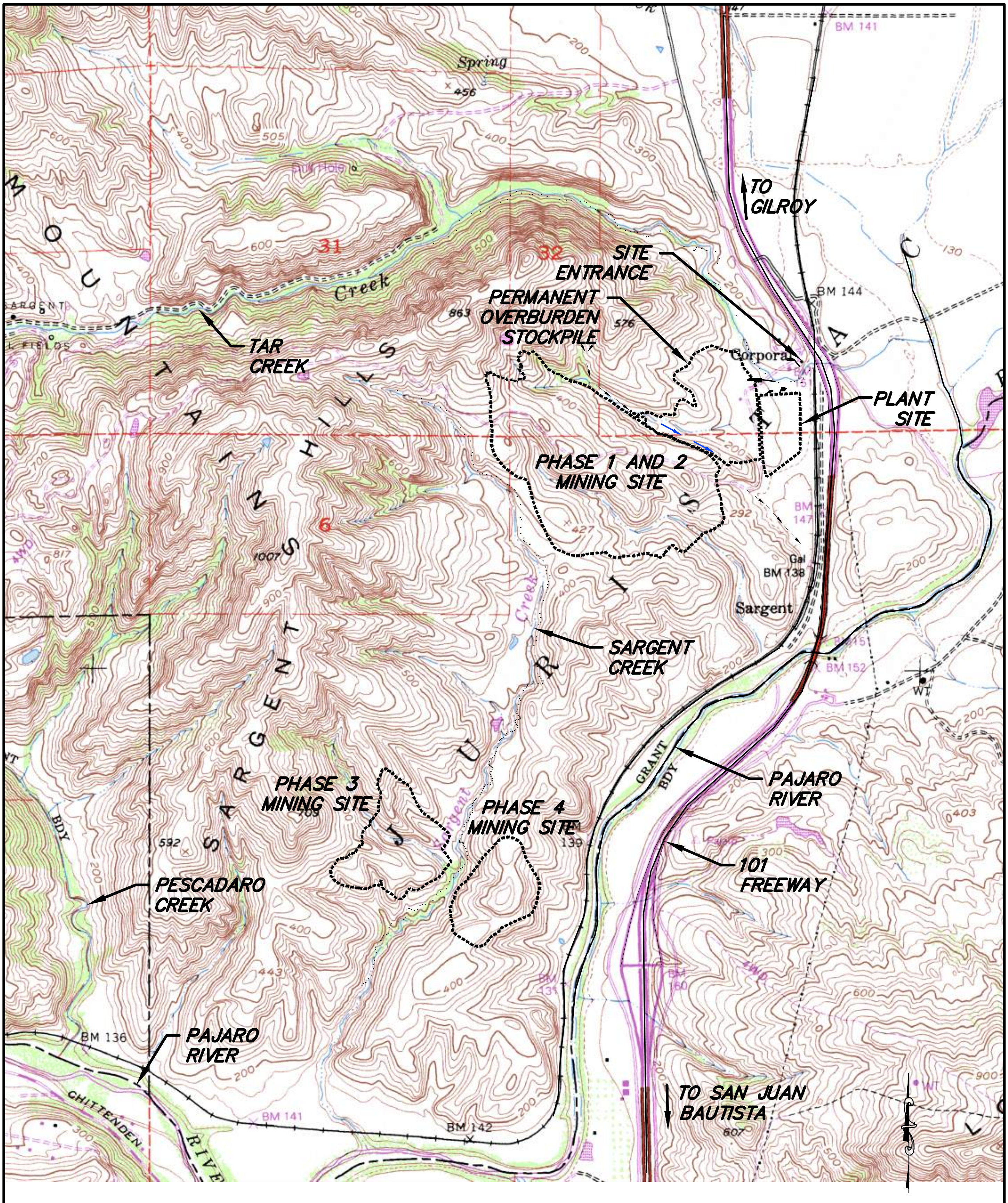

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SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 1B – SITE LOCATION

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civil engineering
land surveying

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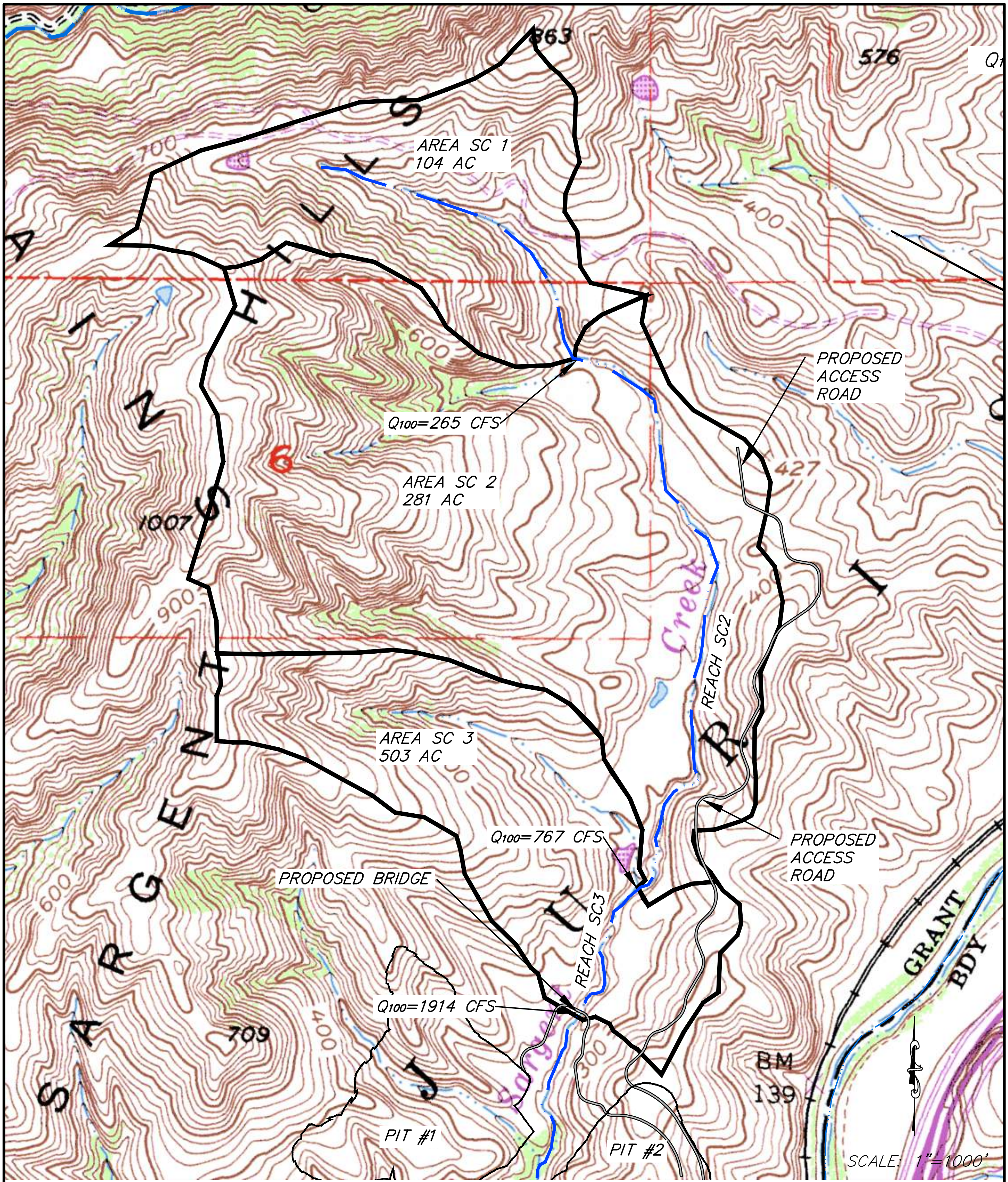

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SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 2A – SARGENT CREEK TRIBUTARY AREAS

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civil engineering
land surveying

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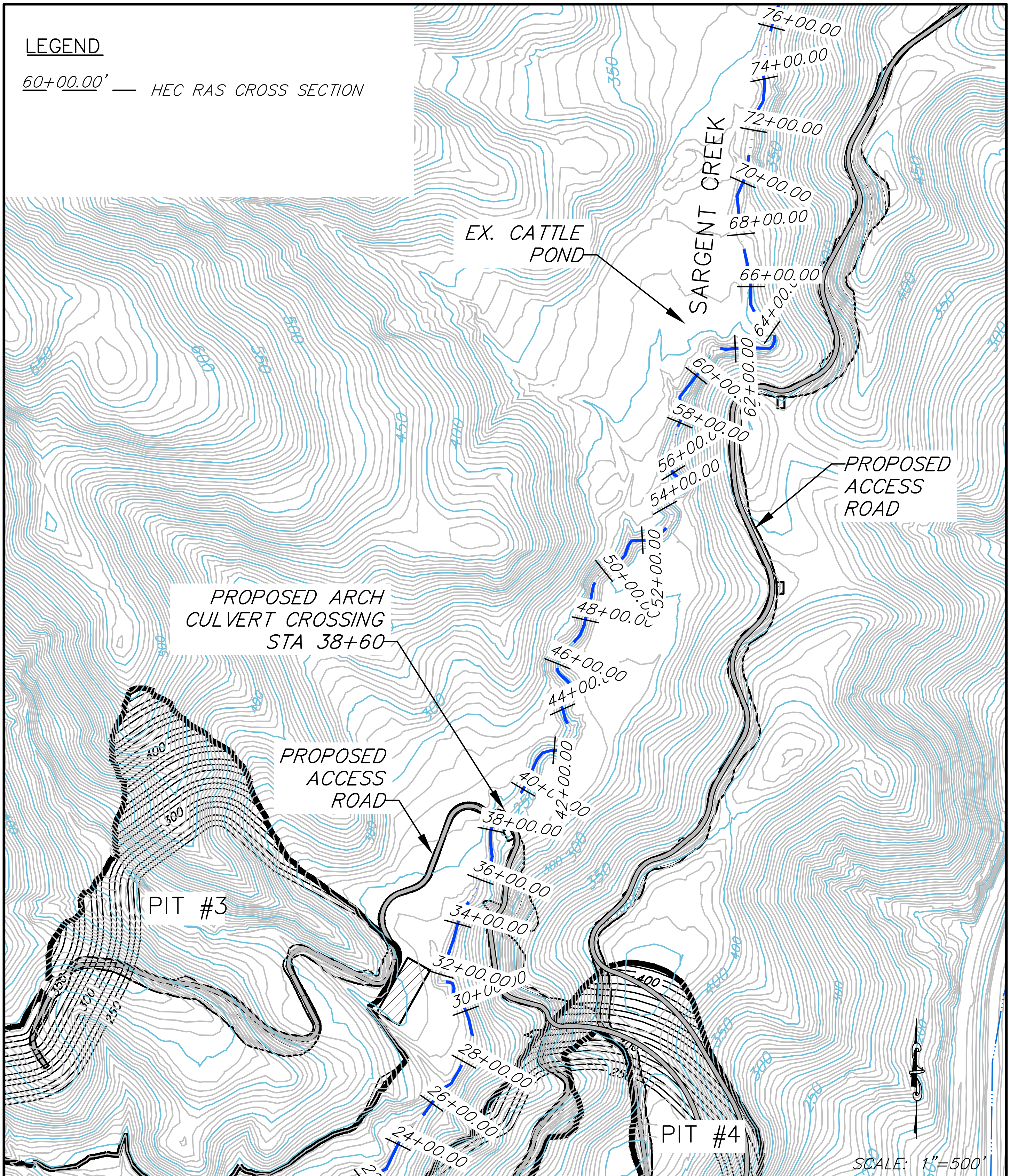

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12/21/2020

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 2B – SARGENT CREEK HEC RAS MODELING

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civil engineering
land surveying

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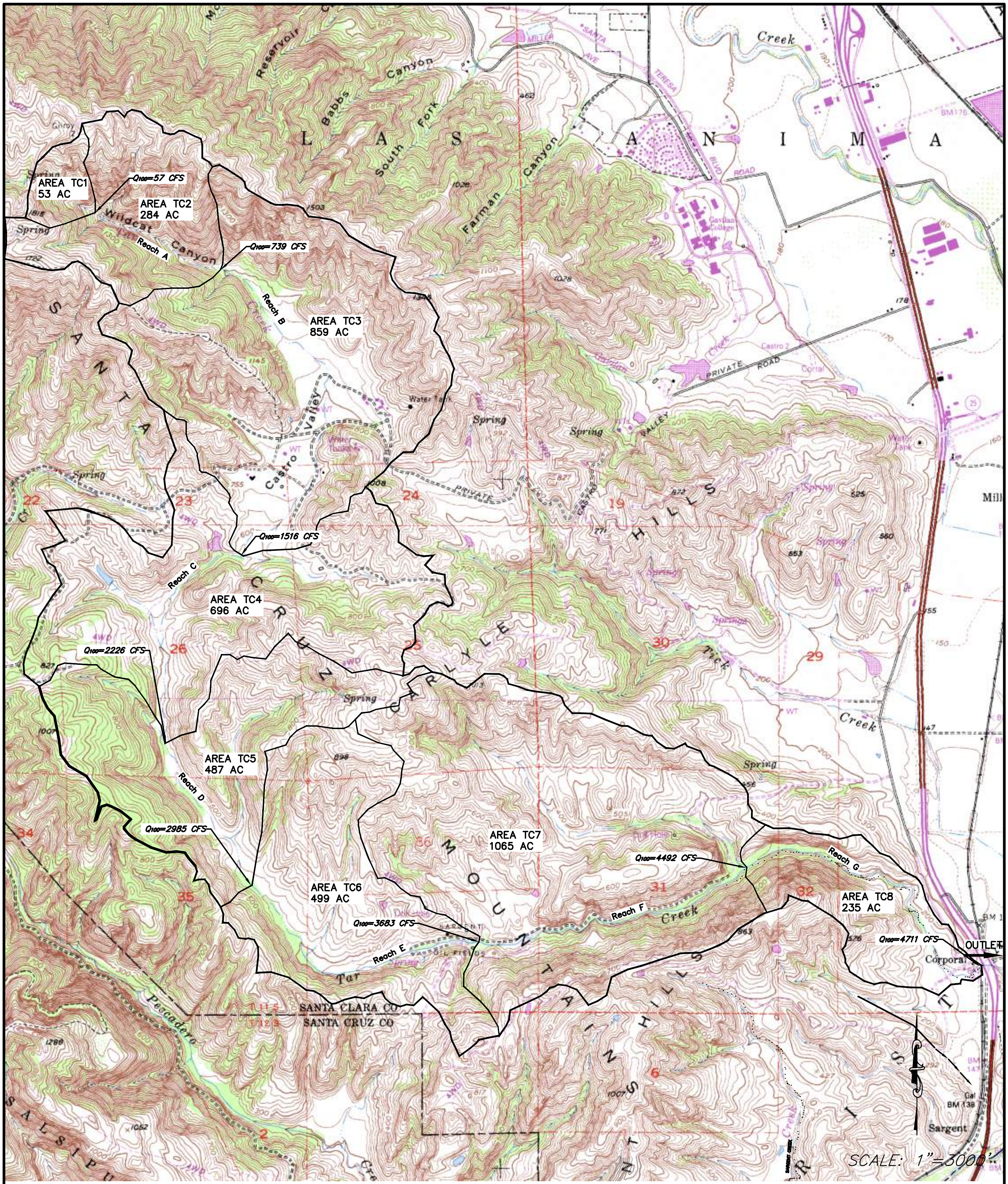

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08/31/2016

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 3A – TAR CREEK WATERSHED

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civil engineering
land surveying

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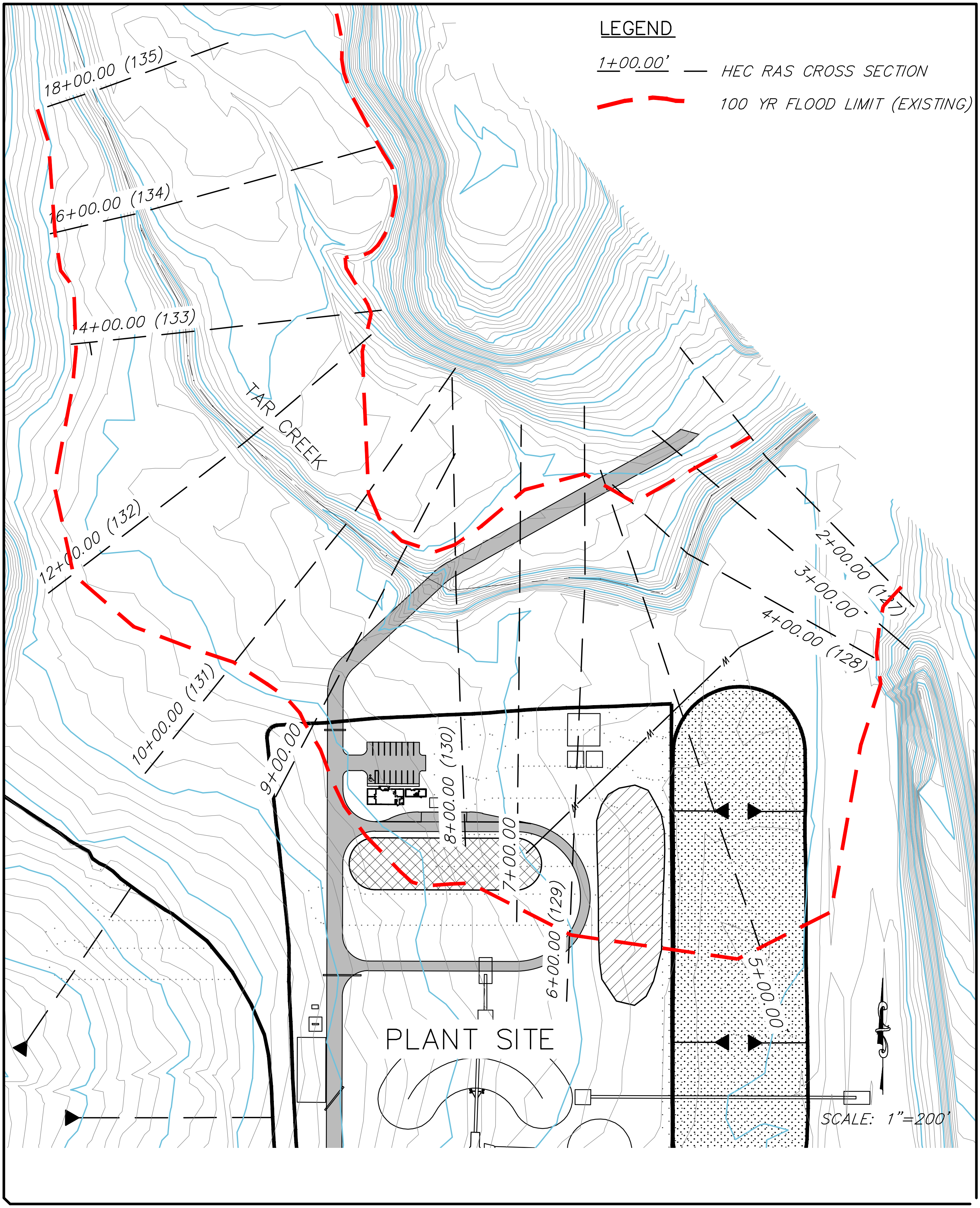

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08/31/2016

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 3B – TAR CREEK EXISTING FLOOD LIMITS

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civil engineering
land surveying

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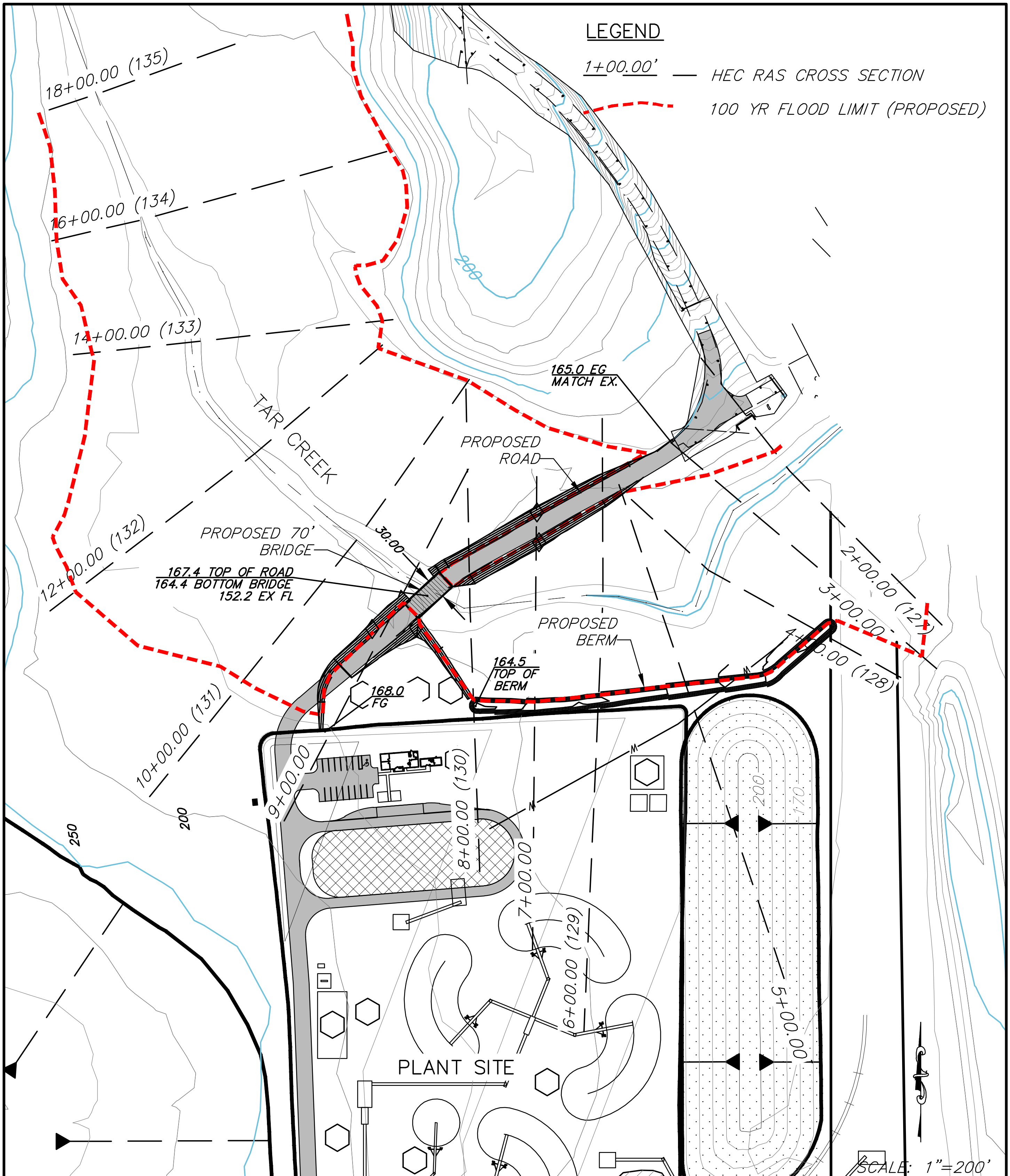

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SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 3C – TAR CREEK PROPOSED CONDITIONS

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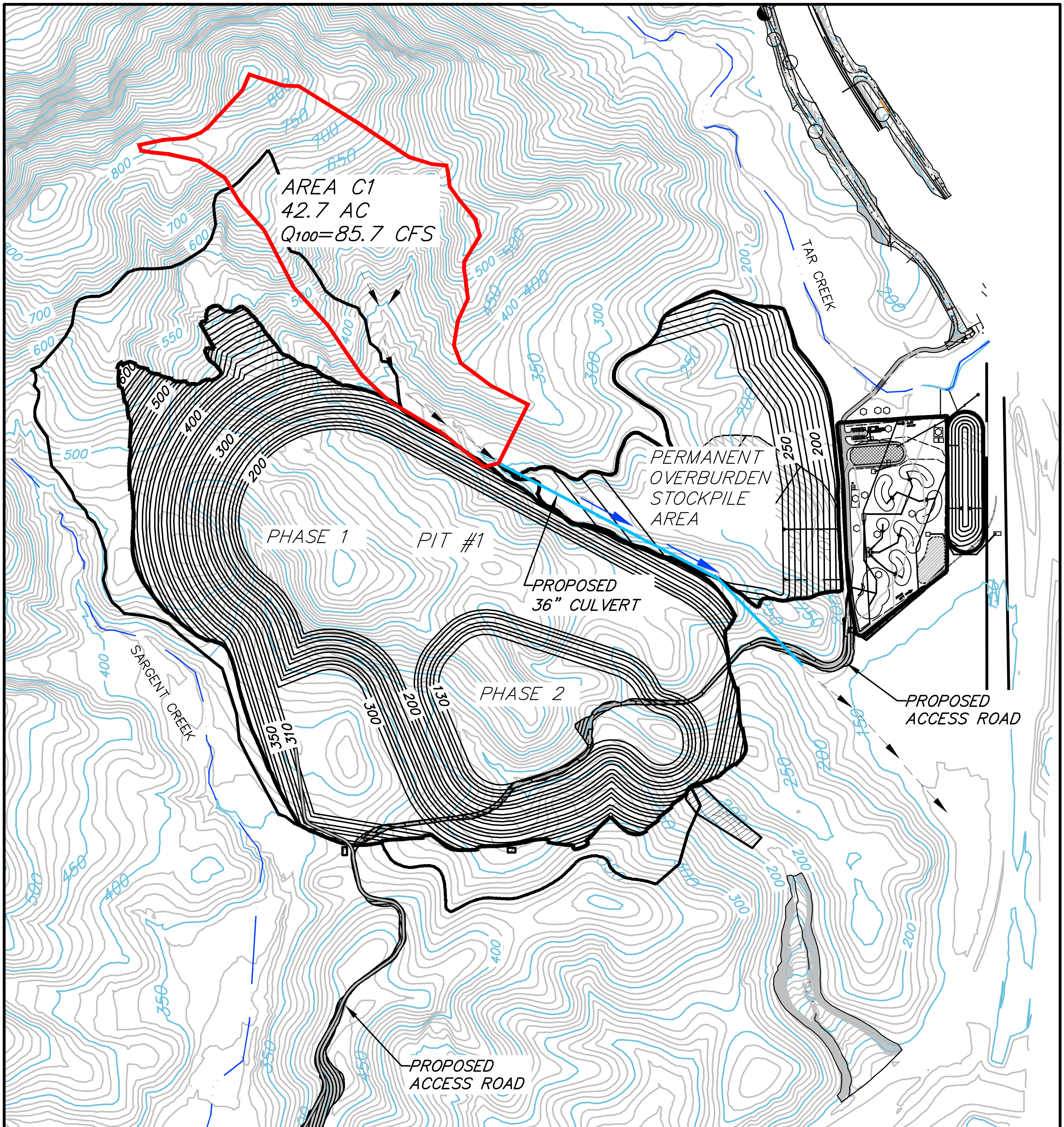


LEGEND

DRAINAGE BOUNDARY

EXISTING FLOW DIRECTION

PROPOSED FLOW DIRECTION

SCALE: 1"=800'

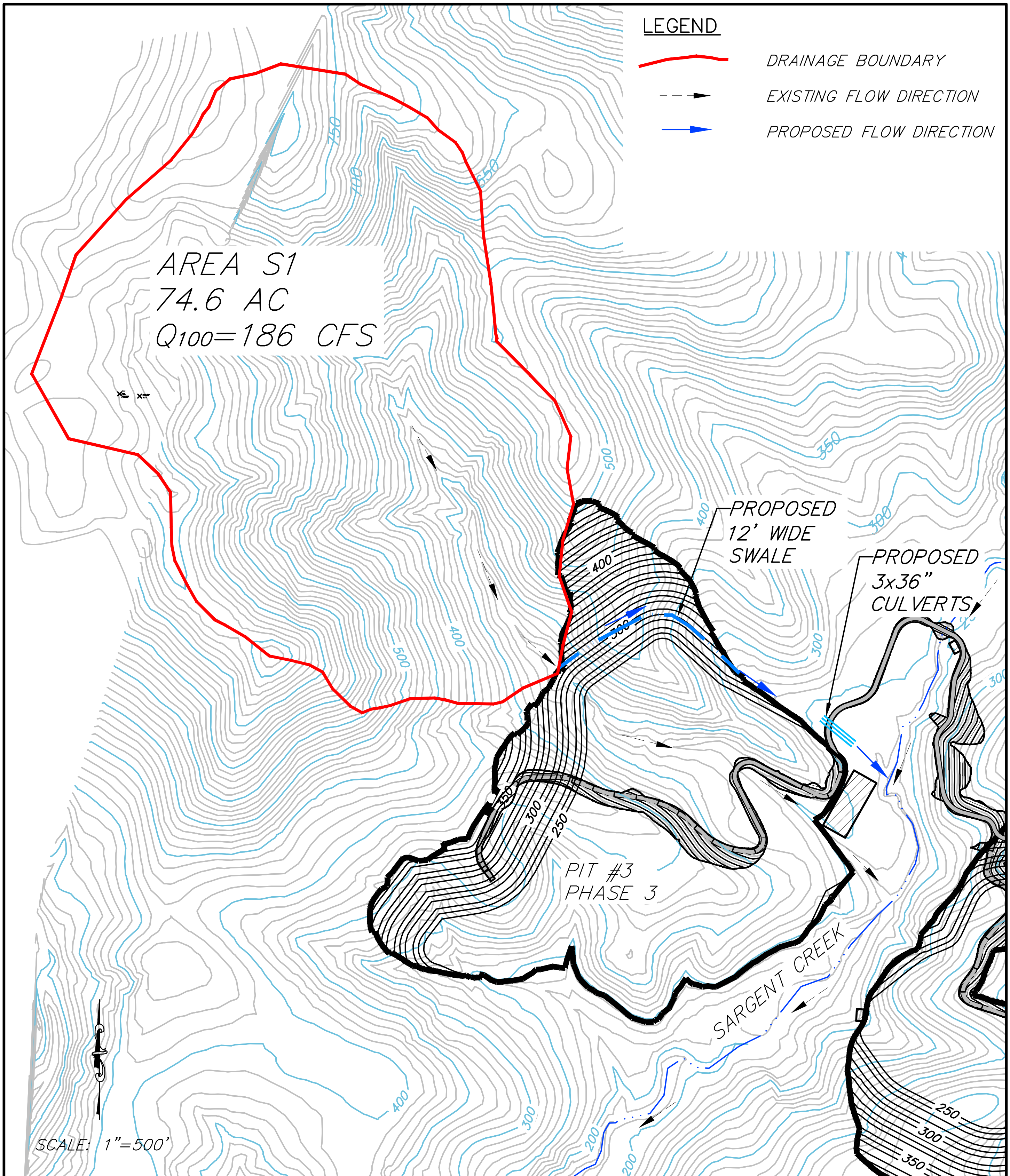
DATE:
12/21/2020

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 4 – CULVERT AT PIT #1

triad/holmes assoc
civil engineering
land surveying

Z:\01 Mammoth\4020 Sargent Ranch\acad\Drainage SWPPP\4020 Drainage.dwg Dec 21,2020 – 2:43pm, Triad



DATE:
12/21/2020

SARGENT RANCH, SANTA CLARA COUNTY

DRAINAGE STUDY
FIGURE 5 – SWALE AT PIT #3

triad/holmes assoc
civil engineering
land surveying

Z:\01 Mammoth\4020 Sargent Ranch\acad\Drainage SWPPP\4020 Drainage.dwg Dec 21,2020 – 2:46pm, Triad

Appendix B – Hydrologic Calculations

WinTR-55 Current Data Description

--- Identification Data ---

User:	mfrench	Date:	8/29/2016
Project:	Culvert Pit 3	Units:	English
SubTitle:		Areal Units:	Acres
State:	California		
County:	Santa Clara		

Filename: K:\01 Mammoth\4020 Sargent Ranch\documents\drainage study\calcs\Culvert.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Area C1		Outlet	42.7	71	.349

Total area: 42.70 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 100-Yr (cfs)
SUBAREAS	
Area C1	85.67
REACHES	
OUTLET	85.67

Santa Clara County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 100-Yr (cfs) (hr)
SUBAREAS	
Area C1	85.67 10.11
REACHES	
OUTLET	85.67

Santa Clara County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Area C1	42.70	0.349	71	Outlet	

Total Area: 42.70 (ac)

Santa Clara County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Area C1							
SHEET	100	0.0590	0.240				0.159
SHALLOW	2920	0.0700	0.050				0.190
						Time of Concentration	.349
							========

Santa Clara County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Area C1	Pinyon - juniper	(good)	D	42.7	71
	Total Area / Weighted Curve Number			42.7 ====	71 ==

WinTR-55 Current Data Description

--- Identification Data ---

User: mfrench
Project: Sargent Creek Crossing
SubTitle:
State: California
County: Santa Clara
Filename: K:\01 Mammoth\4020 Sargent Ranch\documents\drainage study\calcs\Sargent Creek.w55

Date: 8/31/2016
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Area SC 1		Area SC 2	104	72	.188
Area SC 2		Area SC 3	281	69	0.207
Area SC 3		Outlet	503	71	.233

Total area: 888 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 10-Yr (cfs)	100-Yr (cfs)
SUBAREAS		
Area SC 1	120.97	264.87
Area SC 2	269.26	630.03
Area SC 3	523.55	1171.07
REACHES		
Area SC 2	120.97	264.87
Down	119.27	261.60
Area SC 3	310.78	767.08
Down	310.14	765.79
OUTLET	819.60	1913.62

mfrench Sargent Creek Crossing

Santa Clara County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)	100-Yr (cfs) (hr)
SUBAREAS		
Area SC 1	120.97	264.87
	10.01	10.00
Area SC 2	269.26	630.03
	10.02	10.01
Area SC 3	523.55	1171.07
	10.05	10.03
REACHES		
Area SC 2	120.97	264.87
	10.01	10.00
Down	119.27	261.60
	10.25	10.19
Area SC 3	310.78	767.08
	10.05	10.05
Down	310.14	765.79
	10.10	10.08
OUTLET	819.60	1913.62

Sargent Creek Crossing

Santa Clara County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Area SC 1	104.00	0.188	72	Area SC 2	
Area SC 2	281.00	0.207	69	Area SC 3	
Area SC 3	503.00	0.233	71	Outlet	

Total Area: 888 (ac)

Santa Clara County, California

Reach Summary Table

Reach Identifier	Receiving Reach Identifier	Reach Length (ft)	Routing Method
Area SC 2	Area SC 3	4499	CHANNEL
Area SC 3	Outlet	1018	CHANNEL

Santa Clara County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Area SC 1							
SHEET	100	0.1300	0.240				0.116
SHALLOW	785	0.4500	0.050				0.020
CHANNEL	3421	0.1200	0.080	350.00	73.00	18.275	0.052
					Time of Concentration		.188
Area SC 2							
SHEET	100	0.1500	0.410				0.168
SHALLOW	475	0.3900	0.050				0.013
CHANNEL	2205	0.1600	0.080	89.00	16.00	23.558	0.026
					Time of Concentration		0.207
Area SC 3							
SHEET	100	0.1600	0.410				0.164
SHALLOW	198	0.3000	0.050				0.006
CHANNEL	3225	0.1000	0.080	160.00	43.00	14.220	0.063
					Time of Concentration		.233

Santa Clara County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Area SC 1	Pinyon - juniper	(fair)	C	29	73
	Pinyon - juniper	(good)	D	75	71
	Total Area / Weighted Curve Number			104	72
				===	==
Area SC 2	Pinyon - juniper	(good)	C	54	61
	Pinyon - juniper	(good)	D	227	71
	Total Area / Weighted Curve Number			281	69
				===	==
Area SC 3	Pinyon - juniper	(good)	C	10	61
	Pinyon - juniper	(good)	D	493	71
	Total Area / Weighted Curve Number			503	71
				===	==

Reach Channel Rating Details

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
Area SC 2	4499	0.08	0.02	20	2 :1
Area SC 3	1018	0.08	0.02	50	3 :1

Reach Identifier	Stage (ft)	Flow (cfs)	End Area (sq ft)	Top Width (ft)	Friction Slope (ft/ft)
Area SC 2	0.0	0.000	0	20	0.02
	0.5	16.726	10.5	22	
	1.0	53.831	22	24	
	2.0	176.660	48	28	
	5.0	915.421	150	40	
	10.0	3538.713	400	60	
	20.0	15558.032	1200	100	
Area SC 3	0.0	0.000	0	50	0.02
	0.5	41.719	25.8	53	
	1.0	133.692	53	56	
	2.0	433.375	112	62	
	5.0	2144.743	325	80	
	10.0	7737.126	800	110	
	20.0	31069.415	2200	170	

WinTR-55 Current Data Description

--- Identification Data ---

User:	mfrench	Date:	8/29/2016
Project:	Swale at Pit 1	Units:	English
SubTitle:		Areal Units:	Acres
State:	California		
County:	Santa Clara		

Filename: K:\01 Mammoth\4020 Sargent Ranch\documents\drainage study\calcs\Swale.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Area S1		Outlet	74.6	73	0.231

Total area: 74.60 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 100-Yr (cfs)
SUBAREAS	
Area S1	186.14
REACHES	
OUTLET	186.14

Santa Clara County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 100-Yr (cfs) (hr)
SUBAREAS	
Area S1	186.14 10.03
REACHES	
OUTLET	186.14

Santa Clara County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Area S1	74.60	0.231	73	Outlet	

Total Area: 74.60 (ac)

Santa Clara County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Area S1							
SHEET	100	0.1300	0.240				0.116
SHALLOW	2500	0.1400	0.050				0.115
					Time of Concentration		0.231
							========

Santa Clara County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Area S1	Pinyon - juniper	(fair)	C	74.6	73
	Total Area / Weighted Curve Number			74.6 ====	73 ==

WinTR-55 Current Data Description

--- Identification Data ---

User:	mfrench	Date:	8/29/2016
Project:	Tar Creek Flood Limits	Units:	English
SubTitle:		Areal Units:	Acres
State:	California		
County:	Santa Clara		

Filename: K:\01 Mammoth\4020 Sargent Ranch\documents\drainage study\calcs\Tar Creek.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Area TC 1		Reach A	53	71	1.105
Area TC2		Reach B	284	71	.159
Area TC3		Reach C	859	58	.434
Area TC4		Reach D	696	73	.303
Area TC5		Reach E	487	73	.268
Area TC6		Reach F	499	72	.454
Area TC7		Reach G	1065	61	.611
Area TC8		Outlet	235	71	.802

Total area: 4178 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Santa Clara County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	4.08	4.56	5.64	6.48	6.96	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

Tar Creek Flood Limits

Santa Clara County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 100-Yr (cfs)
SUBAREAS	
Area TC 1	56.77
Area TC2	725.43
Area TC3	865.28
Area TC4	1581.43
Area TC5	1157.61
Area TC6	913.43
Area TC7	1050.72
Area TC8	303.96
REACHES	
Reach A	56.77
Down	56.63
Reach B	738.95
Down	728.07
Reach C	1515.67
Down	1506.86
Reach D	2226.09
Down	2221.44
Reach E	2984.80
Down	2955.79
Reach F	3682.53
Down	3623.98
Reach G	4492.75
Down	4455.98
OUTLET	4710.67

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 100-Yr (cfs) (hr)
SUBAREAS	
Area TC 1	56.77
	10.59
Area TC2	725.43
	9.98
Area TC3	865.28
	10.17
Area TC4	1581.43
	10.08
Area TC5	1157.61
	10.05
Area TC6	913.43
	10.15
Area TC7	1050.72
	10.28
Area TC8	303.96
	10.36
REACHES	
Reach A	56.77
	10.59
Down	56.63
	10.72
Reach B	738.95
	9.98
Down	728.07
	10.28
Reach C	1515.67
	10.25
Down	1506.86
	10.38
Reach D	2226.09
	10.14
Down	2221.44
	10.24
Reach E	2984.80
	10.16
Down	2955.79
	10.34
Reach F	3682.53
	10.30
Down	3623.98
	10.48
Reach G	4492.75
	10.46

Hydrograph Peak/Peak Time Table (continued)

```
 Sub-Area       Peak Flow and Peak Time (hr) by Rainfall Return Period
 or Reach     100-Yr
Identifier     (cfs)
            (hr)
----------------------------------------------------------------------------------
    Down     4455.98
           10.62


OUTLET       4710.67
```

Tar Creek Flood Limits

Santa Clara County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Area TC 1	53.00	1.105	71	Reach A	
Area TC2	284.00	0.159	71	Reach B	
Area TC3	859.00	0.434	58	Reach C	
Area TC4	696.00	0.303	73	Reach D	
Area TC5	487.00	0.268	73	Reach E	
Area TC6	499.00	0.454	72	Reach F	
Area TC7	1065.00	0.611	61	Reach G	
Area TC8	235.00	0.802	71	Outlet	

Total Area: 4178 (ac)

Santa Clara County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Area TC 1							
SHEET	100	0.0500	0.240				0.170
SHALLOW	32114	0.3500	0.050				0.935
				Time of Concentration			1.105
Area TC2							
SHALLOW	3071	0.1100	0.050				0.159
				Time of Concentration			.159
Area TC3							
SHALLOW	8355	0.1100	0.050				0.434
				Time of Concentration			.434
Area TC4							
CHANNEL	4905					4.500	0.303
				Time of Concentration			.303
Area TC5							
CHANNEL	3852					4.000	0.268
				Time of Concentration			.268
Area TC6							
CHANNEL	5725					3.500	0.454
				Time of Concentration			.454
Area TC7							
CHANNEL	6596					3.000	0.611
				Time of Concentration			.611
Area TC8							
CHANNEL	7220					2.500	0.802
				Time of Concentration			.802

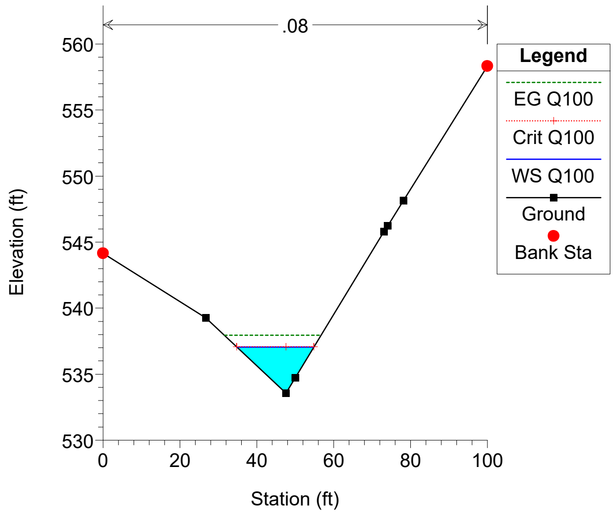
Santa Clara County, California

Sub-Area Land Use and Curve Number Details

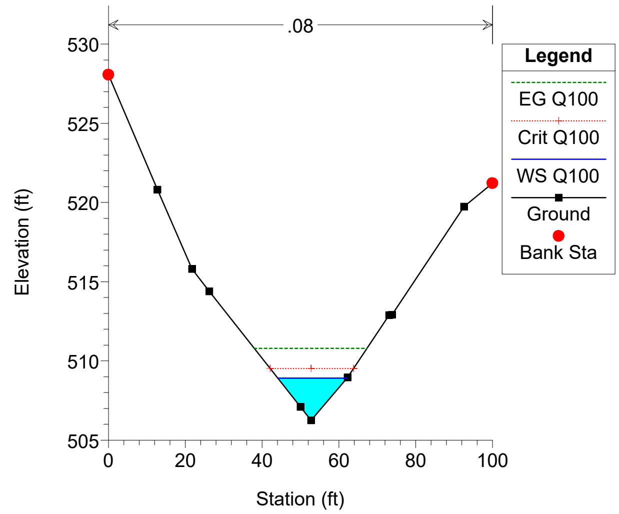
Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Area TC 1	Pinyon - juniper	(good)	D	53	71
	Total Area / Weighted Curve Number			53	71
				==	==
Area TC2	Pinyon - juniper	(good)	D	284	71
	Total Area / Weighted Curve Number			284	71
				===	==
Area TC3	Pinyon - juniper	(fair)	B	859	58
	Total Area / Weighted Curve Number			859	58
				===	==
Area TC4	Pinyon - juniper	(fair)	C	696	73
	Total Area / Weighted Curve Number			696	73
				===	==
Area TC5	Pinyon - juniper	(fair)	C	487	73
	Total Area / Weighted Curve Number			487	73
				===	==
Area TC6	Pinyon - juniper	(fair)	C	357	73
	Pinyon - juniper	(good)	D	142	71
	Total Area / Weighted Curve Number			499	72
				===	==
Area TC7	Pinyon - juniper	(fair)	B	853	58
	Pinyon - juniper	(good)	D	212	71
	Total Area / Weighted Curve Number			1065	61
				====	==
Area TC8	Pinyon - juniper	(good)	D	235	71
	Total Area / Weighted Curve Number			235	71
				===	==

Appendix C – Hydraulic Calculations

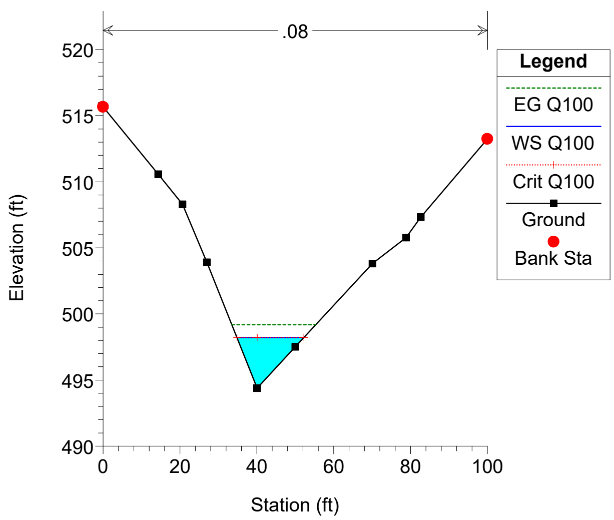
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



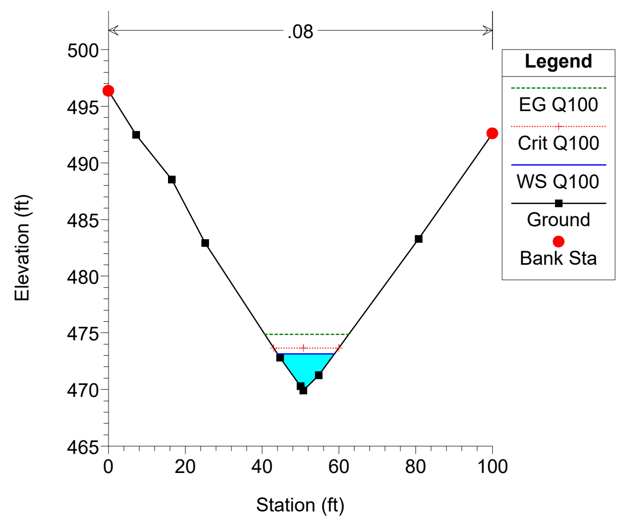
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



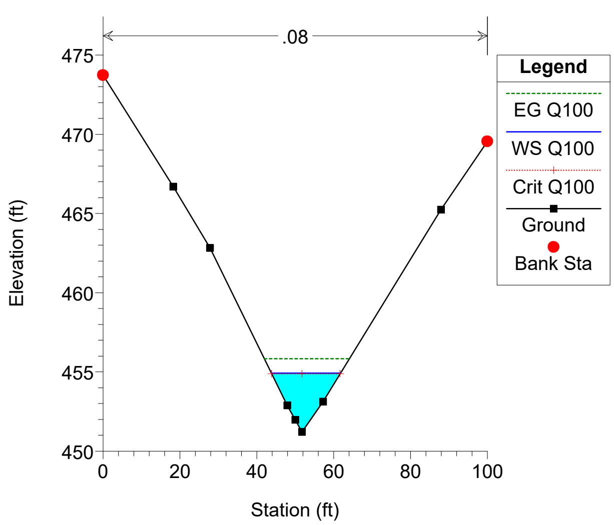
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



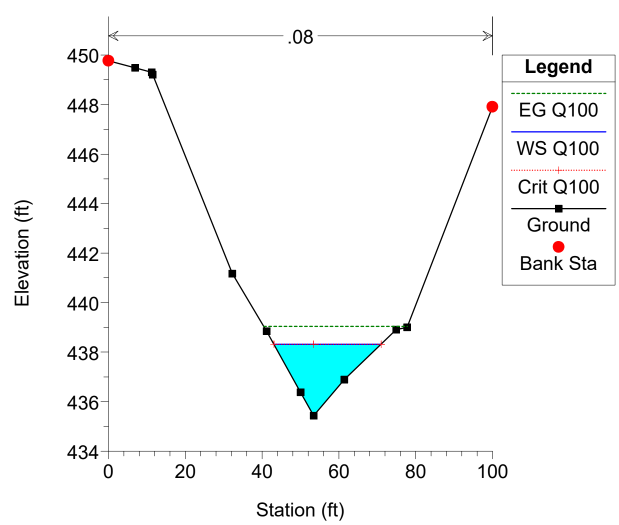
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



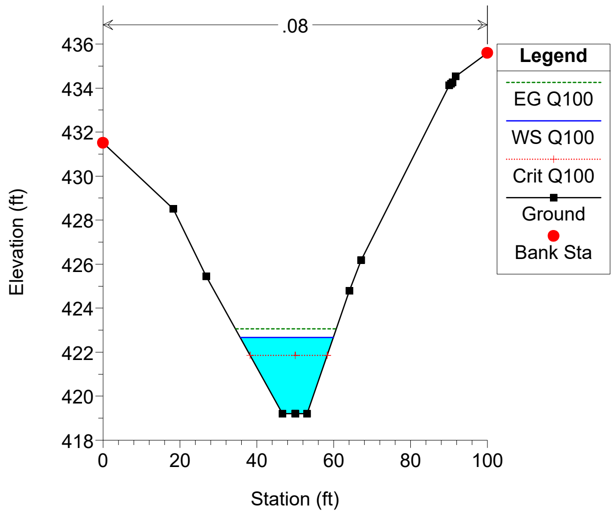
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



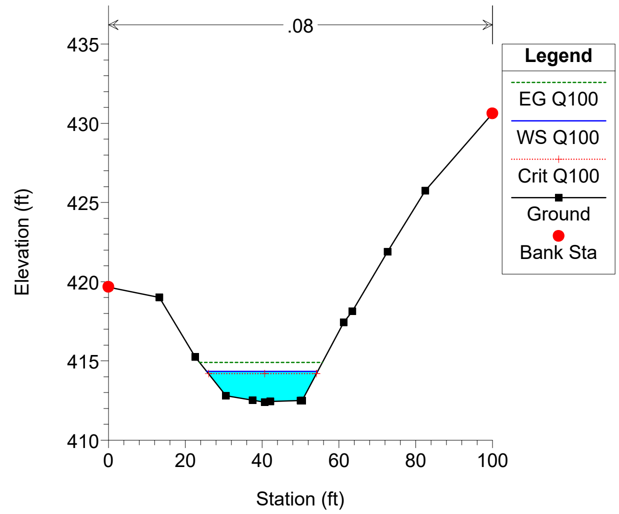
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



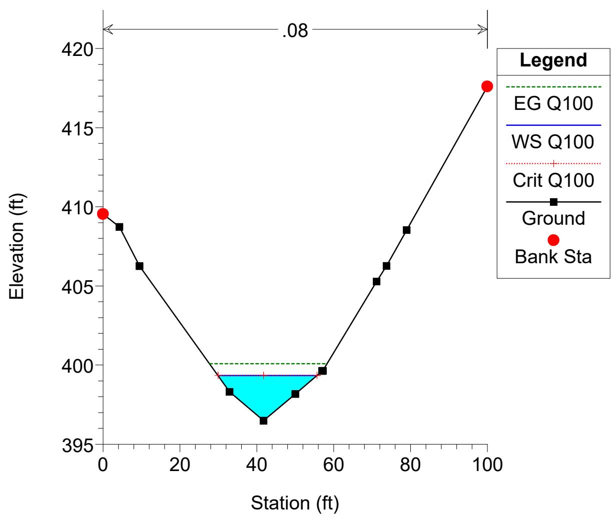
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



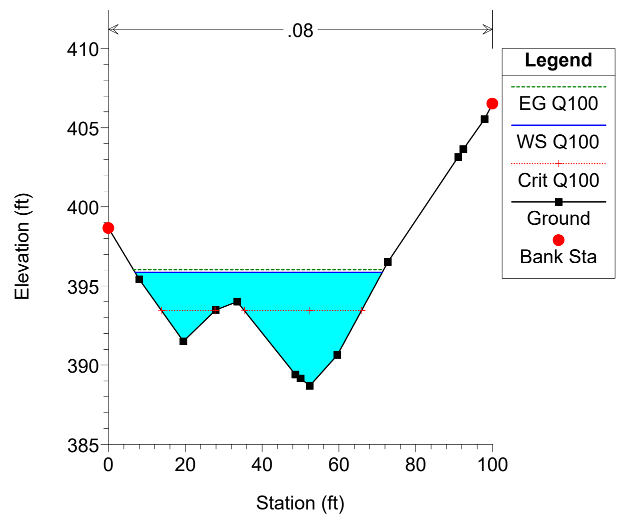
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



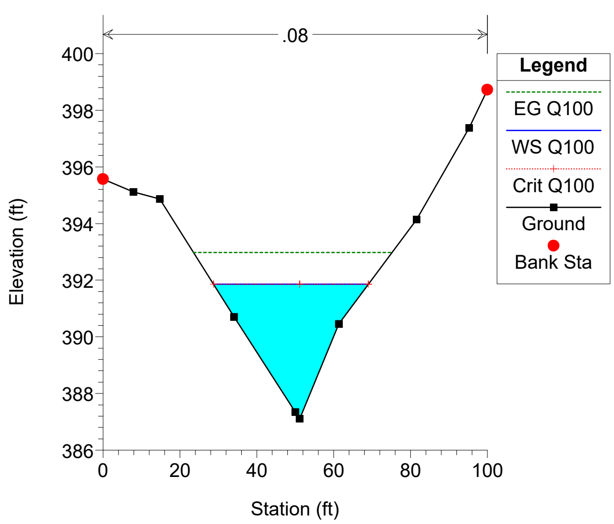
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



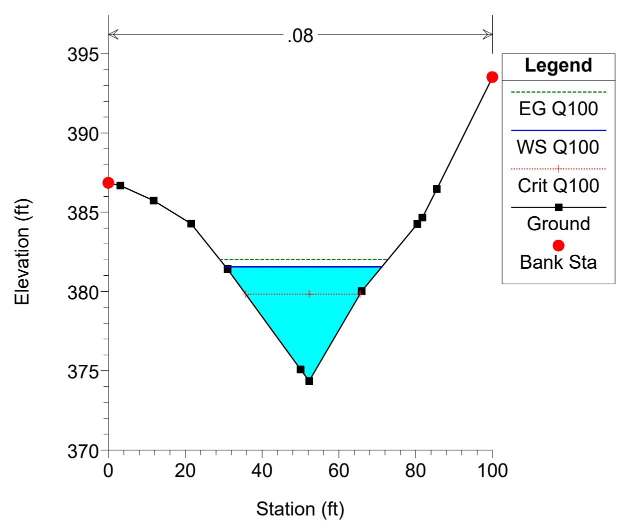
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



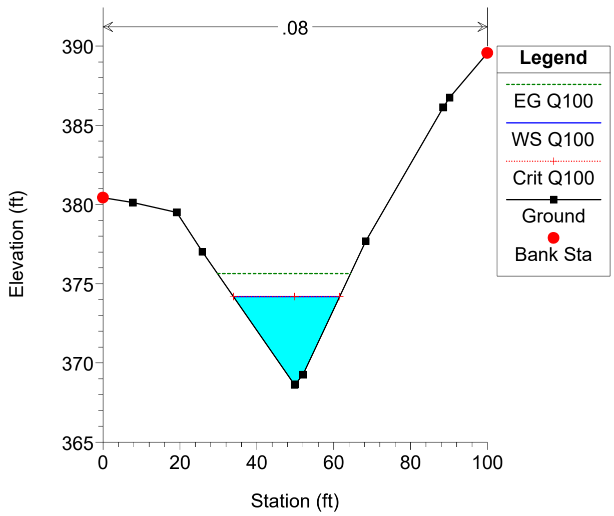
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



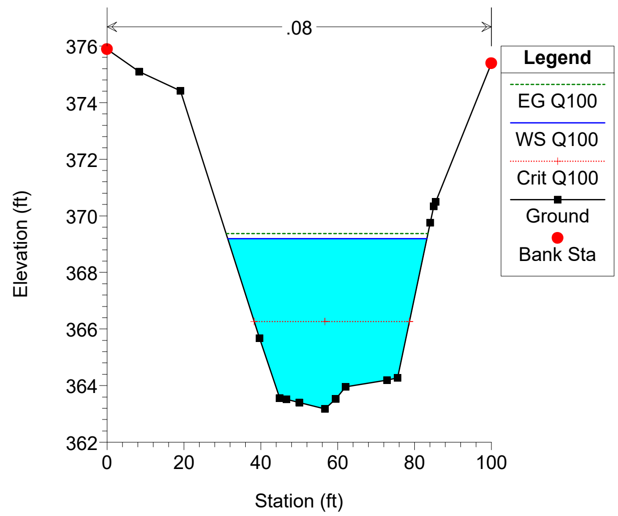
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



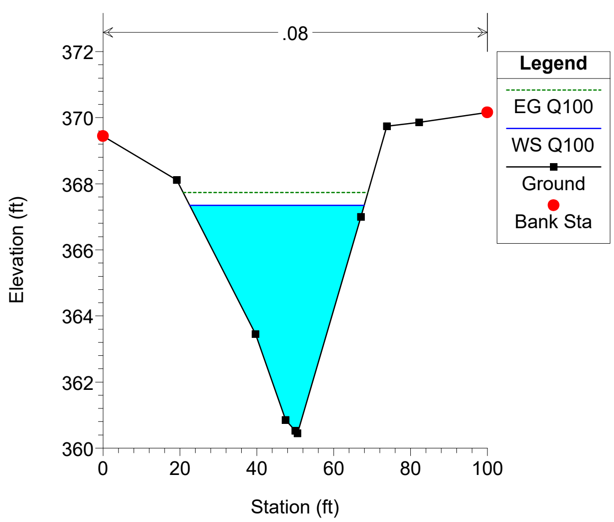
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



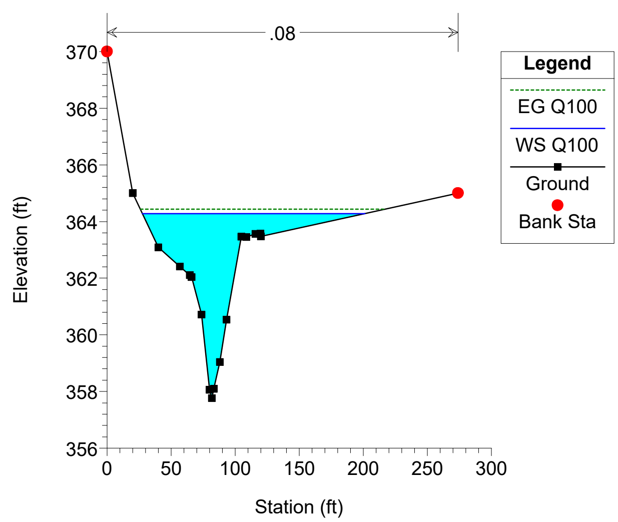
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



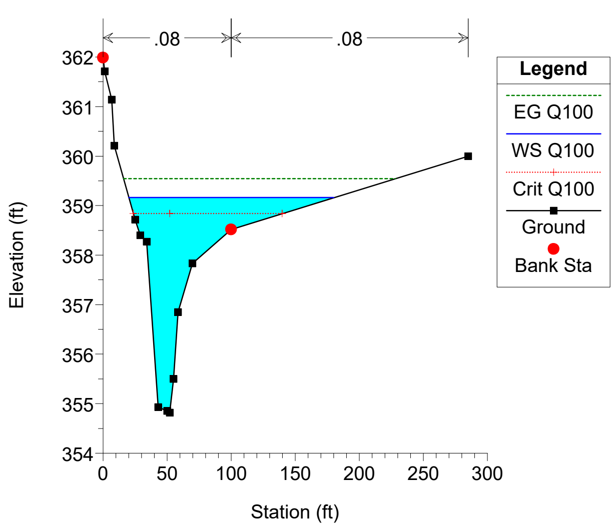
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



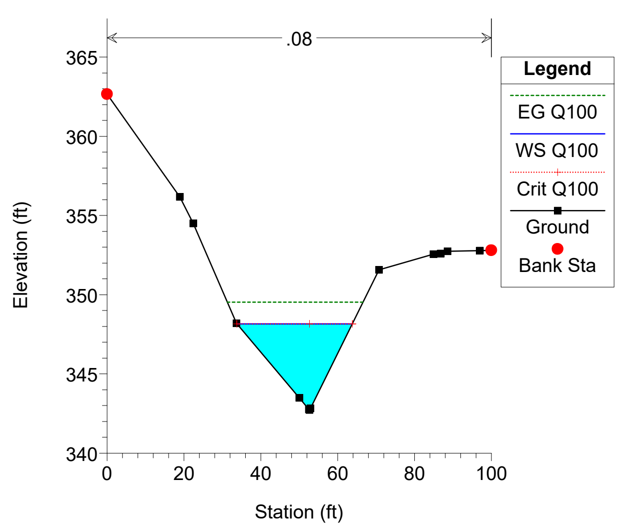
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

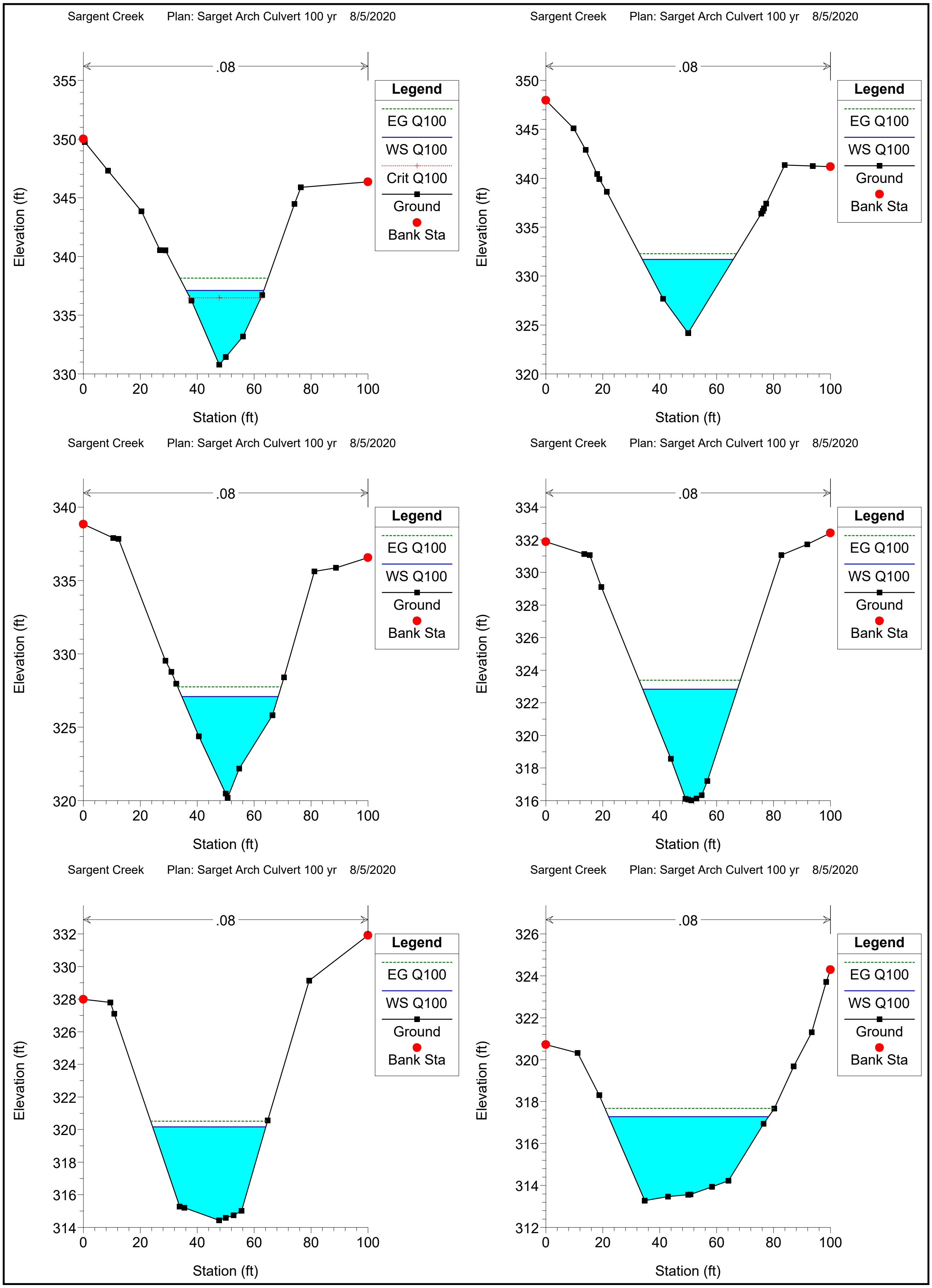


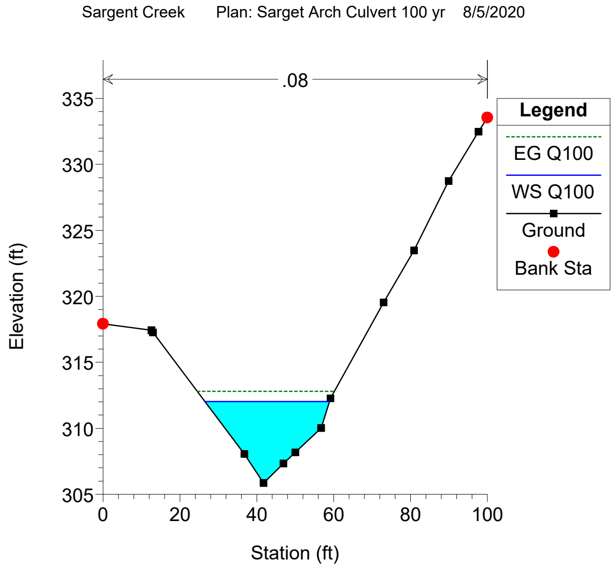
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

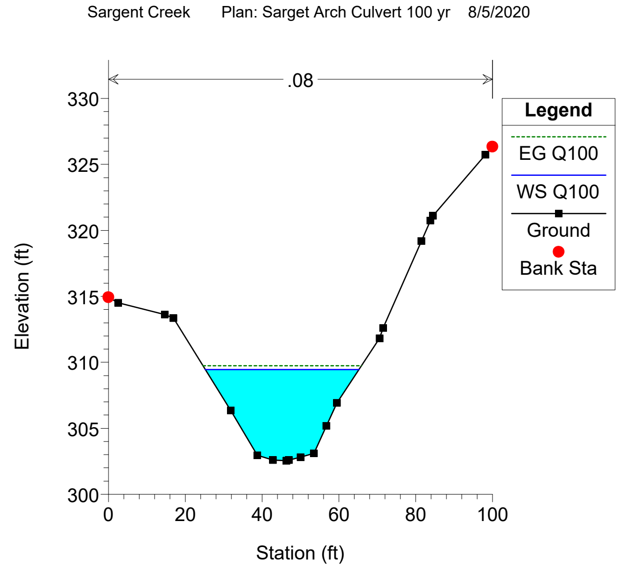


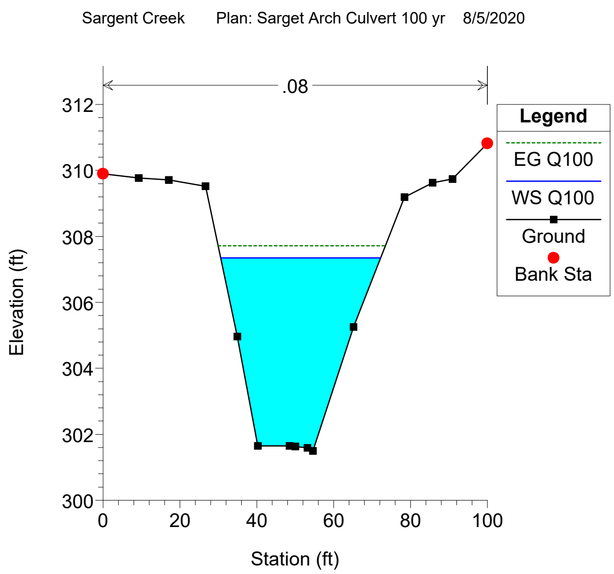
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

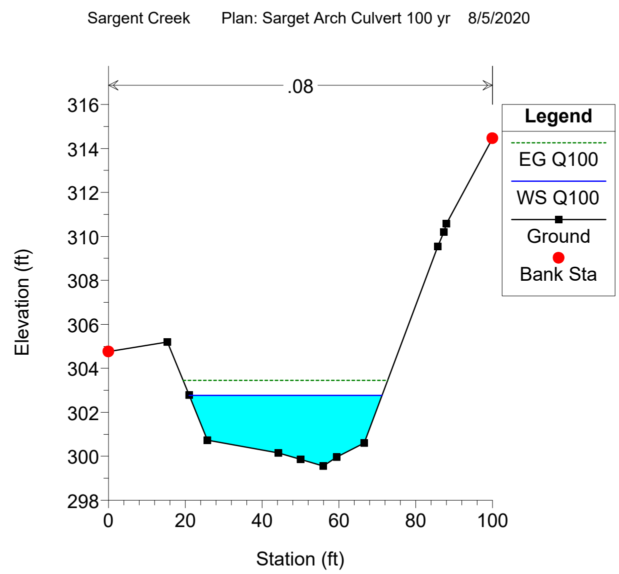


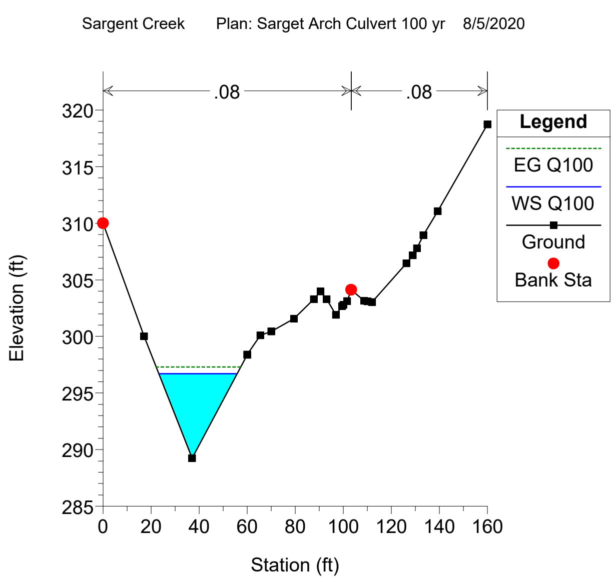

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)

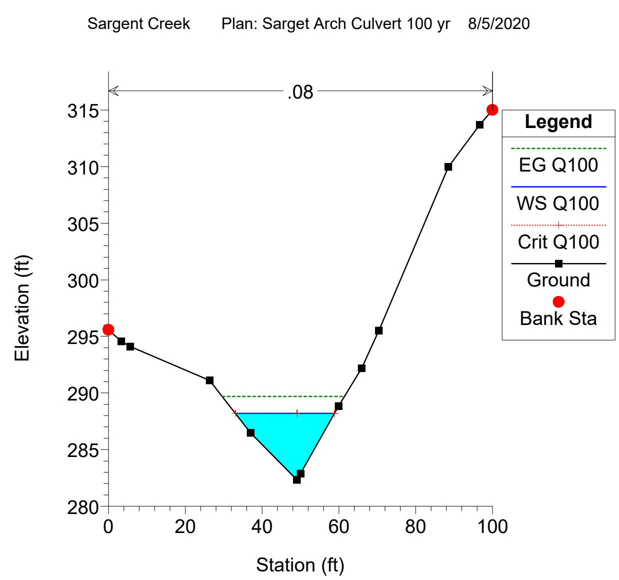

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
305
310
315
320
325
330
335
0
20
40
60
80
100


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
300
305
310
315
320
325
330
0
20
40
60
80
100

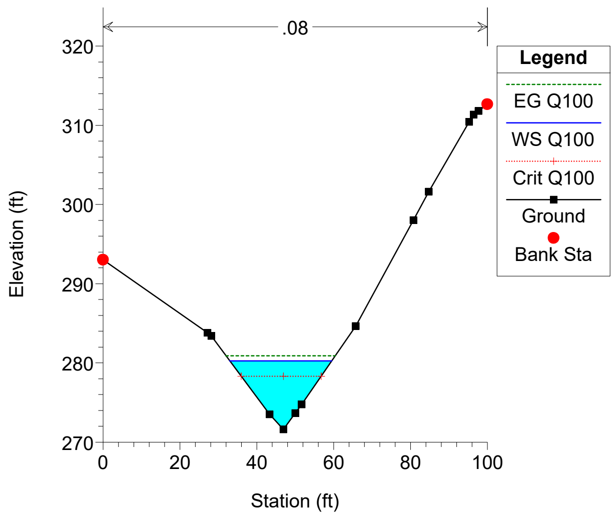

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
300
302
304
306
308
310
312
0
20
40
60
80
100


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
298
300
302
304
306
308
310
312
314
316
0
20
40
60
80
100

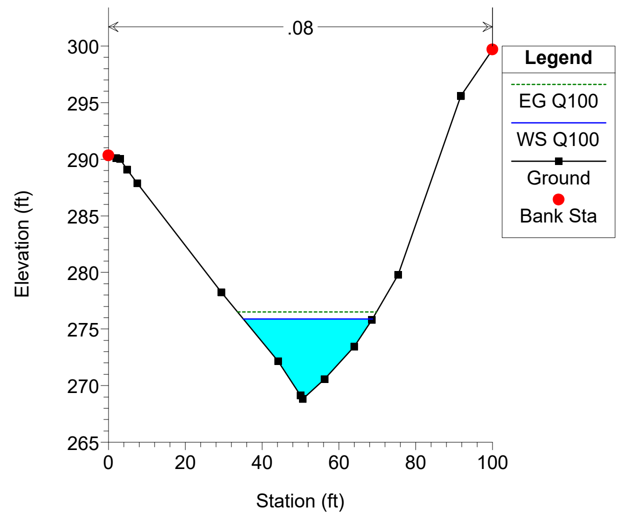

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
285
290
295
300
305
310
315
320
0
20
40
60
80
100
120
140
160


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
280
285
290
295
300
305
310
315
0
20
40
60
80
100

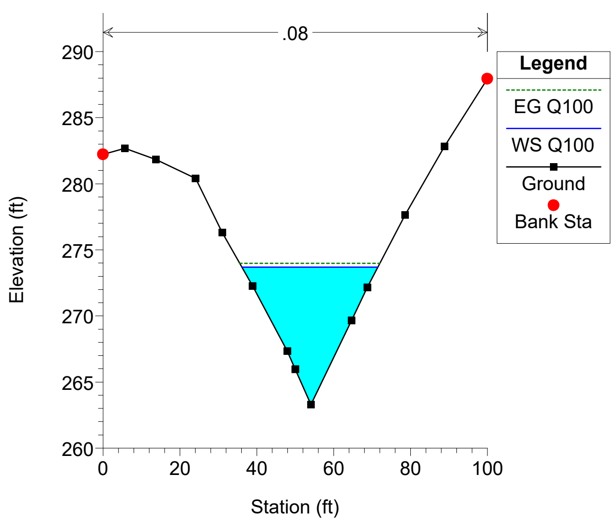
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



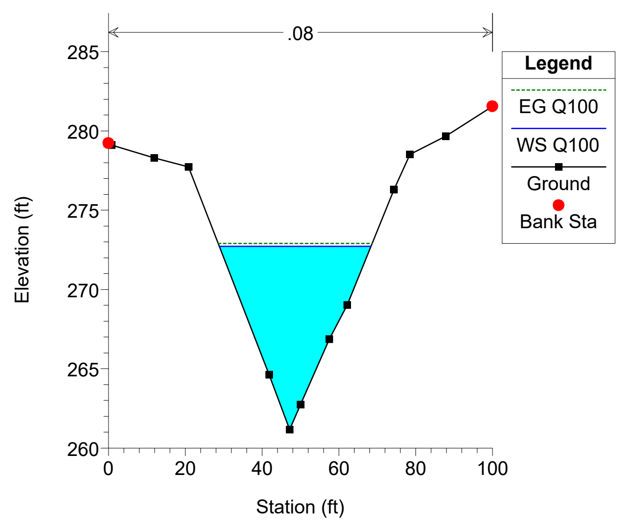
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



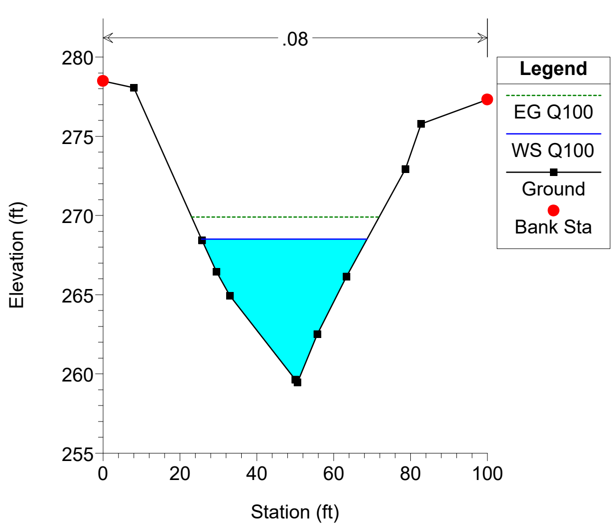
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



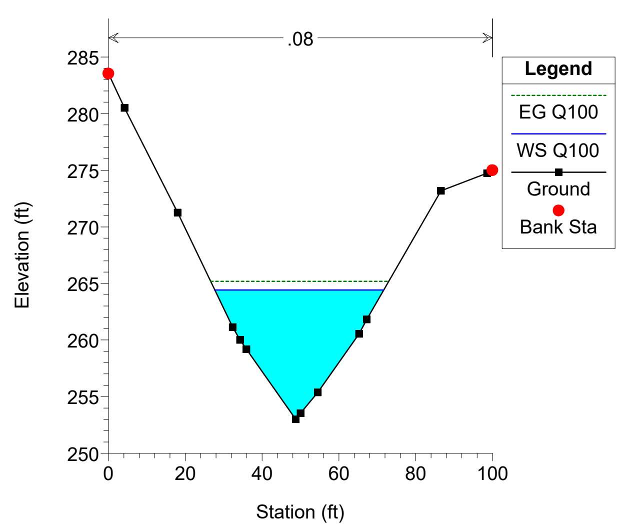
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



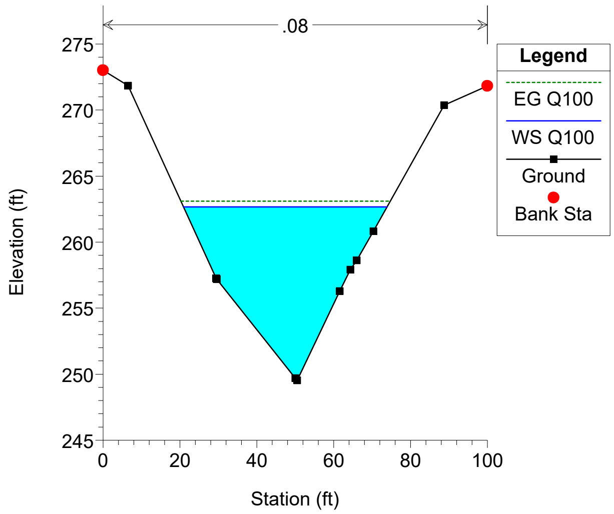
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



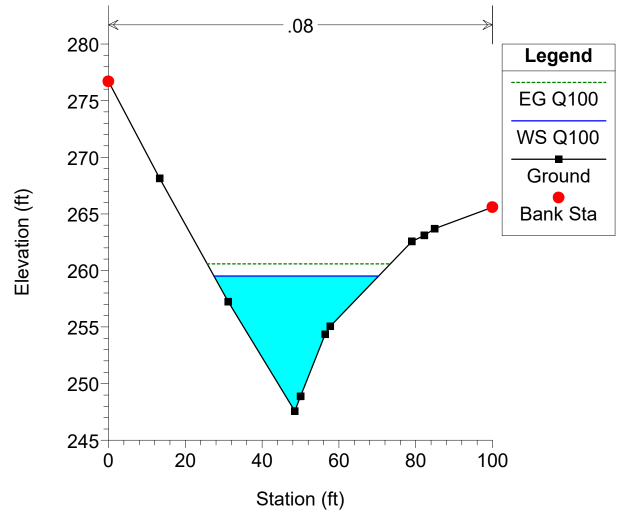
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



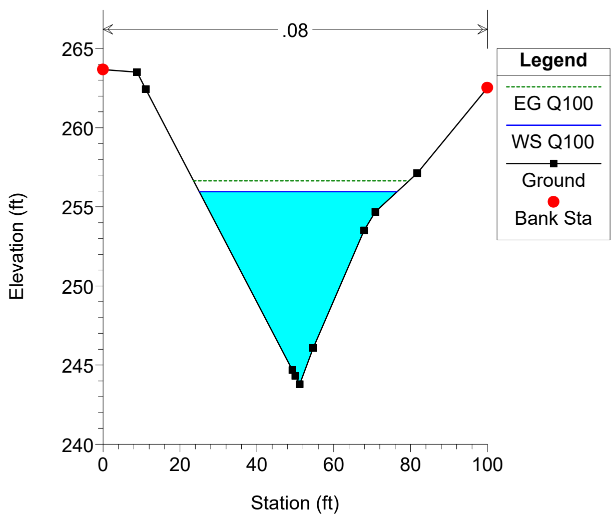
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



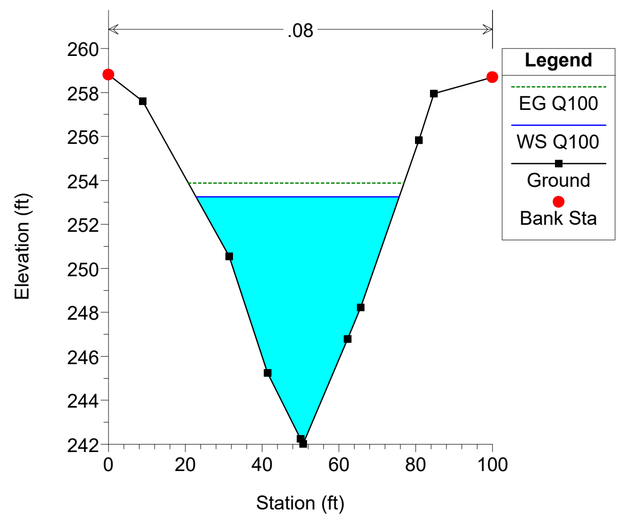
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



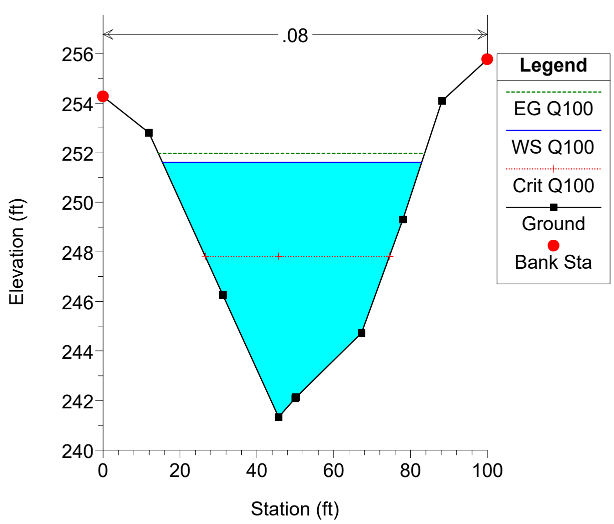
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



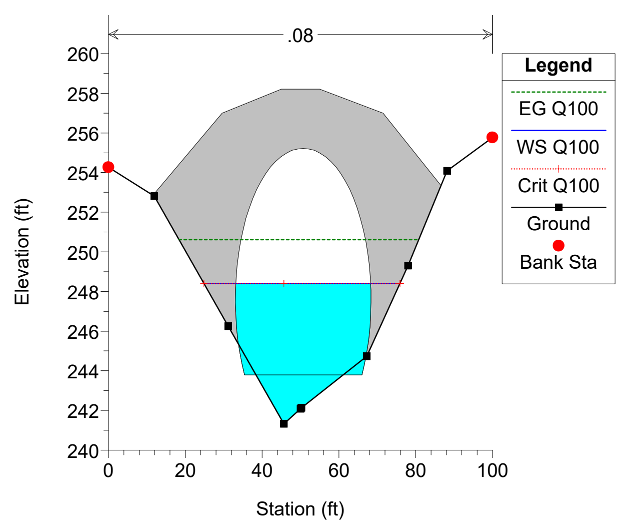
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

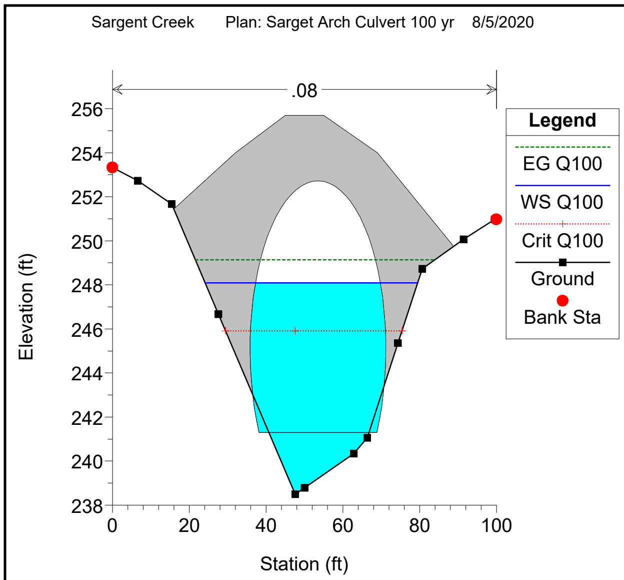


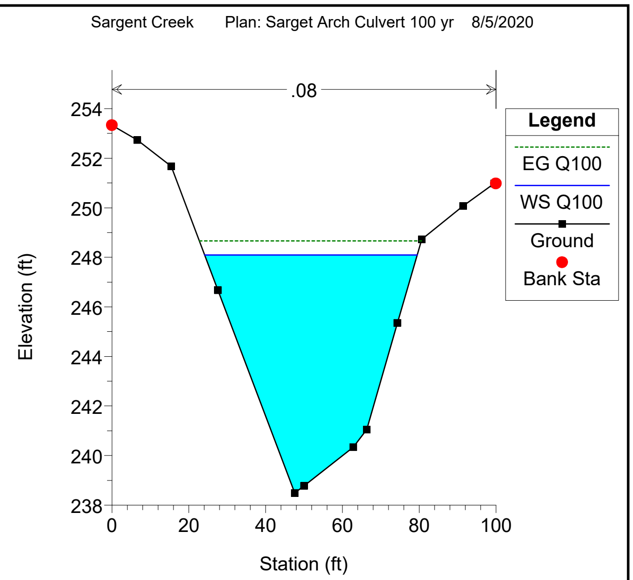
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

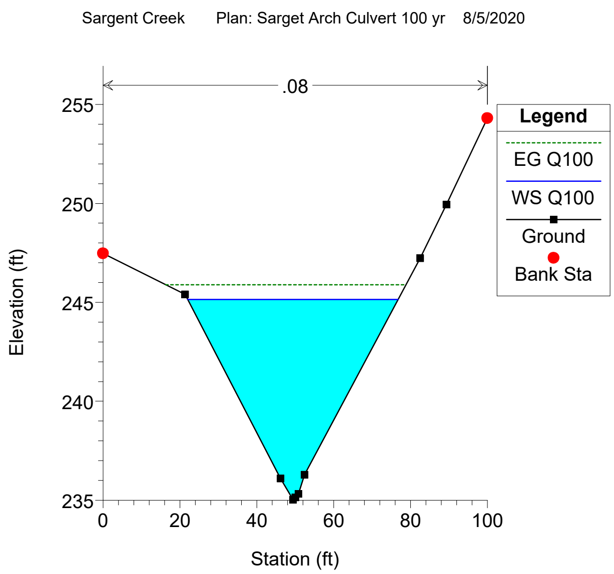


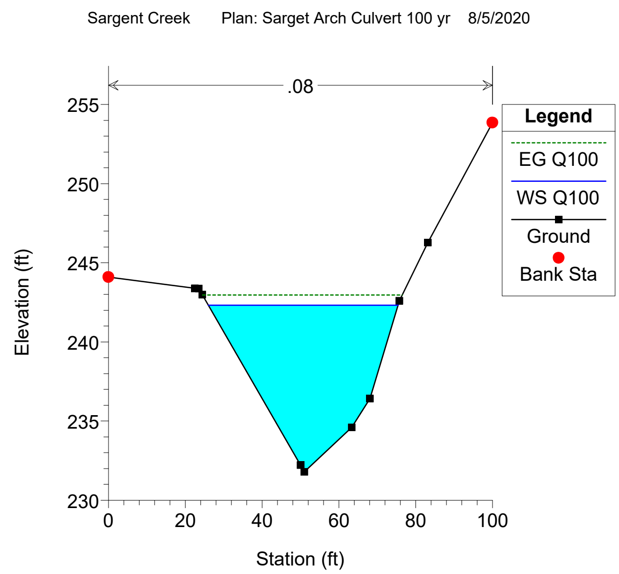
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

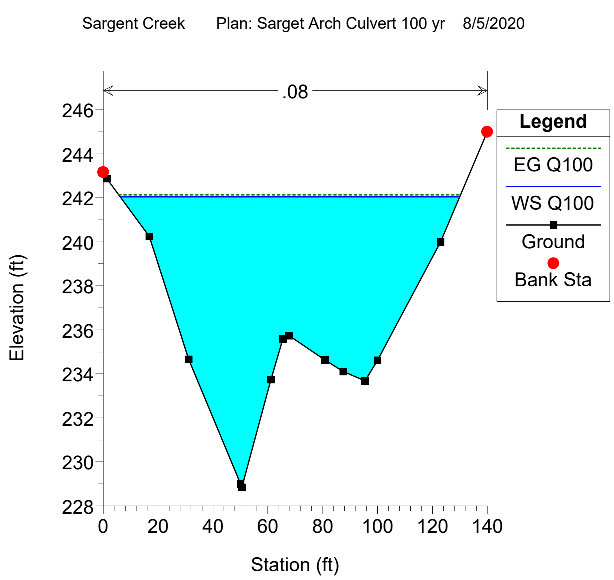


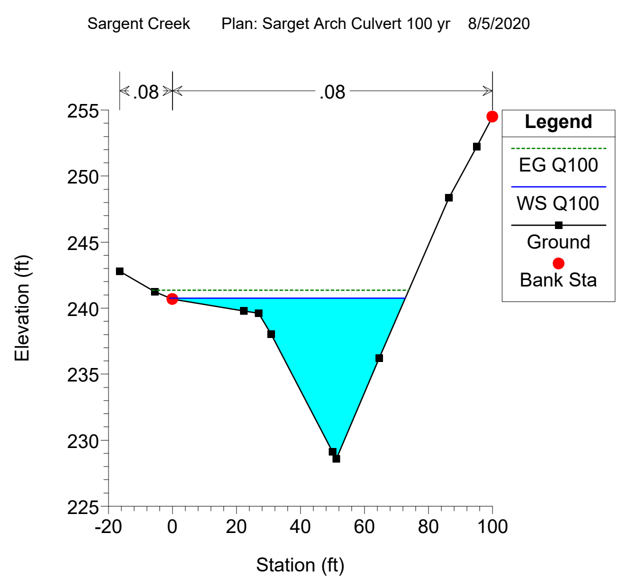

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)

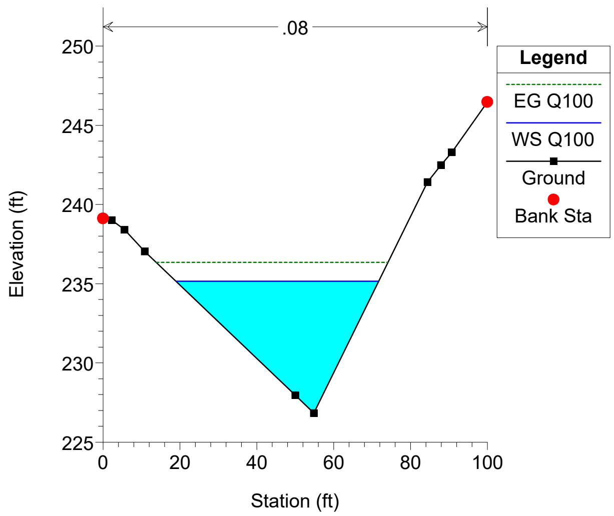

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)

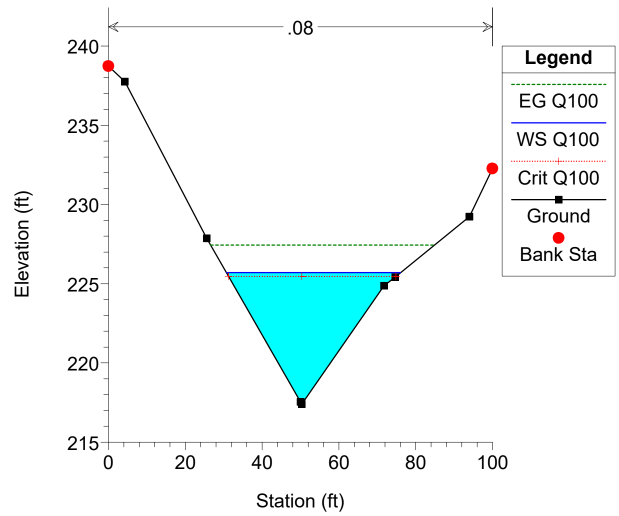

Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)

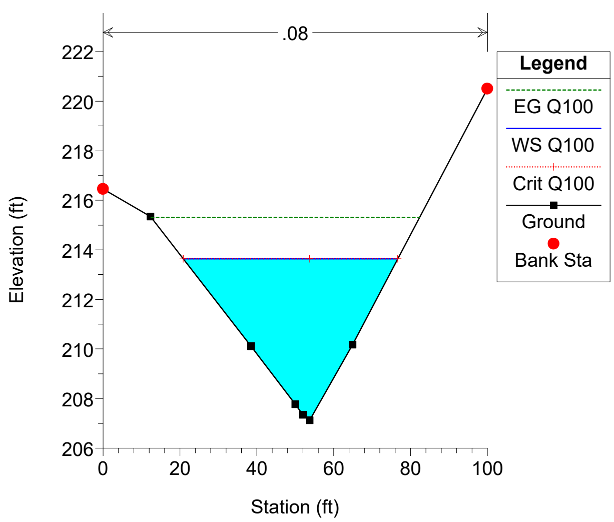
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



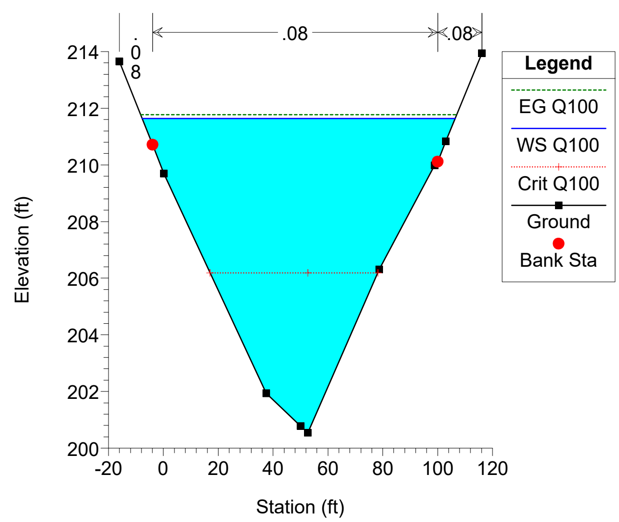
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



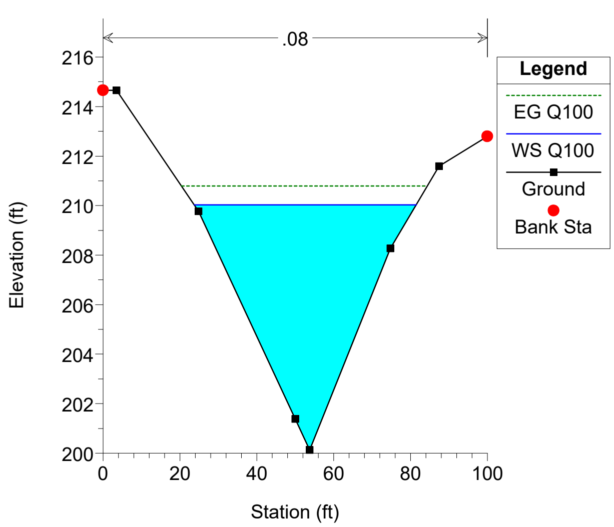
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



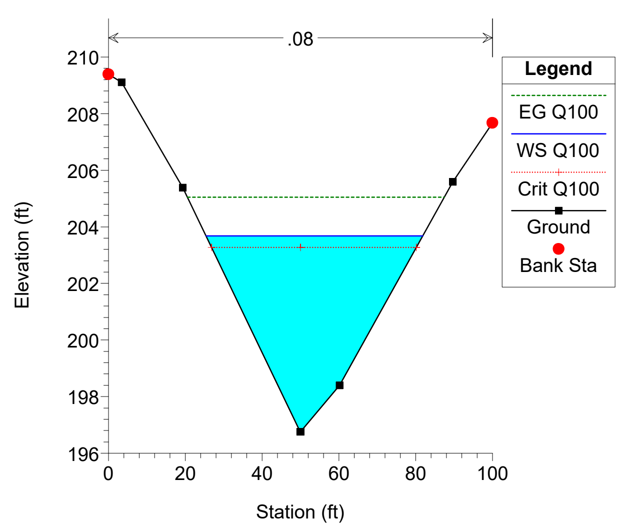
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



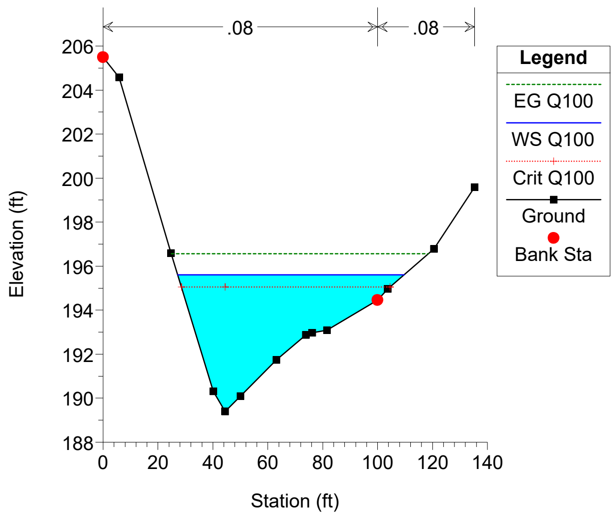
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



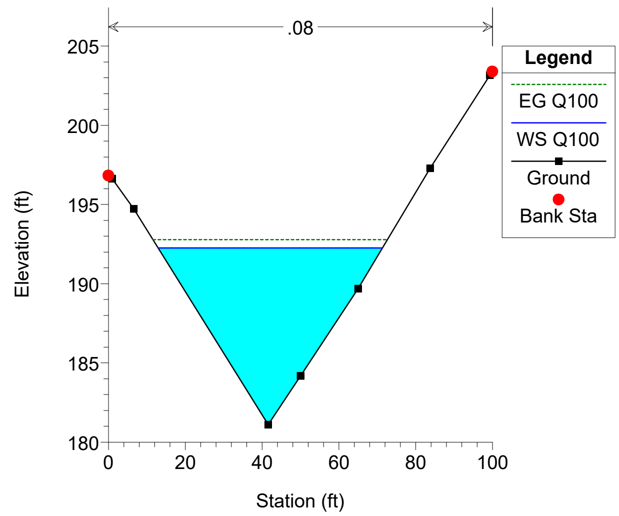
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



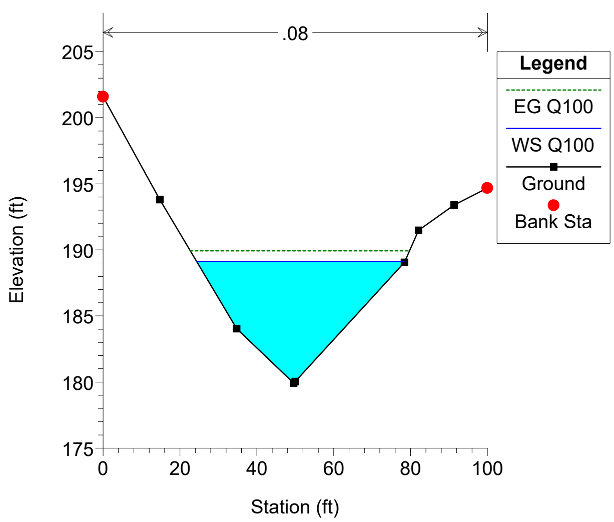
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



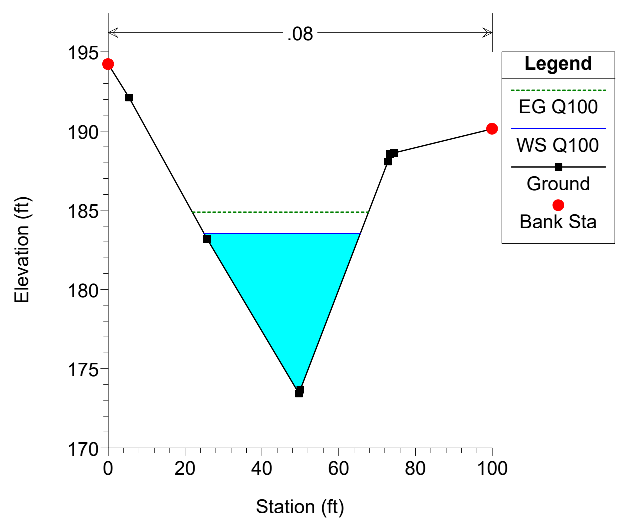
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



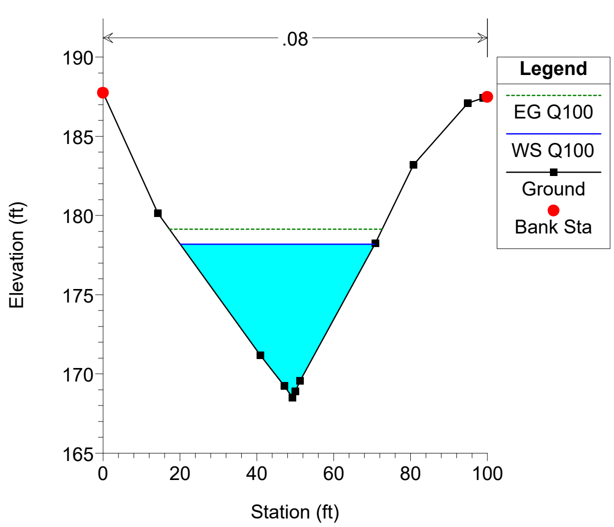
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020



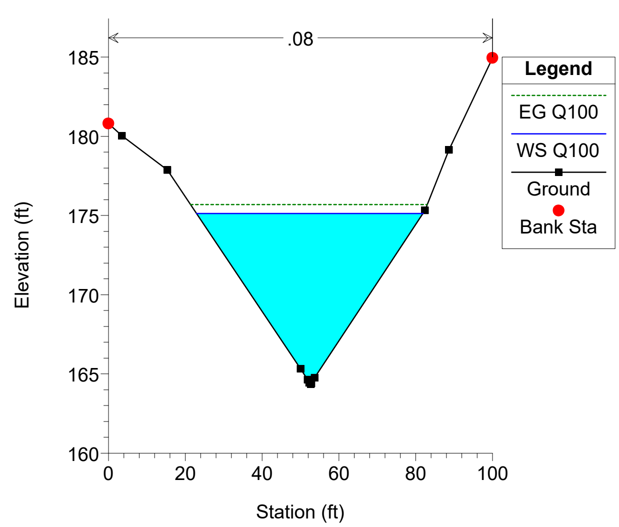
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

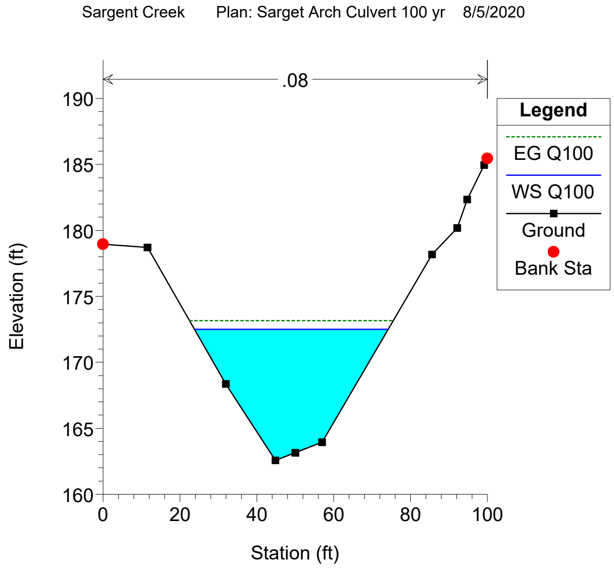


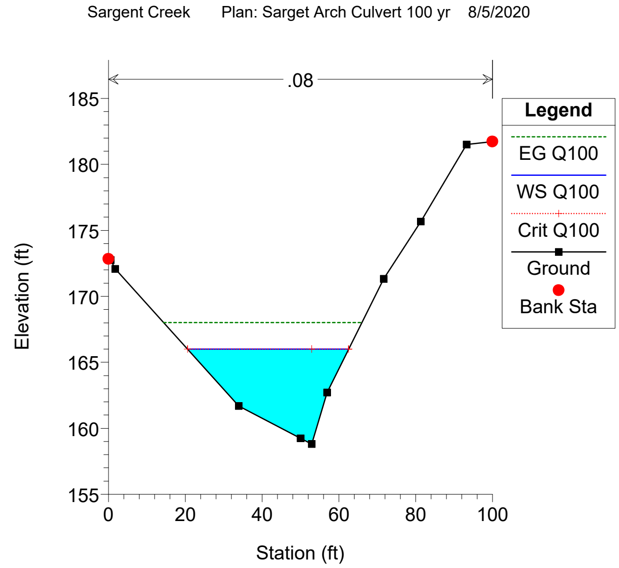
Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020

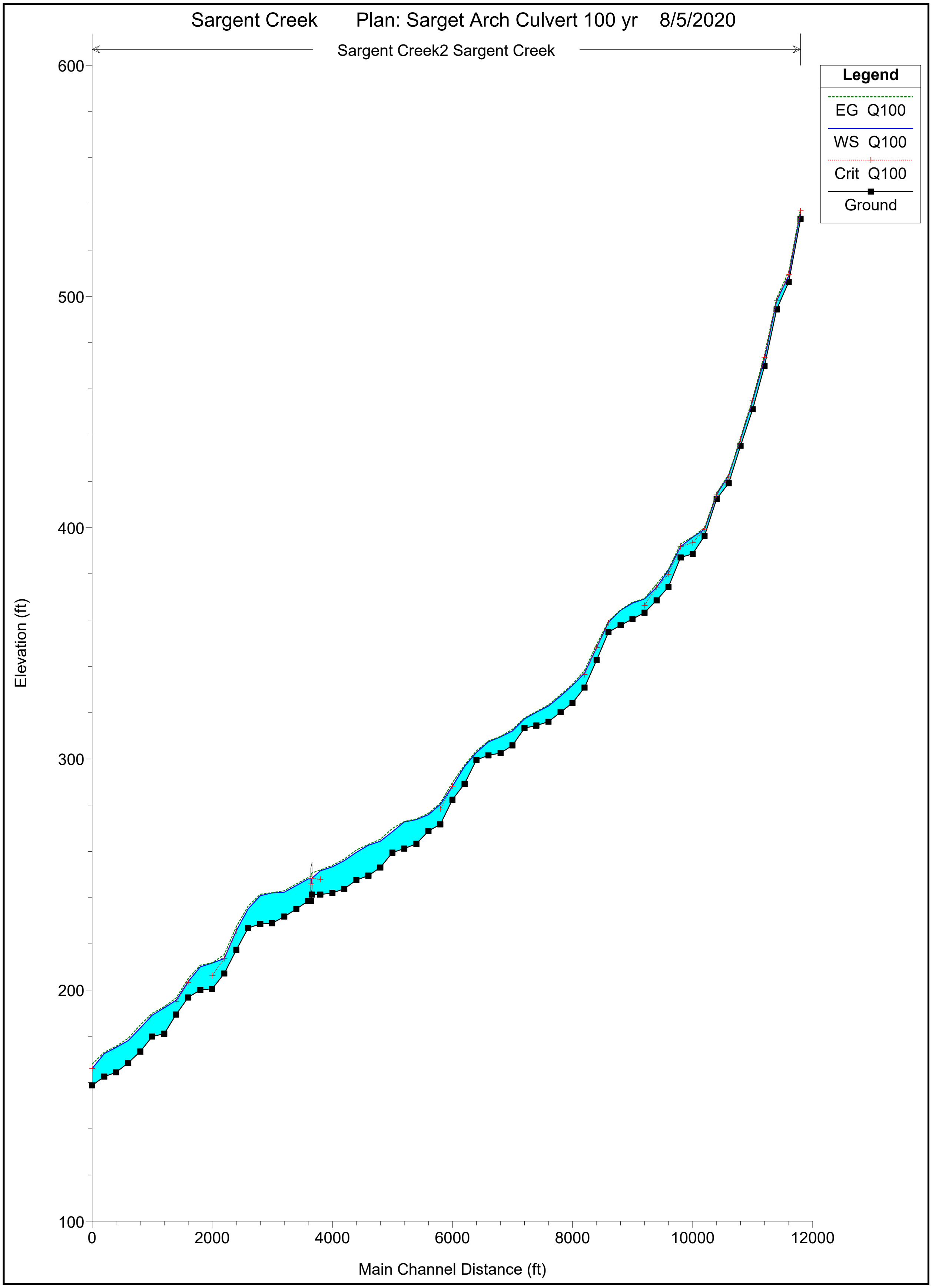


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020




Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)


Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
.08
Legend
EG Q100
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)



Sargent Creek Plan: Sarget Arch Culvert 100 yr 8/5/2020
Sargent Creek2 Sargent Creek
Legend
EG Q100
WS Q100
Crit Q100
Ground
Elevation (ft)
Main Channel Distance (ft)
600
500
400
300
200
100
0
2000
4000
6000
8000
10000
12000

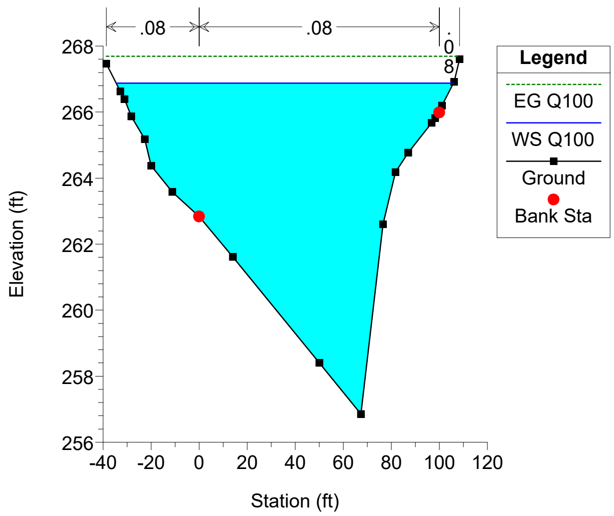
HEC-RAS Plan: Arch Culvert 100 River: Sargent Creek2 Reach: Sargent Creek Profile: Q100

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sargent Creek	12000	Q100	265.00	533.56	537.06	537.06	537.94	0.084277	7.52	35.22	20.10	1.00
Sargent Creek	11800	Q100	265.00	506.26	508.92	509.53	510.80	0.252803	11.00	24.10	18.10	1.68
Sargent Creek	11600	Q100	265.00	494.38	498.21	498.21	499.19	0.087982	7.94	33.36	17.43	1.01
Sargent Creek	11400	Q100	265.00	469.93	473.15	473.66	474.86	0.177710	10.49	25.25	14.92	1.42
Sargent Creek	11200	Q100	265.00	451.21	454.93	454.88	455.84	0.079812	7.68	34.52	18.01	0.98
Sargent Creek	11000	Q100	265.00	435.43	438.32	438.32	439.04	0.087992	6.79	39.04	27.91	1.01
Sargent Creek	10800	Q100	265.00	419.20	422.66	421.86	423.05	0.027620	5.01	52.86	24.18	0.60
Sargent Creek	10600	Q100	265.00	412.40	414.33	414.19	414.92	0.065460	6.13	43.22	28.86	0.88
Sargent Creek	10400	Q100	265.00	396.49	399.33	399.33	400.08	0.084575	6.93	38.25	25.69	1.00
Sargent Creek	10200	Q100	767.00	388.70	395.86	393.44	396.03	0.006143	3.31	231.64	64.42	0.31
Sargent Creek	10000	Q100	767.00	387.11	391.86	391.86	392.98	0.074174	8.50	90.27	40.32	1.00
Sargent Creek	9800	Q100	767.00	374.36	381.56	379.83	382.01	0.017244	5.39	142.22	40.75	0.51
Sargent Creek	9600	Q100	767.00	368.61	374.19	374.19	375.64	0.073469	9.66	79.43	27.66	1.00
Sargent Creek	9400	Q100	767.00	363.18	369.19	366.27	369.37	0.005091	3.41	224.89	51.83	0.29
Sargent Creek	9200	Q100	767.00	360.45	367.35		367.73	0.014834	4.96	154.59	45.40	0.47
Sargent Creek	9000	Q100	767.00	357.76	364.28		364.43	0.017642	3.10	247.25	173.85	0.46
Sargent Creek	8800	Q100	767.00	354.82	359.16	358.84	359.55	0.035723	5.11	167.61	160.00	0.68
Sargent Creek	8600	Q100	767.00	342.72	348.16	348.16	349.53	0.073290	9.39	81.72	30.02	1.00
Sargent Creek	8400	Q100	767.00	330.78	337.11	336.48	338.16	0.043547	8.22	93.32	27.28	0.78
Sargent Creek	8200	Q100	767.00	324.18	331.70		332.29	0.020269	6.14	124.93	31.91	0.55
Sargent Creek	8000	Q100	767.00	320.20	327.10		327.75	0.025475	6.48	118.37	33.83	0.61
Sargent Creek	7800	Q100	767.00	316.02	322.84		323.38	0.018694	5.92	129.49	33.32	0.53
Sargent Creek	7600	Q100	767.00	314.44	320.17		320.52	0.010907	4.73	162.00	39.81	0.41
Sargent Creek	7400	Q100	767.00	313.28	317.29		317.67	0.019292	4.99	153.79	56.26	0.53
Sargent Creek	7200	Q100	767.00	305.84	312.04		312.80	0.031120	7.00	109.53	32.48	0.67
Sargent Creek	7000	Q100	767.00	302.54	309.45		309.75	0.008409	4.35	176.31	40.02	0.37
Sargent Creek	6800	Q100	767.00	301.49	307.35		307.71	0.012444	4.85	158.12	41.63	0.44
Sargent Creek	6600	Q100	767.00	299.56	302.77		303.46	0.043606	6.66	115.16	50.20	0.78
Sargent Creek	6400	Q100	767.00	289.24	296.69		297.31	0.022703	6.31	121.59	32.63	0.58
Sargent Creek	6200	Q100	767.00	282.32	288.19	288.19	289.70	0.073898	9.87	77.71	25.75	1.00
Sargent Creek	6000	Q100	767.00	271.62	280.26	278.34	280.92	0.021292	6.50	117.91	26.56	0.54
Sargent Creek	5800	Q100	767.00	268.82	275.89		276.50	0.022755	6.27	122.34	33.62	0.58
Sargent Creek	5600	Q100	767.00	263.29	273.70		273.98	0.007520	4.29	178.70	35.39	0.34
Sargent Creek	5400	Q100	767.00	261.18	272.73		272.91	0.003811	3.35	228.92	39.53	0.25
Sargent Creek	5200	Q100	1914.00	259.47	268.51		269.91	0.037244	9.48	201.80	43.08	0.77
Sargent Creek	5000	Q100	1914.00	253.01	264.42		265.19	0.015185	7.08	270.27	43.99	0.50
Sargent Creek	4800	Q100	1914.00	249.52	262.67		263.09	0.007052	5.24	365.46	52.98	0.35
Sargent Creek	4600	Q100	1914.00	247.56	259.51		260.59	0.025939	8.32	230.00	42.96	0.63
Sargent Creek	4400	Q100	1914.00	243.79	255.96		256.64	0.014726	6.63	288.63	51.51	0.49
Sargent Creek	4200	Q100	1914.00	242.01	253.26		253.88	0.012790	6.34	302.12	52.97	0.47
Sargent Creek	4000	Q100	1914.00	241.33	251.60	247.82	251.97	0.006913	4.85	394.51	67.44	0.35
Sargent Creek	3860		Culvert									
Sargent Creek	3800	Q100	1914.00	238.49	248.09		248.66	0.011236	6.03	317.45	55.40	0.44
Sargent Creek	3600	Q100	1914.00	235.03	245.15		245.89	0.017242	6.89	277.76	54.82	0.54
Sargent Creek	3400	Q100	1914.00	231.80	242.32		242.96	0.012387	6.43	297.64	49.40	0.46
Sargent Creek	3200	Q100	1914.00	228.85	242.05		242.14	0.001486	2.41	793.68	123.81	0.17
Sargent Creek	3000	Q100	1914.00	228.58	240.76		241.37	0.018291	6.24	306.75	73.53	0.54
Sargent Creek	2800	Q100	1914.00	226.84	235.15		236.34	0.035719	8.75	218.69	52.66	0.76
Sargent Creek	2600	Q100	1914.00	217.41	225.70	225.47	227.44	0.056138	10.60	180.58	45.29	0.94
Sargent Creek	2400	Q100	1914.00	207.13	213.64	213.64	215.31	0.065493	10.36	184.72	55.84	1.00
Sargent Creek	2200	Q100	1914.00	200.54	211.64	206.19	211.77	0.002031	2.86	674.72	114.14	0.20
Sargent Creek	2000	Q100	1914.00	200.13	210.03		210.79	0.018816	6.95	275.38	57.77	0.56
Sargent Creek	1800	Q100	1914.00	196.76	203.67	203.27	205.04	0.047778	9.38	204.03	56.37	0.87
Sargent Creek	1600	Q100	1914.00	189.40	195.61	195.05	196.56	0.036869	7.85	247.53	82.49	0.76
Sargent Creek	1400	Q100	1914.00	181.12	192.25		192.78	0.010835	5.84	327.80	58.35	0.43
Sargent Creek	1200	Q100	1914.00	179.91	189.13		189.93	0.019269	7.18	266.53	54.16	0.57
Sargent Creek	1000	Q100	1914.00	173.44	183.54		184.88	0.033603	9.30	205.86	40.72	0.73
Sargent Creek	800	Q100	1914.00	168.52	178.18		179.14	0.023933	7.84	244.25	50.59	0.63
Sargent Creek	600	Q100	1914.00	164.36	175.13		175.70	0.012177	6.03	317.18	58.96	0.46
Sargent Creek	400	Q100	1914.00	162.57	172.50		173.16	0.013146	6.52	293.39	50.40	0.48
Sargent Creek	200	Q100	1914.00	158.80	166.00	166.00	168.01	0.065387	11.38	168.16	41.95	1.00

Plan: Arch Culvert 100   Sargent Creek2   Sargent Creek RS: 3860   Culv Group: Culvert #1   Profile: Q100

Q Culv Group (cfs)	1914.00	Culv Full Len (ft)	
# Barrels	1	Culv Vel US (ft/s)	11.94
Q Barrel (cfs)	1914.00	Culv Vel DS (ft/s)	8.20
E.G. US. (ft)	251.97	Culv Inv El Up (ft)	243.80
W.S. US. (ft)	251.60	Culv Inv El Dn (ft)	241.30
E.G. DS (ft)	248.66	Culv Frctn Ls (ft)	1.48
W.S. DS (ft)	248.09	Culv Exit Loss (ft)	0.48
Delta EG (ft)	3.31	Culv Entr Loss (ft)	1.35
Delta WS (ft)	3.51	Q Weir (cfs)	
E.G. IC (ft)	251.97	Weir Sta Lft (ft)	
E.G. OC (ft)	252.17	Weir Sta Rgt (ft)	
Culvert Control	Inlet	Weir Submerg	
Culv WS Inlet (ft)	248.40	Weir Max Depth (ft)	
Culv WS Outlet (ft)	248.09	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	3.74	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	4.60	Min El Weir Flow (ft)	252.86

Tar Creek Proposed 2020 Bridge   Plan: Tar Creek Bridge 3-Span   8/5/2020



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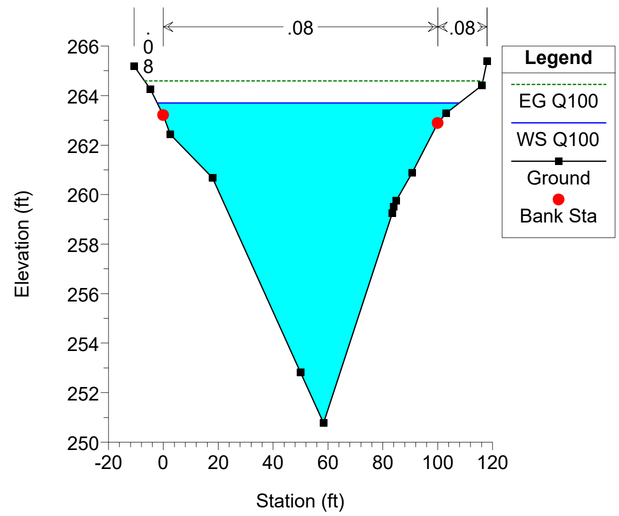

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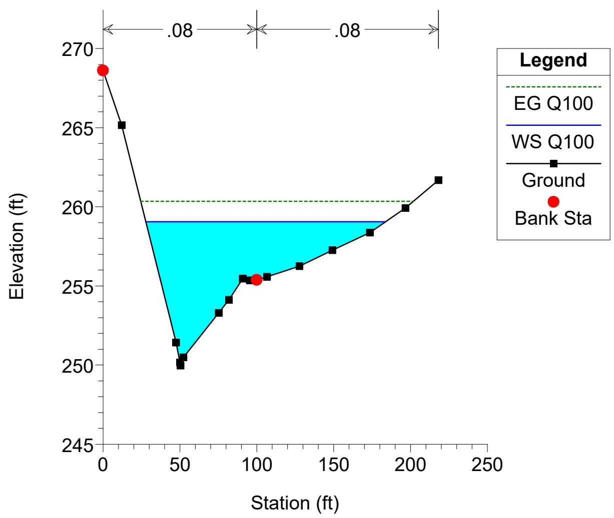

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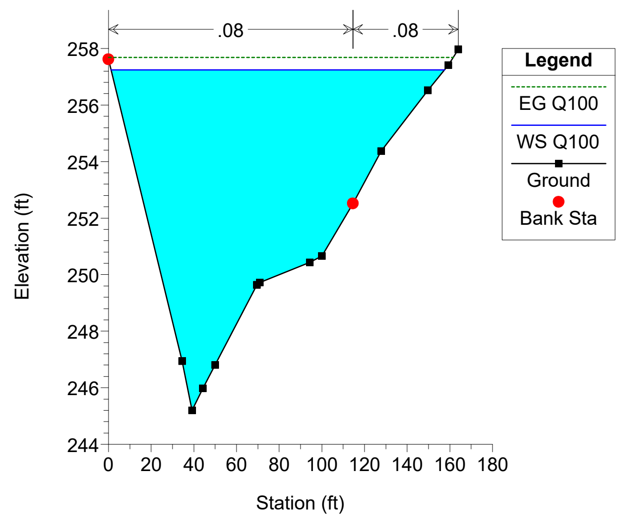

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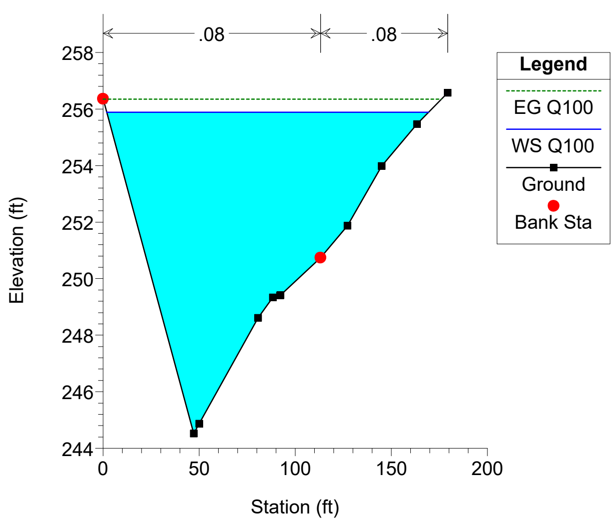
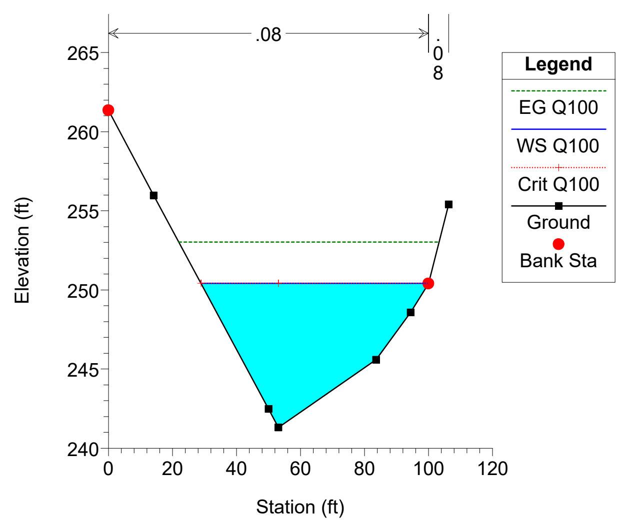


Tar Creek Proposed 2020 Bridge   Plan: Tar Creek Bridge 3-Span   8/5/2020



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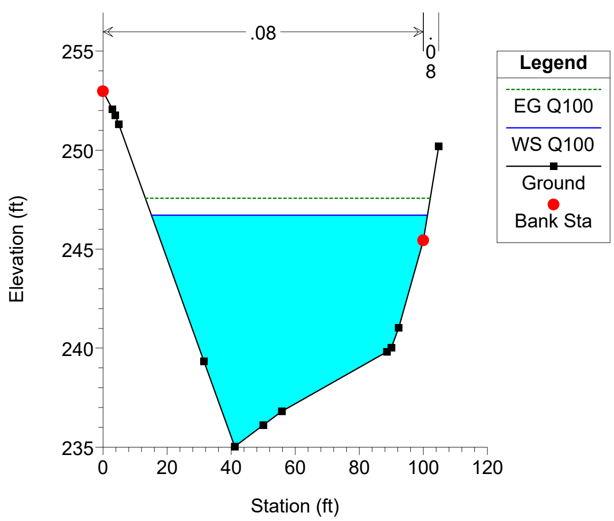

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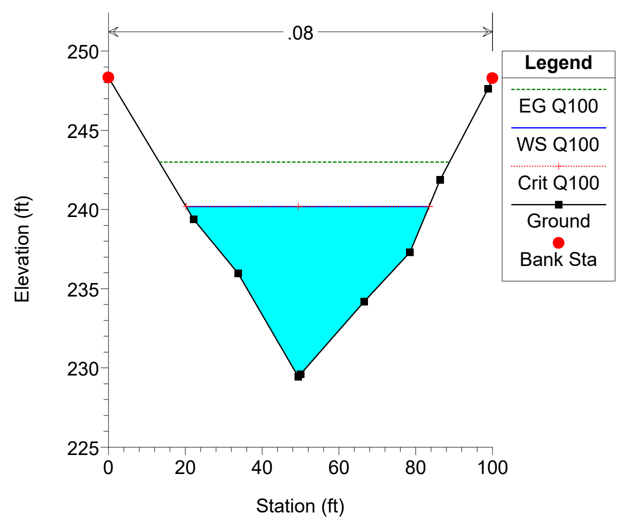

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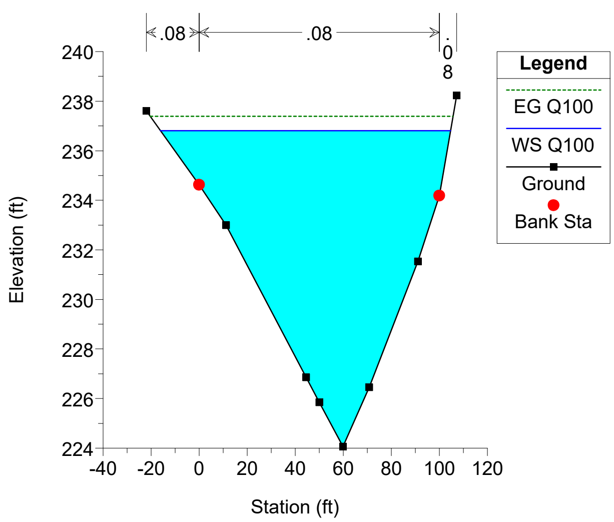

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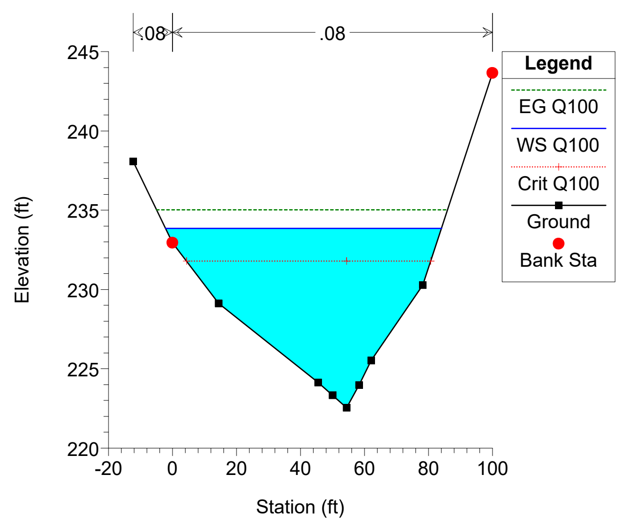

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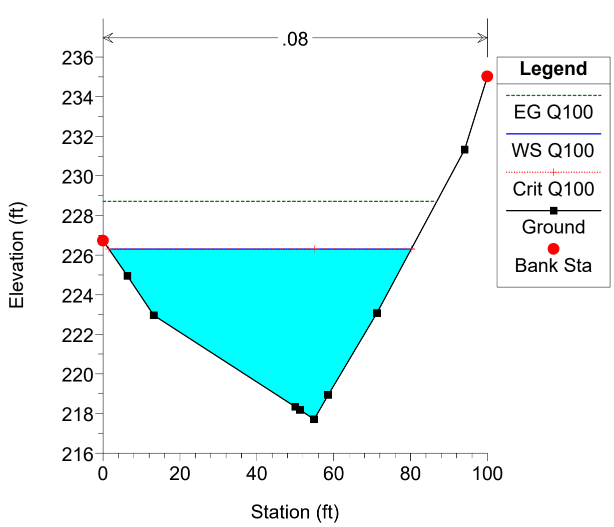

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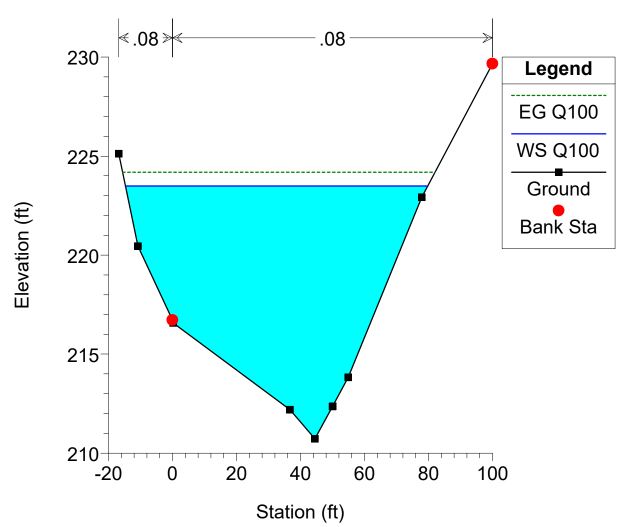

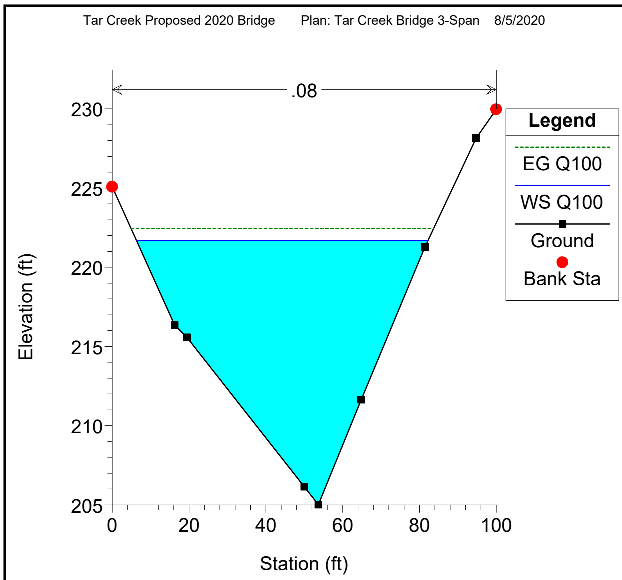
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020
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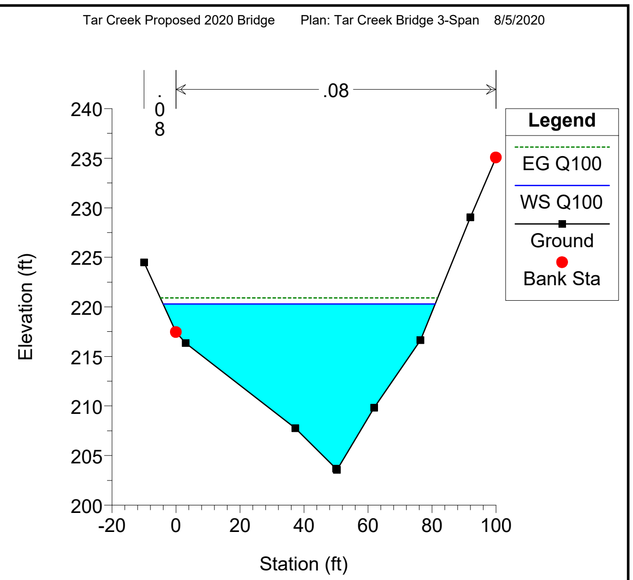
Legend
EG Q100
WS Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)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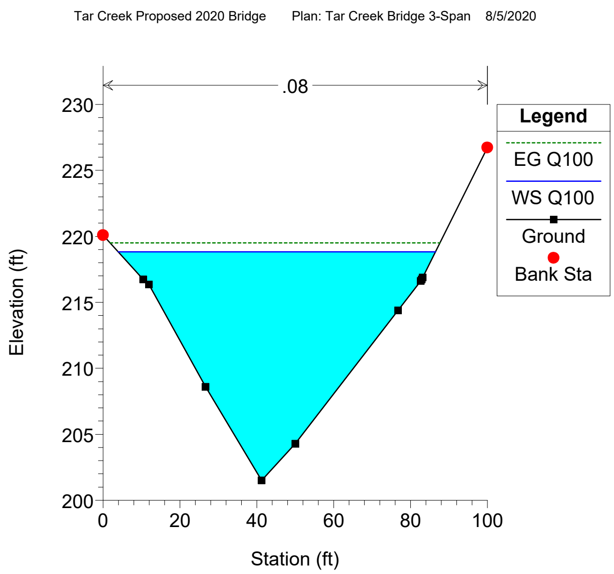
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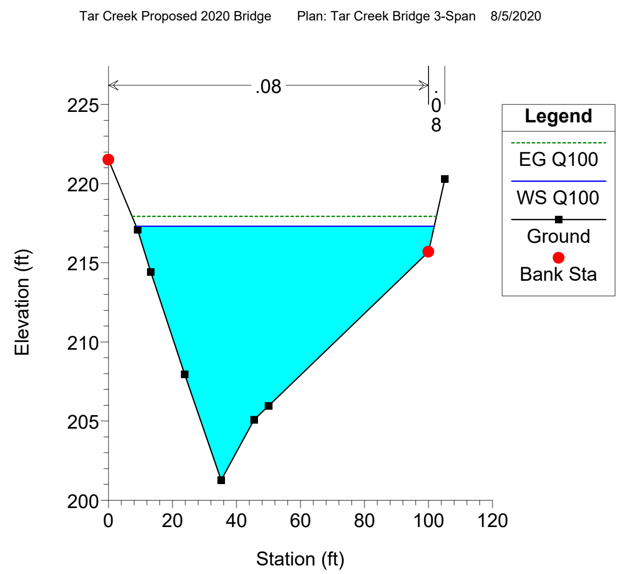
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Legend
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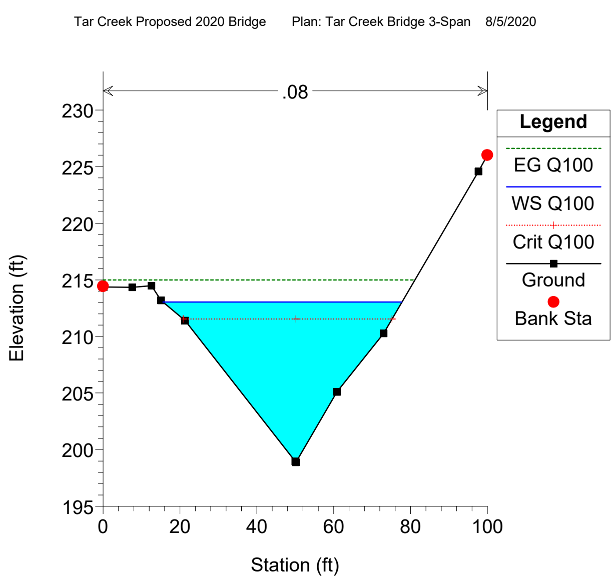
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Legend
EG Q100
WS Q100
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Ground
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Elevation (ft)
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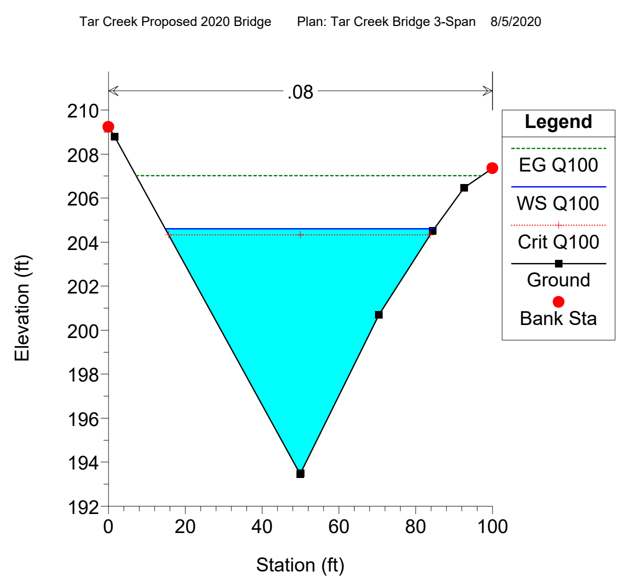
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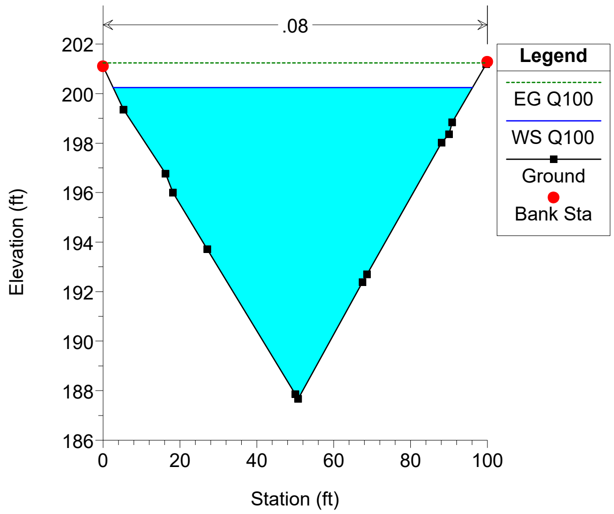
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



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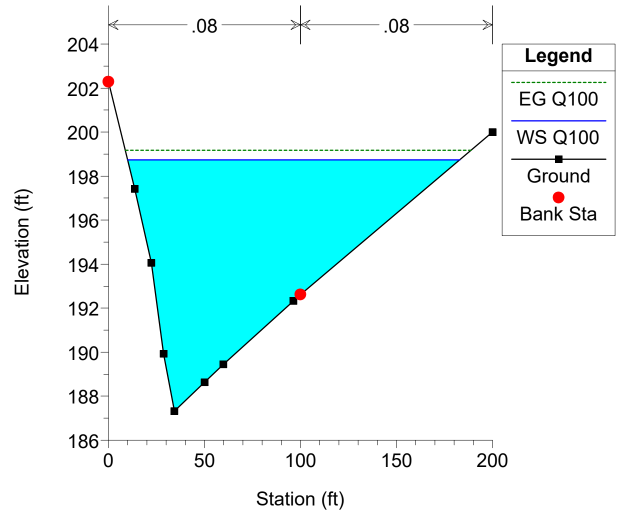

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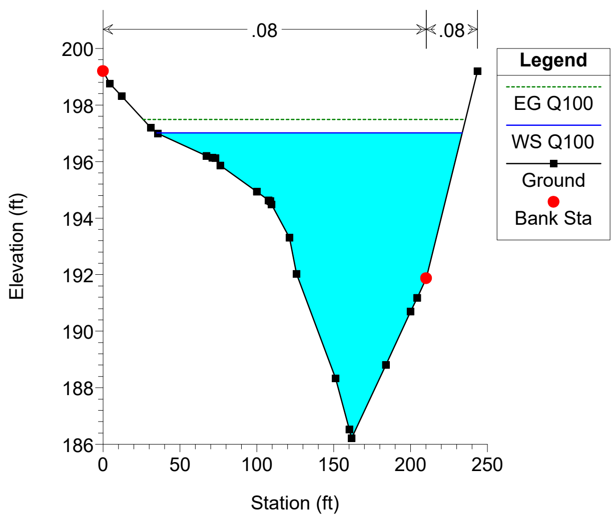

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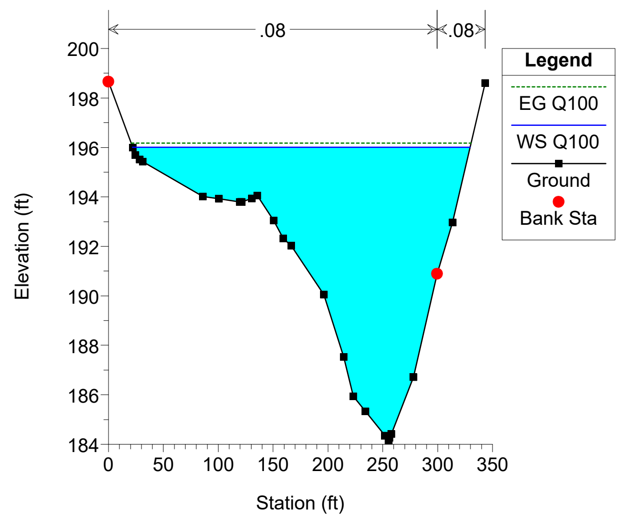

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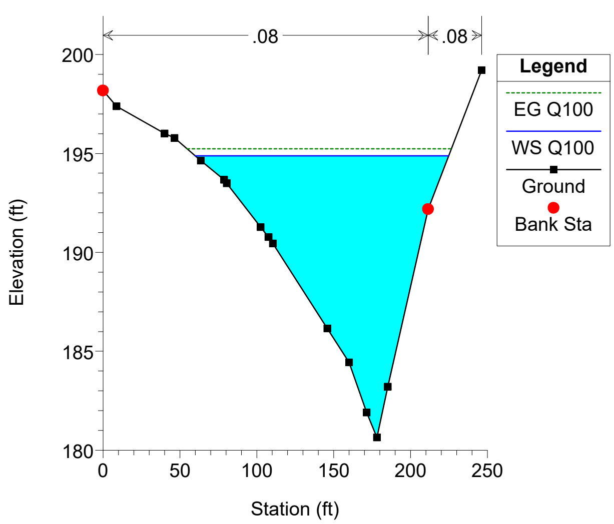

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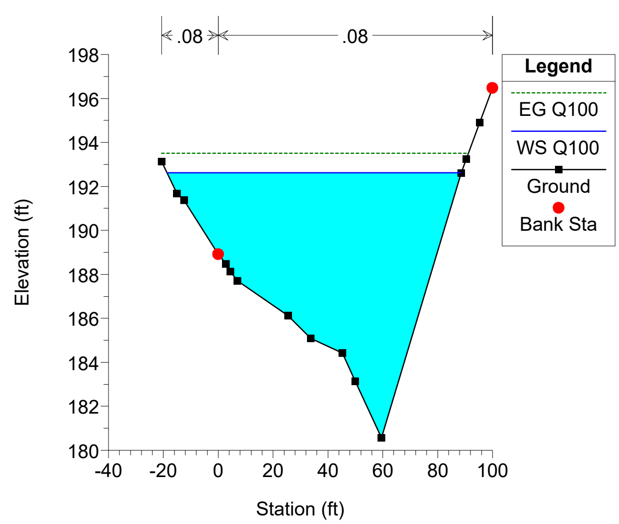

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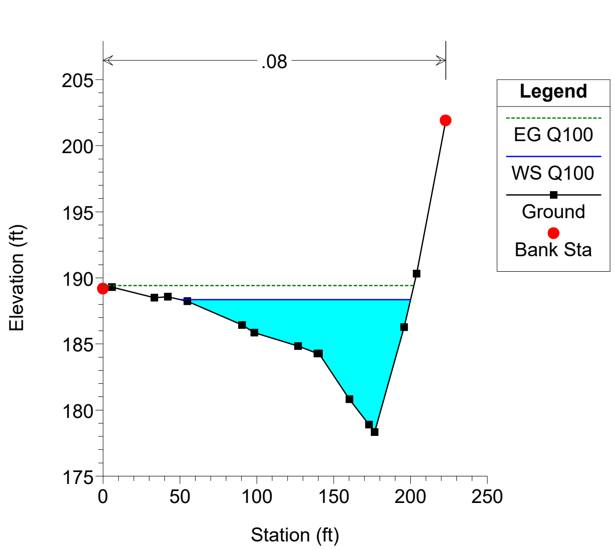

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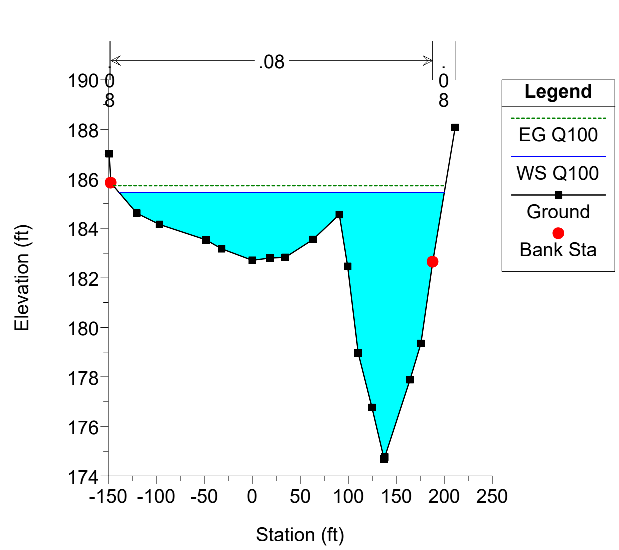

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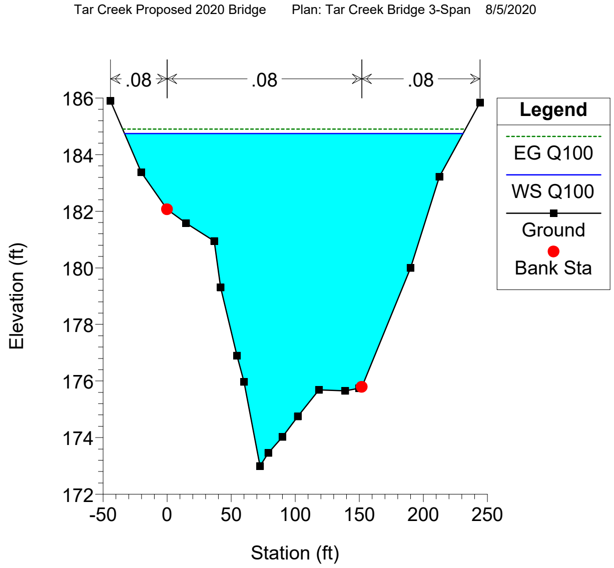

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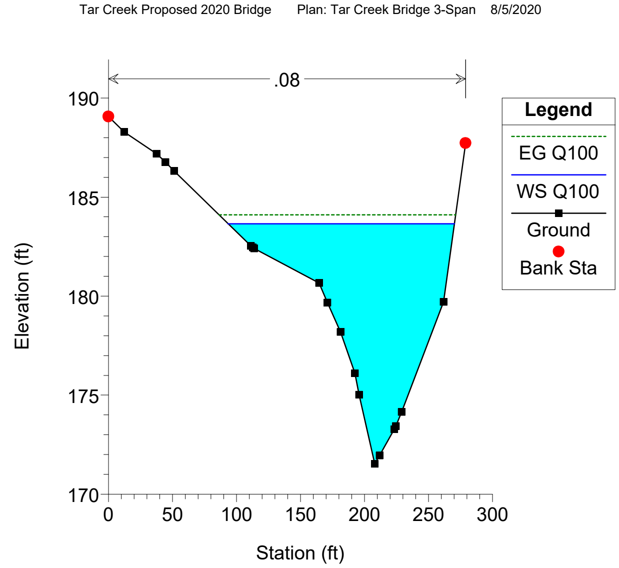

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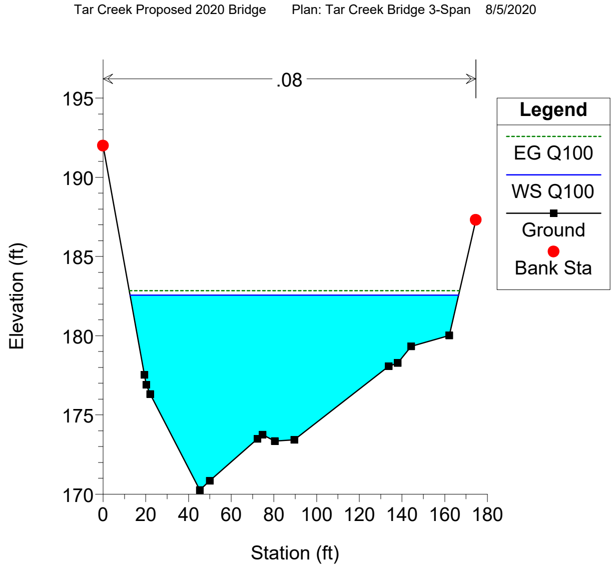

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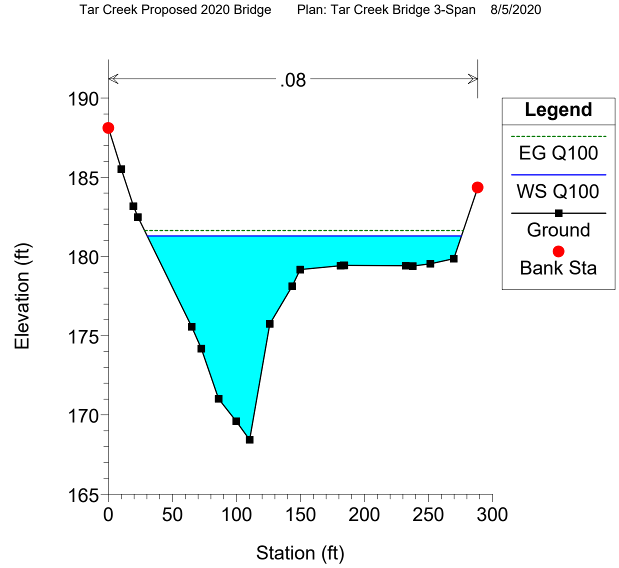

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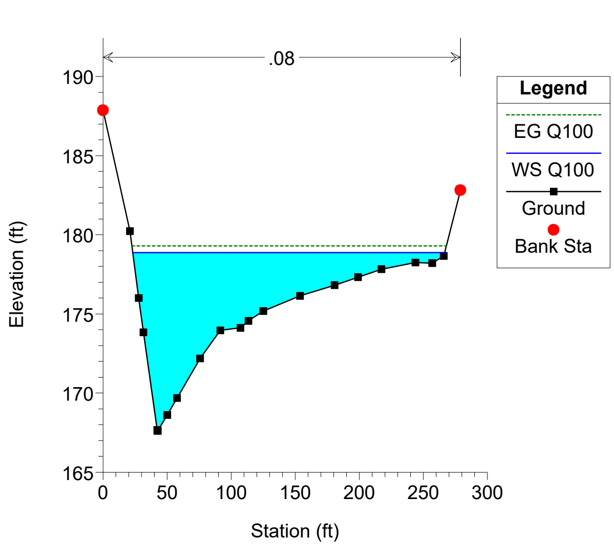

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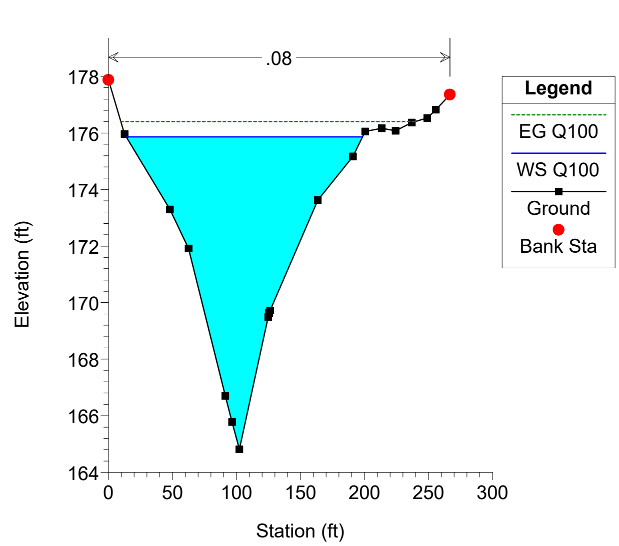

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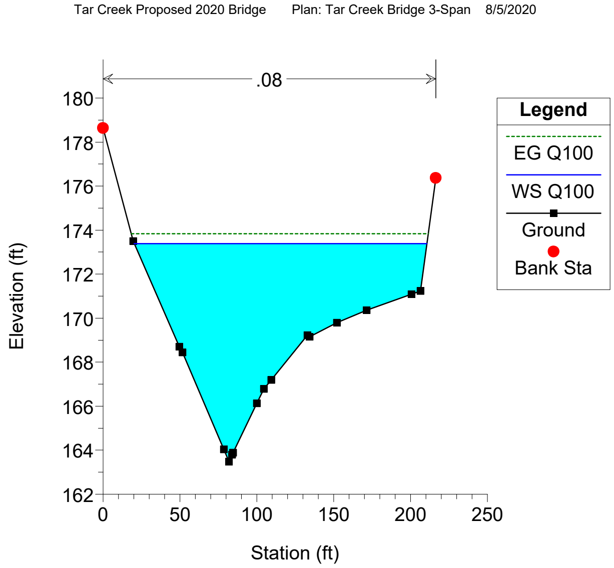

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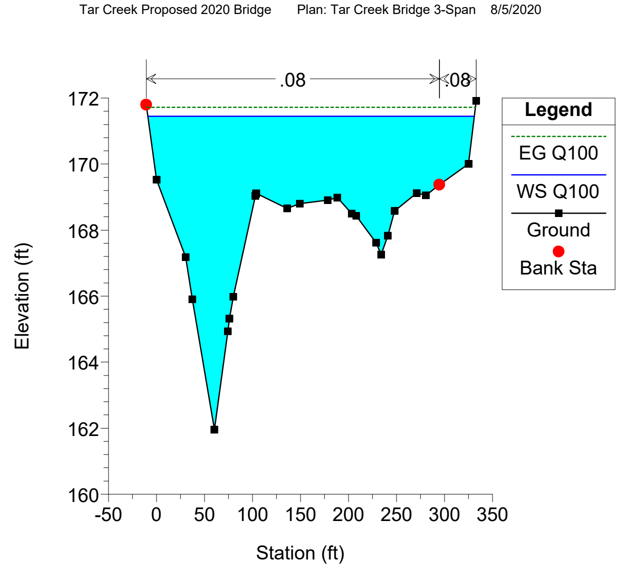

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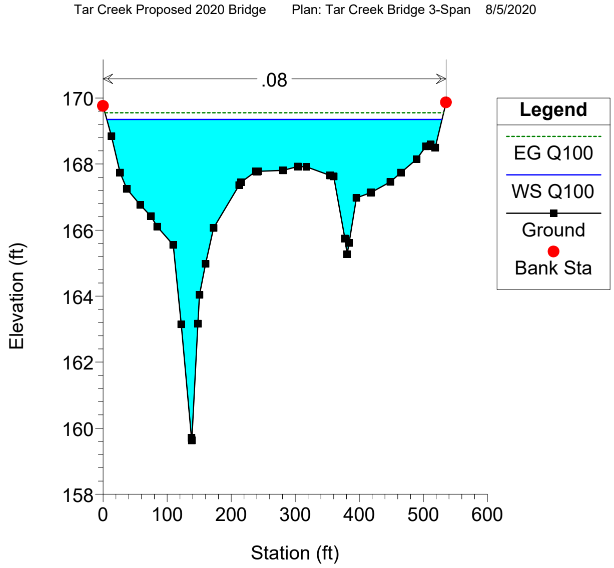

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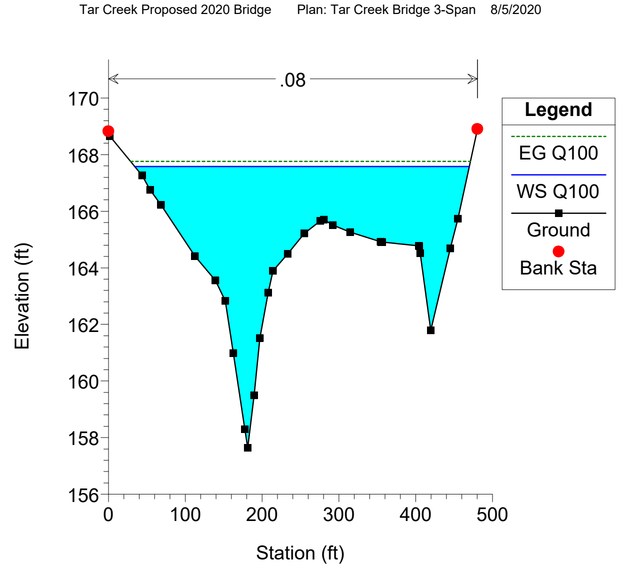

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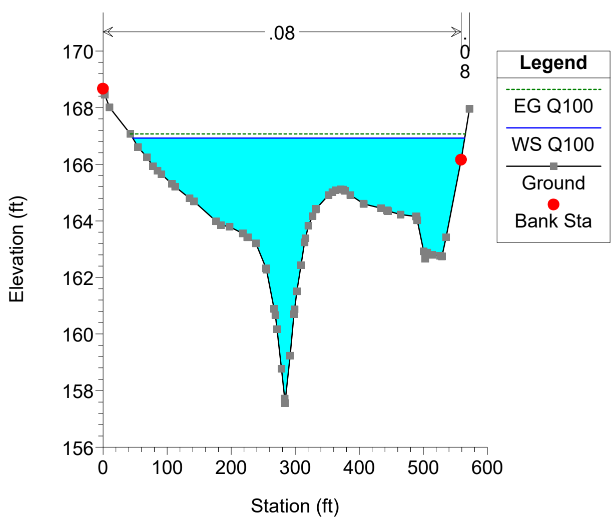

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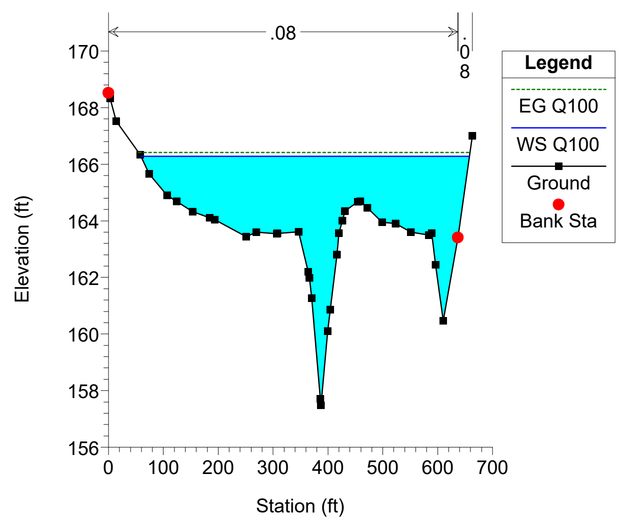

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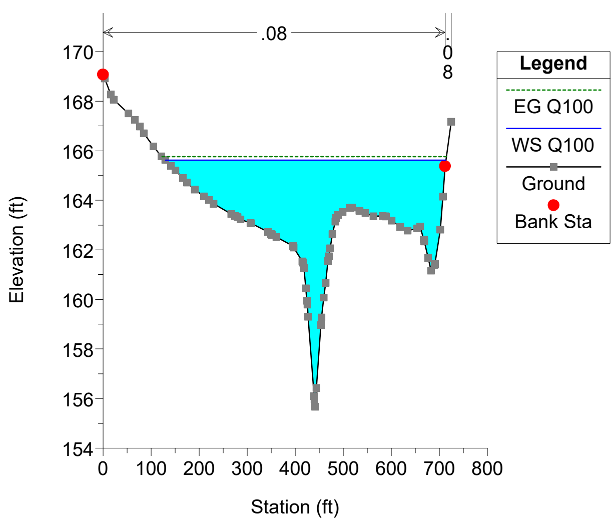

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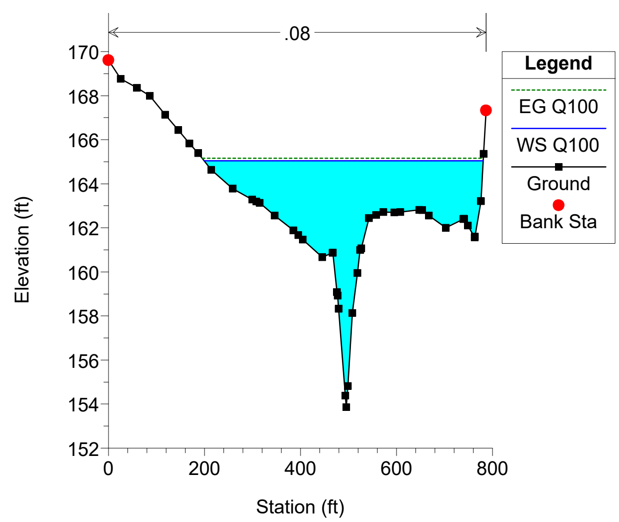

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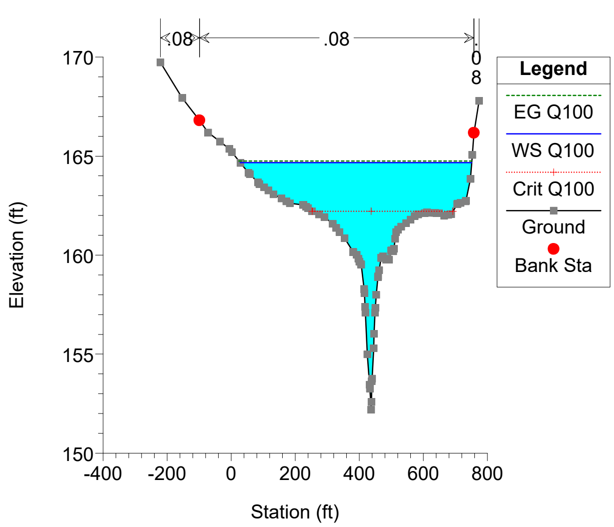
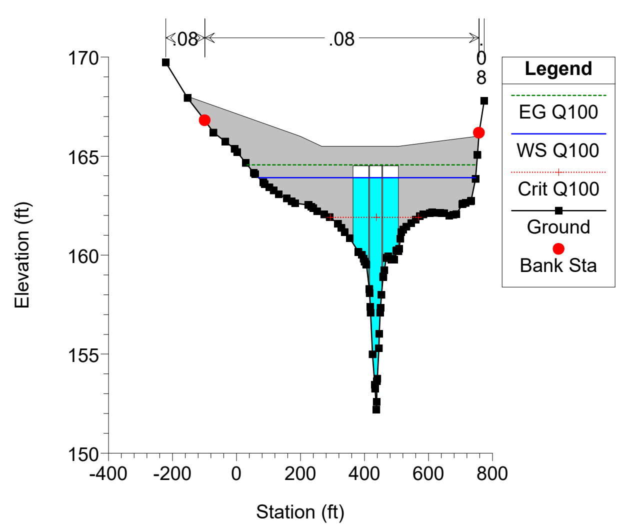
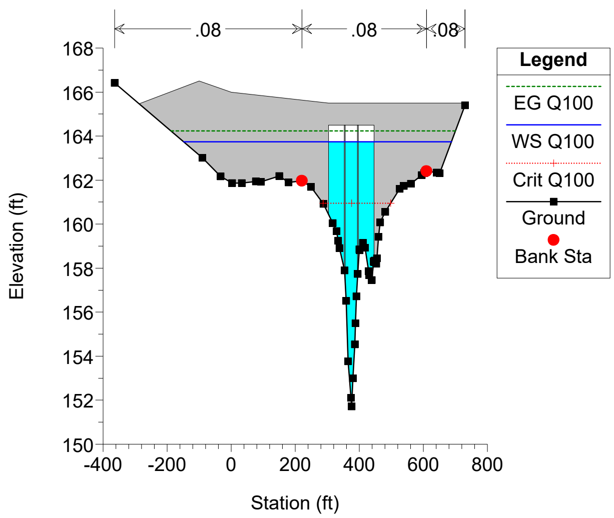


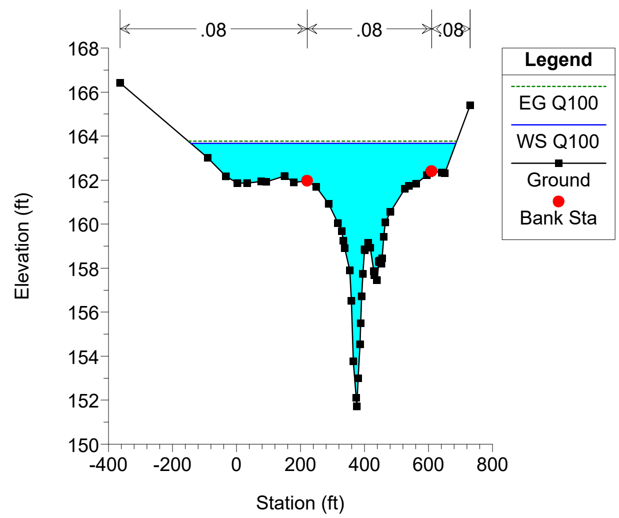
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



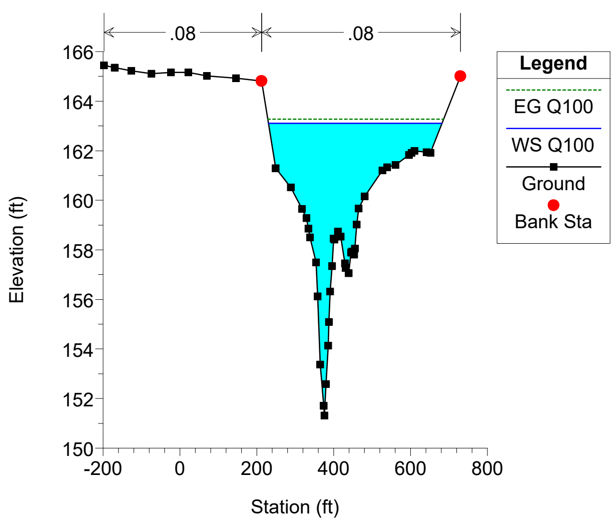
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



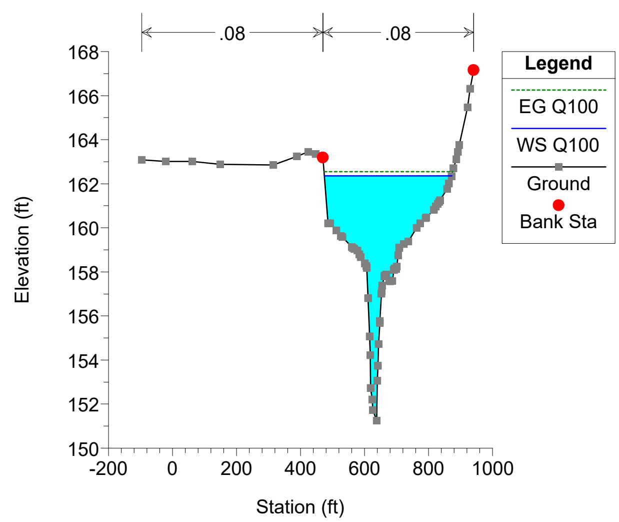
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



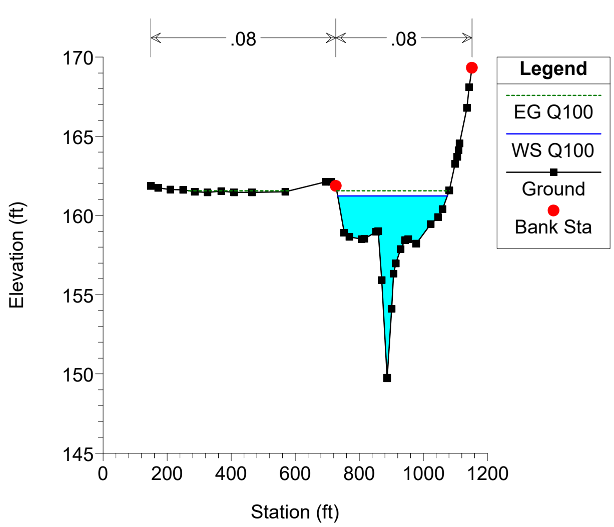
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



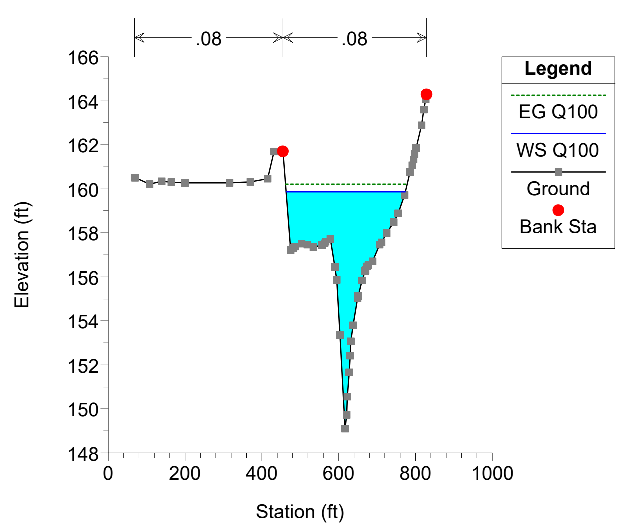
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



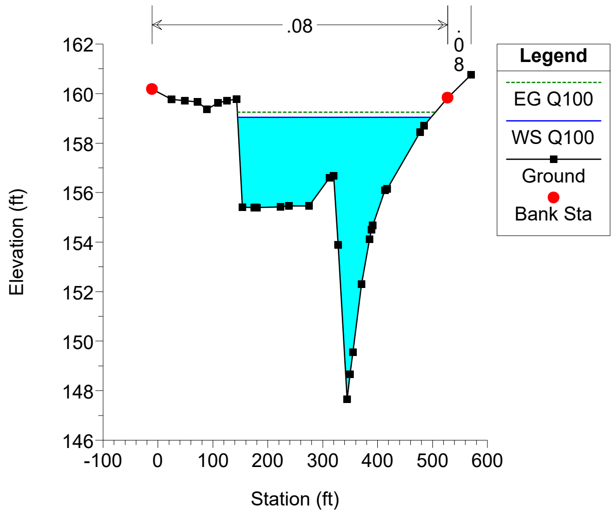
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



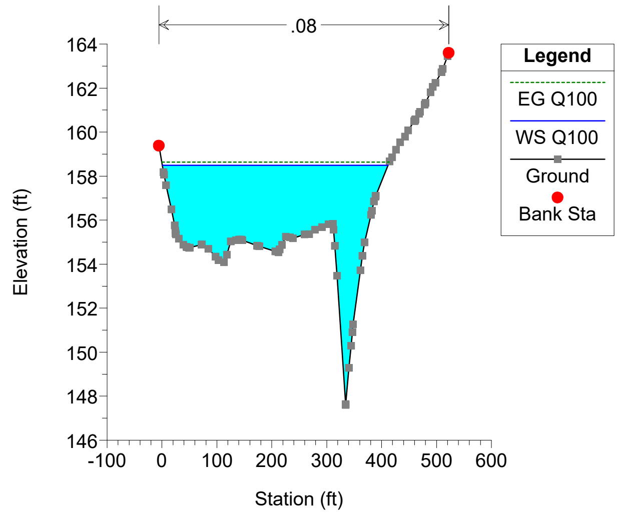
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



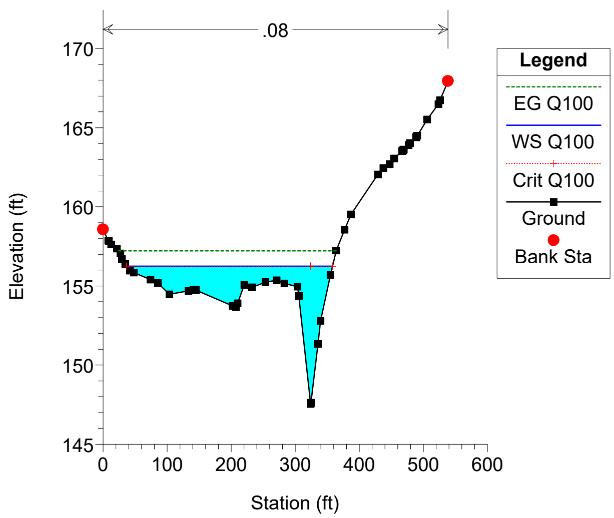
Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020

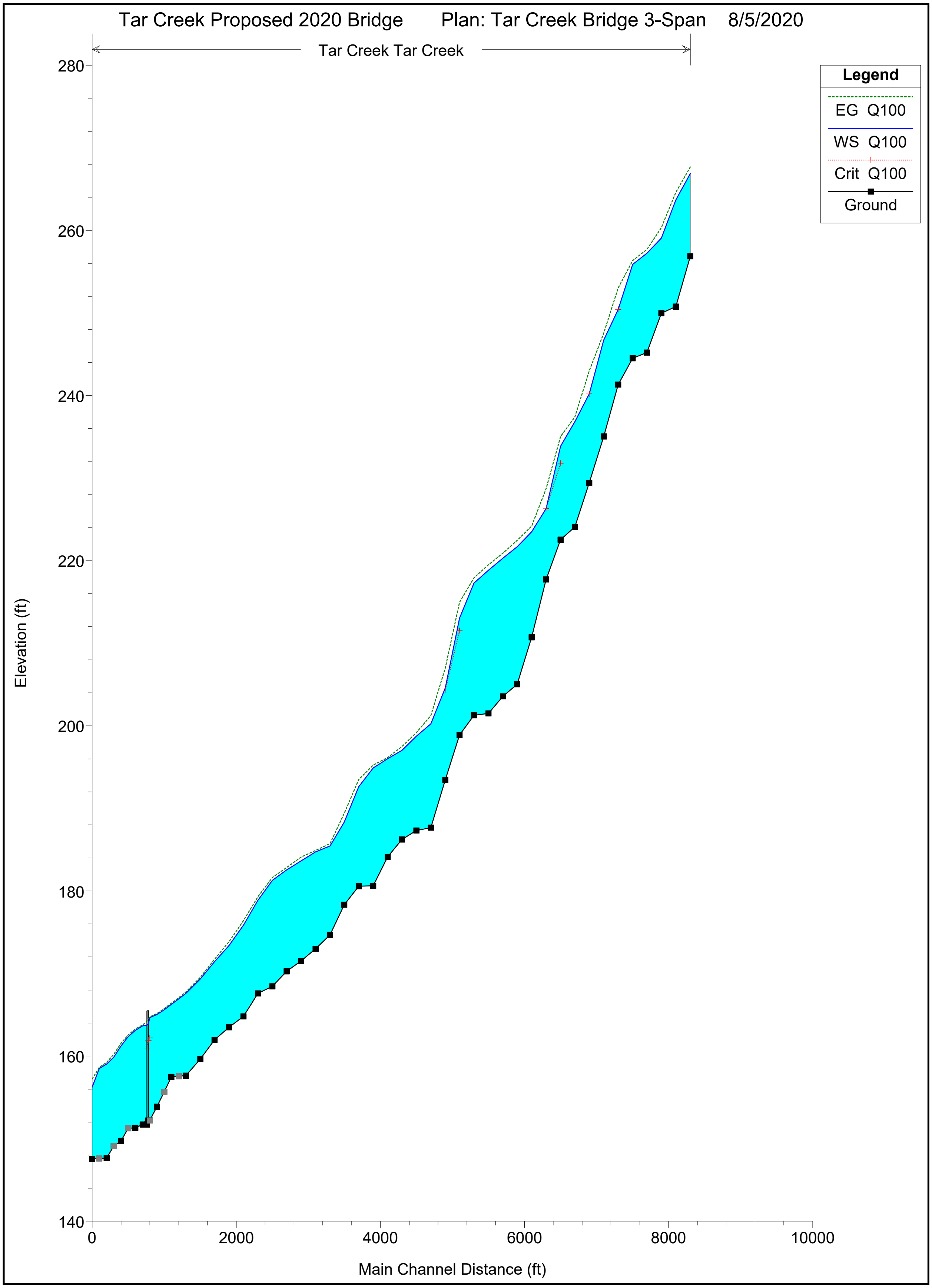


Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020



Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020




Tar Creek Proposed 2020 Bridge Plan: Tar Creek Bridge 3-Span 8/5/2020
Tar Creek Tar Creek
Legend
EG Q100
WS Q100
Crit Q100
Ground
Elevation (ft)
280
260
240
220
200
180
160
140
0
2000
4000
6000
8000
10000
Main Channel Distance (ft)

HEC-RAS Plan: 3-Span River: Tar Creek Reach: Tar Creek Profile: Q100

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tar Creek	8400	Q100	4711.00	256.85	266.88		267.69	0.015418	7.41	674.45	140.45	0.54
Tar Creek	8200	Q100	4711.00	250.78	263.70		264.60	0.015456	7.62	621.50	110.01	0.54
Tar Creek	8000	Q100	4711.00	249.96	259.06		260.34	0.030526	9.77	562.34	156.07	0.74
Tar Creek	7800	Q100	4711.00	245.20	257.24		257.69	0.006377	5.47	911.82	156.29	0.36
Tar Creek	7600	Q100	4711.00	244.52	255.89		256.35	0.007048	5.60	909.20	167.48	0.38
Tar Creek	7400	Q100	4711.00	241.32	250.41	250.41	253.03	0.058136	12.97	363.25	71.10	1.01
Tar Creek	7200	Q100	4711.00	235.04	246.72		247.57	0.011495	7.39	637.84	86.19	0.48
Tar Creek	7000	Q100	4711.00	229.45	240.19	240.19	242.99	0.057289	13.41	351.32	63.29	1.00
Tar Creek	6800	Q100	4711.00	224.06	236.81		237.39	0.007643	6.17	780.58	120.72	0.40
Tar Creek	6600	Q100	4711.00	222.54	233.85	231.79	235.03	0.019362	8.71	541.53	86.20	0.61
Tar Creek	6400	Q100	4711.00	217.72	226.30	226.30	228.71	0.057302	12.44	378.55	78.62	1.00
Tar Creek	6200	Q100	4711.00	210.73	223.49		224.18	0.008254	6.76	720.90	94.50	0.41
Tar Creek	6000	Q100	4711.00	205.03	221.69		222.45	0.008902	7.03	670.18	75.90	0.42
Tar Creek	5800	Q100	4711.00	203.56	220.30		220.90	0.006413	6.25	757.77	85.01	0.36
Tar Creek	5600	Q100	4711.00	201.50	218.84		219.50	0.007661	6.52	722.12	82.63	0.39
Tar Creek	5400	Q100	4711.00	201.28	217.30		217.93	0.007944	6.38	739.27	93.07	0.40
Tar Creek	5200	Q100	4711.00	198.88	213.04	211.53	214.98	0.031798	11.15	422.64	62.15	0.75
Tar Creek	5000	Q100	4711.00	193.46	204.61	204.33	207.02	0.050539	12.44	378.56	70.09	0.94
Tar Creek	4800	Q100	4711.00	187.67	200.24		201.23	0.016565	7.98	590.60	93.52	0.56
Tar Creek	4600	Q100	4711.00	187.33	198.74		199.17	0.006127	5.60	956.41	172.97	0.35
Tar Creek	4400	Q100	4711.00	186.22	197.02		197.49	0.012073	5.60	861.21	198.61	0.46
Tar Creek	4200	Q100	4711.00	184.14	196.01		196.17	0.003713	3.29	1460.83	307.69	0.26
Tar Creek	4000	Q100	4711.00	180.64	194.89		195.24	0.005722	4.80	993.26	164.94	0.33
Tar Creek	3800	Q100	4711.00	180.57	192.62		193.50	0.013631	7.61	639.06	107.27	0.51
Tar Creek	3600	Q100	4711.00	178.34	188.36		189.41	0.033651	8.23	572.63	149.98	0.74
Tar Creek	3400	Q100	4711.00	174.69	185.44		185.72	0.010500	4.25	1114.81	338.62	0.41
Tar Creek	3200	Q100	4711.00	172.99	184.75		184.90	0.002046	3.28	1577.58	264.14	0.21
Tar Creek	3000	Q100	4711.00	171.54	183.66		184.10	0.009826	5.33	883.92	176.87	0.42
Tar Creek	2800	Q100	4711.00	170.27	182.56		182.84	0.004084	4.31	1092.71	153.86	0.29
Tar Creek	2600	Q100	4711.00	168.44	181.29		181.63	0.009770	4.67	1008.62	245.43	0.41
Tar Creek	2400	Q100	4711.00	167.60	178.88		179.30	0.014109	5.23	901.13	243.47	0.48
Tar Creek	2200	Q100	4711.00	164.81	175.86		176.40	0.014772	5.94	793.74	184.62	0.50
Tar Creek	2000	Q100	4711.00	163.49	173.39		173.84	0.011014	5.37	877.73	190.43	0.44
Tar Creek	1800	Q100	4711.00	161.96	171.45		171.72	0.009699	4.24	1134.91	340.12	0.40
Tar Creek	1600	Q100	4711.00	159.63	169.35		169.56	0.011958	3.68	1280.14	523.05	0.41
Tar Creek	1400	Q100	4711.00	157.64	167.58		167.76	0.006952	3.36	1401.06	436.09	0.33
Tar Creek	1300.*	Q100	4711.00	157.56	166.93		167.07	0.006573	3.10	1520.80	518.14	0.32
Tar Creek	1200	Q100	4711.00	157.48	166.28		166.42	0.006507	2.93	1616.72	598.54	0.31
Tar Creek	1100.*	Q100	4711.00	155.67	165.62		165.76	0.006712	2.97	1588.61	583.58	0.32
Tar Creek	1000	Q100	4711.00	153.86	165.04		165.16	0.005245	2.75	1710.39	581.34	0.28
Tar Creek	900.*	Q100	4711.00	152.20	164.67	162.21	164.74	0.003136	2.16	2176.80	722.72	0.22
Tar Creek	850		Bridge									
Tar Creek	840	Q100	4711.00	151.72	163.67		163.77	0.003624	2.69	2043.23	828.45	0.24
Tar Creek	800	Q100	4711.00	151.32	163.10		163.27	0.006846	3.30	1428.25	451.64	0.33
Tar Creek	700.*	Q100	4711.00	151.25	162.36		162.55	0.007497	3.56	1322.31	397.86	0.34
Tar Creek	600	Q100	4711.00	149.73	161.24		161.56	0.013486	4.51	1044.70	342.75	0.46
Tar Creek	500.*	Q100	4711.00	149.10	159.86		160.21	0.013502	4.70	1003.05	310.25	0.46
Tar Creek	400	Q100	4711.00	147.65	159.04		159.24	0.006695	3.61	1303.29	352.30	0.33
Tar Creek	300.*	Q100	4711.00	147.60	158.48		158.64	0.005249	3.16	1489.82	410.90	0.29
Tar Creek	200	Q100	4711.00	147.55	156.25	156.25	157.22	0.080106	7.90	596.50	321.35	1.02

Plan: 3-Span   Tar Creek   Tar Creek RS: 850   Profile: Q100

E.G. US. (ft)	164.74	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	164.67	E.G. Elev (ft)	164.56	164.24
Q Total (cfs)	4711.00	W.S. Elev (ft)	163.91	163.74
Q Bridge (cfs)	4711.00	Crit W.S. (ft)	161.91	160.95
Q Weir (cfs)		Max Chl Dpth (ft)	11.71	12.02
Weir Sta Lft (ft)		Vel Total (ft/s)	6.50	5.66
Weir Sta Rgt (ft)		Flow Area (sq ft)	724.22	832.30
Weir Submerg		Froude # Chl	0.34	0.29
Weir Max Depth (ft)		Specif Force (cu ft)	3249.54	3771.48
Min El Weir Flow (ft)	165.51	Hydr Depth (ft)	5.34	6.14
Min El Prs (ft)	164.50	W.P. Total (ft)	166.72	170.37
Delta EG (ft)	0.98	Conv. Total (cfs)	35812.2	44507.5
Delta WS (ft)	1.00	Top Width (ft)	135.50	135.50
BR Open Area (sq ft)	804.83	Frctn Loss (ft)	0.28	0.35
BR Open Vel (ft/s)	6.50	C & E Loss (ft)	0.05	0.12
BR Sluice Coef		Shear Total (lb/sq ft)	4.69	3.42
BR Sel Method	Energy only	Power Total (lb/ft s)	30.53	19.34

Culvert Report

Culvert at Pit #3

Invert Elev Dn (ft)	=	169.00
Pipe Length (ft)	=	2100.00
Slope (%)	=	3.46
Invert Elev Up (ft)	=	241.60
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Mitered to slope (C)
Coeff. K,M,c,Y,k	=	0.021, 1.33, 0.0463, 0.75, 0.7

Embankment

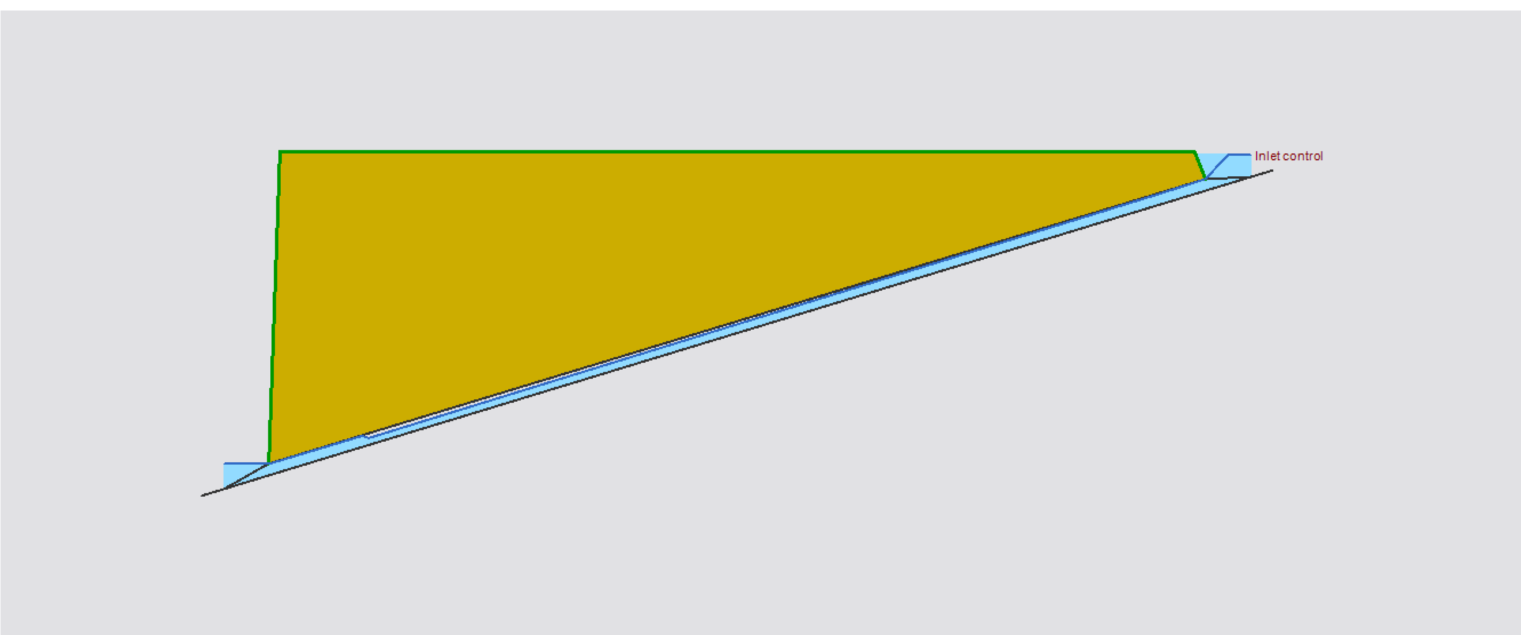
Top Elevation (ft)	=	251.60
Top Width (ft)	=	2050.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	85.70
Qmax (cfs)	=	85.70
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	85.70
Qpipe (cfs)	=	85.70
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	12.23
Veloc Up (ft/s)	=	12.44
HGL Dn (ft)	=	171.91
HGL Up (ft)	=	244.42
Hw Elev (ft)	=	250.73
Hw/D (ft)	=	3.04
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. | Friday, Aug 26 2016

Culverts at Pit #1

Invert Elev Dn (ft)	=	243.50
Pipe Length (ft)	=	152.00
Slope (%)	=	0.66
Invert Elev Up (ft)	=	244.50
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	3
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

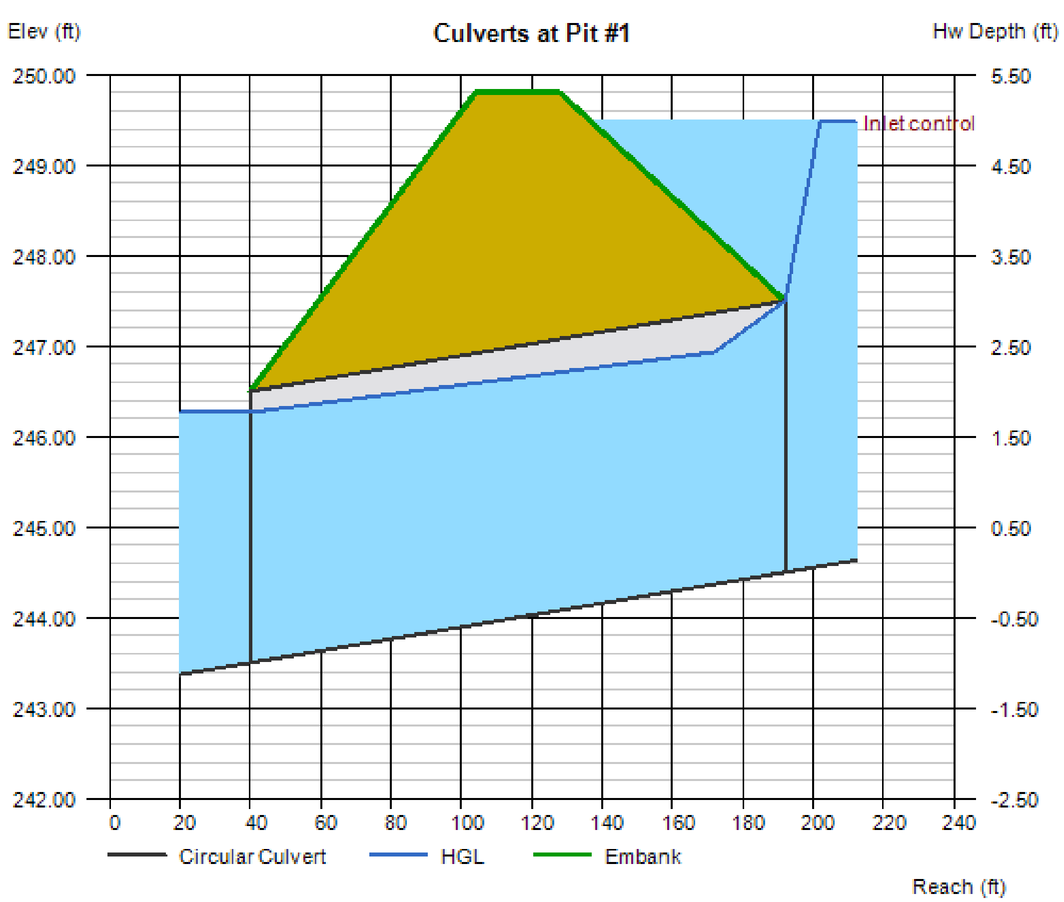
Top Elevation (ft)	=	249.80
Top Width (ft)	=	24.00
Crest Width (ft)	=	24.00

Calculations

Qmin (cfs)	=	186.10
Qmax (cfs)	=	186.10
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

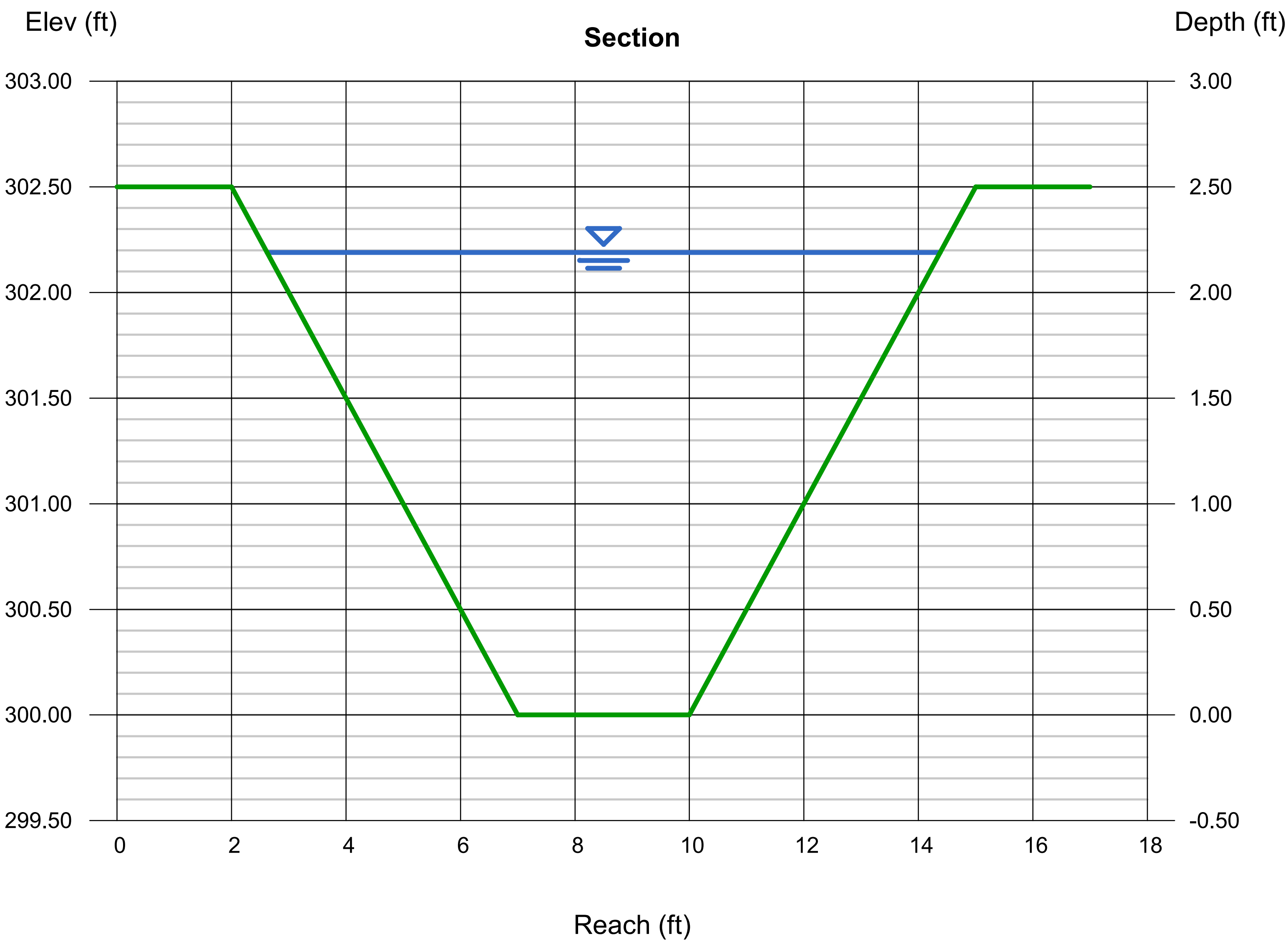
Qtotal (cfs)	=	186.10
Qpipe (cfs)	=	186.10
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	9.10
Veloc Up (ft/s)	=	9.74
HGL Dn (ft)	=	246.27
HGL Up (ft)	=	247.04
Hw Elev (ft)	=	249.48
Hw/D (ft)	=	1.66
Flow Regime	=	Inlet Control



Channel Report

Swale 100 year

Trapezoidal		**Highlighted**	
Bottom Width (ft)	= 3.00	Depth (ft)	= 2.19
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 186.10
Total Depth (ft)	= 2.50	Area (sqft)	= 16.16
Invert Elev (ft)	= 300.00	Velocity (ft/s)	= 11.51
Slope (%)	= 4.00	Wetted Perim (ft)	= 12.79
N-Value	= 0.030	Crit Depth, Yc (ft)	= 2.50
		Top Width (ft)	= 11.76
Calculations		EGL (ft)	= 4.25
Compute by:	Known Q		
Known Q (cfs)	= 186.10		



Appendix D – Bridge Scour
Sediment Transport
Rip-Rap Reinforcement

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):		2.94	
	Approach Velocity (ft/s):		2.75	
	Br Average Depth (ft):		5.34	
	BR Opening Flow (cfs):		4711.00	
	BR Top WD (ft):		135.50	
	Grain Size D50 (mm):		.002	
	Approach Flow (cfs):		4711.00	
	Approach Top WD (ft):		581.34	
	K1 Coefficient:		0.590	
Results				
	Scour Depth Ys (ft):		1.60	
	Critical Velocity (ft/s):		0.25	
	Equation:		Live	

Pier Scour

All piers have the same scour depth

Input Data		
	Pier Shape:	Round nose
	Pier Width (ft):	3.00
	Grain Size D50 (mm):	0.00200
	Depth Upstream (ft):	3.01
	Velocity Upstream (ft/s):	2.16
	K1 Nose Shape:	1.00
	Pier Angle:	0.00
	Pier Length (ft):	20.00
	K2 Angle Coef:	1.00
	K3 Bed Cond Coef:	1.10
	Grain Size D90 (mm):	0.00200
	K4 Armouring Coef:	1.00
Results		
	Scour Depth Ys (ft):	3.44
	Froude #:	0.22
	Equation:	CSU equation

Abutment Scour

		Left	Right
Input Data			
	Station at Toe (ft):	364.25	505.75
	Toe Sta at appr (ft):	462.87	534.05
	Abutment Length (ft):	342.09	186.65
	Depth at Toe (ft):	4.09	4.47
	K1 Shape Coef:	1.00 - Vertical abutment	
	Degree of Skew (degrees):	90.00	90.00
	K2 Skew Coef:	1.00	1.00
	Projected Length L' (ft):	342.09	186.65
	Avg Depth Obstructed Ya (ft):	2.94	2.94
	Flow Obstructed Qe (cfs):	2772.16	1512.54
	Area Obstructed Ae (sq ft):	1006.47	549.15
Results			
	Scour Depth Ys (ft):	17.14	18.46
	Froude #:	0.19	0.18

Equation:	HIRE	HIRE

Combined Scour Depths

Pier Scour + Contraction Scour (ft):		
	Channel:	5.05
Left abutment scour + contraction scour (ft):	18.74	
Right abutment scour + contraction scour (ft):	20.06	

Tar Creek Sediment Transport

a	b	c	d
3.372	2.622	0.182	0

$q_s = a * V^b * D^c * S^d$

	Proposed		Existing	
	Upstream of Bridge	**Downstream of Bridge**	**Upstream of Bridge**	**Downstream of Bridge**
Width Floodplain (ft)	222	412	213	610
Depth of flow (ft)	11.7	11.0	11.7	10.7
Velocity (ft/s)	6.3	4.2	6.5	3.7
Slope	0.06	0.06	0.06	0.06
q_s (ton/ft/day)	671	222	706	158
Qs (ton/day)	148,787	91,355	150,261	96,444
Total Qs (ton/day)	**240,141**		**246,705**	

Proposed Velocity		**Existing Velocity**		**Proposed Width Flood Plain**		**Existing Width Flood Plain**		**Proposed Depth of Flow**		**Existing Depth of Flow**	
Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
7.41	2.69	7.41	2.97	140.45	808.45	140.45	767.69	10.03	11.95	10.03	11.38
7.62	3.3	7.62	2.95	110.01	431.64	110.01	794.95	12.92	11.78	12.92	11.19
9.77	3.56	9.77	3.55	156.07	377.86	156.07	800.46	9.1	11.11	9.1	10.58
5.47	4.51	5.47	2.77	156.29	322.75	156.29	675.29	12.04	11.51	12.04	10.64
5.6	4.7	5.6	2.45	167.48	290.25	167.48	498.24	11.37	10.76	11.37	11.28
12.97	3.61	12.97	3.16	71.1	332.3	71.1	410.89	9.09	11.39	9.09	10.88
7.39	3.16	7.39	7.92	86.19	410.9	86.19	321.2	11.68	10.88	11.68	8.69
13.41	7.9	13.41		63.29	321.35	63.29		10.74	8.7	10.74	
6.17		6.17		120.72		120.72		12.75		12.75	
8.71		8.71		86.2		86.2		11.31		11.31	
12.44		12.44		78.62		78.62		8.58		8.58	
6.76		6.76		94.5		94.5		12.76		12.76	
7.03		7.03		75.9		75.9		16.66		16.66	
6.25		6.25		85.01		85.01		16.74		16.74	
6.52		6.52		82.63		82.63		17.34		17.34	
6.38		6.38		93.07		93.07		16.02		16.02	
11.15		11.15		62.15		62.15		14.16		14.16	
12.44		12.44		70.09		70.09		11.15		11.15	
7.98		7.98		93.52		93.52		12.57		12.57	
5.6		5.6		172.97		172.97		11.41		11.41	
5.6		5.6		198.61		198.61		10.8		10.8	
3.29		3.29		307.69		307.69		11.87		11.87	
4.8		4.8		164.94		164.94		14.25		14.25	
7.61		7.61		107.27		107.27		12.05		12.05	
8.23		8.23		149.98		149.98		10.02		10.02	
4.25		4.25		338.62		338.62		10.75		10.75	
3.28		3.28		264.14		264.14		11.76		11.76	
5.33		5.33		176.87		176.87		12.12		12.12	
4.31		4.31		153.86		153.86		12.29		12.29	
4.67		4.67		245.43		245.43		12.85		12.85	
5.23		5.23		243.47		243.47		11.28		11.28	
5.94		5.94		184.62		184.62		11.05		11.05	
5.37		5.37		190.43		190.43		9.9		9.9	
4.24		4.24		340.12		340.12		9.49		9.49	
3.68		3.68		523.05		523.05		9.72		9.72	
3.36		3.36		436.09		436.2		9.94		9.93	
3.1		3.03		518.14		595.76		9.37		9.34	
2.93		3.24		598.54		563.4		8.8		8.74	
2.97		3.18		583.58		606.13		9.95		9.77	
2.75		3.15		581.34		662.39		11.18		10.74	
2.16				722.72				12.47		10.93	
6.3	4.2	6.5	3.7	222	412	213	610	11.7	11.0	11.7	10.7

Tar Bridge Abutments Protection

Fr	0.21	HEC-RAS	
V	6.5 ft/s	HEC-RAS	
y	3.76 ft	HEC-RAS	
K	1.02		
Ss	2.65		
g	32.2 ft/s^2		
D50	**0.8 ft**	**10 in**	

$$\frac{D_{50}}{y} = \frac{K}{(S_s-1)} \frac{(V^2)}{(gy)} \quad \text{if Fr<=0.80}$$

$$\frac{D_{50}}{y} = \frac{K}{(S_s-1)} \frac{(V^2)^{0.14}}{(gy)^{0.14}} \quad \text{if Fr>0.80}$$

Riprap Thiknes = $1.5D_{50}$

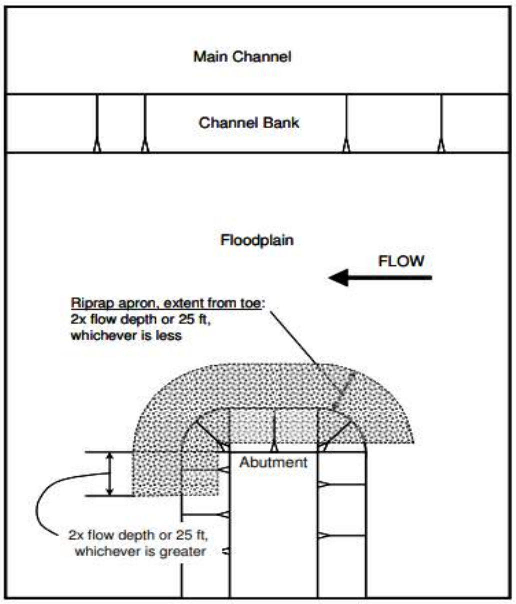
D50 = median stone diameter
V = characteristic average velocity in the contracted section
Ss = specific gravity of rock riprap, 2.65
g = gravitational acceleration, 32.2 ft/s2 (9.81 m/s2)
y = depth of flow in the contracted bridge opening,
K = 0.89 for a spill-through abutment 1.02 for a vertical wall abutment if Fr<=0.80
K = 0.61 for a spill-through abutment 0.69 for a vertical wall abutment if Fr>0.80

Riprap Thickness	**1.2**	**ft**

Riprap Layout and Extent

Horizontal	7.6 ft
Vertical	5.8 ft
Downstream	25 ft

Horizontal = 2 * depth of flow at overbank or 25' (smaller of two)
Vertical = 2 + depth of flow at overbank
Downstream = 2 * depth of flow at overbank or 25' (larger of two)



Tar Bridge Pier Protection

V_{max}	6.5 ft/s	HEC-RAS	
K_1	1.5		
V_{des}	9.75 ft/s		
S_g	2.65		
g	32.2 ft/s^2		
d_{50}	**0.6 ft**	**7 in**	

$$V_{des} = K_1 V_{max}$$

$$d_{50} = \frac{0.692\,(V_{des})^2}{(S_g-1)\,2g}$$

d_{50} = Particle size for which 50% is finer by weight, ft
V_{des} Design velocity ofr local conditions at the perit, ft/s
S_g = Specific gracity of ripral, usually 2.65
g = Acceleration due to gravity, 32.2 ft/s^2
K_1 Shape factor (1.5 for round-nose pier, 1.7 for square-faced pier)

$3d_{50}$	1.9	ft
Contraction Scour	1.6	ft
Riprap Thickness	**1.9**	**ft**

Riprap Thiknes = great of $3d_{50}$ or the contraction scour

Riprap Extent	**6**	**ft**

Extent = 2 * pier width

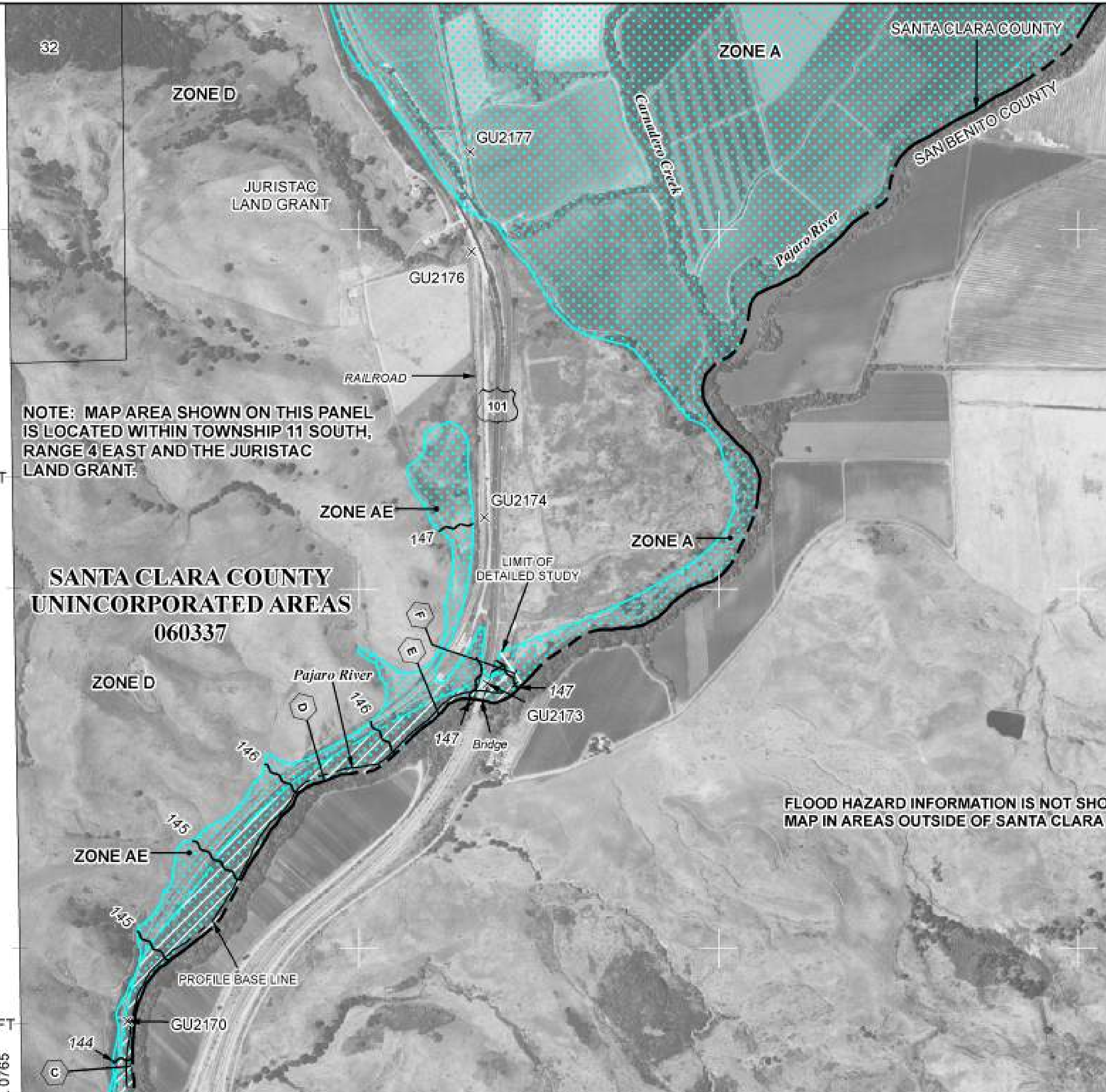
Appendix E – References

TABLE 49C. ALBC STRUCTURE AREA, PLATE AND RIB MAKE-UP

Box #	Inside Dimensions Span (Ft.-In.)	Inside Dimensions Rise (Ft.-In.)	Total (N)	Crown Arc Length (N)	Crown Plate (N)	Crown Rib Lengths Long/Short (N)	Haunch Plate (N)	Haunch Rib Length (N)	Straight Leg Length D (N)	Side Angle E (deg.)
1	8-9	2-6	14	5	NA	5/3	14	5.5	.5	15.40
2	9-2	3-3	16		TWO PLATE SHELL		8	6.5	1.5	
3	9-7	4-1	18				9	7.5	2.5	
4	10-0	4-10	20				10	7.5	3.5	
5	10-6	5-7	22				11	7.5	4.5	
6	10-11	6-4	24				12	7.5	5.5	
7	11-4	7-2	26				13	7.5	6.5	
8	10-2	2-8	16	7		7/3	8	6.5	.5	13.55
9	10-7	3-5	18				9	7.5	1.5	
10	10-11	4-3	20				10	8.5	2.5	
11	11-4	5-0	22				11	8.5	3.5	
12	11-8	5-9	24				12	8.5	4.5	
13	12-1	6-7	26				13	8.5	5.5	
14	12-5	7-4	28				14	8.5	6.5	
15	11-7	2-10	18	9		9/5	9	6.5	.5	11.70
16	11-11	3-7	20				10	7.5	1.5	
17	12-3	4-5	22				11	8.5	2.5	
18	12-7	5-2	24				12	8.5	3.5	
19	12-11	6-0	26				13	8.5	4.5	
20	13-3	6-9	28				14	8.5	5.5	
21	13-0	3-0	20	11		11/7	10	6.5	.5	9.87
22	13-4	3-10	22				11	7.5	1.5	
23	13-7	4-7	24				12	8.5	2.5	
24	13-10	5-5	26				13	8.5	3.5	
25	14-1	6-2	28				14	8.5	4.5	
26	14-5	3-3	22	13		13/9	11	6.5	.5	8.02
27	14-8	4-1	24		8		8	7.5	1.5	
28	14-10	4-10	26				9	8.5	2.5	
29	15-1	5-8	28				10	8.5	3.5	
30	15-4	6-5	30				11	8.5	4.5	
31	15-6	7-3	32				12	8.5	5.5	
32	15-9	8-0	34				13	8.5	6.5	
33	15-10	3-6	24	15	8	15/11	8	6.5	.5	6.17
34	16-0	4-3	26				9	7.5	1.5	
35	16-2	5-1	28				10	8.5	2.5	
36	16-4	5-11	30				11	8.5	3.5	
37	16-6	6-8	32				12	8.5	4.5	
38	16-8	7-6	34				13	8.5	5.5	
39	16-10	8-3	36				14	8.5	6.5	
40	17-9	3-10	26	17	10	17/13	8	6.5	.5	14.90
41	18-2	4-7	28				9	7.5	1.5	
42	18-7	5-4	30				10	8.5	2.5	
43	19-0	6-1	32				11	9.5	3.5	
44	19-5	6-11	34				12	9.5	4.5	
45	19-10	7-8	36				13	9.5	5.5	
46	20-3	8-5	38				14	9.5	6.5	
47	19-1	4-2	28	19	12	19/15	8	6.5	.5	12.78
48	19-5	4-11	30				9	7.5	1.5	
49	19-9	5-8	32				10	8.5	2.5	
50	20-1	6-6	34				11	9.5	3.5	
51	20-6	7-3	36				12	9.5	4.5	
52	20-10	8-1	38				13	9.5	5.5	
53	21-2	8-10	40				14	9.5	6.5	
54	20-4	4-6	30	21	14	21/17	8	6.5	.5	10.67
55	20-7	5-3	32				9	7.5	1.5	
56	20-11	6-1	34				10	8.5	2.5	
57	21-3	6-10	36				11	9.5	3.5	
58	21-6	7-8	38				12	9.5	4.5	
59	21-10	8-5	40				13	9.5	5.5	
60	22-1	9-3	42				14	9.5	6.5	
61	21-7	4-11	32	23	14	23/19	9	6.5	.5	8.53
62	21-10	5-8	34				10	7.5	1.5	
63	22-1	6-6	36				11	8.5	2.5	
64	22-3	7-3	38				12	9.5	3.5	
65	22-6	8-1	40				13	9.5	4.5	
66	22-9	8-10	42				14	9.5	5.5	
67	23-0	9-8	44				15	9.5	6.5	

Box #	Inside Dimensions Span (Ft.-In.)	Inside Dimensions Rise (Ft.-In.)	Total (N)	Crown Arc Length (N)	Crown Plate (N)	Crown Rib Lengths Long/Short (N)	Haunch Plate (N)	Haunch Rib Length (N)	Straight Leg Length D (N)	Side Angle E (deg.)
68	22-9	5-4	34	25	14	25/21	10	6.5	.5	6.42
69	23-0	6-1	36				11	7.5	1.5	
70	23-2	6-11	38				12	8.5	2.5	
71	23-4	7-8	40				13	9.5	3.5	
72	23-6	8-6	42				14	9.5	4.5	
73	23-8	9-3	44				15	9.5	5.5	
74	23-10	10-1	46				16	9.5	6.5	
75	24-0	5-9	36	27	16	27/23	10	6.5	.5	4.30
76	24-1	6-6	38				11	7.5	1.5	
77	24-3	7-4	40				12	8.5	2.5	
78	24-4	8-2	42				13	9.5	3.5	
79	24-5	8-11	44				14	9.5	4.5	
80	24-7	9-9	46				15	9.5	5.5	
81	24-8	10-6	48				16	9.5	6.5	
82	25-2	6-2	38	29	16	29/25	11	6.5	.5	2.18
83	25-2	7-0	40				12	7.5	1.5	
84	25-3	7-9	42				13	8.5	2.5	
85	25-4	8-7	44				14	9.5	3.5	
86	25-4	9-5	46				15	9.5	4.5	
87	25-5	10-2	48				16	9.5	5.5	
88	26-7	5-5	38	29	16	29/25	11	6.5	.5	15.22
89	27-0	6-3	40				12	7.5	1.5	
90	27-5	7-0	42				13	8.5	2.5	
91	27-10	7-9	44				14	9.5	3.5	
92	28-3	8-7	46				15	9.5	4.5	
93	28-8	9-4	48				16	9.5	5.5	
94	29-2	10-1	50				17	9.5	6.5	
95	27-10	5-10	40	31	16	31/25	12	7.5	.5	13.45
96	28-3	6-8	42				13	8.5	1.5	
97	28-7	7-5	44				14	9.5	2.5	
98	29-0	8-3	46				15	10.5	3.5	
99	29-4	9-0	48				16	10.5	4.5	
100	29-8	9-9	50				17	10.5	5.5	
101	30-1	10-7	52				18	10.5	6.5	
102	29-1	6-4	42	33	18	33/25	12	8.5	.5	11.68
103	29-5	7-1	44				13	9.5	1.5	
104	29-8	7-11	46				14	10.5	2.5	
105	30-0	8-8	48				15	11.5	3.5	
106	30-4	9-5	50				16	11.5	4.5	
107	30-8	10-3	52				17	11.5	5.5	
108	31-0	11-0	54				18	11.5	6.5	
109	30-3	6-9	44	35	18	35/27	13	8.5	.5	9.92
110	30-6	7-7	46				14	9.5	1.5	
111	30-10	8-4	48				15	10.5	2.5	
112	31-1	9-2	50				16	11.5	3.5	
113	31-4	9-11	52				17	11.5	4.5	
114	31-8	10-9	54				18	11.5	5.5	
115	31-11	11-6	56				19	11.5	6.5	
116	31-5	7-3	46	37	18	37/29	14	8.5	.5	8.15
117	31-8	8-0	48				15	9.5	1.5	
118	31-10	8-10	50				16	10.5	2.5	
119	32-1	9-8	52				17	11.5	3.5	
120	32-3	10-5	54				18	11.5	4.5	
121	32-7	11-3	56				19	11.5	5.5	
122	32-8	12-0	58				20	11.5	6.5	
123	32-7	7-9	48	39	20	39/31	14	8.5	.5	6.37
124	32-9	8-6	50				15	9.5	1.5	
125	32-11	9-4	52				16	10.5	2.5	
126	33-1	10-2	54				17	11.5	3.5	
127	33-3	10-11	56				18	11.5	4.5	
128	33-5	11-9	58				19	11.5	5.5	
129	33-8	12-6	60				20	11.5	6.5	
130	33-8	8-3	50	41	20	41/33	15	8.5	.5	4.62
131	33-9	9-1	52				16	9.5	1.5	
132	33-11	9-10	54				17	10.5	2.5	
133	34-0	10-8	56				18	11.5	3.5	
134	34-2	11-5	58				19	11.5	4.5	
135	34-3	12-3	60				20	11.5	5.5	
136	34-5	13-1	62				21	11.5	6.5	
137	34-9	8-9	52	43	20	43/35	16	8.5	.5	2.85
138	34-10	9-7	54				17	9.5	1.5	
139	34-11	10-4	56				18	10.5	2.5	
140	35-0	11-2	58				19	11.5	3.5	
141	35-1	12-0	60				20	11.5	4.5	
142	35-2	12-9	62				21	11.5	5.5	
143	35-3	13-7	64				22	11.5	6.5	

Note: Box #1 is a one plate shell.



MAP SCALE 1" = 1000'

500 0 1000 200

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0770H

FIRM

FLOOD INSURANCE RATE M

SANTA CLARA COUNTY,
CALIFORNIA
AND INCORPORATED AREAS

PANEL 770 OF 830

(SEE MAP INDEX FOR FIRM PANEL LAYOU

CONTAINS:

COMMUNITY	NUMBER	PANEL	SU
SANTA CLARA COUNTY	060337	0770	

Notice to User: The Map Number shown below sho used when placing map orders; the Community Nu shown above should be used on insurance applications subject community.

MAP NUMBE
06085C07

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MAY 18, 2

Federal Emergency Management Age

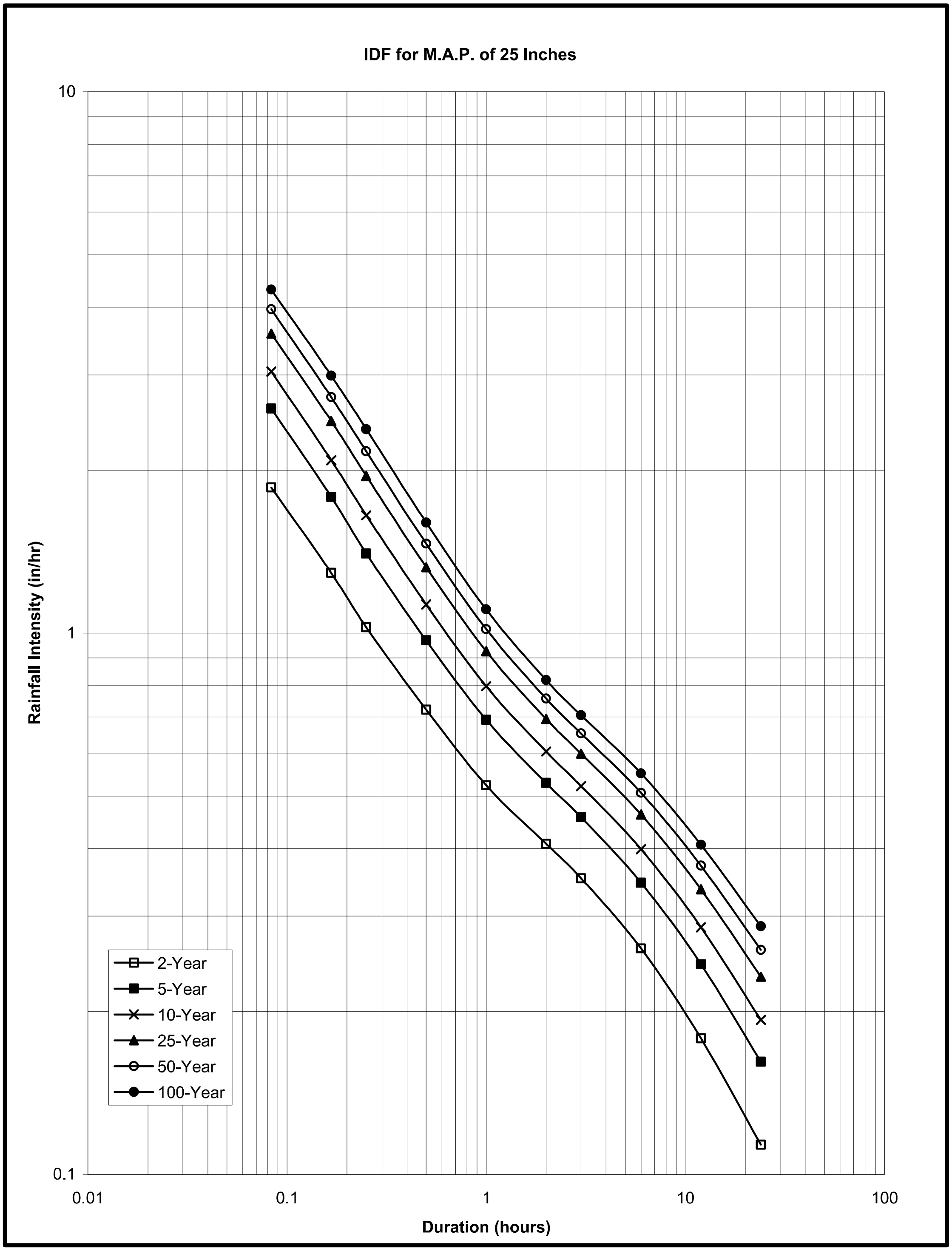
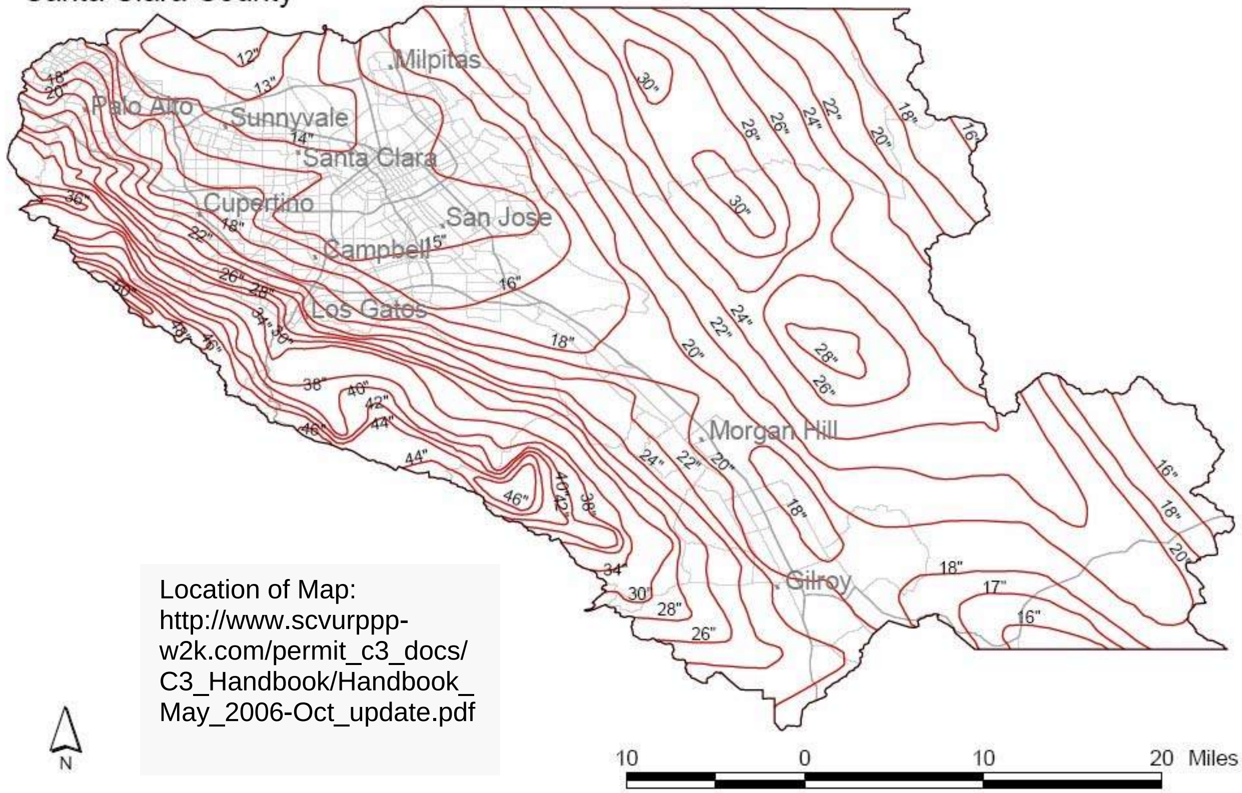


Figure B-6: IDF for M.A.P. of 25 Inches

Figure A-2
Mean Annual Precipitation Map
Santa Clara County



SOURCE: Santa Clara Valley Water District, Mean Annual Precipitation Map, San Francisco & Monterey Bay Region, 1998

Figure A-2: Mean Annual Precipitation, Santa Clara County

$$S_g = \frac{\gamma_s}{\gamma_w} \quad (4.4)$$

Typically, a minimum allowable specific gravity of 2.5 is required for riprap applications. Where quarry sources uniformly produce rock with a specific gravity significantly greater than 2.5 (such as dolomite, S_g = 2.7 to 2.8), the equivalent stone size can be substantially reduced and still achieve the same particle weight gradation.

Size and weight: Based on field studies, the recommended relationship between size and weight is given by:

$$W = 0.85(\gamma_s d^3) \quad (4.5)$$

where:

W = Weight of stone, lb (kg)
γ_s = Density of stone, lb/ft^3 (kg/m^3)
d = Size of intermediate ("B") axis, ft (m)

Table 4.1 provides recommended gradations for ten standard classes of riprap based on the median particle diameter d_{50} as determined by the dimension of the intermediate ("B") axis. These gradations conform to those recommended in NCHRP Report 568 (Lagasse et al. 2006). The proposed gradation criteria are based on a nominal or "target" d_{50} and a uniformity ratio d_{85}/d_{15} that results in riprap that is well graded. The target uniformity ratio d_{85}/d_{15} is 2.0 and the allowable range is from 1.5 to 2.5.

Table 4.1. Minimum and Maximum Allowable Particle Size in Inches.

Nominal Riprap Class by Median Particle Diameter		d_{15}		d_{50}		d_{85}		d_{100}
Class	Size	Min	Max	Min	Max	Min	Max	Max
I	6 in	3.7	5.2	5.7	6.9	7.8	9.2	12.0
II	9 in	5.5	7.8	8.5	10.5	11.5	14.0	18.0
III	12 in	7.3	10.5	11.5	14.0	15.5	18.5	24.0
IV	15 in	9.2	13.0	14.5	17.5	19.5	23.0	30.0
V	18 in	11.0	15.5	17.0	20.5	23.5	27.5	36.0
VI	21 in	13.0	18.5	20.0	24.0	27.5	32.5	42.0
VII	24 in	14.5	21.0	23.0	27.5	31.0	37.0	48.0
VIII	30 in	18.5	26.0	28.5	34.5	39.0	46.0	60.0
IX	36 in	22.0	31.5	34.0	41.5	47.0	55.5	72.0
X	42 in	25.5	36.5	40.0	48.5	54.5	64.5	84.0

Note: Particle size d corresponds to the intermediate ("B") axis of the particle.

Based on Equation 4.5, which assumes the volume of the stone is 85% of a cube, Table 4.2 provides the equivalent particle weights for the same ten classes, using a specific gravity of 2.65 for the particle density.

A summary of coefficient and exponents (for SI units) is presented in Table 4.3, depending on size of bed material. **Note that the values of "a" must be multiplied by a factor of 1.1 x $0.3048^{(1+b+c)}$ for input and results in English units**.

Table 4.3. Coefficient and Exponents for Equation 4.50.				
	a*	b	c	d
Silt-bed rivers	281.4	2.622	0.182	0
Very fine to fine-bed rivers	2,829.6	3.646	0.406	0.412
Medium to very coarse sand-bed rivers	2,123.4	3.300	0.468	0.613
Gravel-bed rivers	431,884.8	1.000	1.000	2.000
*a (English Units) = 1.1 x $0.3048^{(1+b+c)}$ (a)				

An example of the application of the expanded power function relationship is given in Section 4.12 (SI) and 4.13 (English)

4.7 YANG'S EQUATIONS

The Yang sand and gravel total load equations are presented because of their frequent application and wide acceptance. The Yang equations are also readily adaptable to computer solutions. Yang (1996) related total load to excess unit stream power, expressed as the product of velocity and slope. Separate equations were developed for sand and gravel bed material and solved for sediment concentration in ppm by weight. The regression equations are developed based on dimensionless combinations of unit stream power, critical unit stream power, shear velocity, fall velocity, kinematic viscosity and sediment size. Yang also developed critical velocity formulas for use with his equations. The total load equations can be used to compute sediment transport by size fraction by using the geometric mean of the size class and weighting the computed concentrations by the class interval. The sand equation, which should be used for median sizes less than 2.0 mm, is:

$$\log C_t = 5.435 - 0.286\log\frac{\omega D_{50}}{\nu} - 0.457\log\frac{V_*}{\omega} + \left(1.799 - 0.409\log\frac{\omega D_{50}}{\nu} - 0.314\log\frac{V_*}{\omega}\right)\log\left(\frac{VS}{\omega} - \frac{V_{cr}S}{\omega}\right) \quad (4.51)$$

and the gravel equation, which should be limited to median sizes between 2.0 and 10.0 mm, is:

$$\log C_t = 6.681 - 0.633\log\frac{\omega D_{50}}{\nu} - 4.816\log\frac{V_*}{\omega} + \left(2.784 - 0.305\log\frac{\omega D_{50}}{\nu} - 0.282\log\frac{V_*}{\omega}\right)\log\left(\frac{VS}{\omega} - \frac{V_{cr}S}{\omega}\right) \quad (4.52)$$

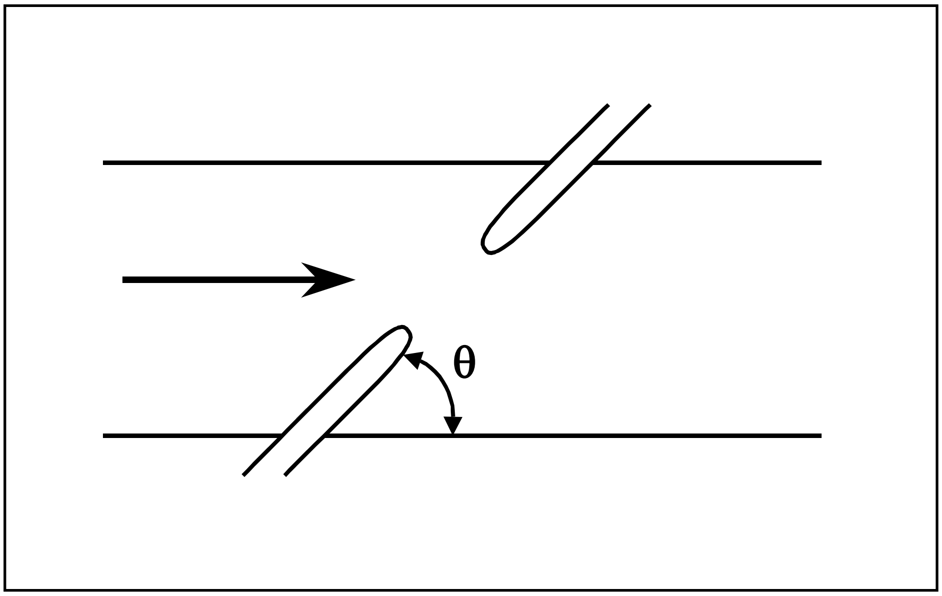


Figure 8.5. Orientation of embankment angle, 2, to the flow.

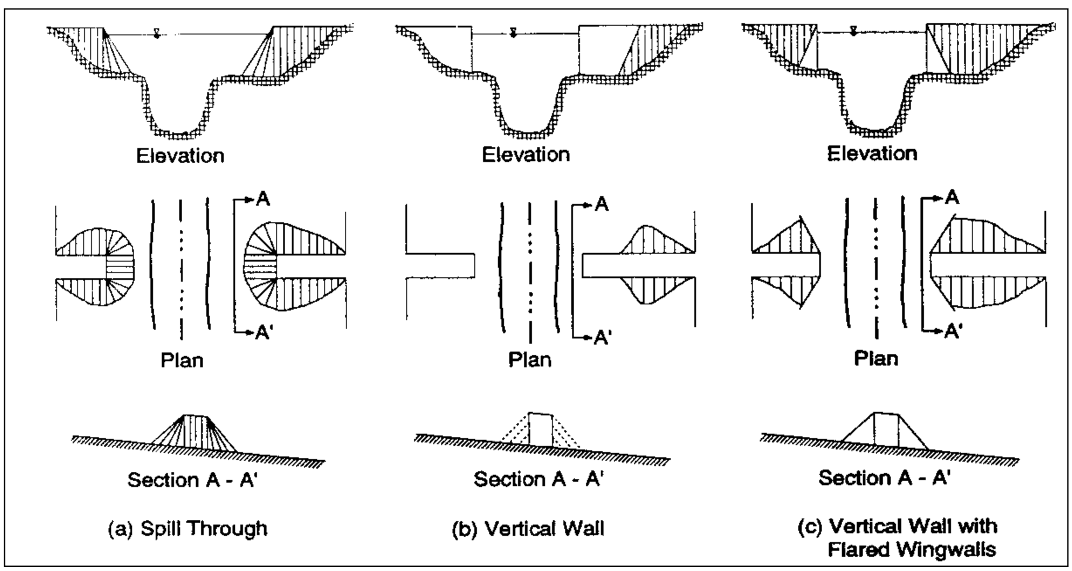


Figure 8.6. Abutment shape.

Table 8.1. Abutment Shape Coefficients.	
Description	K_1
Vertical-wall abutment	1.00
Vertical-wall abutment with wing walls	0.82
Spill-through abutment	0.55

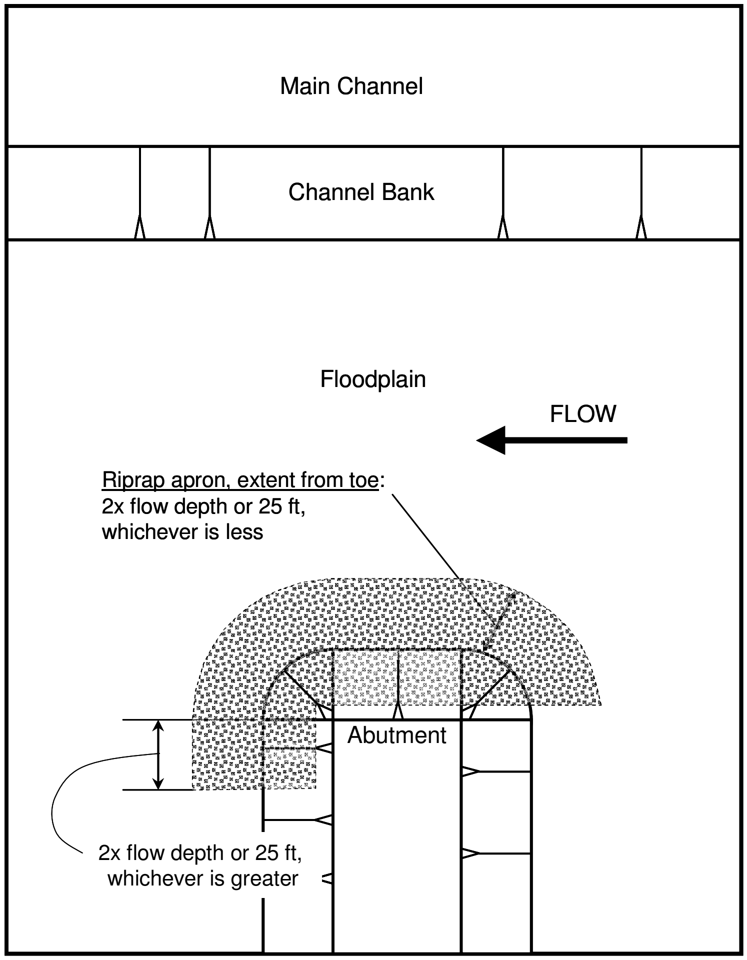


Figure 14.7. Plan view of the extent of rock riprap apron (Lagasse et al. 2006).

b. Spill-through abutment slopes should be protected with the rock riprap size computed from Equations 14.1 or 14.2 to an elevation 2 ft (0.6 m) above expected high water elevation for the design flood. Several States in the southeast use a guide bank 50 ft (15 m) long at the downstream end of the abutment to protect the downstream side of the abutment.

c. The rock riprap thickness should not be less than the larger of either 1.5 times D_{50} or D_{100}. The rock riprap thickness should be increased by 50% when it is placed under water to provide for the uncertainties associated with this type of placement. Figure 14.8 illustrates the recommendation that the top surface of the apron should be flush with the existing grade of the floodplain (Lagasse et al. 2006). This is recommended because the layer thickness of the riprap (1.5 d_{50} or d_{100}) could block a significant portion of the floodplain flow depth (reducing bridge conveyance) and could generate significant scour around the apron. The apron thickness may also be increased to protect the edge of the apron from contraction scour, long-term degradation and/or channel migration.

d. The rock riprap gradation and potential need for underlying filter material must be considered (see Design Guidelines 4 and 16).

Appendix I.2

Evaluation of Groundwater Conditions and Potential Mining Impacts and SGMA Addendum

TODD GROUNDWATER

November 3, 2016

MEMORANDUM

To: Amie Ashton, David J. Powers & Associates, Inc.

From: Gus Yates, Senior Hydrologist

Re: Sargent Ranch Quarry: Evaluation of Groundwater Conditions and Potential Mining Impacts

INTRODUCTION

This technical memorandum describes the existing groundwater flow system in the vicinity of the proposed Sargent Ranch Quarry and its connection to surface water and vegetation. It also describes how that system would change during and after the mining project. Finally, it evaluates specific impacts associated with those changes.

EXISTING GROUNDWATER FLOW SYSTEM

Boundaries of Surface Water and Groundwater Flow

Sargent Ranch Quarry would be located in hills west of the Pajaro River where it leaves the Gilroy-Hollister Valley and flows south and west through a canyon to coastal plains and the Pacific Ocean near Watsonville. The locations of the quarry, river and nearby groundwater basins are shown at a regional scale in **Figure 1**. The mining operation would consist of three open pits and a processing plant located in the Sargent Creek watershed and two adjacent small watersheds with ephemeral streams that drain east to the Pajaro River. The 1.7-square-mile Sargent Creek watershed drains to the south and empties into the Pajaro River about 2 miles downstream of the processing plant site, as shown in **Figure 2**. It is adjoined to the north and west by two larger and more deeply incised watersheds: Tar Creek and Pescadero Creek. The Pajaro River flows close to the eastern and southern boundaries of the watershed and is at the lowest elevation of all the surface waterways. It is the regional drain for surface and groundwater discharge.

The occurrence and elevation of groundwater in and near the mining area are indicated by springs, riparian vegetation, and groundwater flowing from fractures encountered in exploratory boreholes. A spring is located at an elevation of approximately 530 feet about 200 feet upslope from the northern tip of the Phase 3 & 4 pit (**Figure 2**). A strip of vegetation mapped as “mixed riparian forest and woodland” is present along the uppermost reach of Sargent Creek, at an elevation of 460-530 feet and as near as 500 feet from the western tip of the Phase 3 & 4 pit (Santa Clara Valley Habitat Agency, 2016). That type of vegetation usually indicates the presence of a shallow water table. A similar corridor of riparian vegetation is present along a lower reach of Sargent Creek, from the Phase 1 and 2 pits down to near the Pajaro River floodplain. Rainfall recharge within the watershed flows downslope until the water table intersects a creek channel where groundwater can discharge as surface flow. Thus, a shallow water table would be expected along the lower reaches of Sargent Creek. Riparian vegetation along the channel is able to consume all of the arriving groundwater, so there is no perennial flow during the dry season.

Surface watershed divides are often also groundwater flow divides, meaning that the water table is highest beneath ridges and that groundwater flows approximately in the direction of the ground slope. The groundwater flow system in the upper part of the Sargent Creek watershed could be more complex because nearby streams are more deeply incised and faults that pass through the area could act as barriers to groundwater flow. For example, the hydraulic gradient from the spring and upper riparian corridor to either Tar Creek or Pescadero Creek is steeper than the gradient to the lower riparian area or to the Pajaro River. However, the spring and upper riparian corridor are sustained by rainfall recharge on higher ground, which exists only to the northwest in the narrow band between those features and the watershed divide. This indicates that recharge moves to the southeast and that the other creeks do not capture recharge from the Sargent Creek watershed. It is therefore reasonable to assume for this analysis that the watershed divide coincides with the groundwater divide. It is further likely that groundwater near the Phase 1 and 2 pits flows toward the lower riparian corridor and groundwater near the Phase 3 & 4 pit flows toward the Pajaro River.

Groundwater Surface Profiles

The high elevation and limited upslope recharge area of the spring and upper riparian corridor probably indicate the presence of subsurface obstructions to groundwater flow. These could be faults, changes in fracture density or changes in texture of the sedimentary rocks. A decrease in horizontal permeability commonly elevates the water table on the upgradient side to the ground surface, resulting in springs and/or riparian vegetation. This hypothesis is further supported by a plot of the hydraulic grade line along a cross section extending from the upper watershed near the spring southeast to the Pajaro River, as shown in **Figures 2 and 3**. A straight-line interpolation of the groundwater gradient from the spring to the river is above the ground surface in many places, yet in reality, there are no seeps, wetlands or patches of riparian vegetation in low spots along or near the profile line. Therefore, the actual water table must be below the straight-line interpolation, stepping down rapidly from the spring and upper riparian corridor to lower elevations beneath the mining area.

Also plotted on the cross section are the elevations of fractures containing groundwater encountered in exploratory boreholes drilled for geotechnical investigations of the project site (Sierra Geotechnical Services, 2015), projected to the section line. Those elevations are all below the ground surface but above the planned elevation of the pit bottom upon completion of mining. This indicates that groundwater will be encountered during mining and will flow into the pit at some rate.

OVERVIEW OF CHANGES TO GROUNDWATER FLOW SYSTEM DURING AND AFTER MINING

Changes in groundwater flow in the mining pit areas are roughly proportional to the depth of the pit and area of disturbance. Thus, they would tend to increase incrementally throughout the period of active mining, and the post-mining changes would be similar to those at the end of the mining period.

In contrast, effects of groundwater pumping to supply mining operations are a function of the rate at which material is processed. They would occur at a more or less uniform rate throughout the mining period, then cease.

This overview describes overall changes in the groundwater flow system at a general level. Specific potential impacts are evaluated quantitatively in the subsequent section.

Groundwater and Surface Water Inflow to Phase 1 Pit

Groundwater seepage into the mining pits will occur where the pits extend below the elevation of the water table or the elevations of fractures that contain water. This would likely occur at the western edge of the Phase 1 pit. The pit bottom will be at an elevation of 245 feet msl. This is 15 feet higher than the bed of Sargent Creek where it passes the eastern edge of the pit. However, the water-table gradient perpendicular to the creek is probably steep enough to intersect the western part of the pit bottom. The gradient from the creek to the west edge of the pit bottom would be only 69 feet per mile, which is much smaller than gradients measured between groundwater features near the Phase 3 & 4 pit. An upper limit on the gradient is provided by Borehole 11, which is located 200 feet beyond the pit bottom and was dry to an elevation of 286 ft msl.

The Phase 1 pit would have a high western wall and a substantial upgradientrecharge area. Rainfall recharge in the overall Sargent Creek watershed was simulated during the development of a regional groundwater flow model for northern San Benito County (Todd Groundwater, June 2015). Assuming a land cover of annual grassland vegetation, average annual rainfall of 19.5 inches and average annual reference evapotranspiration (ET_0) of 48 inches, simulated recharge using daily data over a 30-year hydrologic period averaged 2.8 inches per year (in/yr). Multiplying this rate by the 177 acres of contributing recharge area produces a recharge volume of 41 AFY.

Surface runoff from the pit walls and floor was assumed to equal 3.5 in/yr, based on contours of average annual surface runoff in the Bay Area region developed by others (Rantz, 1974). Multiplying that rate by the 42 acres of pit area produces a surface inflow volume of 12 AFY. Thus, total inflow to the pit would average about 53 AFY. A 95-acre watershed presently drains into the pit site from the west. However, drainage plans for the mining project indicate that the creek would be routed around the pit by means of an artificial channel traversing the pit wall (Triad Holmes Associates, 2016).

Inflow would be less in dry years and greater in wet years. In dry years, surface inflow would drop to near zero, and groundwater seepage—which varies less than rainfall due to the attenuating effects of subsurface flow—might be about half of the average amount. Conversely, surface runoff might be twice the average annual amount in wet years, while groundwater seepage would be perhaps 150 percent of average. Thus, inflow to the pit might range from about 21 AFY in dry years to 86 AFY in very wet years.

The disposition of the influent water depends on how water is managed within the pit. It would be possible to drain all inflow by gravity to Sargent Creek, and if channels were constructed for that purpose evaporation and seepage within the pit would be relatively small. Alternatively, if the pit bottom were graded to retain all inflow in a concentrated area—to promote growth of wetland or riparian vegetation—an area of approximately 22 acres would be needed to consume the inflow through evapotranspiration in an average year. A third option in the post-mining period would be to distribute the inflow as widely as possible over the pit bottom to replenish soil moisture and enhance the growth of pasture grasses.

Groundwater and Surface Water Inflow to Phase 2 Pit

Significant amounts of groundwater inflow to the Phase 2 pit would be unlikely. Like the Phase 1 pit, the pit bottom would be 15 feet higher than the bed of Sargent Creek. In this case, however, there would be little upslope area generating groundwater recharge and surface runoff. Also, the Pajaro River is located only 1,000 feet east of the pit at a much lower elevation (about 130 feet), so it tends to drain groundwater near the eastern edge of the pit. Finally, Borehole 10 at the east edge of the pit site was dry to an elevation of 241 feet msl, which is lower than the final pit bottom elevation.

Surface runoff within the 32-acre pit would amount to about 9 AFY. As with the Phase 1 pit, the pit bottom could be configured to rapidly drain the inflow by gravity to Sargent Creek or configured to retain the water for irrigation or habitat enhancement. An area of 4 acres would be needed to consume the annual inflow through net evaporation in an average year.

Groundwater and Surface Water Inflow to Northern Pits (Phases 3 and 4)

Unlike the Phase 1 and 2 pits, the Phase 3 & 4 pit would be a closed depression that could not be configured to drain by gravity to a nearby stream. Groundwater seepage and surface runoff into the pit would accumulate until it is balanced by evaporation, evapotranspiration and groundwater outflow.

The amount of groundwater that would emerge as seepage into the pit can be estimated as the existing amount of recharge from rainfall infiltration that occurs within the pit footprint and in upgradient areas where recharge flows toward the pit site. Using the same approach used for the Phase 1 pit (see above), an average annual recharge rate of 2.8 inches per year was applied to the 153-acre pit area plus the 157 acres between the western edge of the pit the watershed divide. These parameters produce an estimate of 72 AFY of average annual groundwater seepage into the pit.

Surface runoff into the pit was assumed to derive only from rain falling within the pit area itself. Upslope drainages would be diverted to flow around the pit during mining, and it is assumed that those diversions would remain in place after the mining period ends. An estimated 45 AFY of rainfall runoff would accumulate in the pit bottom in an average year, based on a pit area of 153 acres and average annual runoff of 3.5 inches. Total water accumulation would thus be 117 AFY on average and might range from about 36 AFY in very dry years to 198 AFY in very wet years.

Influent groundwater seepage would be most likely on and near the high western wall of the Phase 4 mining area and the southern wall of the Phase 3 mining area. Rainfall runoff would similarly tend to be relatively abundant on the pit walls.

The effects of capturing groundwater and surface water on habitat and the regional groundwater balance depend on how the water is managed in the pit bottom. Three general strategies are possible and are not mutually exclusive. If the pit bottom is graded to collect the water in one or two small low areas, those areas would likely develop open-water and/or wetland habitats. The surface area required to remove 117 AFY by evapotranspiration would be roughly 49 acres. For this calculation, net annual evapotranspiration was estimated to equal average annual ET_0 (48 in/yr) minus average annual rainfall (19.5 in/yr). A second strategy would be to percolate as much of the accumulated water as possible to minimize impacts on the regional groundwater balance. The location where the pit bottom would most likely be above the water table—and hence feasible for percolation---would be the east end of the deeper (Phase 3) part of the pit. The annual volume of percolation cannot be estimated without information regarding soil permeability and depth to the water table, which would not be known until the pit is completed. Also, percolation rates tend to decline over time unless they are actively restored by scraping or disking the percolation area. A long-term maintenance program of that type has not been proposed. A third strategy would be to spread the accumulated water as broadly as possible over the pit bottom to supplement soil moisture and increase the growth of pasture grass. In wet years, this would also potentially generate groundwater recharge that would reduce impacts on the regional groundwater balance.

Need for Pit Dewatering during Mining

The foregoing estimates of groundwater and surface water inflow to the pits also provide an indication of potential dewatering requirements during mining, because accumulation of water on the bottom of a pit would probably interfere with mine excavation. Groundwater and surface water inflows would generally increase as the pits become deeper and broader. Thus, the maximum dewatering requirement would arrive as each pit reaches its final dimensions and would approximately equal the post-mining inflow amounts presented above. Based on the foregoing inflow estimates, the annual dewatering requirements could be on the order of:

- Phase 1 pit: 53 AFY average, and up to 86 AFY in wet years (equivalent to 33-53 gallons per minute (gpm))
- Phase 2 pit: 0 if pit bottom is graded to drain to Sargent Creek
- Phase 3 & 4 pit: 117 AFY average, 198 AFY in wet years (72-123 gpm)

Dewatering water from the Phase 1 pit could potentially be discharged to Sargent Creek. The water would be of similar quality to water that reaches the creek under existing conditions. However, the discharge would create perennial flow in the creek, which would alter the aquatic and riparian habitats along the creek.

Dewatering water from the Phase 3 & 4 pit could be used in lieu of the well to supply water for mining operations. The estimated annual dewatering volume toward the end of the mining period would about double the annual water demand, but the surface runoff component would be seasonally variable. Thus, well water would still be needed during Phases 1 and 2, early in Phases 3 & 4, and possibly during the dry season throughout Phases 3 & 4. Conversely, excess dewatering water would need to be disposed of in winter, which presumably would be by discharge to the Pajaro River or one of its ephemeral tributaries.

Groundwater Pumping and Water Use

During mining, a single well near the processing plant would supply the water needs for the project to the extent that water is not obtained from pit dewatering. The water needs are itemized and estimated in **Table 1**. Water requirements for dust control at the mining areas, access roads, processing plant and reclamation areas were estimated by the project applicant and totaled 4.91 AFY. If water application needs to approximately equal ET_0 in order to keep soil surfaces moist, then an annual application of 20 inches would be needed (48 in/yr prorated to 150 non-rainy working days per year). The estimate of 4.91 AFY would meet this requirement on 2.9 acres. The actual area needing dust suppression might be as much as three times greater than this: 1.5 miles of access road (assumed here to be 30 feet wide), plus 1 acre of ground disturbance by excavators and trucks at the mine pit and 1 acre of crusher, conveyor and vehicle movement area at the processing plant. These estimates indicate that the total dust suppression area would be greater than 7.5 acres (if reclamation areas of unknown size are included). However, the applicant may be planning to reduce water requirements by use of soil binders or paving in selected locations.

Table 1. Estimated Water Use for the Mining Project

Type of Use	Acre-Feet per Year
Dust control	4.91
Net evaporation from storage pond	1.64
Water exported in product	45.40
Irrigation to establish oak trees	0.31
Potable supply in mine buildings	0.32
Total	52.57

Net evaporation from the 0.52 acre storage pond at the processing plant would be about 1.64 AFY, which equals the pond area multiplied by the difference between annual evaporation (56.3 inches; California Department of Water Resources, 1979) and annual rainfall (18.5 inches; Rantz, 1971). A substantial amount of water is retained in the pores of the aggregate materials after washing, and that water either evaporates from stockpiles or is exported when the product is sold. A total of 27,465,000 cubic yards of material would be produced over the 30-year mining period. Water retention in the material is approximately equal to the available water capacity, which for sandy soils is about 0.08 percent of the bulk volume. Assuming uniform production over the 30-year period, the amount of water exported in the aggregate products is 45.40 AFY. These estimates of pond evaporation and exported water total 47.04 AFY, which is very close to the applicant's estimate of 47.14 AFY for "aggregate processing".

The project description includes 0.31 AFY of water use for "landscape irrigation" that appears to refer to establishing oak tree seedlings in reclamation areas. Studies have shown that oak seedling survival is improved with irrigation at a rate of 4 liters per plant per week during the dry season (Young and Evans, 2002). The proposed irrigation use would support 3,500 seedlings at that irrigation rate. Irrigation is usually only applied during the first 1-2 years of growth.

Water use at the site office and employee facilities would probably include toilets, faucets and showers. A staff of 15 people is proposed, and the facility would operate up to 200 days per year. A rough estimate of these indoor water uses was obtained by assuming that the above fixtures used the same amount of water as in an average California residence (Aquacraft, 2011). This produced an estimate of 0.32 AFY of indoor water use.

Except for water used indoors at the office/staff facilities—which would be returned to the groundwater system via an on-site septic system—all of the water would be consumed.

IMPACT: CHANGE IN DISTRIBUTION AND TOTAL AREA OF MESIC VEGETATION

The Sargent Creek watershed and processing plant areas are characterized by vegetation that grows under conditions of limited water availability in summer, such as annual grasses and oak trees. A vegetation map of the area shows that mesic vegetation grows in a few areas (Santa Clara Valley Habitat Agency, 2016). Mesic vegetation consists of plant species that require more water than the surrounding grasses and oak trees. In the Sargent Creek watershed, corridors of “mixed riparian woodland and forest” are mapped along Sargent Creek between the Phase 1 and 2 pits and the Pajaro River floodplain, and along the uppermost 0.3 mile of the creek, west of the Phase 3 & 4 pit (see **Figure 2**). The plant species were not identified, but given their location along a creek channel where shallow groundwater is likely present, they probably draw water directly from the water table. These plants probably use groundwater even when surface flow in the creek is not present. A still wetter vegetation category—“willow riparian forest and scrub”—is present along the Pajaro River where it passes near the processing plant site. A spring or group of springs located a few hundred feet upslope of the northern tip of the proposed Phase 3 & 4 pit supports a small pond and wetland area.

The total area of mesic vegetation would probably be the same or slightly larger following the mining project, but its distribution over the landscape would change. The pits would alter groundwater flow and tend to intercept groundwater that would otherwise flow farther downgradient before emerging at the land surface. Under existing conditions, groundwater beneath the Phase 1 and 2 pits probably flows toward and sustains the riparian corridor along the lower reaches of Sargent Creek. The Phase 2 pit would probably be entirely above the water table and not affect groundwater flow. The Phase 1 pit would probably collect some groundwater seepage on its western side. At the seep locations, mesic vegetation is likely to become established by natural processes. The exact locations of the seeps cannot be predicted in advance because they depend on the distributions of fractures, faults and texture variations within the subsurface materials. The most likely locations are along the toe of the western wall of the pit.

The water consumed by new mesic vegetation at the pit would otherwise have flowed toward the riparian corridor along Sargent Creek, and that corridor would likely suffer a decrease in total canopy area comparable in size to the area of new mesic vegetation at the pit. There could be an increase in total area of mesic vegetation, depending on how groundwater seepage and surface runoff into the pit is handled. To the extent that surface runoff that would have flowed out Sargent Creek during storm events is retained and infiltrated, there would be an overall increase in the area of mesic vegetation. Conversely, if seeps and surface runoff are channeled to quickly drain to Sargent Creek, there could be a decrease in overall area of mesic vegetation.

A similar outcome would result at the Phase 3 & 4 pit. The two existing mesic vegetation patches upslope of the proposed pit would probably not be impacted. The presence of the riparian corridor and spring at those high elevations indicates that a subsurface obstruction to groundwater flow is located nearby, such as a fault or change in bedrock fracturing or texture. Those vegetation areas are supported by rainfall recharge and subsurface inflow from farther upslope, and the mining pit would be downgradient (probably beyond the subsurface flow obstruction). Like the Phase 1 pit, the Phase 3 & 4 pit would intercept groundwater that would otherwise flow southeast to the Pajaro River. Because there are no mapped patches of mesic vegetation between the pit and the river, groundwater presently discharges into the river and supports the riparian vegetation that grows along it.

Following mining, groundwater and surface runoff would be captured in the pit. The exact locations of seeps cannot be predicted in advance, and the locations where water will tend to collect depend in part on how the pit bottom is contoured. However, the most likely locations are along the toe of the western pit wall in the Phase 4 area and the southern pit wall in the Phase 3 area. The total area of mesic vegetation is likely to increase over existing conditions because surface runoff that would have flowed out to the Pajaro River will be retained in the pit and augment soil moisture and/or groundwater recharge. Depending on how the pit bottom is contoured and how water is managed after mining, mesic vegetation could range from mixed riparian forest and woodland to open water and seasonal or perennial wetlands. It is possible that the width of the riparian corridor along the Pajaro River would decrease very slightly over the long term, but given the presence of perennial river flow, the change would likely be too small to detect.

IMPACT: DECREASED GROUNDWATER AVAILABILITY TO ADJACENT LANDOWNERS DUE TO WATER-LEVEL DRAWDOWN AT NEARBY WELLS

Guidelines for implementing the California Environmental Quality Act suggest that a project has a significant impact on groundwater if it would “substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)” (California Natural Resources Agency, 2016). Depletion of groundwater can be evaluated at a local scale in terms of water-level drawdown at neighboring wells and at a regional scale in terms of overall water balance of regional aquifers. This impact evaluates the local effects, and the following impact addresses regional issues.

The project would be supplied by a well near the processing plant, west of the railroad tracks and south of the Highway 101 overpass, as shown in **Figure 4**. Pumping would cause a drawdown (lowering) of groundwater levels near the well. Drawdown decreases with distance from a pumping well but a large decline in water level could potentially impact the operation or yield of affected nearby wells. The amount of drawdown can be estimated based on the pumping rate of the project well, the distance to the nearby well, and the hydraulic characteristics of the aquifer.

There are a number of other wells to the north and east of the project well (**Figure 4**). The closest belongs to the applicant (Sargent Ranch LLC). The second closest is a monitoring well owned and operated by SCVWD. The third closest is one of ten wells owned by a neighboring landowner (Sun & Sons LP) that appear to be irrigation wells. This well is the neighboring production well that would experience the largest water-level decline due to project pumping. It is located 690 feet from the proposed project supply well.

The annual water production from the project supply well would be 52.8 AFY. Most of the water would be used for aggregate washing, and pumping for that purpose would be proportional to the rate of processing. Although processing could vary from year to year, it is assumed for this analysis to occur at a constant rate throughout the 30-year mining period. Within a given year, water use would occur almost exclusively during the 200 days that the plant operates. Wells are generally constructed to produce a target volume operating 50 percent of the time or less. Assuming a 12-hour-on, 12-hour-off pumping cycle during plant operation days, the pumping rate of the well would be 120 gpm.

Drawdown as a function of time and distance was estimated using the Theis equation for drawdown in confined aquifers (Freeze and Cherry, 1979). Key parameters in the equation are aquifer transmissivity and storativity. Estimates of those characteristics were obtained from a calibrated regional groundwater flow model (Todd Groundwater, 2015). Transmissivity in the model near the project well location ranged from 1,250 to 12,500 square-feet-per-day (ft^2/d), and storativity was 0.0002 (dimensionless). Using these parameters, drawdown at the neighbor's irrigation well at the end of the 12-hour pumping cycle is estimated to be 0.8-4.0 feet. A repeating sequence of pumping cycles results in slightly greater drawdown, and a formula is available to estimate drawdown based on the long-term average pumping rate plus the most recent pumping cycle (Driscoll, 1988). At the end of a work week, for example, estimated drawdown at the end of the 12-hour pumping cycle on the fifth day would be 0.9-5.6 feet.

In large groundwater basins shared by many users, well interference is normal. This means that most or all wells routinely cause drawdown at neighboring wells. Drawdown caused by a new neighboring well does not rise to a level of significance for CEQA purposes unless it would cause pumping water levels to drop below the top of the well screen. When that occurs, water can cascade into the well, entraining air and creating a risk of cavitation inside the pump (bubbles generated by low pressure). This can damage the pump, resulting in a costly repair and interruption of water supply.

Construction information is not available for the particular irrigation well closest to the project supply well. However, driller's logs for other wells in the area indicate that a typical depth to the top of the well screen is 100 feet and a typical total well depth is 400 feet. Groundwater level data from the SCVWD monitoring well during 2012-2015 indicate that water levels recovered in winter each year to 9 feet below ground surface, which probably corresponds to the elevation of the nearby Pajaro River. In summer, water levels declined to 25 ft below ground surface in 2012 (normal year) and 45 feet below ground surface in 2014 and 2015 (dry years). Thus, the lowest static (non-pumping) water level in a dry year was 55 feet above the top of the screen.

During pumping, water levels drop below the static water level by an amount proportional to the specific capacity of the well. Specific capacity data are not available for the potentially impacted irrigation well, but the relatively close spacing of the neighbor's irrigation wells suggests that they have relatively low yields. Based on other wells in the region for which data are available, reasonable estimates of pumping rate and specific capacity might be 400 gpm and 10 gallons per minute per foot of drawdown, respectively. Those values indicate a pumping drawdown of 40 feet. Combining that drawdown with 1-6 feet of drawdown from the project well would still leave 9-14 feet of water above the top of the well screen at the end of the irrigation season in a dry year. Therefore, the drawdown impact would be less than significant. Because drawdown decreases with distance, it would also be less than significant at the other nearby production wells.

IMPACT: DECREASED GROUNDWATER AVAILABILITY AT A REGIONAL SCALE DUE TO INCREASE IN CONSUMPTIVE USE

Effects on the regional groundwater balance and on groundwater availability to other users depend on the net result of changes in recharge and consumptive water use by the project. Consumptive use would change only during the mining period, but recharge would change during and after the mining period.

Consumptive use of groundwater would increase during the 30-year mining period by approximately 53 AFY, as described above under "Groundwater Pumping and Water Use". Recharge would increase slightly during the mining period because land surfaces presently vegetated with grass and trees would be converted to pit walls and floor consisting of bare soil and rock. The amount of rainfall consumed by plant evapotranspiration would decrease, and a larger amount would become groundwater recharge. Also, rainfall runoff would be captured in the pits. If that water infiltrates, it would increase groundwater recharge. However, the amount of increase depends on water management during mining operations, such as dewatering or channeled outflow of accumulated water. It is possible that, as the pits reach their full size, the increase in recharge from captured rainfall runoff would exceed the consumptive use of water by mine operations. That would not likely be true during the early years of project operation. For this impact analysis, it is assumed that recharge remains unchanged and that regional groundwater consumptive use increases by 53 AFY.

Because the project supply well is next to a perennial reach of the Pajaro River where the river gains flow by groundwater discharge from the Bolsa and Llagas subbasins, the pumping would tend to deplete river flow, up to a rate equal to the average annual pumping rate. Groundwater users in the Llagas subbasin in Santa Clara County and the Bolsa and San Juan Valley subbasins in San Benito County would be unaffected from a water balance standpoint because they are upgradient of the project well and impacted river reach.

Water users most likely to be affected would be downstream in the Pajaro Valley near Watsonville (**Figure 1**). Groundwater pumping in that area averaged 52,000 AFY during 2009-2013 (Carollo Engineers, 2014). If all consumptive use at the project site became a reduction in river percolation in the Pajaro Valley (rather than a decrease in outflow to the ocean), it would amount to approximately 0.1 percent of total Pajaro Valley pumping.

This impact is considered less than significant. Because of its small size in the context of regional water balances and Pajaro River flow, it would not cause any existing land uses to become infeasible due to a reduction in groundwater availability. It could, however, very slightly increase the challenge of preventing seawater intrusion in the Pajaro area.

This conclusion is further supported by comparing the magnitude of the impact to changes in agricultural water use that occur for other reasons. For example, agricultural use of groundwater in Zone 6 of San Benito County during 1988-2015 fluctuated from 61 percent to 171 percent of average, with a difference of 22,000 AFY between the maximum and minimum years (Todd Groundwater, December 2015). Those fluctuations affect flow in the San Benito and Pajaro Rivers in the same way that the project well would. More locally, changes in agricultural use of the project site could increase groundwater pumping by an amount greater than the increase for the mining project. If the existing non-irrigated 37-acre flat area that would be occupied by the processing plant and topsoil stockpile were converted to irrigated row crops instead, consumptive use on that field would be on the order of 1.5 times greater than consumptive use by mine operations.

IMPACT: DEPLETION OF BASEFLOW IN THE PAJARO RIVER AND POSSIBLE REDUCTION IN STEELHEAD HABITAT

Depletion of flow in the Pajaro River could impact in-stream beneficial uses in addition to downstream groundwater users. One beneficial use that is receiving considerable attention is habitat for South-Central California Coast Steelhead, a federally-listed threatened fish species. The National Marine Fisheries Service published a Steelhead Recovery Plan (2013) that notes the regional significance of the Pajaro River watershed. It describes degradation of steelhead habitat along mainstem reaches of the major central coast rivers as “severe to very severe”. In detail, however, the principal life history function of the mainstem reaches appears to be seasonal passage of fish migrating up- and downstream. The role of mainstem reaches as rearing habitat is “speculative” because flows, temperatures and sediment loads have all been altered from natural conditions since before any fish studies were ever conducted. Furthermore, of the 31 recommended “recovery actions” for the Pajaro River watershed, only two related to groundwater, and those called for studies (an analysis of groundwater extractions and monitoring of groundwater conditions) rather than a reduction in groundwater pumping.

The maximum depletion of river flow would likely be a relatively constant depletion equivalent to consumptive water use by the mining project. The 53 AFY of consumptive use corresponds to 0.07 cubic feet per second (cfs). This equals at most 0.07 percent of average monthly flows during the primary migration months (December-April), based on monthly flows at the Pajaro River gage near Chittenden (upstream of the Pajaro Valley). In the driest year of the 1985-2015 evaluation period, the percentage reduction would be much greater: up to 6 percent of flow in December, January and February. A statistical analysis of the frequency, timing and duration of reductions in adult and smolt passage opportunity based on daily flows was not completed.

A quantitative significance threshold for steelhead impacts along this mainstem reach is not obvious and is beyond the scope of this hydrologic analysis. Instead, this section reports the potential changes in river flow and leaves further interpretation to qualified biologists.

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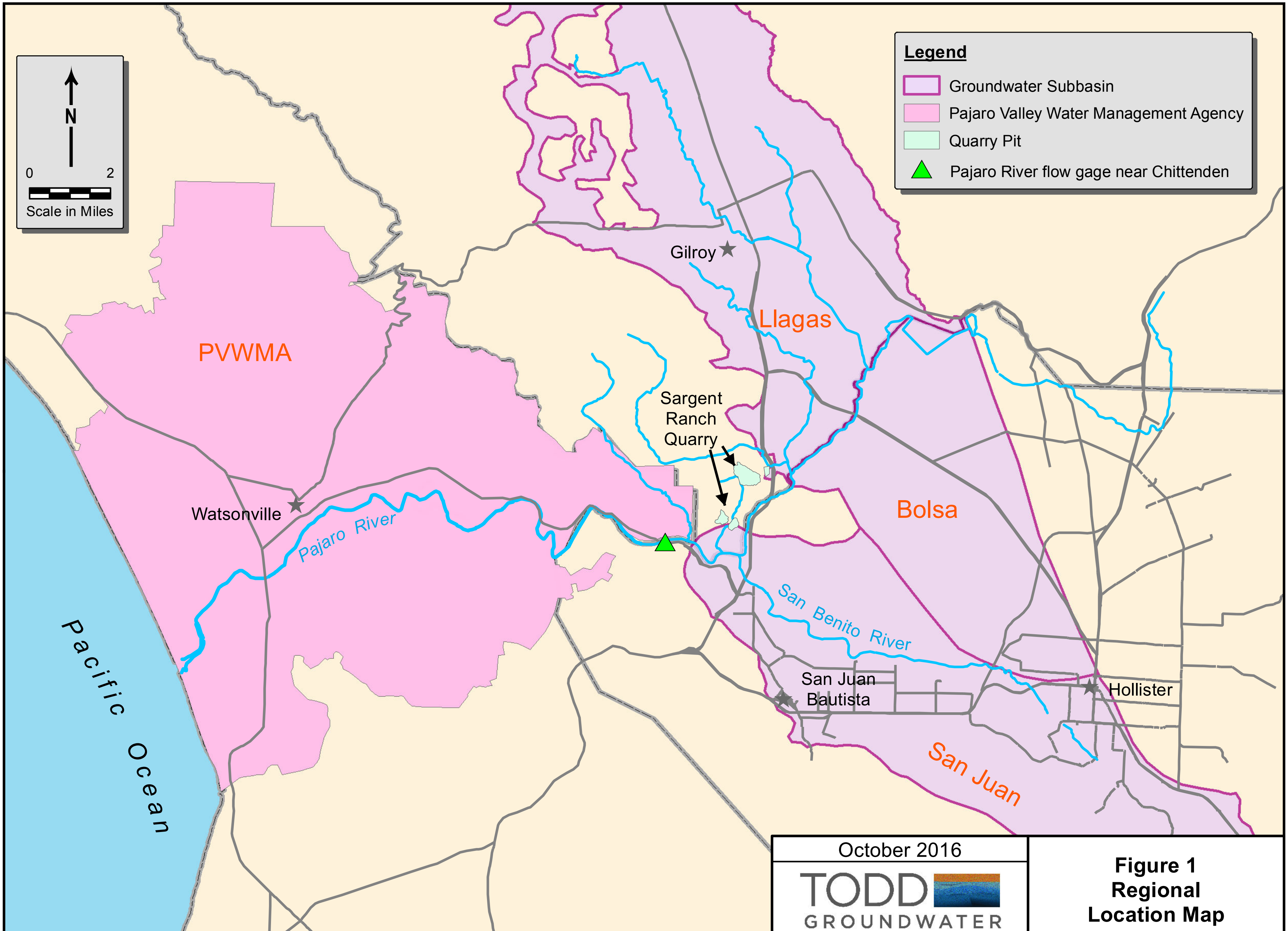
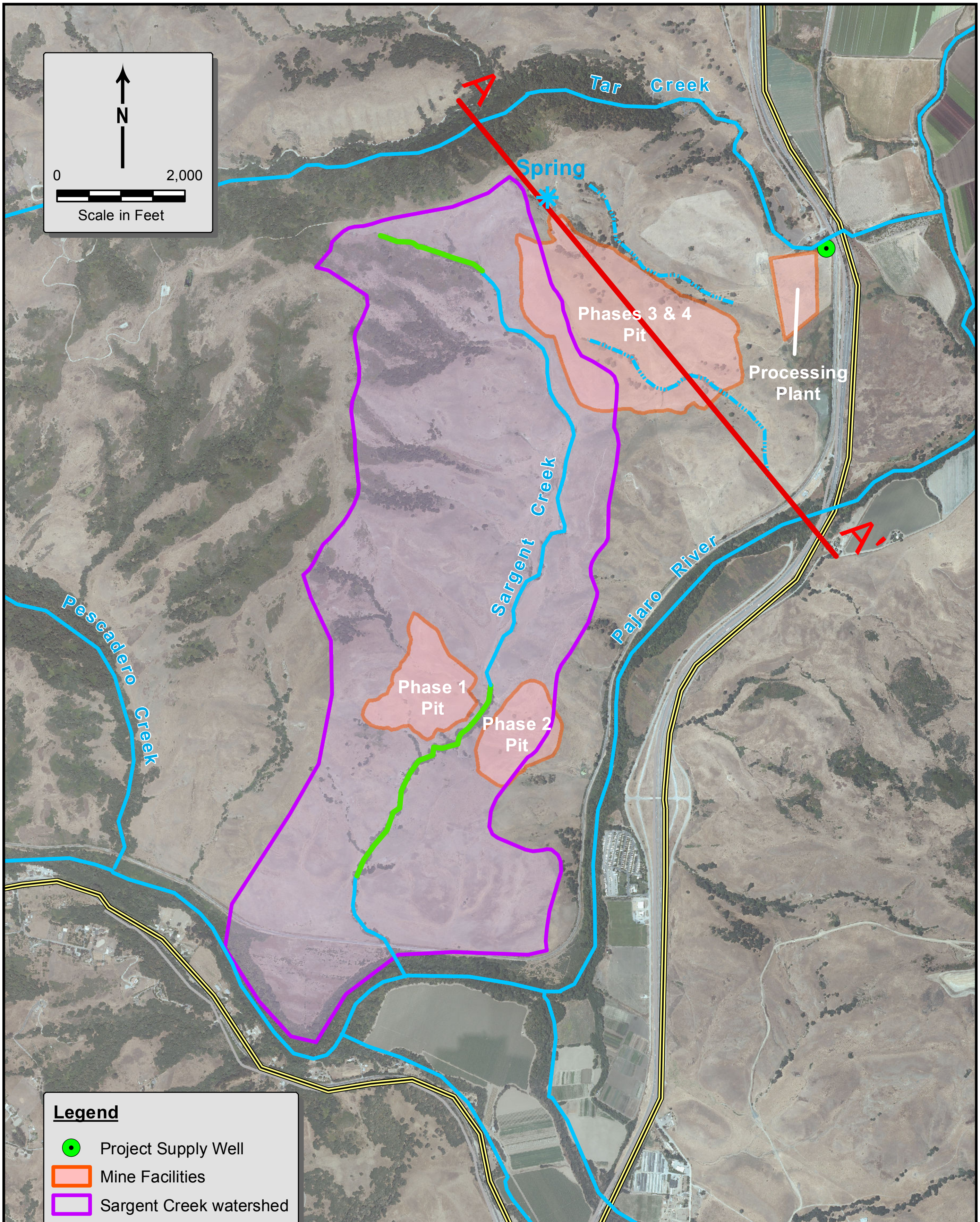


October 2016

TODD GROUNDWATER

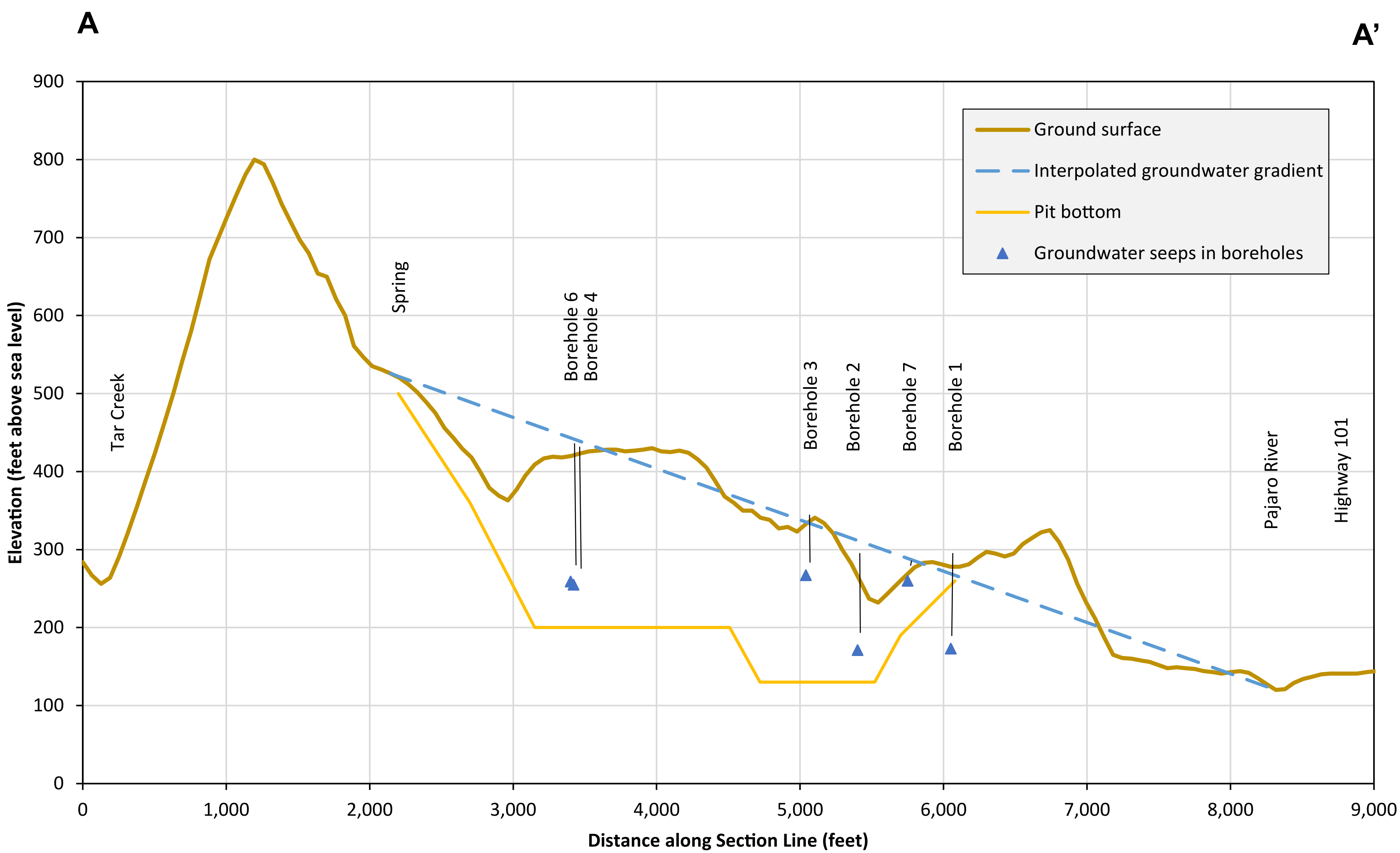
Figure 1
Regional Location Map



October 2016

TODD GROUNDWATER

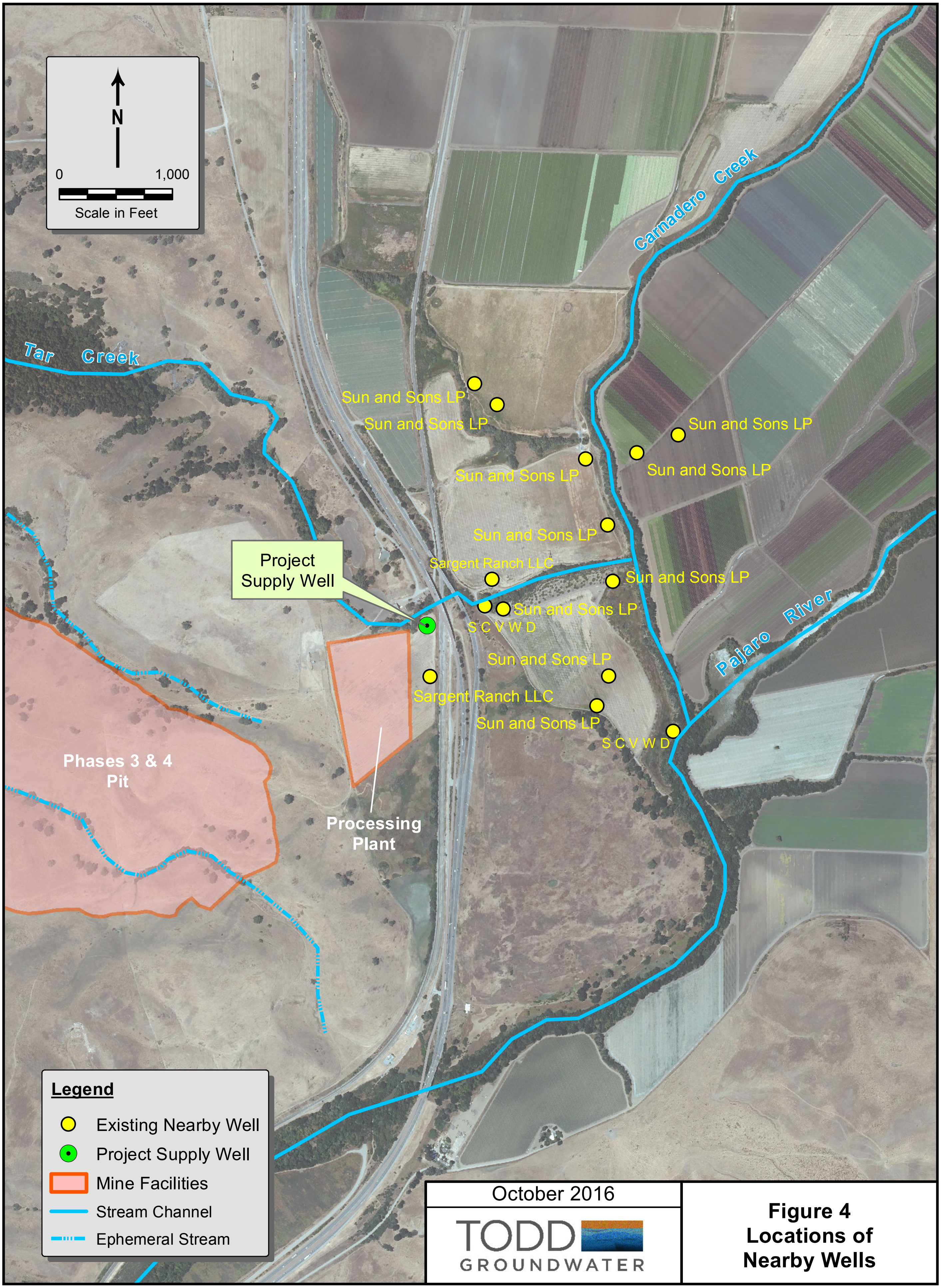
Figure 2
Locations of Sargent Creek Watershed Features



October 2016

TODD GROUNDWATER

Figure 3
Interpolated Groundwater Gradient along Cross Section A - A'



October 2016

TODD GROUNDWATER

Figure 4
Locations of Nearby Wells

TODD GROUNDWATER

July 29, 2019

MEMORANDUM

To: Amie Ashton, David J. Powers & Associates, Inc.

From: Gus Yates, Senior Hydrologist

Re: Sargent Ranch Quarry: Addendum to Todd Groundwater November 2016 Memo to Address SGMA Issues

In November 2016, Todd Groundwater completed a technical memorandum evaluating groundwater issues associated with the proposed Sargent Quarry mining operation in southern Santa Clara County. Since that time, groundwater sustainability agencies have been formed in Santa Clara, San Benito and Santa Cruz Counties to implement the Sustainable Groundwater Management Act (SGMA). Those efforts have increased the level of attention on groundwater sustainability issues. Also, the project applicant released a mining and reclamation plan in 2018. This memorandum reconsiders the analysis and conclusions of the original memorandum in light of these new developments and evaluates whether any conclusions should be revised.

The mining and reclamation plan basically reaffirms the post-mining site conditions that were in the original project description and provides a few additional details. Surface runoff from slopes draining toward the pits would be captured in perimeter channels and conveyed to creek channels downhill from the pits. The bottoms of Pit #1 and Pit #2 would be graded flat with a minimum 1 percent slope toward the downhill side, where accumulated water could flow to Sargent Creek. The Pit #3-4 complex would have a similar bottom slope, but interior rainfall runoff and groundwater seepage would be captured internally. Internal drainage would be directed to two retention basins totaling about 5 acres in size.

The original memorandum estimated that if all runoff and groundwater seepage in the pits were collected in one area of each pit, it could support lush vegetation with water use equal to reference evapotranspiration (similar to turf) occupying 22 acres in Pit #1 and 49 acres in Pit #3-4. In all likelihood, plants would intercept much of that water before it reached a central collection point. The wettest part of each pit with respect to rainfall runoff and groundwater seepage would be the foot of the highest quarry wall. The original memorandum stated that patches of more mesic vegetation (possibly willows, sycamores and similar species) would likely self-establish in those areas. Furthermore, it noted that the increase in consumptive use of groundwater at the pits would likely be offset by a small decrease in the extent of existing riparian vegetation canopy along Sargent Creek between the pits and the Pajaro River. In that case, the overall impact to downstream water users along the Pajaro River would be much less than the increase in consumptive use at the pits.

The quarry locations are not within any groundwater basin. The original memorandum evaluated their potential hydrologic effects on nearby and downgradient basins. The project supply well would be located at the downgradient tip of the Llagas Subbasin, which is the Santa Clara County part of the Gilroy-Hollister Groundwater Basin. Because of this location and the proximity to a perennial reach of the Pajaro River, the effects of project pumping on basin yield would accrue to downstream groundwater users by means of changes in river percolation.

The primary downstream water user group is groundwater pumpers in the Corralitos Basin located on the coastal plain surrounding Watsonville. River percolation supplies approximately 30 percent of average annual recharge to the basin. Pajaro Valley Water Management Agency (PVWMA) submitted an "alternative plan" to the California Department of Water Resources in lieu of a groundwater sustainability plan in fulfillment of SGMA requirements for the Corralitos Basin. The alternative plan was approved in July 2019. That plan relied on the groundwater budget presented in the 2014 Basin Management Plan (Carollo Engineers, 2014), which assumed that Pajaro River flow and recharge would continue at historical rates. The original groundwater memorandum for Sargent Quarry relied on the same Plan to calculate the potential impact of consumptive use at the quarry on groundwater yield in the PVWMA area. It estimated that consumptive use for quarry operations of 53 AFY would amount to 0.1 percent of average annual groundwater pumping in the PVWMA area and was negligible in the context of other much larger sources of variability. The change in post-mining net consumptive use due to changes in vegetation in the pits and along downstream reaches of Sargent Creek would be similarly small.

The calculations related to drawdown impacts on nearby wells presented in the original memorandum are not affected by any recent developments and remains valid.

Overall, the conclusions in the original memorandum still hold. Changes in recharge and consumptive use associated with the project would be negligibly small and would not significantly affect nearby wells, riparian/aquatic habitat or groundwater yield in downstream groundwater basins.

Sargent Ranch Partners, LLC. January 25, 2018. Sargent Quarry mining and reclamation plan. Palo Alto, CA.

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Triad Holmes Associates. September, 2016. Industrial stormwater pollution prevention plan for Sargent Quarry. Prepared for Sargent Ranch Management Company, LLC, San Diego, CA.

Appendix I.3

Water Supply Assessment

WATER SUPPLY ASSESSMENT

SARGENT QUARRY

SANTA CLARA COUNTY

October 2021

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920
www.toddgroundwater.com

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1. INTRODUCTION

The County of Santa Clara (County) is the lead agency preparing an Environmental Impact Report (EIR) for the proposed Sargent Quarry Project. As part of the EIR and in response to environmental guidelines, the County is also considering a Water Supply Assessment (WSA) to confirm the total water supply and demand.

The California Water Code Section 10910 (also termed Senate Bill 610 or SB610) requires preparation of a WSA for a project subject to CEQA and SB610 as defined in Water Code Section 10912. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area is required to prepare a WSA. The processing plant and associated facilities would occupy approximately 62 acres, and the County has this WSA prepared.

The Sargent Quarry Project proposes a sand and gravel mining operation, as well as construction and operation of aggregate processing facilities, on approximately 300 acres of the 5,724 -acre Sargent Ranch property. Previous work by Todd Groundwater in the November 3, 2016 memo “Sargent Ranch Quarry: Evaluation of Groundwater Conditions and Potential Mining Impacts” estimated total water demand for the project processing facility to be about 52 AFY. New information has increased the maximum water demand of the plant to 82.07 AFY.

The approximately 62.3-acre processing plant area would be developed in the northeastern portion of the site. The processing plant components would include an office, shop, maintenance buildings, equipment storage yard, 17-space parking area, truck scales, loading area, and materials processing and equipment.

Sargent Ranch Quarry would be located in hills west of the Pajaro River where it leaves the Gilroy-Hollister Valley and flows south and west through a canyon to coastal plains and the Pacific Ocean near Watsonville. The locations of the quarry, river and nearby groundwater basins are shown at a regional scale in **Figure 1**.

The primary foundational document for preparation of the WSA is the 2020 Urban Water Management Plan (UWMP) and the 2021 Groundwater Management Plan (GWMP) prepared by Santa Clara Valley Water District (SCVWD, now Valley Water) (SCVWD 2021b and 202021a). The SCVWD UWMP projects water demand through 2045 for normal and dry years, describes the water supplies, and outlines the water shortage contingency plan and water conservation measures enacted by SCVWD. The GWMP was submitted to DWR as an Alternative to a GSP on Dec. 21, 2016 and approved by DWR in 2019. A Draft periodic evaluation of the GWMP was made publicly available in October 2021.

The purpose of this WSA is to document the County's existing and future water supplies for its service area and compare them to the area's future water demand including that of the proposed project. This comparison, conducted for both normal and drought conditions, is the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code section 10910 (Senate Bill 610).

1.1. ACKNOWLEDGEMENTS

This assessment was prepared by Maureen Reilly, Senior Engineer, Iris Priestaf, President, and Gus Yates, Senior Hydrologist. Information provided to the County by the applicant was also used in the preparation of the WSA.

2. PROJECT WATER DEMAND

During mining, a single well near the processing plant would supply the water needs for the project to the extent that water is not obtained from wet mining activities.

2.1. EXISTING WATER USE

The area called Sargent Ranch includes 5,724 acres of land. Most will remain unaffected by mining and will be used for ongoing grazing and oil production. Some of the area proposed for the processing plant is sometimes used for crops, including hay and/or row crops. In addition, there is currently one occupied house on the property. For a conservative estimate of existing water demand, it is assumed that no water is currently used on site (Sargent Quarry 2020).

2.2. ESTIMATED FUTURE WATER DEMAND FOR PROJECT

At this time, there are no plans to dewater the pit and thus it is assumed that the single well near the processing plant would supply the water needs for the project. Additionally, a 5,000 to 10,000-gallon water tank will also be located on site. Total water demand for the project is estimated to be 82.07 AFY. The water needs are itemized and estimated in **Table 1**. Water requirements for the plant include landscape irrigation, potable indoor use, and water used in processing, and dust control.

The project description of proposed water demand includes 0.95 AFY of water use for landscape irrigation that appears to refer to establishing oak tree seedlings in reclamation areas and other irrigation areas. Studies have shown that oak seedling survival is improved with irrigation at a rate of 4 liters per plant per week during the dry season (Young and Evans 2002). The proposed irrigation use would support 3,500 seedlings at that irrigation rate, suggesting a conservative overestimation. Irrigation is usually applied only during the first 1-2 years of growth.

Water use at the site office and employee facilities would probably include toilets, faucets and showers. A staff of 15 people is proposed, and the facility would operate up to 310 days per year. A rough estimate of these indoor water uses was obtained by assuming that the above fixtures used the same amount of water as in an average California residence (Aquacraft 2011). Drinking water is expected to be supplied to employee and not from well water. This produced an estimate of 0.32 AFY of indoor water use.

Aggregate processing water use was estimated by the applicant to be 73.06 AFY. A substantial amount of water is retained in the pores of the aggregate materials after washing, and that water either evaporates from stockpiles or is exported when the product is sold. A water recycling system, including a lined pond and a return pumping system, will supply 80 percent of the water used for processing. Water from the groundwater well would augment the water from the process water system as needed to replenish system losses due to evaporation and use. The applicant plans show the plant will be operational 310 days per year. Assuming the plant is at maximum production during the operational period, it is anticipated that up to 73.06 AFY would be pumped for the plant operations.

Dust control at the mining areas, access roads, processing plant and reclamation areas was estimated by the project applicant. According to the application, 2.48 million gallons per year in operation (7.61 AFY) will be used for dust suppression in the plant and mining areas. An additional water tank will be kept on site for fire response, 0.12 AFY.

Except for water used indoors at the office/staff facilities—which would be returned to the groundwater system via an on-site septic system—all water would be consumed or exported.

2.3. ESTIMATED FUTURE RECYCLED WATER USE FOR PROJECT

There are no plans to serve recycled water for the project from municipal wastewater treatment.

2.4. TOTAL FUTURE PROJECT DEMAND FOR PROJECT

Table 1 shows the estimated future project demand for the processing plant and surrounding areas. The property is assumed to have no existing water use, so the net water demand on the site would increase by a total of 82.07 AFY. No change in demand is expected during wet, normal, or dry years.

3. BASIN WATER DEMAND

The Sargent Quarry is located in southwest Santa Clara County 0.7 miles from the boundary with San Benito County and approximately 2.0 miles from the boundary with Santa Cruz County.

The project supply well would be located at the downgradient tip of the Llagas Subbasin, which is part of the Gilroy-Hollister Groundwater Basin. For the requirements of the WSA, the water demand and supply of the Llagas Subbasin will be used to assess water supply sufficiency.

The following sections describe factors in Llagas Subbasin that affect water demand. These factors include climate, population and employment, plus the mix of customer types, such as residential, commercial, and industrial. This section documents water demands not only under normal climatic conditions, but also during drought.

3.1. CLIMATE

Climate has a significant influence on water demand on a seasonal and annual basis. This influence increases with the portion of water demand for outside uses, including dust control, pond evaporation, and landscape irrigation.

Table 2 summarizes representative climate data for Santa Clara County, including rainfall and temperature data measured at Gilroy station #211 by the California Irrigation Management Information System Station (CIMIS). Temperature and precipitation data are available from 2009 through 2019 (CIMIS 2020). The County has a Mediterranean climate, characterized by dry summers and wet winters with year-round moderate-to-warm temperatures. Reflecting this pattern, water demand in the County is greater in the summer than in the winter. Climate change may affect future water supply availability for Santa Clara County by reducing water availability, changing local precipitation patterns, and increasing water demands.

3.2. COUNTY POPULATION

Population is a key factor in water demand; Valley Water has provided population information for the entire county (coincident with its service area) in its 2020 UWMP. **Table 3** reproduces the UWMP population value for the county/service area for 2020 with projections to 2045. A 36 percent net population increase is projected. Valley Water does not subdivide population between its two major subbasins (Santa Clara Plain and Llagas) (SCVWD 2021b).

3.3. CURRENT WATER USE SECTORS AND WATER DEMAND

Figure 2 shows current water demand in Llagas by customer type from the 2016 GWMP. In 2019, 54 percent of demand was from agricultural pumping, domestic, and private pumping, 45 percent from municipal and industrial (M&I) uses, and 3 percent of demand was domestic uses (SCVWD 2021a).

3.4. PROJECTED WATER DEMAND

Available documents from Valley Water provide projected county-wide demand by customer type, **Table 4a**, and total water demand for Llagas, **Table 4b.** About 85 percent of the county-wide agricultural pumping occurs in Llagas Subbasin and this is expected to remain stable through 2045 (SCVWD 2021a). However, on a county-wide basis municipal use is expected to increase four percent from 2025 to 2045. The UWMP does not breakdown expected demand by subbasin but the 2016 GWMP estimated the future demand in Llagas Subbasin. According to the 2016 GWMP Llagas supply is projected to increase by 12 percent, or 6,000 AFY, from 2020 to 2040 (SCVWD 2016).

3.5. Water Demand in Normal and Drought Periods

Santa Clara County faces periods of severe drought, and Valley Water recognizes that water conservation is critical to sustainability. As outlined in the 2020 UWMP, Valley Water has developed a five-stage water shortage contingency plan to decrease water demand during periods of water shortage. Valley Water manages groundwater for Santa Clara County but does not directly pump groundwater. Accordingly, the water shortage contingency plan relies on collaboration with partner agencies to influence groundwater pumping through financial and management practices.

3.6. Water Conservation

Valley Water promotes water conservation through regulations, conservation pricing, outreach, and education. Valley Water, in partnership with other water providers, implements nearly 20 different ongoing water conservation programs that use a mix of incentives and rebates, free device installation, home visits, site surveys, and educational outreach to reduce water consumption in homes, businesses and agriculture. These programs are designed to achieve long-term water savings (SCVWD 2020). Valley Water's long-term water savings goal is 98,800 acre-feet per year by 2030 (2012 Water Supply Master Plan).

Detailed information on Valley Water's programs can be found on their website: https://www.valleywater.org/water-conservation-programs.

4. COUNTY OF SANTA CLARA WATER SUPPLY

4.1. Groundwater

Groundwater is the primary source of water supply for the Llagas Subbasin. The Llagas Subbasin (DWR Basin Number 3-3.01) is located within the California Coast Ranges physiographic province between the San Andreas and Calaveras Fault zones. The subbasin is part of the larger Gilroy-Hollister Valley Groundwater Basin (Basin 3-3), which extends into San Benito County to the south. Similar to the Santa Clara Subbasin, the Llagas Subbasin underlies a relatively flat valley and consists of unconsolidated alluvial sediments. The Santa Cruz Mountains and Diablo Range on either side of the subbasin are primarily composed of sedimentary, metamorphic, and volcanic rocks of Jurassic, Cretaceous and Tertiary age. The northern boundary with the Santa Clara Subbasin is the Coyote Creek alluvial fan in the Morgan Hill area, which forms a topographic and hydrologic divide between the groundwater and surface water flowing to the San Francisco Bay and water flowing to the Monterey Bay. The groundwater divide is approximately located at Cochrane Road area in Morgan Hill. Based on observed water level data, the boundary moves as much as a mile to the north or south depending on local groundwater conditions. The subbasin southern boundary is coincident with the boundary between Santa Clara and San Benito counties along the Pajaro River.

Because of this location and the proximity to a perennial reach of the Pajaro River, the effects of project pumping on basin yield would accrue to downstream groundwater users by means of changes in Pajaro River percolation.

4.1.1. Effects on Downstream Users

Figure 1 shows the neighboring groundwater basins and management agencies. The primary downstream water user group includes groundwater pumpers in the Pajaro Valley Subbasin of the Corralitos Basin located on the coastal plain surrounding Watsonville. Reflecting the occurrence of seawater intrusion, Pajaro Valley Subbasin has been designated as critically overdrafted by the California Department of Water Resources (DWR) with a requirement to prepare a groundwater sustainability plan in fulfillment of requirements of the Sustainable Groundwater Management Act (SGMA). In response in December 2016, Pajaro Valley Water Management Agency (PVWMA) submitted an Alternative Plan, which was based primarily on its ongoing Basin Management Plan. DWR approved PVWMA's Alternative in July 2019. PVWMA has subsequently prepared Annual Reports summarizing its basin management and progress toward sustainability. The Alternative Plan and Annual Reports are available on the DWR SGMA Portal (https://sgma.water.ca.gov/portal/alternative/print/22).

Percolation from the Pajaro River supplies approximately 30 percent of average annual recharge to the Pajaro Subbasin; this is being supplemented with managed aquifer recharge. In addition, PVWMA and local cooperating agencies have developed surface water supply and recycled water facilities and have an active water conservation program for agricultural and domestic users that has reduced water demand. Total water use in the Basin during water year 2019 was 47,516 AF. Comparison of Pajaro Subbasin use with the consumptive use for quarry operations (82.07 AFY) indicates that the quarry would consume about 0.17 percent of water use in the PVWMA area; this may be considered insignificant in the context of other much larger sources of variability. The change in post-mining net consumptive use due to changes in vegetation in the pits and along downstream reaches of Sargent Creek would be similarly small.

The North San Benito Groundwater basin shares a boundary with Llagas subbasin along the Pajaro River. The basin also extends into Santa Clara County across the Pajaro River about three miles downstream of the quarry well, but this area is very small. San Benito County Water District is currently preparing a Groundwater Sustainability Plan for the basin. Preliminary estimates in the GSP water balance calculate 3,700 to 6,000 AFY of subsurface flow from Llagas into North San Benito. The pumping of the well may decrease some of this flow into San Benito, if not reducing flow to Pajaro. The pumping represents approximately one percent of total inflow and not likely to affect downstream users in San Benito.

4.2. Recycled Water

Valley Water currently serves recycled water to three parks in Llagas Subbasin. Total recycled water use is a small portion of the overall water supply to the subbasin.

4.3. Water Supply in Normal and Drought Periods

The California Water Code requires that a WSA include discussion of how supply will meet demand during normal, single dry, and multiple dry years during a 20-year projection. The 2020 UWMP and 2021 GWMP provide discussion of water supply and demand in normal and drought periods, included herein by reference. The 2016 GWMP also provided supply projections for only Llagas subbasin. **Table 5a and Table 5b** show water supply in a normal year for the entire county and only Llagas subbasin, respectively.

Valley Water relies on groundwater as the primary source of water in Llagas, and groundwater production has historically remained stable and fulfilled water demand during both single and multiple dry year periods.

In the 2020 UWMP, water supply estimates are provided for future single dry years and multiple dry year periods on a county wide basis. **Tables 6 - 8** show the expected water demand during normal, single-dry, and multiple-- dry year periods. **Table 6** shows that the expected supply is more than enough to meet projected demand for normal years. **Table 7** shows the expected supply and demand in a single dry year, with similar hydrology to 1977. Supply is estimated to be 80 percent of normal demand. The reductions in supply are mainly reductions in imported water. It should be noted that the imported water is used to meet supply in the Santa Clara Plain and is not expected to affect the supply in Llagas subbasin, which relies on groundwater and some recycled water. In **Table 7**, dry year demands are only reduced slightly to reflect less losses in the imported water system. As experienced in the most recent drought, demands will likely be reduced further with water conservation.

The Water Contingency Plan was developed specifically to guide the reduction of demand to withstand short term decreases in the supply. Even with no demand reduction in drought, Valley Water anticipates adequate supply until 2045 and has plans in place to continue to develop additional supplies in the future (SCVWD 2021b).

Table 8 shows a multiple year drought that is equivalent to the most recent multiple year drought, 1988-1992. As with a single dry year, imported water to the Santa Clara Plain is expected to be reduced while groundwater will continue to meet demand. As shown in **Table 8**, Valley Water is expected to receive 65 to 83 percent of supply over the five year drought period. While this reflects a shortfall compared with normal demand, some reduction of demand would be expected based on the Water Contingency Plan.

Valley Water is evaluating supply projects and programs to increase water supply with a goal of requiring conservation reductions no more than 10 percent. Additional projects and programs may include additional long-term water conservation savings, water recycling, recharge capacity, storm water capture and reuse, banking, and storage (SCVWD 2021b).

5. LOCAL GROUNDWATER EFFECTS

The project would be supplied by a well near the processing plant, west of the railroad tracks and south of the Highway 101 overpass. Pumping would cause a drawdown (lowering) of groundwater levels near the well. Drawdown decreases with distance from a pumping well but a large decline in water level could potentially impact the operation or yield of nearby wells. The amount of drawdown can be estimated based on the pumping rate of the project well, the distance to the nearby well, and the hydraulic characteristics of the aquifer.

Other wells are located to the north and east of the project well (**Figure 3**). The closest belongs to the applicant (Sargent Ranch LLC). The second closest is a monitoring well owned and operated by SCVWD. The third closest is one of ten wells owned by a neighboring landowner (Sun & Sons LP) that appear to be irrigation wells. This well is the neighboring production well that would experience the largest water-level decline due to project pumping. It is located 690 feet from the proposed project supply well.

The drawdown at the closest neighboring well was computed as a function of time and distance using the Theis equation for drawdown in confined aquifers (Freeze and Cherry, 1979). Key parameters include:

- Annual water production from the project supply well - 82.07 AFY
- Days in use per year – 310 days per year
- Operating days - a 12-hour-on, 12-hour-off pumping cycle during plant operation days
- Pumping rate of the project well - 120 gpm
- Transmissivity - 1,250 to 12,500 square-feet-per-day (ft^2/d), and storativity was 0.0002 (dimensionless). Estimates of those characteristics were obtained from a calibrated regional groundwater flow model (Todd 2015).

Using these parameters, drawdown at the neighbor's irrigation well at the end of the 12-hour pumping cycle is estimated to be 0.84 to 5.0 feet.

Drawdown caused by a new neighboring well does not rise to a level of significance for CEQA purposes unless it would cause pumping water levels to drop below the top of the well screen.

Construction information is not available for the irrigation well closest to the project supply well. However, driller's logs for other wells in the area indicate that a typical depth to the top of the well screen is 100 feet and a typical total well depth is 400 feet. The pump intake for local wells is estimated at 55 feet below ground surface based on well screen and available water level data (Todd 2015). Reasonable estimates of pumping rate (400 gpm) and specific capacity (10 gallons per minute per foot of drawdown) are assumed. Use of those values indicates a pumping drawdown of 40 feet. Combining that drawdown with 1 - 5 feet of drawdown from the project well would still leave available groundwater elevation above the top of the well screen, even at the end of the irrigation season in a dry year. Therefore, the drawdown impact would be less than significant. Because drawdown decreases with distance, it would also be less than significant at the other nearby production wells.

6. COMPARISON OF SUPPLY AND DEMAND

Valley Water's Urban Water Management Plan projects that both the population and water demand will grow over the next 20 years. The water resources available in the Llagas Subbasin are sufficient to meet the water demand for this proposed project (82.07 AFY) and for future development.

Total project demand (82.07 AFY), while not specifically accounted for within Valley Water's UWMP, is within the projected M&I growth of 11,000 AFY. Accounting for less than one percent of the increase, the project will have sufficient supply to operate through 2045.

Valley Water has adequate resources to meet the water demands for its growing population and continues to develop new projects and programs to secure supply and reduce demand. There are enough water resources for the proposed project for normal, single dry and multiple dry years during a 20-year projection.

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TABLES

Table 1. Project Water Demand

Type of Use	Acre-Feet per Year
Irrigation to establish landscaping	0.95
Potable indoor use	0.32
Water consumed in process and export of product	73.06
Dust control	7.61
Other (Fire Response)	0.12
Total Water Demand	**82.07**

Table 2. Local Climate Data

Month	Average Total Monthly Evapotranspiration[1]	Average Total Monthly Precipitation (in)	Average Temperature (F)	Average Minimum Temperature (F)	Average Maximum Temperature (F)
January	1.7	2.1	49.1	37.7	63.1
February	2.3	2.0	50.7	38.3	64.9
March	3.6	2.2	54.5	42.1	68.5
April	5.0	1.1	57.4	44.5	72.1
May	6.1	0.4	59.9	47.8	74.8
June	7.1	0.1	64.7	51.1	82.0
July	7.1	0.0	65.8	53.6	83.7
August	6.2	0.0	65.7	53.6	83.9
September	5.2	0.1	65.5	50.7	84.8
October	3.9	1.0	60.9	46.1	78.8
November	2.2	0.9	53.0	39.7	68.9
December	1.5	2.2	47.7	36.7	61.2
Annual	**51.8**	**12.1**	**57.9**	**45.2**	**73.9**

1. Data (Sept 2009 - Feb 2020) from the California Irrigation Management Information Systems (https://cimis.water.ca.gov/) Station 211

Table 3. Valley Water County-Wide Service Area Population

	2015	2020	2025	2030	2035	2040	2045	Percent Increase
Population	1,877,700	1,986,340	2,098,695	2,217,750	2,387,165	2,538,320	2,699,046	36%

Source: SCVWD UWMP Table 3-2

Table 4a. County Wide Projected Water Demand

Sector	**2025**	**2030**	**2035**	**2040**	**2045**
Municipal Retailers	288,000	280,000	285,000	290,000	299,000
Agricultural Groundwater Pumping	25,000	25,000	25,000	25,000	25,000
Independent Groundwater Pumping	14,000	14,000	14,000	14,000	14,000
Raw Water	2,000	2,000	2,000	2,000	2,000
Losses	3,000	3,000	3,000	3,000	3,000
TOTAL	**332,000**	**324,000**	**329,000**	**334,000**	**343,000**

Source: 2020 UWMP Table 4-3

Table 4b. Projected Water Demand in Llagas Subbasin

Basin	**2025**	**2030**	**2035**	**2040**
Llagas Subbasin Groundwater	49,000	52,000	53,000	53,000
Total Water Demand	49,000	52,000	53,000	53,000

Source: SCVWD GWMP Table 4-7 and Figure 4-11

Table 5a. Projected Water Supply by Type County-wide Normal Year

Supply	2025	2030	2035	2040	2045
Groundwater	140,000	164,000	163,000	162,000	162,000
Local Surface Water	30,000	70,000	185,000	185,000	185,000
Recycled Water	16,000	19,000	22,000	26,000	28,000
Potable Reuse					
San Francisco Public Utilities Commission	55,000	56,000	59,000	61,000	63,000
CVP and SWP Allocations	130,000	134,000	136,000	139,000	142,000
Out of County Storage	75,000	75,000	75,000	70,000	70,000
Total Water Supply	**446,000**	**518,000**	**640,000**	**643,000**	**650,000**

Source: SCVWD UWMP Table 6-5

Table 5b. Projected Water Supply in Llagas Subbasin (Normal Year)

Basin	2025	2030	2035	2040
Llagas Subbasin	49,000	52,000	53,000	53,000
Total Water Supply	**49,000**	**52,000**	**53,000**	**53,000**

Source: SVCWD GWMP

Table 6. Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Available Supply (AFY)	446,000	518,000	640,000	643,000	650,000
Normal Year Demand (AFY)	333,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**113,000**	**193,000**	**310,000**	**308,000**	**305,000**

Source: SCVWD UWMP Table 7-2

Table 7. Single Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Available Supply (AFY)	355,000	373,000	497,000	503,000	505,000
Single Dry Year Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**25,000**	**48,000**	**167,000**	**168,000**	**160,000**
% of Normal Year Supply/Demand	80%	72%	78%	78%	78%

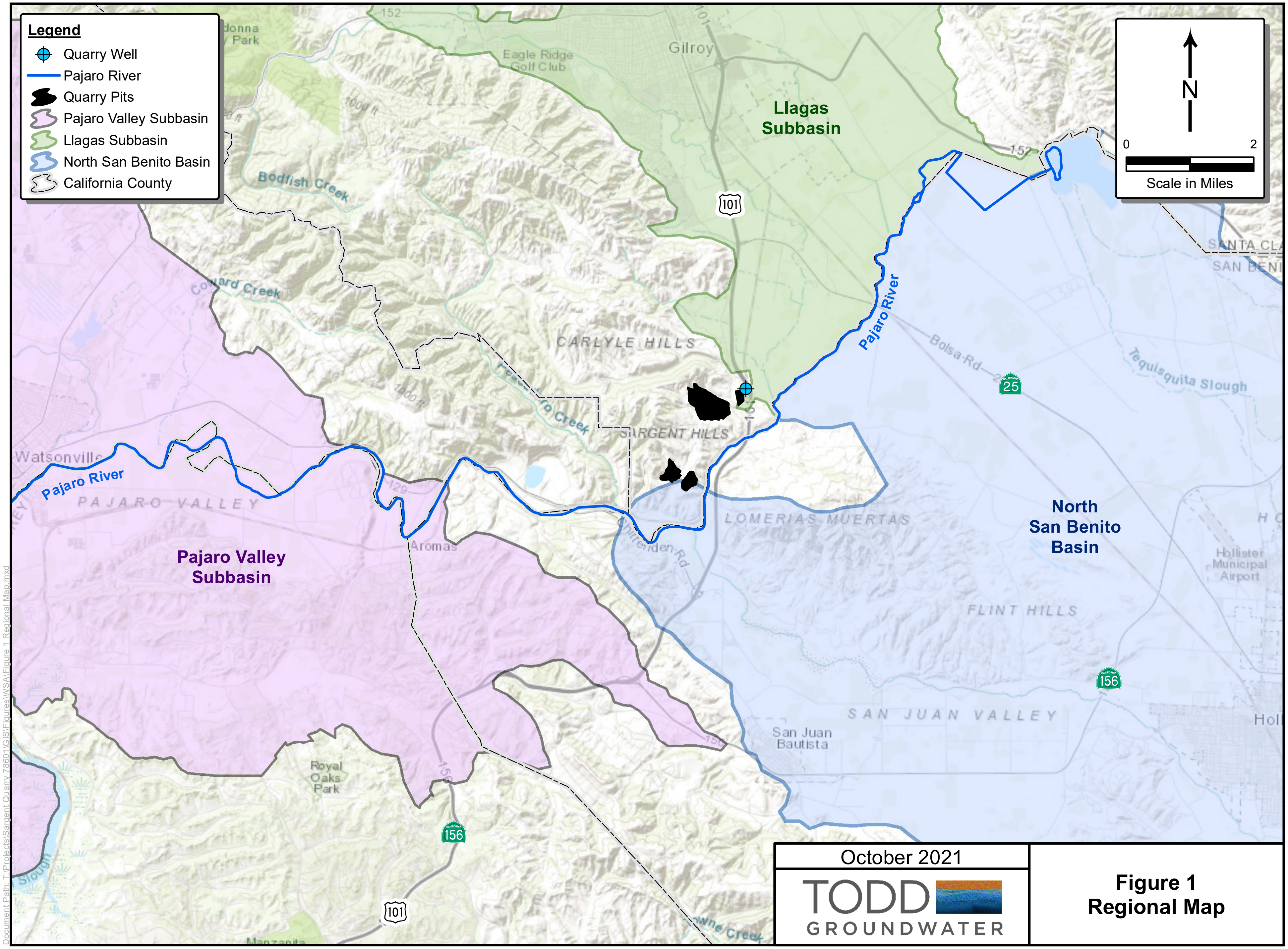
Source: SCVWD UWMP Table 7-3

Table 8. Multiple Dry Years Supply and Demand Comparison

Water Sources	2025	2030	2035	2040	2045
First Year					
Available Supply (AFY)	345,000	349,000	491,000	483,000	487,000
Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**15,000**	**24,000**	**161,000**	**148,000**	**142,000**
% of Normal Year Supply/Demand	77%	67%	77%	75%	75%
Second Year					
Available Supply (AFY)	370,000	376,000	477,000	482,000	501,000
Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**40,000**	**51,000**	**147,000**	**147,000**	**156,000**
% of Normal Year Supply/Demand	83%	73%	75%	75%	77%
Third Year					
Available Supply (AFY)	340,000	349,000	443,000	450,000	448,000
Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**10,000**	**24,000**	**113,000**	**115,000**	**103,000**
% of Normal Year Supply/Demand	76%	67%	69%	70%	69%
Fourth Year					
Available Supply (AFY)	347,000	341,000	416,000	421,000	429,000
Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**17,000**	**16,000**	**86,000**	**86,000**	**84,000**
% of Normal Year Supply/Demand	78%	66%	65%	65%	65%
Fifth Year					
Available Supply (AFY)	341,000	365,000	430,000	440,000	444,000
Demand (AFY)	330,000	325,000	330,000	335,000	345,000
Supply/Demand Difference	**11,000**	**40,000**	**100,000**	**105,000**	**99,000**
% of Normal Year Supply/Demand	76%	70%	67%	68%	68%

Source: SCVWD UWMP Table 7-4

FIGURES



October 2021

TODD GROUNDWATER

Figure 1
Regional Map

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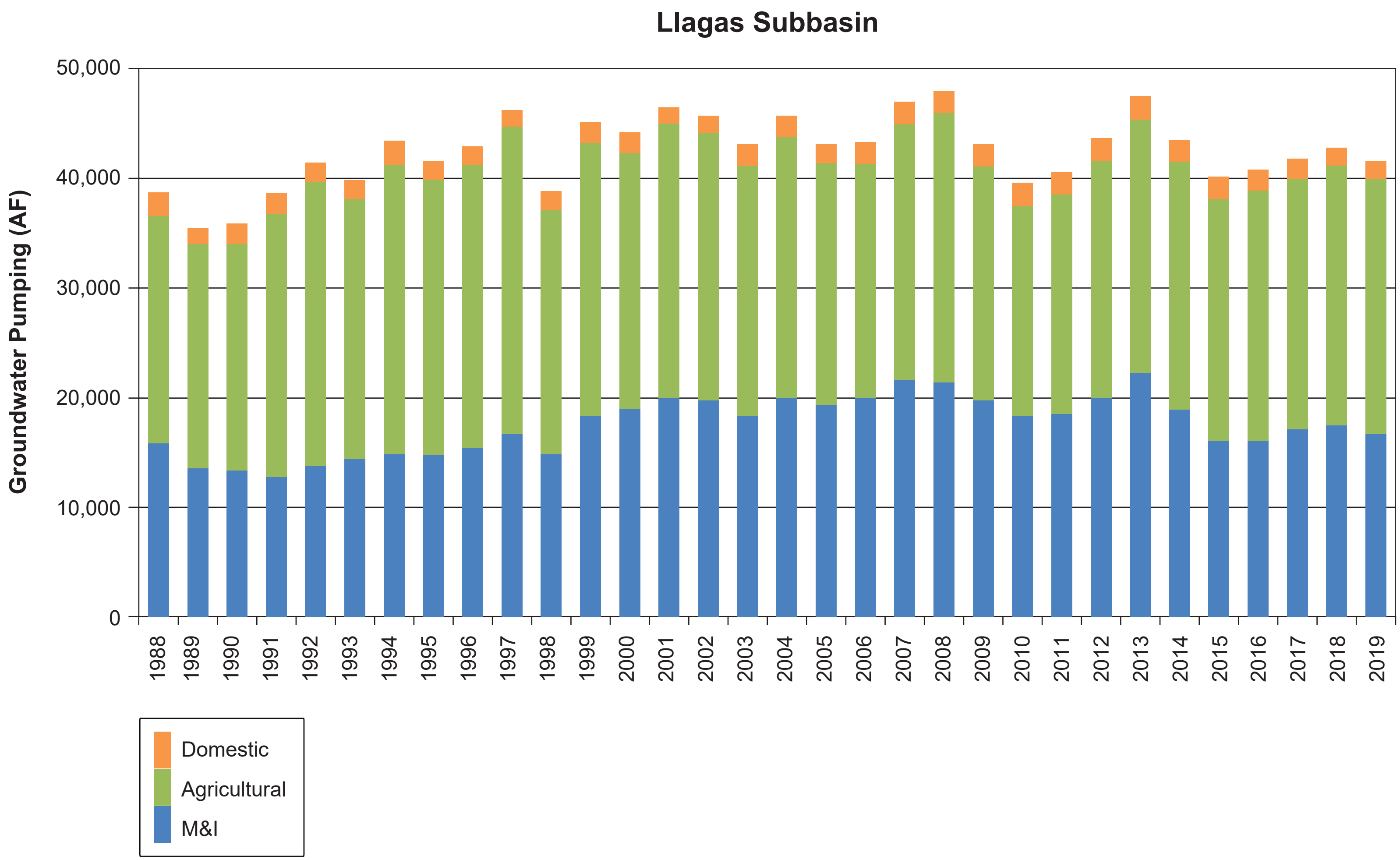
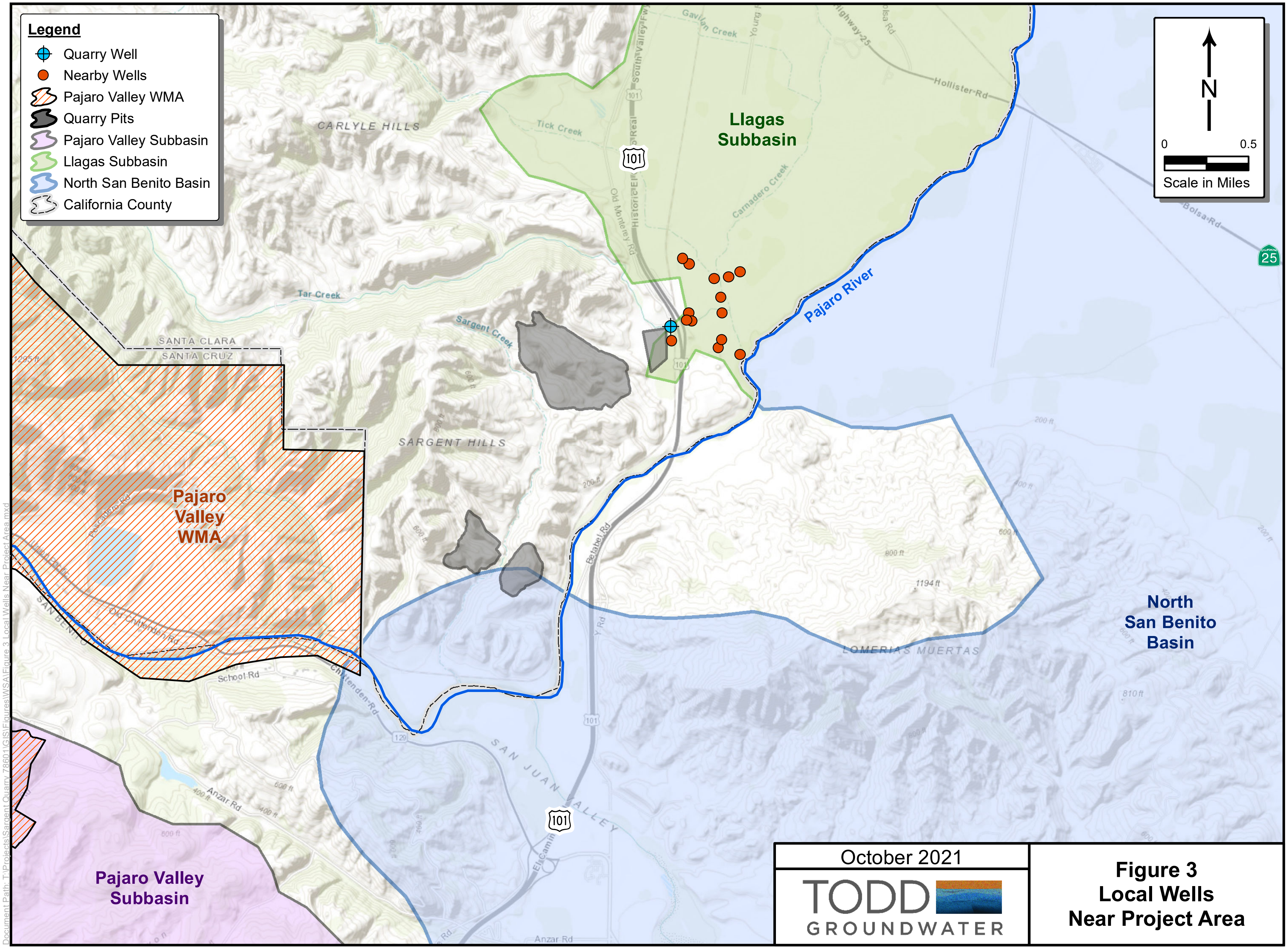


October 2021

TODD GROUNDWATER

Figure 2
Llagas Subbasin
Demand by
Customer Type



October 2021

TODD GROUNDWATER

Figure 3
Local Wells
Near Project Area

Appendix I.4
Industrial SWPPP

INDUSTRIAL STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Sargent Quarry

SANTA CLARA COUNTY, CALIFORNIA

Prepared for compliance with Section A of the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges associated with Industrial Activity Water Control Order: 2014-0057-DWG

Prepared for:

Sargent Ranch Management Company LLC
San Diego, CA
Contact: Howard Justus
619-220-8900

Prepared by:

Triad Holmes Associates
P.O. Box 1570
549 Old Mammoth Road, Suite 202
Mammoth Lakes, CA 93546

September 2016

TABLE OF CONTENTS

TABLES

APPENDICES

1.0 FACILITY INFORMATION & CERTIFICATION

Facility Name:	Sargent Quarry
Facility Location:	Approximately 5 miles south of the town of Gilroy off Highway 101 in Santa Clara County, CA
Facility Telephone:	619-220-8900
Responsible Party For SWPPP:	Howard Justus
Primary Operations:	Construction Sand and Gravel – SIC code No. 1442
Hours of Operation:	Monday through Saturday from 7:00 am to 4:30 pm
Size of Facility:	292 acres
WDID No.:	
NPDES Permit No.:	CAS000001 General Permit – Industrial Permit

Certification:

Preparer:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the systems or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility if fine and imprisonment for knowing violations.

Signed: ________________________________ Date: ________________________

Name/Title:______________________________________

2.0 SITE MAPS
(IGP – Section X.E)

Figure 1:	Location Map
Figure 2:	Facility Site Plan and Drainage Patterns
Figure 3:	Plant Site and Drainage Patterns
Figure 4:	Potential Pollutants and BMP: Mining Sites and Access Road
Figure 5:	Potential Pollutants and BMP: Plant Site

NOT TO SCALE

DATE:
08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP
FIGURE 1 – LOCATION MAP

triad/holmes assoc
civil engineering
land surveying

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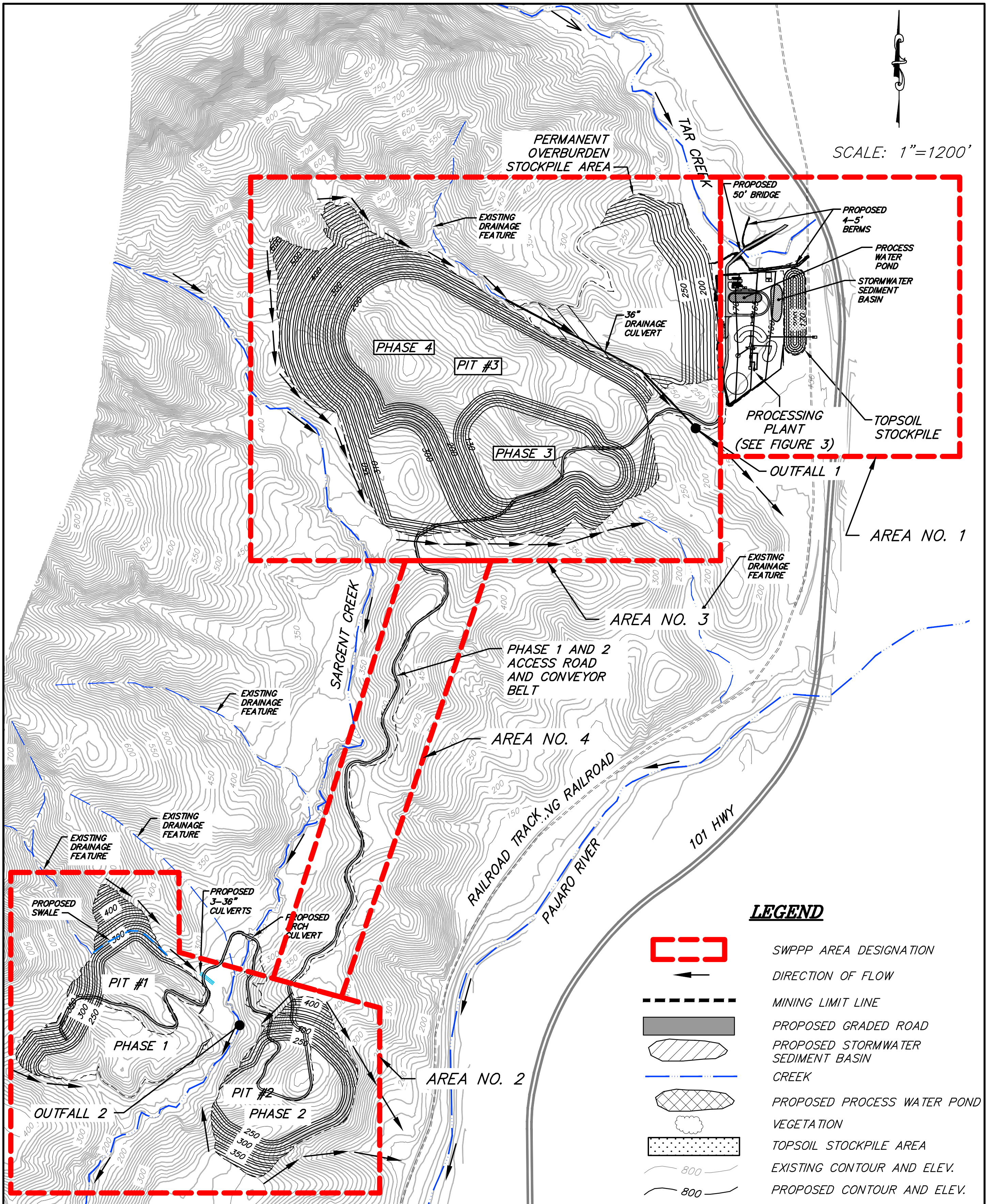

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08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP

FIGURE 2 – FACILITY SITE PLAN AND DRAINAGE PATTERNS

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land surveying

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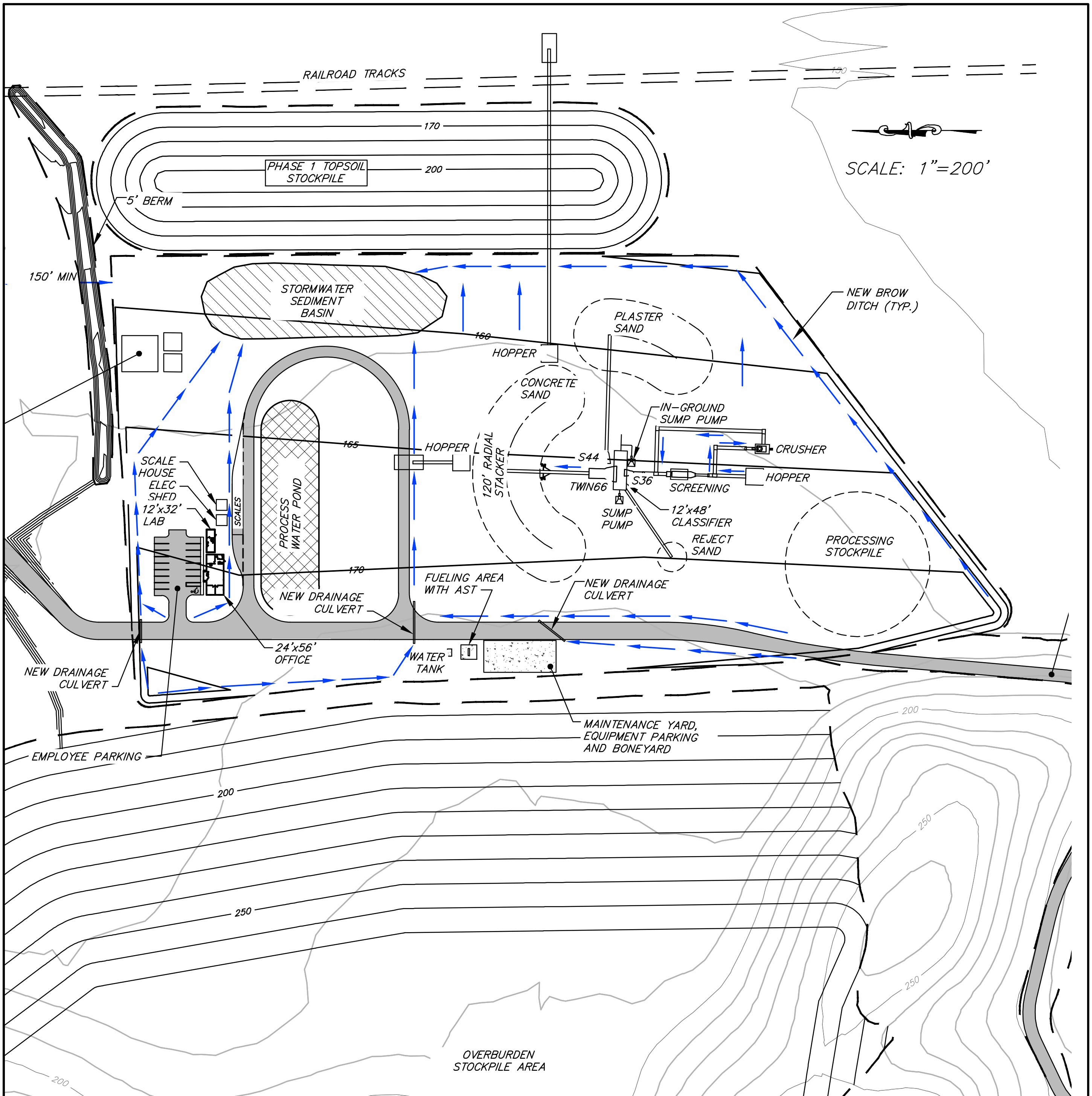

LEGEND

	DIRECTION OF FLOW
	MINING LIMIT LINE
	PROPOSED GRADED ROAD
	PROPOSED STORMWATER SEDIMENT BASIN
	PROPOSED PROCESS WATER POND
800	EXISTING GROUND CONTOUR AND ELEV.
800	PROPOSED GROUND CONTOUR AND ELEV.

DATE:
08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP

FIGURE 3 – PLANT SITE AND DRAINAGE PATTERNS

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civil engineering
land surveying

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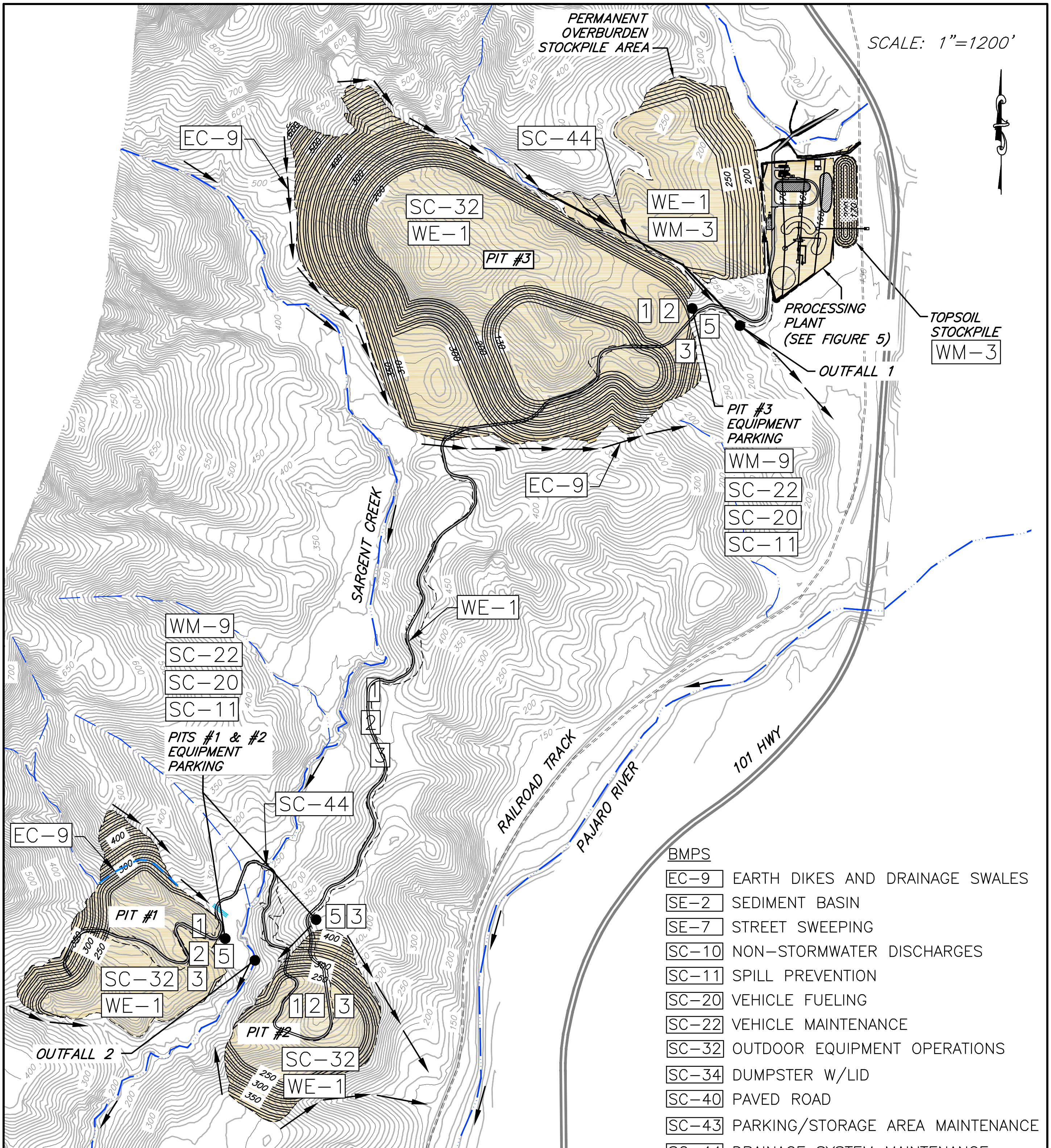

BMPS

EC-9	EARTH DIKES AND DRAINAGE SWALES
SE-2	SEDIMENT BASIN
SE-7	STREET SWEEPING
SC-10	NON-STORMWATER DISCHARGES
SC-11	SPILL PREVENTION
SC-20	VEHICLE FUELING
SC-22	VEHICLE MAINTENANCE
SC-32	OUTDOOR EQUIPMENT OPERATIONS
SC-34	DUMPSTER W/LID
SC-40	PAVED ROAD
SC-43	PARKING/STORAGE AREA MAINTENANCE
SC-44	DRAINAGE SYSTEM MAINTENANCE
SC-70	PAVED ROAD
WM-3	STOCKPILE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-9	PORTA POTTIES
WE-1	DUST CONTROL

POTENTIAL POLLUTANTS

1	DUST
2	SEDIMENTS
3	PETROLEUM HYDROCARBONS
4	MOBILE SERVICE TRUCK
5	HUMAN WASTE
6	DUMPSTERS
	ERODABLE AREAS

DATE: 08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP

FIGURE 4 – POTENTIAL POLLUTANTS AND BMP: MINING SITES AND ACCESS ROAD

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civil engineering
land surveying

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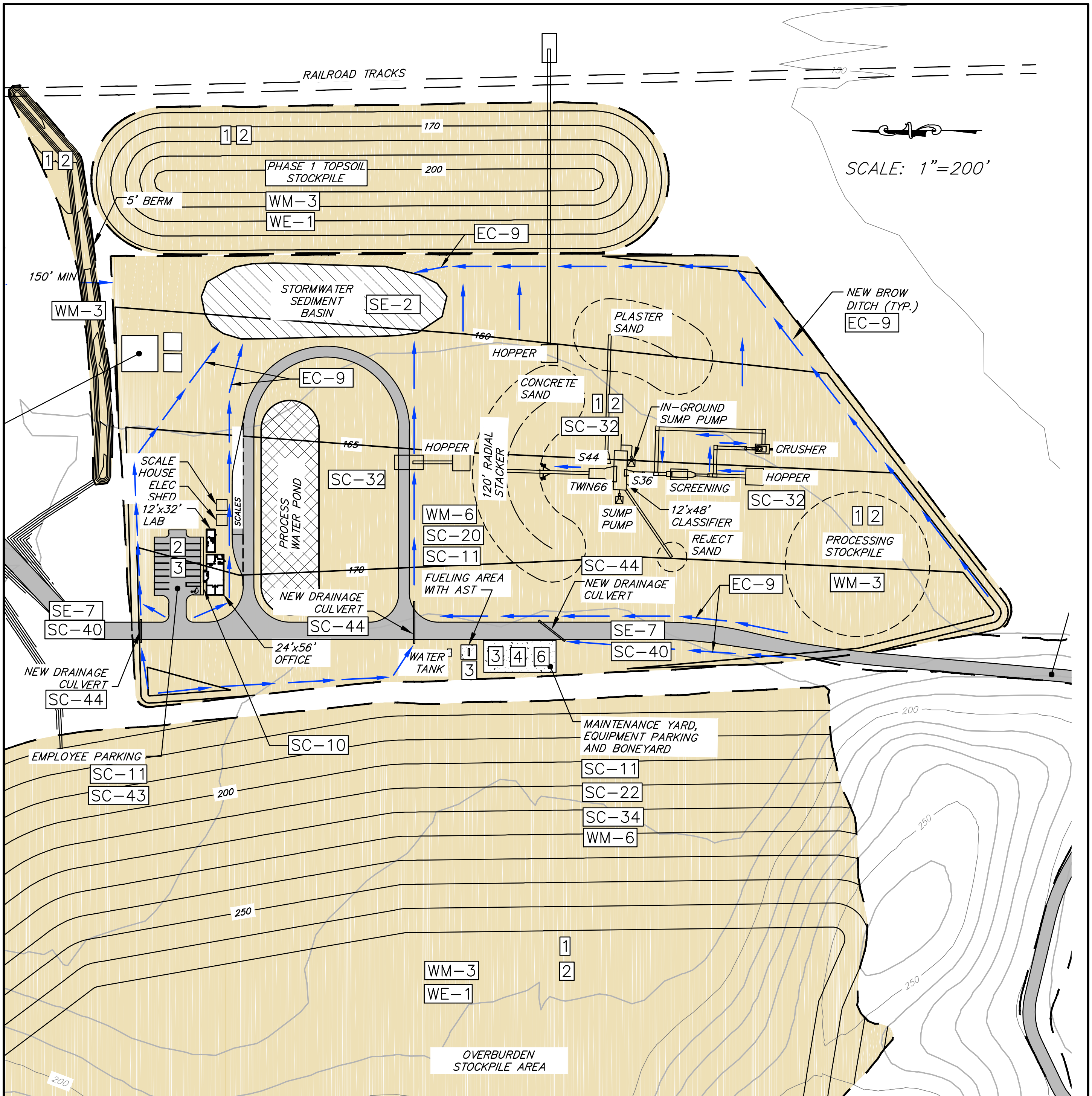

BMPS

EC-9	DRAINAGE SWALES
SE-2	SEDIMENT BASIN
SE-7	STREET SWEEPING
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WM-9	PORTA POTTIES
WE-1	DUST CONTROL

POTENTIAL POLLUTANTS

1	DUST
2	SEDIMENTS
3	PETROLEUM HYDROCARBONS
4	MOBILE SERVICE TRUCK
5	HUMAN WASTE
6	DUMPSTERS
	ERODABLE AREAS

DATE:
08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP

FIGURE 5 – POTENTIAL POLLUTANTS AND BMP: PLANT SITE

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civil engineering
land surveying

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3.0 INTRODUCTION
(IGP Section X.D.2)

This document is a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP has been prepared to comply with Section X.A of the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Industrial Activities (General Permit), adopted by the California State Water Resources Control Board on April 1, 2014 and effective on July 1, 2015. The Industrial General Permit (IGP) implements regulations established by the US Environmental Protection Agency on November 16, 1990 requiring listed industries to obtain NPDES Permits for discharging storm water from their facilities to surface waters. The Federal regulations were established pursuant to Section 402(p) of the Federal Clean Water Act, added by 1987 amendments. The SWPPP is available for public review, pursuant to Section 308(b) of the Federal Clean Water Act. References to the specific sections of the Industrial General Permit (IGP) regulations are provided throughout this SWPPP.

The SWPPP is intended to achieve two purposes: 1) to identify and evaluate sources of pollutions associated with industrial activities that could affect the quality of storm water discharged and authorized non-stormwater discharged from a facility; and 2) to identify and implement site-specific Best Management Practices (BMPs) that the facility is committed to implement to minimize or prevent discharge of pollutants associated with industrial activities that may be in stormwater. Topics addressed in the SWPPP include elimination of non-storm water discharges, pollutant sources and associated BMPs, storm water management, sedimentation and erosion control practices, preventative maintenance and good housekeeping practices, spill prevention and response, inspections, record keeping, and employee training.

The SWPPP is meant to be an active, living document supporting development of BMPs, the monitoring of storm water runoff, and elimination of non-permitted discharges. It encourages timely responses and requires inspection documentation and notifications. The specific parameters which must be measured for different SIC subsectors are listed where appropriate. Consideration of receiving water limitations and Subchapter N effluent guidelines is included. Directions in sampling methodology and examples of employee awareness training are included.

While this SWPPP may assist the user in complying with storm water quality regulations. Completion of this SWPPP and implementation of the presented measures will not in of itself ensure full compliance with Federal, California and local laws, regulations, and ordinances. The burden of comprehensive compliance rests solely with the owner and operator of each facility. Federal, State and local regulations are constantly changing. Future updating and compliance are the sole responsibility of the operator.

4.0 FACILITY DESCRIPTION
(IGP – Section X.F and X.G.1 & G.2)

This SWPPP is prepared for Sargent Quarry – a pit mining operation that would occur on approximately 292 acres of Sargent Ranch. The Project site is approximately 5 miles south of the town of Gilroy, California, on Highway 101 and is accessed off of Old Monterey Road. (Refer to Figure 1). The project site has a land use designation of "Agricultural Ranchlands" and is surrounded by agricultural and ranching lands to the north, south, and west. Hwy 101 bounds the site on the east.

The quarry will operated year round Monday through Saturday from 7:30 am to 4:30 pm and employ 15 full time employees. Extended processing plant operational hours would also be permitted. These temporary hours would allow operations, on occasion, to operate at night, providing the mine operator the flexibility to respond to market conditions, nighttime public works projects, and emergency or special circumstances.

4.1 Primary Operations & Facilities (IGP- Section X.F & X.G.1.a, b)

Of the Project site's 292 acres, approximately 214 acres comprise the area of proposed mining. The proposed processing plant site is located near Highway 101 and is roughly 14 acres in size. Sand and gravel would be extracted from within the 214-acre area in four Phases. Mining will be done in an open pit fashion with 2:1 side slopes with 10-foot benches every 30 vertical feet. Finishes slopes will then be backfilled to 3:1 and revegetated. No underground mining will be necessary for this project. A maximum of 1,000,000 cubic yards of material would be mined in any single year.

Mining operations and associated facilities shown on the SWPPP Site Plans, Figures 2 and 3. Sand and gravel would be mined using conventional equipment, including excavators and scrapers. Excavated material would be hauled by truck, scraper, or overland conveyor to the processing plant site. Figure 3 illustrates the proposed layout of the processing plant site. There the material would be sized, washed, and sorted. Some materials may also be crushed and sorted into stockpile via radial stacker and conveyers. Materials would be kept wet to minimize dust emissions. Sprinklers would be used to control dust at multiple locations at the processing plant and on stockpiles. Waste materials (e.g., silts and clays) not suitable for construction or concrete uses would make up approximately 25 percent of the mined materials by volume. These materials would be separated and stockpiled in the two berms depending on the phase of mining.

4.2 Buildings & Structures

On-site buildings and structures will be located on the processing plant site. Structures will include module office trailer with toilet facilities, rock and sand processing equipment and structures, electric shed, lab building, scale, and aboveground fuel tanks in a sealed concrete containment structure. (See Figures 3). Porta potties will be located at the mining sites and will be moved as necessary as the quarry is being developed.

4.3 Shipping, Receiving & Loading Procedures (IGP – Section X.g.1.b)

The finished products are sold and loaded onto customer's trucks to minimize run-on. During loading into customer's trucks the material is wetted down to reduce dust.

4.4 Natural Features

The plant collects all of its storm water run-off in a graded brow ditch that runs around the perimeter of the plant. The stormwater is conveyed to the stormwater sediment basin as shown in Figure 3. Storm water in the sediment basin would ultimately percolate on-site or be reused for plant operations.

Two major creeks, Tar Creek and Sargent Creek, and other smaller drainages affect the mining areas and access to the site. Tar Creek runs just west to east, north of the project site and outlets under Hwy 101 just north of the plant site. Sargent Creek runs north to south and bisect the southern portion of the mining site where the first two phases of mining operation will take place. Refer to Figure 3 for the location of the creeks.

All major drainages that contribute concentrated flows to the mining areas will be diverted via swales and culverts around the mining pits and converge with the historic drainage patterns downstream of the mining pits. Arch culverts and bridges will be utilized for access road crossings with the creeks and drainage swales.

4.5 Description of Significant Industrial Materials (IGP – Section X.F.)

Industrial Materials present on the facility that may contribute pollutants to storm water runoff include:

- Rock, gravel, sand, silt, and/or clay
- Petroleum products (fuel, oil, grease)
- Antifreeze
- Batteries
- Diesel
- Waste Oil
- Solvents (new and/or spent)
- Chemicals in Porta Potties

4.5.1 Description of Activities

Table 1: Contributing Activity Areas to Site Runoff identifies the primary activity areas contributing to site runoff. The activity areas include the scale/ office building, processing plant, stockpiles of processed, outgoing rock and sand, and porta portties at the mining sites. The activities in each area are described in more detail in the table below.

4.5.2 Equipment Parking and Servicing (IGP – Section X.G.1.b)

Equipment is parked on a paved surface on the west side of the plant. Heavy earthmoving equipment is parked at the active mining areas. Drip pans are used while vehicles are being serviced either inside or outside. A mobile field truck is used to refuel the heavy earth moving vehicles/equipment and conduct minor service if needed. The mobile field truck has a spill kit that includes absorbent pads. The spill kit is also located at the scale house at the processing plant.
The spill kits in the above locations include the following items:

1 - 13/4 lb. Super sorbent shaker carton
15 - 3"x 4' Haz socks
2 - Pairs of P.V.C. gloves
2 - Disposable suits w/hoods and boots
100 - Univ. green sorbent pads
2 - Pairs of goggles
8 - Disposable bags w/ties
1 - Roll of caution tape
1 - 20 lbs. Cob fractions
1 - Respirator
1 - Emergency Response Guide Book

1 - 30 gal. blue poly drum

The operator of the mobile field truck, as well as the Foremen are trained to work with chemicals, petroleum, antifreeze, batteries and hazardous waste products. They are specifically trained in spill prevention, spill clean-up, and preventative maintenance.

4.6 Dust & Particulate Generating Activities (IGP- Section X.G.1.c)

Some industrial activities generate dust or particulates. The particulates which may be deposited within the facility boundary are identified below, under Section 8.0 ***Potential Pollutants in Storm Water Discharge***. The quantity of dust and particulates that may settle within the facility is highly dependent upon various emission control devices, production and ambient conditions**.**

Water will be the primary means of dust control at the quarry. Two water trucks will be used to keep both exposed areas of mining and the plant areas wet to contain dust. The prevailing wind is from the west to the east, so the buffer hills between the mining areas and the eastern edge of the Sargent Ranch boundary may be impacted on windy days. Measures to control dust in addition to the use of water include keeping the mining areas limited to only the working area and using early revegetation to cover up previously mined areas. Use of dust palliatives may also be considered on haul roads and unpaved plant areas.

4.7 Storm Water Drainage Facilities

4.7.1 Processing Plant

Refer to drainage facilities in Figure 3. Storm water runoff from the approximately 14 acre plant site sheet flows into a brow ditch that runs along the perimeter of the site. Culverts will be installed under the access road to convey the storm water from the west side of the road to the plant site. All storm water will be collected in a sediment basin where it will be allowed to filter and percolate into the ground.

Plant site is located just north of the downstream end of Tar Creek. The 100-year flood limits of Tar Creek extend approximately 350' south into the plant site. To mitigate the flood limits at the plant site, a 5' high berm is proposed along the northern boundary of the plant as shown in Figures 2 and 3. Another 4' high berm is proposed on the north side of Tar Creek to channel the flows under a 50' long bridge and bring the plant access road above the flood plain.

4.7.2 Pit #1 and Access Road

Pit #1 is located at the southern portion of the mining site. Major drainage totaling 75 ac is tributary to the northwest portion of Pit #1. This flow will be diverted into a 12' wide, 2' deep swale running along several benches on the northern side of Pit #1. Refer to Figure 2 for swale location. The proposed swale is allowed to outlet into an existing natural drainage swale on the east side of the Pit. The flow will continue under the access road via 3-36" culverts and outlet into Sargent Creek, as in historic conditions.

Access Road to Pit# 1 and #2 crosses Sargent Creek as shown in Figure 2. A low profile culvert with 23' span and 8' rise will be installed at that location. Crossing will be armored with grouted rip-rap or concrete to allow for save overflow conditions.

4.7.3 Pit #3

Pit #3 is located west of the plant site and will be excavated during Phases 3 and 4 of the mining project. There is a significant drainage that will be disturbed during the Pit #3 excavation. The concentrated flow is proposed to be conveyed via a 36" culvert located between Pit #3 and Overburden Stockpile, as shown in Figure 2. The culvert will extend further southeast under the access road and outlet at the natural drainage depression, as in historic conditions.

Detailed description of the storm water drainage facilities located within each area of the site is provided in Section 8.0, Potential Pollutants Sources & BMPs.

4.8 Potential Pollutants in Storm Water Discharge (IGP- Section X.G.1& X.G.1.d)

Potential pollutants that may be present in storm water discharged from this facility may include those associated with benches, excavated slopes, overburden stockpiles, stockpiles of crushed rock and sand products, paved and unpaved roads, the processing plants as well as those associated with the operation of equipment and its maintenance, repair, storage and refueling.

These potential pollutants include:

- Sediment
- Petroleum hydrocarbons
- Oil and grease
- Solvents
- Anti-freeze
- Batteries
- Waste Oil

Other specific pollutants that may be present and incorporated in the General Permit include:

- Human waste
- Disinfectants from Chemical Toilets

The potential for spills or leaks could occur where equipment is parked and also where equipment is serviced. However, the likelihood for a spill or leak is minimal because only minor service is performed onsite and all products are stored in secondary containers. The Foremen are trained to prevent spills and how to cleanup spills, and leaks. Spill kits are available in all service areas. In addition, the mobile truck operator is trained to clean up spills and to stop leaks and the truck carries a Spill Clean-Up Kit.

TABLE 1 CONTRIBUTING ACTIVITY AREAS TO SITE RUNOFF				
Area No.	**Description**	**Drainage Route(S) & Outfall**	**Activities That May Contribute Pollutants**	**Potential Pollutant(S)**
Quarry-Related Contributing Activities				
1	Plant Site (7% impervious)	▪ Stormwater sheet flows west to east across the plant to on-site Sediment Basin ▪ Brow ditch collects the stormwater and conveys it to on-site Sediment Pond ▪ Culverts convey the stormwater under the paved access road to brow ditches ▪ On site Sediment Basin collect the runoff from the Plant Site	• Vehicle and equipment parking • Bone yard (storage of misc. parts w/out fuel/oil) • Diesel Fueling Area • Stockpiling (processed material and topsoil) • Rock and Sand processing	• Sediment • Petroleum hydrocarbons • Oil and grease • Solvents • Diesel • Antifreeze • Human waste
2	Pits 1 and 2 (0% impervious)	▪Swales around Pit 1 convey stormwater to Sargent Creek ▪Swale following benches through Pit 1 conveys stormwater to 3-36” culverts under access road and outlet to Sargent Creek ▪Swales around Pit 2 convey stormwater to Sargent Creek northwest of Pit 2 and to Pajaro River southeast of Pit 2	• Rock extraction • Sand extraction • Vehicle and equipment parking • Diesel Fueling Area • Stockpiling • Porta Potty	• Sediment • Petroleum hydrocarbons • Oil and grease • Solvents • Diesel • Antifreeze • Human waste • Disinfectants from Chemical Toilets
3	Pits 3 (0 % impervious)	▪Swale around west side of Pit 3 conveys stormwater to Sargent Creek ▪Swale around south side of Pit 3 conveys stormwater to natural drainage feature and outlets to Pajaro River ▪Swale around north side of Pit 3 conveys stormwater to 36” culvert that outlets to natural drainage feature and eventually reaches Pajaro River	• Rock extraction • Sand extraction • Vehicle and equipment parking • Diesel Fueling Area • Stockpiling • Porta Potty	• Sediment • Petroleum hydrocarbons • Oil and grease • Solvents • Diesel • Antifreeze • Human waste • Disinfectants from Chemical Toilets
4	Access Road to Pits 1 and 2	Runoff sheet flows across the access road to Sargent Creek	• Vehicle movement on the access road	• Sediment • Petroleum hydrocarbons • Oil and grease • Diesel

- See Figures 2 and 3, for site locations and see Figures 4 and 5 for potential pollutants.

5.0 NON-STORM WATER DISCHARGES
(IGP- Section X.G.1.e)

5.1 Identification of Non-Storm Water Discharges
Non-stormwater sources at the plant site include:

- Fire Hydrants Flushing
- Drinking fountain water
- Water Sources (well water) related to the rock and sand processing operations
- Water Sources (well water) related to the maintenance and testing of potable water systems
- Atmospheric condensates including refrigeration and air conditioning
- Water truck for dust control

Non-storm water discharges are not anticipated at the plant site. The rock and sand processing operations will utilize water from the new well proposed for the project. A process water pond will be constructed within the processing plant site to be used to retain water for re-use in aggregate processing.

Water used for fire hydrant flushing, maintenance and testing of potable water systems will also be conveyed to the process water pond to be re-cycled in aggregate processing.

Non-stormwater sources at the mining site and access road include water trucks for dust control.

6.0 LIST OF SIGNIFICANT INDUSTRIAL MATERIALS

(IGP – Section X.G.2.a & X.H.4 & 5)

This section identifies significant materials that will be stored at the facility that may have potential to contaminate stormwater. Figures 4 and 5 show the location of the processing areas and the materials storage and potential pollutants. In addition, the processing plant shall keep a Hazardous Materials Business Plan that would provide detailed information on potential contaminants.

TABLE 2
LIST OF SIGNIFICANT INDUSTRIAL MATERIALS
(IGP – Section X.G.2.a & X.H.4 & 5)

Significant Material	Location where the Materials are Stored, Handled, Received, or Shipped	Significant Quantities Regularly Present At Facility
Rock	Extracted from Pits 1, 2, and 3 during 4 Phases of mining	Not anticipated to be stored
Sand	Extracted from Pits 1, 2, and 3 during 4 Phases of mining	Not anticipated to be stored
Unprocessed Product Stockpile	Southwest corner of processing plant (Figure 3)	Typically about 20,000 tons
Processed Product Stockpiles	Southeast corner and center of the processing plant (Figure 3)	Not anticipated to be stockpiled
Diesel	Above ground fuel tank at Plant site. On Service Truck and Mobile Field Truck. Also in small generators on equipment at Plant Site and by Scale/Office. (Figures 4 and 5)	5,000 gal at Plant Site 1,500 gal. Tank on Mobile Truck, Generator at Plant Site 80 gal. generator by Office/Scale
Anti-Freeze	RV Trucking & Quarry Tractor Shop, Mobile Field Truck, Figures 3a & 4a	1,500 gal. on Service Truck,
Chemicals in porta potties	2 Porta Potties to be located at the actively mining site	Porta Potties shall be serviced at least once a week. Each porta potty contains approximately 50 gallons.
Oils	Mobile Field Truck	200 gallons total in four 50 gal. drums on Mobile Field Truck
Waste Oil	Mobile Field Truck	200 gal. on Mobile Field Truck
Grease	Mobile Field Truck	400 lbs drum on Mobile Field Truck

NOTE: All tanks shall be in secondary containers or doubled walled. Amounts are approximate.

7.0 POTENTIAL POLLUTANT SOURCES & BMPS
(IGP – Section X.G.2.a & X.H.4 & 5)

The ultimate goal of the storm water program as developed from Section 402 (p) of the Federal Clean Water Act and refined by California's Industrial NPDES General Permit is to reduce pollutants contained in storm water discharges to U.S. surface waters and waterways. The emphasis of this program is to promote the concept of reducing and preventing pollution at the source, before it can cause environmental problems.

The employment and ongoing development of Best Management Practices (BMPs) provided a practical, cost sensitive approach to improving quality of discharged water. The rule of thumb that "eighty percent of the good can be accomplished with the first twenty percent of effort" is paramount. After assessment of potential pollutants BMPs are selected and employed, results are monitored and as time goes on BMPs may be further enhanced. While the ultimate goal remains the same, the iterative nature of employing BMPs, monitoring, reevaluating and enhancing BMP effort allows the systematic attainment of the goal without undue resource burden.

There are other Federal and State programs that either directly or indirectly regulates the discharge of storm water and process water from industrial sites. This SWPPP does not address those requirements exhaustively. Rather, when information is available it should be considered and addressed in conjunction with the facility's storm water program.

Site and activity specific potential pollutants have been identified. Quantification of pollutant loads discharged offers a measure of the significance. Industry wide studies by the US EPA, industry sponsored storm water sampling programs and each facility operator's intimate knowledge of his site and operation may be used to identify effective BMPs to reduce storm water pollution. The assessment of potential pollutants considers suggested pollutants; providing an "order of magnitude" quantification and leads to the development of suggested BMPs. Where BMPs are employed they are indicated with implementation status. This SWPPP addresses the basic needs of recycled: concrete and asphalt related SIC and suggests appropriate BMPs.

A narrative description of activities, potential pollutants and pollutant sources, and best management practices for each area of the Quarry operation are provided below. ***Table 4, Potential Sources of Pollutants and Associated BMPs for Quarry Activities***, follows, providing additional detail on each potential pollutant source. Figures 4 and 5 indicates the location of the Potential Pollutants discussed in this section and identified as the "source number" in Table 4.

7.1 Potential Pollutant Sources (IGP Section X.G.1)

7.1.1 Processing Plant

Narrative and Assessment:

Processing Plant, shown on Figure 3 and 5, is the northeastern portion of the site. Aggregate processing equipment, conveyor belt system, earth moving equipment, boneyard, and fueling and maintenance areas are located on the southern portion of the plant. Paved AC parking, office building, scale house, electric shed, and lab building are situated in the northwest corner of the plan. A 5,000 above ground fuel tank in secondary containment will be located at the fueling area. Topsoil stockpile surrounds the plant site on the east. Storm water sediment basin and process water pond are located in the northern portion of the site.

Potential Pollutant Sources

- Unprocessed stockpiles
- Processing area
- Vehicle and equipment parking
- Minor maintenance area
- Fueling area
- Access road
- Erodible surface
- Topsoil stockpile

Potential Pollutants

- Dust from processing activities and equipment
- Sediments from rock and sand processing plants, topsoil and material stockpiles, and haul roads
- Petroleum hydrocarbons (lubricants, oil and grease), solvents and antifreeze may be present from processing equipment, and earth moving vehicles
- Diesel

Storm Water

Refer to drainage facilities in Figure 3. Storm water runoff from the plant site will sheet flow into a brow ditch that runs along the perimeter of the site. Culverts will be installed under the access road to convey the storm water from the west side of the road to the plant site. All storm water will be collected in a sediment basin where it will be allowed to filter and percolate into the ground.

Plant site is located just north of the downstream end of Tar Creek. The 100-year flood limits of Tar Creek extend approximately 350' south into the plant site. To mitigate the flood limits at the plant site, a 5' high berm is proposed along the northern boundary of the plant as shown in Figures 2 and 3. Another 4' high berm is proposed on the north side of Tar Creek to channel the flows under a 50' long bridge and bring the plant access road above the flood plain.

Best Management Practices

Best Management Practices to address potential pollutants and sources in the plant area include numerous actions and procedures including:

1. Installation of drainage facilities, such as brow ditches, culverts, and sediment basin;
2. Restriction of activities during wet weather;
3. Complying with air quality permit regulations;
4. Use of water truck to spray unpaved and paved roads and parking areas, as well as stockpiles
5. Use of foggers on processing equipment;
6. Detention of runoff in sediment basin
7. Routine inspections and maintenance of drainage facilities;
8. Routine inspection of equipment;
9. Limited handling of aggregate materials;
10. Loaded material is compacted to be below the running board; many newer trucks have automated covers; and drivers are encouraged to tarp truck bed before departure;
11. Vehicle and equipment parking areas, parked or unpaved are regularly inspected;
12. Leaks promptly cleaned up;
13. Spill clean-up materials are accessible; such as, spill kits, wattles, and absorbent materials;
14. All equipment requiring major rebuilding are repaired off site;

15. All equipment requiring routine maintenance is serviced using proper procedures;
16. Aboveground fuel tanks are placed in secondary containments and regularly inspected; any accumulated rain water is disposed of appropriately, and auto shutoffs are used to prevent overfilling and spillage;
17. Hazardous materials are clearly labeled, and containers are routinely inspected and placed in secondary containers.
18. Hazardous materials are secured to prevent unauthorized access, and are maintained in accordance with applicable federal, state and local regulations and codes.
19. Hazardous materials inventory is kept to a minimum, where possible. Material safety data sheets are kept onsite and inventory is minimized where possible.
20. Hazardous waste materials (waste oils, lubricants, solvents) are stored in accordance with applicable federal, state and local regulations and codes. The containers are clearly labeled, placed in secondary containers, routinely inspected, and stored inside in a secure location until they are recycled. Spill cleanup materials (rags, absorbents, and empty drums) are stored and accessible;
21. Dumpsters with lids are monitored and emptied promptly;
22. Procedures are established to ensure draining of engine fluids is done without spillage, and clean up materials are nearby such as: spill kits which include: super sorbent shaker carton, haz socks, pairs of P.V.C. gloves, disposable suits w/hoods and boots, univ. Green sorbent pads, pairs of goggles, disposable bags w/ties, roll of caution tape, 20 lbs. Cob fractions, respirator, emergency response guide book all stored in a 30 gal. Blue poly drum
23. Air compressors are located above drip pans and seals are regularly inspected and maintained;
24. Batteries are stored inside, near cleanup materials, and they are routinely recycled;
25. Company vehicle brakes (pickup trucks) are only serviced off-site;
26. Boneyard is limited to surplus components and parts; nothing with fuel, oil and grease. In the winter the steel racks will be covered with a tarp.

For more detail on the pollutant sources described for the plant site, see source numbers 1-9 in Table 4, below.

7.1.2 Mining Pits

<u>Narrative and Assessment</u>
There are three mining pits that will be developed over four phases, as shown on Figure 2. The mining pits will contain vehicles and equipment parking areas, excavation area, and porta potties.

<u>Potential pollutant sources</u>
- Vehicle and equipment parking and fueling
- Access roads
- Portable toilets
- Erodible surface

<u>Potential Pollutants</u>
Potential pollutants in this area include:
- Petroleum hydrocarbons (lubricants, diesel, oil and grease),
- Exposed soil surfaces from an unpaved haul roads
- Dust from excavation, unpaved haul road, and earth moving equipment,
- Sediments from exposed soil surfaces from excavation areas and activities, and unpaved haul roads

- Mobile Field Truck carrying diesel, oil, waste oil, coolant and antifreeze
- Human waste and disinfectants from portable chemical toilet

Stormwater tributary to Pit #1 will be diverted into a 12' wide, 2' deep swale running along several benches on the northern side of Pit #1. Refer to Figure 2 for swale location. The proposed swale is allowed to outlet into an existing natural drainage swale on the east side of the Pit. The flow will continue under the access road via 3-36" culverts and outlet into Sargent Creek, as in historic conditions.

There is a significant drainage that will be disturbed during the Pit #3 excavation. The concentrated flow is proposed to be conveyed via a 36" culvert located between Pit #3 and Overburden Stockpile, as shown in Figure 2. The culvert will extend further southeast under the access road and outlet at the natural drainage depression, as in historic conditions.

<u>Best Management Practices</u>
Best Management Practices to address potential pollutants and sources at the mining pits include

1. Installation of drainage facilities, such as drainage swales and culverts,
2. Restriction of activities during wet weather;
3. Routine inspection and maintenance of drainage facilities;
4. Routine inspections and maintenance of equipment areas;
5. Complying with air quality permit regulations;
6. Limited handling of aggregate materials;
7. Use of water truck to spray unpaved roads and parking areas;
8. Portable chemical toilet is regularly maintained and is situated in an area away from vehicular traffic and environmentally sensitive areas.
9. Vehicles and equipment service areas are sloped to drain;
10. All heavy earth moving quarry equipment requiring major rebuilding are repaired offsite;
11. All heavy earth moving quarry equipment requiring routine maintenance is serviced by the Mobile Field Truck which follows good housekeeping practices and BMPs; including carrying absorbents, absorbent pads and drip pans.
12. Mobile Field Truck is emptied daily
13. Loaded material is compacted to be below the running board; many newer trucks have automated covers; and drivers are encouraged to tarp bed;
14. Routine inspection of roads and parking areas;
15. Leaks from vehicles will be promptly repaired; and drip pans and absorbent materials used, as needed, temporarily until leakage is repaired;
16. Spill cleanup materials (super sorbent shaker carton, haz socks, pairs of P.V.C. gloves, disposable suits w/hoods and boots, univ. Green sorbent pads, pairs of goggles, disposable bags w/ties, roll of caution tape, 20 lbs. Cob fractions, respirator, emergency response guide book all stored in a 30 gal. Blue poly drum) are stored at Mobile Fuel Truck
17. Spill kits are available at all service areas

For more detail on the pollutant sources described in mining pits areas, see source numbers 10-12 in Table 4 below.

7.1.3 Access Road
<u>Narrative and Assessment</u>

The access road to mining pits #1 and 2 will be constructed during the first phase of quarry development. The access road will remain unpaved.

Potential pollutants
- Dust from unpaved roads
- Sediments
- Petroleum hydrocarbons (hydraulic fluids, oil and grease), solvents, and antifreeze may be present from the vehicles

Access Road crosses Sargent Creek as shown in Figure 2. A low profile culvert with 23' span and 8' rise will be installed at that location. Crossing will be armored with grouted rip-rap or concrete to allow for save overflow conditions.

Best Management Practices
Best Management Practices to address potential pollutants and sources from the access road include:
1. Installation and expansion, as needed, of drainage facilities;
2. Routine inspections and maintenance of drainage;
3. Restriction of activities during wet weather;
4. Complying with air quality permit;
5. Routine inspection of access road
6. Use of water truck to spray unpaved road and parking areas, and stockpiles;
7. Vehicles leaks are promptly cleaned up;
8.

For more detail on the pollutant sources, see source number 13 in Table 4, below.

7.2 Industrial Processes (IGP Section X.G.1.a)

Sargent Quarry will have one processing plant for rock and sand excavated on-site. The material will be sized, washed, and sorted into stockpiles. Some materials may also be crushed and sorted into stockpile via radial stacker and conveyers. The rock plant is expected to process maximum 8,000 CY of material per day.

The equipment at the plant site is fueled at the fueling station. The mobile equipment at the mining sites is fueled by a Mobile Field Truck. Care is exercised to avoid spillage. If spills do occur, the site shall have adequate supply of spill kits available, consisting of absorptive blankets and rolls that can be placed around and on the spill to absorb any materials that have been spilled. Used blankets shall be properly disposed of.

7.3 Material Handling and Storage (IGP Section X.G.1.b)

Stockpiled materials are transferred from stockpiles to customer trucks by front end loaders.

7.4 Dust and Particulate Generating Activities (IGP Section X.G.1.c)

Some industrial activities generate dust or particulates. Material handling equipment (i.e. conveyors, crushers, screen, and mobile equipment) may be sources of fugitive dust. The quantity of dust and particulates that may settle within the facility is highly dependent upon various emission control devices, production and ambient conditions.

Water will be the primary means of dust control at the quarry. Two water trucks will be used to keep both exposed areas of mining and the plant areas wet to contain dust. The prevailing wind is from the west to the east, so the buffer hills between the mining areas and the eastern edge of the Sargent Ranch boundary may be impacted on windy days. Measures to control dust in addition to the use of water include keeping the mining areas limited to only the working area and using early revegetation to cover up previously mined areas. Use of dust palliatives may also be considered on haul roads and unpaved plant areas.

7.5 Significant Spills and Leaks (IGP Section X.G.1.d)

There have been **no significant spills** or leaks of toxic or hazardous pollutants, within the last 5 years, into storm water according to facility records and personnel. A spill or leak would include toxic chemicals on US EPA Form R (40 CFR 372), and oil or substances in excess of reportable quantities (40 CFR 110, 112, 117, or 302). Spills and leaks are to be addressed immediately as discussed in the BMP section 8. Any significant spills or leaks of toxic or hazardous pollutants will be documented in a report that will include the spill/leak location, characteristics and approximate quantity of the material spilled/leaked; approximate quantity discharged, description of clean-up methods, description of any materials remaining onsite with potential for discharge, and preventative measures to ensure spill/leaks do not reoccur. This Report will be submitted to SMARTS and any other regulatory agency, as required.

7.4 Erodible Surfaces (IGP Section X.G.1.f)

The surface of the operation areas is unpaved; however, because it is treated with an aggregate cover and compacted by the daily operation of heavy earth moving equipment traveling across it the likelihood for it to erode is minimal. The stockpiles and excavated slopes have the potential to erode. However, measures are taken to reduce erosion and sedimentation by implementing numerous measures such as:

- Diverting surface water away from the stockpiles and tops of cut slopes
- Tarping all topsoil stockpiles during the rainy season
- Installing wattles around the base of topsoil stockpiles, if evidence of erosion
- Re-grading and compacting areas with deep and wide erosion rills

7.5 Best Management Practices (BMPs) (IGP – Section X.H, & X.H.1.a,b, c, & d)

7.5.1 Minimum BMP (X.H.1)

The following minimum BPMs shall be implemented and maintained on site:

a. Good Housekeeping *(X.H.a)*

Good housekeeping consists of practical procedures to maintain a clean and orderly facility.

- Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly
- Minimize or prevent material tracking through regular sweeping
- Minimize dust generated from industrial materials or activities & comply with Air Permit
- Cover all stored industrial materials that can be readily mobilized by contact with storm water, when possible
- Keep all dumpsters under cover or fit with a lid that will remain closed when not in use
- Contain all stored non-solid industrial materials or wastes that can be transported or dispersed by the wind or contact with storm water
- Prevent disposal of any industrial materials into the storm water conveyance system
- Minimize storm water discharges from non-industrial areas
- Minimize authorized NSWDs from non-industrial areas (e.g., potable water, etc.) that contact industrial areas of the facility
- Installation and expansion, as needed, of drainage facilities, such as drainage ditches, concrete lined swales, culverts, drop inlets, curbs and earth berms
- Pads, roads and working areas are sloped to drain toward drainage ditches and drop inlets

b. Preventive Maintenance *(X.H.b)*

Preventive maintenance includes the regular inspection and maintenance of structural storm water controls (catch basins, pipes, etc.) as well as other facility equipment and systems.

- Establish an appropriate schedule for maintenance of identified equipment and drainage facilities
- Inspect and clean drainage ditches and sediment traps, as needed, after every major rainstorm and when the depth of soil/gravel/rock accumulation reaches 60% of the sump depth.
- Inspect all equipment and vehicles during monthly site inspections for leaking fluids such as oil, antifreeze, etc. Take leaking equipment and vehicles out of service or prevent leaks from spilling on the ground until repaired.
- Immediately clean up spills and leaks (e.g., using absorbents, vacuuming, etc.) to prevent the discharge of pollutants.
- Vehicle and equipment parking areas, parked or unpaved are regularly swept and inspected

c. Spill Response *(X.H.c)*

This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.

- Establish procedures and/or controls to minimize spills and leaks
- Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly
- Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures
- Spill clean-up materials being spill kits, wattles, and absorbent materials are accessible at the Mobile Field Truck and the Office/Scale House.
- Identify and train appropriate spill and leak response personnel.

d. Material Handling and Waste Management *(X.H.d)*

- Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event
- Contain all stored non-solid industrial materials or wastes that can be transported or dispersed by the wind or contact with storm water
- Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use
- Divert run-on and storm water generated from within the facility away from all stockpiled materials
- Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures
- Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes
- All heavy earth moving equipment requiring major rebuilding are repaired offsite;
- All heavy earth moving equipment requiring routine maintenance is serviced by the Mobile Field Truck which follows Good Housekeeping Practices and BMPs and carries Spill Kit;
- Portable chemical toilets shall be regularly maintained and are generally situated in areas away from vehicular traffic and drainage facilities
- Use of foggers on processing equipment
- Boneyard is limited to surplus parts and nothing with fuel, oil and grease. In addition, the steel racks will be covered with a tarp in the rainy winter months.

e. Erosion and Sediment Controls *(X.H.e)*
- Activities shall be restricted during wet weather
- Installation and expansion, as needed, of drainage facilities, such as drainage ditches, swales, culverts, drop inlets, and earth berms
- Use of water truck to spray unpaved and paved roads and parking areas, as well as stockpiles
- Use of foggers on processing equipment;
- Drop inlets, at certain locations, are surrounded by sand bags to facilitate settlement of sediments (if drop inlets are installed)
- Drop inlets inserts, at certain DIs, to remove sediments and oil & grease (if drop inlets are installed)
- Loaded material is compacted to be below the running board; many newer trucks have automated covers; and drivers are encouraged to tarp truck bed before departure;

f. Employee Training *(X.H.f)*
- Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP
- Prepare or acquire appropriate training manuals or training materials
- Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;
- Provide a training schedule
- Maintain documentation of all completed training classes and the personnel that received training in the SWPPP

g. Quality Assurance and Record Keeping *(X.H.g)*
- Operations Manager shall ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan
- All BMP inspections shall be recorded on the appropriate inspection form: Pre-Season Drainage Facility/BMP Inspection Form and Wet Season BMP Weekly Inspection Form, included in Appendix C.
- Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years

7.5.2 Advanced Best Management Practices (IGP – Section X.H.2 & X.H.2.a &b)

Advanced BMPs will be utilized at Sargent Quarry when and if it is found that the existing minimum BMPS and Good Housekeeping practices are not sufficient enough to reduce the potential pollutants in the storm water discharges.

The advanced BMPs might include:

a) Exposure minimization BMPs
b) Stormwater containment and discharge reduction BMPs
c) Treatment control BMPs
d) Other advanced BMPs

Selected advanced BMPs for this SWPPP include:

a. Sediment Basin at the plant site to contain stormwater runoff and remove oil and grease pollutants from storm water.

7.5.3 Temporary Suspension of Industrial Activities (X.H.3)

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

a. Perform monthly visual observations (Section XI.A.1.a.); or
b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

a. SWPPP revisions specifically addressing the facility stabilization BMPs
b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities
c. The date the facility is fully stabilized for temporary suspension of industrial activities; an
d. The projected date that industrial activities will resume at the facility. Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit. The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

7.5.4 BMP Description (X.H.4)

The following BMPs are proposed for this site (refer to Appendix K):

EC-9	Earth Dikes and Drainage Swales
SC-10	Non-Stormwater Discharges
SC-11	Spill Prevention
SC-20	Vehicle Fueling
SC-22	Vehicle Maintenance
SC-32	Outdoor Equipment Operations
SC-34	Dumpsters with Lids
SC-40	Paved Road
SC-43	Parking/Storage Area Maintenance
SC-44	Drainage System Maintenance
SC-70	Paved Road
SE-2	Sediment Basin
SE-7	Street Sweeping
WE-1	Wind Erosion Control
WM-3	Stockpile Management
WM-6	Hazardous Waste Management
WM-9	Portable Toilet

7.5.5 Best Management Practices: Schedule

All BMP shall be inspected on a monthly basis. These inspections shall be recorded on the appropriate inspection form:

- Monthly Visual Inspection Form - 1
- Monthly Visual Inspection Form -2: Routing Maintenance
- Monthly Visual Inspection Form – 3: Erosion Controls

In addition, prior to the rainy season (October 1st) the following BMPs will be inspected and cleaned out as needed; including drainage ditches/swales, culverts, and sediment basin. Also, after each major storm event the storm drainage facilities; including drainage ditches/swales, culverts, and sediment basin shall be inspected and cleaned as needed. These inspections will ensure that these drainage facilities are working properly and are not in disrepair which would impact their efficacy.

The recommended BMPs will be implemented within the timeframe indicated below:

BMPs	Implementation
Good Housekeeping	Daily
Preventive Maintenance	Daily
Spill Response	As needed
Material Handling and Waste Management	Daily
Storm Drainage system inspection and maintenance	Annually (Sep 1st – Oct 1st) & Weekly during the wet season (Oct 1st – May 30th) & after each major rain events
Inspect all equipment and vehicles for leaking fluids	Daily
Street Sweeping	Daily, multiple times as needed
Vehicle Fueling	Daily, as needed
Vehicle Maintenance	As needed
Non-Storm Water Discharge	On-going
Employee Training	On-going

7.5.6 BMP Summary Table (X.H.5)

For more detail on the pollutant sources for the quarry operation and the associated industrial activity, pollutants and BPMs being implemented see Table 3, below.

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TABLE 3 **POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES** **(IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)**					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
1 Plant Site	Aggregate Product Stockpiles	Sediment PH	Year Round On-going	Run-off treated in sediment basin (SE-2)	Remove sediment from runoff
			Year Round On-going	Drainage features constructed to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff
			Year Round Daily as Needed	Water Truck to maintain pile moisture	Help control amount of air borne dust particles
			Year Round	Reduce spillage	Limited handling of loose rock material to reduce amount of sediments in runoff
2 Plant Site	Aggregate Processing	Sediments PH Petroleum hydrocarbons	Year Round On-going	Run-off treated in sediment basin (SE-2)	Reduce amount of sediments in runoff
			Year Round On-going	Drainage features constructed and sized to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff.
			As Needed	Excess lubrication leaked from bearings from heavy equipment is limited by use of drip, spill kits, and routine maintenance (SC-11)	Immediate on-site maintenance as well as the use of drip pans and absorbents will limit amount of pollutants that could potential contaminate storm water
			Year Round As Needed	Foggers are used at all source locations (i.e. screens) on processing plants	Reduce amount of pollutants that could contaminate storm water. Reduce amount of air borne particulates
			Year Round Daily	Process equipment and area cleanup is routine	Reduce sediments and other potential contaminants
			As Needed	Water Truck to maintain moisture on unpaved roads and material piles	Help control amount of air borne dust particles
			Year Round Daily	Conform to air quality permit	Reduce emissions and stay current with standards
			Year Round	Limit handling of materials	Reduce the amount of sediments, and dust particulates and emissions from equipment.
			As Needed	Drip pans used where feasible (SC-11)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water
			Year Round Daily	Equipment regularly inspected (SC-11)	Prevent spillage of potential pollutants
			As Needed	Leaks repaired or liquids drained (SC-11)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water
			Year Round On-going	Know source and document delivery	Avoid delivery of contaminated materials

TABLE 3 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
3 Plant Site	Aggregate Handling	Sediment	Daily As Needed	Limit handling of materials	Reduce the amount of sediments, and dust particulates and emissions from equipment
			Daily As Needed	Surplus storage minimized	Reduce amount of spare part storage to reduce risk for equipment failure and contamination
			Daily As Needed	Vehicle/equipment maintenance performed in designated location (SC-22)	Reduce exposure to storm water and ease of cleanup of spills
4 Plant Site	Vehicle/ Equipment Maintain. Boneyard	Petroleum Hydrocarbons, Sulfuric Acid, Lead, Oil, Grease, Anti-freeze, solvents	Daily As Needed	Outdoor maintenance areas are paved	Facilitates cleanup of spills, eliminates contamination of ground surface, and reduce exposure to storm water
			On-going Daily	Clearly labeled drums and containers placed in convenient locations. (WM-6)	Eliminate contact with storm water
			Year Round	No Oil changes are done outside during the rain. (SC-32)	Eliminates contact with storm water
			Daily As Needed	Waste receptacles monitored and arrangements for pickups made promptly. (WM-6)	Eliminate contact with storm water
			As Needed	Waste oil, waste anti-freeze, spent solvents, filters and batteries are recycled. (WM-6)	Eliminate contact with storm water
			On-going, As Needed	Procedures established to ensure draining of engine fluids and transfer to waste containers without spillage. Drip pans placed under vehicles/equipment when draining fluids and transferred to waste containers without spillage. (SC-11, WM-4, WM-6)	Eliminate contact with storm water and contamination of ground surface
			Year Round	Employees instructed on proper cleanup procedures for minor spills. (WM-4)	Ensures proper cleanup of spills
			Year Round	Area equipped with spill kits to cleanup spills and empty drums (SC-11)	Facilitate proper cleanup of spills
			Year round	Proper Security measures implanted to prevent vandalism	
			Daily	Drip pan under compressors. (SC-11)	Eliminates contact with storm water and contamination of ground surface
			Daily	Seals regularly inspected and maintained. (SC-11, WM-4)	Prevent spillage of potential pollutants

TABLE 3 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
5 Plant Site	Aboveground Storage Tanks and Fueling area	Petroleum hydrocarbons	Year round On-going	Storage tank fueling has auto shut off to prevent overfilling. (SC-11, WM-4)	Prevents accidental spills
			Year round On-going	Vehicle fueling area is paved. (SC-11, WM-4)	Prevents contamination of ground surface, and facilitate cleanup of spills
			Year round, On-going	Sign posted to instruct employees that all fuel spills must be cleaned up promptly, specify procedures for cleanup, and require notification of supervisor	Promotes awareness; and ensures proper cleanup
			Year round, On-going	Sign posted to instruct employees to not leave filling hose unattended during fueling	Preventing accidental spills
			Year round, On-going	Spill cleanup equipment clearly labeled and stored near fuel pumps in the main shop area. . (SC-11, WM-4)	Facilitate cleanup of spills
			Year round, On-going	Proper security measures implemented to prevent vandalism	Eliminate spillage during vandalism
			Year round, On-going	All hazardous material containers clearly labeled. (WM-6)	Promote awareness; and ensures proper cleanup
			Year round, On-going	All hazardous materials containers closed. (WM-6)	Avoid contact with storm water
6 Plant Site	Hazardous Materials Storage Area: Lube oil, solvent, batteries, antifreeze	Petroleum hydrocarbons, solvents, acids, bases antifreeze, heavy metals, pesticides	Year round On-going	Flammable materials stored inside designated flammable cabinets. (WM-6)	Prevent accidental fires; ensure proper handling; keep materials under control
			Year round On-going	Hazardous materials stored in designated areas only. (WM-6)	Limited area where potential pollutants could be released.
			Year round On-going	Hazardous material storage areas secured to prevent unauthorized access. (WM-6)	Keep material in controlled area
			Year round On-going	Hazardous material storage maintained in accordance with Federal, State, and local regulations and codes. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going, Daily	Container conditions are routinely inspected and resolved. (WM-6)	Keep material under control
			Year round On-going, As Needed	Leaking or deteriorated containers placed in new containers. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going	Hazardous materials kept indoors or undercover. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going	Material safety data sheets kept at facility for all hazardous materials	Promote awareness
			Year round On-going	Hazardous materials inventory minimized where practical. (WM-6)	Reduce the potential impacts from unnecessary storage of materials
			Year round As Needed	Secondary containment and storage tank covered to prevent rain contact. (WM-6)	Keep material under control and out of contact with storm water

TABLE 3 **POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES** **(IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)**					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Year round On-going As Needed	Sign posted to instruct employees that all hazardous material spills must be cleaned up promptly, specify procedures for cleanup, and require notification of supervisor	Promote awareness
			Year round, On-going	Spill cleanup equipment (ie. spill kits, drums and rags) stored where accessible. (SC-11, WM-4)	Facilitate cleanup of spills
			Year round, On-going	Proper security measures implemented to prevent vandalism	Eliminate spillage during vandalism
			Year round, On-going	All hazardous waste containers clearly labeled. (WM-6)	Promote awareness
			Year round, On-going	All hazardous waste containers closed. (WM-6)	Keep materials from contact with storm water
7 Plant Site	Hazardous Materials Waste storage (examples; used oil filters, drain/waste oil)	Petroleum Hydrocarbons, Solvents, Acids, Bases, Antifreez, Heavy Metals, Pesticides	Year round, On-going	Hazardous waste stored in designated areas only. (WM-6)	Limited area where potential pollutants could be released and facilitates cleanup
			Year round, On-going	Hazardous waste storage secured to prevent unauthorized access	Keep material in controlled area
			Year round, On-going	Hazardous waste storage maintained in accordance with applicable Federal, State, and local regulations and codes	Keep material under control and out of contact with storm water
			Year round, On-going, Daily	Routine inspections of containers and area. (WM-6)	Keep material under control
			Year round, On-going, As Needed	Leaking or deteriorated containers placed in new containers. (WM-6)	Keep materials from contact with storm water
			Year round, On-going, As Needed	Remove and dispose of properly all hazardous wastes in accordance with applicable regulations. (WM-6)	Keep materials from contact with storm water
			Year round, On-going	Signs posted to identify storage areas	Promote awareness, Keep material under control
			Year round, On-going	Hazardous waste kept mostly indoors or undercover. (WM-6)	Keep material out of contact with storm water or keeps material contained
			Year round, On-going	Secondary containment and storage tank covered to prevent rain contact. (WM-6)	Keep material under control and out of contact with storm water
			Year round, On-going, As Needed	Accumulated rain water in the containment area disposed of in accordance with local, State and Federal regulations if any evidence of contamination were detected in or on the water. (WM-6)	Keep material under control and out of contact with storm water
			Year round, On-going	Spill cleanup equipment (rags) clearly labeled and stored where accessible. (SC-11, WM-4)	Facilitate cleanup of spills

TABLE 3 **POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES** **(IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)**					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Year round On-going	Proper security measures (locked gate) implemented to prevent vandalism.	Eliminate spills during vandalism
			Year round As Needed	Used oil filters are drained and stored in approved container. (WM-6)	Eliminate contact with storm water
8 Plant Site	Dumpster with lib	Non-Hazardous Waste	Year round On-going	Dumpster with lid used to keep out rain water and prevent debris from blowing away. (SC-34)	Eliminate contact with storm water
9 Plant Site	Paved Vehicle Parking	Petroleum Hydrocarbons, Iron, Oil & Grease, Anti-freeze, Sediment	Year Round, Daily	Vehicle/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Year Round On-going	Storm water is directed into a Sediment Basin. (SE-3)	Reduces sediments in storm water
			Year Round Daily As Needed	Leaks from vehicle promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
			Year Round, Daily As Needed	Drip pans and absorbent materials used temporarily to collect leakage until repaired. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
10 Mining Pits	Unpaved vehicle/ equipment parking	Petroleum Hydrocarbons Oil Grease Anti-freeze Sediment	Daily	Vehicles/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Daily, As Needed	Leaks from vehicles/equipment promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
			Daily, As Needed	Drip pans used temporarily to collect leakage until repaired. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water
			Year Round Daily Use as Needed	Water Truck	Help control amount of air borne dust particles
			Daily As Needed	All quarry heavy earthmoving equipment is maintained by the Mobile Field Truck which follows BMPs: drip pans, spill kits, empty drum, auto-shut off valve for fuel pump, alarm overflow preventer; & company policies. (SC-11, WM-4)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water. Facilitate proper cleanup of spills.

TABLE 3
POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BEST MANAGEMENT PRACTICES FOR MINING ACTIVITIES
(IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)

Source No/ Industrial Activity Area	Associated industrial pollutant source description	Industrial Potential pollutant	Frequency of BMP implementation	Implemented BMPs	Expected BMP effectiveness
11 Mining Pits	Portable Chemical Toilets (Porta Potty)	Human waste and disinfectants (toilet chemicals)	Daily As Needed	Regularly maintained and pumped out at regular intervals. (WM-9)	Reduce the **risk** of the portable toilet from overflowing
			Year Round On-going	Placed in areas away from high vehicular traffic areas and environmentally sensitive areas. (WM-9)	Reduce the risk of the portable chemical toilet from being knocked over
12 Mining Pits	Mining Pits #1, 2, and 3	Sediment	As Needed	Drainage features constructed to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff
			Year Round On-going	Employ fugitive emission air quality controls	Reduce emissions
			Daily As Needed	Process equipment and area cleanup is routine	Reduce sediments and other potential contaminants
			Year Round On-going	Conform to air quality permit	Reduce emissions and stay current with standards
13 Access Road to Pits #1 and #2	Unpaved Road	Sediment, Petroleum hydrocarbons pH	Year Round, Daily Use, as Needed	Water Truck	Help control amount of air borne dust particles
			Daily	Vehicles/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Daily, As Needed	Leaks from vehicles/equipment promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.

8.0 FACILITY-WIDE BMPS, PREVENTIVE MAINTENANCE ACTIVITIES, & GOOD HOUSEKEEPING PRACTICES

(IGP – Section X)

Facility-wide BMPs are those practices that are not pollutant source specific, and that assist in preventing and/or minimizing pollutants in storm water runoff. The facility-wide BMPs for Sargent Quarry are indicated below.

8.1 Employee Education

All employees are instructed in the SWPPP (at MSHA safety training tailgate topics) and their individual responsibilities in preventing the discharge of pollutants to storm water. The Employee Education program is described in detail in ***Section 15.0, Employee Training*** **Program** of this SWPPP.

8.2 Scheduled Sweeping

Scheduled sweeping of all paved areas at the quarry will be performed using an appropriate type of sweeper. Sweeping will occur 3 to 4 times daily or more often if needed.

8.3 Preventive Maintenance Activities (IGP- Section X.H.1.b)

Routine use and observation of processing equipment occurs on a daily basis, and maintenance on the equipment and processing plants is performed when needed. Small routine preventive maintenance is performed using a Mobile Field Truck as needed. All major serving is conducted offiste. Maintenance personnel and the mobile truck operator perform their duties using BMPs to prevent leaks and other accidental releases from equipment and containers. Examples of preventive maintenance performed at this facility are listed below:

- Check seals on all equipment containing petroleum hydrocarbons or other pollutants, and replace as necessary.
- Check seal on all containers holding petroleum hydrocarbons, and replace as necessary.
- Check seal on gasoline or diesel fueling nozzle, and replace as necessary.
- Check accuracy of gauges that indicated liquid levels in storage tanks.
- Clear drainage channels of debris before rainy season and after heavy rains.
- Schedule and pump out secondary containments that are outside (i.e. fueling station) before and after rainy season, and at other times as necessary, and dispose of waste properly.
- Schedule and clean out sediment ponds, sediment traps, storm water storage tanks, swales and concrete box with check dams, inlet protection drain guards, and drop inlets before and after rainy season, and at other times as necessary, and dispose of sediments properly
- Periodically remove sediment from sediment ponds, sediment traps, stormwater storage tanks,
- Drainage ditches, swales, drop inlet and their protection drain guard to maintain capacity. Cover topsoil stockpiles with tarps during rainy season
- Place wattle around edge of topsoil, as needed, and replace when needed
- Inspect sand bags or wattles at selected drop inlets and replace when needed
- Maintain adequate supply of flocculants at drainage facilities, as appropriate. Repair and improve erosion control measures before beginning of each rainy season. Repair and improve erosion control measures before beginning of each rainy season, October 1st.

8.4 Good Housekeeping Practices (IGP- Section X.H.1.a)

Good housekeeping practices are measures that maintain a clean and orderly working environment. These measures include immediately cleaning up spilled materials, regularly sweeping paved areas or using vacuum trucks, and depositing waste in designated receptacles. Employees are responsible for maintaining their work areas. Supervisors are responsible for ensuring that work areas are orderly.

The employee training program is described in ***Section 15.0, Employee Training Program*** of this SWPPP. The training program is intended to increase employee awareness of how their daily work activities and work areas can contribute pollutants to storm water discharges, and to suggest ways that their work habits could be modified to reduce the amounts of pollutants that are eventually washed away in storm water.

9.0 SPILL PREVENTION & RESPONSE
(IGP – Section X.1.c)

Materials stored and used at the facility could cause significant water quality impacts if accidentally released. Spilled materials could possibly be discharged to surface water (Sargent Creek and Pajaro River). Spills could also cause soil and groundwater contamination. Measures have been implemented to minimize the possibility of spills. In addition, spill response procedures have been established for this facility. The spill prevention and response measures implemented by this facility are indicated below, in Table 4, Spill Prevention and Response Measures.

- The facility has a Spill Prevention Control and Countermeasure Plan (SPCCC) that is in conformance with Title 40, Code of Federal Regulations, Part 112 (40CFR112).
- Petroleum storage and prevention of releases also falls under the California Aboveground Petroleum Storage Act (APSA) as amended through 1995 or later, based upon the facility being subject to 40 CFR 112. Based on APSA petroleum aboveground storage tanks (ASTs) are registered with the State; periodic inspections are conducted to assure compliance with 40CFR112, an Annual Tank Facility Statement is filed and annual fees paid to the Santa Clara County, Hazardous Materials Compliance Division.

  The size criteria for inclusion of a facility with ASTs containing oil products under 40 CFR 112 is:
  - Have a total aggregate aboveground storage tank (AST) capacity which exceeds 1,320 gallons.
  - Underground storage that exceed 42,000 gallons.
  - <u>Tier I Facility</u>: If facilities with 10,000 gallons or less and a single AST with a capacity less than 5,000 gallons; and with not having a discharge to navigable waters over 1,000 gallons subject to the rule in the last three years prior to Plan certification; nor 2 discharges of oil to navigable waters each exceeding 42 gallons within any 12 month period: THEN they will qualify as a Tier I Qualified Facility and the operator can prepare a self-certified SPCC.
  - <u>Tier II Facility</u>: If facilities with 10,000 gallons or less, and with a single AST with a capacity that is greater than 5,000 gallons; and with not having a discharge to navigable waters over 1,000 gallons subject to the rule in the last three years prior to Plan certification; nor 2 discharges of oil to navigable waters each exceeding 42 gallons within any 12 month period: THEN they will qualify as a Tier II Qualified Facility and the operator can prepare a self-certified SPCC.
  - <u>Facilities with an aggregate of over 10,000 gallons</u> of aboveground oil storage must have a full Spill Prevention Control and Countermeasure Plan (SPCC plan).
- Spill Prevention Kit at the Plant Site includes: Super sorbent shaker carton , Haz socks, P.V.C. gloves, Disposable suits w/hoods and boots, Univ. green sorbent pads, Goggles, Disposable bags with ties, Roll of caution tape, Cob fractions, Respirator, and Emergency Response Guide Book stored in a 30 gal. blue poly drum.
- Spill Prevention Kit on the Mobile Field Truck includes rags, absorbent blankets and rolls as well as an empty drum
- The Quarry Operations Manager is responsible for overseeing spill and leak clean up.

TABLE 4 SPILL PREVENTION & RESPONSE MEASURES (IGP – Section X.1.c)	
Spill Prevention And Response Measure	**Description**
Hazardous Materials Business Plan	A Hazardous Materials Business Plan pursuant to Chapter 6.95 of the California Health and Safety Code has been or is being prepared for this facility. The plan will contain a hazardous materials inventory and emergency response procedures.
Spill Prevention Control and Countermeasure Plan	The Spill Prevention Control and Countermeasure Plan, pursuant to Section 311 of the Federal Clean Water Act specifies appropriate containment for aboveground tanks and effective spill prevention procedures.
Secondary Containment	Aboveground tanks and other containers of products or waste have secondary containment and are inspected daily. Spilled material in the containment is promptly cleaned up and disposed of properly.
Employee Training	Employees who work with chemical and petroleum materials are trained in the proper use, handling, storage, and disposal practices. Employees are also trained in proper spill response procedures.
Spill Containment and Cleanup Equipment	A supply of spill containment and cleanup equipment is kept onsite for prompt responses. Available equipment includes: personal protective equipment (rubber gloves, googles, disposable suits/ hoods & boots), spill kit with clean up materials and absorbent materials, and empty UN-approved 55-gallon drum.
Regular Inspections of Hazardous Materials and Wastes Storage Areas	Employees who regularly work with chemical and petroleum products and wastes are instructed to inspect storage areas regularly and to initiate corrective measures, if needed.
Locate hazardous materials storage locations away from storm drain inlets and drainage ways	Chemical and petroleum material storage areas are located away from storm drain inlets or other storm water drainage ways to minimize the possibility that spills would be discharged into the storm drainage system.
Notification procedures in case of spill emergency	Employees are instructed to notify the facility manager, as soon as practical, of any spills. The facility manager will notify agencies listed in the emergency response plan, as required.
List of contractors to assist in spill response	A list of names and phone numbers of the nearest emergency response contractors have been compiled and are available in the facility office, each processing plant, maintenance shop and RV Trucking. The plant manager is authorized to retain the services of contractors to contain and cleanup spills.
Material Safety Data Sheets (MSDS)	MSDSs of the hazardous materials present at the facility are kept at the Truck Shop, RV Trucking Service Area and at the Environmental & Safety Manager's offices. All MSDSs are kept current.

10.0 SEDIMENT & EROSION CONTROL PRACTICES

(IGP- Section X.G.1.f & X.H.1.d & X.H.e)

Erosion could cause large amounts of sediment to be discharged in storm water. Areas with erodible surfaces at the Facility, if any, are identified on Figure 4 and 5. The following Table 5, Sedimentation & Erosion Control Measures identifies the measures implemented at the quarry.

TABLE 5
SEDIMENTATION & EROSION CONTROL MEASURES
(IGP- Section X.G.1.f & X.H.1.e)

Erosion Control Measure	Description
Management of storm water at the facility	Activities are restricted during wet weather. Throughout the site, storm water is directed into drainage ditches and culverts to minimize the volume of water that may be exposed to industrial activity. Topsoil stockpiles are covered with tarps in the rainy season. Sediment basin retains the diverted.
Placement of obstacles to intercept run-off from steep terrain	Straw bales, wattles, and/or rip rap may be used to intercept run-off from steep terrain and prevent high water velocities that could cause erosion.
Protection of drainage ditches	In areas with steep slopes or high volume of water check dams may be placed into the earth drainage ditches. In additions energy dissipating rip-rap and other devices prevent erosion.
Protection of discharge points	Storm water discharge points are constructed with energy dissipating discharge aprons made out of concrete structures, and/or rocks used as energy dissipaters.
Sediment Basin Culvert	Culverts under roadways or through embankments, Sediment Basin are sized to accommodate a 24 hour - 100-year storms and aligned to minimize abrupt changes in direction in the flow path.
Slope of Plant Site sloped to drain	Plant Site floor area is sloped to drain toward Sediment Basin
Wind Controls: - Water truck - Foggers - Truck Loading	During hours of operation the stockpiles and unpaved roads are sprayed with water by the water truck to control for dust. In addition, there are foggers at key points on the portable processing plants to wet down the product. Loaded material is compacted to be below the running board; many newer trucks have automated covers; and drivers are encouraged to tarp truck bed before departure
Treatment of unpaved road and storage areas.	Aggregate surface course is applied to the top of unpaved area to protect the surface from erosion
Paved road and parking areas around Office & Scale House and paved exit and entrance to Quarry operation	Paved access roads and paved parking areas direct storm water into Sediment Basin
Filtration/settling of sediments from stormwater in drainage ways	Fiber rolls or wattles are places around the base of the topsoil recycle stockpile to manage sediments, during rainy season as needed. Topsoil stockpiles are tarped during the rainy season. Sediment Basin captures plant site runoff.
Tracking Control	Routine sweeping and/or vacuuming will be performed on paved roads to collect accumulated dirt on the interior roads and entry/exit route.

11.0 MATERIALS HANDLING AND WASTE MANAGEMENT

(IGP-Section X.H.1.d)

Materials handling and waste could contribute potential pollutants to storm water. To address this, the following good housekeeping practices will be implemented, as needed:

- Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;
- Contain all stored non-solid industrial materials or wastes (eg, particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;
- Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use, if feasible.
- Divert run-on and storm water generated from within the facility away from all stockpiled materials, when feasible
- Clean all spills of industrial materials or wastes that occur during handling
- Observe/clean any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes

12.0 INSPECTIONS
(IGP-SectionX.G.2.a)

12.1 Monitoring Implementation Program – Storm Water Inspections

Inspections are performed to ensure that Best Management Practices are being implemented and to identify conditions that may allow potential pollutants to be discharged with storm water. All inspections are recorded on forms provided in this SWPPP, and are reviewed by the person responsible for SWPPP implementation. When conditions are identified that require corrective action, the follow-up action is also recorded.

The inspections that will be performed are listed below, in Table 6, Storm Water Monitoring Inspections. For more information on how to complete the inspections, as well as copies of all inspection forms see Appendices B and C of this SWPPP.

TABLE 6 DESCRIPTIONS OF STORM WATER MONITORING INSPECTIONS
(IGP – Section G.2.a & X.H.1.d)

Type Of Inspection	Description	Frequency
Annual Comprehensive Facility Compliance Evaluation	All areas of the industrial activities will be inspected to identify areas contributing pollutants to storm water. Evaluate effectiveness of BMPs and modify or add new ones as necessary. Review SWPPP for accuracy and up-date as needed. This inspection will coincide with preparation of the annual report.	**Annually in June; Submit to SWRCB by July 15 each year**
Monthly Visual Observation	**Facility Visual Observation**: All storm water discharge points and drainage ditches and drainage areas will be visually inspected for evidence of dry weather discharge; including approved non-storm water discharges. Visual observation shall be made of industrial activity areas, equipment and storage areas and all potential sources of industrial pollutants. If found, the source(s) and corrective measures will be identified, as appropriate. **Routine Inspection**: The entire facility will be visually inspected to evaluate all hazardous material and waste areas, parking and equipment storage areas, aggregate storage and processing areas, and other areas with Industrial Materials and containing the potential pollutant sources identified in Tables 3 and 4. The inspection will include an assessment of whether good house-keeping practices and preventative maintenance activities are being performed; and if the BMPs are functioning properly. **Erosion Control Inspection**: Erosion potential of slopes, drainage channels, and unpaved areas at the facility should be assessed. Repairs and maintenance should be completed and additional erosion control measures should be implemented prior to the rainy season.	**Monthly**
Storm Water Sampling & Analysis	Obtain Storm water sampling kit from approved Laboratory to analyze for: Total Suspended Solids, Oil & Grease, Nitrates and Nitrites as N, and Iron. Collect storm water samples after rainfall results in discharge for at least one drainage area, and the rain is preceded by 48 hours with no discharge from any drainage area. Samples maybe collected: a) within 4 hours of discharge during hours of operation; or b) when facility opens and discharge had commenced 12 hours earlier (during the night before).	**At least twice between Jan. 1 – June 30 and at least twice between July 1 and December 31**
Ph Field Test	Required of rock crushing, and sand & gravel-operations as they are a Sub-chapter N facility with Federal effluent limitations guidelines. Measure Ph in field using a calibrated portable instrument of pH that can take a reading within 15 minutes. Record pH results onto Chain of Custody form and on Ph Field Test Sampling Form in Appendix C. Take a photo of the test results: i.e. the meter reader.	**When storm water samples are collected**
Sampling Event Visual Observation	The 6 sediment Ponds, 4 sediment traps, 2 storm water storage tanks, and numerous drop inlets as well as storm water discharge points (Outfalls #1 thru 4) and drainage ditches will be visually inspected for evidence of pollutant discharge. If found, the source(s) and corrective measures will be identified, as appropriate The Sampling Event Visual Observation Inspection should be performed when storm water samples are collected and the Storm Water Sampling	**When storm water samples are collected**

	form is completed.	

PH Meter Instructions

Obtain a portable calibrated PH meter with a wide range that will take a reading within 15 minutes Turn on meter by pressing and holding the on/mode button until the LCD lights up. Submerge the electrode in the storm water PH valvue will be adjusted by the meter until the stability symbol appears. Press the SET>HOLD button to freeze measurement for recording reading. Once measurement is complete turn off PH meter pressing the on/MODE button.

The PH meter should be calibrated every day it is used. The meter comes with a set of buffer solutions in packages. A two point calibration is recommended using the 7.01 PH buffer solution package. You put the meter into calibration mode and stick the probe end into a buffer and the meter recognizes the PH of tht buffer. Take reading until first calibration point is accepted. Finish calibrating by placing the probe in the PH 4.01 buffer solution package until LCD displays OK 2 messages, then the meter will automatically switch to measure mode.. Calibration is completed and measurements can be taken. Put the probe in the storm water smaple collected and the PH and temperature is read by the meter.

Notification

The Plant Maintenance and Quarry Forman are responsible for supervising containment and cleanup activities in the processing area of the quarry; and the RV Trucking Shop Foreman is responsible for supervising containment and cleanup activities at the RV Trucking service area. Each Foreman is also responsible for supervising containment and cleanup activities in and around their respective shop, maintenance and fueling areas. Both Foremen will assign properly trained personnel to contain and cleanup in the respective service areas.

In the unlikely event that discharged material reaches State water, of if there is a possibility that storm water could convey discharged material to State waters, the Environmental and Safety Manager shall immediately notify the following agencies, and if he is not available then either the Truck Shop Foreman or the RV Trucking Shop Foreman will contact these agencies:

Central Coast Regional Water Quality Control Board:	*805-549-3147*
California Department of Fish and Game:	*707-944-5500*
Santa Clara County Department of Environmental Health:	*408-918-3400*

13.0 REPORTING REQUIREMENTS
(IGP Section XI & XII)

13.1 Annual Comprehensive Facility Compliance Evaluation (IGP Section XV)

The facility operator shall conduct one comprehensive site compliance evaluation in each reporting period (July 1 through June 30). The SWPPP shall be revised as appropriate and the revisions implemented within 90 days of the evaluation and submitted to SMARTs. Changes to the SWPPP shall be recorded on the SWPPP Amendment form in Appendix H. A copy of the Annual Comprehensive Facility Compliance Evaluation Form is attached as Appendix C of this SWPPP.

At minimum the Annual Comprehensive Facility Compliance Evaluation shall include:

- A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;
- An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;
- An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials (IGP - Section XVII)
- An inspection of equipment needed to implement the BMPs;
- An inspection of any BMPs;
- A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDs; and,
- An assessment of any other factors (IGP- Section XVI.B)

13.2 Monitoring Implementation Plan (IGP – Section X.I).

The facility operator shall implement the Monitoring Implementation Plan (MIP) by conducting the storm water monitoring inspections and documenting the inspections on the following six forms:

1. Monthly Visual Inspection Form 1,
2. Monthly Visual Inspection Form 2: Routine Inspection,
3. Monthly Visual Inspection Form 3: Erosion Control,
4. Storm Water Sampling Form,
5. Sampling Event Visual Observation,
6. pH Field Test Sampling Form,

Copies of the storm water monitoring inspection forms are attached as Appendix C of this SWPPP. Instructions for the Monitoring Implementation Plan (MIP0 with descriptions for each inspection are attached as Appendix B of this SWPPP.

13.3 Reporting of Monitoring Results

Monitoring results shall be transmitted electronically to the San Francisco Bay Region Water Control Board using the SMARTS program. Storm water test results must be submitted within 30 days of receipt from the Laboratory, as described in Appendices B of this SWPPP.

13.4 Additional Reporting Parameters for Storm Water (IGP – Section XI.B.6.c-g & Appendix 3)

Besides the standard 3 stormwater sampling tests required by the IGP for Total Suspended Solids (TSS), Oil & Grease (O&G), and Ph there may be other parameters that need to be tested for including: 1) for impaired water bodies identified by Clean Water Act Section 303(d); for Total Maximum Daily Loads (TMDLs) to be identified by the State Water Resources Control Board; and 3) Sub-Chapter N Facilities

1. <u>Impaired Water Bodies:</u> Should the site discharge to a receiving water body that has been determined by the Water Board to be 'impaired' per the Clean Water Act Section 303(d). The

Water Board developed a 303(d) list of impairments are sourced from the most current 2010 Integrated Report. The Board has made a copy of the 303(d) list on their website and indicated with black text the impairments for which Industrial Storm Water Dischargers in a 303(d) impaired watershed are required to analyze for additional parameters, if applicable, because these parameters are more likely to be associated with industrial storm water. The text in red text are the parameters that Industrial Storm Water Dischargers are not required to analyze for because they typically are not associated with industrial storm water. This list, as an Excel spreadsheet, is available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (http://www.waterboards.ca.gov/).

After testing for and establishing that the facility:

a) Does not contribute to the impairment of the receiving water body because the pollutant is not present at the facility, the Discharger will not be required to test for these additional parameters; unless changes at the facility indicate a need to. The Discharger must retained documentation of the lab test showing no impact to the impaired bodies parameters with the SWPPP at the facility.

b) May discharge a listed pollutant but it will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

2. <u>TMDLs</u>: Another requirement that won't come into effect until July 1, 2016 is testing for TMDLs. The State Water Board will incorporate TMDL-specific permit requirements into the IGP after a notice and public comment period and subsequent approval for adoption in this IGP. Dischargers are not required to take any additional actions to comply with TMDLs until the State Water Board reopens this Industrial General Permit (IGP) and includes TMDL-specific permit requirements.

After Testing for and establishing that the facility:

a) May discharge of any listed pollutant but it will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL

3. <u>Sub-Chapter N:</u> The Industrial General Permit requires Dischargers subject to Subchapter N Federal Effluent Limitation Guidelines (ELGs) to test for certain parameters using approved test methods. Industrial storm water discharges from facilities in eleven industrial sectors (SIC codes) and the parameters they must test for are identified in the Industrial General Permit, Attachment F. Most commonly this SWPPP addresses industries with the following SICs and testing requirements:

SIC - 144X : Sand and Gravel, Crushed Stone:	parameter N+N and Ph
SIC – 327X: Concrete, or ready Mix Concrete:	parameter Fe and Ph

13.5 Exceedance Response Actions (ERAs) (IGP SEction XII)

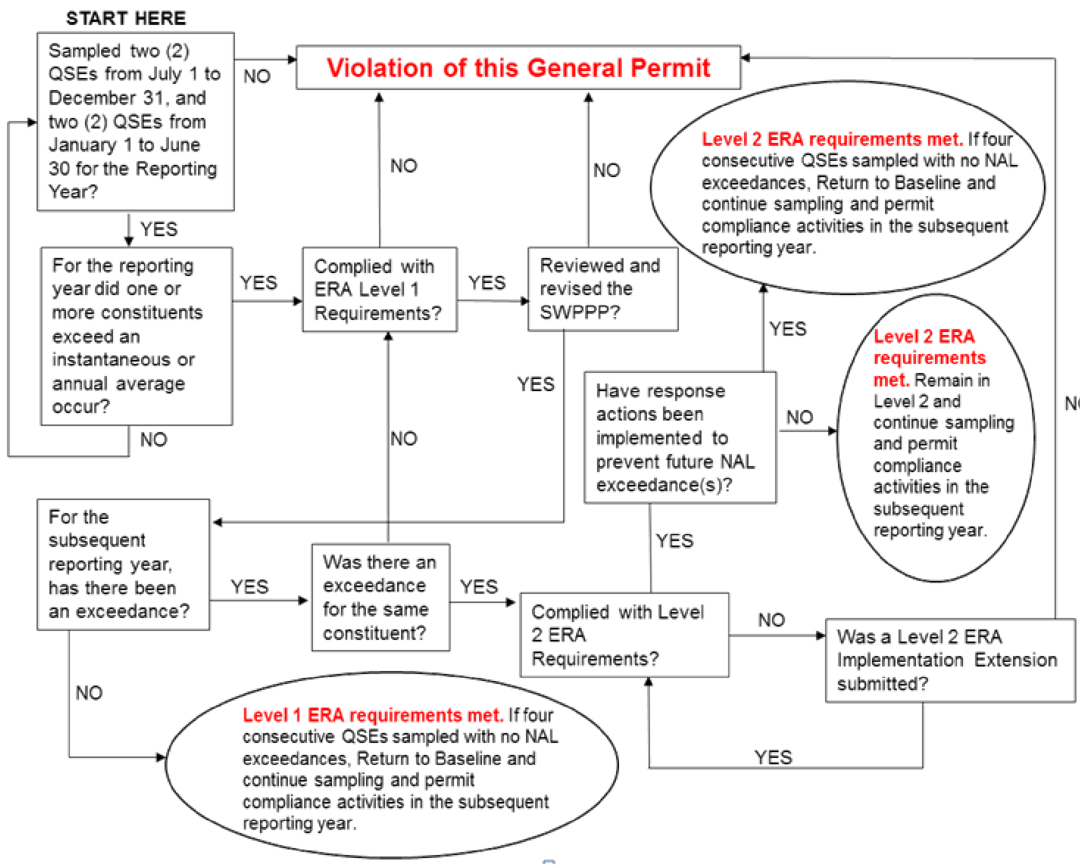
13.5.1 NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this Industrial General Permit (IGP) and shall compare the results to the two types of NAL values in Appendix I to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in the Table in Appendix I. An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Appendix I; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized) to the corresponding instantaneous maximum NAL values in Appendix I. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

   The process for having storm water tests that do or do not trigger an Annual NAL exceedance or an Instantaneous maximum NAL exceedance is best describe by the following table from the IGP – Fact Sheet, page 45, and copied below.



13.6 Status Level

There are three status levels in the new Industrial General Permit: Baseline, Level 1 and Level 2. The reason for moving up to a different level is described below:

1. ***Baseline Status***
   At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

2. ***Level 1 Status***
   A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter.

   Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.[20]

   i. Level 1 ERA Evaluation
      1. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:
      2. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,
      3. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

   ii. Level 1 ERA Report
      1. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :
         a. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;
         b. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:
            1) A summary of the Level 1 ERA Evaluation ; and,
            2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.
         c. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).
      2. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

   iii. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.
      Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS

3. ***Level 2 Status***
   A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1.

Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.[21]

i. Level 2 ERA Action Plan

1. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection ii.a – c below the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for:
    a. a new parameter in any drainage area, or
    b. the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.
2. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.
3. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
4. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.
5. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
6. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.
7. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section ii.a through c.

ii. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

1. Industrial Activity BMPs Demonstration
   This shall include the following requirements, as applicable:
    a. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);
    b. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);
    c. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs:
    d. In cases where all of the Discharger's implemented BMPs, including

additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:

1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;
2) Estimated costs of the additional BMPs evaluated; and,
3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

e. The description and analysis of BMPs required in subsection 2.1.d above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

f. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this Industrial General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

2. <u>Non-Industrial Pollutant Source Demonstration</u>

This shall include:

a. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;
b. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;
c. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;
d. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;
e. A summary of all existing BMPs for that parameter; and,
f. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

3. <u>Natural Background Pollutant Source Demonstration</u>

This shall include:

a. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);
b. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;
c. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;
d. Map showing the reference site location in relation to facility along with available land cover information;
e. Reference site and test site elevation;
f. Available geology and soil information for reference and test sites;
g. Photographs showing site vegetation;
h. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,
i. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

iii. Level 2 ERA Technical Report Submittal

1. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report.
2. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.
3. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances, facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

4. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations

described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

iv. Eligibility for Returning to Baseline Status

1. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection ii.1.a.through c above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section 3.iii.3.
2. Dischargers are ineligible to return to baseline status if they submit any of the following:
   a. A industrial activity BMP demonstration in accordance with subsection ii.1.d above;
   b. An non-industrial pollutant source demonstration; or,
   c. A natural background pollutant source demonstration.

v. Level 2 ERA Implementation Extension

1. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:
   a. Reasons for the time extension;
   b. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
   c. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.
2. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions,(2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs

[20] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported

[21] For all sampling results reported before June 30th of the preceding reporting year. If sampleresults indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

Revisions

The SWPPP will be revised to reflect recent changes. All changes to the SWPPP must be certified and submitted via SMARTS. If the changes have significant revision(s) the revised SWPPP must be submitted within 30 days. However, when SWPPP revisions are not significant, it is required that they are submitted to SMARTs once every three months in the reporting year. It is up to the operator to determine what is significant or not. The SWRCB gave these examples of SWPPP revisions that are not considered significant: topographical fixes or minor clarifications. All changes to the SWPPP will be recorded on the SWPPP Amendment Form, Appendix H.

14.0 RECORD KEEPING
(IGP-Section X.H.1.g)

Records shall be kept onsite of all storm water related compliance activities for a minimum of five years. The materials that will be retained to document compliance with the NPDES storm water General Permit consist of the following:

- Copy of General Permit
- Copy of Notice of Intent
- SWPPP and future revisions
- All inspection forms related to storm water and BMPs
- Records of preventative maintenance activities related to storm water discharges
- Records of storm water monitoring for the Monitoring Implementation Plan (MIP)
- Annual reports submitted to the San Francisco Bay Regional Water Quality Control Board
- Records of spills and cleanup activities
- Employee training records, including course sign-in rosters
- Correspondences with regulatory agencies regarding storm water discharge
- Other materials that may be relevant to General Permit compliance

15.0 EMPLOYEE TRAINING PROGRAM

(IGP-Section: X.H.f.i-v)

15.1 Employee Training

The NPDES Industrial General Permit (IGP) requires that the SWPPP include training of personnel who are responsible for implementing activities identified in the SWPPP, conducting inspections, sampling and visual observations and managing storm water. The operator must establish a *Pollution Prevention Team* responsible for implementing the Industrial General Permit requirements: SWPPP, monitoring and BMPs. The operator must also assign a Qualified Industrial Stormwater Practitioner (QISP) who can assist with the IGP training requirements to train the appropriate team members. In addition, a QISP is required by the IGP to oversee the tasks required when a facility reaches Level 1 and Level 2.

This section details the spill response, good housekeeping and material handling procedures and actions necessary to implement all BMPs identified in the SWPPP. An Employee Training Manual is included in Appendix E.

Awareness and knowledge of storm water pollution is a key element of the SWPPP. All employees working in the active work area receive storm water training. The Quarry Operations Manager will review the SWPPP annually and report any changes to Freeman Associates and/or Triad/Holmes Associates for needed updates. However, any significant changes to the SWPPP and recent lab work will be reported immediately so that these changes can be submitted to SMARTs within 30 days. All training will be documented with a sign-in sheet, and a refresher course will be given annually. New employees go through an orientation about Company policies, safety procedures, and an on-site training at their specific work area.

The training includes:

- Information about NPDES permit requirements and potential penalties for violations;
- Instruction on storm water conveyance systems used at the site;
- Review of the sources of potential pollutants at the site; and the effects these pollutants can have on the receiving surface waters.
- Review of the BMPs used at the site and each employee's individual responsibilities for maintaining the effectiveness of the BMPs.
- Review of the updated SWPPP;

15.2 Training for Qualified Industrial Stormwater Practitioner (QISP)

The Industrial General Permit requires the use of a Qualified Industrial Stormwater Practitioner (QISP). The QISP is a person who has completed a State Water Board-sponsored or approved QISP training course, and has registered as a QISP via SMARTS. The State Water Board may require a competency exam.

The QISP will train the Pollution Prevention team members at the facility to perform their activities required by the IGP. When a Discharge rises to Level 1 status the QISP shall assist the discharger with: 1) an evaluation of the industrial pollutant sources that are or maybe related to exceedance of NALs and identify appropriate BMPs; and 2) completing the Level 1 status to get back to Baseline Level. When a Discharger rises to Level 2 status the QISP shall assist the discharger with completing the Level 2 status Exceedance Response Action (ERA) requirements.

15.3 Pollution Prevention Team (IGP Section X.D.1)

The Industrial General Permit requires identification of a team for Pollution Prevention. The duties of the Pollution Prevention Team (PPT) vary as shown in Table 7 below. Should a PPT member not be available to perform his/her duties then an alternative will be appointed to assume the missing PPT members duties. The alternative PPT member will be determined by the Quarry Operations Manager.

TABLE 7 POLLUTION PREVENTION TEAM	
Position	**Duties And Activities**
Quarry Operations Manager	Legally Responsible Person, SWPPP certification, implementation and monitoring, logistics
Project Engineer	Assistant for SWPPP implementation and monitoring, logistics
Alternates: Foremen	Assistant for SWPPP implementation and monitoring, logistics
Triad/Holmes Associates Consultant, QISP	SWPPP development/implementation, training, monitoring & reporting review, QISP

15.4 Staff training for Spill Prevention and Response

The spill prevention and response training for quarry staff who work with chemicals, petroleum and hazardous waste products shall include training on the items below.

- Inspecting storage areas to ensure that hazardous materials containers are in good condition;
- Looking for stains and drips from equipment; sheen on puddles or oil-stained soil; locating the source of such contamination and taking corrective actions;
- Transferring contents of leaky containers to new containers or packing them safely in larger containers (checking the MSDS for materials compatibility);
- Keeping a spill kit available, and maintaining supplies of absorbent materials, neutralizing agents, drums or trash cans, brooms, and shovels where significant amounts of materials are used in the hazardous materials storage areas, service areas and fueling areas; and
- Methods for cleaning up minor spills (generally, less than one gallon); and to notify Quarry Operations Manager of all spills, and to recognize conditions that require the assistance of emergency response agencies or contractors.
- Never washing down a spill with water.

15.5 Staff training for Good Housekeeping (IGP-Section X.H.1.a)

The SWPPP employee training program is intended to increase employee awareness of how their daily work activities and work areas contribute pollutants to storm water discharges, and to suggest ways that their work habits could be modified to reduce the amount of pollutants that could wash away in storm water.

15.6 Staff training on preventative Maintenance

Designated employees are instructed on preventative maintenance and the frequency in which they should be performed. These tasks shall include:

- Monthly and after major rain storm <u>inspect</u> all sediment ponds and sediment traps, drop inlets, metal storage tanks, concrete check dams, drainage ditches and swales to see if they are functioning properly;
- Monthly and after major rain storm <u>clean-out</u> sediment ponds, sediment traps, metal storage tanks and drop inlets prior, if needed to maintain maximum capacity and dispose of sediments properly.

15.7 Staff training for Materials Handling Procedures

The employee training for materials handling procedures shall include:

- Checking all fuel pumps and dispensing systems for leaks;
- Always staying next to the mobile fuel truck when fueling equipment or vehicles;

- Only allowing properly trained staff to handle hazardous materials; and
- Making sure that containers are compatible with the items stored.

15.8 Storm Water Inspections, Collection and Reporting

A designated employee shall be trained to perform the inspections of storm water conveyances, discharge points (aka Outfalls), and sources of potential pollutants at specified frequencies to identify potential discharges of contaminated run-off.

16.0 ANNUAL REPORTS
(IGP Sections XV & XVI)

16.1 Annual Report to Central Coast Regional Water Quality Control Board

Triad/Holmes Associates will assists the Legally Responsible Person, Sargent Quarry with the preparation and submittal of the annual report via SMARTS before July 15th each year. A copy of the annual report should be placed into this section. Triad Holmes Associates also maintain copies of these reports.

Section 16a
2016 – 2017 Storm Water Annual Report

Section 16b
20176 – 2018 Storm Water Annual Report

Section 16c
2018 – 2019 Storm Water Annual Report

Section 16d
2019 – 2020 Storm Water Annual Report

Section 16e
2020 – 2021 Storm Water Annual Report

Maintain past 5 years of Annual Reports in this section.

17.0 NOTICE OF INTENT (NOI)

The Notice of Intent (NOI) for Sargent Quarry will be filed electronically with the State Water Resources Control Board using Storm Water Multiple Application and Report Tracking System (SMARTS).

APPENDICES

Appendix A: **Glossary of Terms**

Appendix B: **Instructions for Conducting Inspections & Completing Forms**

Appendix C: **Inspection Forms**

Appendix D: **Stormwater Training Sign-In Sheet**

Appendix E: **Employee Training Manual**

Appendix F: **General Permit for Storm Water Discharge Associated with Industrial Activities (Order No. 2014-00570 DWQ)**

Appendix G: **Permit Registration Documents**

Appendix H: **SWPPP Amendment Form**

Appendix I: **IGP – Table 2: Parameter NAL Values, Test Methods, and Reporting Units**

Appendix J: **List of Significant Spills and Leaks**

Appendix K: **BMPs**

Appendix L: **SWPPP Compliance Checklist**

Appendix A:
Glossary of Terms

GLOSSARY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

Adoption Date April 1, 2014

Aerial Deposition
Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include but are not limited to: dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere. Deposition is the act of these materials being added to a landform.

Beneficial Uses
As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation, include but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)
As defined by United States Environmental Protection Agency (U.S. EPA), BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)
As defined by U.S. EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, PH, oil and grease.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permits conditions on a case-by-case basis using all reasonably available and relevant data

Best Management Practices (BMPs)
Scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody
Form used to track sample handling as samples progress from sample collection to the laboratory. The chain of custody is also used to track the resulting analytical data from the laboratory to the client. Chain of custody forms can be obtained from an analytical laboratory upon request.

Debris
Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Detected Not Quantifiable
A sample result that is between the Method Detection Limit (MDL) and the Minimum Level (ML).

Discharger
A person, company, agency, or other entity that is the operator of the industrial facility covered by this General Permit.

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effective Date
The date, set by the State Water Resources Control Board (State Water Board), when at least one or more of the General Permit requirements take effect and the previous permit expires. This General Permit requires most of the requirements (such as SMARTs submittals, minimum BMPs, sampling and analysis requirements) to take effect on July 15, 2015.

Effluent
Any discharge of water either to the receiving water or beyond the property boundary controlled by the Discharger.

Effluent Limitation
Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, waters of the contiguous zone, or the ocean.

Erosion
The process by which soil particles are detached and transported by the actions of wind, water or gravity.

Erosion Control BMPs
Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Facility
A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Field Measurements
Testing procedures performed in the field with portable field-testing kits or meters.

Good Housekeeping BMPs
BMPs designed to reduce or eliminate the addition of pollutants through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Industrial Materials
Includes, but is not limited to: raw materials, recyclable materials, intermediate products, final products, by product, waste products, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge and that are used, handled, stored, or disposed in relation to a facility's industrial activity.

Method Detection Limit
The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Level
The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Monitoring Implementation Plan
Planning document included in the Storm Water Pollution Prevention Plan (SWPPP). Dischargers are required to record information on the implementation of the monitoring requirements in this General Permit. The MIP should include relevant information on: the Monthly Visual Observation schedule, Sampling Parameters, Representative Sampling Reduction, Sample Frequency Reduction, and Qualified Combined Samples.

Monitoring Requirements
Includes sampling and analysis activities as well as visual observations.

Natural Background
Pollutants including substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from previous activity at a facility, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharge(r)
A facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source as defined in 40 Code of Federal Regulations 122.29, and which has never received a finally effective NPDES permit for discharges at that site. See 40 Code of Federal Regulations 122.2.

Numeric Action Level (NAL) Exceedance
Annual NAL exceedance - the Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data) and compare this to the corresponding Annual NAL values in Table 2. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.[1] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table 2 (or is outside the NAL PH range);

Instantaneous maximum NAL exceedance - the Discharger shall compare all sampling and analytical results from each distinct sample (individual or composite) to the corresponding Instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for PH).

Non Detect
Sample result is less than Method Detection Limit; Analyte being tested cannot be detected by the equipment or method.

[1] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf>. [as of July 3, 2013]

Non-Storm Water Discharges (NSWDs)
Discharges that do not originate from precipitation events. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Numeric Action Level (NAL)
Pollutant concentration levels used to evaluate if best management practices are effective and if additional measures are necessary to control pollutants. NALs are not effluent limits. The exceedance of an NAL is not a permit violation.

Operator
In the context of storm water associated with industrial activity, any party associated with an industrial facility that meets either of the following two criteria:

The party has operational control over the industrial SWPPP and SWPPP specifications, including the ability to make modifications to those plans and specifications

The party has day-to-day operational control of activities at the facility which are necessary to ensure compliance with a SWPPP for the facility or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

PH
Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The PH of natural waters tends to range between 6.0 and 9.0, with neutral being 7.0.

Plastic Materials
Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site.

Qualified Industrial Storm Water Practitioner (QISP)
Only required once a Discharger reaches Level 1 status, a QISP is the individual assigned to ensure compliance with this General Permit or to assist New Dischargers with determining coverage eligibility for discharges to an impaired water body. A QISP's responsibilities include implementing the SWPPP, performing the Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation), assisting in the preparation of Annual Reports, performing ERAs, and training appropriate Pollution Prevention Team members. The individual must take the appropriate state approved or sponsored training to be qualified. Dischargers shall ensure that the designated QISP is geographically located in an area where they will be able to adequately perform the permit requirements at all of the facilities they represent.

Qualifying Storm Event (QSE)
A precipitation event that:

Produces a discharge for at least one drainage area; and
Is preceded by 48 hours with no discharge from any drainage area.

Regional Water Board
Includes the Executive Officer and delegated Regional Water Board staff.

Runoff Control BMPs
Measures used to divert run-on from offsite and runoff within the site.

Run-on
Discharges that originate offsite and flow onto the property of a separate facility or property or, discharges that originate onsite from areas not related to industrial activities and flow onto areas on the property with industrial activity.

Scheduled Facility Operating Hours
The time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

Sediment
Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation
Process of deposition of suspended matter carried by water, wastewater, or other liquids that flow by gravity. Control of sedimentation is accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs
Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. Includes those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (i.e., silt fence, sediment basin, fiber rolls, etc.).

Sheet Flow
Flow of water that occurs overland in areas where there are no defined channels and where the water spreads out over a large area at a uniform depth.

Source
Any facility or building, property, road, or area that causes or contributes to pollutants in storm water.

Storm Water
Storm water runoff, snowmelt runoff, and storm water surface runoff and drainage.

Storm Water Discharge Associated With Industrial Activity
The discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 C.F.R. section 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 C.F.R. section 122.

Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 C.F.R. section122.26(a)(1)(v).

Structural Controls
Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution.

Total Suspended Solids (TSS)
The measure of the suspended solids in a water sample including inorganic substances such as soil particles, organic substances such as algae, aquatic plant/animal waste, and particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample.
Results are reported in mg/L.

Toxicity
The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses, such as impaired reproduction or growth anomalies.

Trade Secret
Information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Turbidity
The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Waters of the United States
Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Water Quality Objectives
Defined in the California Water Code as limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Quality Standards
Consists of beneficial uses, water quality objectives to protect those uses, an antidegradation policy, and policies for implementation. Water quality standards are established in Regional Water Quality Control Plans (Basin Plans) and statewide Water Quality Control Plans. U.S. EPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

ACRONYM LIST

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPT	Best Practicable Control Technology Currently Available
CBPELSG	California Board for Professional Engineers, Land Surveyors and Geologists
DWQ	Division of Water Quality
ELGs	Effluent Limitations Guidelines and New Source Performance Standards
ERA	Exceedance Response Action
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NAL	Numeric Action Level
NAICS	North American Industrial Classification System
NEC	No Exposure Certification
NEL	Numeric Effluent Limitation
NOI	Notice of Intent
NONA	Notice of Non Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSWD	Non Storm Water Discharges
O&G	Oil and Grease
PRDs	Permit Registration Documents
QA/QC	Quality Assurance/Quality Control
QISP	Qualified Industrial Storm water Practitioner
QSE	Qualifying Storm Event
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology Based Effluent Limitation
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency

WDID	Waste Discharge Identification Number
WQBEL	Water Quality Based Effluent Limitation

Appendix B:
Monitoring Implementation Plan

MONITORING IMPLEMENTATION PLAN

INSTRUCTIONS FOR
CONDUCTING MONTHLY INSPECTIONS & COMPLETING FORMS

This packet contains all of the inspection forms for the Monitoring Implementation Plan. A schedule of inspections for each month is provided as well as simplified instructions for each type of inspection. The completed forms shall be removed in June of each year and submitted to Freeman Associates who will use the completed forms to enter the data into the State Water Resources Control Boards SMARTs website for preparation of the Annual Report that is due each July 15th.

The Pollution Prevention Team members who will conduct the monitoring inspections will include:

POLLUTION PREVENTION TEAM	
POSITION	**DUTIES AND ACTIVITIES**
Quarry Operations Manager	Legally Responsible Person, SWPPP certification, implementation and monitoring
Project Engineer	Assistant for SWPPP implementation and monitoring, logistics
Alternate: Forman	Assistant for SWPPP implementation and monitoring, logistics
Freeman Associates, Consultant	SWPPP development/implementation, Training, Monitoring & Reporting
Triad Holmes, Consultant, QISP	SWPPP development/implementation, Training, Monitoring & Reporting, QISP

Contents:

Section 1
SCHEDULE FOR COMPLETING SWPPP FORMS

Rain Season	Annual Comprehensive Facility Compliance Evaluation	Monthly Visual Observation	Monthly Visual Observation Routine Inspection	Monthly Visual Observation Erosion Control Inspection	Storm Water Sampling	Ph Field Sampling Test	Sampling Event Visual Observation
July		x	x	x	**	***	***
August		x	x	x	**	***	***
September		x	x	x	**	***	***
October		x	x	x	**	***	***
November		x	x	x	**	***	***
December		x	x	x	**	***	***
January		x	x	x	**	***	***
February		x	x	x	**	***	***
March		x	x	x	**	***	***
April		x	x	x	**	***	***
May		x	x	x	**	***	***
June	x[1]	x	x	x	**	***	***

NOTES:

** **Storm water samples** must be collected and tested twice during the time period between July 1 and December 31 each year, and twice between January 1 and June 30 each year. The storm water should be collected when there has not been any discharge at any Outfall for the prior 48 hours. Then after it rains and produces a discharge for at least one drainage area the storm water can be collected. The storm water samples shall be collected within the first four (4) hours of discharge during hours of operation. However, if a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and produces discharge during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples within the first 4 hours of opening from the Outfalls that are discharging.

*** These inspections and tests shall be conducted at the same time that storm water samples are collected

[1] *While the entire SWPPP is evaluated annually, the SWPPP must be updated routinely after there are changes. Should the Annual Evaluation identify changes that are necessary these revisions shall be made within 90 days of the Annual Evaluation. Significant changes made to the SWPPP must be up-dated and submitted to SMARTs within 30 days of the change. For minor changes the SWPPP must be up-dated and submitted to SMARTS once every quarter (3 months).*

KEY DATES and TIME PERIODS

Calendar Dates:

- **July 1st, 2015** submit to SMARTs all PDRs

- **July 1st** is when discharger with exceedances will move up a Level; or if corrective measures and BMPs prevented an NAL for four consecutive storm water samples after having to move up a Level, than discharger shall return to Baseline Level (exceptions if submitted pollutant source demonstration reports)

- **July 15th** Annual Report due via SMARTs

- **October 1st**: following commencement of Level 1 status must:
  -complete a *Level 1 ERA Evaluation* of Industrial Pollutant sources that might contribute to NAL exceedance

  - Identify corresponding BMPs that should mitigate the pollutant and identify any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances

- **January 1st** or earlier discharger must revise SWPPP and implement BMPS identified in the *Level 1 ERA Evaluation;* and certify and submit to SMARTs

- **January 1st** or before a Level 2 ERA Action Plan must be certified and submitted to SMARTs

- **January 1st** following submittal of the Level 2 ERA Action Plan, a Level 2 ERA Technical Report shall be submitted including one or more demonstration reports

Other Due dates:

- Revision made to SWPPP in Annual Report must be implemented within 90 days
- Storm Water lab tests must be submitted via SMARTs within 30 days or receipt of the tests
- Significant changes to SWPPP must be reported to SMARTs within 30 days
- Minor changes to SWPPP must be reported to SMARTs each quarter
- Level 2 ERA Action Plan elements must be implemented as soon as practicable and completed no later than 1 year after submitted to SMARTs
- For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

Section 2
SIMPLIFIED INSTRUCTIONS FOR EACH INSPECTION

ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION
Sargent Creek Quarry

A. WHEN TO CONDUCT THE REVIEW (IGP – Sections XV & XVI.A)

1) The Annual Evaluation will be performed by a SWPPP Pollution Prevention team member in June of each year. The operation's Annual Report must be submitted via SMARTS to the Regional Water Board by July 15th each year.

2) The Annual Evaluation shall not be fewer than eight (8) months, or more than sixteen (16) months after the previous Annual Evaluation. If it is then the discharger must explain why

B. PURPOSE

To identify areas at the facility which are contributing pollutants to the industrial storm water discharge; and to evaluate if measures to reduce or prevent pollutants are adequate and properly implanted, and to determine whether additional control measures are needed.

C. ANNUAL REPORT SUBMITAL (IGP – Section XVI.B)

1) A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit, Appendix L.

2) An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;

3) An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and

4) The date(s) of the Annual Evaluation.

D. COMPLETING THE FORM

1) Fill in the date and provide the name and title of the responsible SWPPP Pollution Prevention team member reviewing the SWPPP and preparing this Annual Evaluation.

3) On the first page of the form, review relevant documents and visually inspect the site to complete the seven (7) items on this page.

4) On the first page of the form, describe in the third column any changes in site conditions and/or storm water management practices impacting the SWPPP that corresponds with each item in the first column. Record the location of the changed pages in the fourth column and add the date that the SWPPP was modified in the last column.

Example of Changes:

a) Minor change: Adding or deleting a check mark from a Table, the changes can be marked and dated on the existing page of the SWPPP. Minor changes include but are not limited to: typographical fixes or minor clarifications. Minor changes to the SWPPP must be reported to the Regional Water Board viaSMARTS every 3 months.

b) Significant change: Revision of SWPPP Site Map such as a change in the facility layout (e.g., new building, change in storage locations, boundary change, new structural BMP, etc.) will result in replacement of the SWPPP Map and any text pages with changes. The date of the change should be written on new page. Old page (replaced page) should be kept in the permanent records file; and dated when it was superseded. Significant changes to the SWPPP must be reported to the Regional Water Board via SMARTS within 30 days of the significant revision(s).

3) On the second page of the form, the SWPPP Elements are in the first column. Review these sections in the SWPPP to complete this page. In the second column check yes if there were no changes. In the 3rd column describe changes made to the SWPPP to reflect changes made at the site or to BMP's that were added or modified. In the fourth column note the page numbers in the SWPPP where these changes were made. In the last column write the date the SWPPP was modified.

4) The responsible Pollution Prevention Team (PPT) member must review and sign the forms, and ensure that the SWPPP has been revised as needed.

6) The Annual Comprehensive Facility Compliance Evaluation Forms should be kept with the SWPPP Binder for five years.

E. CHANGES TO THE SWPPP (IGP- Section XV)

If the Annual Comprehensive Facility Compliance Evaluation Form indicates that changes must be made to the SWPPP, these changes must be made and implemented and submitted to SMARTs within 90 days. These changes should also be recorded on the SWPPP Amendment Form, Appendix H.

F. RECORDS:

The Monthly Visual Inspection - Routine Maintenance Form should be kept for five years with the SWPPP Binder.

* SWPPP - Storm Water Pollution Prevention Plan

MONTHLY VISUAL OBSERVATION INSPECTION
FORM 1 SITE INSPECTION

A. WHEN AND WHO TO CONDUCT VISUAL OBSERVATIONS

1. Each month, all year.

2. Trained Pollution Prevention Team members should visually inspect each area of the site, the drainage system and the storm water outfall/discharge location(s), and then complete the form

B. COMPLETING THE FORM

1. The Pollution Prevention Team (PPT) member should sign and date the form

2. The PPT shall inspect the visually inspect the site and observe for Unauthorized Non-Storm Water Discharges and *Authorized* Non-Storm Water Discharges at each area of the site indicated in the first column

3. If water is being discharged it should be indicated in the last two columns for the appropriate site area.

4. This form shall be place in the SWPPP Binder and kept for a minimum of five years.

MONTHLY VISUAL OBSERVATION INSPECTION
FORM 2
ROUTINE MAINTENANCE

A. WHEN TO CONDUCT THE INSPECTION

1. The inspection should be conducted monthly at the same time as the Visual Observation Inspection – Form 1.

B. COMPLETING THE FORM

1. Fill in the date and provide the name of the inspector.

2. Add or delete check marks to the third column for the potential source of pollutants that may be found on the site that are indicated on Columns 1 and 2.

3. Inspect all areas which are checked/identified by the third column. In the fourth column record whether there is any evidence of spills/leaks, or "poor housekeeping", or an ineffective BMP. If the answer is yes, describe the situation and required corrective actions in the last column.

4. The responsible Pollution Prevention Team (PPT) member must review and sign the form at the bottom. The responsible PPT member must ensure that any corrective actions have been implemented.

5. The Monthly Visual Inspection - Routine Maintenance Form should be kept for five years with the SWPPP Binder.

MONTHLY VISUAL OBSERVATION INSPECTION
FORM 3
EROSION CONTROL INSPECTION

A. WHEN TO CONDUCT THE INSPECTION

1. The inspection should be conducted monthly at the same time as the Visual Observation Inspection – Form 1.

2. Inspect all areas prone to erosion as identified in column one. Indicate in the second column if there is any evidence of erosion. If there is evidence of erosion, indicate in the third column if the erosion control measures are functioning properly.

3. If erosion is identified in the second column and the erosion control measures are not functioning properly, then in the fourth column describe the condition and what the necessary corrective actions might be.

4. The responsible Pollution Prevention Team (PPT) member shall review the Monthly Visual Observation Inspection - Erosion Control Form and identify what corrective actions are required, and indicate the date that they were completed. The responsible PPT member should sign and date the Inspection Form on the last page.

5. The Monthly Visual Observation Inspection - Erosion Control Form should be kept with the SWPPP Binder for five years.

STORM WATER SAMPLING AND ANALYSIS INSTRUCTIONS

A. <u>WHEN TO COLLECT WATER SAMPLE</u>

1. Collect water samples during the first storm that generates discharge after a minimum of 48 hours without any discharges at any Outfall of the facility. Storm water samples must be collected two times between January 1st and June 30th, and two times between July 1st and December 31st.

2. Take samples either:
   a) within 4 hours after discharge began during hours of operation
   OR
   b) if discharge began during 12 hours when facility was closed, storm water samples must be collected within 4 hours after operation opens.

3. Samples should be taken during scheduled operating hours (including normal office hours, delivery or loading of raw materials or products, quarry processing).

B. <u>SAMPLING EQUIPMENT FROM THE LABORATORY</u>

1. Be sure to always have the necessary storm water sampling bottles. Order them from the laboratory to arrange to pick up: **ACCUTEST Laboratories: (408) 588-0200.**

2. The 8 storm water sampling tests that you will be conducting include:

   - **TSS** (Total Suspended Solids)
   - **O+G** (Oil and Grease**)**
   - **N+N as N** (Nitrate & Nitrite as N)
   - **Fe** (Iron, total)

3. Go to the lab to pick up the storm water sampling bottles and a **Chain of Custody Form**: **ACCUTEST Laboratories**
   2105 Lundy Avenue
   San Jose, CA 95131

4. **The sampling bottles and Chain of Custody form should be kept in a cooler**, either supplied by the lab or you. You should also have some "blue ice" available in the office freezer to put into the cooler after you collect the storm water samples.

5. You should have a pair of **latex gloves** to protect your hands from the preservatives in some of the bottles, and also to prevent contamination of the bottles and the storm water from your hands.

C. PREPARING FOR WATER SAMPLES

1. **Monitor weather reports** when rainfall is anticipated, prepare for water sampling by taking out sampling equipment.

2. Monitor each Outfall to confirm that none of them are discharging. Storm water samples are only collected if there has been 48 hours of no discharge at any of the outfalls and then with a rain event one of the Outfalls begins to discharge and samples are collected within 4 hours; or discharge began 12 hours previously when the operation was closed, and samples should be collected within 4 hours of opening.

3. **Fill out labels** on water sample bottles with a permanent marker pen. Write on the label: the facility's name, Outfall Number; and date and time the samples were collected. (Do this before the water samples are taken).

4. **Fill out Chain of Custody** form just before or just after the water samples have been taken.

    a) Copy the information from the attached SAMPLE Chain of Custody form onto your Chain of Custody form; be sure to write the analyses:
        - **TSS, O&G, N+N as N, and Fe**

5. Monitor the Outfall for discharge and then collect samples within 4 hours from the time discharge commences; or 4 hours after opening if discharge began 12 hours before when operation was closed.

    When you are ready to collect samples you should:
    1) Write the time on the Storm Water Sampling & Analysis Form where it says "Time Discharge Began"; and where it says "Time of Sample Collection"
    2) Water samples should be collected within 4 hours after discharge began or if discharge began 12 hours before the operation opened, then samples should be collected within four hours of opening business.

D. TAKING WATER SAMPLES:

(to be done by a responsible Pollution Prevention team member)

1. Collect the water sample within 4 hours after discharge began during hours of operation; or if discharge began 12 hours before the operation opened, then samples should be collected within four hours of business opening.

2. Record time and date rain began on the **Storm Water Sampling & Analysis Form.**

3. **Caution:**

   a. do not open sample bottles until you are ready to use them;
   b. do not touch the rim of the bottles or caps with your hands;
   c. do not put the top of the bottle on the ground or into your pocket; put it in a clean and safe place such as a clean plastic bag;
   d. do not get acid on you from the small glass bottles;
   e. keep bottle caps clean.

4. **Collecting the water samples:**

   a. Put on latex gloves;
   b. Use the large plastic sample bottle from the lab to collect the water samples; or collect it directly in the different containers from the lab. (only collect water samples in the containers from the laboratory; otherwise you may contaminate the samples)
   c. Collect water directly into larger plastic bottle from the middle of the water column (avoid collecting surface water or water from the bottom).
   d. Carefully pour water from the plastic bottle into the sampling bottles with preservatives. Fill to just below the rim; be <u>careful not to overfill or spill because</u> <u>these bottles have acid in them</u>. Replace the bottle cap.
   e. Repeat steps b and c to refill any other plastic bottles to the rim. Replace bottle cap.
   f. Immediately put all of the sample bottles into a cooler with Blue Ice making sure that the sample bottles are secure and won't fall over. Samples should be kept as close to 4 degrees Celsius (39 degrees Fahrenheit) as possible until arriving to the laboratory. Do not freeze samples.
   g. Immediately take to the laboratory.

5. Measuring PH using the calibrated portable PH meter:

   a. PH test should be obtained within 15 minutes of the storm water tests.
   b. Follow manufacturer's instructions for operation and maintenance of the meter.
   c. See instructions at the Field PH Test Sampling instructions.

E. GETTING WATER SAMPLES TO THE LABORATORY

1. Take Water Samples to the laboratory drop off yourself.

   a. Deliver the water sample cooler as soon as possible

      Accutest Laboratories 2105 Lundy Avenue San Jose, CA
      between 8:00 A.M. to 6:00 P.M., Monday through Friday

   b. Fill out Chain of Custody form and have laboratory sign it. You should take the pink copy for your file.

c. Tell the Laboratory that you are testing for storm water and that the analysis should be done in accordance with 40 Code of Federal Regulations part 136.

F. PREPARING FOR THE SECOND WATER SAMPLE

1. While you are at the lab pick up the next set of storm water sampling bottles. You'll need storm water sampling bottles for: TSS, O+G, N+N as N, and Fe.

OR

2. Call ACCUTEST Laboratories at (408) 588-0200 and tell them who you are and that you will be coming in to pick up another Water Sampling Kit to test Storm Water. Go to lab and get the test kit well before your second sample should be collected.

G. OTHER FORMS AND TASKS TO PERFORM AT THIS TIME

1. Fill out the: SAMPLING EVENT VISUAL OBSERVATION FORM

2. Keep all of the completed forms and chain of custody for at least five (5) years.

REMINDER

1. Take Field Ph test at same time as water sample and enter the results onto the Chain of Custody and onto the Field Ph Test Sampling form.

2. Dischargers are required to report to the Water Board any sampling data collected more frequently than required in the Industrial General Permit (Section XXI.J.2)

SAMPLING EVENT VISUAL OBSERVATION FORM

A. <u>WHEN TO CONDUCT THE INSPECTION</u>

1. The inspection should be performed when storm water samples are collected. Storm water samples should be collected twice between January 1st to June 30th and twice between July 1st and December 31st.

2. The observation should be conducted during dry weather.

B. <u>PURPOSE OF NON-STORM WATER DISCHARGE VISUAL OBSERVATION</u>

The purpose of this inspection is to ensure that non-storm water discharge does not occur; exceptions are "authorized" non-storm water discharges such as springs and groundwater or even delayed stormwater runoff. These authorized non-storm water discharges should be kept away from industrial activity and potential pollutants, where feasible. If a discharge is observed it must be noted and described on the supplemental form.

C. <u>COMPLETING THE FORM</u>

1) Fill in the date and time of the inspection. Also provide the name of the person conducting the inspection and describe the weather conditions at the time of the inspection.

2) Observe each outfall and indicate in the Non-Storm Water Discharge Visual Observation Form if water is being discharged.

3) If water is being discharged, then complete the “Supplemental Form”. Prepare a separate Supplemental Form for each outfall where discharge has been observed. Note the physical characteristics of the water and identify the potential sources of water on the form, and measure and note on the form the pH of the discharge.

4) The responsible SWPPP Team member should review the Supplemental Form and complete the bottom portion of the form. Corrective actions, if required, should be indicated and the date the corrective actions were completed should be provided. The responsible SWPPP Team member is responsible for ensuring that the corrective actions are implemented.

5) These Forms should be kept with the SWPPP Binder for five years.

FIELD PH TEST SAMPLING FORM

A. WHEN TO CONDUCT FIELD PH MEASUREMENT

1. The PH measurement should be conducted within 15 minutes of the Storm Water Sampling tests

2. A trained Pollution Prevention Team member should conduct this test.

B. BEFORE THE STORM

1. Obtain a calibrated portable PH meter with a wide range meter that has the ability to read PH within 15 minutes of sample collection

2. Prepare and calibrate the portable PH meter following manufacturer's specifications to ensure accurate measurements.

3. The PH meter should be calibrated before each measurement; and it should be rinsed with distilled water and blotted dry with a scientific wipe to absorb any remaining water after each use.

4. Assemble items necessary to collect and test storm water from the Outfall(s).

C. DURING STORM

1. Record time on the Field Ph Test Sampling Form when discharge from the Outfall(s) began and when sample was collected.

2. Get a clean styrofoam cup for each Outfall.

3. Collect water in a styrofoam cup at the same time that you collect your Storm Water samples for the laboratory.

4. Place the PH electrode into Styrofoam cup until the results show up on the register

5. Remove the electrode from the water cup when the reading shows up on the register. Write down the results onto the appropriate forms.

6. Rinse the electrode with distilled water and dab dry with a scientific wipe to remove excess water.

7. Record the pH on the Chain of Custody Form.

SAMPLING EVENT VISUAL OBSERVATION FORM

A. WHEN TO CONDUCT THE INSPECTION

1. The inspection should be performed quarterly, and be spaced approximately 6 to 18 weeks apart. (The months of January, April, July and October were selected for our purposes).

2. The observation should be conducted during dry weather.

B. PURPOSE OF NON-STORM WATER DISCHARGE VISUAL OBSERVATION

The purpose of this inspection is to ensure that non-storm water discharge does not occur; exceptions are "authorized" non-storm water discharges such as springs and groundwater or even delayed stormwater runoff. These authorized non-storm water discharges should be kept away from industrial activity and potential pollutants, where feasible. If a discharge is observed it must be noted and described on the supplemental form.

C. COMPLETING THE FORM

1. Fill in the date and time of the inspection. Also provide the name of the person conducting the inspection and describe the weather conditions at the time of the inspection.

2. Observe each outfall and indicate in the Non-Storm Water Discharge Visual Observation Form if water is being discharged.

3. If water is being discharged, then complete the “Supplemental Form”. Prepare a separate Supplemental Form for each outfall where discharge has been observed. Note the physical characteristics of the water and identify the potential sources of water on the form, and measure and note on the form the pH of the discharge.

4. The responsible SWPPP Team member should review the Supplemental Form and complete the bottom portion of the form. Corrective actions, if required, should be indicated and the date the corrective actions were completed should be provided. The responsible SWPPP Team member is responsible for ensuring that the corrective actions are implemented.

5. These Forms should be kept with the SWPPP Binder for five years.

Section 3

MONTHLY INSPECTIONS AND FORMS

(Refer to Appendix C for Inspection Forms)

Section 4

OUTFALL LOCATION DESCRIPTION

There are two outfall location within Sargent Quarry. Pit #1 is located at the southern portion of the mining site. A new swale on the east side of Pit #1 outlets into Sargent Creek. Swales around Pit #2 also discharge into Sargent Creek at approximately same location.

Pit #3 is located west of the plant site and will be excavated during Phases 3 and 4 of the mining project. The concentrated flow is proposed to be conveyed via a 36" culvert located between Pit #3 and Overburden Stockpile. The culvert will extend further southeast under the access road and outlet at the natural drainage depression, as in historic conditions.

Refer to Figure 2 for drainage facilities and outfall locations.

Section 5

SAMPLE CHAIN OF CUSTODY FORM

SGS ACCUTEST

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest NC Job #: C

Client / Reporting Information		Project Information	
Company Name		Project Name:	
Address		Street	
City State Zip		City State	
Project Contact:		Project #	
Phone #		EMAIL:	
Samplers's Name		Client Purchase Order #	

Requested Analysis

Matrix Codes: WW- Wastewater, GW- Ground Water, SW- Surface Water, SO- Soil, OI-Oil, WP-Wipe, LIQ - Non-aqueous Liquid, AIR, DW- Drinking Water (Perchlorate Only)

SGS Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	LAB USE ONLY

(Number of preserved Bottles: HCl, NaOH, HNO3, H2SO4, NONE, NaHSO4, MEOH, ENCORE)

Turnaround Time (Business days) — Approved By:/ Date:

- ☐ 10 Day ____________
- ☐ 5 Day ____________
- ☐ 3 Day ____________
- ☐ 2 Day ____________
- ☐ 1 Day ____________
- ☐ Same Day ____________

Emergency T/A data available VIA Lablink

Data Deliverable Information

- ☐ Commercial "A" - Results only
- ☐ Commercial "B" - Results with QC summaries
- ☐ Commerical "B+" - Results, QC, and chromatograms
- ☐ FULT1 - Level 4 data package
- ☐ EDF for Geotracker ☐ EDD Format__________
- Provide EDF Global ID ____________________
- Provide EDF Logcode: ____________________

Comments / Remarks

· Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time:	Received By: 1	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N; Labels match Coc? Y / N Separate Receiving Check List used: Y / N	Cooler Temp. ________oC

NOTE: Be sure to add the proper EPA test method onto your form as shown above in the 'Requested Analysis" column.

Appendix C:
Inspection Forms

ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION

To be filled out by reviewer.

Review Date: ____________________ **Reviewer: ____**

SWPPP (General Permit Section)	Not Applicable	Describe revisions made to SWPPP to reflect changes/differences identified at the site	SWPPP page # or Reference Location	Date implemented or last revised
1. Review of all visual inspection and monitoring records & sampling and analysis results (IGP: Section XV.A)				
2. Visual inspection of all areas of industrial activity & associated potential pollutant sources (IGP: Section XV.B)				
3. Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials (IGP: Section XV.C)				
4. Visual inspection of equipment needed to implement the bmps (IGP: Section XV.D)				
5. Visual inspection of any structural and/or treatment control BMPs (IGP: Section XV.E)				
6. Review & assessment of all BMPs for each area of industrial activity & associated potential pollutant sources (IGP: Section XV.F)				
7. Assessment of other factors needed to comply with SWPPP and IGP (IGP: Section XV.G)				
Continuation of Annual Comprehensive Facility Compliance Evaluation Form				

Page 2				
SWPPP Element	**Not Applicable**	**Describe revisions made to SWPPP to reflect changes/differences identified at the site**	**SWPPP page #**	**Date Implemented or Last Revised**
Site Map (Figures 2-5)				
List of Significant Industrial Materials (Table 3)				
Pollutant Sources (Table 4)				
Source-Specific BMP's (Table 4)				
Facility-Wide BMP's (Section 8.0)				
Sedimentation and Erosion Control (Table 6)				
Spill Prevention and Response (Table 5)				
Monitoring Inspection (Table 7)				
Pollution Prevention Team (Table 8)				
Record Keeping Procedures (Section 14)				
Employee Training Program (Appendix E)				
Chain of Custody				

To be filled out by person responsible for SWPPP implementation.

I have reviewed the above table and have supervised revisions to the SWPPP, as needed.

CERTIFICATION:
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel property gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature: ______________________________Position:___________________________

Date: ______________________________

MONTHLY VISUAL INSPECTION FORM – 1
SITE INSPECTION

Inspector(s): ____
Date and Time: ______________________________________
Weather: ____

	Description of Observations**		**Water Being Discharged**	
Drainage Areas, Equipment/Processing Areas & Outfall(s)	**Unauthorized Non-Storm Water Discharges**	**Authorized Non-Storm Water Discharges**	**Yes**	**No**
Plant Site – Processing Area				
Plant Site – Equipment Maintenance				
Plant Site – Stockpile Areas				
Plant Site – Boneyard				
Plant Site – Fuel Area				
Plant Site – Parking Lot				
Plant Site – Office/Scale Area				
Mining Pit #1 – Equipment Parking/Porta Potties				
Mining Pit #2 – Equipment Parking/Porta Potties				
Mining Pit #3– Equipment Parking/Porta Potties				
Access Road to Pits #1 and #2				
Outfall #1 (Culvert at Pit #3)				
Outfall #2 (Sargent Creek at Pits #1 and #2)				

*** "Non-storm water discharge" (NSWD) is runoff that is created by something other than rainfall or delayed rainfall runoff**

a) "authorized" non-storm water runoff:
- ground water
- spring water

b) "unauthorized" non-storm water runoff:
- washing off building or paved areas
- vehicle washing

** **Observations should look for:**

a) Presence or indication of prior, current, or potential unauthorized NSWDs and their sources;
b) Presence of authorized NSWD, sources and associated BMPs; and
c) Indicate if observe: Odor, Debris, Sheen, Turbidity or Color

To be filled out by person responsible for SWPPP implementation.
Have identified corrective actions been implemented to correct deficiencies noted during inspection?
( ) Yes ( ) No Date corrective actions completed: __________________________

Signature: ____
Date: ____

MONTHLY VISUAL INSPECTION FORM-2
ROUTINE MAINTENANCE

To be completed at the same time as the Monthly Visual Inspection Form

Date: ___________________________ **Inspector(s):** _______________________________________

Potential Sources		Check if inspected	Is there evidence of spills/leaks or poor housekeeping, or ineffective BMP		Describe condition and necessary corrective measure
Areas inspected			Yes	**No**	
1	**Aggregate stockpiles**				
2	**Aggregate processing**				
3	**Mining areas**				
4	**Aggregate handling**				
5	**Equipment maintenance**				
6	**Air compressors**				
7	**Battery storage**				
8	**Used brake pads**				
9	**Lubricant storage**				
10	**Fueling Area**				
11	**Hazardous materials storage**				
12	**Hazardous waste storage**				
13	**Dumpsters w/Lids**				
14	**Paved parking & outside storage**				
15	**Unpaved parking & outside storage**				
16	**Boneyard/surplus equipment storage**				
17	**Storm water collection**				
18	**Unpaved Road**				

To be filled out by person responsible for SWPPP implementation.

Have identified corrective actions been implemented to correct deficiencies noted during inspection?
( ) Yes ( ) No

Date corrective actions completed: ______________________

Signature: ____
Date: ____

MONTHLY VISUAL INSPECTION FORM-3:
EROSION CONTROLS
PLANT SITE

To be completed at the same time as the Monthly Visual Inspection Form

Inspector: ________________________________

Date: ____________________________________

Locations of Potential Erosion	Is there any evidence of erosion?		Are Erosion Control Measures Functioning Properly?		Describe condition and necessary corrective action
	Yes	No	Yes	No	
Earthen drainage ditches					
Berms around Tar Creek					
Sediment Basin					
Entrance/Exits to Culverts					
Unpaved areas					
Product Stockpiles					
Haul roads					

To be filled out by person responsible for SWPPP

Have identified corrective actions been implemented to correct deficiencies noted during inspection? Yes ( ) No ( )

Date corrective actions completed: ____

Signature:________________________________
Date: ___________________________________

MONTHLY VISUAL INSPECTION FORM-3: EROSION CONTROLS

Pit #1 and Pit #2

To be completed at the same time as the Monthly Visual Inspection Form

Inspector: ______________________________

Date: __________________________________

Locations of Potential Erosion	Is there any evidence of erosion?		Are Erosion Control Measures Functioning Properly?		Describe condition and necessary corrective action
	Yes	No	Yes	No	
Drainage Swales					
Storm water discharge Point (Outfall #2)					
Entrance/Exits to Culverts					
Unpaved areas					
Product Stockpiles (if any)					
Excavated Slopes					
Haul Roads					

To be filled out by person responsible for SWPPP

Have identified corrective actions been implemented to correct deficiencies noted during inspection? Yes ( ) No ( )

Date corrective actions completed: ____

Signature: ______________________________
Date: _________________________________

MONTHLY VISUAL INSPECTION FORM-3: EROSION CONTROLS

Pit #3

To be completed at the same time as the Monthly Visual Inspection Form

Inspector: ________________________________

Date: ____________________________________

Locations of Potential Erosion	Is there any evidence of erosion?		Are Erosion Control Measures Functioning Properly?		Describe condition and necessary corrective action
	Yes	No	Yes	No	
Drainage Swales					
Storm water discharge Point (Outfall #1)					
Entrance/Exits to Culverts					
Unpaved areas					
Product Stockpiles (if any)					
Excavated Slopes					
Haul Roads					

To be filled out by person responsible for SWPPP

Have identified corrective actions been implemented to correct deficiencies noted during inspection? Yes ( ) No ( )

Date corrective actions completed: ____

Signature: ______________________________________
Date: ____

MONTHLY VISUAL INSPECTION FORM-3:
EROSION CONTROLS
Access Road to Pits #1 and #2

To be completed at the same time as the Monthly Visual Inspection Form

Inspector: ___________________________________

Date: _______________________________________

Locations of Potential Erosion	Is there any evidence of erosion?		Are Erosion Control Measures Functioning Properly?		Describe condition and necessary corrective action
	Yes	No	Yes	No	
Entrance/Exits to Culverts					
Haul Roads					

To be filled out by person responsible for SWPPP

Have identified corrective actions been implemented to correct deficiencies noted during inspection? Yes ( ) No ( )

Date corrective actions completed: ____

Signature: ____
Date: ____

STORM WATER SAMPLING & ANLAYSIS FORM

OUTFALL # 1

(Outlet from Culvert at Pit #3)

To be filled out by inspector.

Date: ____Number of Outfall: _1_

Sampler Name: _______________________________

Destination Lab: ______________________________ Lab Phone: _____________________

Parameters Lab to tests: ____

➔ **Ph Measured in Field ________________________ Ph units**

(take photo of meter reading & write units onto Chain of Custody form)

Delivery date/time:	Personnel making Delivery to Lab:	Chain of Custody Number:

<u>Type of Outfall:</u>

( ) Tank Discharge/Outfall
( ) Pond Outfall/ Weir*
( ) Ditch Outfall
(x) Pipe Outfall
( ) Drop Inlet

Time Discharge Began: __________________________________ ( ) AM ( ) PM

Time of Sample Collection: _______________________ ( ) AM ( ) PM

<u>Provide an explanation if sample were not collected within 4 hours from</u>:

a) the beginning of discharge during business hours; or

b) when the operation opened, if storm/discharge began within the previous 12 hours

____

____

* If discharge from tank/pond does not occur during a storm event, i.e. storm water is retained for subsequent discharge, record the date of the most recent storm that produced significant storm water discharge.

LAB RESULTS NEED TO BE SUBMITTED VIA E-MAIL to: tplatz@thainc.com

SAMPLING EVENT VISUAL OBSERVATION FORM

OUTFALL #1

(Outlet from Culvert at Pit #3)

Fill out form at the same date and time THAT the Storm Water is collected.

Date: ___________________________

Time: ___________ **Weather:** _________________
(Hours of operation) (Dry weather only)

Inspector(s): _________________________________

Rainfall event information:

Time Discharge Began: __________________ ( ) AM ( ) PM
Time Samples Collected: _________________ ( ) AM ( ) PM

To be completed by person responsible for SWPPP implementation (after reviewing inspection logs)

1. Was discharge from overflow or was pond discharged by operator? Overflow ( ) Manuel ( )

2. Was the storm water discharged at any outfall turbid or colored? ( ) Yes ( ) No

3. Did storm water discharged at any outfall have an odor? ( ) Yes ( ) No

4. Did storm water discharged have a sheen? ( ) Yes ( ) No

5. Did storm water discharged contain debris? ( ) Yes ( ) No

6. If the answer to any of questions 2 through 5 is yes, is corrective action necessary? ( ) Yes ( ) No

If the answer to question 6 is yes, describe corrective action and date of completion. If no corrective actions are required, explain why not:
____
____

Signature: ____________________________________

Date: ____

FIELD pH TEST SAMPLING FORM

OUTFALL #1

(Outlet from Culvert at Pit #3)

To be filled out by inspector.

Sampler Name: ___________________________________

Date: ____

Time Discharge began: ______________________( ) AM ( ) PM

Time Ph test began: __________________ ( ) AM ( ) PM

Discharge Location: Outfall: 1

( ) Basin Outfall

( ) Ditch Outfall (at drop inlet)

(x) Pipe Outfall

( ) Drop Inlet

➔ **pH Measured in Field: ______________________ pH units**

STORM WATER SAMPLING & ANLAYSIS FORM

OUTFALL # 2

(Sargent Creek at Pits #1 and #2)

To be filled out by inspector.

Date: ____ **Number of Outfall:** __2__

Sampler Name: ____________________________

Destination Lab: ____________________________ **Lab Phone:** ____________________

Parameters Lab to tests: ____

➔ **Ph Measured in Field** ______________________ **Ph units** (take photo of meter reading & write units onto Chain of Custody form)

Delivery date/time:	Personnel making Delivery to Lab:	Chain of Custody Number:

Type of Outfall:

( ) Tank Discharge/Outfall
( ) Pond Outfall*
(x) Ditch Outfall
( ) Pipe Outfall
( ) Drop Inlet

Time Discharge Began: ______________________________( ) AM ( ) PM

Time of Sample Collection: ______________________ ( ) AM ( ) PM

Provide an explanation if sample were not collected within 4 hours from:

a) the beginning of discharge during business hours; or

b) when the operation opened, if storm/discharge began within the previous 12 hours

____

____

* If discharge from tank/pond does not occur during a storm event, i.e. storm water is retained for subsequent discharge, record the date of the most recent storm that produced significant storm water discharge.

LAB RESULTS NEED TO BE SUBMITTED VIA E-MAIL to:
tplatz@thainc.com

SAMPLING EVENT VISUAL OBSERVATION FORM
OUTFALL # 2
(Sargent Creek at Pits #1 and #2)

Fill out form the same date and TIME THAT the Storm Water is collected.

Date: ___________________________

Time: ___________ **Weather:**___________
(Hours of operation) (Dry weather only)

Inspector(s): Jason Voss or James Junio (circle one)

Rainfall event information:

Time Discharge Began: __________________ ( ) AM ( ) PM
Time Samples Collected: _________________ ( ) AM ( ) PM

To be completed by person responsible for SWPPP implementation (after reviewing inspection logs)

1. **Was discharge from overflow or was pond discharged by operator?** Overflow ( ) Manuel ( )
2. **Was the storm water discharged at any outfall turbid or colored?** ( ) Yes ( ) No
3. **Did storm water discharged at any outfall have an odor?** ( ) Yes ( ) No
4. **Did storm water discharged have a sheen?** ( ) Yes ( ) No
5. **Did storm water discharged contain debris?** ( ) Yes ( ) No
6. **If the answer to any of questions 2 through 5 is yes, is corrective action necessary?** ( ) Yes ( ) No

If the answer to question 6 is yes, describe corrective action and date of completion.
If no corrective actions are required, explain why not:

____
____
____

Signature: ____

Date: ____

FIELD pH TEST SAMPLING FORM
OUTFALL # 2
(Sargent Creek at Pits #1 and #2)

To be filled out by inspector.

Sampler Name: ________________________________

Date: ____

Time Discharge began: ____________________ **( ) AM ( ) PM**

Time Ph test began: _________________ **( ) AM ( ) PM**

Discharge Location: Outfall: 2

( ) Basin Outfall

(x) Ditch Outfall (at drop inlet)

( ) Pipe Outfall

( ) Drop Inlet

➔ **pH Measured in Field:** ____________________ **pH units**

Appendix D:
Storm Water Training Sign-In Sheet

APPENDIX D: EMPLOYEE TRAINING SIGN IN SHEET											
				SWPPP Implementation	Monitoring Procedures	Spill Prevention and Response	Good Housekeeping	Preventative Maintenance	BMP Maintenance	Record Keeping
Date	**Attendees**	**Trainer/ Title**	**Training Materials**	**Ppt**		**All Employees**				

Note:
Describe the annual employee training on the SWPPP, addressing location of potential pollutants, spill prevention and response; BMPs and maintenance, good housekeeping, record keeping and industrial material management practices.

Appendix E:
Employee Training Manual

SARGENT QUARRY
SANTA CLARA COUNTY, CA

STORM WATER POLLUTION PREVENTION

EMPLOYEE TRAINING
2016

TABLE OF CONTENTS

SECTION 1
PURPOSE

The purpose of this training program is to introduce you to the purpose of Storm Water Pollution Prevention Plan and Storm Water Monitoring program at Sargent Quarry in Santa Clara County, CA. State and Federal laws require industrial activities such as to control the pollutants that rain water picks up as it flows across the property and then discharges off of the quarry property.

This training program will generally review:
1) the storm water regulations;
2) the Storm Water Pollution Prevention Plan (SWPPP);
3) Potential Pollutants;
4) Best Management Practices (BMPs);
5) Good Housekeeping Practices;
6) Storm Water Monitoring Program.

All of these activities help Sargent Quarry comply with the regulations and avoid violations and fines; and they help to eliminate or reduce potential pollutants in storm water run-off and aid in the implementation of the plant's Storm Water Pollution Prevention Plan and Storm Water Monitoring Program.

SECTION 2

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
ORDER NPDES NO. CAS000001

- As of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order.

- Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.

- This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.

- Discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses.

- This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges.

- This General Permit requires that the Discharger submit all information and documents electronically using SMARTS

SECTION 3
INTRODUCTION

This document is a Storm Water Pollution Prevention Plan (SWPPP).

- The SWPPP has been prepared to comply with Section A of the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Industrial Activities (General Permit), adopted by the California State Water Resources Control Board on April 1, 2014 and effective on July 1, 2015

- The SWPPP is intended to achieve two purposes:

  1) to identify and evaluate sources of pollutions associated with industrial activities that could affect the quality of storm water discharged and authorized non-stormwater discharged from a facility; and

  2) to identify and implement site-specific Best Management Practices (BMPs) that the facility is committed to implement to minimize or prevent discharge of pollutants associated with industrial activities that may be in stormwater.

- Topics addressed in the SWPPP include
  1. elimination of non-storm water discharges,
  2. pollutant sources and associated BMPs,
  3. storm water management,
  4. sedimentation and erosion control practices,
  5. preventative maintenance and good housekeeping practices,
  6. spill prevention and response,
  7. inspections and monitoring,
  8. record keeping, and
  9. employee training

DRAINAGE BASIN PLAN

Two major creeks, Tar Creek and Sargent Creek, and other smaller drainages affect the mining areas and access to the site. Tar Creek runs just west to east, north of the project site and outlets under Hwy 101 just north of the plant site. Sargent Creek runs north to south and bisect the southern portion of the mining site where the first two phases of mining operation will take place. All major drainages that contribute concentrated flows to the mining areas will be diverted via swales and culverts around the mining pits and converge with the historic drainage patterns downstream of the mining pits.

The plant collects all of its storm water run-off in a graded brow ditch that runs around the perimeter of the plant. The stormwater is conveyed to the stormwater sediment basin. Storm water in the sediment basin would ultimately percolate on-site or be reused for plant operations. Refer to Figures 2 and 3 below for drainage patterns.

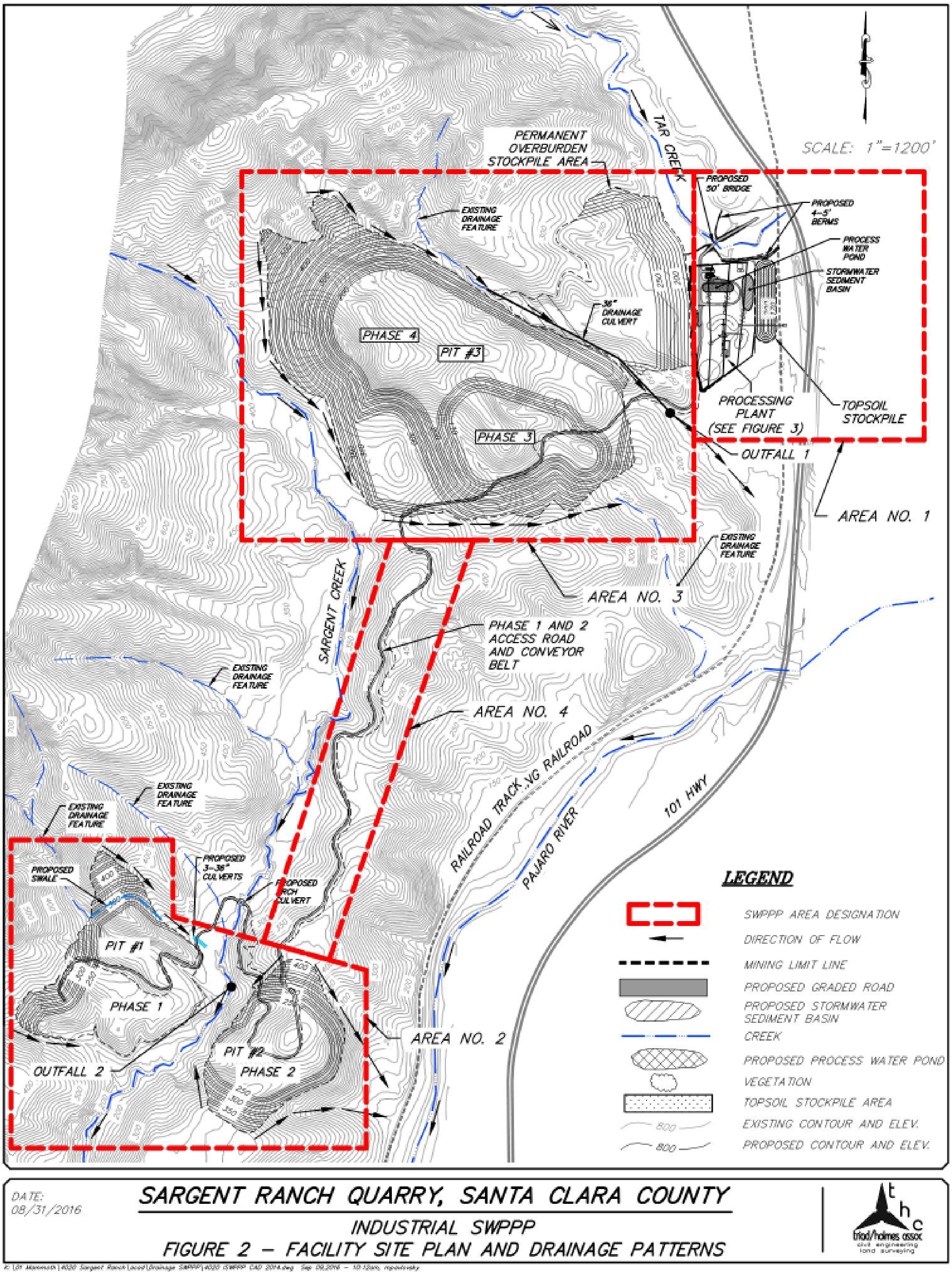
STORM WATER POLLUTION PREVENTION SITE PLANS

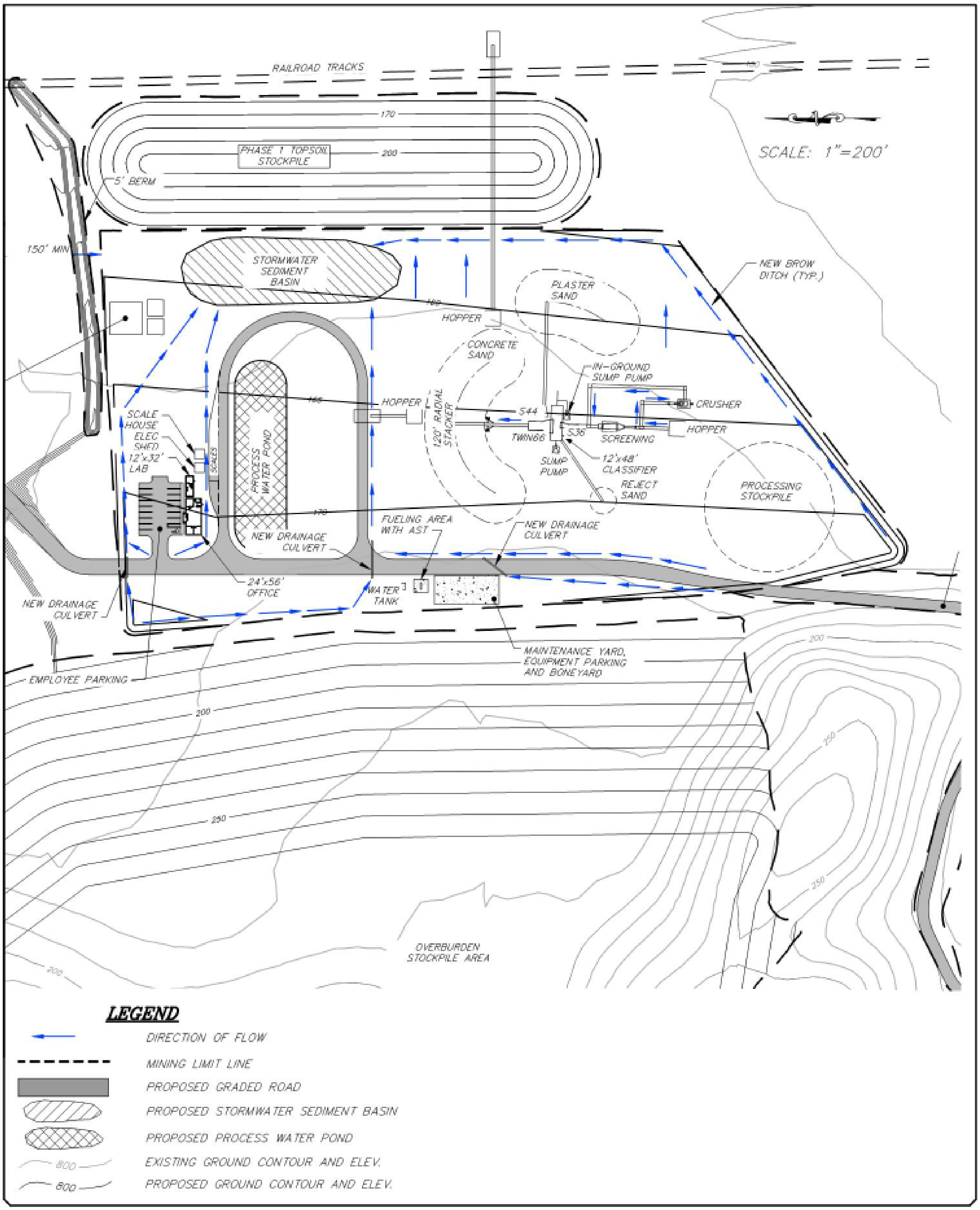
Look at the SWPPP Site Plan of Sargent Ranch Figures 2-5.

- Figure 2 shows the overall site plan including mining pits, overburden stockpile, and the plant site. The drainage pattern around the pits and the drainage facilities are noted.

- Figure 3 shows the plant site in detail.

- Figures 4 and 5 show the sources of potential pollutants like dust, sediments, and oil as well as the Best Management Practices (BMPs) to help keep those potential pollutants from getting into the storm water runoff or removing it from the runoff. Some of the BMPs will be discussed in this training.


SCALE: 1"=1200'
PERMANENT OVERBURDEN STOCKPILE AREA
TAR CREEK
PROPOSED 50' BRIDGE
PROPOSED 4-5' BERMS
PROCESS WATER POND
STORMWATER SEDIMENT BASIN
EXISTING DRAINAGE FEATURE
36" DRAINAGE CULVERT
PHASE 4
PIT #3
PHASE 3
PROCESSING PLANT (SEE FIGURE 3)
TOPSOIL STOCKPILE
OUTFALL 1
AREA NO. 1
AREA NO. 3
SARGENT CREEK
PHASE 1 AND 2 ACCESS ROAD AND CONVEYOR BELT
AREA NO. 4
RAILROAD TRACK ,VG RAILROAD
PAJARO RIVER
101 HWY
PROPOSED SWALE
PROPOSED 3-36" CULVERTS
PROPOSED ARCH CULVERT
PIT #1
PHASE 1
OUTFALL 2
PIT #2
PHASE 2
AREA NO. 2
LEGEND
SWPPP AREA DESIGNATION
DIRECTION OF FLOW
MINING LIMIT LINE
PROPOSED GRADED ROAD
PROPOSED STORMWATER SEDIMENT BASIN
CREEK
PROPOSED PROCESS WATER POND
VEGETATION
TOPSOIL STOCKPILE AREA
EXISTING CONTOUR AND ELEV.
PROPOSED CONTOUR AND ELEV.
DATE: 08/31/2016
SARGENT RANCH QUARRY, SANTA CLARA COUNTY
INDUSTRIAL SWPPP
FIGURE 2 – FACILITY SITE PLAN AND DRAINAGE PATTERNS
triad/holmes assoc. civil engineering land surveying



DATE:
08/31/2016

SARGENT RANCH QUARRY, SANTA CLARA COUNTY

INDUSTRIAL SWPPP
FIGURE 3 – PLANT SITE AND DRAINAGE PATTERNS

triad/holmes assoc
civil engineering
land surveying

SECTION 4
POTENTIAL POLLUTANTS

It is important to understand the activities at the site and know what potential pollutants might be exposed to rainwater and get into the storm water. For this reason the Storm Water Pollution Prevention Plan considers the potential pollutants at the site, creates a list of the potential pollutants at the quarry and identifies where they are on a site map and the operator trains their employees to be aware of the harms that each potential pollutant might have to the environment.

SOURCES AND EFFECTS OF POLLUTANTS

Pollutants:

- Substances that can make water harmful to people, fish, wildlife
- Substances that impair other beneficial uses of water (drinking water, industrial process water, recreation, aesthetic enjoyment, navigation)

Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Sediments	• Erosion from hillsides • Erosion from earthen ditches • Run-off from unpaved roads • Run-off from stockpiles	• Cause cloudy (turbid)water • Suffocate fish and other organisms • Smother fish eggs and larvae • Make drinking or process water source unusable • Impair aquatic plant growth by blocking sunlight • Lessen aesthetic enjoyment and recreational appeal • Increase discharge of pollutants absorbed onto sediments

Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Nutrients	• Decaying vegetation • Sediments • Fertilizers • Bio-degradable materials	• Cause excessive Plant growth • Deplete oxygen when plants die • Suffocate fish and other organisms • Lessen aesthetic enjoyment and recreational appeal • Make drinking or process water source unusable

Note: Nutrients are substances that plants need for growth. Nitrogen and phosphorus are the common nutrients that have caused excessive growth in water bodies due to water discharges.

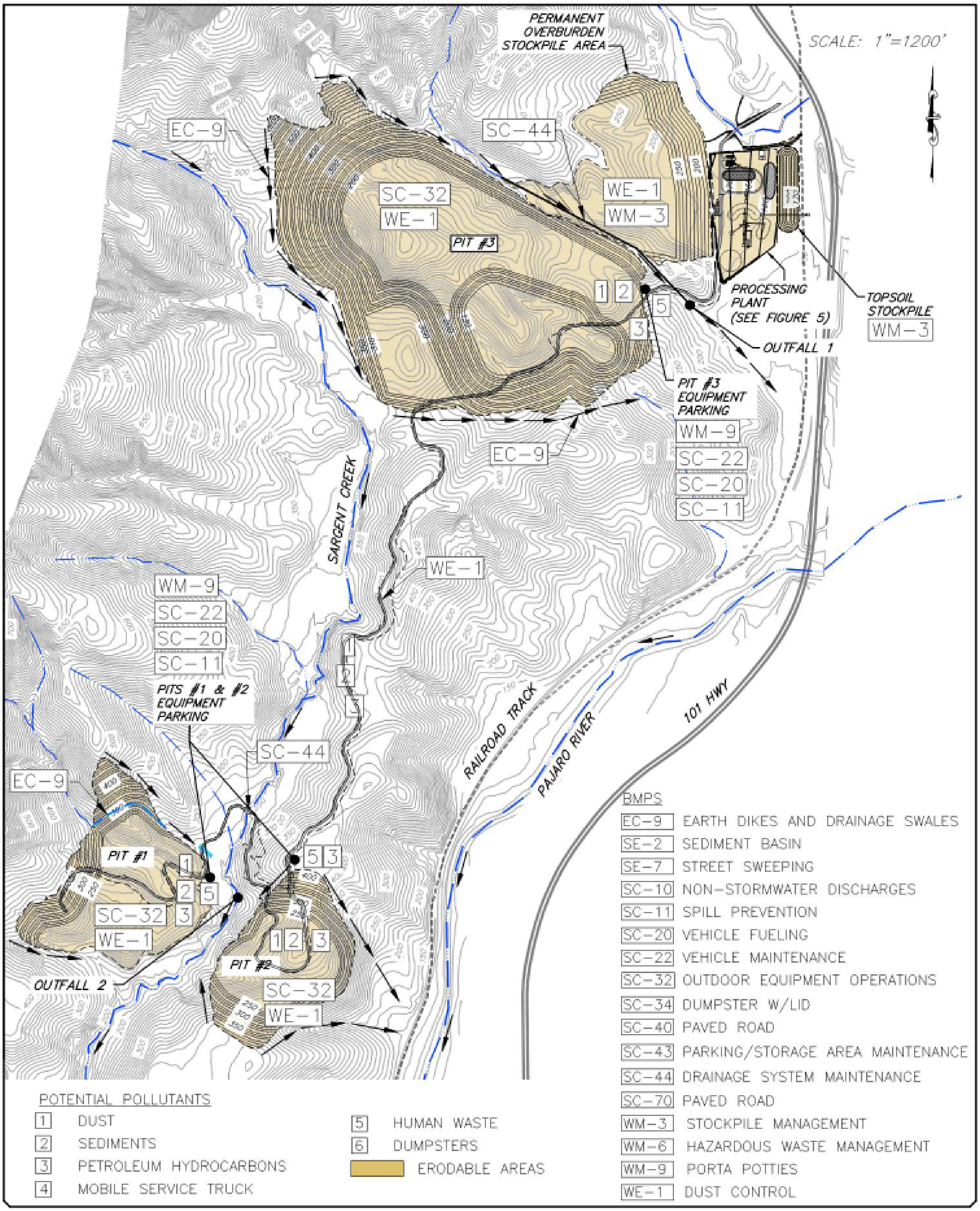
Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Oxygen Demanding Substances	• Sewage • Municipal • Decaying vegetation • Some chemical • Other Biodegradable	• Deplete water of dissolved oxygen • Suffocate fish and other organisms • Cause severe odor water • Lessen aesthetic enjoyment and recreational opportunities

Note: Oxygen demanding substances are any material that would be consumed by microorganisms in a natural water body

Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Petroleum Hydrocarbons Oil and Grease	• Diesel and gasoline • Lube oils • Waste oil filters and oil • Asphalt emulsion • Heating oil	• Poison/kill fish and aquatic • Block oxygen from entering water • Coat fish gills and cause suffocation • Coat birds/ducks and other wildlife • Lessen aesthetic enjoyment and recreational opportunities • Make drinking and process source unusable

Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Metals	• Sediments • Paints • Construction materials • Equipment • Waste oil • Brake lining • Sand blasted materials	• Cause long-term chronic toxicity in fish and aquatic organisms • Cause poisoning in humans from consumption of fish • Poison bottom dwelling organisms • Make drinking and process source unusable

Type of Pollutant	Sources/Examples	Examples of Harmful Effect in Receiving Water
Toxics	• Solvents • Wet cement/concrete • Paints • Hazardous materials/waste • Waste oil • Brake lining • Sand blasted materials	• Cause acute and chronic toxicity in fish and aquatic organisms • Cause toxicity in humans from consumption of fish or water • Make drinking and process source unusable • Prevent recreational use



SCALE: 1"=1200'
PERMANENT OVERBURDEN STOCKPILE AREA
EC-9
SC-44
SC-32
WE-1
PIT #3
WE-1
WM-3
PROCESSING PLANT (SEE FIGURE 5)
TOPSOIL STOCKPILE
WM-3
OUTFALL 1
PIT #3 EQUIPMENT PARKING
WM-9
SC-22
SC-20
SC-11
EC-9
SARGENT CREEK
WE-1
WM-9
SC-22
SC-20
SC-11
PITS #1 & #2 EQUIPMENT PARKING
SC-44
EC-9
PIT #1
SC-32
WE-1
OUTFALL 2
PIT #2
SC-32
WE-1
RAILROAD TRACK
PAJARO RIVER
101 HWY
BMPS
EC-9 EARTH DIKES AND DRAINAGE SWALES
SE-2 SEDIMENT BASIN
SE-7 STREET SWEEPING
SC-10 NON-STORMWATER DISCHARGES
SC-11 SPILL PREVENTION
SC-20 VEHICLE FUELING
SC-22 VEHICLE MAINTENANCE
SC-32 OUTDOOR EQUIPMENT OPERATIONS
SC-34 DUMPSTER W/LID
SC-40 PAVED ROAD
SC-43 PARKING/STORAGE AREA MAINTENANCE
SC-44 DRAINAGE SYSTEM MAINTENANCE
SC-70 PAVED ROAD
WM-3 STOCKPILE MANAGEMENT
WM-6 HAZARDOUS WASTE MANAGEMENT
WM-9 PORTA POTTIES
WE-1 DUST CONTROL
POTENTIAL POLLUTANTS
1 DUST
2 SEDIMENTS
3 PETROLEUM HYDROCARBONS
4 MOBILE SERVICE TRUCK
5 HUMAN WASTE
6 DUMPSTERS
ERODABLE AREAS

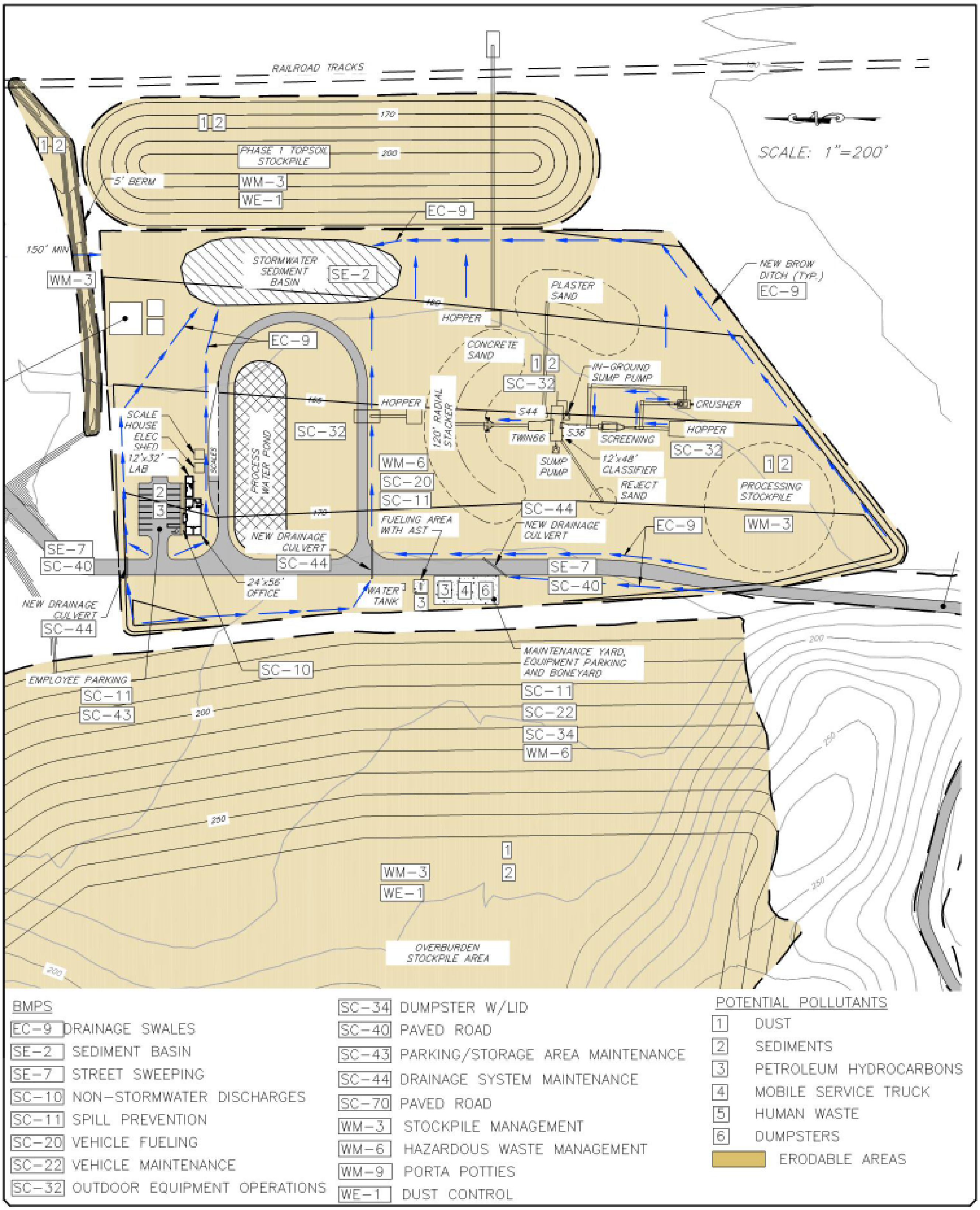

RAILROAD TRACKS
SCALE: 1"=200'
PHASE 1 TOPSOIL STOCKPILE
5' BERM
150' MIN
STORMWATER SEDIMENT BASIN
SE-2
EC-9
WM-3
WE-1
NEW BROW DITCH (TYP.)
PLASTER SAND
HOPPER
CONCRETE SAND
IN-GROUND SUMP PUMP
CRUSHER
SCREENING
12'x48' CLASSIFIER
REJECT SAND
PROCESSING STOCKPILE
120' RADIAL STACKER
TWIN66
SUMP PUMP
SC-32
SCALE HOUSE
ELEC SHED
12'x32' LAB
SCALES
PROCESS WATER POND
WM-6
SC-20
SC-11
FUELING AREA WITH AST
NEW DRAINAGE CULVERT
SC-44
SE-7
SC-40
24'x56' OFFICE
WATER TANK
NEW DRAINAGE CULVERT
EMPLOYEE PARKING
SC-43
SC-10
MAINTENANCE YARD, EQUIPMENT PARKING AND BONEYARD
SC-22
SC-34
OVERBURDEN STOCKPILE AREA
BMPS
EC-9 DRAINAGE SWALES
SE-2 SEDIMENT BASIN
SE-7 STREET SWEEPING
SC-10 NON-STORMWATER DISCHARGES
SC-11 SPILL PREVENTION
SC-20 VEHICLE FUELING
SC-22 VEHICLE MAINTENANCE
SC-32 OUTDOOR EQUIPMENT OPERATIONS
SC-34 DUMPSTER W/LID
SC-40 PAVED ROAD
SC-43 PARKING/STORAGE AREA MAINTENANCE
SC-44 DRAINAGE SYSTEM MAINTENANCE
SC-70 PAVED ROAD
WM-3 STOCKPILE MANAGEMENT
WM-6 HAZARDOUS WASTE MANAGEMENT
WM-9 PORTA POTTIES
WE-1 DUST CONTROL
POTENTIAL POLLUTANTS
1 DUST
2 SEDIMENTS
3 PETROLEUM HYDROCARBONS
4 MOBILE SERVICE TRUCK
5 HUMAN WASTE
6 DUMPSTERS
ERODABLE AREAS

TABLE 1 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
1 Plant Site	Aggregate Product Stockpiles	Sediment PH	Year Round On-going	Run-off treated in sediment basin (SE-2)	Remove sediment from runoff
			Year Round On-going	Drainage features constructed to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff
			Year Round Daily as Needed	Water Truck to maintain pile moisture	Help control amount of air borne dust particles
			Year Round	Reduce spillage	Limited handling of loose rock material to reduce amount of sediments in runoff
2 Plant Site	Aggregate Processing	Sediments PH Petroleum hydrocarbons	Year Round On-going	Run-off treated in sediment basin (SE-2)	Reduce amount of sediments in runoff
			Year Round On-going	Drainage features constructed and sized to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff.
			As Needed	Excess lubrication leaked from bearings from heavy equipment is limited by use of drip, spill kits, and routine maintenance (SC-11)	Immediate on-site maintenance as well as the use of drip pans and absorbents will limit amount of pollutants that could potential contaminate storm water
			Year Round As Needed	Foggers are used at all source locations (i.e. screens) on processing plants	Reduce amount of pollutants that could contaminate storm water. Reduce amount of air borne particulates
			Year Round Daily	Process equipment and area cleanup is routine	Reduce sediments and other potential contaminants
			As Needed	Water Truck to maintain moisture on unpaved roads and material piles	Help control amount of air borne dust particles
			Year Round Daily	Conform to air quality permit	Reduce emissions and stay current with standards
			Year Round	Limit handling of materials	Reduce the amount of sediments, and dust particulates and emissions from equipment.
			As Needed	Drip pans used where feasible (SC-11)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water
			Year Round Daily	Equipment regularly inspected (SC-11)	Prevent spillage of potential pollutants
			As Needed	Leaks repaired or liquids drained (SC-11)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water

TABLE 1 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Year Round On-going	Know source and document delivery	Avoid delivery of contaminated materials
3 Plant Site	Aggregate Handling	Sediment	Daily As Needed	Limit handling of materials	Reduce the amount of sediments, and dust particulates and emissions from equipment
			Daily As Needed	Surplus storage minimized	Reduce amount of spare part storage to reduce risk for equipment failure and contamination
			Daily As Needed	Vehicle/equipment maintenance performed in designated location (SC-22)	Reduce exposure to storm water and ease of cleanup of spills
4 Plant Site	Vehicle/ Equipment Maintain. Boneyard	Petroleum Hydrocarbons, Sulfuric Acid, Lead, Oil, Grease, Anti-freeze, solvents	Daily As Needed	Outdoor maintenance areas are paved	Facilitates cleanup of spills, eliminates contamination of ground surface, and reduce exposure to storm water
			On-going Daily	Clearly labeled drums and containers placed in convenient locations. (WM-6)	Eliminate contact with storm water
			Year Round	No Oil changes are done outside during the rain. (SC-32)	Eliminates contact with storm water
			Daily As Needed	Waste receptacles monitored and arrangements for pickups made promptly. (WM-6)	Eliminate contact with storm water
			As Needed	Waste oil, waste anti-freeze, spent solvents, filters and batteries are recycled. (WM-6)	Eliminate contact with storm water
			On-going, As Needed	Procedures established to ensure draining of engine fluids and transfer to waste containers without spillage. Drip pans placed under vehicles/equipment when draining fluids and transferred to waste containers without spillage. (SC-11, WM-4, WM-6)	Eliminate contact with storm water and contamination of ground surface
			Year Round	Employees instructed on proper cleanup procedures for minor spills. (WM-4)	Ensures proper cleanup of spills
			Year Round	Area equipped with spill kits to cleanup spills and empty drums (SC-11)	Facilitate proper cleanup of spills
			Year round	Proper Security measures implanted to prevent vandalism	
			Daily	Drip pan under compressors. (SC-11)	Eliminates contact with storm water and contamination of ground surface

TABLE 1 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Daily	Seals regularly inspected and maintained. (SC-11, WM-4)	Prevent spillage of potential pollutants
5 Plant Site	Aboveground Storage Tanks and Fueling area	Petroleum hydrocarbons	Year round On-going	Storage tank fueling has auto shut off to prevent overfilling. (SC-11, WM-4)	Prevents accidental spills
			Year round On-going	Vehicle fueling area is paved. (SC-11, WM-4)	Prevents contamination of ground surface, and facilitate cleanup of spills
			Year round, On-going	Sign posted to instruct employees that all fuel spills must be cleaned up promptly, specify procedures for cleanup, and require notification of supervisor	Promotes awareness; and ensures proper cleanup
			Year round, On-going	Sign posted to instruct employees to not leave filling hose unattended during fueling	Preventing accidental spills
			Year round, On-going	Spill cleanup equipment clearly labeled and stored near fuel pumps in the main shop area. . (SC-11, WM-4)	Facilitate cleanup of spills
			Year round, On-going	Proper security measures implemented to prevent vandalism	Eliminate spillage during vandalism
			Year round, On-going	All hazardous material containers clearly labeled. (WM-6)	Promote awareness; and ensures proper cleanup
			Year round, On-going	All hazardous materials containers closed. (WM-6)	Avoid contact with storm water
6 Plant Site	Hazardous Materials Storage Area: Lube oil, solvent, batteries, antifreeze	Petroleum hydrocarbons, solvents, acids, bases antifreeze, heavy metals, pesticides	Year round On-going	Flammable materials stored inside designated flammable cabinets. (WM-6)	Prevent accidental fires; ensure proper handling; keep materials under control
			Year round On-going	Hazardous materials stored in designated areas only. (WM-6)	Limited area where potential pollutants could be released.
			Year round On-going	Hazardous material storage areas secured to prevent unauthorized access. (WM-6)	Keep material in controlled area
			Year round On-going	Hazardous material storage maintained in accordance with Federal, State, and local regulations and codes. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going, Daily	Container conditions are routinely inspected and resolved. (WM-6)	Keep material under control
			Year round On-going, As Needed	Leaking or deteriorated containers placed in new containers. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going	Hazardous materials kept indoors or undercover. (WM-6)	Keep material under control and out of contact with storm water

TABLE 1 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Year round On-going	Material safety data sheets kept at facility for all hazardous materials	Promote awareness
			Year round On-going	Hazardous materials inventory minimized where practical. (WM-6)	Reduce the potential impacts from unnecessary storage of materials
			Year round As Needed	Secondary containment and storage tank covered to prevent rain contact. (WM-6)	Keep material under control and out of contact with storm water
			Year round On-going As Needed	Sign posted to instruct employees that all hazardous material spills must be cleaned up promptly, specify procedures for cleanup, and require notification of supervisor	Promote awareness
			Year round, On-going	Spill cleanup equipment (ie. spill kits, drums and rags) stored where accessible. (SC-11, WM-4)	Facilitate cleanup of spills
			Year round, On-going	Proper security measures implemented to prevent vandalism	Eliminate spillage during vandalism
			Year round, On-going	All hazardous waste containers clearly labeled. (WM-6)	Promote awareness
			Year round, On-going	All hazardous waste containers closed. (WM-6)	Keep materials from contact with storm water
7 Plant Site	Hazardous Materials Waste storage (examples; used oil filters, drain/waste oil)	Petroleum Hydrocarbons, Solvents, Acids, Bases, Antifreez, Heavy Metals, Pesticides	Year round, On-going	Hazardous waste stored in designated areas only. (WM-6)	Limited area where potential pollutants could be released and facilitates cleanup
			Year round, On-going	Hazardous waste storage secured to prevent unauthorized access	Keep material in controlled area
			Year round, On-going	Hazardous waste storage maintained in accordance with applicable Federal, State, and local regulations and codes	Keep material under control and out of contact with storm water
			Year round, On-going, Daily	Routine inspections of containers and area. (WM-6)	Keep material under control
			Year round, On-going, As Needed	Leaking or deteriorated containers placed in new containers. (WM-6)	Keep materials from contact with storm water
			Year round, On-going, As Needed	Remove and dispose of properly all hazardous wastes in accordance with applicable regulations. (WM-6)	Keep materials from contact with storm water
			Year round, On-going	Signs posted to identify storage areas	Promote awareness, Keep material under control
			Year round, On-going	Hazardous waste kept mostly indoors or undercover. (WM-6)	Keep material out of contact with storm water or keeps material contained
			Year round, On-going	Secondary containment and storage tank covered to prevent rain contact. (WM-6)	Keep material under control and out of contact with storm water

TABLE 1 POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES (IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)					
Source No/ Industrial Activity Area	**Associated industrial pollutant source description**	**Industrial Potential pollutant**	**Frequency of BMP implementation**	**Implemented BMPs**	**Expected BMP effectiveness**
			Year round, On-going, As Needed	Accumulated rain water in the containment area disposed of in accordance with local, State and Federal regulations if any evidence of contamination were detected in or on the water. (WM-6)	Keep material under control and out of contact with storm water
			Year round, On-going	Spill cleanup equipment (rags) clearly labeled and stored where accessible. (SC-11, WM-4)	Facilitate cleanup of spills
			Year round On-going	Proper security measures (locked gate) implemented to prevent vandalism.	Eliminate spills during vandalism
			Year round As Needed	Used oil filters are drained and stored in approved container. (WM-6)	Eliminate contact with storm water
8 Plant Site	Dumpster with lib	Non-Hazardous Waste	Year round On-going	Dumpster with lid used to keep out rain water and prevent debris from blowing away. (SC-34)	Eliminate contact with storm water
9 Plant Site	Paved Vehicle Parking	Petroleum Hydrocarbons, Iron, Oil & Grease, Anti-freeze, Sediment	Year Round, Daily	Vehicle/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Year Round On-going	Storm water is directed into a Sediment Basin. (SE-3)	Reduces sediments in storm water
			Year Round Daily As Needed	Leaks from vehicle promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
			Year Round, Daily As Needed	Drip pans and absorbent materials used temporarily to collect leakage until repaired. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
10 Mining Pits	Unpaved vehicle/ equipment parking	Petroleum Hydrocarbons Oil Grease Anti-freeze Sediment	Daily	Vehicles/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Daily, As Needed	Leaks from vehicles/equipment promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.
			Daily, As Needed	Drip pans used temporarily to collect leakage until repaired. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water
			Year Round Daily Use as Needed	Water Truck	Help control amount of air borne dust particles

TABLE 1
POTENTIAL SOURCES OF POLLUTANTS AND ASSOCIATED BES MANAGEMENT PRACTICES FOR MINING ACTIVITIES
(IGP – Section X.G.2.a & X.H.1 a – d) & X.H.4 & 5)

Source No/ Industrial Activity Area	Associated industrial pollutant source description	Industrial Potential pollutant	Frequency of BMP implementation	Implemented BMPs	Expected BMP effectiveness
			Daily As Needed	All quarry heavy earthmoving equipment is maintained by the Mobile Field Truck which follows BMPs: drip pans, spill kits, empty drum, auto-shut off valve for fuel pump, alarm overflow preventer; & company policies. (SC-11, WM-4)	Avoid contamination of ground surface and possibility of a spill; reduce exposure to storm water. Facilitate proper cleanup of spills.
11 Mining Pits	Portable Chemical Toilets (Porta Potty)	Human waste and disinfectants (toilet chemicals)	Daily As Needed	Regularly maintained and pumped out at regular intervals. (WM-9)	Reduce the **risk** of the portable toilet from overflowing
			Year Round On-going	Placed in areas away from high vehicular traffic areas and environmentally sensitive areas. (WM-9)	Reduce the risk of the portable chemical toilet from being knocked over
12 Mining Pits	Mining Pits #1, 2, and 3	Sediment	As Needed	Drainage features constructed to facilitate collection and treatment of drainage (SC-44)	Reduce amount of sediments in runoff
			Year Round On-going	Employ fugitive emission air quality controls	Reduce emissions
			Daily As Needed	Process equipment and area cleanup is routine	Reduce sediments and other potential contaminants
			Year Round On-going	Conform to air quality permit	Reduce emissions and stay current with standards
13 Access Road to Pits #1 and #2	Unpaved Road	Sediment, Petroleum hydrocarbons pH	Year Round, Daily Use, as Needed	Water Truck	Help control amount of air borne dust particles
			Daily	Vehicles/equipment regularly inspected. (SC-43)	Eliminate collection of contaminants
			Daily, As Needed	Leaks from vehicles/equipment promptly repaired once discovered. (SC-11, WM-4)	Eliminate leakage of contaminants and exposure to storm water.

SECTION 5
BEST MANAGEMENT PRACTICES
AND GOOD HOUSEKEEPING PRACTICES

To manage storm water and ensure that the water discharging off-site complies with the NPDES regulations, Sargent Creek implements numerous Best Management Practices (BMPs) and conducts Good Housekeeping Practices. Examples of BMPs are described and shown on the following pages and in the attached California Stormwater Quality Association (CASQA) BMP Handbook excerpts.

CASQA BMPs utilized on-site (PDFs attached separately):

EC-9	Earth Dikes and Drainage Swales
SC-10	Non-Stormwater Discharges
SC-11	Spill Prevention
SC-20	Vehicle Fueling
SC-22	Vehicle Maintenance
SC-32	Outdoor Equipment Operations
SC-34	Dumpsters with Lids
SC-40	Paved Road
SC-43	Parking/Storage Area Maintenance
SC-44	Drainage System Maintenance
SC-70	Paved Road
SE-2	Sediment Basin
SE-7	Street Sweeping
WE-1	Wind Erosion Control
WM-3	Stockpile Management
WM-6	Hazardous Waste Management
WM-9	Portable Toilet

BEST MANAGEMENT PRACTICES

DEFINITION:

- Any measure or .activity that reduces and minimizes the discharge of pollutants to storm water.
- Administrative
- Structural
- 80% / 20% Rule:
  80% of the goal is achieved with 20% of the effort

EXPECTED DUE DILLIGENCE:

- New permit language promotes “Best” BMP
- Industry standards are evolving

HOW:

- BMPs should be chosen to provide the Most pollutant reduction at the least Cost

- Change the activity/practice to avoid contamination of storm water

  - eliminate use of certain materials containing pollutants

  - enclose the activity inside a building to avoid storm water contact

  - roof and berm the activity area to avoid storm water contact

- Provide temporary covering for materials during storms

  - use tarps to cover cut back asphalt before storms

EXAMPLES:

- Regular scheduled inspections to detect leaks, new pollutant sources
- Regular scheduled maintenance activities using established procedures
- Good housekeeping
- Implemented policies to prohibit practices that releases pollutants
- Storm water treatment to remove pollutants
- Structures to prevent pollutant from contacting storm water
- Sedimentation and erosion control to reduce sediment discharge
- Operational changes to reduce pollutants discharge
- Present proactive “green" commitment
- Training to educate employees

- Segregate the activity or material to limit the volume of storm water that may become polluted

    - prevent the contaminated run-off from the rest of the site

    - treat contaminated run-off

- Treat contaminated storm water run- off

    - install and maintain sediment traps

    - install and maintain oil-water separators

- Recycling to minimize additional source

    - wash water holding tank

    - convert returned product to saleable commodit

SECTION 6
SEDIMENT & EROSION CONTROL PRACTICES

Erosion could cause large amounts of sediment to be discharged in storm water. Areas with erodible surfaces at the Facility, if any, are identified on Figure 5. The following Table 2, Sedimentation & Erosion Control Measures identifies the measures implemented at the site.

TABLE 6
SEDIMENTATION & EROSION CONTROL MEASURES
(IGP- Section X.G.1.f & X.H.1.e)

Erosion Control Measure	Description
Management of storm water at the facility	Activities are restricted during wet weather. Throughout the site, storm water is directed into drainage ditches and culverts to minimize the volume of water that may be exposed to industrial activity. Topsoil stockpiles are covered with tarps in the rainy season. Sediment basin retains the diverted.
Placement of obstacles to intercept run-off from steep terrain	Straw bales, wattles, and/or rip rap may be used to intercept run-off from steep terrain and prevent high water velocities that could cause erosion.
Protection of drainage ditches	In areas with steep slopes or high volume of water check dams may be placed into the earth drainage ditches. In additions energy dissipating rip-rap and other devices prevent erosion.
Protection of discharge points	Storm water discharge points are constructed with energy dissipating discharge aprons made out of concrete structures, and/or rocks used as energy dissipaters.
Sediment Basin Culvert	Culverts under roadways or through embankments, Sediment Basin are sized to accommodate a 24 hour - 100-year storms and aligned to minimize abrupt changes in direction in the flow path.
Slope of Plant Site sloped to drain	Plant Site floor area is sloped to drain toward Sediment Basin
Wind Controls: - Water truck - Foggers - Truck Loading	During hours of operation the stockpiles and unpaved roads are sprayed with water by the water truck to control for dust. In addition, there are foggers at key points on the portable processing plants to wet down the product. Loaded material is compacted to be below the running board; many newer trucks have automated covers; and drivers are encouraged to tarp truck bed before departure
Treatment of unpaved road and storage areas.	Aggregate surface course is applied to the top of unpaved area to protect the surface from erosion
Paved road and parking areas around Office & Scale House and paved exit and entrance to Quarry operation	Paved access roads and paved parking areas direct storm water into Sediment Basin
Filtration/settling of sediments from stormwater in drainage ways	Fiber rolls or wattles are places around the base of the topsoil recycle stockpile to manage sediments, during rainy season as needed. Topsoil stockpiles are tarped during the rainy season. Sediment Basin captures plant site runoff.
Tracking Control	Routine sweeping and/or vacuuming will be performed on paved roads to collect accumulated dirt on the interior roads and entry/exit route.

SECTION 7
PREVENTIVE MAINTENANCE ACTIVITIES AND GOOD HOUSEKEEPING PRACTICES

Preventive maintenance at this facility is performed to prevent leaks and other accidental releases from equipment and storage containers and to maximize the removal of pollutants by BMPs that have been implemented. Examples of preventive maintenance performed at this facility are listed below:

- Monthly and after major rain storm inspecting all drainage ditches and swales to see if they are functioning properly, and clean as needed;
- Inspect and clean-out, if needed, all drop inlets monthly and after each major rain storm, and at other times as necessary, and dispose of sediments properly.
- Cleaning out drop inlets to maintain maximum capacity
- Check seals on all equipment containing petroleum hydrocarbons or other pollutants, and replace as necessary.
- Repair and improve erosion control measures before beginning of each rainy season.
- Mobile Truck Driver to:
  - Check seal on all containers holding petroleum hydrocarbons, and replace as necessary.
  - Check seal on gasoline or diesel fueling nozzle, and replace as necessary.
  - Always staying next to the mobile fuel truck when fueling equipment or vehicles;

Good Housekeeping Practices

Good housekeeping practices are measures that maintain a clean and orderly working environment. These measures include immediately cleaning up spilled materials, regularly sweeping paved areas or using vacuum trucks, and depositing waste in designated receptacles. Employees are responsible for maintaining their work areas. Supervisors are responsible for ensuring that work areas are orderly.

Good housekeeping consists of practical procedures to maintain a clean and orderly facility.

- Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly
- Minimize or prevent material tracking through regular sweeping and use of rumble strips
- Minimize dust generated from industrial materials or activities & comply with Air Permit
- Cover all stored industrial materials that can be readily mobilized by contact with storm water
- Keep all dumpsters under cover or fit with a lid that will remain closed when not in use
- Contain all stored non-solid industrial materials or wastes that can be transported or dispersed by the wind or contact with storm water
- Prevent disposal of any industrial materials into the storm water conveyance system
- Minimize storm water discharges from non-industrial areas

SECTION 8
STORM WATER MONITORING IMPLEMENTATION PLAN

This document is the Monitoring Implementation Plan (MIP) and its purpose it to ensure that inspections are performed to ensure that Best Management Practices are being implemented and to identify conditions that may allow potential pollutants to be discharged with storm water. The MIP was developed to assist the site operator in meeting the following objectives:

- Ensure that the storm water discharges are in compliance
- Address potentially sensitive downstream conditions/habitats
- Ensure practices at the facility to control pollutants in storm water discharge are evaluated and revised to meet changing conditions
- Aid in the implementation of the SWPPP
- Measure effectiveness of the Best Management Practices (BMPs) in removing or reducing pollutants in storm water discharge

All inspections are recorded on forms provided in the Storm Water Pollution Prevention Plan (SWPPP) and in Section 9 of this MIP. The inspections must be reviewed by the person responsible for SWPPP implementation. When conditions are identified that require corrective action, the follow-up action is also recorded.

The inspections that will be performed are listed below. For more information on how to complete the inspections, as well as copies of all inspection forms see Section 9 and 10 of this MIP.

SECTION 9

STORM WATER MONITORING INPSECTION DESCRIPTION

TABLE 3 DESCRIPTIONS OF STORM WATER MONITORING INSPECTIONS (IGP – Section G.2.a & X.H.1.d)		
Type Of Inspection	**Description**	**Frequency**
Annual Comprehensive Facility Compliance Evaluation	All areas of the industrial activities will be inspected to identify areas contributing pollutants to storm water. Evaluate effectiveness of BMPs and modify or add new ones as necessary. Review SWPPP for accuracy and up-date as needed. This inspection will coincide with preparation of the annual report.	**Annually in June; Submit to SWRCB by July 15 each year**
Monthly Visual Observation	**Facility Visual Observation**: All storm water discharge points and drainage ditches and drainage areas will be visually inspected for evidence of dry weather discharge; including approved non-storm water discharges. Visual observation shall be made of industrial activity areas, equipment and storage areas and all potential sources of industrial pollutants. If found, the source(s) and corrective measures will be identified, as appropriate. **Routine Inspection**: The entire facility will be visually inspected to evaluate all hazardous material and waste areas, parking and equipment storage areas, aggregate storage and processing areas, and other areas with Industrial Materials and containing the potential pollutant sources identified in Tables 3 and 4. The inspection will include an assessment of whether good house-keeping practices and preventative maintenance activities are being performed; and if the BMPs are functioning properly. **Erosion Control Inspection**: Erosion potential of slopes, drainage channels, and unpaved areas at the facility should be assessed. Repairs and maintenance should be completed and additional erosion control measures should be implemented prior to the rainy season.	**Monthly**
Storm Water Sampling & Analysis	Obtain Storm water sampling kit from approved Laboratory to analyze for: Total Suspended Solids, Oil & Grease, Nitrates and Nitrites as N, and Iron. Collect storm water samples after rainfall results in discharge for at least one drainage area, and the rain is preceded by 48 hours with no discharge from any drainage area. Samples maybe collected: a) within 4 hours of discharge during hours of operation; or b) when facility opens and discharge had commenced 12 hours earlier (during the night before).	**At least twice between Jan. 1 – June 30 and at least twice between July 1 and December 31**
Ph Field Test	Required of rock crushing, and sand & gravel-operations as they are a Sub-chapter N facility with Federal effluent limitations guidelines. Measure Ph in field using a calibrated portable instrument of pH that can take a reading within 15 minutes. Record pH results onto Chain of Custody form and on Ph Field Test Sampling Form in Appendix C. Take a photo of the test results: i.e. the meter reader.	**When storm water samples are collected**
Sampling Event Visual Observation	The 6 sediment Ponds, 4 sediment traps, 2 storm water storage tanks, and numerous drop inlets as well as storm water discharge points (Outfalls #1 thru 4) and drainage ditches will be visually inspected for evidence of pollutant discharge. If found, the source(s) and corrective measures will be identified, as appropriate The Sampling Event Visual Observation Inspection should be performed when storm water samples are collected and the Storm Water Sampling form is completed.	**When storm water samples are collected**

SECTION 10
STORM WATER MONITORING IMPLEMENTATION PLAN – SCHEDULE

Schedule for Completing SWPPP inspections and forms:

Rain Season	Annual Comprehensive Facility Compliance Evaluation	Monthly Visual Observation	Monthly Visual Observation Routine Inspection	Monthly Visual Observation Erosion Control Inspection	Storm Water Sampling	Ph Field Sampling Test	Sampling Event Visual Observation
July		x	x	x	**	***	***
August		x	x	x	**	***	***
September		x	x	x	**	***	***
October		x	x	x	**	***	***
November		x	x	x	**	***	***
December		x	x	x	**	***	***
January		x	x	x	**	***	***
February		x	x	x	**	***	***
March		x	x	x	**	***	***
April		x	x	x	**	***	***
May		x	x	x	**	***	***
June	x[1]	x	x	x	**	***	***

NOTES:

** **Storm water samples** must be collected and tested twice during the time period between July 1 and December 31 each year, and twice between January 1 and June 30 each year. The storm water should be collected when there has not been any discharge at any Outfall for the prior 48 hours. Then after it rains and produces a discharge for at least one drainage area the storm water can be collected. The storm water samples shall be collected within the first four (4) hours of discharge during hours of operation. However, if a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and produces discharge during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples within the first 4 hours of opening from the Outfalls that are discharging.

*** These inspections and tests shall be conducted at the same time that storm water samples are collected

[1] *While the entire SWPPP is evaluated annually, the SWPPP must be updated routinely after there are changes. Should the Annual Evaluation identify changes that are necessary these revisions shall be made within 90 days of the Annual Evaluation. Significant changes made to the SWPPP must be up-dated and submitted to SMARTs within 30 days of the change. For minor changes the SWPPP must be up-dated and submitted to SMARTS once every quarter (3 months).*

KEY DATES and TIME PERIODS

Calendar Dates:

- **July 1st, 2015** submit to SMARTs all PDRs

- **July 1st** is when discharger with exceedances will move up a Level; or if corrective measures and BMPs prevented an NAL for four consecutive storm water samples after having to move up a Level, than discharger shall return to Baseline Level (exceptions if submitted pollutant source demonstration reports)

- **July 15th** Annual Report due via SMARTs

- **October 1st**: following commencement of Level 1 status must:
  -complete a *Level 1 ERA Evaluation* of Industrial Pollutant sources that might contribute to NAL exceedance

  - Identify corresponding BMPs that should mitigate the pollutant and identify any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances

- **January 1st** or earlier discharger must revise SWPPP and implement BMPS identified in the *Level 1 ERA Evaluation;* and certify and submit to SMARTs

- **January 1st** or before a Level 2 ERA Action Plan must be certified and submitted to SMARTs

- **January 1st** following submittal of the Level 2 ERA Action Plan, a Level 2 ERA Technical Report shall be submitted including one or more demonstration reports

Other Due dates:

- Revision made to SWPPP in Annual Report must be implemented within 90 days
- Storm Water lab tests must be submitted via SMARTs within 30 days or receipt of the tests
- Significant changes to SWPPP must be reported to SMARTs within 30 days
- Minor changes to SWPPP must be reported to SMARTs each quarter
- Level 2 ERA Action Plan elements must be implemented as soon as practicable and completed no later than 1 year after submitted to SMARTs
- For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

Section 11: Storm Water Analysis

- Samples to be analyzed for indicators of pollution, and specific compounds

- pH

  - ☐ Indicates the acidity/alkalinity of water

  - ☐ Typical discharge limit between pH 6 to 9

  - ☐ Sources: wet cement, acid wash for concrete trucks, batteries

- Total Suspended Solids (TSS)

  - ☐ Indicates clarity/murkiness of water

  - ☐ Typical discharge limit as low as 30 mg/L

  - ☐ Sources: stockpiles, unpaved roads, quarries, unpaved/unvegetated ground

- Specific Conductivity (SC, EC)

  - ☐ Indicates "saltiness" of water; how well water carries current

  - ☐ Rain water may be as low as 10 μmhos/cm
    Brine water may be as high as 100,000 μmhos/cm

  - ☐ Sources: sediment, inorganic salts

- Total Organic Carbon (TOC)
  - Indicates amount of organic matter in water - includes plant, animal, and petroleum origin
  - Typical sewage TOC = 160 mg/L
  - Sources: petroleum hydrocarbons, sewage, domestic garbage
- Iron (Fe) - Portland Cement Concrete - SIC 327x
  - Required by EPA
  - Ambient levels may be high
  - Sources: soil, scrap & oxidation of metals, sand blasting
- Nitrate plus Nitrite Nitrogen - Sand & gravel only - SIC 144x
  - Required by EPA
  - Levels will vary - dependent upon local land use
  - Source: agricultural fertilizer, sewage, plant decomposition, garbage

Minimum Parameters to test storm water:

(source IGP: Fact Sheet)

The following three selected minimum parameters are considered indicator parameters, regardless of facility type. These parameters typically provide indication and/or the correlation of whether other pollutants are present in storm water discharge. These parameters were selected for the following reasons:

i. pH is a numeric measurement of the hydrogen-ion concentration. Many industrial facilities handle materials that can affect pH. A sample is considered to have a neutral pH if it has a value of 7. At values less than 7, water is considered acidic; above 7 it is considered alkaline or basic. Pure rain water in California typically has a pH value of approximately 7.

ii. Total Suspended Solids (TSS) is an indicator of the un-dissolved solids that are present in storm water discharge. Sources of TSS include sediment from erosion, and dirt from impervious (i.e., paved) areas. Many pollutants adhere to sediment particles; therefore, reducing sediment will reduce the amount of these pollutants in storm water discharge.

iii. Oil and Grease (O&G) is a measure of the amount of O&G present in storm water discharge. At very low concentrations, O&G can cause sheen on the surface of water. O&G can adversely affect aquatic life, create unsightly floating material, and make water undrinkable. Sources of O&G include, but are not limited to, maintenance shops, vehicles, machines and roadways.

SECTION 12:
EMPLOYEE TRAINING SIGN IN SHEET

				SWPPP Implementation	Monitoring Procedures	Spill Prevention and Response	Good Housekeeping	Preventative Maintenance	BMP Maintenance	Record Keeping
DATE	**ATTENDEES**	**TRAINER/ TITLE**	**TRAINING MATERIALS**	**PPT**		**ALL EMPLOYEES**				

Note:

Describe the annual employee training on the SWPPP, addressing location of potential pollutants, spill prevention and response; BMPs and maintenance, good housekeeping, record keeping and industrial material management practices.

Appendix F:

General Permit for Storm Water Discharge Associated With Industrial Activities (Order No. 2014-00570 DWQ)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	**April 1, 2014**
This Order shall become effective on:	**July 1, 2015**
This Order shall expire on:	**June 30, 2020**

IT IS HEREBY ORDERED that as of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order, including its fact sheet, attachments, and appendices is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on April 1, 2014.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore

NAY: None

ABSENT: Board Member Dorene D'Adamo

ABSTAIN: None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board

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TABLES

ATTACHMENTS AND APPENDICES

I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The Federal Clean Water Act (Clean Water Act) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (33 U.S.C. §§ 1311, 1342 (also referred to as Clean Water Act §§ 301, 402).) The United States Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the Clean Water Act's mandate to control pollutants in storm water discharges. (40 C.F.R. § 122, et seq.) The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges (NSWDs). The NPDES permit must also include additional requirements necessary to implement applicable water quality objectives or water quality standards (water quality standards, collectively).

2. On November 16, 1990, U.S. EPA promulgated Phase I storm water regulations in compliance with section 402(p) of the Clean Water Act. (55 Fed. Reg. 47990, codified at 40 C.F.R. § 122.26.) These regulations require operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges), to obtain an NPDES permit. Section 402(p)(3)(A) of the Clean Water Act also requires that permits for discharges associated with industrial activity include requirements necessary to meet water quality standards.

3. Phase II storm water regulations[1] require permitting for storm water discharges from facilities owned and operated by a municipality with a population of less than 100,000. The previous exemption from the Phase I permitting requirements under section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 was eliminated.

4. This Order (General Permit) is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act and shall take effect on July 1, 2015, provided that the Regional Administrator of U.S. EPA has no objection. If the U.S. EPA Regional Administrator has an objection, this General Permit will not become effective until the objection is withdrawn.

5. This action to adopt an NPDES General Permit is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) in accordance with section 13389 of the Water Code. (See *County of*

[1] U.S. EPA. Final NPDES Phase II Rule. <http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm>. [as of February 4, 2014]

Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985.)

6. State Water Board Order 97-03-DWQ is rescinded as of the effective date of this General Permit (July 1, 2015) except for Order 97-03-DWQ's requirement that annual reports be submitted by July1, 2015 and except for enforcement purposes.

7. Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.

8. This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.

9. Industrial activities covered under this General Permit are described in Attachment A.

10. The Fact Sheet for this Order is incorporated as findings of this General Permit.

11. Acronyms are defined in Attachment B and terms used in this General Permit are defined in Attachment C.

12. This General Permit regulates industrial storm water discharges and authorized NSWDs from specific categories of industrial facilities identified in Attachment A hereto, and industrial storm water discharges and authorized NSWDs from facilities designated by the Regional Water Boards to obtain coverage under this General Permit. This General Permit does not apply to industrial storm water discharges and NSWDs that are regulated by other individual or general NPDES permits

13. This General Permit does not preempt or supersede the authority of municipal agencies to prohibit, restrict, or control industrial storm water discharges and authorized NSWDs that may discharge to storm water conveyance systems or other watercourses within their jurisdictions as allowed by state and federal law.

14. All terms defined in the Clean Water Act, U.S. EPA regulations, and the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq.) will have the same definition in this General Permit unless otherwise stated.

15. Pursuant to 40 Code of Federal Regulations section 131.12 and State Water Board Resolution 68-16, which incorporates the requirements of 40 Code of Federal Regulations section 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses. Any degradation of water quality from existing high quality water to a level that achieves water quality objectives and

protects beneficial uses is appropriate to support economic development. This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges, and are therefore consistent with those provisions.

16. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable permits.

17. This General Permit requires that the Discharger certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) and No Exposure Certification (NEC) coverage via the State Water Board's Storm Water Multiple Application and Report Tracking System (SMARTS) website. (See Attachment D for an example of the information required to be submitted in the PRDs via SMARTS.) All other documents required by this General Permit to be electronically certified and submitted via SMARTS can be submitted by the Discharger or by a designated Duly Authorized Representative on behalf of the Discharger. Electronic reporting is required to reduce the state's reliance on paper, to improve efficiency, and to make such General Permit documents more easily accessible to the public and the Water Boards.

18. All information provided to the Water Boards shall comply with the Homeland Security Act and all other federal law that concerns security in the United States, as applicable.

B. Industrial Activities Not Covered Under this General Permit

19. Discharges of storm water from areas on tribal lands are not covered under this General Permit. Storm water discharges from industrial facilities on tribal lands are regulated by a separate NPDES permit issued by U.S. EPA.

20. Discharges of storm water regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board are not covered under this General Permit, including the State Water Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

21. Storm water discharges to combined sewer systems are not covered under this General Permit. These discharges must be covered by an individual permit. (40 C.F.R. § 122.26(a)(7).)

22. Conveyances that discharge storm water runoff combined with municipal sewage are not covered under this General Permit.

23. Discharges of storm water identified in Clean Water Act section 402(l) (33 U.S.C. § 1342(l)) are not covered under this General Permit.

24. Facilities otherwise subject to this General Permit but for which a valid Notice of Non-Applicability (NONA) has been certified and submitted via SMARTS, by the Entity are not covered under this General Permit. Entities (See Section XX.C.1 of this General Permit) who are claiming "No Discharge"

through the NONA shall meet the eligibility requirements and provide a No Discharge Technical Report in accordance with Section XX.C.

25. This General Permit does not authorize discharges of dredged or fill material regulated by the US Army Corps of Engineers under section 404 of the Clean Water Act and does not constitute a water quality certification under section 401 of the Clean Water Act.

C. Discharge Prohibitions

26. Pursuant to section 13243 of the Water Code, the State Water Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, is prohibited.

27. With the exception of certain authorized NSWDs as defined in Section IV, this General Permit prohibits NSWDs. The State Water Board recognizes that certain NSWDs should be authorized because they are not generated by industrial activity, are not significant sources of pollutants when managed appropriately, and are generally unavoidable because they are related to safety or would occur regardless of industrial activity. Prohibited NSWDs may be authorized under other individual or general NPDES permits, or waste discharge requirements issued by the Water Boards.

28. Prohibited NSWDs are referred to as unauthorized NSWDs in this General Permit. Unauthorized NSWDs shall be either eliminated or permitted by a separate NPDES permit. Unauthorized NSWDs may contribute significant pollutant loads to receiving waters. Measures to control sources of unauthorized NSWDs such as spills, leakage, and dumping, must be addressed through the implementation of Best Management Practices (BMPs).

29. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the Water Boards.

30. Direct discharges of waste, including industrial storm water discharges, to Areas of Special Biological Significance (ASBS) are prohibited unless the Discharger has applied for and the State Water Board has granted an exception to the State Water Board's 2009 Water Quality Control Plan for Ocean Waters of California as amended by State Water Board Resolution 2012-0056 (California Ocean Plan)[2] allowing the discharge.

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[2] State Water Resources Control Board. Ocean Standards Web Page. <http://www.waterboards.ca.gov/water_issues/programs/ocean/>. [as of February 4, 2014].
State Water Resources Control Board. Water Quality Control Plan for Ocean Waters of California 2009. <http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/2009_cop_adoptedeffective_usepa.pdf>. [as of February 4, 2014].
State Water Resources Control Board. Resolution 2012-0056. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0056.pdf>. [as of February 4, 2014].

D. Effluent Limitations

31. Section 301(b) of the Clean Water Act and 40 Code of Federal Regulations section require NPDES permits to include technology-based requirements at a minimum, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards. Clean Water Act section 402(p)(3)(A) requires that discharges of storm water runoff from industrial facilities comply with Clean Water Act section 301.

32. This General Permit requires control of pollutant discharges using BAT and BCT to reduce and prevent discharges of pollutants, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards.

33. It is not feasible for the State Water Board to establish numeric technology based effluent limitations for discharges authorized by this General Permit at this time. The rationale for this determination is discussed in detail in the Fact Sheet of this General Permit. Therefore, this General Permit requires Dischargers to implement minimum BMPs and applicable advanced BMPs as defined in Section X.H (collectively, BMPs) to comply with the requirements of this General Permit. This approach is consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP).

34. 40 Code of Federal Regulations section 122.44(d) requires that NPDES permits include Water Quality Based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality standards for receiving waters.

35. Where numeric water quality criteria have not been established, 40 Code of Federal Regulations section 122.44(d)(1)(vi) provides that WQBELs may be established using U.S. EPA criteria guidance under section 304(a) of the Clean Water Act, a proposed state criteria or policy interpreting narrative criteria supplemented with other relevant information, and/or an indicator parameter.

36. This General Permit requires Dischargers to implement BMPs when necessary, in order to support attainment of water quality standards. The use of BMPs to control or abate the discharge of pollutants is authorized by 40 Code of Federal Regulations section 122.44(k)(3) because numeric effluent limitations are infeasible and implementation of BMPs is reasonably necessary to achieve effluent limitations and water quality standards, and to carry out the purposes and intent of the Clean Water Act. (40 C.F.R. § 122.44(k)(4).)

E. Receiving Water Limitations

37. This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges and authorized NSWDs not

cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics. If any Discharger's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures in order to attain compliance with the receiving water limitation. Compliance with water quality standards may, in some cases, require Dischargers to implement controls that are more protective than controls implemented solely to comply with the technology-based requirements in this General Permit.

F. Total Maximum Daily Loads (TMDLs)

38. TMDLs relate to the maximum amount of a pollutant that a water body can receive and still attain water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2(i).) Discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7. (40 C.F.R. § 122.44 (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. Many TMDLs contained in water quality control plans include implementation requirements in addition to waste load allocations. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include requirements, including waste load allocations, for Dischargers covered by this General Permit.

39. The State Water Board recognizes that it is appropriate to develop TMDL-specific permit requirements derived from each TMDL's waste load allocation and implementation requirements, in order to provide clarity to Dischargers regarding their responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to public noticing requirements and a corresponding public comment period. Due to the number and variety of Dischargers subject to a wide range of TMDLs, development of TMDL-specific permit requirements for each TMDL listed in Attachment E will severely delay the reissuance of this General Permit. Because most of the TMDLs were established by the Regional Water Boards, and because some of the waste load allocations and/or implementation requirements may be shared by multiple Dischargers, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level.

40. State and Regional Water Board staff will develop proposed TMDL-specific permit requirements (including monitoring and reporting requirements) for each of the TMDLs listed in Attachment E. After conducting a 30-day public comment period, the Regional Water Boards will submit to the State Water Board proposed TMDL-specific permit requirements for adoption by the State Water Board into this General Permit by July 1, 2016. The Regional Water Boards may also include proposed TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Consistent with the 2008 MSGP, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements, unless notified otherwise by a Regional Water Board.

41. The Regional Water Boards shall submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

    a. Proposed TMDL-specific permit, monitoring and reporting requirements applicable to industrial storm water discharges and NSWDs authorized under this General Permit, including compliance schedules and deliverables consistent with the TMDLs. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards;

    b. An explanation of how the proposed TMDL-specific permit requirements, compliance schedules, and deliverables are consistent with the assumptions and requirements of any applicable waste load allocation and implement each TMDL; and,

    c. Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations.

42. Upon receipt of the information described in Finding 40, and no later than July 1, 2016, the State Water Board will issue a public notice and conduct a public comment period for the reopening of this General Permit to amend Attachment E, the Fact Sheet, and other provisions as necessary for incorporation of TMDL-specific permit requirements into this General Permit. Attachment E may also be subsequently reopened during the term of this General Permit to incorporate additional TMDL-specific permit requirements.

G. Discharges Subject to the California Ocean Plan

43. On October 16, 2012 the State Water Board amended the California Ocean Plan. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the

California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances. The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

44. This General Permit requires Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers that have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 (the effective date of this General Permit), or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

45. The California Ocean Plan prohibits the direct discharge of waste to ASBS. ASBS are defined in California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."

46. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

47. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 which contains exceptions to the California Ocean Plan for specific discharges of storm water and non-point sources. This resolution also contains the special protections that are to be implemented for those discharges to ASBS.

48. This General Permit requires Dischargers who have been granted an exception to the Ocean Plan authorizing the discharges to ASBS by the State Water Board to comply with the requirements contained in Section VIII.B of this General Permit.

H. Training

49. To improve compliance and maintain consistent implementation of this General Permit, Dischargers are required to designate a Qualified Industrial Storm Water Practitioner (QISP) for each facility the Discharger operates that has entered Level 1 status in the Exceedance Response Action (ERA) process as described in Section XII of this General Permit. A QISP may be assigned to more than one facility. In order to qualify as a QISP, a State

Water Board-sponsored or approved training course must be completed. A competency exam may be required by the State Water Board to demonstrate sufficient knowledge of the QISP course material.

50. A QISP must assist the Discharger in completing the Level 1 status and Level 2 status ERA requirements as specified in Section XII of this General Permit. A QISP is also responsible for assisting New Dischargers that will be discharging to an impaired water body with a 303(d) listed impairment, demonstrate eligibility for coverage through preparing the data and/or information required in Section VII.B.

51. A Compliance Group Leader, as defined in Section XIV of this General Order must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

52. All engineering work subject to the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq.) and required by this General Permit shall be performed by a California licensed professional engineer.

53. California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG.

I. Storm Water Pollution Prevention Plan (SWPPP) Requirements

54. This General Permit requires the development of a site-specific SWPPP in accordance with Section X of this General Permit. The SWPPP must include the information needed to demonstrate compliance with the requirements of this General Permit. The SWPPP must be submitted electronically via SMARTS, and a copy be kept at the facility. SWPPP revisions shall be completed in accordance with Section X.B of this General Permit

J. Sampling, Visual Observations, Reporting and Record Keeping

55. This General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Under this General Permit, Dischargers are required to: (a) conduct an Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation) to identify areas of the facility contributing pollutants to industrial storm water discharges, (b) evaluate whether measures to reduce or prevent industrial pollutant loads identified in the Discharger's SWPPP are adequate and properly implemented in accordance with the terms of this

General Permit, and (c) determine whether additional control measures are needed.

56. This General Permit contains monitoring requirements that are necessary to determine whether pollutants are being discharged, and whether response actions are necessary. Data and information resulting from the monitoring will assist in Dischargers' evaluations of BMP effectiveness and compliance with this General Permit. Visual observations are one form of monitoring. This General Permit requires Dischargers to perform a variety of visual observations designed to identify pollutants in industrial storm water discharges and their sources. To comply with this General Permit Dischargers shall: (1) electronically self-report any violations via SMARTS, (2) comply with the Level 1 status and Level 2 status ERA requirements, when applicable, and (3) adequately address and respond to any Regional Water Board comments on the Discharger's compliance reports.

57. Dischargers that meet the requirements of the No Exposure Certification (NEC) Conditional Exclusion set forth in Section XVII of this General Permit are exempt from the SWPPP requirements, sampling requirements, and visual observation requirements in this General Permit.

K. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

58. U.S. EPA regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) establish technology-based Effluent Limitation Guidelines and New Source Performance Standards (ELGs) for industrial storm water discharges from facilities in specific industrial categories. For these facilities, compliance with the BAT/BCT and ELG requirements constitutes compliance with technology-based requirements of this General Permit.

59. 40 Code of Federal Regulations section 122.44(i)(3) and (4) require storm water permits to require at least one Annual Evaluation and any monitoring requirements for applicable ELGs in Subchapter N. This General Permit requires Dischargers to comply with all applicable ELG requirements found in Subchapter N.

L. Sampling and Analysis Reduction

60. This General Permit reduces the number of qualifying sampling events required to be sampled each year when the Discharger demonstrates: (1) consistent compliance with this General Permit,(2) consistent effluent water quality sampling, and (3) analysis results that do not exceed numerical action levels.

M. Role of Numeric Action Levels (NALs) and Exceedance Response Actions (ERAs)

61. This General Permit incorporates a multiple objective performance measurement system that includes NALs, new comprehensive training requirements, Level 1 ERA Reports, Level 2 ERA Technical Reports, and Level 2 ERA Action Plans. Two objectives of the performance measurement system are to inform Dischargers, the public and the Water Boards on: (1) the overall pollutant control performance at any given facility, and (2) the overall performance of the industrial statewide storm water program. Additionally, the State Water Board expects that this information and assessment process will provide information necessary to determine the feasibility of numeric effluent limitations for industrial dischargers in the next reissuance of this General Permit, consistent with the State Water Board Storm Water Panel of Experts' June 2006 Recommendations.[3]

62. This General Permit contains annual and instantaneous maximum NALs. The annual NALs are established as the 2008 MSGP benchmark values, and are applicable for all parameters listed in Table 2. The instantaneous maximum NALs are calculated from a Water Board dataset, and are only applicable for Total Suspended Solids (TSS), Oil and Grease (O&G), and pH. An NAL exceedance is determined as follows:

    a. For annual NALs, an exceedance occurs when the average of all analytical results from all samples taken at a facility during a reporting year for a given parameter exceeds an annual NAL value listed in Table 2 of this General Permit; or,

    b. For the instantaneous maximum NALs, an exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for Total Suspended Solids, and Oil and Grease), or are outside of the instantaneous maximum NAL range (for pH) listed in Table 2 of this General Permit. For the purposes of this General Permit, the reporting year is July 1 through June 30.

63. The NALs are not intended to serve as technology-based or water quality-based numeric effluent limitations. The NALs are not derived directly from either BAT/BCT requirements or receiving water objectives. NAL exceedances defined in this General Permit are not, in and of themselves, violations of this General Permit. A Discharger that does not fully comply with the Level 1 status and/or Level 2 status ERA requirements, when required by the terms of this General Permit, is in violation of this General Permit.

64. ERAs are designed to assist Dischargers in complying with this General Permit. Dischargers subject to ERAs must evaluate the effectiveness of their

[3] State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006) <http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of February 4, 2014].

BMPs being implemented to ensure they are adequate to achieve compliance with this General Permit.

65. U.S. EPA regulations at Subchapter N establish ELGs for storm water discharges from facilities in 11 industrial categories. Dischargers subject to these ELGs are required to comply with the applicable requirements.

66. Exceedances of the NALs that are attributable solely to pollutants originating from non-industrial pollutant sources (such as run-on from adjacent facilities, non-industrial portions of the Discharger's property, or aerial deposition) are not a violation of this General Permit because the NALs are designed to provide feedback on industrial sources of pollutants. Dischargers may submit a Non-Industrial Source Pollutant Demonstration as part of their Level 2 ERA Technical Report to demonstrate that the presence of a pollutant causing an NAL exceedance is attributable solely to pollutants originating from non-industrial pollutant sources.

67. A Discharger who has designed, installed, and implemented BMPs to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit may submit an Industrial Activity BMPs Demonstration, as part of their Level 2 ERA Technical Report.

68. This General Permit establishes design storm standards for all treatment control BMPs. These design standards are directly based on the standards in State Water Board Order 2000-0011 regarding Standard Urban Storm Water Mitigation Plans (SUSMPs). These design standards are generally expected to be consistent with BAT/BCT, to be protective of water quality, and to be effective for most pollutants. The standards are intended to eliminate the need for most Dischargers to further treat/control industrial storm water discharges that are unlikely to contain pollutant loadings that exceed the NALs set forth in this General Permit.

N. Compliance Groups

69. Compliance Groups are groups of Dischargers (Compliance Group Participants) that share common types of pollutant sources and industrial activity characteristics. Compliance Groups provide an opportunity for the Compliance Group Participants to combine resources and develop consolidated Level 1 ERA Reports for Level 1 NAL exceedances and appropriate BMPs for implementation in response to Level 2 status ERA requirements that are representative of the entire Compliance Group. Compliance Groups also provide the Water Boards and the public with valuable information as to how industrial storm water discharges are affected by non-industrial background pollutant sources (including natural background) and geographic locations. When developing the next reissuance of this General Permit, the State Water Board expects to have a better understanding of the feasibility and benefits of sector-specific and watershed-based permitting alternatives, which may include technology- or water quality-based numeric effluent limitations. The effluent data, BMP performance data

and other information provided from Compliance Groups' consolidated reporting will further assist the State Water Board in addressing sector-specific and watershed-based permitting alternatives.

O. Conditional Exclusion – No Exposure Certification (NEC)

70. Pursuant to U.S. EPA Phase II regulations, all Dischargers subject to this General Permit may qualify for a conditional exclusion from specific requirements if they submit a NEC demonstrating that their facilities have no exposure of industrial activities and materials to storm water discharges.

71. This General Permit requires Dischargers who seek the NEC conditional exclusion to obtain coverage in accordance with Section XVII of this General Permit. Dischargers that meet the requirements of the NEC are exempt from the SWPPP, sampling requirements, and monitoring requirements in this General Permit.

72. Dischargers seeking NEC coverage are required to certify and submit the applicable permit registration documents. Annual inspections, re-certifications, and fees are required in subsequent years. Light industry facility Dischargers excluded from coverage under the previous permit (Order 97-03-DWQ) must obtain the appropriate coverage under this General Permit. Failure to comply with the Conditional Exclusion conditions listed in this General Permit may lead to enforcement for discharging without a permit pursuant to sections 13385 or 13399.25, et seq., of the Water Code. A Discharger with NEC coverage that anticipates a change (or changes) in circumstances that would lead to exposure should register for permit coverage prior to the anticipated changes.

P. Special Requirements for Facilities Handling Plastic Materials

73. Section 13367 of the Water Code requires facilities handling preproduction plastic to implement specific BMPs aimed at minimizing discharges of such materials. The definition of Plastic Materials for the purposes of this General Permit includes the following types of sources of Plastic Materials: virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other types of preproduction plastics with the potential to discharge or migrate off-site.

Q. Regional Water Board Authorities

74. Regional Water Boards are primarily responsible for enforcement of this General Permit. This General Permit recognizes that Regional Water Boards have the authority to protect the beneficial uses of receiving waters and prevent degradation of water quality in their region. As such, Regional Water Boards may modify monitoring requirements and review, comment, approve or disapprove certain Discharger submittals required under this General Permit.

IT IS HEREBY ORDERED that all Dischargers subject to this General Permit shall comply with the following conditions and requirements.

II. RECEIVING GENERAL PERMIT COVERAGE

A. Certification

1. For Storm Water Multiple Application and Report Tracking System (SMARTS) electronic account management and security reasons, as well as enforceability of this General Permit, the Discharger's Legally Responsible Person (LRP) of an industrial facility seeking coverage under this General Permit shall certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) or No Exposure Certification (NEC) coverage. All other documents shall be certified and submitted via SMARTS by the Discharger's (LRP) or by their Duly Authorized Representative in accordance with the Electronic Signature and Certification Requirements in Section XXI.K. All documents required by this General Permit that are certified and submitted via SMARTS shall be in accordance with Section XXI.K.

2. Hereinafter references to certifications and submittals by the Discharger refer to the Discharger's LRP and their Duly Authorized Representative.

B. Coverages

This General Permit includes requirements for two (2) types of permit coverage, NOI coverage and NEC coverage. State Water Board Order 97-03-DWQ (previous permit) remains in effect until July 1, 2015. When PRDs are certified and submitted and the annual fee is received, the State Water Board will assign the Discharger a Waste Discharger Identification (WDID) number.

1. General Permit Coverage (NOI Coverage)

   a. Dischargers that discharge storm water associated with industrial activity to waters of the United States are required to meet all applicable requirements of this General Permit.

   b. The Discharger shall register for coverage under this General Permit by certifying and submitting PRDs via SMARTS (http://smarts.waterboards.ca.gov), which consist of:

      i. A completed NOI and signed certification statement;

      ii. A copy of a current Site Map from the Storm Water Pollution Prevention Plan (SWPPP) in Section X.E;

      iii. A SWPPP (see Section X); and,

c. The Discharger shall pay the appropriate Annual Fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[4]

2. General Permit Coverage (NEC Coverage)

   a. Dischargers that certify their facility has no exposure of industrial activities or materials to storm water in accordance with Section XVII qualify for NEC coverage and are not required to comply with the SWPPP or monitoring requirements of this General Permit.

   b. Dischargers who qualify for NEC coverage shall conduct one Annual Facility Comprehensive Compliance Evaluation (Annual Evaluation) as described in Section XV, pay an annual fee, and certify annually that their facilities continue to meet the NEC requirements.

   c. The Discharger shall submit the following PRDs on or before October 1, 2015 for NEC coverage via SMARTS:

      i. A completed NEC Form (Section XVII.F.1) and signed certification statement (Section XVII.H);

      ii. A completed NEC Checklist (Section XVII.F.2); and

      iii. A current Site Map consistent with requirements in Section X.E.;

   d. The Discharger shall pay the appropriate annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[5]

3. General PRD Requirements

   a. Site Maps

   Dischargers registering for NOI or NEC coverage shall prepare a site map(s) as part of their PRDs in accordance with Section X.E. A separate copy of the site map(s) is required to be in the SWPPP. If there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.) a revision to the site map is required and shall be certified and submitted via SMARTS.

   b. A Discharger shall submit a single set of PRDs for coverage under this General Permit for multiple industrial activities occurring at the same facility.

   c. Any information provided to the Water Boards by the Discharger shall comply with the Homeland Security Act and other federal law that

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[4] Annual fees must be mailed or sent electronically using the State Water Boards' Electronic Funds Transfer (EFT) system in SMARTS.
[5] See footnote 4.

addresses security in the United States; any information that does not comply should not be submitted in the PRDs. The Discharger must provide justification to the Regional Water Board regarding redacted information within any submittal.

d. Dischargers may redact trade secrets from information that is submitted via SMARTS. Dischargers who certify and submit redacted information via SMARTS must include a general description of the redacted information and the basis for the redaction in the version that is submitted via SMARTS. Dischargers must submit complete and un-redacted versions of the information that are clearly labeled "CONFIDENTIAL" to the Regional Water Board within 30 days of the submittal of the redacted information. All information labeled "CONFIDENTIAL" will be maintained by the Water Boards in a separate, confidential file.

4. Schedule for Submitting PRDs - Existing Dischargers Under the Previous Permit.

   a. Existing Dischargers[6] with coverage under the previous permit shall continue coverage under the previous permit until July 1, 2015. All waste discharge requirements and conditions of the previous permit are in effect until July 1, 2015.

   b. Existing Dischargers with coverage under the previous permit shall register for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015. Existing Dischargers previously listed in Category 10 (Light Industry) of the previous permit, and continue to have no exposure to industrial activities and materials, have until October 1, 2015 to register for NEC coverage.

   c. Existing Dischargers with coverage under the previous permit, that do not register for NOI coverage by July 1, 2015, may have their permit coverage administratively terminated as soon as July 1, 2015.

   d. Existing Dischargers with coverage under the previous permit that are eligible for NEC coverage but do not register for NEC coverage by October 1, 2015 may have their permit coverage administratively terminated as soon as October 1, 2015.

   e. Existing Dischargers shall continue to comply with the SWPPP requirements in State Water Board Order 97-03-DWQ up to, but no later than, June 30, 2015.

[6] Existing Dischargers are Dischargers with an active Notice of Intent (permit coverage) under the previous permit (97-03-DWQ) prior to the effective date of this General Permit.

f. Existing Dischargers shall implement an updated SWPPP in accordance with Section X by July 1, 2015.

g. Existing Dischargers that submit a Notice of Termination (NOT) under the previous permit prior to July 1, 2015 and that receive NOT approval from the Regional Water Board are not subject to this General Permit unless they subsequently submitted new PRDs.

5. Schedule for Submitting PRDs - New Dischargers Obtaining Coverage On or After July 1, 2015

   New Dischargers registering for NOI coverage on or after July 1, 2015 shall certify and submit PRDs via SMARTS at least seven (7) days prior to commencement of industrial activities or on July 1, 2015, whichever comes later.

   a. New Dischargers registering for NEC coverage shall electronically certify and submit PRDs via SMARTS by October 1, 2015, or at least seven (7) days prior to commencement of industrial activities, whichever is later.

C. Termination and Changes to General Permit Coverage

1. Dischargers with NOI or NEC coverage shall request termination of coverage under this General Permit when either (a) operation of the facility has been transferred to another entity, (b) the facility has ceased operations, completed closure activities, and removed all industrial related pollutants, or (c) the facility's operations have changed and are no longer subject to the General Permit. Dischargers shall certify and submit a Notice of Termination via SMARTS. Until a valid NOT is received, the Discharger remains responsible for compliance with this General Permit and payment of accrued annual fees.

2. Whenever there is a change to the facility location, the Discharger shall certify and submit new PRDs via SMARTS. When ownership changes, the prior Discharger (seller) must inform the new Discharger (buyer) of the General Permit applications and regulatory coverage requirements. The new Discharger must certify and submit new PRDs via SMARTS to obtain coverage under this General Permit.

3. Dischargers with NOI coverage where the facility qualifies for NEC coverage in accordance with Section XVII of this General Permit, may register for NEC coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NOI coverage.

4. Dischargers with NEC coverage, where changes in the facility and/or facility operations occur, which result in NOI coverage instead of NEC coverage, shall register for NOI coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NEC coverage.

5. Dischargers shall provide additional information supporting an NOT, or revise their PRDs via SMARTS, upon request by the Regional Water Board.

6. Dischargers that are denied approval of a submitted NOT or registration for NEC coverage by the Regional Water Board, shall continue compliance with this General Permit under their existing NOI coverage.

7. New Dischargers (Dischargers with no previous NOI or NEC coverage) shall register for NOI coverage if the Regional Water Board denies NEC coverage.

D. Preparation Requirements

1. The following documents shall be certified and submitted by the Discharger via SMARTS:

   a. Annual Reports (Section XVI) and SWPPPs (Section X);

   b. NOTs;

   c. Sampling Frequency Reduction Certification (Section XI.C.7);

   d. Level 1 ERA Reports (Section XII.C) prepared by a QISP;

   e. Level 2 ERA Technical Reports and Level 2 ERA Action Plans (Sections XII.D.1-2) prepared by a QISP; and,

   f. SWPPPs for inactive mining operations as described in Section XIII, signed (wet signature and license number) by a California licensed professional engineer.

2. The following documents shall be signed (wet signature and license number) by a California licensed professional engineer:

   a. Calculations for Dischargers subject to Subchapter N in accordance with Section XI.D;

   b. Notice of Non-Applicability (NONA) Technical Reports described in Section XX.C for facilities that are engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website;

   c. NONA Technical Reports described in Section XX.C for facilities located in basins or other physical locations that are not tributaries or hydrologically connected to waters of the United States; and,

   d. SWPPPs for inactive mines described in Section XIII.

III. DISCHARGE PROHIBITIONS

A. All discharges of storm water to waters of the United States are prohibited except as specifically authorized by this General Permit or another NPDES permit.

B. Except for non-storm water discharges (NSWDs) authorized in Section IV, discharges of liquids or materials other than storm water, either directly or indirectly to waters of the United States, are prohibited unless authorized by another NPDES permit. Unauthorized NSWDs must be either eliminated or authorized by a separate NPDES permit.

C. Industrial storm water discharges and authorized NSWDs that contain pollutants that cause or threaten to cause pollution, contamination, or nuisance as defined in section 13050 of the Water Code, are prohibited.

D. Discharges that violate any discharge prohibitions contained in applicable Regional Water Board Water Quality Control Plans (Basin Plans), or statewide water quality control plans and policies are prohibited.

E. Discharges to ASBS are prohibited in accordance with the California Ocean Plan, unless granted an exception by the State Water Board and in compliance with the Special Protections contained in Resolution 2012-0012.

F. Industrial storm water discharges and NSWDs authorized by this General Permit that contain hazardous substances equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations sections 110.6, 117.21, or 302.6 are prohibited.

IV. AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

A. The following NSWDs are authorized provided they meet the conditions of Section IV.B:

1. Fire-hydrant and fire prevention or response system flushing;
2. Potable water sources including potable water related to the operation, maintenance, or testing of potable water systems;
3. Drinking fountain water and atmospheric condensate including refrigeration, air conditioning, and compressor condensate;
4. Irrigation drainage and landscape watering provided all pesticides, herbicides and fertilizers have been applied in accordance with the manufacturer’s label;
5. Uncontaminated natural springs, groundwater, foundation drainage, footing drainage;

6. Seawater infiltration where the seawater is discharged back into the source: and,

7. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).

B. The NSWDs identified in Section IV.A are authorized by this General Permit if the following conditions are met:

1. The authorized NSWDs are not in violation of any Regional Water Board Water Quality Control Plans (Basin Plans) or other requirements, or statewide water quality control plans or policies requirement;

2. The authorized NSWDs are not in violation of any municipal agency ordinance or requirements;

3. BMPs are included in the SWPPP and implemented to:

   a. Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;

   b. Reduce, to the extent practicable, the flow or volume of authorized NSWDs;

   c. Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards; and,

   d. Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

4. The Discharger conducts monthly visual observations (Section XI.A.1) of NSWDs and sources to ensure adequate BMP implementation and effectiveness; and,

5. The Discharger reports and describes all authorized NSWDs in the Annual Report.

C. Firefighting related discharges are not subject to this General Permit and are not subject to the conditions of Section IV.B. These discharges, however, may be subject to Regional Water Board enforcement actions under other sections of the Water Code. Firefighting related discharges that are contained and are later discharged may be subject to municipal agency ordinances and/or Regional Water Board requirements.

V. EFFLUENT LIMITATIONS

A. Dischargers shall implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

B. Industrial storm water discharges from facilities subject to storm water ELGs in Subchapter N shall not exceed those storm water ELGs. The ELGs for industrial storm water discharges subject to Subchapter N are in Attachment F of this General Permit.

C. Dischargers located within a watershed for which a Total Maximum Daily Load (TMDL) has been approved by U.S. EPA, shall comply with any applicable TMDL-specific permit requirements that have been incorporated into this General Permit in accordance with Section VII.A. Attachment E contains a reference list of potential TMDLs that may apply to Dischargers subject to this General Permit.

VI. RECEIVING WATER LIMITATIONS

A. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not cause or contribute to an exceedance of any applicable water quality standards in any affected receiving water.

B. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not adversely affect human health or the environment.

C. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

VII. TOTAL MAXIMUM DAILY LOADS (TMDLs)

A. Implementation

1. The State Water Board shall reopen and amend this General Permit, including Attachment E, the Fact Sheet and other applicable Permit provisions as necessary, in order to incorporate TMDL-specific permit requirements, as described in Findings 38 through 42. Once this General Permit is amended, Dischargers shall comply with the incorporated TMDL-specific permit requirements in accordance with any specified compliance schedule(s). TMDL-specific compliance dates that exceed the term of this General Permit may be included for reference, and are enforceable in the event that this General Permit is administratively extended or reissued.

2. The State Water Board may, at its discretion, reopen this General Permit to add TMDL-specific permit requirements to Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

B. New Dischargers applying for NOI coverage under this General Permit that will be discharging to a water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that:

1. The Discharger has eliminated all exposure to storm water of the pollutant(s) for which the water body is impaired, has documented the procedures taken to prevent exposure onsite, and has retained such documentation with the SWPPP at the facility;

2. The pollutant for which the water body is impaired is not present at the Discharger's facility, and the Discharger has retained documentation of this finding with the SWPPP at the facility; or,

3. The discharge of any listed pollutant will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

VIII. DISCHARGES SUBJECT TO THE CALIFORNIA OCEAN PLAN

A. Discharges to Ocean Waters

1. Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan shall develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015, or seven (7) days prior to commencing of operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Dischargers are ineligible for the methods and exceptions provided in Section XI.C of this General permit for any of the outfalls discharging to ocean waters subject to the model monitoring provisions of the California Ocean Plan.

B. Discharge Granted an Exceptions for Areas of Special Biological Significance (ASBS)

Dischargers who were granted an exception to the California Ocean Plan prohibition against direct discharges of waste to an ASBS pursuant to Resolution 2012-0012[7] amended by Resolution 2012-0031[8] shall comply with the conditions and requirements set forth in Attachment G of this General Permit. Any Discharger that applies for and is granted an exception to the California Ocean Plan prohibition after July 1, 2013 shall comply with the conditions and requirements set forth in the granted exception.

IX. TRAINING QUALIFICATIONS

A. General

1. A Qualified Industrial Storm Water Practitioner (QISP) is a person (either the Discharger or a person designated by the Discharger) who has completed a State Water Board-sponsored or approved QISP training course[9], and has registered as a QISP via SMARTS. Upon completed registration the State Water Board will issue a QISP identification number.

2. The Executive Director of the State Water Board or an Executive Officer of a Regional Water Board may rescind any QISP's registration if it is found that the QISP has repeatedly demonstrated an inadequate level of performance in completing the QISP requirements in this General Permit. An individual whose QISP registration has been rescinded may request that the State Water Board review the rescission. Any request for review must be received by the State Water Board no later than 30 days of the date that the individual received written notice of the rescission.

3. Dischargers with Level 1 status shall:

   a. Designate a person to be the facility's QISP and ensure that this person has attended and satisfactorily completed the State Water Board-sponsored or approved QISP training course.

   b. Ensure that the facility's designated QISP provides sufficient training to the appropriate team members assigned to perform activities required by this General Permit.

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[7] State Water Resources Control Board. Resolution 2012-0012. <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf>. [as of February 4, 2014].

[8] State Water Resources Control Board. Resolution 2012-0031. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0031.pdf>. [as of February 4, 2014].

[9] A specialized self-guided State Water Board-sponsored registration and training program will be available as an option for CPBELSG licensed professional civil, mechanical, industrial, and chemical engineers and professional geologists by the effective date of this General Permit.

X. Storm Water Pollution Prevention Plan (SWPPP)

A. SWPPP Elements

Dischargers shall develop and implement a site-specific SWPPP for each industrial facility covered by this General Permit that shall contain the following elements, as described further in this Section[10]:

1. Facility Name and Contact Information;
2. Site Map;
3. List of Industrial Materials;
4. Description of Potential Pollution Sources;
5. Assessment of Potential Pollutant Sources;
6. Minimum BMPs;
7. Advanced BMPs, if applicable;
8. Monitoring Implementation Plan;
9. Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation); and,
10. Date that SWPPP was Initially Prepared and the Date of Each SWPPP Amendment, if Applicable.

B. SWPPP Implementation and Revisions

All Dischargers are required to implement their SWPPP by July 1, 2015 or upon commencement of industrial activity. The Discharger shall:

1. Revise their on-site SWPPP whenever necessary;
2. Certify and submit via SMARTS their SWPPP within 30 days whenever the SWPPP contains significant revision(s); and,
3. With the exception of significant revisions, the Discharger is not required to certify and submit via SMARTS their SWPPP revisions more than once every three (3) months in the reporting year.

[10] Appendix 1 (SWPPP Checklist) of this General Permit is provided to assist the Discharger in including information required in the SWPPP. This checklist is not required to be used.

C. SWPPP Performance Standards

1. The Discharger shall ensure a SWPPP is prepared to:

   a. Identify and evaluate all sources of pollutants that may affect the quality of industrial storm water discharges and authorized NSWDs;

   b. Identify and describe the minimum BMPs (Section X.H.1) and any advanced BMPs (Section X.H.2) implemented to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs. BMPs shall be selected to achieve compliance with this General Permit; and,

   c. Identify and describe conditions or circumstances which may require future revisions to be made to the SWPPP.

2. The Discharger shall prepare a SWPPP in accordance with all applicable SWPPP requirements of this Section. A copy of the SWPPP shall be maintained at the facility.

D. Planning and Organization

1. Pollution Prevention Team

   Each facility must have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in this General Permit. The Discharger shall include in the SWPPP detailed information about its Pollution Prevention Team including:

   a. The positions within the facility organization (collectively, team members) who assist in implementing the SWPPP and conducting all monitoring requirements in this General Permit;

   b. The responsibilities, duties, and activities of each of the team members; and,

   c. The procedures to identify alternate team members to implement the SWPPP and conduct required monitoring when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, or other absences).

2. Other Requirements and Existing Facility Plans

   a. The Discharger shall ensure its SWPPP is developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, and federal requirements that pertain to the requirements in this General Permit.

   b. The Discharger may include in their SWPPP the specific elements of existing plans, procedures, or regulatory compliance documents that contain storm water-related BMPs or otherwise relate to the requirements of this General Permit.

c. The Discharger shall properly reference the original sources for any elements of existing plans, procedures, or regulatory compliance documents included as part of their SWPPP and shall maintain a copy of the documents at the facility as part of the SWPPP.

d. The Discharger shall document in their SWPPP the facility's scheduled operating hours as defined in Attachment C. Scheduled facility operating hours that would be considered irregular (temporary, intermittent, seasonal, weather dependent, etc.) shall also be documented in the SWPPP.

E. Site Map

1. The Discharger shall prepare a site map that includes notes, legends, a north arrow, and other data as appropriate to ensure the map is clear, legible and understandable.

2. The Discharger may provide the required information on multiple site maps.

3. The Discharger shall include the following information on the site map:

   a. The facility boundary, storm water drainage areas within the facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area, on-facility surface water bodies, areas of soil erosion, and location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;

   b. Locations of storm water collection and conveyance systems, associated discharge locations, and direction of flow. Include any sample locations if different than the identified discharge locations;

   c. Locations and descriptions of structural control measures[11] that affect industrial storm water discharges, authorized NSWDs, and/or run-on;

   d. Identification of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

[11] Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

e. Locations where materials are directly exposed to precipitation and the locations where identified significant spills or leaks (Section X.G.1.d) have occurred; and

f. Areas of industrial activity subject to this General Permit. Identify all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

F. List of Industrial Materials

The Discharger shall ensure the SWPPP includes a list of industrial materials handled at the facility, and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequency.

G. Potential Pollutant Sources

1. Description of Potential Pollutant Sources

a. Industrial Processes

The Discharger shall ensure the SWPPP describes each industrial process including: manufacturing, cleaning, maintenance, recycling, disposal, and any other activities related to the process. The type, characteristics, and approximate quantity of industrial materials used in or resulting from the process shall be included. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

b. Material Handling and Storage Areas

The Discharger shall ensure the SWPPP describes each material handling and storage area, including: the type, characteristics, and quantity of industrial materials handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and the corresponding containment capacity.

c. Dust and Particulate Generating Activities

The Discharger shall ensure the SWPPP describes all industrial activities that generate a significant amount of dust or particulate that may be deposited within the facility boundaries. The SWPPP shall describe such industrial activities, including the discharge locations, the source type, and the characteristics of the dust or particulate pollutant.

d. Significant Spills and Leaks

The Discharger shall:

i. Evaluate the facility for areas where spills and leaks can likely occur;

ii. Ensure the SWPPP includes:

a) A list of any industrial materials that have spilled or leaked in significant quantities and have discharged from the facility's storm water conveyance system within the previous five-year period;

b) A list of any toxic chemicals identified in 40 Code of Federal Regulations section 302 that have been discharged from the facilities' storm water conveyance system as reported on U.S. EPA Form R, as well as oil and hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) that have discharged from the facility's storm water conveyance system within the previous five-year period;

c) A list of any industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's storm water conveyance system within the previous five-year period; and,

iii. Ensure that for each discharge or potential discharge listed above the SWPPP includes the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged from the facility's storm water conveyance system; the cleanup or remedial actions that have occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure spills or leaks of the material do not reoccur.

e. NSWDs

The Discharger shall:

i. Ensure the SWPPP includes an evaluation of the facility that identifies all NSWDs, sources, and drainage areas;

ii. Ensure the SWPPP includes an evaluation of all drains (inlets and outlets) that identifies connections to the storm water conveyance system;

iii. Ensure the SWPPP includes a description of how all unauthorized NSWDs have been eliminated; and,

iv. Ensure all NSWDs are described in the SWPPP. This description shall include the source, quantity, frequency, and characteristics of the NSWDs, associated drainage area, and whether it is an authorized or unauthorized NSWD in accordance with Section IV.

f. Erodible Surfaces

The Discharger shall ensure the SWPPP includes a description of the facility locations where soil erosion may be caused by industrial activity, contact with storm water, authorized and unauthorized NSWDs, or run-on from areas surrounding the facility.

2. Assessment of Potential Pollutant Sources

a. The Discharger shall ensure that the SWPPP includes a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include:

i. The areas of the facility with likely sources of pollutants in industrial storm water discharges and authorized NSWDs;

ii. The pollutants likely to be present in industrial storm water discharges and authorized NSWDs;

iii. The approximate quantity, physical characteristics (e.g., liquid, powder, solid, etc.), and locations of each industrial material handled, produced, stored, recycled, or disposed;

iv. The degree to which the pollutants associated with those materials may be exposed to, and mobilized by contact with, storm water;

v. The direct and indirect pathways by which pollutants may be exposed to storm water or authorized NSWDs;

vi. All sampling, visual observation, and inspection records;

vii. The effectiveness of existing BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs;

viii. The estimated effectiveness of implementing, to the extent feasible, minimum BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs; and,

ix. The identification of the industrial pollutants related to the receiving waters with 303(d) listed impairments identified in Appendix 3 or approved TMDLs that may be causing or contributing to an exceedance of a water quality standard in the receiving waters.

b. Based upon the assessment above, Dischargers shall identify in the SWPPP any areas of the facility where the minimum BMPs described in subsection H.1 below will not adequately reduce or prevent pollutants in storm water discharges in compliance with Section V.A. Dischargers shall identify any advanced BMPs, as described in subsection H.2 below, for those areas.

c. Based upon the assessment above, Dischargers shall identify any drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

d. Based upon the assessment above, Dischargers shall identify any additional parameters, beyond the required parameters in Section XI.B.6 that indicate the presence of pollutants in industrial storm water discharges.

H. Best Management Practices (BMPs)

1. Minimum BMPs

The Discharger shall, to the extent feasible, implement and maintain all of the following minimum BMPs to reduce or prevent pollutants in industrial storm water discharges.[12]

a. Good Housekeeping

The Discharger shall:

i. Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly;

ii. Minimize or prevent material tracking;

iii. Minimize dust generated from industrial materials or activities;

iv. Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible;

v. Cover all stored industrial materials that can be readily mobilized by contact with storm water;

[12] For the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” requires Dischargers to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

vi. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

vii. Prevent disposal of any rinse/wash waters or industrial materials into the storm water conveyance system;

viii. Minimize storm water discharges from non-industrial areas (e.g., storm water flows from employee parking area) that contact industrial areas of the facility; and,

ix. Minimize authorized NSWDs from non-industrial areas (e.g., potable water, fire hydrant testing, etc.) that contact industrial areas of the facility.

b. Preventive Maintenance

The Discharger shall:

i. Identify all equipment and systems used outdoors that may spill or leak pollutants;

ii. Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks;

iii. Establish an appropriate schedule for maintenance of identified equipment and systems; and,

iv. Establish procedures for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills or leaks.

c. Spill and Leak Prevention and Response

The Discharger shall:

i. Establish procedures and/or controls to minimize spills and leaks;

ii. Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly;

iii. Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and,

iv. Identify and train appropriate spill and leak response personnel.

d. Material Handling and Waste Management

The Discharger shall:

i. Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;

ii. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

iii. Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use;

iv. Divert run-on and storm water generated from within the facility away from all stockpiled materials;

v. Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures (Section X.H.1.c); and,

vi. Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.

e. Erosion and Sediment Controls

For each erodible surface facility location identified in the SWPPP (Section X.G.1.f), the Discharger shall:

i. Implement effective wind erosion controls;

ii. Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event;

iii. Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site;

iv. Divert run-on and storm water generated from within the facility away from all erodible materials; and,

v. If sediment basins are implemented, ensure compliance with the design storm standards in Section X.H.6.

f. Employee Training Program

The Discharger shall:

i. Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations, and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP;

ii. Prepare or acquire appropriate training manuals or training materials;

iii. Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;

iv. Provide a training schedule; and,

v. Maintain documentation of all completed training classes and the personnel that received training in the SWPPP.

g. Quality Assurance and Record Keeping

The Discharger shall:

i. Develop and implement management procedures to ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan;

ii. Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP; and

iii. Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years (Section XXI.J.4).

2. Advanced BMPs

a. In addition to the minimum BMPs described in Section X.H.1, the Discharger shall, to the extent feasible, implement and maintain any advanced BMPs identified in Section X.G.2.b, necessary to reduce or prevent discharges of pollutants in its storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

b. Advanced BMPs may include one or more of the following BMPs:

i. Exposure Minimization BMPs

These include storm resistant shelters (either permanent or temporary) that prevent the contact of storm water with the identified industrial materials or area(s) of industrial activity.

ii. Storm Water Containment and Discharge Reduction BMPs

These include BMPs that divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff. Dischargers are encouraged to utilize BMPs that infiltrate or reuse storm water where feasible.

iii. Treatment Control BMPs

This is the implementation of one or more mechanical, chemical, biologic, or any other treatment technology that will meet the treatment design standard.

iv. Other Advanced BMPs

Any additional BMPs not described in subsections b.i through iii above that are necessary to meet the effluent limitations of this General Permit.

3. Temporary Suspension of Industrial Activities

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

a. Perform monthly visual observations (Section XI.A.1.a.); or,

b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

a. SWPPP revisions specifically addressing the facility stabilization BMPs;

b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities;

c. The date the facility is fully stabilized for temporary suspension of industrial activities; and,

d. The projected date that industrial activities will resume at the facility.

Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit.

The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

4. BMP Descriptions

   a. The Discharger shall ensure that the SWPPP identifies each BMP being implemented at the facility, including:

      i. The pollutant(s) that the BMP is designed to reduce or prevent in industrial storm water discharges;

      ii. The frequency, time(s) of day, or conditions when the BMP is scheduled for implementation;

      iii. The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;

      iv. The individual and/or position responsible for implementing the BMP;

      v. The procedures, including maintenance procedures, and/or instructions to implement the BMP effectively;

      vi. The equipment and tools necessary to implement the BMP effectively; and,

      vii. The BMPs that may require more frequent visual observations beyond the monthly visual observations as described in Section XI.A.1.

   b. The Discharger shall ensure that the SWPPP identifies and justifies each minimum BMP or applicable advanced BMP not being implemented at the facility because they do not reflect best industry practice considering technological availability and economic practicability and achievability.

   c. The Discharger shall identify any BMPs described in subsection a above that are implemented in lieu of any of the minimum or applicable advanced BMPs.

5. BMP Summary Table

   The Discharger shall prepare a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

6. Design Storm Standards for Treatment Control BMPs

All new treatment control BMPs employed by the Discharger to comply with Section X.H.2 Advanced BMPs and new sediment basins installed after the effective date of this order shall be designed to comply with design storm standards in this Section, except as provided in an Industrial Activity BMP Demonstration (Section XII.D.2.a). A Factor of Safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

a. Volume-based BMPs: The Discharger, at a minimum, shall calculate[13] the volume to be treated using one of the following methods:

i. The volume of runoff produced from an 85th percentile 24-hour storm event, as determined from local, historical rainfall records;

ii. The volume of runoff produced by the 85th percentile 24-hour storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's Manual of Practice;[14] or,

iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of California Stormwater Best Management Practices Handbook[15], using local, historical rainfall records.

b. Flow-based BMPs: The Discharger shall calculate the flow needed to be treated using one of the following methods:

i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;

ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,

iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

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[13] All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

[14] Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, cited in chapter 5 (1998 Edition) and Cited in Chapter 3 (2012 Edition) .

[15] California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. < http://www.casqa.org/ >. [as of July 3, 2013].

I. MONITORING IMPLEMENTATION PLAN

The Discharger shall prepare a Monitoring Implementation Plan in accordance with the requirements of this General Permit. The Monitoring Implementation Plan shall be included in the SWPPP and shall include the following items:

1. An identification of team members assigned to conduct the monitoring requirements;
2. A description of the following in accordance with Attachment H:
    a. Discharge locations;
    b. Visual observation procedures; and,
    c. Visual observation response procedures related to monthly visual observations and sampling event visual observations.
3. Justifications for any of the following that are applicable to the facility:
    a. Alternative discharge locations in accordance with Section XI.C.3;
    b. Representative Sampling Reduction in accordance with Section XI.C.4; or,
    c. Qualified Combined Samples in accordance with Section XI.C.5.
4. Procedures for field instrument calibration instructions, including calibration intervals specified by the manufacturer; and,
5. An example Chain of Custody form used when handling and shipping water quality samples to the lab.

XI. MONITORING

A. Visual Observations

1. Monthly Visual Observations
    a. At least once per calendar month, the Discharger shall visually observe each drainage area for the following:
        i. The presence or indications of prior, current, or potential unauthorized NSWDs and their sources;
        ii. Authorized NSWDs, sources, and associated BMPs to ensure compliance with Section IV.B.3; and,

iii. Outdoor industrial equipment and storage areas, outdoor industrial activities areas, BMPs, and all other potential source of industrial pollutants.

b. The monthly visual observations shall be conducted during daylight hours of scheduled facility operating hours and on days without precipitation.

c. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

2. Sampling Event Visual Observations

Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

a. The Discharger shall ensure that visual observations of storm water discharged from containment sources (e.g. secondary containment or storage ponds) are conducted at the time that the discharge is sampled.

b. Any Discharger employing volume-based or flow-based treatment BMPs shall sample any bypass that occurs while the visual observations and sampling of storm water discharges are conducted.

c. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.

d. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

e. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

3. Visual Observation Records

The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, presence and probable source of any observed pollutants, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

4. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

B. Sampling and Analysis

1. A Qualifying Storm Event (QSE) is a precipitation event that:

    a. Produces a discharge for at least one drainage area; and,

    b. Is preceded by 48 hours with no discharge from any drainage area.

2. The Discharger shall collect and analyze storm water samples from two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30).

3. Compliance Group Participants are only required to collect and analyze storm water samples from one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of the reporting year (January 1 to June 30).

4. Except as provided in Section XI.C.4 (Representative Sampling Reduction), samples shall be collected from each drainage area at all discharge locations. The samples must be:

    a. Representative of storm water associated with industrial activities and any commingled authorized NSWDs; or,

    b. Associated with the discharge of contained storm water.

5. Samples from each discharge location shall be collected within four (4) hours of:

    a. The start of the discharge; or,

    b. The start of facility operations if the QSE occurs within the previous 12-hour period (e.g., for storms with discharges that begin during the night for facilities with day-time operating hours). Sample collection is required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii.

6. The Discharger shall analyze all collected samples for the following parameters:

    a. Total suspended solids (TSS) and oil and grease (O&G);

    b. pH (see Section XI.C.2);

c. Additional parameters identified by the Discharger on a facility-specific basis that serve as indicators of the presence of all industrial pollutants identified in the pollutant source assessment (Section X.G.2). These additional parameters may be modified (added or removed) in accordance with any updated SWPPP pollutant source assessment;

d. Additional applicable parameters listed in Table 1 below. These parameters are dependent on the facility Standard Industrial Classification (SIC) code(s);

e. Additional applicable industrial parameters related to receiving waters with 303(d) listed impairments or approved TMDLs based on the assessment in Section X.G.2.a.ix. Test methods with lower detection limits may be necessary when discharging to receiving waters with 303(d) listed impairments or TMDLs;

f. Additional parameters required by the Regional Water Board. The Discharger shall contact its Regional Water Board to determine appropriate analytical test methods for parameters not listed in Table 2 below. These analytical test methods will be added to SMARTS; and

g. For discharges subject to Subchapter N, additional parameters specifically required by Subchapter N. If the discharge is subject to ELGs, the Dischargers shall contact the Regional Water Board to determine appropriate analytical methods for parameters not listed in Table 2 below.

7. The Discharger shall select corresponding NALs, analytical test methods,, and reporting units from the list provided in Table 2 below. SMARTS will be updated over time to add additional acceptable analytical test methods. Dischargers may propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, the analytical test method will be added to SMARTS.

8. The Discharger shall ensure that the collection, preservation and handling of all storm water samples are in accordance with Attachment H, Storm Water Sample Collection and Handling Instructions.

9. Samples from different discharge locations shall not be combined or composited except as allowed in Section XI.C.5 (Qualified Combined Samples).

10. The Discharger shall ensure that all laboratory analyses are conducted according to test procedures under 40 Code of Federal Regulations part 136, including the observation of holding times, unless other test procedures have been specified in this General Permit or by the Regional Water Board.

11. Sampling Analysis Reporting

a. The Discharger shall submit all sampling and analytical results for all individual or Qualified Combined Samples via SMARTS within 30 days of obtaining all results for each sampling event.

b. The Discharger shall provide the method detection limit when an analytical result from samples taken is reported by the laboratory as a "non-detect" or less than the method detection limit. A value of zero shall not be reported.

c. The Discharger shall provide the analytical result from samples taken that is reported by the laboratory as below the minimum level (often referred to as the reporting limit) but above the method detection limit.

Reported analytical results will be averaged automatically by SMARTS. For any calculations required by this General Permit, SMARTS will assign a value of zero (0) for all results less than the minimum level as reported by the laboratory.

TABLE 1: Additional Analytical Parameters

SIC code	SIC code Description	Parameters*
102X	Copper Ores	COD; N+N
12XX	Coal Mines	Al; Fe
144X	Sand and Gravel	N+N
207X	Fats and Oils	BOD; COD; N+N
2421	Sawmills & Planning Mills	COD; Zn
2426	Hardwood Dimension	COD
2429	Special Product Sawmills	COD
243X	Millwork, Veneer, Plywood	COD
244X	Wood Containers	COD
245X	Wood Buildings & Mobile Homes	COD
2491	Wood Preserving	As; Cu
2493	Reconstituted Wood Products	COD
263X	Paperboard Mills	COD
281X	Industrial Inorganic Chemicals	Al; Fe; N+N
282X	Plastic Materials, Synthetics	Zn
284X	Soaps, Detergents, Cosmetics	N+N; Zn
287X	Fertilizers, Pesticides, etc.	Fe; N+N; Pb; Zn; P
301X	Tires, Inner Tubes	Zn
302X	Rubber and Plastic Footwear	Zn
305X	Rubber & Plastic Sealers & Hoses	Zn
306X	Misc. Fabricated Rubber Products	Zn
325X	Structural Clay Products	Al
326X	Pottery & Related Products	Al
3297	Non-Clay Refractories	Al
327X	Concrete, Gypsum, Plaster Products (Except 3274)	Fe
3295	Minerals & Earths	Fe
331X	Steel Works, Blast Furnaces, Rolling and Finishing Mills	Al; Zn
332X	Iron and Steel Foundries	Al; Cu; Fe; Zn
335X	Metal Rolling, Drawing, Extruding	Cu; Zn

336X	Nonferrous Foundries (Castings)	Cu; Zn
34XX	Fabricated Metal Products (Except 3479)	Zn; N+N; Fe; Al
3479	Coating and Engraving	Zn; N+N
4953	Hazardous Waste Facilities	NH3; Mg; COD; As; Cn; Pb; HG; Se; Ag
44XX	Water Transportation	Al; Fe; Pb; Zn
45XX	Air Transportation Facilities[16]	BOD; COD; NH3
4911	Steam Electric Power Generating Facilities	Fe
4953	Landfills and Land Application Facilities	Fe
5015	Dismantling or Wrecking Yards	Fe; Pb; Al
5093	Scrap and Waste Materials (not including source-separated recycling)	Fe; Pb; Al; Zn; COD

***Table 1 Parameter Reference**	
Ag – Silver	**Mg** – Magnesium
Al – Aluminum	**N+N** - Nitrate & Nitrite Nitrogen
As – Arsenic	**NH** – Ammonia
BOD – Biochemical Oxygen Demand	**Ni** – Nickel
Cd - Cadmium	**P** – Phosphorus
Cn – Cyanide	**Se** – Selenium
COD – Chemical Oxygen Demand	**TSS** – Total Suspended Solids
Cu – Copper	**Zn** – Zinc
Fe – Iron	**Pb** – Lead
Hg – Mercury	

[16] Only airports (SIC 4512-4581) where a single Discharger, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, are required to monitor these parameters for those outfalls that collect runoff from areas where deicing activities occur.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2	pH units	N/A	Less than 6.0 Greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500–CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/l	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
EPA – U.S. EPA test methods
(H) – Hardness dependent
* Minimum parameters required by this General Permit
**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

C. Methods and Exceptions

1. The Discharger shall comply with the monitoring methods in this General Permit and Attachment H.

2. pH Methods

   a. Dischargers that are not subject to Subchapter N ELGs mandating pH analysis related to acidic or alkaline sources and have never entered Level 1 status for pH, are eligible to screen for pH using wide range litmus pH paper or other equivalent pH test kits. The pH screen shall be performed as soon as practicable, but no later than 15 minutes after the sample is collected.

   b. Dischargers subject to Subchapter N ELGs shall either analyze samples for pH using methods in accordance with 40 Code of Federal Regulations 136 for testing storm water or use a calibrated portable instrument for pH.

   c. Dischargers that enter Level 1 status (see Section XII.C) for pH shall, in the subsequent reporting years, analyze for pH using methods in accordance with 40 Code of Federal Regulations 136 or use a calibrated portable instrument for pH.

   d. Dischargers using a calibrated portable instrument for pH shall ensure that all field measurements are conducted in accordance with the accompanying manufacturer's instructions.

3. Alternative Discharge Locations

   a. The Discharger is required to identify, when practicable, alternative discharge locations for any discharge locations identified in accordance with Section XI.B.4 if the facility's discharge locations are:

      i. Affected by storm water run-on from surrounding areas that cannot be controlled; and/or,

      ii. Difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

   b. The Discharger shall submit and certify via SMARTS any alternative discharge location or revisions to the alternative discharge locations in the Monitoring Implementation Plan.

4. Representative Sampling Reduction

   a. The Discharger may reduce the number of locations to be sampled in each drainage area (e.g., roofs with multiple downspouts, loading/unloading areas with multiple storm drains) if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) of the drainage area for each location to be sampled are substantially similar to one another. To qualify for the Representative Sampling Reduction, the Discharger shall provide a Representative Sampling Reduction justification in the Monitoring Implementation Plan section of the SWPPP.

b. The Representative Sampling Reduction justification shall include:

   i. Identification and description of each drainage area and corresponding discharge location(s);

   ii. A description of the industrial activities that occur throughout the drainage area;

   iii. A description of the BMPs implemented in the drainage area;

   iv. A description of the physical characteristics of the drainage area;

   v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar; and,

   vi. An identification of the discharge location(s) selected for representative sampling, and rationale demonstrating that the selected location(s) to be sampled are representative of the discharge from the entire drainage area.

c. A Discharger that satisfies the conditions of subsection 4.b.i through v above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Representative Sampling Reduction justification.

d. Upon submittal of the Representative Sampling Reduction justification, the Discharger may reduce the number of locations to be sampled in accordance with the Representative Sampling Reduction justification. The Regional Water Board may reject the Representative Sampling Reduction justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Representative Sampling Reduction until the Regional Water Board approves the Representative Sampling Reduction justification.

5. Qualified Combined Samples

   a. The Discharger may authorize an analytical laboratory to combine samples of equal volume from as many as four (4) discharge locations if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) within each of the drainage areas are substantially similar to one another.

b. The Qualified Combined Samples justification shall include:

   i. Identification and description of each drainage area and corresponding discharge locations;

   ii. A description of the BMPs implemented in the drainage area;

   iii. A description of the industrial activities that occur throughout the drainage area;

   iv. A description of the physical characteristics of the drainage area; and,

   v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar.

c. A Discharger that satisfies the conditions of subsection 5.b.i through iv above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Qualified Combined Samples justification.

d. Upon submittal of the Qualified Combined Samples justification revisions in the Monitoring Implementation Plan, the Discharger may authorize the lab to combine samples of equal volume from as many as four (4) drainage areas. The Regional Water Board may reject the Qualified Combined Samples justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Qualified Combined Samples justification until the Regional Water Board approves the Qualified Combined Samples justification.

e. Regional Water Board approval is necessary to combine samples from more than four (4) discharge locations.

6. Sample Collection and Visual Observation Exceptions

   a. Sample collection and visual observations are not required under the following conditions:

      i. During dangerous weather conditions such as flooding or electrical storms; or,

      ii. Outside of scheduled facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operating hours.

   b. In the event that samples are not collected, or visual observations are not conducted in accordance with Section XI.B.5 due to these exceptions, an explanation shall be included in the Annual Report.

c. Sample collection is not required for drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

7. Sampling Frequency Reduction Certification
   a. Dischargers are eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:

      i. Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs as defined in Section XII.A; and

      ii. The Discharger is in full compliance with the requirements of this General Permit and has updated, certified and submitted via SMARTS all documents, data, and reports required by this General Permit during the time period in which samples were collected.

   b. The Regional Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.

   c. An eligible Discharger shall certify via SMARTS that it meets the conditions in subsection 7.a above.

   d. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

   e. Dischargers who participate in a Compliance Group and certify a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year.

   f. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the Regional Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the Regional Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted via SMARTS by the Discharger.

   g. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs (Section XII.A).

D. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

1. In addition to the other requirements in this General Permit, Dischargers with facilities subject to storm water ELGs in Subchapter N shall:

   a. Collect and analyze samples from QSEs for each regulated pollutant specified in the appropriate category in Subchapter N as specified in Section XI.B;

   b. For Dischargers with facilities subject to 40 Code of Federal Regulations parts 419[17] and 443[18], estimate or calculate the volume of industrial storm water discharges from each drainage area subject to the ELGs and the mass of each regulated pollutant as defined in parts 419 and 443; and,

   c. Ensure that the volume/mass estimates or calculations required in subsection b are completed by a California licensed professional engineer.

2. Dischargers subject to Subchapter N shall submit the information in Section XI.D.1.a through c in their Annual Report.

3. Dischargers with facilities subject to storm water ELGs in Subchapter N are ineligible for the Representative Sampling Reduction in Section XI.C.4.

XII. EXCEEDANCE RESPONSE ACTIONS (ERAs)

A. NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this General Permit and shall compare the results to the two types of NAL values in Table 2 to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in Table 2. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA's NPDES Storm Water

[17] Part 419 - Petroleum refining point source category
[18] Part 443 - Effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category

Sampling Guidance Document.[19] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized by XI.C.5) to the corresponding instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

B. Baseline Status

At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

C. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.[20]

1. Level 1 ERA Evaluation

   a. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

   b. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,

   c. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

2. Level 1 ERA Report

[19] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf>. [as of February 4, 2014]

[20] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported.

a. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :

   i. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;

   ii. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:

      1) A summary of the Level 1 ERA Evaluation required in subsection C.1 above; and,

      2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.

   iii. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).

b. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

3. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.

Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS.

D. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.[21]

1. Level 2 ERA Action Plan

[21] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

a. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection D.2.a through c the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.

b. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.

c. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.

d. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.

e. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section D.2.a through c.

2. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

a. Industrial Activity BMPs Demonstration

This shall include the following requirements, as applicable:

i. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);

ii. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);

iii. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

iv. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:

1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;

2) Estimated costs of the additional BMPs evaluated; and,

3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

v. The description and analysis of BMPs required in subsection a.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

vi. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

b. Non-Industrial Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

ii. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;

iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;

iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;

v. A summary of all existing BMPs for that parameter; and,

vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

c. Natural Background Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

ii. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;

iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;

iv. Map showing the reference site location in relation to facility along with available land cover information;

v. Reference site and test site elevation;

vi. Available geology and soil information for reference and test sites;

vii. Photographs showing site vegetation;

viii. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,

ix. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

3. Level 2 ERA Technical Report Submittal

a. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report described in Section D.2 above.

b. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.

c. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances in accordance with Section XII.D.2.a.ii), facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

d. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

4. Eligibility for Returning to Baseline Status

a. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection 2.a.i through iii above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section D.3.c.

b. Dischargers are ineligible to return to baseline status if they submit any of the following:

   i. A industrial activity BMP demonstration in accordance with subsection 2.a.iv above;

   ii. An non-industrial pollutant source demonstration; or,

   iii. A natural background pollutant source demonstration.

5. Level 2 ERA Implementation Extension

a. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:

   i. Reasons for the time extension;

   ii. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and

   iii. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.

b. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

XIII. INACTIVE MINING OPERATION CERTIFICATION

A. Inactive mining operations are defined in Part 3 of Attachment A of this General Permit. The Discharger may, in lieu of complying with the General Permit requirements described in subsection B below, certify and submit via SMARTS that their inactive mining operation meets the following conditions:

1. The Discharger has determined and justified in the SWPPP that it is impracticable to implement the monitoring requirements in this General Permit for the inactive mining operation;

2. A SWPPP has been signed (wet signature and license number) by a California licensed professional engineer and is being implemented in accordance with the requirements of this General Permit; and,

3. The facility is in compliance with this General Permit, except as provided in subsection B below.

B. The Discharger who has certified and submitted that they meet the conditions in subsection A above, are not subject to the following General Permit requirements:

1. Monitoring Implementation Plan in Section X.I;

2. Monitoring Requirements in Section XI;

3. Exceedance Response Actions (ERAs) in Section XII; and,

4. Annual Report Requirements in Section XVI.

C. Inactive Mining Operation Certification Submittal Schedule

1. The Discharger shall certify and submit via SMARTS NOI coverage PRDs listed in Section II.B.1 and meet the conditions in subsection A above.

2. The Discharger shall annually inspect the inactive mining site and certify via SMARTS no later than July 15th of each reporting year, that their inactive mining operation continues to meet the conditions in subsection A above.

3. The Discharger shall have a California licensed professional engineer review and update the SWPPP if there are changes to their inactive mining operation or additional BMPs are needed to comply with this General Permit. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer.

4. The Discharger shall certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s).

XIV. COMPLIANCE GROUPS AND COMPLIANCE GROUP LEADERS

A. Compliance Group Qualification Requirements

1. Any group of Dischargers of the same industry type or any QISP representing Dischargers of the same industry type may form a Compliance Group. A Compliance Group shall consist of Dischargers that operate facilities with similar types of industrial activities, pollutant sources, and pollutant characteristics (e.g., scrap metals recyclers would join a different group than paper recyclers, truck vehicle maintenance facilities would join a different group than airplane vehicle maintenance facilities, etc.). A Discharger participating in a Compliance Group is termed a Compliance Group Participant. Participation in a Compliance Group is not required. Compliance Groups may be formed at any time.

2. Each Compliance Group shall have a Compliance Group Leader.

3. To establish a Compliance Group, the Compliance Group Leader shall register as a Compliance Group Leader via SMARTS. The registration shall include documentation demonstrating compliance with the Compliance Group qualification requirements above and a list of the Compliance Group Participants.

4. Each Compliance Group Participant shall register as a member of an established Compliance Group via SMARTS.

5. The Executive Director of the State Water Board may review Compliance Group registrations and/or activities for compliance with the requirements of this General Permit. The Executive Director may reject the Compliance Group, the Compliance Group Leader, or individual Compliance Group Participants within the Compliance Group.

B. Compliance Group Leader Responsibilities

1. A Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

2. The Compliance Group Leader shall assist Compliance Group Participants with all compliance activities required by this General Permit.

3. A Compliance Group Leader shall prepare a Consolidated Level 1 ERA Report for all Compliance Group Participants with Level 1 status for the same parameter. Compliance Group Participants who certify and submit these Consolidated Level 1 ERA Reports are subject to the same provisions as individual Dischargers with Level 1 status, as described in Section XII.C. A Consolidated Level 1 ERA Report is equivalent to a Level 1 ERA Report.

4. The Compliance Group Leader shall update the Consolidated Level 1 ERA Report as needed to address additional Compliance Group Participants with ERA Level 1 status.

5. A Compliance Group Leader shall prepare a Level 2 ERA Action Plan specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Action Plans are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

6. A Compliance Group Leader shall prepare a Level 2 ERA Technical Report specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Technical Reports are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

7. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants that have entered Level 2 status prior to preparing the individual Level 2 ERA Technical Report.

8. The Compliance Group Leader shall revise the Consolidated Level 1 ERA Report, individual Level 2 ERA Action Plans, or individual Level 2 Technical Reports in accordance with any comments received from the Water Boards.

9. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants at a minimum of once per reporting year (July 1 to June 30).

C. Compliance Group Participant Responsibilities

1. Each Compliance Group Participant is responsible for permit compliance for the Compliance Group Participant's facility and for ensuring that the Compliance Group Leader's activities related to the Compliance Group Participant's facility comply with this General Permit.

2. Compliance Group Participants with Level 1 status shall certify and submit via SMARTS the Consolidated Level 1 ERA Report. The Compliance Group Participants shall certify that they have reviewed the Consolidated Level 1 ERA Report and have implemented any required additional BMPs. Alternatively, the Compliance Group Participant may submit an individual Level 1 ERA Report in accordance with the provisions in Section XII.C.2.

3. Compliance Group Participants with Level 2 status shall certify and submit via SMARTS their individual Level 2 ERA Action Plan and Technical Report prepared by their Compliance Group Leader. Each Compliance Group Participant shall certify that they have reviewed the Level 2 ERA Action Plan and Technical Report and will implement any required additional BMPs.

4. Compliance Group Participants can at any time discontinue their participation in their associated Compliance Group via SMARTS. Upon discontinuation, the former Compliance Group Participant is immediately subject to the sampling and analysis requirements described in Section XI.B.2.

XV. ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Discharger shall conduct one Annual Evaluation for each reporting year (July 1 to June 30). If the Discharger conducts an Annual Evaluation fewer than eight (8) months, or more than sixteen (16) months, after it conducts the previous Annual Evaluation, it shall document the justification for doing so. The Discharger shall revise the SWPPP, as appropriate, and implement the revisions within 90 days of the Annual Evaluation. At a minimum, Annual Evaluations shall consist of:

A. A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;

B. An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;

C. An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII;

D. An inspection of equipment needed to implement the BMPs;

E. An inspection of any BMPs;

F. A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDs; and,

G. An assessment of any other factors needed to comply with the requirements in Section XVI.B.

XVI. ANNUAL REPORT

A. The Discharger shall certify and submit via SMARTS an Annual Report no later than July 15th following each reporting year using the standardized format and checklists in SMARTS.

B. The Discharger shall include in the Annual Report:

1. A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit;

2. An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;

3. An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and,

4. The date(s) of the Annual Evaluation.

XVII. CONDITIONAL EXCLUSION - NO EXPOSURE CERTIFICATION (NEC)

A. Discharges composed entirely of storm water that has not been exposed to industrial activity are not industrial storm water discharges. Dischargers are conditionally excluded from complying with the SWPPP and monitoring requirements of this General Permit if all of the following conditions are met:

1. There is no exposure of Industrial Materials and Activities to rain, snow, snowmelt, and/or runoff;

2. All unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV;

3. The Discharger has certified and submitted via SMARTS PRDs for NEC coverage pursuant to the instructions in Section II.B.2; and,

4. The Discharger has satisfied all other requirements of this Section.

B. NEC Specific Definitions

1. No Exposure - all Industrial Materials and Activities are protected by a Storm-Resistant Shelter to prevent all exposure to rain, snow, snowmelt, and/or runoff.

2. Industrial Materials and Activities - includes, but is not limited to, industrial material handling activities or equipment, machinery, raw materials, intermediate products, by-products, final products, and waste products.

3. Material Handling Activities - includes the storage, loading and unloading, transportation, or conveyance of any industrial raw material, intermediate product, final product, or waste product.

4. Sealed - banded or otherwise secured, and without operational taps or valves.

5. Storm-Resistant Shelters - includes completely roofed and walled buildings or structures. Also includes structures with only a top cover supported by permanent supports but with no side coverings, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), or track-out, and there is no storm water discharged from within the structure that comes into contact with any materials.

C. NEC Qualifications

To qualify for an NEC, a Discharger shall:

1. Except as provided in subsection D below, provide a Storm-Resistant Shelter to protect Industrial Materials and Activities from exposure to rain, snow, snowmelt, run-on, and runoff;

2. Inspect and evaluate the facility annually to determine that storm water exposed to industrial materials or equipment has not and will not be discharged to waters of the United States. Evaluation records shall be maintained for five (5) years in accordance with Section XXI.J.4;

3. Register for NEC coverage by certifying that there are no discharges of storm water contaminated by exposure to Industrial Materials and Activities from areas of the facility subject to this General Permit, and certify that all unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV (Authorized NSWDs). NEC coverage and annual renewal requires payment of an annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.; and,

4. Submit PRDs for NEC coverage shall be prepared and submitted in accordance with the:

   a. Certification requirements in Section XXI.K; and,

   b. Submittal schedule in accordance with Section II.B.2.

D. NEC Industrial Materials and Activities - Storm-Resistant Shelter Not Required

To qualify for NEC coverage, a Storm-Resistant Shelter is not required for the following:

1. Drums, barrels, tanks, and similar containers that are tightly Sealed, provided those containers are not deteriorated, do not contain residual industrial materials on the outside surfaces, and do not leak;

2. Adequately maintained vehicles used in material handling;

3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt);

4. Any Industrial Materials and Activities that are protected by a temporary shelter for a period of no more than ninety (90) days due to facility construction or remodeling; and,

5. Any Industrial Materials and Activities that are protected within a secondary containment structure that will not discharge storm water to waters of the United States.

E. NEC Limitations

1. NEC coverage is available on a facility-wide basis only, not for individual outfalls. If a facility has industrial storm water discharges from one or more drainage areas that require NOI coverage, Dischargers shall register for NOI coverage for the entire facility through SMARTS in accordance with Section II.B.2. Any drainage areas on that facility that would otherwise qualify for NEC coverage may be specially addressed in the facility SWPPP by including an NEC Checklist and a certification statement demonstrating that those drainage areas of the facility have been evaluated; and that none of the Industrial Materials or Activities listed in subsection C above are, or will be in the foreseeable future, exposed to precipitation.

2. If circumstances change and Industrial Materials and Activities become exposed to rain, snow, snowmelt, and/or runoff, the conditions for this exclusion shall no longer apply. In such cases, the Discharger may be subject to enforcement for discharging without a permit. A Discharger with NEC coverage that anticipates changes in circumstances should register for NOI coverage at least seven (7) days before anticipated exposure.

3. The Regional Water Board may deny NEC coverage and require NOI coverage upon determining that:

   a. Storm water is exposed to Industrial Materials and Activities; and/or

   b. The discharge has a reasonable potential to cause or contribute to an exceedance of an applicable water quality standards.

F. NEC Permit Registration Documents Required for Initial NEC Coverage

A Discharger shall submit via SMARTS the following PRDs for NEC coverage to document the applicability of the conditional exclusion:

1. The NEC form, which includes:

   a. The legal name, postal address, telephone number, and e-mail address of the Discharger;

   b. The facility business name and physical mailing address, the county name, and a description of the facility location if the facility does not have a physical mailing address; and,

   c. Certification by the Discharger that all PRDs submitted are correct and true and the conditions of no exposure have been met.

2. An NEC Checklist prepared by the Discharger demonstrating that the facility has been evaluated; and that none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

a. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;

b. Materials or residuals on the ground or in storm water inlets from spills/leaks;

c. Materials or products from past industrial activity;

d. Material handling equipment (except adequately maintained vehicles);

e. Materials or products during loading/unloading or transporting activities;

f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

j. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,

k. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. Site Map (see Section X.E).

G. Requirements for Annual NEC Coverage Recertification

By October 1 of each reporting year beginning in 2015, any Discharger who has previously registered for NEC coverage shall either submit and certify an NEC demonstrating that the facility has been evaluated, and that none of the Industrial Materials or Activities listed above are, or will be in the foreseeable future, exposed to precipitation, or apply for NOI coverage.

H. NEC Certification Statement

All NEC certifications and re-certifications shall include the following certification statement:

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of ‘no exposure’ and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities *or materials from the industrial facility identified in this document (except as allowed in subsection C above). I understand that I am obligated to submit a no exposure certification form annually to the State Water Board and, if requested, to the operator of the local Municipal Separate Storm Sewer System (MS4) into which this facility discharges (where applicable). I understand that I must allow the Water Board staff, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

XVIII. SPECIAL REQUIREMENTS - PLASTIC MATERIALS

A. Facilities covered under this General Permit that handle Plastic Materials are required to implement BMPs to eliminate discharges of plastic in storm water in addition to the other requirements of this General Permit that are applicable to all other Industrial Materials and Activities. Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site. Any Dischargers' facility handling Plastic Materials will be referred to as Plastics Facilities in this General Permit. Any Plastics Facility covered under this General Permit that manufactures, transports, stores, or consumes these materials shall submit information to the State Water Board in their PRDs, including the type and form of plastics, and which BMPs are implemented at the facility to prevent illicit discharges. Pursuant to Water Code section 13367, Plastics Facilities are subject to mandatory, minimum BMPs.

1. At a minimum, Plastics Facilities shall implement and include in the SWPPP:

    a. Containment systems at each on-site storm drain discharge location down gradient of areas containing plastic material. The containment system shall be designed to trap all particles retained by a 1mm mesh screen, with a treatment capacity of no less than the peak flow rate from a one-year, one-hour storm.

    b. When a containment system is infeasible, or poses the potential to cause an illicit discharge, the facility may propose a technically feasible alternative BMP or suite of BMPs. The alternative BMPs shall be designed to achieve the same or better performance standard as a 1mm mesh screen with a treatment capacity of the peak flow rate from a one-year, one-hour storm. Alternative BMPs shall be submitted to the Regional Water Board for approval.

c. Plastics Facilities shall use durable sealed containers designed not to rupture under typical loading and unloading activities at all points of plastic transfer and storage.

d. Plastics Facilities shall use capture devices as a form of secondary containment during transfers, loading, or unloading Plastic Materials. Examples of capture devices for secondary containment include, but are not limited to catch pans, tarps, berms or any other device that collects errant material.

e. Plastics Facilities shall have a vacuum or vacuum-type system for quick cleanup of fugitive plastic material available for employees.

f. Pursuant to Water Code section 13367(e)(1), Plastics Facilities that handle Plastic Materials smaller than 1mm in size shall develop a containment system designed to trap the smallest plastic material handled at the facility with a treatment capacity of at least the peak flow rate from a one-year, one-hour storm, or develop a feasible alternative BMP or suite of BMPs that are designed to achieve a similar or better performance standard that shall be submitted to the Regional Water Board for approval.

2. Plastics Facilities are exempt from the Water Code requirement to install a containment system under section 13367 of the Water Code if they meet one of the following requirements that are determined to be equal to, or exceed the performance requirements of a containment system:

   a. The Discharger has certified and submitted via SMARTS a valid No Exposure Certification (NEC) in accordance with Section XVII; or

   b. Plastics Facilities are exempt from installing a containment system, if the following suite of eight (8) BMPs is implemented. This combination of BMPs is considered to reduce or prevent the discharge of plastics at a performance level equivalent to or better than the 1mm mesh and flow standard in Water Code section 13367(e)(1).

      i. Plastics Facilities shall annually train employees handling Plastic Materials. Training shall include environmental hazards of plastic discharges, employee responsibility for corrective actions to prevent errant Plastic Materials, and standard procedures for containing, cleaning, and disposing of errant Plastic Materials.

ii. Plastics Facilities shall immediately fix any Plastic Materials containers that are punctured or leaking and shall clean up any errant material in a timely manner.

iii. Plastics Facilities shall manage outdoor waste disposal of Plastic Materials in a manner that prevents the materials from leaking from waste disposal containers or during waste hauling.

iv. Plastics Facilities that operate outdoor conveyance systems for Plastic Materials shall maintain the system in good operating condition. The system shall be sealed or filtered in such a way as to prevent the escape of materials when in operation. When not in operation, all connection points shall be sealed, capped, or filtered so as to not allow material to escape. Employees operating the conveyance system shall be trained how to operate in a manner that prevents the loss of materials such as secondary containment, immediate spill response, and checks to ensure the system is empty during connection changes.

v. Plastics Facilities that maintain outdoor storage of Plastic Materials shall do so in a durable, permanent structure that prevents exposure to weather that could cause the material to migrate or discharge in storm water.

vi. Plastics Facilities shall maintain a schedule for regular housekeeping and routine inspection for errant Plastic Materials. The Plastics Facility shall ensure that their employees follow the schedule.

vii. PRDs shall include the housekeeping and routine inspection schedule, spill response and prevention procedures, and employee training materials regarding plastic material handling.

viii. Plastics Facilities shall correct any deficiencies in the employment of the above BMPs that result in errant Plastic Materials that may discharge or migrate off-site in a timely manner. Any Plastic Materials that are discharged or that migrate off-site constitute an illicit discharge in violation of this General Permit.

XIX. REGIONAL WATER BOARD AUTHORITIES

A. The Regional Water Boards may review a Discharger’s PRDs for NOI or NEC coverage and administratively reject General Permit coverage if the PRDs are deemed incomplete. The Regional Water Boards may take actions that include rescinding General Permit coverage, requiring a Discharger to revise and re-submit their PRDs (certified and submitted by the Discharger) within a specified time period, requiring the Discharger to apply for different General Permit coverage or a different individual or general permit, or taking no action.

B. The Regional Water Boards have the authority to enforce the provisions and requirements of this General Permit. This includes, but is not limited to, reviewing SWPPPs, Monitoring Implementation Plans, ERA Reports, and Annual Reports, conducting compliance inspections, and taking enforcement actions.

C. As appropriate, the Regional Water Boards may issue NPDES storm water general or individual permits to a Discharger, categories of Dischargers, or Dischargers within a watershed or geographic area. Upon issuance of such NPDES permits, this General Permit shall no longer regulate the affected Discharger(s).

D. The Regional Water Boards may require a Discharger to revise its SWPPP, ERA Reports, or monitoring programs to achieve compliance with this General Permit. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.

E. The Regional Water Boards may approve requests from a Discharger to include co-located, but discontiguous, industrial activities within the same facility under a single NOI or NEC coverage.

F. Consistent with 40 Code of Federal Regulations section 122.26(a)(9)(i)(D), the Regional Water Boards may require any discharge that is not regulated by this General Permit, that is determined to contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States, to be covered under this General Permit as appropriate. Upon designation, the Discharger responsible for the discharge shall obtain coverage under this General Permit.

G. The Regional Water Boards may review a Discharger's Inactive Mining Operation Certification and reject it at any time if the Regional Water Board determines that access to the facility for monitoring purposes is practicable or that the facility is not in compliance with the applicable requirements of this General Permit.

H. All Regional Water Board actions that modify a Discharger's obligations under this General Permit must be in writing and should also be submitted in SMARTS.

XX. SPECIAL CONDITIONS

A. Reopener Clause

This General Permit may be reopened and amended to incorporate TMDL-related provisions. This General Permit may also be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, water quality control plans or water quality control policies, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations sections 122.62, 122.63, 122.64, and 124.5.

B. Water Quality Based Corrective Actions

1. Upon determination by the Discharger or written notification by the Regional Water Board that industrial storm water discharges and/or authorized NSWDs contain pollutants that are in violation of Receiving Water Limitations (Section VI), the Discharger shall:

   a. Conduct a facility evaluation to identify pollutant source(s) within the facility that are associated with industrial activity and whether the BMPs described in the SWPPP have been properly implemented;

   b. Assess the facility's SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI); and,

   c. Certify and submit via SMARTS documentation based upon the above facility evaluation and assessment that:

      i. Additional BMPs and/or SWPPP implementation measures have been identified and included in the SWPPP to meet the Receiving Water Limitations (Section VI); or

      ii. No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI).

2. The Regional Water Board may reject the Dischargers water quality based corrective actions and/or request additional supporting documentation.

C. Requirements for Dischargers Claiming "No Discharge" through the Notice of Non-Applicability (NONA)

1. For the purpose of the NONA, the Entity (Entities) is referring to the person(s) defined in section 13399.30 of the Water Code.

2. Entities who are claiming "No Discharge" through the NONA shall meet the following eligibility requirements:

   a. The facility is engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website (or other nearby precipitation data available from other government agencies) so that there will be no discharge of industrial storm water to waters of the United States; or,

   b. The facility is located in basins or other physical locations that are not hydrologically connected to waters of the United States.

3. When claiming the "No Discharge" option, Entities shall submit and certify via SMARTS both the NONA and a No Discharge Technical Report. The No

Discharge Technical Report shall demonstrate the facility meets the eligibility requirements described above.

4. The No Discharge Technical Report shall be signed (wet signature and license number) by a California licensed professional engineer.

XXI. STANDARD CONDITIONS

A. Duty to Comply

Dischargers shall comply with all standard conditions in this General Permit. Permit noncompliance constitutes a violation of the Clean Water Act and the Water Code and is grounds for enforcement action and/or removal from General Permit coverage.

Dischargers shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions.

B. Duty to Reapply

Dischargers that wish to continue an activity regulated under this General Permit after the expiration date of this General Permit shall apply for and obtain authorization from the Water Boards as required by the new general permit once it is issued.

C. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. Submittal of a request by the Discharger for General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

2. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

D. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for a Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

E. Duty to Mitigate

Dischargers shall take all responsible steps to reduce or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Proper Operation and Maintenance

Dischargers shall at all times properly operate and maintain any facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a Discharger when necessary to achieve compliance with the conditions of this General Permit.

G. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges. It also does not authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of federal, state, or local laws and regulations.

H. Duty to Provide Information

Upon request by the relevant agency, Dischargers shall provide information to determine compliance with this General Permit to the Water Boards, U.S. EPA, or local Municipal Separate Storm Sewer System (MS4) within a reasonable time. Dischargers shall also furnish, upon request by the relevant agency, copies of records that are required to be kept by this General Permit.

I. Inspection and Entry

Dischargers shall allow the Water Boards, U.S. EPA, and local MS4 (including any authorized contractor acting as their representative), to:

1. Enter upon the premises at reasonable times where a regulated industrial activity is being conducted or where records are kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

3. Inspect the facility at reasonable times; and,

4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. If Dischargers monitor any pollutant more frequently than required, the results of such monitoring shall be included in the calculation and reporting of the data submitted.

3. Records of monitoring information shall include:

   a. The date, exact location, and time of sampling or measurement;

   b. The date(s) analyses were performed;

   c. The individual(s) that performed the analyses;

   d. The analytical techniques or methods used; and,

   e. The results of such analyses.

4. Dischargers shall retain, for a period of at least five (5) years, either a paper or electronic copy of all storm water monitoring information, records, data, and reports required by this General Permit. Copies shall be available for review by the Water Board's staff at the facility during scheduled facility operating hours.

5. Upon written request by U.S. EPA or the local MS4, Dischargers shall provide paper or electronic copies of Annual Reports or other requested records to the Water Boards, U.S. EPA, or local MS4 within ten (10) days from receipt of the request.

K. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) for NOI and NEC coverage shall be certified and submitted via SMARTS by the Discharger's Legally Responsible Person (LRP). All other documents may be certified and submitted via SMARTS by the LRP or by their designated Duly Authorized Representative.

2. When a new LRP or Duly Authorized Representative is designated, the Discharger shall ensure that the appropriate revisions are made via SMARTS. In unexpected or emergency situations, it may be necessary for the Discharger to directly contact the State Water Board's Storm Water Section to register for SMARTS account access in order to designate a new LRP.

3. Documents certified and submitted via SMARTS by an unauthorized or ineligible LRP or Duly Authorized Representative are invalid.

4. LRP eligibility is as follows:

    a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or

        ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;

    c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

5. Duly Authorized Representative eligibility is as follows:

    a. The Discharger must authorize via SMARTS any person designated as a Duly Authorized Representative;

    b. The authorization shall specify that a person designated as a Duly Authorized Representative has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company; and,

    c. The authorization must be current (it has been updated to reflect a different individual or position) prior to any report submittals, certifications, or records certified by the Duly Authorized Representative.

L. Certification

Any person signing, certifying, and submitting documents under Section XXI.K above shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

M. Anticipated Noncompliance

Dischargers shall give advance notice to the Regional Water Board and local MS4 of any planned changes in the industrial activity that may result in noncompliance with this General Permit.

N. Penalties for Falsification of Reports

Clean Water Act section 309(c)(4) provides that any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the initiation of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under section 311 of the Clean Water Act.

P. Severability

The provisions of this General Permit are severable; if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Penalties for Violations of Permit Conditions

1. Clean Water Act section 309 provides significant penalties for any person that violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing any such section in a permit issued under section 402. Any

person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500[22] per calendar day of such violation, as well as any other appropriate sanction provided by section 309 of the Clean Water Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which may be greater than penalties under the Clean Water Act.

R. Transfers

Coverage under this General Permit is non-transferrable. When operation of the facility has been transferred to another entity, or a facility is relocated, new PRDs for NOI and NEC coverage must be certified and submitted via SMARTS prior to the transfer, or at least seven (7) days prior to the first day of operations for a relocated facility.

S. Continuation of Expired General Permit

If this General Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 Code of Federal Regulations 122.6 and remain in full force and effect.

[22] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FACT SHEET FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
NPDES NO. CAS000001

*The factsheet to the IGP was updated in January 2015 to correct typographical errors. The deadline listed in Section I.D.13 (page 8) and Section II.G.1 (page 27) of the factsheet for dischargers with outfalls to ocean waters to develop and implement a monitoring program in compliance with the California Ocean Plan model monitoring provisions was corrected to July 1, 2015, which is the deadline listed in finding 44 in the general order.

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I. BACKGROUND

A. Purpose

The purpose of this Fact Sheet is to explain the legal requirements and technical rationale that serve as the basis for the requirements of this Order 2014-0057-DWQ (General Permit), adopted by the State Water Resources Control Board (State Water Board) on April 1, 2014. This General Permit regulates operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges). This General Permit replaces Water Quality Order 97-03-DWQ**.** This Fact Sheet does not contain any independently-enforceable requirements; the General Permit contains all of the actual requirements applicable to Dischargers. In case of any conflict between the Fact Sheet and the General Permit, the terms of the General Permit govern.

B. History

The Federal Clean Water Act (CWA)[1] prohibits discharges from point sources to waters of the United States, unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (CWA § 301(a).) In 1987, the CWA was amended to establish a framework for regulating municipal storm water discharges and discharges of storm water associated with industrial activity (industrial storm water discharges) under the NPDES program. (CWA § 402(p).) In 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated regulations, commonly known as Phase I, establishing application requirements for storm water permits for specified categories of industries. (40 C.F.R. § 122.26.) In 1992, U.S. EPA revised the monitoring requirements for industrial storm water discharges. (40 C.F.R. § 122.44(i)(2), (4), (5).) In 1999, U.S. EPA adopted additional storm water regulations, known as Phase II. (64 Fed. Reg. 68722.) The Phase II regulations provide for, among other things, a conditional exclusion from NPDES permitting requirements for industrial activities that have no exposure to storm water.

Industrial storm water discharges are regulated pursuant to CWA section 402(p)(3)(A). This provision requires NPDES permits for industrial storm water discharges to implement CWA section 301, which includes requirements for Dischargers to comply with technology-based effluent limitations, and any more stringent water quality-based limitations necessary to meet water quality standards. Technology-based effluent limitations applicable to industrial activities are based on best conventional pollutant control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. (CWA § 301(b)(1)(A) and (2)(A).) To ensure compliance with water quality standards, NPDES permits may also require a Discharger to implement best management practices (BMPs). 40 Code of Federal Regulations section 122.44(k)(4) requires the use of BMPs to control or abate the discharge of pollutants when numeric effluent limitations (NELs) are infeasible. The State Water Board has concluded that it is infeasible to establish

[1] Federal Water Pollution Control Act of 1970 (also referred to as the Clean Water Act or CWA), 33 U.S.C. § 1201 et seq. All further statutory references herein are to the CWA unless otherwise indicated.

NELs for storm water discharges associated with industrial activity due to insufficient information at the time of adoption of this General Permit.

On April 17, 1997, the State Water Board issued NPDES General Permit for Industrial Storm Water Discharges, Excluding Construction Activities, Water Quality Order 97-03-DWQ (previous permit). This General Permit, Order 2014-0057-DWQ rescinds the previous permit and serves as the statewide general permit for industrial storm water discharges. The State Water Board concludes that significant revisions to the previous permit requirements are necessary for implementation, consistency and objective enforcement. As discussed in this Fact Sheet, this General Permit requires Dischargers to:

- Eliminate unauthorized non-storm water discharges (NSWDs);
- Develop and implement storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs);
- Implement minimum BMPs, and advanced BMPs as necessary, to achieve compliance with the effluent and receiving water limitations of this General Permit;
- Conduct monitoring, including visual observations and analytical storm water monitoring for indicator parameters;
- Compare monitoring results for monitored parameters to applicable numeric action levels (NALs) derived from the U.S. EPA 2008 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2008 MSGP) and other industrial storm water discharge monitoring data collected in California;
- Perform the appropriate Exceedance Response Actions (ERAs) when there are exceedances of the NALs; and,
- Certify and submit all permit-related compliance documents via the Storm Water Multiple Application and Report Tracking System (SMARTS). Dischargers shall certify and submit these documents which include, but are not limited to, Permit Registration Documents (PRDs) including Notices of Intent (NOIs), No Exposure Certifications (NECs), and Storm Water Pollution Prevention Plans (SWPPPs), as well as Annual Reports, Notices of Termination (NOTs), Level 1 ERA Reports, and Level 2 ERA Technical Reports.

C. Blue Ribbon Panel of Experts (Panel)

In 2005 and 2006, the State Water Board convened a Blue Ribbon Panel of Experts (Panel) to address the feasibility of NELs in California's storm water permits. Specifically, the Panel was charged with answering the following questions:

> Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits?

How would such limitations or criteria be established, and what information and data would be required?[2]

The Panel was directed to answer these questions for industrial storm water discharge general permits, construction storm water discharge general permits, and area-wide municipal storm water discharge permits. The Panel was also directed to address both technology-based and water quality based limitations and criteria.

In evaluating the establishment of numeric limitations and criteria, the Panel was directed to consider all of the following:

- The ability of the State Water Board to establish appropriate objective limitations or criteria;
- How compliance is to be determined;
- The ability of Dischargers and inspectors to monitor for compliance; and
- The technical and financial ability of Dischargers to comply with the limitations or criteria.

Following an opportunity for public comment, the Panel identified several water quality concerns, public process and program effectiveness issues. A summary of the Panel's recommendations regarding industrial storm water discharges follows:[3]

- Current data are inadequate; accordingly, the State Water Board should improve monitoring requirements to collect useful data for establishing NALs and NELs.
- Required parameters for further monitoring should be consistent with the type of industrial activity (i.e., monitor for heavy metals when there is a reasonable expectation that the industrial activity will contribute to increased heavy metals concentrations in storm water).
- Insofar as possible, the use of California data (or national data applicable to California) is preferred when setting NELs and NALs.
- Industrial facilities that do not discharge to Municipal Separate Storm Sewer Systems (MS4s) should implement BMPs for their non-industrial exposure (e.g., parking lots, roof runoff) similar to BMPs implemented by commercial facilities in MS4 jurisdictions.

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[2] State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006). <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf>. [as of February 4, 2014].

[3] See footnote 2.

- In all cases, Dischargers should implement a suite of minimum BMPs, including, but not limited to, good housekeeping practices, employee training, and preventing exposure of materials to rain.

- Standard Industrial Classification (SIC) code categories are not a satisfactory way of identifying industrial activities at any given site. The State Water Board should develop an improved method of characterizing industrial activities that will improve water quality in storm water.

- Recognizing that implementing the Panel's suggested changes is a large task, the State Water Board should set priorities for implementation of the Panel's suggested approach in order to achieve the greatest reduction of pollutants statewide.

- Recognizing that an increasing number of industries have moved industrial activities indoors to prevent storm water pollution, such facilities should be granted regulatory relief from NALs and/or NELs , but should still be required to comply with any applicable MS4 permit requirements.

- Recognizing the need for improved monitoring and reduction of pollutants in industrial storm water discharges, the State Water Board should consider the total economic impact of its requirements to not economically penalize California industries when compared to industries outside of California.

With regard to the industrial activities component of its charge, the Panel limited its focus to the question of whether sampling data can be used to derive technology-based NELs. The Panel did not address other factors or approaches that may relate to the task of determining technology- and water quality-based NELs consistent with the regulations and law. Examples of these other factors are discussed in more detail in this Fact Sheet. Additionally, in its final report the Panel did not clearly differentiate between the role of numeric and non-numeric effluent limitations, nor did it consider U.S. EPA procedures used to promulgate effluent limitation guidelines (ELGs) in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N).

D. Summary of Significant Changes in this General Permit

The previous permit issued by the State Water Board on April 17, 1997, had been administratively extended since 2002 until the adoption of this General Permit. Significant revisions to the previous permit were necessary to update permit requirements consistent with recent regulatory changes pertaining to industrial storm water under the CWA. This General Permit differs from the previous permit in the following areas:

1. Minimum Best Management Practices (BMPs)

   This General Permit requires Dischargers to implement a set of minimum BMPs. Implementation of the minimum BMPs, in combination with any advanced BMPs (BMPs, collectively,) necessary to reduce or prevent pollutants in industrial storm water discharges, serve as the basis for compliance with this General Permit's technology-based effluent limitations and water quality based receiving water limitations. Although there is great variation in industrial activities and pollutant sources between industrial sectors and, in some cases between operations within the same industrial sector, the minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities.

The previous permit did not require a minimum set of BMPs but rather allowed Dischargers to consider which non-structural BMPs should be implemented and which structural BMPs should be considered for implementation when non-structural BMPs are ineffective.

This General Permit requires Dischargers to implement minimum BMPs (which are mostly non-structural BMPs), and advanced BMPs (which are mostly structural BMPs) when implementation of the minimum BMPs do not meet the requirements of the General Permit. Advanced BMPs consists of treatment control BMPs, exposure reduction BMPs, and storm water containment and discharge reduction BMPs. BMPs that exceed the performance expectation of minimum BMPs are considered advanced BMPs. Dischargers are encouraged to utilize advanced BMPs that infiltrate or reuse storm water where feasible.

The minimum and advanced BMPs required in this General Permit are consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP), guidance developed by the California Stormwater Quality Association, and recommendations by Regional Water Quality Control Board (Regional Water Board) inspectors. Dischargers are required to evaluate BMPs being implemented and determine an appropriate interval for the implementation and inspection of these BMPs.

2. Conditional Exclusion - No Exposure Certification (NEC)

   This General Permit applies U.S. EPA Phase II regulations regarding a conditional exclusion for facilities that have no exposure of industrial activities and materials to storm water. (40 C.F.R. § 122.26(g).) (The previous permit required light industries to obtain coverage only if their activities were exposed to storm water.) This General Permit implements current U.S. EPA rules allowing any type of industry to claim a conditional exclusion. The NEC requires enrollment for coverage prior to conditionally excluding a Discharger from a majority of this General Permit's requirements.

3. Electronic Reporting Requirements

   This General Permit requires Dischargers to submit and certify all reports electronically via SMARTS. The previous permit used a paper reporting process with electronic reporting as an option.

4. Training Expectations and Roles

   This General Permit requires that Dischargers arrange to have appropriately trained personnel implementing this General Permit's requirements at each facility. In addition, if a Discharger's facility enters Level 1 status, the Level 1 ERA Report must be prepared by a Qualified Industrial Storm Water Practitioner (QISP). All Action Plans and Technical Reports required in Level 2 status must also be prepared by a QISP.

Dischargers may appoint a staff person to complete the QISP training or may contract with an outside QISP. QISP training is tailored to persons with a high degree of technical knowledge and environmental experience. Although QISPs do not need to be California licensed professional engineers, it may be necessary to involve a California licensed professional engineer to perform certain aspects of the Technical Reports.

5. Numeric Action Levels (NALs) and NAL Exceedances

This General Permit contains two types of NAL exceedances. An annual NAL exceedance occurs when the average of all sampling results within a reporting year for a single parameter (except pH) exceeds the applicable annual NAL. The annual NALs are derived from, and function similarly to, the benchmark values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the applicable instantaneous maximum NAL value. Instantaneous maximum NALs for Total Suspended Solids (TSS) and Oil and Grease (O&G) are based on previously gathered California industrial storm water discharge monitoring data. The instantaneous maximum NAL for pH is derived from the benchmark value provided in the 2008 MSGP.

6. Exceedance Response Actions (ERA)

This General Permit requires Dischargers to develop and implement ERAs, when an annual NAL or instantaneous maximum NAL exceedance occurs during a reporting year. The first time an annual NAL or instantaneous maximum NAL exceedance occurs for any one parameter, a Discharger's status is changed from Baseline to Level 1 status, and the Discharger is required to evaluate and revise, as necessary, its BMPs (with the assistance of a QISP) and submit a report prepared by a QISP. The second time an annual NAL or instantaneous maximum NAL exceedance occurs for the same parameter in a subsequent reporting year, the Discharger's status is changed from Level 1 to Level 2 status, and Dischargers are required to submit a Level 2 ERA Action Plan and a Level 2 ERA Technical Report. Unless the demonstration is not accepted by the State Water Board or a Regional Water Board, the Discharger is not required to perform additional ERA requirements for the parameter(s) involved if the Discharger demonstrates that:

a. Additional BMPs required to eliminate NAL exceedances are not technologically available or economically practicable and achievable; or,

b. NAL exceedances are solely caused by non-industrial pollutant sources; or,

c. NAL exceedances are solely attributable to pollutants from natural background sources.

Information supporting the above demonstrations must be included in QISP-prepared Level 2 ERA Technical Reports.

7. CWA section 303(d) Impairment

This General Permit requires a Discharger to monitor additional parameters if the discharge(s) from its facility contributes pollutants to receiving waters that are listed as impaired for those pollutants (CWA section 303(d) listings). This General Permit lists the receiving waters that are 303(d) listed as impaired for pollutants that are likely to be associated with industrial storm water in Appendix 3. For example, if a Discharger discharges to a water body that is listed as impaired for copper, and the discharge(s) from its facility has the potential sources of copper, the Discharger must add copper to the list of parameters to monitor in its storm water discharge.

8. Design Storm Standards for Treatment Control BMPs

This General Permit includes design storm standards for Dischargers implementing treatment control BMPs. The design storm standards include both volume- and flow-based criteria. Dischargers are not required to retrofit existing treatment control BMPs unless required to meet the technology-based effluent limitations and receiving water limitations in this General Permit.

9. Qualifying Storm Event (QSE)

This General Permit defines a QSE as a precipitation event that:

a. Produces a discharge for at least one drainage area; and,

b. Is preceded by 48 hours with no discharge from any drainage area.

The definition above differs from the definition in the previous permit, resulting in an increase number of QSEs eligible for sample collection. Therefore, most Dischargers will be able to collect the required number of samples, regardless of their facility location.

10. Sampling Protocols

This General Permit requires Dischargers to collect samples during scheduled facility operating hours from each drainage location within four hours of: (1) the start of the discharge from a QSE occurring during scheduled facility operating hours, or (2) the start of scheduled facility operating hours if the QSE occurred in the previous twelve (12) hours. The benefits of this sampling protocol: (a) allows a more reasonable amount of time to collect samples, (b) increases the likelihood for samples collected at discharge locations to be representative of the drainage area discharge characteristics, (c) increases the number of QSEs eligible for sample collection, and, (d) reduces the likelihood of Dischargers collecting samples with short-term concentration spikes.

The previous permit required that Dischargers collect grab samples during the first hour of discharge that commenced during scheduled facility operating hours. These sample collection requirements were widely considered to be too rigid and out of step with other states' sample collection requirements. Since many storm events begin in the evening or early morning hours, numerous opportunities to collect samples were lost because Dischargers could not obtain samples during the first hour of discharge. Dischargers with facilities that have multiple discharge locations had difficulties collecting samples within such a short timeframe therefore affecting data quality.

11. Sampling Frequency

This General Permit increases the sampling frequency by requiring the Discharger to collect and analyze storm water samples from each discharge location for two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30). The increased sampling, compared to the previous permit's two samples during the wet season, is consistent with the 2008 MSGP and other states' permit requirements and will improve compliance determination with this General Permit. The State Water Board expects that the elimination of the wet season sampling requirements will increase the number of possible QSEs eligible for monitoring.

12. Compliance Groups

To allow industrial facilities to efficiently share knowledge, skills and resources towards achieving General Permit compliance, this General Permit allows the formation of Compliance Groups and Compliance Group Leaders. Dischargers participating in a Compliance Group (Compliance Group Participants) are collectively required to sample twice a year. Compliance Group Leaders are required to be approved through the State Water Board-approved training program process, inspect each facility once within each reporting year, and prepare Level 1 and Level 2 ERA reports as necessary. The Compliance Group option is described in more detail in General Permit section XIV and in this Fact Sheet in the Section titled "Compliance Groups."

13. Discharges to Ocean Waters

This General Permit requires Dischargers with ocean-discharging outfalls subject to model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

II. TECHNICAL RATIONALE FOR REQUIREMENTS IN THIS GENERAL PERMIT

A. Receiving General Permit Coverage

1. This General Permit provides regulatory coverage for new and existing industrial storm water discharges and authorized NSWDs from:

   a. Facilities required by federal regulations to obtain an NPDES permit;

   b. Facilities designated by the Regional Water Boards to obtain an NPDES permit; and,

   c. Facilities directed by the Regional Water Boards to obtain coverage specifically under this General Permit. The Regional Water Board typically directs a Discharger to change General Permit coverage under two circumstances:

      (1) switch from an individual NPDES permit to this General Permit, or

      (2) switch from the NPDES General Permit for Storm Water Discharges Associated with Construction And Land Disturbance Activities, (Order 2009-0009-DWQ, NPDES No CAS000002 (to this General Permit for long-term construction related activities that are similar to industrial activities (e.g. concrete batch plants).

   40 Code of Federal Regulations section 122.26(b)(14) defines "storm water discharge associated with industrial activity" and describes the types of facilities subject to permitting (primarily by Standard Industrial Classification (SIC) code). This General Permit provides regulatory coverage for all facilities with industrial activities described in Attachment A where the covered industrial activity is the Discharger's primary industrial activity. In some instances, a Discharger may have more than one primary industrial activity occurring at a facility.

   The 1987 SIC manual uses the term “establishment” to determine the primary economic activity of a facility. The manual instructs that where distinct and separate economic activities are performed at a single location, each activity should be treated as a separate establishment (and, therefore, separate primary activity). For example, the United States Navy (primary SIC code 9711) may conduct industrial activities subject to permitting under this General Permit, such as landfill operations (SIC code 4953), ship and boat building and repair (SIC code 3731, and flying field operations (SIC code 4581).

   The SIC manual also discusses “auxiliary” functions of establishments. Auxiliary functions provide management or support services to the establishment. Examples of auxiliary functions are warehouses and storage facilities for the establishment's own materials, maintenance and repair shops of the establishment's own machinery, automotive repair shops or storage garages of the establishment's own vehicles, administrative offices, research, development, field engineering support, and testing conducted for the establishment. When auxiliary functions are performed at physically separate facilities from the establishment they serve, they generally are not subject to General Permit coverage. If auxiliary functions are performed at the same physical location as the establishment, then they are subject to General Permit coverage if they are associated with industrial activities.

This clarification does not change the scope of which facilities are subject to permitting relative to the 1997 IGP. The 1997 IGP Fact Sheet had used the term "auxiliary" to describe a facility's separate primary activities, which has caused confusion.

In 1997, the North American Industrial Classification System (NAICS) was published, replacing the SIC code system. The U.S. EPA has indicated that it intends to incorporate the NAICS codes into the federal storm water regulations but has not done so yet. The State Water Board recognizes that many Dischargers in newer industries were not included in the 1987 SIC code manual and may have difficulty determining their SIC code information. To address this transition, SMARTS has been modified to accept both SIC codes and NAICS codes, and NAICS codes are automatically translated into SIC codes. There may be instances of conflict between SIC and NAICS codes. The use of NAICS codes shall not expand or reduce the types of industries subject to this General Permit as compared to the SIC codes listed in the General Permit. State Water Board staff will work closely with the applicant to resolve these conflicts in SMARTS as they are identified. Dischargers should be aware that the use of an NAICS code which results in failure to submit any of the required PRDs under this General Permit remains a violation of the terms of this General Permit.

The facilities included in category one of Attachment A (facilities subject to Subchapter N) are subject to storm water ELGs that are incorporated into the requirements of this General Permit. Dischargers whose facilities are included in this category must examine the appropriate federal ELGs to determine the applicability of those guidelines. This General Permit contains additional requirements (Section XI.D) that apply only to facilities with storm water ELGs.

2. Types of Discharges Not Covered by this General Permit

   a. Discharges from construction and land disturbance activities that are subject to the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).

   b. Discharges covered by an individual or general storm water NPDES permit. Some industrial storm water discharges may be regulated by other individual or general NPDES permits issued by the State Water Board or the Regional Water Boards (Water Boards, collectively,). This General Permit shall not regulate these discharges. When the individual or general NPDES permits for such discharges expire, the Water Boards may authorize coverage under this General Permit or another general NPDES permit, or may issue a new individual NPDES permit consistent with the federal and state storm water regulations. Interested parties may request that the State Water Board or appropriate Regional Water Board issue individual or general NPDES permits for specific discharges that, in their view are not properly regulated through this General Permit. General permits may be issued for a particular industrial group or watershed area which would supersede this General Permit. To date, two Regional Water Board have issued such permits:

i. The Lahontan Regional Water Board has adopted an NPDES permit and general Waste Discharge Requirements to regulate discharges from marinas and maintenance dredging (Regional Water Board Order R6T-2005-0015 - NPDES Permit No. CAG616003) in the Lake Tahoe Hydrologic Unit.

ii. The Santa Ana Regional Water Board adopted the Sector Specific General Permit for Stormwater Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order R8-2012-0012, NPDES Permit No. CAG 618001 (Scrap Metal Recycling Permit). The Scrap Metal Recycling Permit is applicable to facilities within the Santa Ana Region that are listed under Standard Industrial Classification (SIC) Code 5093 and engaged in the following types of activities: (1) automotive wrecking for scrap-wholesale (this category does not include facilities engaged in automobile dismantling for the primary purpose of selling second hard parts); (2) iron and steel scrap - wholesale; (3) junk and scrap metal - wholesale; (4) metal waste and scrap - wholesale; and (5) non-ferrous metals scrap - wholesale. Other types of facilities listed under SIC Code 5093 and engaged in waste recycling are not required to get coverage under the Scrap Metal Recycling Permit. A list of covered facilities as of February 8, 2011 was included in Attachment A of the Scrap Metal Recycling Permit.

c. Discharges that the Regional Water Boards determine to be ineligible for coverage under this General Permit. In such cases, a Regional Water Board will require the discharges be covered by another individual or general NPDES permit. The applicability of this General Permit to such discharges is terminated when the discharge is subject to another individual or general NPDES permit.

d. Discharges that do not enter waters of the United States. These include:

i. Discharges to municipal separate sanitary sewer systems;

ii. Discharges to evaporation ponds, discharges to percolation ponds, and/or any other methods used to retain and prevent industrial storm water discharges from entering waters of the United States;

iii. Discharges to combined sewer systems. In California, the only major combined sewer systems are located in San Francisco and downtown Sacramento. Dischargers who believe they discharge into a combined sewer system should contact the local Regional Water Board to verify discharge location; and,

iv. Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability (NONA) (Fact Sheet Section II.S).

e. Discharges from mining operations or oil and gas facilities composed entirely of flows that are from conveyances or systems of conveyances used for collecting and conveying precipitation runoff and do not come into contact with any overburden, raw materials, intermediate products, finished products, by-products, or waste products located at the facility. (33 U.S.C. § 1342(l)(2).)

f. Discharges from facilities on Tribal Lands regulated by U.S. EPA.

3. Obtaining General Permit Coverage (Section II of this General Permit)

The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at https://smarts.waterboards.ca.gov. The State Water Board has determined that all documents related to general storm water enrollment and compliance must be certified and submitted via SMARTS by Dischargers.

This General Permit requires all Dischargers to electronically certify and submit PRDs via SMARTS to obtain: (1) regulatory coverage, or (2) to certify that there are no industrial activities exposed to storm water at the facility and obtain regulatory coverage under the NEC provision of this General Permit. Facilities that were eligible to self-certify no exposure under the previous permit (see category 10 in Attachment 1 of the previous permit) are required to certify and submit via SMARTS PRDs for NOI coverage under this General Permit by July 1, 2015 or for NEC coverage by October 1, 2015. The Water Board is estimating that 10,000 – 30,000 Dischargers may be registering for NOI or NEC coverage under this General Permit. Separate registration deadlines, one for NOI coverage and one for NEC coverage, provides Dischargers better assistance from Storm Water Helpdesk and staff.

Dischargers shall electronically certify and submit the PRDs via SMARTS for each individual facility. This requirement is intended to establish a clear accounting of the name, address, and contact information for each Discharger, as well as a description of each Discharger's facility.

The Water Boards recognize that certain information pertaining to an industrial facility may be confidential. Many Stakeholders were asking for clarification on the process the Water Boards would use to manage confidential information or the process Dischargers could use to redact such information. Dischargers may redact trade secrets information from required submittals (Section II.B.3.d). Dischargers are required to include a general description of the redacted information and the basis for the redaction. Dischargers are still required to submit complete and un-redacted versions of the information to the Water Boards within 30 days, however these versions should be clearly labeled "CONFIDENTIAL" so that the confidentiality of these documents is clear to Regional Water Board staff, even when there is a change in staff. This General Permit requires that all information provided to the Water Boards by the Discharger comply with the Homeland Security Act and other federal law that addresses security in the United States.

All Dischargers who certify and submit PRDs via SMARTS for NOI coverage on or after July 1, 2015 or for NEC coverage on or after October 1, 2015, shall immediately comply with the provisions in this General Permit.

4. General Permit Coverage for Landfills

This General Permit covers storm water discharges from landfills, land application sites, and open dumps that receive or have received industrial waste from any facility covered by this General Permit. Industrial storm water discharges from these facilities must be covered by this General Permit unless (1) they are already covered by another NPDES permit, or (2) the Regional Water Board has determined that an NPDES permit is not required because the site has been stabilized or required closure activities have been completed.

In most cases, it is appropriate for new landfill construction or final closure to be covered by the Construction General Permit, rather than this General Permit. Questions have arisen as to what constitutes new landfill construction at an existing landfill versus the normal planned expansion of a landfill. Similarly, questions have arisen about the type of closure activities that may be subject to the Construction General Permit versus the normal closure of “cells” that occurs during continued landfill operations and are not subject to the Construction General Permit. Other questions such as whether temporary or permanent newly graded/paved roads disturbing greater than one acre at a landfill are subject to the Construction General Permit. Landfill Dischargers have asked for clarity regarding these questions. The previous permit required Dischargers to contact the Regional Water Boards to determine permit appropriateness. Site specific circumstances continue to require Dischargers to contact Regional Water Boards for final determinations.

Based upon the State Water Board’s storm water program history, there are only a handful of instances where an operating landfill has been simultaneously subject to both the construction and industrial permitting requirements. Typically a landfill is subject to the construction permitting requirements during the time the landfill is initially constructed and prior to operation. A landfill is subject to the industrial permitting requirements during landfill operations, and subject to the construction permitting requirements during final landfill closure activities.

Once a landfill begins operations, continued expansion or closure of incremental landfill cells is authorized under the industrial permitting requirements since these are normal aspects of landfill operations. These expansion/closure activities occur within a limited timeframe (often taking less than 90 days from beginning to end) and are not separately subject to additional local approval (e.g., a new building permit). Any construction or demolition of temporary non-impervious roads directly related to landfill operations are subject to the industrial permitting requirements.

Construction or closure of a separate section of the landfill that is either subject to additional permitting by the local authorities and/or lasts more than 90 days requires coverage under the Construction General Permit. Construction of permanent facility structures such as buildings and impervious parking lots or roads that disturb greater than one acre are also subject to the Construction General Permit. (Permanent facility structures are defined as any structural improvements designed to remain until the landfill is closed.)

Site specific circumstances such as proximity to nearby waterways, extent of activities, pollutants of concern, and other considerations can impact any decision as to whether a particular activity is to be regulated under this General Permit or the Construction General Permit. Regional Water Boards will continue to exercise their discretion as necessary to protect the beneficial uses of the receiving water(s).

5. General Permit Coverage for Small Municipal Separate Storm Sewer Systems (MS4s)

   Section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 exempted municipal agencies serving populations of less than 100,000 from Phase I permit requirements other than sanitary landfills, power plants, and airports facilities. U.S. EPA's Phase II regulations eliminated the above exemption as of March 10, 2003. All facilities in Attachment A of this General Permit that are operated by a small municipal agency are subject to NPDES storm water permitting requirements and this General Permit.

6. Changes to General Permit Coverage

   Dischargers who no longer operate a facility required to be covered under this General Permit (either NOI or NEC coverage) are required to electronically certify and submit via SMARTS a Notice of Termination (NOT). An NOT is required when there is a change in ownership of the industrial activities subject to permitting or when industrial activities subject to permitting are permanently discontinued by the Discharger at the site. When terminating NOI coverage, Dischargers may only submit an NOT once all exposure of industrial materials and equipment have been eliminated. Dischargers may not submit NOTs for temporary or seasonal facility closures. The General Permit requires Dischargers to implement appropriate BMPs to reduce or prevent pollutants in storm water discharges during the temporary facility closure.

   This General Permit allows Dischargers to change General Permit coverage, as appropriate, from NOI coverage to NEC coverage or from NEC coverage to NOI coverage.

B. Discharge Prohibitions

This General Permit covers industrial storm water discharges and authorized NSWDs from industrial facilities and prohibits any discharge of materials other than storm water and authorized NSWDs (Section III and Section IV of this General Permit). It is a violation of this General Permit to discharge hazardous substances in storm water in excess of the reportable quantities established in 40 Code of Federal Regulations sections 117.3 and 302.4.

The State Water Board is authorized, under Water Code section 13377, to issue NPDES permits which apply and ensure compliance with all applicable provisions of the CWA, and any more stringent limitations necessary to implement water quality control plans, protect beneficial uses, and prevent nuisance.

C. Non-Storm Water Discharges (NSWDs)

Unauthorized NSWDs can be generated from various pollutant sources. Depending upon their quantity and location where generated, unauthorized NSWDs can discharge to the storm drain system during dry weather as well as during a storm event (comingled with storm water discharge). These NSWDs can consist of, but are not limited to; (1) waters generated by the rinsing or washing of vehicles, equipment, buildings, or pavement, or (2) fluid, particulate or solid materials that have spilled, leaked, or been disposed of improperly.

Some NSWDs are not directly related to industrial activities and normally discharge minimal pollutants when properly managed. Section IV of this General Permit provides a limited list of NSWDs that are authorized if Dischargers implement BMPs to prevent contact with industrial materials prior to discharge. The list in Section IV is similar to the list provided in the 2008 MSGP but does not include pavement and external building surfaces washing without detergents. These two items are not included because the Discharger is responsible to reduce or prevent pollutants in storm water discharges from paved areas and buildings associated with industrial activities. Since industrial materials and non-industrial material likely co-exist, the washing of paved areas and external building surfaces may result in discharges of pollutants associated with industrial activities. In addition, washing activities generally occur during dry-weather periods when receiving water flows are lower than wet-weather periods. Wash waters are likely to discharge in higher concentrations than would occur if these pollutants were naturally discharged during a storm event. The discharge of high concentration wash water during a time of dry-weather flows is inconsistent with the goal of protecting receiving waters. These discharges are, therefore, considered unauthorized NSWDs. Similar to the 2008 MSGP, firefighting related discharges are not subject to this General Permit.

A major required element of the SWPPP is the identification and measures for elimination of unauthorized NSWDs. Unauthorized NSWDs can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. This General Permit's BMP requirements for NSWDs remain essentially unchanged from the previous permit other than the increased frequency of required visual observations from quarterly to monthly. See Section XI.A.1 of this General Permit.

D. Effluent Limitations

1. Technology-Based and Water Quality-Based Effluent Limitations

   CWA Section 301(b)(1)(C) requires that discharges from existing facilities must, at a minimum, comply with technology-based effluent limitations based on the technological capability of Dischargers to control pollutants in their discharges. Discharges must also comply with any more stringent water quality-based limitations necessary to meet water quality standards in accordance with CWA Section 301(b)(1)(C). Water quality-based limitations are discussed in Section E of this Fact Sheet titled "Receiving Water Limitations." Both technology-based effluent limitations and water quality-based limitations are implemented through NPDES permits. (CWA sections 301(a) and (b).)

2. Types of Technology-Based Effluent Limitations

   All NPDES permits are required to contain technology-based effluent limitations (TBELs). (40 C.F.R. §§122.44(a)(1) and 125.3.) TBELs may consist of effluent limitations guidelines (ELGs) established by U.S. EPA through regulation, or may be developed using best professional judgment on a case-by-case basis.

The CWA sets forth standards for TBELs based on the type of pollutant or the type of facility/source involved. The CWA establishes two levels of pollution control for existing sources. For the first level, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the “best practicable control technology currently available” (BPT). (33 U.S.C. § 1314(b)(1)(B).) BPT applies to all pollutants. For the second level, existing sources that discharge conventional pollutants are subject to effluent limitations based on the “best conventional pollutant control technology” (BCT). (33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants).) Also for the second level, other existing sources that discharge toxic pollutants or “nonconventional” pollutants (“nonconventional” pollutants are pollutants that are neither “toxic” nor “conventional”) are subject to effluent limitations based on “best available technology economically achievable” (BAT). (33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).) The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and in U.S. EPA’s regulations at 40 C.F.R. §125.3.

When establishing ELGs for an industrial category, U.S. EPA evaluates a wide variety of technical factors to determine BPT, BCT, and BAT. U.S. EPA considers the specific factors of an industry such as pollutant sources, industrial processes, and the size and scale of operations. U.S. EPA evaluates the specific treatment, structural, and operational source control BMPs available to reduce or prevent pollutants in the discharges. The costs of implementing BMPs to address these factors are weighed against their effectiveness and ability to protect water quality. Factors such as industry economic viability, economies of scale, and retrofit costs are also considered.

To date, U.S. EPA has: (1) not promulgated storm water ELGs for most industrial categories, (2) not established NELs within all ELGs that have been promulgated, and (3) exempted certain types of facilities within an industrial category from complying with established ELGs. The feedlot category (40 Code of Federal Regulations part 412) provides an example of several of these points. In that instance, U.S. EPA did not establish numeric effluent limitations but instead: (1) established a narrative effluent limitation requiring retention of all feedlot-related runoff from a 25-year, 24-hour storm, and (2) limited application of the ELG to feedlots with a minimum number of animals. U.S. EPA also recently promulgated ELGs for the "Construction and Development (C&D)" industry, which included, among many other limitations, conditional numeric effluent limitations. Though the NELs in these ELGs were later stayed by U.S. EPA, the ELGs exempted construction sites of less than 30 acres from complying with the established numeric effluent limitations.

40 Code of Federal Regulations, Chapter I, Subchapter N (“Subchapter N”), includes over 40 separate industrial categories where the U.S. EPA has established ELGs for new and existing industrial wastewater discharges to surface waters, discharges to publicly owned treatment works (pre-treatment standards), and storm water discharges to surface waters. Generally, U.S. EPA has focused its efforts on the development of ELGs for larger industries and those industries with the greatest potential to pollute. In total, the 40 categories for which ELGs have been

established (not including construction) represent less than 10 percent of the types of facilities subject to this General Permit. Additionally, most ELGs focus on industrial process wastewater discharges and pre-treatment standards, and only 11 of the 40 categories establish numeric or narrative ELGs for industrial storm water discharges. Those that do include ELGs for industrial storm water discharges generally address storm water discharges that are generated from direct contact with primary pollutant sources at the subject facilities, and not the totality of the industrial storm water discharge from the facility, as the term "storm water discharge associated with industrial activity" for this General Order is defined in the CWA. (40 C.F.R. § 122.26(b)(14).) Where U.S. EPA has not issued effluent limitation guidelines for an industry, the State Water Board is required to establish effluent limitations for NPDES permits on a case-by-case basis based on best professional judgment (BPJ). (33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).) In this General Permit, most of the TBELs are based on BPJ decision-making because no ELG applies.

The TBELs in this General Permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional pollutants) levels of control for the applicable pollutants. If U.S. EPA has not promulgated ELGs for an industry, or if a Discharger is discharging a pollutant not covered by the otherwise applicable ELG, the State Water Board is required to establish effluent limitations in NPDES permit limitations based on best professional judgment. (33 U.S.C. § 1342(a)(1); 40 C.F.R. 125.3(c).) This General Permit includes TBELS established on best professional judgment and limitations based on storm water-specific ELGs listed in Attachment F of this General Permit, where applicable.

3. Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits

TBELs in this General Permit are based on best professional judgment and are non-numeric ("narrative") technology-based effluent limitations expressed as requirements for implementation of effective BMPs. Federal regulations provide that permits must include BMPs to control or abate the discharge of pollutants when where "[n]umeric effluent limitations are infeasible." 40 C.F.R. 122.44(k)(3).

Since 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., BMPs) designed to reduce the level of effluent discharges to acceptable levels. Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C.Cir.1977).

U.S. EPA has also interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), titled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k).

In 2006, The U.S. Court of Appeals for the Sixth Circuit held that the CWA does not require U.S. EPA to set numeric limits where such limits are infeasible. (Citizens Coal Council v. United States Environmental Protection Agency, 447 F.3d 879, 895-96 (6th Cir. 2006)). The Citizens Coal court cited to the statement in Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486, 502 (2d Cir. 2005) that "site-specific BMPs are effluent limitations under the CWA" in concluding that "the EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining subcategory was a reasonable exercise of its authority under the CWA." (447 F.3d at 896.) Additionally, the Citizen's Coal court cited to Natural Res. Def. Council, Inc. v. EPA, 673 F.2d 400, 403 (D.C.Cir.1982) noting that "section 502(11) [of the CWA] defines 'effluent limitation' as 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction." NPDES permit writers have substantial discretion to impose non-quantitative permit requirements pursuant to section 402(a)(1)), especially when the use of numeric limits is infeasible. (NRDC v. EPA, 822 F.2d 104, 122-24 (D.C. Cir. 1987); 40 C.F.R. 122.44(k)(3).)

4. Decision to Include Non-Numeric Technology-Based Effluent Limits in This General Permit

It is infeasible for the State Water Board to develop numeric effluent limitations using the best professional judgment approach due to lack of sufficient information. Previous versions of this General Permit required Dischargers to sample their industrial storm water discharges and report the results to the Regional Water Boards. Dischargers were not required to submit this data online into a statewide database; as a result, much of this data is not available for analysis. Moreover, much of the data that are available for analysis are not of sufficient quality to make conclusions or perform basic statistical tests.

The Blue Ribbon Panel of Experts, State Water Board staff, and many stakeholders evaluated the available storm water data set and concluded that the information provides limited value due to the limited pool of industrial facilities submitting data, poor overall data quality, and extreme variance within the dataset, as described below.

The poor quality of the existing data set is attributable a number of factors. For example, the previous permits have required Dischargers to sample during the first hour of discharge from two storm events a year. This sampling schedule was designed to catch what was considered to represent the higher end of storm water discharge concentrations for most parameters. The results from this type of sampling were thought to be an indicator of whether or not additional BMPs would be necessary. The sampling schedule was not designed, however, to estimate pollutant discharge loading, or to characterize the impact of the discharge on the receiving water. Doing so would normally require the use of more advanced sampling protocols such as flow meters, continuous automatic sampling devices, certified/trained sampling personnel, and other facility-specific considerations.

Furthermore, there is currently no data which details the relationship between the BMPs implemented at each facility and the facility's sampling results. The SWPPPs required by the previous permits were not submitted to the Water Boards, but were kept onsite by Dischargers. Due to the limited availability of quality sampling data and "level of effort" information contained in SWPPPs, the State Water Board is unable to exercise best professional judgment to make the connection between effluent quality (sampling results) and the level of effort, costs, and performance of the various technologies that is needed in order to express the TBELs in this General Permit numerically, as NELs.

Some stakeholders have suggested that separating the data sets by industry type would lead to more reliable data with which to develop NELs. Advocates of this approach suggest that the variability of the data may be caused in part by the mixing of data from different industrial categories. The State Water Board believes that the variation is primarily due to storm intensity, duration, time of year, soil saturation or some other factors. It is necessary to collect information related to those factors and BMPs implemented in order to evaluate the variability attributable to those factors. There is currently too large of an information gap to begin the process of developing NELs for all industrial sectors not currently subject to ELGs.

The State Water Board has proposed NELs in past drafts of this General Permit. In comments, many stakeholders have highlighted the difficulty of developing statewide NELs that are applicable to all industry sectors, or even NELs that cover any specific industry sectors. For example, stakeholders have commented that:

a. Background/ambient conditions in some hydrogeologic zones may contribute pollutant loadings that would significantly contribute to, if not exceed, the NEL values;

b. Some advanced treatment technologies have flow/volume limitations as well as economy of scale issues for smaller facilities;

c. Treatment technologies that require that sheet flows be captured and conveyed via discrete channels or basins may not only result in significant retrofit costs, but may conflict with local ordinances that prohibit such practices, as they can cause damage or erosion to down gradient property owners, or cause other environmental problems;

d. There is insufficient regulatory guidance and procedures to allow permit writers to properly specify monitoring frequency and sampling protocols (e.g., instantaneous maximum, 1-day average, 3-day average, etc.), and for Dischargers to obtain representative samples to compare to NELs for the purpose of strict compliance; and,

e. NELs must be developed with consideration of what is economically achievable for each industrial sector. These stakeholders point out that the U.S. EPA goes to great lengths evaluating the various BMP technologies available for a particular pollutant, the costs and efficiency of each BMP, and the applicability of the BMPs to the industry as a whole or to a limited number of industrial sites based upon the size of the facility, the quantity of material, and other considerations.

The State Water Board does not have the information (including monitoring data, industry specific information, BMP performance analyses, water quality information, monitoring guidelines, and information on costs and overall effectiveness of control technologies) necessary to promulgate NELs at the time of adoption of this General Permit. Therefore, it is infeasible to include NELs in this statewide General Permit.

Many of the new requirements in this General Permit have been designed to address the shortcomings of previous permits and the existing storm water data set. Under this General Permit, sampling results must be certified and submitted into SMARTS by Dischargers, along with SWPPPs which outline the technologies and BMPs used to control pollutants at each facility. The ERA process will also collect information on costs and the engineering aspects of the various control technologies employed by each facility. Previous permit versions did not have a mechanism for receiving this site specific information electronically, and only a small percentage of Dischargers submitted their Annual Reports via SMARTS. This General Permit will make this information more accessible, allowing the Water Boards to evaluate the relationship between BMPs and the ability of facilities to meet the NALs set forth in this General Permit. Finally, the new Qualified Industrial Storm Water Practitioner (QISP) training requirements of this General Permit have been designed in part to improve the quality of the data submitted.

5. Narrative Technology-Based Effluent Limitations (TBELs) and Best Management Practices (BMPs)

The primary TBEL in this General Permit requires Dischargers to “implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.” (Section V.A of this General Permit). This TBEL is a restatement of the BAT/BCT standard, as articulated by U.S. EPA in the 2008 MSGP and accompanying Fact Sheet. In order to comply with this TBEL, Dischargers must implement BMPs that meet or exceed the BAT/BCT technology-based standard. The requirement to “reduce or prevent” is equivalent to the requirement in the federal regulations that BMPs be used in lieu of NELs to “control or abate” the discharge of pollutants. (40 C.F.R. § 122.44(k).)

BMPs are defined as the “scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to reduce or prevent the discharge of pollutants… includ[ing] treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.” (40 C.F.R. § 122.2.)

This General Permit (Sections X.H.1 and X.H.2) requires all Dischargers to implement minimum BMPs, as well as any advanced BMPs that are necessary to adequately reduce or prevent pollutants in discharges consistent with the TBELs. The minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities. This General Permit generally does not mandate the specific mode of design, installation or implementation for the minimum BMPs at a Discharger’s facility. It is up to the Discharger, in the first instance, to determine what must be done to meet the applicable effluent limits. For example, Section X.H.1.a.vi of this General Permit requires Dischargers to contain all stored non-solid industrial materials that can be transported or dispersed via wind or contact with storm water. How this is achieved will vary by facility: for some facilities, all activities may be moved indoors, while for others this will not be feasible. However, even for the latter, many activities may be moved indoors, others may be contained using tarps or a containment system, while still other activities may be limited to times when exposure to precipitation is not likely. Each of these control measures is acceptable and appropriate depending upon the facility-specific circumstances.

BMPs can be actions (including processes, procedures, schedules of activities, prohibitions on practices and other management practices), or structural or installed devices to reduce or prevent water pollution. (40 C.F.R. § 122.2.) They can be just about anything that is effective at preventing pollutants from entering the environment, and for meeting applicable limits of this General Permit. In this General Permit, Dischargers are required to select, design, install, and implement facility-specific control measures to meet these limits. Many industrial facilities already have such control measures in place for product loss prevention, accident and fire prevention, worker health and safety or to comply with other environmental regulations. Dischargers must tailor the BMPs detailed in this General Permit to their facilities, as well as improve upon them as necessary to meet permit limits. The examples detailed in this Fact Sheet emphasize prevention over treatment. However, sometimes more traditional end-of-pipe treatment may be necessary, particularly where a facility might otherwise cause or contribute to an exceedance of water quality standards.

This General Permit requires Dischargers to implement BMPs “to the extent feasible.” Consistent with the control level requirements of the CWA, for the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” means to reduce and/or prevent discharges of pollutants using BMPs that represent BAT and BPT in light of best industry practice. [4] In other words, Dischargers are required to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering their technological availability and economic practicability and achievability.

To determine technological availability and economic practicability and achievability, Dischargers need to consider what control measures are considered “best” for their industry, and then select and design control measures for their site that are viable in terms of cost and technology. The State Water Board believes that for many facilities minimization of pollutants in storm water discharges can be achieved without using highly engineered, complex treatment systems. The BMPs included in

[4] Because toxic and nonconventional pollutants are controlled in the first step by BPT and in the second step by BAT, and the second level of control is “increasingly stringent” (EPA v. National Crushed Stone, 449 U.S. 64, 69 (1980), for simplicity of discussion, the rest of this discussion will focus on BAT. Similarly, because the BAT levels of control in this General Permit are expressed as BMPs and pollution prevention measures, they will also control conventional pollutants. Therefore this discussion will focus on BAT rather than BCT or BPT for conventional pollutants.

this General Permit emphasize effective “low-tech” controls, such as regular cleaning of outdoor areas where industrial activities may take place, proper maintenance of equipment, diversion of storm water around areas where pollutants may be picked up, and effective advanced planning and training (e.g., for spill prevention and response).

E. Receiving Water Limitations and Water Quality Standards

Pursuant to CWA section 301(b)(1)(C) and Water Code section 13377, this General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges not cause or contribute to an exceedance of applicable water quality standards. Implementation of the BMPs as required by the technology-based effluent limitation in Section V of this General Permit will typically result in compliance with the receiving water limitations. The discussion of BMPs in this General Permit generally focuses on requiring implementation of BMPs to the extent necessary to achieve compliance with the technology-based effluent limitations, because the technology-based limitations apply similarly to all facilities. In addition, however, this General Permit also makes it clear that, if any individual facility's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures that are tailored to that facility in order to attain compliance with the receiving water limitation. A Discharger that is notified by a Regional Water Board or who determines the discharge is causing or contributing to an exceedance of a water quality standard must comply with the Water Quality Based Corrective Actions found in Section XX.B of this General Permit.

Water Quality Based Corrective Actions are different from the Level 1 and Level 2 ERAs that result from effluent-based monitoring. It is possible for a Discharger to be engaged in Level 1 or Level 2 ERAs for one or more pollutants and simultaneously be required to perform Water Quality Based Corrective Actions for one or more other pollutants.

Failure to comply with these additional Water Quality Based Corrective Action requirements is a violation of this General Permit. If additional operational source control measures do not adequately reduce the pollutants, Dischargers must implement additional measures such as the construction of treatment systems and/or overhead coverage. Overhead coverage is any structure or temporary shelter that prevents the vertical contact of precipitation with industrial materials or activities. If the Regional Water Board determines that the Discharger’s selected BMPs are inadequate, the Regional Water Board may require implementation of additional BMPs and/or may take enforcement against Dischargers for failure to comply with this General Permit.

F. Total Maximum Daily Loads (TMDLs)

TMDLs are regulatory tools that provide the maximum amount of a pollutant from potential source in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2, subd. (i).) Discharges covered by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 Code of Federal Regulations section 130.7." (40 C.F.R. § 122.44, subd. (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocations and implementation requirements. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include TMDL requirements for Dischargers covered by this General Permit.

NPDES-regulated storm water discharges (which include industrial storm water) must be addressed by waste load allocations in TMDLs. (40 C.F.R. § 130.2(h).) NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the waste load allocations in TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).) To date, the relevant waste load allocations assigned to industrial storm water discharges are not directly translatable to effluent limitations. Many of the TMDLs lack sufficient facility specific information, discharge characterization data, implementation requirements, and compliance monitoring requirements. Accordingly, an analysis of each TMDL applicable to industrial storm water discharges must to be performed to determine if it is appropriate to translate the waste load allocation into a numeric effluent limit, or if the effluent limit is to be expressed narratively using a BMP approach. U.S. EPA recognizes that because storm water discharges are highly variable in frequency and duration and are not easily characterized, it is often not feasible or appropriate to establish numeric limits. Variability and the lack of data available make it difficult to determine with precision or certainty actual and projected loadings for individual Dischargers or groups of Dischargers.

Regardless of whether the effluent limit is to be numeric or narrative, the existing waste load allocations must be carefully analyzed, and in many cases translated, to determine the appropriate effluent limitations. Issues of interpretation exist with all of the waste load allocations applicable to Dischargers, and these issues vary based on the TMDL. Below is an example of one of the simpler issues:

FIGURE 1: Example Waste Load Allocations Proposed Translation: Ballona Creek Estuary – Toxic Pollutants

Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (grams/year/acre)				
Cadmium	Copper	Lead	Silver	Zinc
0.1	3	4	0.1	13
Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (milligrams/year/acre)				
Chlordane	DDTs	Total Polychlorinated biphenyl (PCBs)	Total Polycyclic aromatic hydrocarbons (PAHs)	
0.04	0.14	2	350	

In order for the above waste load allocations to effectively be implemented as effluent limits under the General Permit, the Water Boards must (1) identify which discharges the waste load allocations apply to, (2) identify the acreages of the individual facilities, (3) convert the waste load allocations from grams/year/acre (or milligrams/year/acre) to grams/year (or milligrams/year) based on the acreage at each identified facility, (4) assign the effluent limits to the identified Dischargers, (5) determine appropriate monitoring to assess compliance with the effluent limits, and (6) develop a tracking mechanism for each identified facility and their individual effluent limits. A similar stepwise process is necessary for each TMDL with waste load allocations assigned to industrial storm water discharges. For TMDLs where effluent limits will be expressed as BMPs, analysis must to be performed to determine the appropriate BMPs and the corresponding effectiveness to comply with the assigned waste load allocations.

Some waste load allocations are already expressed as concentration based numbers. It may appear simple to incorporate these values into this General Permit as effluent limits, but the questions still remain regarding how to determine compliance. The monitoring requirements in this General Permit are not designed to measure compliance with a numeric effluent limit or to measure the effect of a discharge on a receiving water body. (See the discussion on monitoring requirements in Fact Sheet Section II.J.) This General Permit requires sampling of four (4) storm events a year, with certain limitations as to when a discharge may be sampled. This method of monitoring may not appropriately serve as TMDL compliance sampling since grab samples are only representative of the particular moment in time when the sample was taken. Since storm water is highly variable, four grab samples per year may not provide sufficient confidence that the effluent limit is being met. An alternative monitoring scheme may be necessary to determine the facility's impact on the receiving water and to determine compliance with any assigned effluent limits. Questions concerning whether sampling results should be grab samples, composite samples, flow-weighted averaged over all drainage areas, etc. cannot be determined for each concentration-based TMDL without a more thorough analysis.

Additionally, monitoring and assessment requirements must be developed for all of the TMDLs to determine compliance with or progress towards meeting TMDL requirements. The proposed monitoring requirements in this General Permit are not designed to assess pollutant loading or determine compliance with TMDL-specific effluent limits.

Due to the large number and variety of discharges subject to a wide range of TMDLs statewide, to prevent a severe delay in the adoption of this General Permit, TMDL-specific permit requirements for the TMDLs listed in Attachment E will be proposed by the Regional Water Boards. Since the waste load allocations and/or implementation requirements apply to multiple discharges in the region(s) the TMDL were developed, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level. The development of TMDL-specific permit requirements is subject to notice and a public comment period prior to incorporation into this General Permit.

Regional Water Board staff, with the assistance of State Water Board staff, will develop and submit the proposed TMDL-specific permit requirements for each of the TMDLs listed in Attachment E by July 1, 2016.[5] After conducting a 30-day public comment period, the Regional Water Boards will propose TMDL-specific permit requirements to the State Water Board for adoption into this General Permit. The Regional Water Boards may also include TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The Regional Water Boards or their Executive Officers may complete these tasks, and the proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Unless directed to do so by the Regional Water Board, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements. This approach is consistent with the 2008 MSGP. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards.

The Regional Water Boards will submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

- Proposed TMDL-specific permit requirements, including any applicable effluent limitations, implementation timelines, additional monitoring requirements, reporting requirements, an explanation of how an exceedance of an effluent limitation or a violation of the TMDL will be determined, and required deliverables consistent with the TMDL(s);
- An explanation of how the proposed TMDL-specific permit requirements, timelines, and deliverables are consistent with the assumptions and requirements of applicable waste load allocation(s) to implement the TMDL(s);
- Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations; and
- Where concentration-based monitoring is required, an explanation of how the required monitoring, reporting and calculation methodology for an exceedance of an effluent limitation or a violation of the TMDL(s) will be sufficient to demonstrate compliance with the TMDL(s).

Upon receipt of the information described above, the State Water Board will conduct a public comment period and reopen this General Permit to populate Attachment E, the Fact Sheet, and other provisions as necessary in order to incorporate these TMDL-specific permit requirements into this General Permit. Attachment E may also be reopened during the term of this General Permit to add additional TMDLs and corresponding implementation requirements.

This General Permit (Section X.G.2.a.ix) requires a Discharger to identify any additional industrial parameters that may be discharged to a waterbody with a 303(d) impairment identified in Appendix 3 as likely to be associated with industrial storm water.

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[5] Due to the workload associated with the implementation of this General Permit (e.g., training program development, NEC outreach, electronic enrollment and reporting via SMARTS) it is believed that two years in necessary for Staff to complete a comprehensive analysis and stakeholder process for TMDLS applicable to Dischargers under this General Permit.

Dischargers may need to implement additional monitoring for any applicable parameters (Section XI.B.6.e). Appendix 3 of this General Permit includes the water bodies with 303(d) impairments or TMDLs for pollutants that are likely to be associated with industrial storm water in black font, and those that are not likely to be associated with industrial storm water in red font. This determination is based on the pollutant or pollutants that are causing each impairment, and the State Water Board's general experience regarding the types of pollutants that are typically found in industrial storm water discharges. The list of waterbodies is from the State Water Boards statewide 2010 Integrated CWA Section 303(d) List / Section 305(b) Report.

Some of the water bodies with 303(d) impairments or TMDLs listed in Appendix 3 of this General Permit are not applicable to Dischargers covered under this General Permit. Appendix 3 indicates these water bodies Dischargers are not required to include in their pollutant source assessment (unless directed to do so by the Regional Water Board).

New Dischargers (as defined in Attachment C) applying for NOI coverage under this General Permit that will be discharging to an impaired water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that the facility will not cause or contribute to the impairment. Section VII.B of this General Permit describes the three different options New Dischargers have for making this determination. This General Permit requires a QISP to assist the New Discharger with this determination because individuals making this determination will need expertise in industrial storm water pollutant sources, BMPs and a thorough understanding of complying with U.S. EPA's storm water regulations and this General Permit's requirements. Not requiring New Dischargers to have a QISP assist in this demonstration would possibly lead to costly retrofits or closure of a new facility that has not demonstrated that the facility will not cause or contribute to the impairment.

G. Discharges Subject to the California Ocean Plan

1. Discharges to Ocean Waters

   On October 16, 2012 the State Water Board amended the California Ocean Plan (California Ocean Plan) to require industrial storm water Dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances (California Ocean Plan, Appendix III). The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

   This General Permit requires dischargers with outfalls that discharge to ocean waters to comply with the California Ocean Plan's model monitoring provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Areas of Special Biological Significance (ASBS) Exception

   The State Water Board adopted the California Ocean Plan (California Ocean Plan) in 1972, and has subsequently amended the Plan. The California Ocean Plan prohibits the discharge of waste to designated ASBS. ASBS are ocean areas designated by the State Water Board as requiring special protection through the maintenance of natural water quality. The California Ocean Plan states that the State Water Board may grant an exception to California Ocean Plan provisions where the State Water Board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

   On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (ASBS Exception), which grants an exception to the California Ocean Plan prohibition on discharges to ASBS for a limited number of industrial storm water Discharger applicants. The ASBS Exception contains "Special Protections" to maintain natural water quality and protect the beneficial uses of the ASBS. In order to legally discharge into an ASBS, these Dischargers must comply with the terms of the ASBS Exception and obtain coverage under this General Permit. This General Permit incorporates the terms of the ASBS Exception and includes the applicable monitoring requirements for all Dischargers discharging to an ASBS under the ASBS Exception.

H. Training Qualifications

This General Permit and the previous permit both require Dischargers to ensure that personnel responsible for permit compliance have an acceptable level of knowledge. Stakeholders have observed that the previous permit did not adequately specify how to comply with various elements of the permit, such as selecting discharge locations representative of the facility storm water discharge and evaluating potential pollutant sources, nor did it provide a clearly outlined Discharger training program. Guidance that is available from outside sources can be complicated to understand or costly to obtain, which can result in many Dischargers developing and implementing deficient SWPPPs and conducting inadequate monitoring activities. Some Dischargers under the previous permit had the resources to hire professional environmental staff or environmental consultants to assist in compliance. Even in those cases, however, there was little certainty that Dischargers received training regarding implementation of the various BMPs being implemented and required monitoring activities under the previous permit. Through this General Permit, the State Water Board seeks to improve compliance and monitoring data quality, and expand each Discharger's understanding of this General Permit's requirements.

This General Permit establishes the Qualified Industrial Storm Water Practitioner (QISP) role. A QISP is someone who has completed a State Water Board sponsored or approved QISP training course and has registered in SMARTS. A QISP is required to implement certain General Permit requirements at the facility once it has entered Level 1 status in the ERA process as described in Section XII of this General Permit. In some instances it may be advisable for a facility employee to take the training, or for a facility to hire a QISP prior to entering Level 1 status as the training will contain information on the new permit requirements and how to perform certain tasks such as selecting discharge locations representative of the facility storm water discharge, evaluating potential pollutant sources, and identifying inadequate SWPPP elements.

Some industry stakeholders have claimed that their staff is already adequately trained. These employees may continue to perform the basic permit functions (e.g. prepare SWPPPs, perform monitoring requirements, and prepare Annual Reports) without receiving any additional training if the facility's sampling and analysis results do not exceed the NALs. This requirement is structured in a manner to reduce the costs of compliance for facilities that may not negatively impact receiving water quality.

California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG. The CBPELSG has staff and resources dedicated to investigate and take appropriate enforcement actions in instances where a licensed professional engineer or geologist is alleged to be noncompliant with CBPELSG's laws and regulations. Actions that result in noncompliance with this General Permit may constitute a potential violation of the CBPELSG requirements and may subject a licensee to investigation by the CBPELSG.

A QISP may represent one or more facilities but must be able to perform the functions required by this General Permit at all times. It is advisable that this individual be limited to a specific geographic region due to the difficulty of performing the needed tasks before, during, and after qualifying storm events may be difficult or impossible if extensive travel is required. Dischargers are required to ensure that the designated QISP has completed the appropriate QISP training course.

This General Permit contains a mechanism that allows for the Water Boards' Executive Director or Executive Officer to rescind the registration of any QISPs who are found to be inadequately performing their duties as a QISP will no longer be able to do so. A QISP may ask the State Water Board to review any decision to revoke his or her QISP registration. Table 1 of this Fact Sheet below describes the different roles that the QISP and California licensed professional engineers have in this General Permit.

TABLE 1: Role-Specific Permit Requirements

Qualifications	Task
QISP	Assist New Dischargers determine coverage eligibility for Discharges to an impaired water body, Level 1 ERA Evaluation and report, Level 2 ERA Action Plan, and Technical Report, and the Level 2 ERA extension
California licensed professional engineer	Inactive Mining Operation Certification, SWPPPs for inactive mining, and annual re-certification of Inactive Mining Operation Certification, NONA Technical Reports, and Subchapter N calculations

I. Storm Water Pollution Prevention Plan (SWPPP)

1. General

This General Permit requires that all Dischargers develop, implement, and retain onsite a site-specific SWPPP. The SWPPP requirements generally follow U.S. EPA's five-phase approach to developing SWPPPs, which has been adapted to reflect the requirements of this General Permit in Figure 2 of this Fact Sheet. This approach provides the flexibility necessary to establish appropriate BMPs for different industrial activities and pollutant sources. This General Permit requires a Discharger to include in its SWPPP (Section X of this General Permit) a site map, authorized NSWDs at the facility, and an identification and assessment of potential pollutants sources resulting from exposure of industrial activities to storm water.

This General Permit requires that Dischargers clearly describe the BMPs that are being implemented in the SWPPP. In addition to providing descriptions, Dischargers must also describe who is responsible for the BMPs, where the BMPs will be installed, how often and when the BMPs will be implemented, and identify any pollutants of concern. Table 2 of this Fact Sheet provides an example of how a Discharger could assess potential pollution sources and provide a corresponding BMPs summary.

This General Permit requires that Dischargers select an appropriate facility inspection frequency beyond the required monthly inspections if necessary, and to determine if SWPPP revisions are necessary to address any physical or operational changes at the facility or make changes to the existing BMPs (Section X.H.4.a.vii and Section XI.A.4 of this General Permit). Facilities that are subject to multi-phased physical expansion or significant seasonal operational changes may require more frequent SWPPP updates and facility inspections. Facilities with very stable operations may require fewer SWPPP updates and facility inspections.

Failure to develop or implement an adequate SWPPP, or update or revise an existing SWPPP as required, is a violation of this General Permit. Failure to maintain the SWPPP on-site and have it available for inspection is also a violation of this General Permit.

Dischargers are also required to submit their SWPPPs and any SWPPP revisions via SMARTS; accordingly, BMP revisions made in response to observed compliance problems will be included in the revised SWPPP electronically submitted via SMARTS. Not all SWPPP revisions are significant and it is up to the Dischargers to distinguish between revisions that are significant and those that are not significant. If no changes are made at all to the SWPPP, the Discharger is not required to resubmit the SWPPP on any specific frequency.

- Significant SWPPP Revisions: Dischargers are required to certify and submit via SMARTS their SWPPP within 30 days of the significant revision(s). While it is not easy to draw a line generally between revisions that are significant and those that are not significant, Dischargers are not required to certify and submit via SMARTS any SWPPP revisions that are comprised of only typographical fixes or minor clarifications.

- All Other SWPPP Revisions: Dischargers are required to submit revisions to the SWPPP that are determined to not be significant every three (3) months in the reporting year.

FIGURE 2: Five Phases for Developing and Implementing an Industrial Storm Water Pollution Prevention Plan (SWPPP)

PLANNING AND ORGANIZATION

*Form Pollution Prevention Team
*Review other facility plans

ASSESSMENT

*Develop a site map
*Identify potential pollutant sources
*Inventory of materials and chemicals
*List significant spills and leaks
*Identify Non-Storm Water Discharges
*Assess pollutant risk

Best Management Practice (BMP) IDENTIFICATION

*Identify minimum required BMPs
*Identify any advanced BMPs

IMPLEMENTATION

*Train employees for the Pollution Prevention Team
*Implement BMPs
*Collect and review records

EVALUATION / MONITORING

*Conduct annual facility evaluation (Annual Evaluation)
*Review monitoring information
*Evaluate BMPs
*Review and revise SWPPP

TABLE 2: Example - Assessment of Potential Industrial Pollution Sources and Corresponding BMPs Summary

Area	Activity	Pollutant Source	Industrial Pollutant	BMPs
Vehicle and Equipment Fueling	Fueling	Spills and leaks during delivery	Fuel oil	-Use spill and overflow protection
		Spills caused by topping off fuel tanks	Fuel oil	-Train employees on proper fueling, cleanup, and spill response techniques
		Hosing or washing down fuel area	Fuel oil	-Use dry cleanup methods rather than hosing down area -Implement proper spill prevention control program
		Leaking storage tanks	Fuel oil	-Inspect fueling areas regularly to detect problems
		Rainfall running off fueling area, and rainfall running onto and off fueling area	Fuel oil	-Minimize run-on of storm water into the fueling area, cover fueling area

2. Minimum and Advanced BMPs

   Section V of this General Permit requires the Discharger to comply with technology-based effluent limitations (TBELs). In this General Permit, TBELs rely on implementation of BMPs for Dischargers to reduce and prevent pollutants in their discharge. The BMP effluent limitations have been integrated into the Section X.H of this General Permit and are divided into two categories – minimum BMPs which are generally non-structural BMPs that all Dischargers must implement to the extent feasible, and advanced BMPs which are generally structural BMPs that must be implemented if the minimum BMPs are inadequate to achieve compliance with the TBELs. Section X of this General Permit includes both substantive control requirements in the form of the BMPs listed in Section X.H, as well as various reporting and recordkeeping requirements. The requirement to implement BMPs “to the extent feasible” allows Dischargers flexibility when implementing BMPs, by not requiring the implementation of BMPs that are not technologically available and economically practicable and achievable in light of best industry practices.

The 2008 MSGP requires Dischargers to comply with 12 non-numeric technology-based effluent limits in Section 2.1.2 of the permit through the implementation of "control measures." This requirement is an expansion of the general considerations outlined in the MSGP adopted in 2000. The control measures specified by the U.S. EPA in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

1. Minimize Exposure
2. Good Housekeeping
3. Maintenance
4. Spill Prevention and Response Procedures
5. Erosion and Sediment Controls
6. Management of Runoff
7. Salt Storage Piles or Piles Containing Salt
8. Sector Specific Non-Numeric Effluent Limits
9. Employee Training
10. Non-Storm Water Discharges (NSWDs)
11. Waste, Garbage and Floatable Debris
12. Dust Generation and Vehicle Tracking of Industrial Materials

This General Permit addresses eleven of the above twelve control measures from the 2008 MSGP Section 2.1.2 Non-Numeric Technology-Based Effluent Limits (BPT/BAT/BCT). Eleven of the control measures are addressed as minimum BMPs that the State Water Board has determined to be most applicable to California's Dischargers. Two of those eleven control measures (1- Minimize Exposure, 6 – Management of Runoff) are also identified as advanced BMPs (Section X.H.2 of this General Permit). This General Permit is not a sector-specific permit and therefore does not contain limitations to address control measure number 8 (Sector Specific Non-Numeric Effluent Limits).

The non-structural elements of the control measure to minimize exposure are addressed in the minimum BMP Section X.H.1 of this General Permit while structural control elements are addressed in the advanced BMP Section X.H.2 of this General Permit. The on-site diversion elements of the control measure to minimize exposure are addressed as minimum BMPs.

The runoff reduction elements of the control measure to minimize exposure are included as advanced BMPs. Advanced BMPs that are required to be implemented when a Discharger has implemented the minimum BMPs to the extent feasible and they are not adequate to comply with the TBELs. The advanced BMP categories are: (1) exposure minimization BMPs, (2) storm water containment and discharge reduction BMPs, (3) treatment control BMPs, and (4) additional advanced BMPs needed to meet the effluent limitations of this General Permit. Advanced BMPs are generally structural control measures and can include any BMPs that exceed the minimum BMPs. The control measure for Non-Storm Water Discharges (NSWDs) is addressed in both the discharge prohibitions (Section III) and authorized non-storm water discharges (Section IV) of this General Permit and essentially represents a minimum BMP.

This General Permit encourages Dischargers to utilize BMPs that infiltrate or reuse storm water where feasible. The State Water Board expects that these types of BMPs will not be appropriate for all industrial facilities, but recognizes the many possible benefits (e.g. increased aquifer recharge, reduces flooding, improvements to water quality) associated with the infiltration and reuse of storm water. Encouraging the use of storm water infiltration and reuse BMPs is consistent with the statewide approach to managing storm water with lower impact methods.

The BMPs in this General Permit that coincide with the control measures in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

a. Minimization of Exposure to Storm Water

Section 2.1.2.1 of the 2008 MSGP requires Dischargers to minimize the exposure of industrial materials and areas of industrial activity to rain, snow, snowmelt, and runoff. The 2008 MSGP mixes both structural and nonstructural BMPs and specifies particular BMPs to consider when minimizing exposure such as grading/berming areas to minimize runoff, locating materials indoors, spill clean up, contain vehicle fluid leaks or drain fluids before storing vehicles on-site, secondary containment of materials, conduct cleaning activities undercover, indoors or in bermed areas, and drain all wash water to a proper collection system.

This General Permit requires the evaluation of BMPs in the potential pollutant source assessment in the SWPPP (Section X.G.2). When the minimum BMPs are not adequate to comply with the TBELs, Dischargers are required to implement advanced BMPs (Section X.H.2.a). These advanced BMPs may include additional exposure minimization BMPs (Section X.H.2.b.1).

b. Good Housekeeping

Section 2.1.2.2 of the 2008 MSGP requires that Dischargers keep all exposed areas that may be a potential source of pollutants clean and orderly. This General Permit (Section X.H.1.a) seeks to define “clean and orderly” by specifying a required set of nine (9) minimum good housekeeping BMPs, which include: observations of outdoor/exposed areas, BMPs for controlling material tracking, BMPs for dust generated from industrial materials or activities, BMPs for rinse/wash water activities, covering stored industrial materials/waste, containing all stored non-solid industrial materials, preventing discharge of rinse/wash waters/industrial materials, prevent non-industrial area discharges from contact with industrial areas of the facility, and prevent authorized NSWDs from non-industrial areas from contact with industrial areas of the facility.

c. Preventative Maintenance

Section 2.1.2.3 of the 2008 MSGP requires that Dischargers regularly inspect, test, maintain, and repair all industrial equipment to prevent leaks, spills and releases of pollutants that may be exposed to storm water discharged to receiving waters. This General Permit (Section X.H.1.b) incorporates this concept by requiring four (4) nonstructural BMPs which include: identification and inspection of equipment, observations of potential leaks in identified equipment, an equipment maintenance schedule, and equipment maintenance procedures.

d. Spill and Leak Prevention and Response

Section 2.1.2.4 of the 2008 MSGP requires that Dischargers minimize the potential for leaks, spills and other releases that may be exposed to storm water. Dischargers are also required to develop a spill response plan which includes procedures such as labeling of containers that are susceptible to a spill or a leakage, establishing containment measures for such industrial materials, procedures for stopping leaks/spills, and provisions for notification of the appropriate personnel about any occurrence. This General Permit (Section X.H.1.c) requires implementation of four (4) BMPs to address spills. These BMPs include: developing a set of spill response procedures to minimize spills/leaks, develop procedures to minimize the discharge of industrial materials generated through spill/leaks, identifying/describing the equipment needed and where it will be located at the facility, and identify/training appropriate spill response personnel.

e. Erosion and Sediment Controls

Section 2.1.2.5 of the 2008 MSGP requires the use of structural and/or non-structural control measures to stabilize exposed areas and contain runoff. Also required is the use of a flow velocity dissipation device(s) in outfall channels where necessary to reduce erosion and/or settle out pollutants. This General Permit (Section X.H.1.e) requires the implementation of (5) BMPs to prevent erosion and sediment discharges. The erosion and sediment control BMPs include: implementing effective wind erosion controls, providing for effective stabilization of erodible areas prior to a forecasted storm event, site entrance stabilization/prevent material tracking offsite and implement perimeter controls, diversion of run-on and storm water generated from within the facility away from all erodible materials, and ensuring compliance with the design storm standards in Section X.H.6. U.S. EPA has developed online resources for erosion and sediment controls.[6]

f. Management of Runoff

Section 2.1.2.6 of the 2008 MSGP requires the diversion, infiltration, reuse, containment, or otherwise reduction of storm water runoff, to minimize pollutants in discharges. This General Permit (Sections X.H.1.a.viii, X.H.1.d.iv., and

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[6] U.S. EPA. 2008 MSGP. <http://cfpub.epa.gov/npdes/stormwater/msgp.cfm> [as of February 4, 2014].
U.S. EPA. National Menu of BMPs. <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>. [as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas <http://water.epa.gov/polwaste/nps/urban/index.cfm>. [as of February 4, 2014].

X.H.1.e.iv) requires Dischargers to divert run-on from non-industrial sources and manage storm water generated within the facility away from industrial materials and erodible surfaces. Runoff reduction is required as an advanced BMP when minimum BMPs are not adequate to comply with the TBELs. The 2008 MSGP encouraged Dischargers to consult with EPA's internet-based resources relating to runoff management.[7]

g. Salt Storage Piles or Piles Containing Salt

Section 2.1.2.7 of the 2008 MSGP requires salt storage piles/piles containing salt that may be discharged to be enclosed or covered and to use BMPs when the salt is being used. This General Permit does not have a minimum BMP specifically for salt storage, however it does require all stockpiled/stored industrial materials be managed in a way to reduce or prevent industrial storm water discharges of the stored/stockpiled pollutants. The good housekeeping (Section X.H.1.a) and material handling and waste management (Section X.H.1.d) minimum BMPs in this General Permit require that all materials readily mobilized by storm water be covered, the minimization of handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event, and the diversion of run-on from stock piled materials.

h. Sector Specific Non-Numeric Effluent Limits

Section 2.1.2.8 of the 2008 MSGP requires Dischargers to achieve any additional non-numeric limits stipulated in the relevant sector-specific section(s) of Part 8 of the 2008 MSGP. This General Permit is not a sector-specific permit and does not contain sector-specific non-numeric effluent limitations like the 2008 MSGP. While this General Permit does not specify sector-specific BMPs, Dischargers are required to select and implement BMPs for their specific facility to reduce or prevent industrial storm water discharges of pollutants to comply with the technology-based effluent limitations. In addition, sectors with applicable ELGs must comply with those ELGs.

i. Employee Training Program

Section 2.1.2.9 of the 2008 MSGP requires all employees engaged in industrial activities or the handling of industrial materials that may affect storm water to obtain training covering implementation of this General Permit. This General Permit (Section X.D.1 and X.H.1.f) requires a facility to establish a Pollution Prevention Team (team members, collectively) responsible for implementing permit requirements such as the SWPPP, monitoring requirements, or BMPs.

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[7] U.S. EPA. Sector-Specific Industrial Stormwater Fact Sheet Series <www.epa.gov/npdes/stormwater/msgp>. [as of February 4, 2014].
U.S. EPA. National Menu of Stormwater BMPs <www.epa.gov/npdes/stormwater/menuofbmps> [as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas (and any similar State or Tribal publications) <www.epa.gov/owow/nps/urbanmm/index.html>. [as of February 4, 2014].

The five (5) minimum training BMPs include: ensuring that all team members are properly trained, preparing the proper training materials and manuals, identifying which individuals needs to be trained, providing a training schedule, and maintaining documentation on the training courses and which individuals received the training.

This General Permit also requires a QISP to be assigned to each facility that reaches Level 1 status. One purpose of a QISP is to have an individual available who can provide compliance assistance with these training requirements. The QISP is responsible for training the appropriate team members. Appropriate team members are any team members involved in implementing this General Permit for drainage areas causing NAL exceedances, and any other team members identified by the QISP that need additional training to implement this General Permit.

j. NSWDs

Section 2.1.2.10 of the 2008 MSGP requires that unauthorized NSWDs are eliminated (Part 1.2.3 of the 2008 MSGP lists the NSWDs authorized by the 2008 MSGP). The good housekeeping minimum BMP (Section X.H.1.a.ix of this General Permit) requires that contact between authorized NSWDs and industrial areas of the facility be minimized. This General Permit (Section IV) also includes separate requirements for authorized NSWDs and (Section III) prohibits unauthorized NSWDs.

k. Material Handling and Waste Management

Section 2.1.2.11 of the 2008 MSGP requires that Dischargers ensure waste, garbage, and floatable debris are not discharged into receiving waters. The 2008 MSGP identifies keeping areas clean and intercepting such materials as ways to minimize such discharges. This General Permit (Section X.H.1.d) requires Dischargers to implement six (6) general BMPs that address material handling and waste management. These BMPs include: preventing or minimizing handling of waste or materials during a storm event that could potentially result in a discharge, containing industrial materials susceptible to being dispersed by the wind, covering industrial waste disposal containers when not in use to contain industrial materials, diversion of run-on and storm water generated from within the facility away from all stock piled materials, cleaning and managing spills of such wastes or materials (in accordance with Section X.H.1.e of this General Permit), and conducting observations of outdoor areas and equipment that may come into contact with such materials or waste and become contaminated.

l. Waste, Garbage and Floatable Debris

Section 2.1.2.11 of the 2008 MSGP requires that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged. Material handling and waste management BMPs are included in Section X.H.1.d of this General Permit. Dischargers are required to: prevent handling of waste materials during a storm event that could result in a discharge, contain waste disposal containers when not in use, clean and manage spills from waste, and observe outdoor areas and equipment that may come into contact with waste and become contaminated.

m. Dust Generation and Vehicle Tracking of Industrial Materials

Section 2.1.2.12 of the 2008 MSGP requires that generation of dust and off-site tracking of raw, final, or waste materials is minimized. This General Permit does not require minimization of dust generation and vehicle tracking of industrial materials as a minimum BMP directly. Dust generation and vehicle tracking of industrial materials BMPs are included in Section X.H.1.a ("good housekeeping") of this General Permit where Dischargers must prevent dust generation from industrial materials or activities and contain all stored non-solid industrial materials that can be transported or dispersed via wind or come in contact with storm water, and Section X.H.1.d. ("material handling and waste management") of this General Permit, which requires Dischargers to contain non-solid industrial materials or wastes that can be dispersed via wind erosion or come into contact with storm water during handling.

n. Quality Assurance and Record Keeping

Section 2.1.2 of the 2008 MSGP does not directly designate record keeping as a control measure. This General Permit (Section X.H.1.g) includes quality assurance and record keeping as a minimum BMP and requires Dischargers to implement three (3) general BMPs. These BMPs include: developing and implementing procedures to ensure that all elements of the SWPPP are implemented, develop a method of tracking and recording the implementation of all BMPs identified in the SWPPP, and a requirement to keep and maintain those records. This ensures that management procedures are designed and permit requirements are implemented by appropriate staff.

o. Implementation of BMPs in the SWPPP

Like the previous permit, this General Permit does not assign Dischargers a schedule to implement BMPs. Instead, this General Permit requires Dischargers to select the appropriate schedule to implement the minimum BMPs. In addition, this General Permit requires Dischargers to identify, as necessary, any BMPs that should be implemented prior to precipitation events. Although Dischargers are required to maintain internal procedures to ensure the BMPs are implemented according to schedule or prior to precipitation events, Dischargers are only required to certify in the Annual Report whether they complied with the BMP implementation requirements.

Dischargers are required to implement an effective suite of BMPs that meet the technology and water-quality based limitations of this General Permit. Based upon Regional Water Board staff inspections, there is significant variation between Dischargers' interpretations of what BMPs were necessary to comply with the previous permit. This General Permit establishes a new requirement that Dischargers must implement, to the extent feasible, specific minimum BMPs to reduce or prevent the presence of pollutants in their industrial storm water discharge. In addition, due to the wide variety of facilities conducting numerous and differing industrial activities throughout the state, this General Permit retains the requirement from the previous permit that Dischargers establish and implement additional BMPs beyond the minimum. Implementation of this General Permit's minimum BMPs, together with any necessary advanced BMPs, will result in compliance with the effluent limitations of this General Permit (Section V.A). All Dischargers must evaluate their facilities and determine the best practices within their industry considering technological availability and economic practicability and achievability to implement these minimum BMPs and any advanced BMPs.

The State Water Board has selected minimum BMPs that are generally applicable at all facilities. The minimum BMPs are consistent with the types of BMPs normally found in properly developed SWPPPs and, in most cases, should represent a significant portion of the effort required for a Discharger to achieve compliance. Due to the diverse industries covered by this General Permit, the development of a more comprehensive list of minimum BMPs is not currently feasible. The selection, applicability, and effectiveness of a given BMP is often related to industrial activity type and to facility-specific facts and circumstances. Advanced BMPs must be selected and implemented by Dischargers, based on the type of industry and facility-specific conditions, to the extent necessary to comply with the technology-based effluent limitation requirements of this General Permit.

Failure to implement all of the minimum BMPs to the extent feasible is a violation of this General Permit. (Section X.H.1.) Dischargers must justify any determination that it is infeasible to implement a minimum BMP in the SWPPP (Section X.H.4.b). Failure to implement advanced BMPs necessary to achieve compliance with either the technology or water quality standards requirements in this General Permit is a violation of this General Permit.

p. Temporary Suspension of Industrial Activities

The exception for inactive and unstaffed sites in section 6.2.1.3 of the 2008 MSGP does not require a Discharger with a facility that is inactive and unstaffed with no industrial materials or activities exposed to storm water (in accordance with the substantive requirements in 40 Code of Federal Regulations section 122.26(g)) to complete benchmark monitoring. The Discharger is required to sign and certify a statement in the SWPPP verifying that the site is inactive and unstaffed. If circumstances change and industrial materials or activities become exposed to storm water or the facility becomes active and/or staffed, this exception no longer applies and the Discharger is required to begin complying immediately with the applicable benchmark monitoring requirements under part 6.2 of the 2008 MSGP.

This General Permit allows Dischargers to temporarily suspend monitoring at facilities where industrial activities have been suspended in accordance with Section X.H.3. This is only intended for Dischargers with facilities where it is infeasible to comply with this General Permit's monitoring while activities are suspended (e.g. remote, unstaffed, or inaccessible facilities during the time of such a suspension). Dischargers are required to update the facility's SWPPP with the BMPs being used to stabilize the site and submit the suspension dates and a justification for the suspension of monitoring via SMARTS.

3. Design Storm Standards for Treatment Control BMPs

It is the State Water Board's intent to minimize the regulatory uncertainty and costs concerning treatment control BMPs in order to encourage the implementation of treatment control BMPs when appropriate. Section X.H.6 of this General Permit specifies a design storm standard for use when treatment controls BMPs are installed. There is both a volume-based and flow-based design storm standard in this General Permit. Both are based on the 85th percentile 24-hour storm event. Without a design storm standard, Dischargers have installed treatment controls using a wide variety of designs that were sometimes either unnecessarily stringent/expensive, or deficient in complying with the requirements of the relevant permit. Some Dischargers have been hesitant to consider treatment options because of the uncertainty concerning acceptable treatment design. The design storm standards are generally expected to:

- Be consistent with the effluent limitations of this General Permit;

- Be protective of water quality;

- Be achievable for most pollutants and their associated treatment technologies; and,

- Reduce the costs associated with treating industrial storm water discharges beyond the levels necessary to achieve compliance with this General Permit.

In lieu of complying with the design storm standards for treatment control BMPs, Dischargers may certify and submit a Level 2 ERA Technical Report, including an Industrial Activity BMPs Demonstration (Section XII.D.2.a of this General Permit). The Level 2 ERA Technical Report requirement is based upon NAL exceedances. Under this option, a Discharger with Level 2 status must either implement BMPs to eliminate future NAL exceedances, or justify what BMPs must be implemented to comply with this General Permit even if the BMPs will not eliminate future exceedances of NALs. Dischargers who implement treatment control BMPs that vary from the design storm standards in Section X.H.6 must include an analysis showing that their treatment control BMPs comply with this General Permit's effluent limitations in the Industrial Activity BMP Demonstration.

This General Permit does not require Dischargers to retrofit existing treatment controls that do not meet the design storm standard, unless the Discharger determines that the existing treatment controls are not adequate to comply with this General Permit. In addition, once TMDL-specific implementation requirements are added to this General Permit, those Dischargers subject to TMDLs may need to add new or retrofitted treatment control BMPs to meet the TMDL implementation requirements.

To arrive at these design storm standards, the State Water Board has relied heavily on previous Water Board decisions concerning treatment efficacy for municipalities, published documents, stakeholder comments, and reasonableness. In 2000, the State Water Board issued State Water Board Order WQ 2000-11, which upheld Los Angeles Regional Water Board's permit requirements which mandated that all new development and redevelopment exceeding certain size criteria design treatment BMPs based on a specific storm volume: the 85th percentile 24-hour storm event. This design storm standard was based on research demonstrating that the standard represents the maximized treatment volume cut-off at the point of diminishing returns for rainfall/runoff frequency.[8] On the basis of this equation, the maximized runoff volume for 85 percent treatment of annual runoff volumes in California can range from 0.08 to 0.86 inch depending on the imperviousness of the watershed area and the mean amount of rainfall. This design storm standard is referred to as the Standard Urban Storm Water Mitigation Plan's volumetric criterion and there are multiple acceptable methods of calculating this volume. For more information, see the California Stormwater Best Management Practices Handbook.[9]

The San Diego Regional Water Board first established both volumetric and flow-based design storm criteria for NPDES MS4 permits. It is generally accepted by civil engineers doing hydrology work to use twice the peak hourly flow of a specific storm event to use as the basis for flow-based design of BMPs. This General Permit therefore establishes the flow-based design storm standard to be twice the peak hourly flow of the 85th percentile 24-hour storm event.

The primary objective of specifying a design storm standard is to properly size BMPs to, at a minimum, effectively treat the first flush of run-off from all storm events. The economic impacts of treating all storm water from a facility versus the minimal environmental benefit of complete treatment justify the design storm approach. It is unrealistic to require each facility to do a cost benefit analysis of their treatment structures. To simplify the requirements for design, the State Water Board reviewed research from the City of Portland[10] and the City of San Jose[11] to determine the volume of each rain event compared to the amount of events that occur for that volume. The results of their findings show an inflection point that is typically found at approximately the 80 to 85 percentile of recorded storm events.

[8] California Regional Water Quality Control Board Los Angeles Region, Standard Urban Storm Water Mitigation Plans and Numerical Design Standards for Best Management Practices - Staff Report and Record of Decision (Jan. 18, 2000) <http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/susmp/susmp_final_staff_report.pdf>. [as of February 4, 2014].

[9] California Stormwater Quality Association, Stormwater Best Management Practice New Development and Redevelopment Handbook (2003) <http://www.casqa.org/>. [as of February 4, 2014].

[10] City of Portland Oregon. Portland Stormwater Management Manual Appendix E.1: Pollution Reduction Methodology E.1-1 (August 1, 2008). <http://www.portlandoregon.gov/bes/article/202909>. [as of February 4, 2014].

[11] California Stormwater Quality Association (CASQA). CASQA BMP Handbook (January 2003) New Development and Redevelopment (Errata 9-04) <http://www.casqa.org/>. [as of February 4, 2014].

Dischargers should be aware of the potential unintended public health concerns associated with treatment control BMPs. Extensive monitoring studies conducted by the California Department of Public Health (CDPH) have documented that mosquitoes opportunistically breed in structural BMPs, particularly those that hold standing water for over 96 hours. BMPs that produce mosquitoes create potential public health concerns and increase the burden on local vector control agencies that are mandated to inspect for and abate mosquitoes and other vectors within their jurisdictional boundaries. These unintended consequences can be lessened when BMPs incorporate design, construction, and maintenance principles developed specifically to minimize standing water available to mosquitoes[12] while having negligible effects on the capacity of the structures to provide water quality improvements. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers.[13]

Dischargers who install any type of volume-based treatment device are encouraged to consider the BMPs in the California Department of Public Health's guidance manual published July 2012, "Best Management Practices for Mosquito Control in California" at http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf.

4. Monitoring Implementation Plan

Dischargers are required to prepare and implement a Monitoring Implementation Plan (Section X.I of this General Permit). The Monitoring Implementation Plan requirements are designed to assist the Discharger in developing a comprehensive plan for the monitoring requirements in this General Permit and to assess their monitoring program. The Monitoring Implementation Plan includes a description of visual observation procedures and locations, as well as sampling procedures, locations, and methods. The Monitoring Implementation Plan shall be included in the SWPPP.

J. Monitoring and Reporting Requirements

1. General Monitoring Provisions

This General Permit requires Dischargers to develop and implement a facility-specific monitoring program. Monitoring is defined as visual observations, sampling and analysis. The monitoring data will be used to determine:

[12] California Department of Public Health. (2012). Best Management Practices for Mosquito Control in California. < http://www.westnile.ca.gov/resources.php>. [as of February 4, 2014]
[13] California Health & Safety Code, Division 3, Section 2060 and following.

a. Whether BMPs addressing pollutants in industrial storm water discharges and authorized NSWDs are effective for compliance with the effluent and receiving water limitations of this General Permit,

b. The presence of pollutants in industrial storm water discharges and authorized NSWDs (and their sources) that may trigger the implementation of additional BMPs and/or SWPPP revisions; and,

c. The effectiveness of BMPs in reducing or preventing pollutants in industrial storm water discharges and authorized NSWDs.

Effluent sampling and analysis information may be useful to Dischargers when evaluating the need for improved BMPs. The monitoring requirements in this General Permit recognize the 2008 MSGP approach to visual observations as an effective monitoring method for evaluating the effectiveness of BMPs at most facilities. Section 6.2 of the 2008 MSGP limits its monitoring sampling requirements to certain industrial categories. Similar to the previous permit, this General Permit requires all Dischargers to sample unless they have obtained NEC coverage or have an inactive mining operation(s) certified as allowed under this General Permit Section XIII.

This General Permit defines a Qualifying Storm Event (QSE) to provide clarity to Dischargers of when sampling is required. The previous permit (Section B.5.a) specified that sampling was required within the first hour of discharge, however, this General Permit requires Dischargers to sample within four hours of the start of Discharge. Many Dischargers were not able to get samples of their discharge locations within one (1) hour under the previous permit so this general permit has expanded the timeframe allowed to provide enough time to sample all discharge locations. The previous permit required three working dry days before sampling and this General Permit defines this period as 48 hours, this timeframe was decreased to provide more opportunities for Dischargers to obtain samples. This General Permit does not specify a volume for sampling due to the complexity of using rain gauges and the limited access of rain gauge station data.

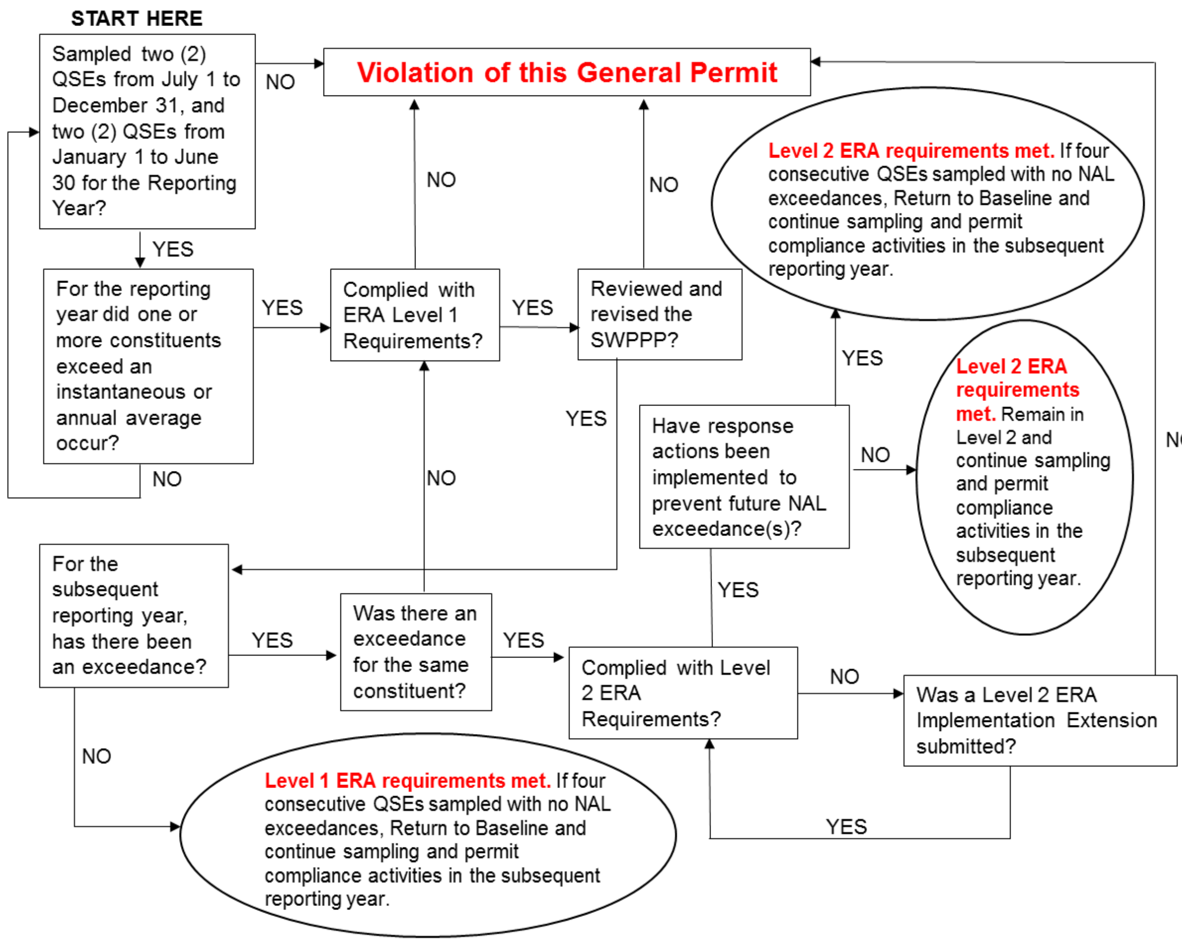
Dischargers are only required to obtain samples required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii of this General Permit. If a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples at discharge locations that are still producing a discharge at the start of facility operations. Under the previous permit, many Dischargers were unable to obtain samples due to rainfall beginning at night.

The State Water Board recognizes that it may not be feasible for all facilities to obtain four QSEs in a reporting year because there may not be enough qualifying storm events to do so. Therefore, a Discharger that is unable to collect and analyze storm water samples from two QSEs in each half of a reporting year due to a lack of QSEs is not in violation of Section XI.B.2. Dischargers that miss four QSEs during a reporting year due to the fact that four QSEs did not occur are not required to make up these sampling events in subsequent reporting years.

The State Water Board recognizes that each facility has unique physical characteristics, industrial activities, and/or variations in BMP implementation and performance which warrants the requirement that each facility demonstrate its compliance. Figure 3 of this Fact Sheet provides a summary of all the monitoring-related requirements of this General Permit. This General Permit's monitoring requirements include sampling and analysis requirements for specific indicator parameters that indicate the presence of pollutants in industrial storm water discharges. The "indicator parameters" are oil and grease (for petroleum hydrocarbons), total suspended solids (for sediment and sediment bound pollutants) and pH (for acidic and alkaline pollutants). Additionally, Dischargers are required to evaluate their facilities and analyze samples for additional facility-specific parameters. These monitoring program requirements are designed to provide useful, cost-effective, timely, and easily obtained information to assist Dischargers as they identify their facility's pollutant sources and implement corrective actions and revise BMPs as necessary (Section XI.A.4 of this General Permit).

This General Permit requires a combination of visual observations and analytical monitoring. Visual observations provide Dischargers with immediate information indicating the presence of many pollutants and their sources. Dischargers must implement timely actions and revise BMPs as necessary (Section XI.A.4) when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP. Analytical monitoring provides an additional indication of the presence and concentrations of pollutants in storm water discharge. Dischargers are required to evaluate potential pollutant sources and corresponding BMPs and revise the SWPPP appropriately when specific types of NAL exceedances occur as described below.

FIGURE 3: Compliance Determination Flowchart



2. Visual Observations

There are two major changes to the visual observation requirements in this General Permit compared to the previous permit, which include:

a. Monthly Visual Observations

The previous permit required separate quarterly visual observations for unauthorized and authorized non-storm water discharges. It did not require periodic visual observations of the facility to determine whether all potential pollutant sources were being adequately controlled with BMPs. Prior drafts of this General Permit proposed the addition of pre-storm inspections. This was met with great resistance by Dischargers because of the complexity and burden of determining when a QSE would occur. Many of these Dischargers recommended that monthly BMP and non-storm water discharge visual observations should replace the proposed pre-storm inspections. This General Permit merges all visual observations into a single monthly visual observation.

b. Sampling Event Visual Observations

The previous permit required monthly storm water visual observations. This required Dischargers to conduct visual observations for QSEs that were not being sampled since only two QSEs were required to be sampled in the previous permit. As discussed below, the sampling requirement has been increased to four QSEs within each reporting year with two QSEs required in each half of the reporting year. We expect that this will result in more samples being collected and analyzed, since most of California experiences, on average, at least two QSEs per half year. This General Permit streamlines the storm water visual observation requirement by linking the visual observations to the time of sampling.

3. Sampling and Analysis

a. General

As part of the process for developing previous drafts of this General Permit, the State Water Board considered comments from numerous stakeholders concerning sampling and analysis. Sampling and analysis issues were the most dominant of all issues raised in the comments.

The State Water Board received stakeholder comments that fall into three primary categories concerning this General Permit's sampling and analysis approach:

i. Comments supporting an intensive water quality sampling and analysis approach (with the goal of producing more accurate discharge-characterizing and pollutant concentration data) as the primary method of determining compliance with effluent limitations and receiving water limitations. Since this approach requires large amounts of high quality data to accurately quantify the characteristics of the discharges, it is referred to as the quantitative monitoring approach. Stakeholders supporting the quantitative approach generally also support the use of stringent NELs to evaluate compliance with this General Permit;

ii. Comments supporting only visual observations as the primary method of determining compliance: These stakeholders generally assert that storm water sampling is an incomplete and not very cost effective means of determining water quality impacts on the receiving waters; and,

iii. Comments supporting a combination of visual observations and cost-effective water quality sampling and analysis approach (sampling and analysis that would produce data indicating the presence of pollutants) to determine compliance (similar to the previous permit's approach). Since this approach uses more qualitative information to describe the quality and characteristics of the discharges, it is referred to as the qualitative monitoring approach.

Within each of the three categories, there are various recommendations and rationales as to the exact monitoring frequencies, procedures and methods, required to implement the approach. Stakeholders in favor of the quantitative monitoring approach commented that it is the only reliable and meaningful method of assuring that: (1) BMPs are effective in reducing or preventing pollutants in storm water discharge in compliance with BAT/BCT, and (2) the discharge is not causing or contributing to an exceedance of a water quality standards. The stakeholders state that visual observations are not effective in measuring pollutant concentrations nor is it effective in determining the presence of colorless and/or odorless pollutants. The stakeholders state that qualitative monitoring (and the use of indicator parameters) will not provide results useful for calculating pollutant loading nor will it accurately characterize the discharge.

Stakeholders in favor of requiring only visual observations state that sampling and analysis is unnecessary because (1) the previous permit did not include NELs so the usefulness of sampling and analysis data is limited, (2) a significant majority of Dischargers should be able to develop appropriate BMPs without sampling and analysis data, (3) most pollutant sources and pollutants can be detected and mitigated through visual observations, (4) the costs associated with quantitative monitoring are excessive and disproportionate to any benefits, (5) U.S. EPA's storm water regulations do not require sampling, (6) The 2008 MSGP relies heavily on visual observations and requires only a limited number of specific industries to conduct sampling and analysis, and (7) the majority of Dischargers are small businesses and do not have sufficient training or understanding to perform accurate sampling and analysis.

Stakeholders in favor of requiring both visual observations and a cost-effective qualitative monitoring program state that (1) both are within the means and understanding of most Dischargers, and (2) monitoring results are useful for evaluating a Discharger's compliance without unnecessarily increasing the burden on the Discharger and without subjecting Dischargers to non-technical enforcement actions.

The State Water Board finds that it is feasible for the majority of Dischargers to develop appropriate BMPs without having to perform large amounts of quantitative monitoring, which can be very costly. In the absence of implementing NELs, the State Water Board has determined that the infeasibility and costs associated with developing quantitative monitoring programs at each of thousands industrial facilities currently permitted would outweigh the limited benefits. The primary difficulty associated with requiring intensive quantitative monitoring lies with the cost and the difficulty of accurately sampling industrial storm water discharges.

Stakeholders that support quantitative monitoring believe the data is necessary to determine pollutant loading, concentration, or contribution to water quality violations. In order to derive data necessary to support those goals, however, the data must be of high quality, meaning it must be accurate, precise and have an intact chain of custody. Many industrial facilities do not have well-defined storm water conveyance systems for sample collection. Storm water frequently discharges from multiple locations through sheet flow into nearby streets and adjoining properties. Sample collection from a portion of the sheet flow is an inexact measurement since not all of the flow is sampled. Requiring every Discharger to construct well-defined storm water conveyances may cost anywhere from thousands to hundreds of thousands of dollars per facility depending on the size and nature of each industrial facility. At many facilities, the construction of such conveyances may also violate local building codes, create safety hazards, cause flooding, or increase erosion. In addition, eliminating sheet flow at some facilities could result in increased pollutant concentrations.

The State Water Board has considered the complexity and costs associated with quantitative monitoring. Unlike continuous point source discharges (e.g., publicly owned treatment works), storm water discharges are variable in intensity and duration. The concentration of pollutants discharged at any one time is dependent on many complex variables. The largest concentration of pollutants would be expected to discharge earlier in the storm event and taper off as discharges continue. Therefore, effective quantitative monitoring of storm water discharges would require that storm water discharges be collected and sampled until most or all of the pollutants have been discharged. Multiple samples would need to be collected over many hours. To determine the pollutant mass loading, the storm water discharge flow must also be measured each time a sample is collected.

For a quantitative monitoring approach to yield useful pollutant loading information, the installation of automatic sampling devices and flow meters at each discharge location would usually be necessary. In addition, qualified individuals would be needed to conduct the monitoring procedures, and to handle and maintain flow meters and automatic samplers are needed. A significant majority of storm water Dischargers under this General Permit do not possess the skills to manage such an effort. Dischargers will bear the cost of employing and/or training on-site staff to do this work, or the cost of contracting with environmental consultants and acquiring the required flow meters and automatic samplers. The cost to Dischargers to conduct quantitative monitoring varies depending on the number of outfalls, the number of storms, the length of each storm, the amount of staff training, and other variables.

To address these concerns, this General Permit includes a number of new items that bridge the gap between the previous permit's qualitative monitoring and the quantitative approach recommended by many commenters. This General Permit includes a requirement for all Dischargers to designate a QISP when they enter Level 1 status due to NAL exceedances. The QISP is required to be trained to: (1) more accurately identify discharge locations representative of the facility storm water discharge (2) select and implement appropriate sampling procedures (3) evaluate and develop additional BMPs to reduce or prevent pollutants in the industrial storm water discharges.

Dischargers that fail to develop and implement an adequate Monitoring Implementation Plan that includes both visual observations and sampling and analysis, are in violation of this General Permit. Dischargers that fail to comply with Level 1 status and Level 2 status ERA requirements, triggered by NAL exceedances, are in violation of this General Permit.

Water Code section 13383.5 requires that the State Water Board include (1) standardized methods for collection of storm water samples, (2) standardized methods for analysis of storm water samples, (3) a requirement that every sample analysis be completed by a State certified laboratory or in the field in accordance with Quality Assurance and Quality Control (QA/QC) protocols, (4) a standardized reporting format, (5) standardized sampling and analysis programs for QA/QC, and (6) minimum detection limits. The monitoring requirements in this General Permit (Section XI), as supplemented by SMARTS, address these requirements.

Under the previous permit, many Dischargers did not developed adequate sample collection and handling procedures, decreasing the quality of analytical results. In addition, Dischargers often selected inappropriate test methods, method detection limits, or reporting units. This General Permit requires all Dischargers to identify discharge locations that are representative of industrial storm water discharges and develop and implement reasonable sampling procedures to ensure that samples are not mishandled or contaminated.

It is infeasible for the State Water Board to provide a single comprehensive set of sample collection and handling procedures/instructions due to the wide variation in storm water conveyance and collection systems in use at facilities around the state. As an alternative, Attachment H of this General Permit provides minimum storm water sample collection and handling instructions that pertain to all facilities. Dischargers are required to develop facility-specific sample collection and handling procedures based upon these minimum requirements. Table 2 in this General Permit provides the minimum test methods that shall be used for a variety of common pollutants. Dischargers must be aware that use of more sensitive test methods (e.g., U.S. EPA Method 1631 for Mercury) may be necessary if they discharge to an impaired water body or are otherwise required to do so by the Regional Water Board. This General Permit allows Dischargers to propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, SMARTS will be updated over time to add additional acceptable analytical test methods.

The previous permit allowed Dischargers to reduce sampling analysis requirements for substantially similar drainage areas by either (1) combining samples for an unspecified maximum number of substantially similar drainage areas, or (2) sampling a reduced number of substantially similar drainage areas. The State Water Board provided this procedure to reduce analytical costs. The complexity associated with determining substantially similar drainage areas has led Dischargers to produce various, and sometimes questionable, analytical schemes. In addition, the previous permit did not establish a maximum number of samples that could be combined.

To standardize sample collection and analysis as required by Water Code section 13383.5, while continuing to offer a reduced analytic cost option, these requirements have been revised. Section XI.B.4 of this General Permit requires Dischargers to collect samples from all discharge locations regardless of whether the discharges are substantially similar or not. Dischargers may analyze each sample collected, or may analyze a combined sample consisting of equal volumes, collected from as many as four (4) substantially similar discharge locations. A minimum of one combined sample shall be analyzed for every one (1) to four (4) discharge locations, and the samples shall be combined in the lab in accordance with Section XI.C.5 of this General Permit.

Representative sampling is only allowed for sheet flow discharges or discharges from drainage areas with multiple discharge locations. Dischargers shall select the appropriate location(s) to be sampled and intervals necessary to obtain samples representative of storm water associated with industrial activities generated within the corresponding drainage area. Dischargers are not required to sample discharge locations that have no exposure of industrial activities or materials as defined in Section XVII of this General Permit within the corresponding drainage area. However, Dischargers are required to conduct the monthly visual observations regardless of the selected locations to be sampled.

This General Permit defines a QSE as a precipitation event that produces a discharge from any drainage area that is preceded by 48 consecutive hours without a discharge from any drainage area. The previous permit did not include a QSE definition; instead, it utilized a different approach to defining the storm events that were required to be sampled. Under the previous permit, eligible storm events were storm events that occurred after three consecutive working days of dry weather. The three consecutive working days of dry weather definition in the previous permit led Dischargers to miss many opportunities to sample. Some Dischargers were unable to collect samples from two storm events in certain years under the previous definition. To resolve this difficulty, this General Permit increases the sampling requirements to four (4) QSEs per year, while decreasing the number of days without a discharge, resulting in additional opportunities for Dischargers to sample. Additionally, by eliminating the previous permit's reference to "dry weather," this General Permit allows some precipitation to occur between QSEs so long as there is no discharge from any drainage area. This change will result in more QSE sampling opportunities.

To improve clarity and consistency, the definitions contained in other storm water permits were considered with the goal of developing a standard definition for 'dry weather' for this General Permit. The 2008 MSGP sets a "measurable storm event" as one that produces at least 0.1 inches of precipitation and results in an actual discharge after 72 hours (three days) of dry weather. The State of Washington defines a "qualifying storm event" as a storm with at least 0.1 inches of precipitation preceded by at least 24 hours of no measurable precipitation, mirroring the definition found in the previous MSGP (2000 version). The State of Oregon requires that samples be taken in the first 12 hours of discharge and no less than 14 days apart. Review of other permits concludes that there is not a single commonly used approach to triggering sampling in industrial general permits. Therefore an enforceable sampling trigger is included in this General permit that requires Dischargers to sample four storm events within each reporting year.

b. Effluent Water Quality Sampling and Analysis Parameters

Dischargers are required to sample and analyze their effluent for certain parameters. "Parameter" is a term used in laboratory analysis circles to represent a distinct, reportable measure of a particular type. For example, ammonia, hexavalent chromium, total nitrogen and chemical oxygen demand are all parameters that a laboratory can analyze storm water effluent for and report a quantity back. A parameter is also an indicator of pollution. In this General Permit, pH, total suspended solids and chemical oxygen demand are examples of indicator parameters. They are not direct measures of a water quality problem or condition of pollution but can be used to indicate a problem or condition of pollution. Indicator parameters can also be used to indicate practices and/or the presence of materials at a facility to bring forth information for compliance evaluation processes, like annual report review and inspection. For example, chemical oxygen demand concentrations can indicate the presence of dissolved organic compounds, like residual food from collected recycling materials.

Minimum parameter-specific monitoring is required for Dischargers, regardless of whether additional facility-specific parameters are selected. This General Permit requires some parameters to be analyzed and reported for the duration of permit coverage to develop comparable sampling data over time and over many storm events and to demonstrate compliance. The Regional Water Boards may use such data to evaluate individual facility compliance and assess the differences between various industries. Accordingly, the parameters selected correspond to a broad range of industrial facilities, are inexpensive to sample and analyze, and have sampling and analysis methods which are easy to understand and implement. Some analytical methods for field measurements of some parameters, such as pH, may be performed using relatively inexpensive field instruments and provides an immediate alert to possible pollutant sources.

The following three selected minimum parameters are considered indicator parameters, regardless of facility type. These parameters typically provide indication and/or the correlation of whether other pollutants are present in storm water discharge. These parameters were selected for the following reasons:

i. pH is a numeric measurement of the hydrogen-ion concentration. Many industrial facilities handle materials that can affect pH. A sample is considered to have a neutral pH if it has a value of 7. At values less than 7, water is considered acidic; above 7 it is considered alkaline or basic. Pure rain water in California typically has a pH value of approximately 7.

ii. Total Suspended Solids (TSS) is an indicator of the un-dissolved solids that are present in storm water discharge. Sources of TSS include sediment from erosion, and dirt from impervious (i.e., paved) areas. Many pollutants adhere to sediment particles; therefore, reducing sediment will reduce the amount of these pollutants in storm water discharge.

iii. Oil and Grease (O&G) is a measure of the amount of O&G present in storm water discharge. At very low concentrations, O&G can cause sheen on the surface of water. O&G can adversely affect aquatic life, create unsightly floating material, and make water undrinkable. Sources of O&G include, but are not limited to, maintenance shops, vehicles, machines and roadways.

The previous permit allowed Dischargers to analyze samples for either O&G or Total Organic Carbon (TOC). This General Permit requires all Dischargers analyze samples for O&G since almost all Dischargers with outdoor activities operate equipment and vehicles can potentially generate insoluble oils and greases. Dischargers with water soluble-based organic oils may be required to also test for TOC. The TOC and O&G tests are not synonymous, duplicative or interchangeable.

This General Permit removes the requirement to analyze for specific conductance as part of the minimum analytic parameters. Specific conductance is not required by U.S. EPA for any industry type. Additionally, stakeholder comments indicate that there are many non-industrial sources that may cause high specific conductance and interfere with the efficacy of the test. For example, salty air deposition that occurs at facilities in coastal areas may raise the specific conductance in water over 500 micro-ohms per centimeter (µhos/cm). Dischargers are not prevented from performing a specific conductance test as a screening tool if it is useful to detect a particular pollutant of concern as required (e.g. salinity).

This General Permit requires Dischargers subject to Subchapter N ELGs for pH to analyze for pH using approved test methods in accordance with 40 Code of Federal Regulations part 136. These federal regulations specify that analysis of pH must take place within 15 minutes of sample collection. All other Dischargers may screen for pH using wide range litmus pH paper or other equivalent pH test kits within 15 minutes of sample collection. If in any reporting year a Discharger has two or more pH results outside of the range of 6.0 – 9.0 pH units, that Discharger is required to comply with the approved test methods in 40 Code of Federal Regulations part 136 in subsequent reporting years.

For almost all Dischargers, obtaining laboratory analysis within 15 minutes is logistically impossible. For many Dischargers, maintaining a calibrated pH meter is difficult, labor intensive, and error prone. Screening for pH will limit the number of additional Dischargers required to comply with 40 Code of Federal Regulations part 136 methods to those that have pH measures outside the range of 6.0-9.0 pH units. The use of wide range litmus pH paper or other equivalent pH test kits is not as accurate as a calibrated pH meter, however litmus paper is allowed in the 2008 MSGP, and when used properly it can provide an accurate screening measure to determine if further more-accurate pH sampling is necessary to determine compliance.

Review of available monitoring data shows that storm water discharges from most types of industrial facilities comply with the pH range of 6.0 to 9.0 pH units. There are specific types of industries, like cement or concrete manufacturers that have shown a trend of higher pH values very close to 9.0 pH units. Rather than require all industries as a whole to monitor with the more costly 40 Code of Federal Regulations part 136 methods, this General Permit establishes a triggering mechanism for these more advanced pH test methods. The Regional Water Boards retain their authority to require more accurate test methods. Once a Discharger triggers the requirement to use the more accurate testing methods in 40 Code of Federal Regulations part 136, the Discharger may not revert back to screening for pH for the duration of coverage under this General Permit.

In the early 1990s, U.S. EPA, through its group application program, evaluated nationwide monitoring data and developed the listed parameters and SIC associations shown in Table 1 of this General Permit. The 2008 MSGP requires that Dischargers analyze storm water effluent for the listed parameters under certain conditions. In addition to the parameters in Table 1 of this General Permit, Dischargers are required to select additional facility-specific analytical parameters to be monitored, based upon the types of materials that are both exposed to and mobilized by contact with storm water. Dischargers must, at a minimum, understand how to identify industrial materials that are handled outdoors and which of those materials can easily dissolve or be otherwise transported via storm water.

The Regional Water Boards have the authority to revise the monitoring requirements for an individual facility or group of facilities based on site-specific factors including geographic location, industry type, and potential to pollute. For example, the Los Angeles Regional Water Board required all dismantlers (SIC Code 5015) within their jurisdiction to monitor for copper and zinc instead of aluminum and iron during the term of the previous permit. SMARTS will be programmed to incorporate any monitoring revisions required by the Regional Water Boards. Dischargers will receive email notification of the monitoring requirement revision and their SMARTS analytical reporting input screen will display the corresponding revisions. Dischargers may add, but not otherwise modify, the sampling parameters on their SMARTS input screen.

Dischargers are also required to identify pollutants that may cause or contribute to an existing exceedance of any applicable water quality standards for the receiving water. This General Permit requires Dischargers to control its discharge as necessary to meet the receiving water limitations, and to select additional monitoring parameters that are representative of industrial materials handled at the facility (regardless of the degree of storm water contact or relative mobility) that may be related to pollutants causing a water body to be impaired.

4. Methods and Exceptions

   a. Storm Water Discharge Locations

Dischargers are required to visually observe and collect samples of industrial storm water discharges from each drainage area at all discharge locations. These samples must be representative of the storm water discharge leaving each drainage area. This is a change from the previous permit which allowed a

Discharger to reduce the number of discharge locations sampled if two or more discharge locations were substantially similar.

Dischargers are required to identify, when practicable, alternate discharge locations if: (1) the facility's industrial drainage areas are affected by storm water run-on from surrounding areas that cannot be controlled, or (2) discharge locations are difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

b. Representative Sampling Reduction

Some stakeholders have indicated that there are unique circumstances where sampling a subset of representative discharge locations fully characterizes the full set of storm water discharges. Stakeholders provided examples related to drainage areas with multiple discharge locations where sampling only a subset of these discharge locations produces results that are representative of the drainage areas' storm water discharges. In such situations, this General Permit allows Dischargers to reduce the number of discharge locations. For each drainage area with multiple discharge locations (e.g. roofs with multiple downspouts, loading/unloading areas with multiple storm drain inlets), the Discharger may reduce the number of discharge locations to be sampled if the conditions in Section XI.C.4 of this General Permit are met.

c. Qualified Combined Samples

Dischargers may combine samples from up to four (4) discharge locations if the industrial activities within each drainage area and each drainage area's physical characteristics (i.e. grade, surface materials) are substantially similar.

Dischargers are required to provide documentation in the Monitoring Implementation Plan supporting that the above conditions have been evaluated and fulfilled. A Discharger may combine samples from more than four (4) discharge locations only with approval from the appropriate Regional Water Board.

d. Sample Collection and Visual Observation Exceptions

Dischargers are not required to collect samples or conduct visual observations during dangerous weather conditions such as flooding or electrical storms, or outside of scheduled facility operating hours. A Discharger is not precluded from conducting sample collection activities or visual observations outside of scheduled facility operating hours.

In the event that a Discharger is unable to collect the required samples or conduct visual observations due to the above exceptions, the Discharger must include an explanation of the conditions obstructing safe monitoring in its Annual Report. If access to a discharge location is dangerous on a routine basis, a Discharger must choose an alternative discharge location in accordance with General Permit Section XI.C.3.

e. Sampling Frequency Reduction

Facilities that do not have NAL exceedances for four (4) consecutive QSEs are unlikely to pose a significant threat to water quality. If the storm water from these facilities is also in full compliance with this General Permit, the Discharger is eligible for a reduction in sampling frequency. The Sampling Frequency Reduction allows a Discharger to decrease its monitoring from four (4) samples within each reporting year to one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of each reporting year (January 1 to June 30). If a Discharger has a subsequent NAL exceedance after the Sampling Frequency Reduction, it must comply with the original sampling requirements of this General Permit. Only Dischargers that have baseline status or that have satisfied the Level 1 requirements are eligible for this sampling and analysis reduction.

A Discharger requesting to reduce its sampling frequency shall certify and submit a Sampling Frequency Reduction certification via SMARTS. The Sampling Frequency Reduction certification shall include documentation that the General Permit conditions for the Sampling Frequency Reduction have been satisfied.

Dischargers participating in a Compliance Group and certifying a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year. These Dischargers must receive year-round compliance assistance from their Compliance Group Leader and must comply with all requirements of this General Permit.

5. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

Federal regulations at Subchapter N establish ELGs for industrial storm water discharges from facilities in eleven industrial sectors. For these facilities, compliance with the ELGs constitutes compliance with the technology standard of BPT, BAT, BCT, or New Source Performance Standards provided in the ELG for the specified pollutants, and compliance with the technology-based requirements in this General Permit for the specified pollutant.

K. Exceedance Response Actions (ERAs)

1. General

The previous permit did not incorporate the benchmarks from any of the MSGPs or NALs for Dischargers to evaluate sampling results. Unlike the requirements for industrial storm water discharges that cause or contribute to an exceedance of a water quality standards, the previous permit did not provide definitions, procedures or guidelines to assess sampling results. Many Regional Water Boards have formally or informally notified Dischargers that exceedances of the MSGP benchmarks should be used to determine whether additional BMPs are necessary. However, there was considerable confusion as to the extent to which a Discharger would be expected to implement actions in response to exceedances of these values, and the timelines that had to be met to prevent an enforcement action. The lack of specificity with regards to what constituted an exceedance, and what actions are required in response to an exceedance, have been identified as a problem by the Water Boards, industry and environmental stakeholders.

This General Permit contains two (2) types of NALs. Annual NALs function similarly to, and are based upon, the values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants and are established based on California industrial storm water discharge monitoring data. When a Discharger exceeds an NAL it is required to perform ERAs. The ERAs are divided into two levels of responses and can generally be differentiated by the number of years in which a facility's discharge exceeds an NAL trigger. These two levels are explained further in Section XII of this General Permit. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This process is also designed to provide Dischargers with a more defined pathway towards full compliance.

The ERA requirements in this General Permit were developed using best professional judgment and Water Board experience with the shortcomings of the previous permit's compliance procedures. Public comments received during State Water Board hearings on the 2002, 2005, 2011, 2012 and 2013 draft permits, and NPDES industrial storm water discharge permits from other states with well-defined ERA requirements were also considered by the State Water Board.

The State Water Board presumes that one single NAL exceedance for a particular parameter is not a clear indicator that a facility's discharge is out of compliance with the technology-based effluent limitations or receiving water limitations. This presumption recognizes the highly variable nature of storm water discharge and the limited value of a single quarterly grab sample to represent the quality of a facility's storm water discharge for an entire storm event and all other non-sampled storm events. With this presumption, the State Water Board is addressing costly monitoring requirements that do not bring forth valuable compliance and/or water quality information.

2. NALs and NAL Exceedances

   a. This General Permit contains two types of NAL exceedances as follows:

      Annual NAL exceedance - the Discharger is required to calculate the average annual concentration for each parameter using the results of all sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data), and compare the annual average concentration to the corresponding Annual NAL values in Table 2 of this General Permit. An annual NAL exceedance occurs when the annual average of all the sampling results for a parameter taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2 of this General Permit.

      For the purposes of calculating the annual average concentration for each parameter, this General Permit considers any sampling result that are a "non-detect" or less than the method detection limit as a zero (0) value. The reason to use zero (0) values instead of the detected but not quantifiable value (minimum level or reporting limit) is that these values are very low and are unlikely to contribute to an NAL exceedance. There are statistical methods to include low values when calculations are for numeric criteria and limitations, however, the NALs in this General Permit are approximate values used to provide feedback to the Discharger on site performance, and are not numeric criteria or limitations. Therefore, it is not necessary to include these insignificant values in the calculations for the NALs. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.[14]

i. Instantaneous maximum NAL exceedance - the Discharger is required to compare all sampling and analytical results from each distinct sample (individual or combined) to the corresponding instantaneous maximum NAL values in Table 2 of this General Permit. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

b. Instantaneous maximum NAL analysis

In its June 19, 2006 report, the Blue Ribbon Panel of Experts (Panel) made several specific recommendations for how to set numeric limitations in future industrial storm water general permit(s). For sites not subject to TMDLs, the Panel suggested that the numeric values be based upon industry types or categories, with the recognition that each industry has its own specific water quality issues and financial viability. Furthermore, the Panel concluded:

> To establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs. The current industrial permit has not produced such a database for most industrial categories because of inconsistencies in monitoring or compliance with monitoring requirements. The Board needs to reexamine the existing data sources, collect new data as required and for additional water quality parameters (the current permit requires only pH, conductivity, total suspended solids, and either total organic carbon or oil and grease) to establish practical and achievable Numeric Limits.

The Panel suggested an alternative method that would allow the use of the existing Water Board dataset to establish action levels, referred to as the “ranked percentile” method. The Panel recommended:

[14] U.S. EPA. NPDES Storm Water Sampling Guidance Document. Web. July 1992. <http://www.epa.gov/npdes/pubs/owm0093.pdf>. [as of February 4, 2014].

> The ranked percentile approach (also a statistical approach) relies on the average cumulative distribution of water quality data for each constituent developed from many water quality samples taken for many events at many locations. The Action Level would then be defined as those concentrations that consistently exceed some percentage of all water quality events (i.e. the 90^{th} percentile). In this case, action would be required at those locations that were consistently in the outer limit (i.e. uppermost 10th percentile) of the distribution of observed effluent qualities from urban runoff.

After performing various data analysis exercises with the Water Board dataset, State Water Board staff concluded that the Water Board dataset is not adequate to calculate instantaneous NAL values using the Panel's recommended method for all of parameters that have annual NAL values based on the U.S. EPA benchmarks. Additionally, public comments on the January 2011 draft of this General Permit suggest that it is problematic to calculate NAL values based on the existing data. Therefore, the Water Board dataset was not used to calculate instantaneous NAL values for all parameters.

However, since all Dischargers regulated under the previous permit were required to sample for TSS and O&G/TOC, State Water Board staff found that the existing dataset for these parameters is of sufficient quality to calculate instantaneous NAL values. State Water Board staff also found that this data was less prone to what appear to be data input errors. The final dataset used to calculate the instantaneous NALs in this General Permit had outlier values that were eliminated from the dataset by using approved test method detection limits ranges. The methods and corresponding method detection limit ranges used to screen outliers are as follows:

- O&G - EPA 413.1 Applicable Range: 5-1,000 mg/L
- O&G - EPA 1664 Applicable Range: 5-1,000 mg/L
- TSS - EPA 160.2 Applicable Range: 4-20,000 mg/L

The intent of the instantaneous maximum NAL is to identify specific drainage areas of concern or episodic sources of pollution in industrial storm water that may indicate inadequate storm water controls and/or water quality impacts. In the effort to add instantaneous NAL exceedances to the ERA process, the State Water Board explored different options for the development of an appropriate value (i.e. percentile approach, benchmarks times a multiplier, confidence intervals). The California Stormwater Quality Association's comments on the previous draft permit included a proposed method for calculating NAL values using a percentile approach. The State Water Board researched and evaluated this methodology and determined it is the most appropriate way to directly compare available electronic sampling data from Dischargers regulated under the previous permit. This percentile approach was used to establish the instantaneous maximum NALs in this General Permit, for discharges to directly compare with sampling results and identify drainage areas of water quality concern.

The percentile approach is a non-parametric approach identified in many statistical textbooks for determining highly suspect values. Highly suspect values are defined as values that exceed the limits of the outer fences of a box plot. Upper limits of the outer fence are calculated by adding three times the inter-quartile range (25th to 75th percentiles) to the upper-end of the inter-quartile range (the 75th percentile). The California Stormwater Quality Association calculated an NAL value of 401 mg/L for TSS using the percentile approach using the Water Board dataset. The State Water Board performed the same analysis with the same Water Board dataset and calculated a slightly different value of 396 mg/L; therefore, the instantaneous maximum NAL value for TSS of 400 mg/L was established. Appling the percentile approach to the existing O&G data results in the instantaneous maximum NAL value for O&G of 25 mg/L.

The State Water Board compared existing sampling data to the instantaneous maximum NAL values and concluded that seven (7) percent of the total samples exceeded the highly suspected value for TSS and 7.8 percent of the total samples exceeded the highly suspected value for O&G. These results suggest that the instantaneous maximum NAL values are adequate to identify drainage areas of concern statewide since they are not regularly exceeded. Using best professional judgment, the State Water Board concludes that an exceedance of these values twice within a reporting year is unlikely to be the result of storm event variability or random BMP implementation problems, and the use of the percentile approach is therefore appropriate.

Due to issues with the ranges of concentrations and the logarithmic nature of pH, statistical methods cannot be applied to pH in the same ways as other parameters. Review of storm water sampling data by the State Water Board and other stakeholders has shown that pH is not typically a parameter of concern for most industrial facilities. Accordingly, a range of pH limits established in Regional Water Board Basin Plans is implemented in this General Permit for the instantaneous maximum NAL values. Most Basin Plans set a water quality objective of 6.0 - 9.0 pH units for water bodies, an exceedance outside the range of 6.0 - 9.0 pH units is consistent with the water quality concerns for pH among Regional Water Boards. An industrial facility with proper BMP implementation is expected to have industrial storm water discharges within the range of 6.0 - 9.0 pH units.

High concentrations of TSS and O&G, or pH values outside the range of 6.0 – 9.0 pH units, in a discharge may be an indicator of potential BMP implementation or receiving water quality concerns with other pollutants with parameters that do not have an instantaneous maximum NAL value. The State Water Board may consider instantaneous maximum NAL values for other parameters in a subsequent reissuance of this General Permit, based on data collected during this General Permit term.

The percentile approach is considered by many stakeholders to be the best method to evaluate BMP performance and general effluent quality in a community or population where the vast majority of the industrial facilities are implementing sufficient pollutant control measures. The Water Board's current dataset does not provide a way of evaluating actual BMP implementation at each facility when analyzing the data; therefore the monitoring information reported during the previous permit term cannot be linked to compliance with technology-based standards. The State Water Board intends to use data collected during this General Permit term to evaluate the percentile approach, improve the quality of collected data for other parameters, and further develop an understanding of how reported data relates to implemented BMP-control technologies.

Under this General Permit, a Discharger enters Level 1 status and must fulfill the Level 1 status ERA requirements following its first occurrence of any NAL exceedance. Level 2 status ERA requirements follow the second occurrence of an NAL exceedance for the same parameter in a subsequent reporting year. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This General Permit's ERA process is designed to have a well-defined compliance end-point. It is not a violation of this General Permit to exceed the NAL values; it is a violation of the permit, however, to fail to comply with the Level 1 status and Level 2 status ERA requirements in the event of NAL exceedances.

The State Water Board acknowledges that storm water discharge concentrations are often highly variable and dependent upon numerous circumstances such as storm size, the time elapsed since the last storm, seasonal activities, and the time of sample collection. Since there are potential enforcement consequences for failure to comply with this General Permit's ERA process, the State Water Board's intention is to use NAL exceedances to solely require Dischargers with recurring annual NAL exceedances or drainage areas that produce recurring instantaneous maximum NAL exceedances to be subject to the follow-up ERA requirements.

If NALs exceedances do not occur, the State Water Board generally expects that the Discharger has implemented sufficient BMPs to control storm water pollution. When NAL exceedances do occur, however, the potential that the Discharger may not have implemented appropriate and/or sufficient BMPs increases, and the Discharger is required to implement escalating levels of ERAs. If NAL exceedances occur, this General Permit requires Dischargers to evaluate and potentially install additional BMPs, or re-evaluate and improve existing BMPs to be in compliance with this General Permit.

3. Baseline Status

At the beginning of a Discharger's NOI coverage under this General Permit, the Discharger has Baseline status. A Discharger demonstrating compliance with all NALs will remain at Baseline status and is not required to complete Level 1 status and Level 2 status ERA requirements.

If a Discharger has returned to Baseline status (from Level 2 status) and additional NAL exceedances occur, the Discharger goes into Level 1 status, then potentially

Level 2 status. Dischargers do not go directly into Level 2 status from Baseline status.

4. Level 1 Status

Regardless of when an NAL exceedance occurs during Baseline status, a Discharger's status changes from Baseline status to Level 1 status on July 1 of the subsequent reporting year. By October 1 following the commencement of Level 1 status, the Discharger is required to appoint a QISP to assist with the completion of the Level 1 Evaluation. The Level 1 Evaluation must include a review of the facility's SWPPP for compliance with the effluent and receiving water limitations of this General Permit, an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s), and identification of any additional BMPs that will eliminate future exceedances. When conducting the Level 1 Evaluation, a Discharger must ensure that all potential pollutant sources that could be causing or contributing to the NAL exceedance(s) are fully characterized, that the current BMPs are adequately described, that employees responsible for implementing BMPs are appropriately trained, and that internal procedures are in place to track that BMPs are being implemented as designed in the SWPPP. A Discharger is additionally required to evaluate the need for additional BMPs. Level 1 ERAs are designed to provide the Discharger the opportunity to improve existing BMPs or add additional BMPs to comply with the requirements of this General Permit.

By January 1 following commencement of Level 1 status, a Discharger is required to certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP. The Level 1 ERA Report must contain a summary of the Level 1 Evaluation, all new or revised BMPs added to the SWPPP.

In most cases, the State Water Board believes that Level 1 status BMPs will be operationally related rather than structural and, therefore can be implemented without delay. Recognizing that a Discharger should not be penalized for sampling results obtained before implementing BMPs, sampling results for parameters and their corresponding drainage areas that caused the NAL exceedance up to October 1 or the date the BMPs were implemented, whichever is sooner, will not be used for calculating NAL exceedances. Although this General Permit allows up to January 1 to implement Level 1 status BMPs, the State Board has chosen an interim date of October 1 to encourage more timely Level 1 BMP implementation. Dischargers who implement Level 1 BMPs after October 1 may risk obtaining subsequent sampling results that may cause them to go into Level 2 status.

5. Level 2 Status

Level 2 ERAs are required during any subsequent reporting year in which the same parameter(s) has an NAL exceedance (annual average or instantaneous maximum), if this occurs, a Discharger's status changes from Level 1 status to Level 2 status on July 1 of the subsequent reporting year. Dischargers with Level 2 status must further evaluate BMP options for their facility. Dischargers may have to implement additional BMPs, which may include physical, structural, or mechanical devices that are intended to prevent pollutants from contacting storm water. Examples of such controls include, but are not limited to:

- Enclosing and/or covering outdoor pollutant sources within a building or under a roofed or tarped outdoor area.
- Physically separating the pollutant sources from contact with run-on of uncontaminated storm water.
- Devices that direct contaminated storm water to appropriate treatment BMPs (e.g., discharge to sanitary sewer as allowed by local sewer authority).
- Treatment BMPs including, but not limited to, detention ponds, oil/water separators, sand filters, sediment removal controls, and constructed wetlands.

Dischargers may select the most cost-effective BMPs to control the discharge of pollutants in industrial storm water discharges. Where appropriate, BMPs can be designed and targeted for various pollutant sources (e.g., providing overhead coverage for one potential pollutant while discharging to a detention basin for another source may be the most cost-effective solution).

a. Level 2 ERA Action Plans

The State Water Board acknowledges that there may be circumstances that make it difficult, if not impossible, for a Discharger to immediately implement additional BMPs. For example, it may take time to get a contract for construction in place, obtain necessary building permits, and design and construct the BMPs. Dischargers may also suspect that pollutants are from a non-industrial or natural background source and need time to study their site. A Discharger is required to certify and submit an Action Plan prepared by a QISP via SMARTS by January 1 following the reporting year in which the NAL exceedance that resulted in the Discharger entering Level 2 occurred. The Level 2 ERA Action Plan requires a Discharger to propose actions necessary to complete the Level 2 ERA Technical Report, the demonstrations the Discharger has selected, and propose a time frame for implementation.

If a Discharger changes the QISP assisting with the Level 2 ERA requirements this General Permit requires the Discharger to update the QISP information via SMARTS. Current information on individuals assisting Dischargers with compliance of this General Permit provides the Water Boards with the necessary contact information if there are questions on the submitted documents, and for possible verification of a QISP's certification.

Dischargers are required to address each Level 2 NAL exceedance in an Action Plan. The State Water Board recognizes that Dischargers with Level 2 status may have multiple parameters or facility areas that have Level 2 NAL exceedances and the timing of the exceedances may make it very difficult to address all Level 2 NAL exceedances in one Action Plan. When Level 2 ERA exceedances occur in subsequent reporting years, after an Action Plan is certified and submitted, a Discharger will need to develop an Action Plan for this new Level 2 NAL exceedance. This General Permit defines new Level 2 NAL exceedances as an exceedance for a new parameter in any drainage area at the facility, or an exceedance for the same parameter being addressed in an existing Action Plan, but where the exceedance occurred in a different drainage area than identified in the existing Action Plan.

b. Level 2 ERA Technical Reports

The Level 2 ERA Technical Report contains three different options that require a Discharger to submit demonstrations showing the cause of the NAL exceedance(s). This General Permit requires a Discharger to appoint a QISP to prepare the Level 2 ERA Technical Reports. The State Water Board acknowledges that there may be cases where a combination of the demonstrations may be appropriate; therefore a Discharger may combine any of the following three demonstration options in their Level 2 ERA Technical Report when appropriate. A Discharger is only required to annually update its Level 2 ERA Technical Report when necessary as defined in Section XII.D.3.c of this General Permit, and is not required to annually re-certify and re-submit the entire Level 2 ERA Technical Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified in Section XII.D.3.c of this General Permit, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

i. Industrial Activity BMPs Demonstration

The Industrial Activity BMPs Demonstration is for the following:

- Dischargers who decided to implement additional BMPs that are expected to eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit, and

- Dischargers who decided to implement additional BMPs that may not eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit.

When preparing the Industrial Activity BMPs Demonstration, the QISP shall identify and evaluate all individual pollutant source(s) associated with industrial activity that are or may be related to an NAL exceedance and all designed, information on the drainage areas associated with the Level 2 NAL exceedances, and installed BMPs that are implemented to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit.

If an Industrial Activity BMPs Demonstration is submitted as the Level 2 ERA Technical Report and the Discharger is able to show reductions in pollutant concentrations below the NALs for four (4) subsequent consecutive QSEs, the Discharger returns to Baseline Status. A Discharger that submits an Industrial Activity BMPs Demonstration but has not installed additional BMPs that are expected to eliminate future NAL exceedance(s) will remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

ii. Non-Industrial Pollutant Source Demonstration

A Non-Industrial Pollutant Source Demonstration is for a Discharger to demonstrate that the pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and additional BMPs at the facility will not contribute to the reduction of pollutant concentrations.

Dischargers including the Non-Industrial Pollutant Demonstration in their Level 2 ERA Technical Report shall have a QISP determine that the sources of non-industrial pollutants in storm water discharges are not from industrial activity or natural background sources within the facility.

Sources of non-industrial pollutants that are discharged separately and are not comingled with storm water associated with industrial activity are not considered subject to this General Permit's requirements. When pollutants from non-industrial sources are comingled with storm water associated with industrial activity, the Discharger is responsible for all the pollutants in the combined discharge unless the technical report clearly demonstrates that the NAL exceedances due to the combined discharge are solely attributable to the non-industrial sources. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. In most cases, the Non-Industrial Pollutant Source Demonstration will contain sampling data and analysis distinguishing the pollutants from non-industrial sources from the pollutants generated by industrial activity.

Once the Level 2 ERA Technical Report, including this demonstration is certified and submitted via SMARTS, the Discharger has satisfied all the requirements necessary for that pollutant for ERA purposes. A Discharger that submits a Non-Industrial Pollutant Demonstration remains with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

iii. Natural Background Pollutant Source Demonstration

The benchmark monitoring schedule in section 6.2.1.2 of the 2008 MSGP allows a Discharger to determine that the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background. A Discharger making this determination is not required to perform corrective action or additional benchmark monitoring providing that the other 2008 MSGP requirements are met. The 2008 MSGP Fact Sheet requires Dischargers to include in the following in the SWPPP: 1) map(s) showing the reference site location, facility, available land cover information, reference site and test site elevation, available geology and soil information for reference and test sites, photographs showing site vegetation, site reconnaissance survey data and records. This General Permit requires this information to be included in the Natural Background Pollutant Source Demonstration in Section XII.D.2.c.

The Natural Background Pollutant Source Demonstration in this General Permit is for a Discharger that can demonstrate that pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and are solely attributable to the presence of those pollutants in natural background. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. Natural background pollutants include those substances that are naturally occurring in soils or groundwater that have not been disturbed by industrial activities. Natural background pollutants do not include legacy pollutants from earlier activity on a site, or pollutants in run-on from neighboring sources which are not naturally occurring. Dischargers are not required to reduce concentrations for pollutants in the effluent caused by natural background sources if these pollutants concentrations are not increased by industrial activity.

The 2008 MSGP Fact Sheet states that the background concentration of a pollutant in runoff from a non-human impacted reference site in the same watershed must be determined by evaluation of ambient monitoring data or by using information from a peer-reviewed publication or a local, state, or federal government publication specific to runoff or storm water in the immediate region. Studies that are in other geographic areas, or are clearly based on different topographies or soils, are not sufficient to meet this requirement. When such data is not available, and there are no known sources of the pollutant, the background concentration should be assumed to be zero.
In cases where historic monitoring data from a site are used for generating a natural background concentration, and the site is no longer accessible or able to meet reference site acceptability criteria, the Discharger must submit documentation (e.g., historic land use maps) indicating the site did meet reference site criteria (such as indicating the absence of human activity) during the time data collection occurred.

Once the Level 2 ERA Technical Report, including a Natural Background Demonstration meeting the conditions in Section XII.D.2.c of this General Permit is certified and submitted via SMARTS, the Discharger is no longer responsible for the identified background parameters(s) in the corresponding drainage area(s). A Discharger that submits this type of demonstration will remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

c. Level 2 ERA Implementation Extension

The State Water Board recognizes that there may be circumstances that make implementation of all necessary actions required in the Level 2 ERAs by the permitted due dates infeasible. In such circumstances a Discharger may request additional time by submitting a Level 2 ERA Implementation Extension. The Level 2 ERA Implementation Extension will automatically allow Dischargers up to an additional six (6) months to complete the tasks identified in the Level 2 ERA Action Plans while remaining in compliance with this General Permit. The Level 2 ERA Implementation Extension is subject to Regional Water Board review. If additional time is needed beyond the initial six (6) month extension, a second Level 2 ERA Implementation Extension may be submitted but is not effective unless it is approved by the Water Board.

L. Inactive Mining Operations

Inactive mining sites may need coverage under this General Permit. Inactive mining operations are mining sites, or portions of sites, where mineral mining and/or dressing occurred in the past with an identifiable Discharger (owner or operator), but are no longer actively operating. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials. A Discharger has the option to certify and submit via SMARTS that its inactive mining operations meet the conditions for an Inactive Mining Operation Certification in Section XIII of this General Permit. The Discharger must have a SWPPP for an inactive mine signed (wet signature with license number) by a California licensed professional engineer. The Inactive Mining Operation Certification in this General Permit is in lieu of performing certain identified permit requirements. This General Permit requires an annual inspection of an inactive mining site and an annual re-certification of the SWPPP. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer. The Discharger must certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s)

M. Compliance Groups and Compliance Group Leaders

Group Monitoring, as defined in the previous permit, has been eliminated in this General Permit and replaced with a new compliance option called Compliance Groups. The Compliance Group option differs from Group Monitoring as it requires (1) all Dischargers participating in a Compliance Group (Compliance Group Participants) sample two QSEs each year, (2) the Compliance Group Leader to inspect each Participant's facility within each reporting year, (3) the Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders, and (4) the Compliance Group Leader to prepare Consolidated Level 1 ERA Reports, and individual Level 2 ERA Action Plans and Technical Reports. The Compliance Group option is similar to Group Monitoring as it retains a mechanism that allows Dischargers of the same industry type to comply with this General Permit through shared resources in a cost saving manner.

This General Permit emphasizes sampling and analysis as a means to evaluate BMP performance and overall compliance, and the significantly reduced sampling requirements previously afforded to Group Monitoring Participants (two samples within a five-year period) does not provide the necessary information to achieve these goals. However, a moderate reduction in sampling requirements is included as an incentive for Compliance Group Participants while concurrently requiring sufficient individual facility sampling data to determine compliance. A Compliance Group Leader is required to provide the necessary sampling training and guidance to the Compliance Group Participants. This additional training requirement will increase sampling data quality that will offset the reduced sampling frequency for Compliance Groups.

Participation in Compliance Groups will provide additional cost savings for Dischargers in the preparation of the Consolidated Level 1 ERA Reports, and for Compliance Group Leader assistance in preparing the Level 2 ERA Action Plans and the individual Level 2 ERA Technical Reports. It is likely that many of the pollutant sources causing NAL exceedances, and the corresponding BMP cost evaluation and selection, when appropriate, will overlap for groups of facilities in a similar industry type. When these overlaps occur, a Compliance Group Leader should be able to more efficiently evaluate the pollutant sources and BMP options, and prepare the necessary reports.

The State Water Board believes that it is necessary for Compliance Group Leaders to have a higher level of industrial storm water compliance and training experience than the expectations of a QISP. Many stakeholder comments on this General Permit suggested various certifications to provide this higher level of experience; however, the State Water Board believes a process similar to the Trainer of Record process for the Construction General Permit training program will develop Compliance Group Leaders with the appropriate level of experience to fulfill the necessary qualifications.

The intent of the Compliance Groups is to have only one or a small number of Compliance Groups per industrial sector. The process for becoming a QISP trainer and/or a Compliance Group Leader is purposely similar to the Construction General Permit trainer of record process for consistency within storm water regulatory leaders. The formal process to qualify to conduct trainings for QISPs and/or to be a Compliance Group Leader will include the submittal of a statement of qualifications for review, a review fee, completion of an exam and training specific to this role. For more information see the Construction General Permit trainer of record process: http://www.casqa.org/TrainingandEducation/ConstructionGeneralPermitTrainingQSDQSPToR/tabid/205/Default.aspx

After the initial Compliance Group registration, Compliance Group Leaders are required to submit and maintain their list of Compliance Group Participants via SMARTS. There are no additional administrative documents required. The previous permit required group leaders to provide annual group evaluation reports and a letter of intent to continue group monitoring. The State Water Board found these items to be resource intensive and placed an unnecessary administrative burden on group leaders. The

Compliance Group requirements in this General Permit reduces the administrative burden on both the Compliance Group Leaders and Water Board staff.

The State Water Board's intent for the effluent data, BMP selection, cost, and performance information, and other industry specific information provided in Compliance Group reports is for evaluation of sector-specific permitting approaches and the use of NALs in the next reissuance of this General Permit.

N. Annual Evaluation

Federal regulations require NPDES industrial storm water Dischargers to evaluate their facility and SWPPP annually. Typically this requires an inspection of the facility to ensure: (1) the SWPPP site map is up to date, (2) control of all potential pollutant sources is included in the SWPPP, and (3) sampling data and visual observation records are used to evaluate if the proper BMPs are being implemented. As Dischargers are required to conduct monthly visual observation that partially overlap with the actions required by the annual evaluation requirements, Dischargers may perform the annual evaluation inspection concurrent with a monthly visual observation.

O. Annual Report

All Dischargers shall certify and submit via SMARTS an Annual Report no later than July 15 following each reporting year. The reporting requirements for this General Permit's Annual Report are streamlined in comparison to the previous permit. The Annual Report now consists of two primary parts: (1) a compliance checklist indicating which permit requirements were completed and which were not (e.g., a Discharger who completes the required sampling of four QSEs during the reporting year, versus a Discharger who is only able to sample two QSEs during the reporting year), and (2) an explanation for items on the compliance checklist that were determined incomplete by the Discharger. Unlike the previous permit, the Annual Report does not require Dischargers to provide the details of each visual observation (such as name of observer, time of observation, observation summary, corrective actions, etc.) or provide the details of the Annual Comprehensive Site Evaluation. Dischargers, however, continue to be required to retain those records and have them available upon request. The Annual Report is further simplified through the immediate electronic reporting via SMARTS of sampling data and copies of the original laboratory reports instead of such information being included in the Annual Report.

P. Conditional Exclusion - No Exposure Certification (NEC) Requirements

This General Permit's conditional exclusion requirements are similar to the requirements provided in 40 C.F.R. section 122.26(g)(3). Clarifications were added in this General Permit, however, to the types of "storm resistant shelters" and the periods when "temporary shelters" may be used in order to avert regulatory confusion. California does not have operating coal power plants, which are a major contributor to acid rain elsewhere in the United States. California does have nonpoint sources or atmospheric deposition that may locally impact the pH of the rain water, however this is not categorized as acid rain as referred to by the U.S. EPA for the NEC coverage requirements. The No Exposure Guidance Document[15] developed by the U.S. EPA mentions acid rain as a potential source of contaminants to consider for NEC coverage. The acid rain leachate language was not included in this General Permit's Appendix 2 to clarify that Dischargers may qualify for NEC coverage, even if the facility has metal buildings or structures.

The Discharger shall certify and submit complete PRDs for NEC coverage via SMARTS. Based upon the State Water Board's experience with reissuing and implementing the 2009 Construction General Permit, the transition for existing Dischargers to register under this new General Permit is staff resource intensive. The State Water Board staff is available to assist Dischargers requiring assistance with enrolling under this General Permit, both for NOI coverage and NEC coverage. The State Water Board has also experienced that more time is needed for its staff to assist Dischargers registering for NEC coverage. To provide better customer service to all Dischargers, three months have been added to the NEC coverage PRD submittal schedule for new and existing Dischargers (Section II.B.4 of this General Permit, extending the NEC coverage registration date to October 1, 2015.

Dischargers must annually inspect their facility to ensure continued compliance with NEC requirements, and annually re-certify and submit an NEC via SMARTS. Based on its regulatory experience, the State Water Board has determined that a five-year NEC re-certification period is inadequate. A significant percentage of facilities may revise, expand, or relocate their operations in any given year. Furthermore, a significant percentage of facilities experience turnover of staff knowledgeable of the NEC requirements and limitations. Accordingly, the State Water Board believes that annual NEC evaluation and re-certification requirements are appropriate to continually assure adequate program compliance.

Q. Special Requirements - Plastic Materials

Water Code section 13367 requires the Water Boards to implement measures that control discharges of preproduction plastic from point and nonpoint sources. The State Water Board intends to use this General Permit to regulate discharges of preproduction plastics from areas of facilities that are subject to this General Permit. A Regional Water Board may designate facilities, or areas of facilities, that are not otherwise subject to this General Permit, pursuant to Section XIX.F. For example, a Regional Water Board may designate Plastic Materials handling areas of a transportation facility that are not associated with vehicle maintenance as requiring coverage under this General Permit.

Preproduction plastics used by the plastic manufacturing industry are small in size and have the potential to mobilize in storm water. Preproduction plastic washed into storm water drains can move to waters of the United States where it contributes to the growing problem of plastic debris in inland and coastal waters. Water Code section 13367

[15] U.S. EPA. Guidance Manual for Conditional Exclusion from Storm Water Permitting Based On "No Exposure" of Industrial Activities to Storm Water. Web. June 2000. < http://www.epa.gov/npdes/pubs/noxguide.pdf>. [as of January 31, 2014].

outlines five mandatory BMPs that are required for all facilities that handle preproduction plastic. These mandatory BMPs are included in this General Permit.

The State Water Board has received comments regarding the Water Code requirements for Plastics Facilities to install a containment system for on-site storm drain locations that meet 1mm capture and 1-year 1-hour storm flow requirement standards. As a result, this General Permit includes the option under Water Code section 13367 that allows a plastics facility to propose an alternative BMP or suite of BMPs that can meet the same performance and flow requirements as a 1mm capture and 1-year 1-hour storm flow containment system standards. These alternative BMPs are to be submitted to the Regional Water Board for approval. This alternative is intended to allow the facility to develop BMPs that focus on pollution prevention measures that can perform as well as, or better than, the containment system otherwise required by the statute.

The State Water Board also includes two additional containment system alternatives in this General Permit that are considered to be equivalent to, or better than, the 1mm capture and 1-year 1-hour storm flow requirements:

- An alternative allowing plastic facilities to implement a suite of eight BMPs addressing the majority of potential sources of plastic discharges. This suite of BMPs is based on industry and U.S. EPA recommendations and Water Board experience with storm water inspections, violations, and enforcement cases throughout California.

- An alternative allowing a facility to operate in a manner such that all preproduction plastic materials are used indoors and pose no potential threat for discharge off-site. The facility is required to notify the Regional Water Board of the intent to seek this exemption and of any changes to the facility or operations that may disqualify the facility for the exemption. The exemption may be revoked by the Regional Water Board at any time.

Plastics facilities may use preproduction plastic materials that are less than 1mm in size, or produce materials, byproducts, or waste that is smaller than 1mm in size. These small size materials will pass through the 1mm capture containment system required by Water Code section 13367. Plastics facilities with sub-1mm materials must design a containment system to capture the smallest size material onsite with a 1-year 1-hour storm flow requirement, or propose alternative BMPs for Regional Water Board approval that meet the same requirements.

The remaining BMPs required by Water Code section 13367 are consistent with recommendations for handling and clean-up of preproduction plastics in the American Chemistry Council publication, *Operation Clean Sweep* and U.S. EPA's publication *Plastic Pellets in the Aquatic Environment: Sources and Recommendations*. The State Water Board believes that the entire approach in this General Permit for plastic materials is consistent with Water Code section 13367.

R. Regional Water Board Authorities

The Regional Water Boards retain discretionary authority over many issues that may arise from industrial discharges within their respective regions. This General Permit emphasizes the authority of the Regional Water Boards over specific requirements of this General Permit that do not meet region-specific water quality protection regulatory needs.

S. Special Conditions: Requirements for Dischargers Claiming the "No Discharge" Option in the Notice of Non-Applicability

1. General

Entities that operate facilities generating storm water associated with industrial activities that is not discharged to waters of the United States are not required to obtain General Permit coverage. Entities that have contacted the Water Boards to inquire what is necessary to avoid permit coverage have received inconsistent guidance. This has resulted in regulatory inconsistency and uncertainty as to whether they are in compliance if their industry operates without General Permit coverage. Depending upon how each Regional Water Board handles "No Discharge" claims, some facilities with advanced containment design may be required to obtain General Permit coverage while other facilities with less advanced containment design may be allowed to operate without General Permit coverage. Some stakeholders have complained that this type of regulatory inconsistency puts some facilities at an economically-competitive disadvantage given the costs associated with permit compliance.

U.S. EPA regulations do not provide a design standard, definition, or guidance as to what constitutes "No Discharge." Unlike Conditional Exclusion requirements, U.S. EPA regulations do not require an entity to submit technical justification or certification that a facility does not discharge to waters of the United States (U.S.). Therefore entities have previously been allowed to self-determine that their facility does not discharge to water of the U.S. when using any containment design standard. The State Water Board does not have available information showing that most entities have adequately performed hydraulic calculations to determine the frequency of discharge corresponding to their containment controls or have had these hydraulic calculations reviewed or completed by a California licensed professional engineer. Although U.S. EPA makes clear that an unpermitted discharge to waters of the U.S. is a violation of the CWA, this leaves regulatory agencies with the very difficult task of knowing when any given facility discharges in order to carry-out enforcement actions.

In 1998, the Water Code was amended to require entities who are requested by the Water Boards to obtain General Permit coverage, but that have a valid reason to not obtain General Permit coverage, to submit a Notice of Non-Applicability (NONA). (Wat. Code, § 13399.30, subd. (a)(2)). The NONA covers multiple reasons why an entity is not required to be permitted including (1) facility closure, (2) not the legal owner, (3) incorrect SIC code, (4) eligibility for the Conditional Exclusion (No Exposure Certification), and (5) the facility not discharging to water of the U.S. ("No Discharge"). The previous permit contained definitions, requirements, and guidance that entities may reference to determine whether they are eligible to select any of the first four NONA reasons for not obtaining General Permit coverage. However, neither the previous permit nor the Water Code provide definitions, requirements, and guidance for entities to determine whether they are eligible to indicate "No Discharge" on the NONA as a reason for not obtaining General Permit coverage.

This General Permit addresses and resolves the issues discussed above by establishing consistent, statewide eligibility requirements in Section XX.C for entities submitting NONAs indicating "No Discharge." When requested by the Water Boards to obtain General Permit coverage, entities must meet these "No Discharge" eligibility requirements or obtain General Permit coverage. The Water Boards retain enforcement authority if a facility subsequently discharges.

2. "No Discharge" Eligibility Requirements

The entity must certify submit in SMARTS a NONA Technical Report signed (wet signature and license number) by a California licensed professional engineer that contains the analysis and details of the containment design supporting the "No Discharge" eligibility determination. Because containment design will require hydraulic calculations, soil permeability analysis, soil stability calculations, appropriate safety factor consideration, and the application of other general engineering principles, state law requires the technical report to be signed (wet signature and license number) by a California licensed professional engineer.

The State Water Board has selected a containment design target that, as properly applied will result in few, if any, discharges. The facility must either be:

a. Engineered and constructed to contain all storm water associated with industrial activities from discharging to waters of the United States. (The determination of what is a water of the United States can be complicated, and in certain circumstances, a discharge to groundwater that has a direct hydrologic connection to waters of the United States may constitute a discharge to a water of the United States.) Dischargers must base their information upon maximum historic precipitation event data (or series of events) from the nearest rain gauges as provided by the National Oceanic and Atmospheric Administration's (NOAA) website, or other nearby precipitation data available from other government agencies. At a minimum, Dischargers must ensure that the containment design addresses maximum 1-hour, 24-hour, weekly, monthly, and annual precipitation data for the duration of the exclusion.

   Design storm events are generally specified as a one-time expected hydraulic failure over a reoccurrence of years for a specified storm event. For example, if a design storm standard is a 100 year 24-hour event, then a facility's containment system designed to contain the maximum volume of water would be expected to fall in 24 hours once every 100 years. Design standards vary dependent upon the regulatory program and the level of protection needed. Since California has considerable variations in climate/topography/soil conditions across the state, the "No Discharge" NONA eligibility requirements have been created so that each facility's containment design can incorporate unique site specific circumstances to meet the requirement that discharges will not occur based upon past historical precipitation data. Facilities that are not designed to not meet the "No Discharge" eligibility requirements must obtain General Permit coverage.

b. Located in basins or other physical locations that are not hydrologically connected to waters of the United States.

   The State Water Board considered allowing Entities to review United States Army Corp of Engineer maps to determine, without a California licensed professional engineer, whether their facility location is within a basin and/or other physical location that is not hydrologically connected to waters of the United States. The State Water Board believes that this determination can be difficult in some cases, or is likely to be performed incorrectly. In addition, there may be areas of the state that are not hydrologically connected to waters of the United States, but are not on United States Army Corps of Engineer maps. Therefore, all “No Discharge” Technical Reports must be signed (wet signature and license number) by a California licensed professional engineer.

3. Additional Considerations

   The “No Discharge” determination does not cover storm water containment systems that transfer industrial pollutants to groundwater. Entities must determine whether designs that incorporate infiltration may discharge to and contaminate groundwater. If there is a threat to groundwater, Entities must contact the Regional Water Boards prior to construction of infiltration design elements.

   Entities that have not eliminated all discharges that are subject to General Permit coverage (NOI Coverage or NEC Coverage) are ineligible to submit NONAs indicating “No Discharge.”

ATTACHMENT A

FACILITIES COVERED BY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

1. Facilities Subject To Storm Water Effluent Limitations Guidelines, New Source Performance Standards, or Toxic Pollutant Effluent Standards Found in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N):

   Cement Manufacturing (40 C.F.R. Part 411); Feedlots (40 C.F.R. Part 412); Fertilizer Manufacturing (40 C.F.R. Part 418); Petroleum Refining (40 C.F.R. Part 419), Phosphate Manufacturing (40 C.F.R. Part 422), Steam Electric (40 C.F.R. Part 423), Coal Mining (40 C.F.R. Part 434), Mineral Mining and Processing (40 C.F.R. Part 436), Ore Mining and Dressing (40 C.F.R. Part 440), Asphalt Emulsion (40 C.F.R. Part 443), Landfills (40 C.F.R. Part 445), and Airport Deicing (40 C.F.R. Part 449).
   .
2. Manufacturing Facilities:

   Facilities with Standard Industrial Classifications (SICs) 20XX through 39XX, 4221 through 4225. (This category combines categories 2 and 10 of the previous general permit.)

3. Oil and Gas/Mining Facilities:

   Facilities classified as SICs 10XX through 14XX, including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 Code of Federal Regulations. 434.11(1) because the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Acts authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

4. Hazardous Waste Treatment, Storage, or Disposal Facilities:

   Hazardous waste treatment, storage, or disposal facilities, including any facility operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act.

5. Landfills, Land Application Sites, and Open Dumps:

   Landfills, land application sites, and open dumps that receive or have received industrial waste from any facility within any other category of this Attachment; including facilities subject to regulation under Subtitle D of the Federal Resource, Conservation, and Recovery Act, and facilities that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance).

6. Recycling Facilities:

   Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.

7. Steam Electric Power Generating Facilities:

   Any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.

8. Transportation Facilities:

   Facilities with SICs 40XX through 45XX (except 4221-25) and 5171 with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified under this Permit as associated with industrial activity.

9. Sewage or Wastewater Treatment Works:

   Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge, that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 Code of Federal Regulations part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

ATTACHMENT B

ACRONYM LIST

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPT	Best Practicable Control Technology Currently Available
CBPELSG	California Board for Professional Engineers, Land Surveyors and Geologists
DWQ	Division of Water Quality
ELGs	Effluent Limitations Guidelines and New Source Performance Standards
ERA	Exceedance Response Action
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NAL	Numeric Action Level
NAICS	North American Industrial Classification System
NEC	No Exposure Certification
NEL	Numeric Effluent Limitation
NOI	Notice of Intent
NONA	Notice of Non Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSWD	Non Storm Water Discharges
O&G	Oil and Grease
PRDs	Permit Registration Documents
QA/QC	Quality Assurance/Quality Control
QISP	Qualified Industrial Storm water Practitioner
QSE	Qualifying Storm Event
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology Based Effluent Limitation
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WQBEL	Water Quality Based Effluent Limitation

ATTACHMENT C

GLOSSARY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

Adoption Date April 1, 2014

Aerial Deposition
Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include but are not limited to: dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere. Deposition is the act of these materials being added to a landform.

Beneficial Uses
As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation, include but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)
As defined by United States Environmental Protection Agency (U.S. EPA), BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)
As defined by U.S. EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permits conditions on a case-by-case basis using all reasonably available and relevant data.

GLOSSARY

Best Management Practices (BMPs)
Scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody
Form used to track sample handling as samples progress from sample collection to the laboratory. The chain of custody is also used to track the resulting analytical data from the laboratory to the client. Chain of custody forms can be obtained from an analytical laboratory upon request.

Debris
Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Detected Not Quantifiable
A sample result that is between the Method Detection Limit (MDL) and the Minimum Level (ML).

Discharger
A person, company, agency, or other entity that is the operator of the industrial facility covered by this General Permit.

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effective Date
The date, set by the State Water Resources Control Board (State Water Board), when at least one or more of the General Permit requirements take effect and the previous permit expires. This General Permit requires most of the requirements (such as SMARTs submittals, minimum BMPs, sampling and analysis requirements) to take effect on July 15, 2015.

Effluent
Any discharge of water either to the receiving water or beyond the property boundary controlled by the Discharger.

Effluent Limitation
Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, waters of the contiguous zone, or the ocean.

GLOSSARY

Erosion
The process by which soil particles are detached and transported by the actions of wind, water or gravity.

Erosion Control BMPs
Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Facility
A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Field Measurements
Testing procedures performed in the field with portable field-testing kits or meters.

Good Housekeeping BMPs
BMPs designed to reduce or eliminate the addition of pollutants through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Industrial Materials
Includes, but is not limited to: raw materials, recyclable materials, intermediate products, final products, by product, waste products, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge and that are used, handled, stored, or disposed in relation to a facility's industrial activity.

Method Detection Limit
The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Level
The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Monitoring Implementation Plan
Planning document included in the Storm Water Pollution Prevention Plan (SWPPP). Dischargers are required to record information on the implementation of the monitoring requirements in this General Permit. The MIP should include relevant information on:

the Monthly Visual Observation schedule, Sampling Parameters, Representative Sampling Reduction, Sample Frequency Reduction, and Qualified Combined Samples.

Monitoring Requirements
Includes sampling and analysis activities as well as visual observations.

Natural Background
Pollutants including substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from previous activity at a facility, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharge(r)
A facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source as defined in 40 Code of Federal Regulations 122.29, and which has never received a finally effective NPDES permit for discharges at that site. See 40 Code of Federal Regulations 122.2.

Numeric Action Level (NAL) Exceedance
Annual NAL exceedance - the Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data) and compare this to the corresponding Annual NAL values in Table 2. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.[1] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table 2 (or is outside the NAL pH range);

Instantaneous maximum NAL exceedance - the Discharger shall compare all sampling and analytical results from each distinct sample (individual or composite) to the corresponding Instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

Non Detect
Sample result is less than Method Detection Limit; Analyte being tested cannot be detected by the equipment or method.

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[1] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf >. [as of July 3, 2013]

Non-Storm Water Discharges (NSWDs)
Discharges that do not originate from precipitation events. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Numeric Action Level (NAL)
Pollutant concentration levels used to evaluate if best management practices are effective and if additional measures are necessary to control pollutants. NALs are not effluent limits. The exceedance of an NAL is not a permit violation.

Operator
In the context of storm water associated with industrial activity, any party associated with an industrial facility that meets either of the following two criteria:

a. The party has operational control over the industrial SWPPP and SWPPP specifications, including the ability to make modifications to those plans and specifications

b. The party has day-to-day operational control of activities at the facility which are necessary to ensure compliance with a SWPPP for the facility or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

pH
Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6.0 and 9.0, with neutral being 7.0.

Plastic Materials
Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site.

Qualified Industrial Storm Water Practitioner (QISP)
Only required once a Discharger reaches Level 1 status, a QISP is the individual assigned to ensure compliance with this General Permit or to assist New Dischargers with determining coverage eligibility for discharges to an impaired water body. A QISP's responsibilities include implementing the SWPPP, performing the Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation), assisting in the preparation of Annual Reports, performing ERAs, and training appropriate Pollution Prevention Team members. The individual must take the appropriate state approved or sponsored training to be qualified. Dischargers shall ensure that the designated QISP is geographically located in an area where they will be able to adequately perform the permit requirements at all of the facilities they represent.

Qualifying Storm Event (QSE)
A precipitation event that:

a. Produces a discharge for at least one drainage area; and
b. Is preceded by 48 hours with no discharge from any drainage area.

Regional Water Board
Includes the Executive Officer and delegated Regional Water Board staff.

Runoff Control BMPs
Measures used to divert run-on from offsite and runoff within the site.

Run-on
Discharges that originate offsite and flow onto the property of a separate facility or property or, discharges that originate onsite from areas not related to industrial activities and flow onto areas on the property with industrial activity.

Scheduled Facility Operating Hours
The time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

Sediment
Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation
Process of deposition of suspended matter carried by water, wastewater, or other liquids that flow by gravity. Control of sedimentation is accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs
Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. Includes those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (i.e., silt fence, sediment basin, fiber rolls, etc.).

Sheet Flow
Flow of water that occurs overland in areas where there are no defined channels and where the water spreads out over a large area at a uniform depth.

Source
Any facility or building, property, road, or area that causes or contributes to pollutants in storm water.

GLOSSARY

Storm Water
Storm water runoff, snowmelt runoff, and storm water surface runoff and drainage.

Storm Water Discharge Associated With Industrial Activity
The discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant as identified in Attachment A of this General Permit. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 C.F.R. section 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 C.F.R. section 122.

Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 C.F.R. section122.26(a)(1)(v).

Structural Controls
Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution.

Total Suspended Solids (TSS)
The measure of the suspended solids in a water sample including inorganic substances such as soil particles, organic substances such as algae, aquatic plant/animal waste, and particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

GLOSSARY

Toxicity
The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses, such as impaired reproduction or growth anomalies.

Trade Secret
Information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Turbidity
The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Waters of the United States
Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Water Quality Objectives
Defined in the California Water Code as limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Quality Standards
Consists of beneficial uses, water quality objectives to protect those uses, an antidegradation policy, and policies for implementation. Water quality standards are established in Regional Water Quality Control Plans (Basin Plans) and statewide Water Quality Control Plans. U.S. EPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

ATTACHMENT D

PERMIT REGISTRATION DOCUMENTS (PRDs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

This Attachment provides an example of the information Dischargers are required to submit in the PRDs via the Storm Water Multiple Application and Report Tracking System (SMARTS). The actual PRD requirements are in Section II of this General Permit.

A. Who Must Submit PRDs

All Dischargers that operate facilities as described in Attachment A of this General Permit are subject to either Notice of Intent (NOI) or No Exposure Certification (NEC) Coverage and shall comply with the PRD requirements in this General Permit.

B. Who Is Not Required to Submit PRDs

Dischargers that operate facilities described below are not required to submit PRDs:

1. Facilities that are not described in Attachment A;

2. Facilities that are described in Attachment A but do not have discharges of storm water associated with industrial activity to waters of the United States; or,

3. Facilities that are already covered by an NPDES permit for discharges of storm water associated with industrial activity.

C. Annual Fees for NOI and NEC Coverage

Annual Fees for NOI and NEC coverage are established through regulations adopted by the State Water Board and are subject to change (see California Code of Regulations, title 23, section 2200 et seq.).

D. When and How to Apply

Dischargers proposing to conduct industrial activities subject to this General Permit must electronically certify and submit PRDs via the Storm Water Multiple Application

Reporting and Tracking System (SMARTS)[1] no less than seven (7) days prior to the commencement of industrial activity. Existing Dischargers must submit PRDs for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015.

E. PRD Requirements for NOI Coverage

1. Notice of Intent (NOI) and Signed Electronic Authorization Form.

2. Site Map (Section X.E of this General Permit).

3. Storm Water Pollution Prevention Plan (see Section X of this General Permit).

F. Description of PRDs for NOI Coverage

1. The Notice of Intent (NOI) requires the following information:

   a. Operator/Owner Information

      Operator/Owner Company or Organization Name
      Contact First Name
      Contact Last Name
      Title
      Street Address
      Address Line 2
      City/State/Zip
      Phone (e.g. 999-999-9999)
      E-mail (e.g. abc@xyz.com)
      Federal Tax ID

   b. Facility Information

      Facility Name
      WDID Number (if applicable)
      Contact First Name
      Contact Last Name
      Title
      Street Address
      Address Line 2
      City
      County
      Phone (e.g. 999-999-9999)

[1] The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <https://smarts.waterboards.ca.gov>. [as of June 26, 2013].

Emergency Phone (e.g. 999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Total Percentage Site Imperviousness Area of Facility (Acres)
Total Areas of Industrial Activities and Materials Exposed to Precipitation
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board

c. Billing Information

Billing Name
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone (e.g. 999-999-9999)
E-mail (e.g. abc@xyz.com)

d. Receiving Water Information

Does your facility's storm water flow directly or indirectly into waters of the US such as river, lake, ocean, etc. (check box for directly or indirectly)

i. Indirectly to waters of the US

ii. Storm drain system - Enter owner's name:

iii. Directly to waters of the US (e.g., river, lake, creek, stream, bay, ocean, etc.)

iv. Name of the receiving water: ___________________________

2. The Site Map(s) shall include the following Information:

    a. The facility boundary;

    b. Storm water drainage areas within the facility boundary;

    c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

    d. On-facility surface water bodies;

    e. Areas of soil erosion;

    f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);

    g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized Non-Storm Water Discharges (NSWDs);

    h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;

    i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);

    j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

    k. Locations where materials are directly exposed to precipitation;

    l. Locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;

    m. Areas of industrial activity subject to this General Permit;

    n. All storage areas and storage tanks;

    o. Shipping and receiving areas;

    p. Fueling areas;

q. Vehicle and equipment storage/maintenance areas;

r. Material handling and processing areas;

s. Waste treatment and disposal areas;

t. Dust or particulate generating areas;

u. Cleaning and material reuse areas; and,

v. Any other areas of industrial activity which may have potential pollutant sources.

3. The Storm Water Pollution Prevention Plan (SWPPP) must be prepared in accordance with Section X of this General Permit.

4. A NOI Certification by the Discharger that all PRDs submitted are correct and true.

5. SMARTS Electronic Authorization Form (Signed by any user authorized to certify and submit data electronically).

G. PRD Requirements for NEC Coverage

1. No Exposure Certification and Signed Electronic Authorization Form.

2. No Exposure Certification Checklist Consistent with Requirements in Section XVII.F.2 of this General Permit.

3. Current Site Map Consistent with Requirements in Section X.E of this General Permit.

H. Description of PRDs for NEC Coverage

1. The No Exposure Certification requires the following information:

   a. Operator/Owner Information

      Operator/Owner Name
      Contact First Name
      Contact Last Name
      Title

Street Address
Address Line 2
City/State/Zip
Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
Federal Tax ID

b. Facility Information

Facility Name
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City
County
Phone Ex (999-999-9999)
Emergency Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Percent of Site Imperviousness (%)
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board

c. Billing Information

Billing Name (if different than Operator/Owner)
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone E.g. (999-999-9999)
E-mail (e.g. abc@xyz.com)

d. SMARTS Electronic Authorization Form - Signed by any user authorized to certify and submit data electronically.

e. Certification by the Discharger that all PRDs submitted are correct and true and that the conditions of no-exposure have been met.

2. The NEC Checklist (Section XVII.F.2 of this General Permit) must be prepared to demonstrate that, based upon a facility inspection and evaluation, none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

   a. Activities such as using, storing, or cleaning industrial machinery or equipment, and areas with materials or residuals from these activities;

   b. Materials or residuals on the ground or in storm water inlets from spills/leaks;

   c. Materials or products from past industrial activity;

   d. Material handling equipment (except adequately maintained vehicles);

   e. Materials or products during loading/unloading or transporting activities;

   f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

   g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

   h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

   i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters). Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,

   j. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. The Site Map(s) shall include the following information (see Section X.E of this General Permit):

   a. The facility boundary;

   b. Storm water drainage areas within the facility boundary;

   c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

d. On-facility surface water bodies;

e. Areas of soil erosion;

f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);

g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;

h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;

i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);

j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

k. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;

l. Areas of industrial activity subject to this General Permit;

m. All storage areas and storage tanks;

n. Shipping and receiving areas;

o. Fueling areas;

p. Vehicle and equipment storage/maintenance areas;

q. Material handling and processing areas;

r. Waste treatment and disposal areas;

s. Dust or particulate generating areas;

t. Cleaning and material reuse areas; and,

u. Any other areas of industrial activity which may have potential pollutant sources.

PERMIT REGISTRATION DOCUMENTS (PRDS)

I. Obtaining Coverage

To obtain coverage under this General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

J. Additional Information

The Water Board may require the submittal of additional information in SMARTS if required to determine the appropriate fee for the facility as specified by the fee regulations.

K. Questions

If you have any questions on completing the PRDs or about SMARTS, please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT E

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following table contains a list of Regional Water Board adopted and/or U.S. EPA established/approved TMDLs, as of the adoption date of this General Permit, that are applicable to industrial storm water Dischargers. TMDLs adopted/established after the effective date of the General Permit may, at the Water Boards discretion, be included in this General Permit. This General Permit may be reopened to amend TMDL-specific permit requirements in this Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

Water Body	Pollutant
San Francisco Bay Regional Water Quality Control Board	
Napa River	Sediment
Sonoma Creek	Sediment
Los Angeles Regional Water Quality Control Board	
Santa Clara River Reach 3	Chloride
Santa Clara River	Nutrients
Los Angeles River	Metals
Los Angeles River	Nutrients
San Gabriel River	Metals and Selenium
Santa Monica Bay	Nearshore Debris
Machado Lake	Nutrient
Harbor Beaches of Ventura	Bacteria
Ballona Creek	Metals
Ballona Creek Estuary	Toxic Pollutants
Los Angeles Harbor	Bacteria
Marina del Rey Back Basins	Bacteria
Santa Clara River	Bacteria
Walker Creek,	Mercury
Oxnard Drain No. 3	Pesticides, PCBs[1] and Sediment Toxicity
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria
Los Angeles and Long Beach Harbors	Toxic and Metals

[1] Polychlorinated biphenyls

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

Los Angeles Area Lakes	Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs
Santa Monica Bay	DDTs and PCBs
Machado Lake	Toxics
Colorado Lagoon	Pesticides, Polycyclic aromatic hydrocarbons, PCBs, and Metals
Calleguas Creek Watershed	Salts
Calleguas Creek Watershed	Metals and Selenium
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria
Marina Del Rey Harbor-Back Basins	Copper, Lead, Zinc, and Chlordane, and Total PCBs
Los Cerritos Channel	Metals
Santa Ana Regional Water Quality Control Board	
San Diego Creek and Newport Bay	Toxic Pollutants
San Diego Regional Water Quality Control Board	
Chollas Creek	Diazinon
Chollas Creek	Copper, Lead, and Zinc
Los Peñasquitos Lagoon	Sediment
Rainbow Creek	Total Nitrogen and Total Phosphorus
Shelter Island Yacht Basin	Dissolved Copper
Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in SD Bay	Indicator Bacteria
Twenty Beaches and Creeks	Indicator Bacteria

ATTACHMENT F

EFFLUENT LIMITATION GUIDELINES (ELGs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following Parts of federal regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) contain ELGs approved by US EPA for specific categories of industrial storm water discharges:

Point Source Category	ELGs[1]
Part 411 - Cement Manufacturing	411.pdf
Part 418 - Fertilizer Manufacturing	418.pdf
Part 419 - Petroleum Refining	419.pdf
Part 422 - Phosphate Manufacturing	422.pdf
Part 423 - Steam Electric Power Generating	423.pdf

[1] The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

Point Source Category	ELGs[2]
Part 429 - Wetting of logs at wet deck storage areas	429.pdf
Part 434 - Coal Mining	434.pdf
Part 436 - Mineral Mining And Processing	436.pdf
Part 440 - Ore Mining And Dressing	440.pdf
Part 443 - Paving And Roofing Materials (Tars And Asphalt)	443.pdf
Part 445 - Landfills	445.pdf
Part 449 - Airport Deicing	449.pdf

2 The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

New Source Performance Standards

New source performance standards (NSPS) represent the best available demonstrated control technology standards. US EPA has established NSPS guidelines for the industries found in the Table below. The intent of NSPS guidelines is to set effluent limitations that represent state-of-the-art treatment technology for new sources.[3]

Table 1 - Storm Water Specific NSPS Effluent Limitation Guidelines

Regulated Discharge	40 CFR Section	Multi Sector General Permit Sector	NSPS	Date New Source Data Established
Discharge resulting from spray down or intentional wetting of logs as wet deck storage areas	Part 429, Subpart I	A	Yes	1/26/81
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished products, by-products or waste products (SIC 2874)	Part 418, Subpart A	C	Yes	4/8/74
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D	Yes	7/28/75
Runoff from materials storage piles at cement manufacturing facilities	Part 411, Subpart C	E	Yes	2/20/74
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, D	J	No	N/A
Runoff from hazardous waste and non-hazardous waste landfills	Part 445, Subparts A and B	K, L	Yes	2/2/00
Runoff from coal storage piles at steam electric generating facilities	Part 423	O	Yes	11/19/82 & 10/8/74
Discharges from primary airports with over 1,000 annual jet departures that conduct deicing operations.	Part 449, Subpart A	S	Yes	NA

[3] New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced: (1) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (2) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal as defined in 40 C.F.R section 122.26.

ATTACHMENT G

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

A. Areas of Special Biological Significance (ASBS)

1. ASBS are defined in the California Ocean Plan as “those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.”

2. The California Ocean Plan prohibits the discharge of waste to ASBS.

3. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

4. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (amended by Resolution 2012-0031 on June 19, 2012) which contained a general exception to the California Ocean Plan for discharges of storm water and non-point sources (ASBS Exception). This resolution also contains the Special Protections that are to be implemented for direct discharges to ASBS. Resolution 2012-0012 is hereby incorporated by reference and its requirements must be complied with by industrial storm water Dischargers discharging directly to ASBS.

5. This General Permit requires Dischargers who have been granted an Ocean Plan exception for discharges to ASBS to comply with the requirements contained in the Special Protections. These requirements are contained below.

B. ASBS Non-Storm Water Discharges

1. The term “ASBS Non-Storm Water Discharges” means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not comprised entirely of storm water.

2. Only the following ASBS Non-Storm Water Discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

a. Discharges associated with emergency fire fighting operations.

b. Foundation and footing drains.

c. Water from crawl space or basement pumps.

d. Hillside dewatering.

e. Naturally occurring groundwater seepage via a storm drain.

f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

3. Authorized ASBS Non- Storm Water Discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

4. At the San Clemente Island ASBS, discharges incidental to military training and research, development, test, and evaluation operations are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

5. At the San Nicolas Island and Begg Rock ASBS, discharges incidental to military research, development, testing, and evaluation of, and training with, guided missile and other weapons systems, fleet training exercises, small-scale amphibious warfare training, and special warfare training are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

C. ASBS Compliance Plan

1. State Water Board Resolution 2012-0012 grants an exception to the Ocean Plan’s prohibition on discharges to ASBS (ASBS Exception) to applicants who were identified as Dischargers of industrial storm water to ASBS (ASBS Dischargers). Each ASBS Discharger shall specifically address the prohibition of ASBS Non-Storm Water Discharges and the requirement to maintain natural water quality for industrial storm water discharges to an ASBS in an ASBS Compliance Plan to be included in the ASBS Discharger’s SWPPP. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board. The ASBS Compliance Plan shall include:

a. A map of surface drainage of storm water runoff, showing areas of sheet runoff and priority discharges, and a description of any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified as requiring installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.

b. A description of the measures by which all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.

c. A description of how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the Discharger can document to the satisfaction of the Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

   1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or

   2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

   The baseline date for the reduction is March 20, 2012 (the effective date of the ASBS Exception), except for those structural BMPs installed between January 1, 2005 and the adoption of these special protections. The reductions must be achieved and documented by March 20, 2018.

d. A description of how the ASBS Discharger will address erosion and the prevention of anthropogenic sedimentation in the ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.

e. A description of the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, ASBS Dischargers must first consider using LID practices to infiltrate, use, or evapotranspiration storm water runoff on-site. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

D. Reporting

If the results of the receiving water monitoring described in Section F. below (Sampling and Analysis Requirements) indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the ASBS Discharger shall submit a report to the State Water Board within 30 days of receiving the results.

1. The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.

2. The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWPPP for future implementation, and any additional BMPs that may be added to the SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.

3. Within 30 days of the approval of the report by the Executive Director, the ASBS Discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.

4. As long as the ASBS Discharger has complied with the procedures described above and is implementing the revised SWPPP, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

5. Compliance with this section does not excuse violations of any term, prohibition, or special condition contained in the Special Protections of the ASBS Exception.

E. Compliance Schedule

1. As of March 20, 2012, all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flow) were effectively prohibited.

2. By September 20, 2013, the Discharger shall submit a draft written ASBS Compliance Plan to the Executive Director that describes its strategy to comply with these special conditions, including the requirement to maintain natural water

quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these special conditions for inclusion in the Discharger's SWPPP.

3. By September 20, 2014, the Discharger shall submit the final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring.

4. By September 20, 2013, any non-structural controls that are necessary to comply with these special conditions shall be implemented.

5. By March 20, 2018, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.

6. By March 20, 2018, all Dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Flowchart at the end of this Attachment.

7. The Executive Director may only authorize additional time to comply with the special conditions 5 and 6, above if good cause exists to do so. Good cause means a physical impossibility or lack of funding

   If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in 5. or 6. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of these requirements. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

   The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

a. for municipalities, a demonstration of significant hardship to Discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the Discharger's jurisdictional area, and the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or

b. for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

F. Additional Requirements – Waterfront and Marine Operations

In addition to the above provisions, a Discharger with waterfront and marine operations shall comply with the following:

1. For discharges related to waterfront and marine operations, the Discharger shall develop a Waterfront and Marine Operations Management Plan (Waterfront Plan). This plan shall contain appropriate Management Measures/Practices to address nonpoint source pollutant discharges to the affected ASBS.

   a. The Waterfront Plan shall contain appropriate Management Measures/Practices for any waste discharges associated with the operation and maintenance of vessels, moorings, piers, launch ramps, and cleaning stations in order to ensure that beneficial uses are protected and natural water quality is maintained in the affected ASBS.

   b. For discharges from marinas and recreational boating activities, the Waterfront Plan shall include appropriate Management Measures, described in The Plan for California's Nonpoint Source Pollution Control Program, for marinas and recreational boating, or equivalent practices, to ensure that nonpoint source pollutant discharges do not alter natural water quality in the affected ASBS.

   c. The Waterfront Plan shall include Management Practices to address public education and outreach to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The management practices shall include appropriate signage, or similar measures, to inform the public of the ASBS restrictions and to identify the ASBS boundaries.

   d. The Waterfront Plan shall include Management Practices to address the prohibition against trash discharges to ASBS. The Management Practices shall include the provision of adequate trash receptacles for marine recreation areas, including parking areas, launch ramps, and docks. The plan shall also include appropriate Management Practices to ensure that the receptacles are adequately maintained and secured in order to prevent trash discharges into the ASBS. Appropriate Management Practices include covering the trash receptacles to prevent trash from being windblown, staking or securing the trash receptacles so they don't tip over, and periodically emptying the receptacles to prevent overflow.

e. The Discharger shall submit its Waterfront Plan to the State Water Board Executive Director by September 20, 2012. The Waterfront Plan is subject to approval by the State Water Board Executive Director. The plan must be fully implemented within by September 20, 2013.

2. The discharge of chlorine, soaps, petroleum, other chemical contaminants, trash, fish offal, or human sewage to ASBS is prohibited. Sinks and fish cleaning stations are point source discharges of wastes and are prohibited from discharging into ASBS. Anthropogenic accumulations of discarded fouling organisms on the sea floor must be minimized.

3. Limited-term activities, such as the repair, renovation, or maintenance of waterfront facilities, including, but not limited to, piers, docks, moorings, and breakwaters, are authorized only in accordance with Chapter III.E.2 of the Ocean Plan.

4. If the Discharger anticipates that the Discharger will fail to fully implement the approved Waterfront Plan within the 18 month deadline, the Discharger shall submit a technical report as soon as practicable to the Executive Director. The technical report shall contain reasons for failing to meet the deadline and propose a revised schedule to fully implement the plan.

5. The State Water Board may, for good cause, authorize additional time to comply with the Waterfront Plan. Good cause means a physical impossibility or lack of funding.

   If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in Section F.1.e above. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Attachment. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality. The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

a. a demonstration of significant hardship by showing that the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate.

b. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

G. Sampling and Analysis Requirements

1. Monitoring is mandatory for all ASBS Dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (1) Core Discharge Monitoring and (2) Ocean Receiving Water Monitoring (see Sections H. and I. below). The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

2. Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notifying the Executive Director that hazardous conditions prevail.

3. Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

H. Core Discharge Monitoring Program

1. General sampling requirements for timing and storm size:

   Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples as described in Section I. below.

2. Runoff flow measurements

   a. For industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the Executive Director.

b. This will be reported annually for each precipitation season to the Executive Director.

3. Runoff samples – storm events

a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width: 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and 2) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:

1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and

2) samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates); and

3) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

4) if an ASBS Discharger has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

c. For an applicant not participating in a regional integrated monitoring program [see below in Section I.3.] in addition to the sampling requirements in Section H.3.a. and b. above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

d. The Executive Director may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

I. Ocean Receiving Water and Reference Area Monitoring Program

1. In addition to performing the Core Discharge Monitoring Program in Section H. above, all ASBS Dischargers must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, ASBS Dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.

2. Individual Monitoring Program: The requirements listed below are for those ASBS Dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

   a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in Section H.3. above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end if this Attachment) for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

   The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm), and during (or immediately after) the same storm (post-storm). Post-storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents (provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod Eohaustorius estuarius must be performed.

c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.

d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (Mytilus californianus) and/or sand crabs (Emerita analoga or Blepharipoda occidentalis). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the ASBS Discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

f. The monitoring requirements of the Individual Monitoring Program in this Section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

3. Regional Integrated Monitoring Program: ASBS Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section I.2.) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

   a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional integrated monitoring program, the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

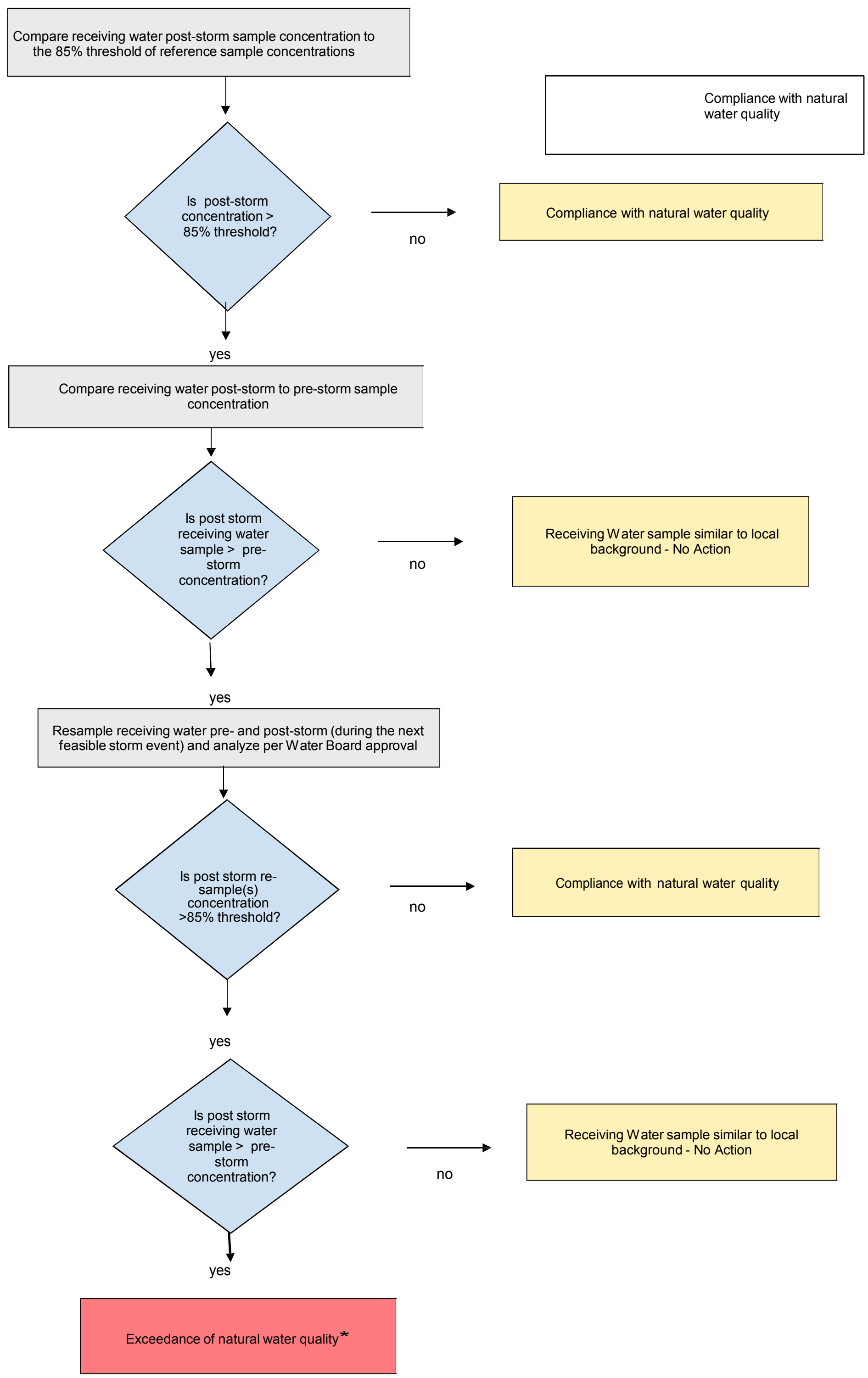
   b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS Dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.

d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

Special Protections Section E.6. Flowchart to Determine Compliance with Natural Water Quality



* When an exceedance of natural water quality occurs, the Discharger must comply with Section D. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	Mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(Excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

<u>Analytical Chemistry Methods</u>: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT H

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

For more detailed guidance, Dischargers should refer to the U.S. EPA's "Industrial Stormwater Monitoring and Sampling Guide," dated March 2009, available at: http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf and the "NPDES Storm Water Sampling Guidance Document," dated July 1992, available at: http://www.epa.gov/npdes/pubs/owm0093.pdf .

1. Identify the sampling parameters required to be tested and the number of storm water discharge points that will be sampled. Request the analytical testing laboratory to provide the appropriate number and type of sample containers, sample container labels, blank chain of custody forms, and sample preservation instructions.

2. Determine how samples will be transported to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The Discharger may either deliver the samples to the laboratory, arrange for the laboratory to pick up the samples, or overnight ship the samples to the laboratory. All sample analysis shall be done in accordance with 40 Code of Federal Regulations part 136. Samples for pH have a holding time of 15 minutes.[1]

3. Qualified Combined Samples shall be combined by the laboratory and not by the Discharger. Sample bottles must be appropriately labeled to instruct the laboratory on which samples to combine.

4. Unless the Discharger can provide flow weighted information, all combined samples shall be volume weighted.

5. For grab samples, use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers may contaminate samples.

6. For automatic samplers that are not compatible with bottles provided by the laboratory, the Discharger is required to send the sample container included with the automatic sampler to the laboratory for analysis.

[1] 40 C.F.R. section 136.3, Table II - Required Containers, Preservation Techniques, and Holding Times.

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

7. The Discharger can only use automatic sampling device to sample parameters that the device is designed to. For pH, Dischargers can only use automatic sampling devices with the ability to read pH within 15 minutes of sample collection.

8. The Discharger is prohibited from using an automatic sampling device for Oil and Grease, unless the automatic sampling device is specifically designed to sample for Oil and Grease.

9. To prevent contamination, do not touch inside of sample container or cap or put anything into the sample containers before collecting storm water samples.

10. Do not overfill sample containers. Overfilling can change the analytical results.

11. Tightly screw on the cap of each sample container without stripping the threads of the cap.

12. Complete and attach a label for each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.

13. Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into shipping containers. Samples should be kept as close to 4 degrees Celsius (39 degrees Fahrenheit) as possible until arriving to the laboratory. Do not freeze samples.

14. Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the Discharger’s name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.

15. Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.

16. Dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the sample protocols and laboratory practices.

17. Refer to Table 1 in the General Permit for test methods, detection limits, and reporting units.

18. All sampling and sample preservation shall be in accordance with 40 Code of Federal Regulations part 136 and the current edition of “Standard Methods for

the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including Discharger field instruments for measuring pH or specific conductance if identified as an additional sampling parameter) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to approved test procedures under 40 Code of Federal Regulations part 136, unless other test procedures have been specified by the Regional Water Quality Control Board. All metals shall be reported as total metals. Dischargers may conduct their own field analysis of pH (or specific conductance if identified as an additional sampling parameter) if the Discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis. With the exception of field analysis conducted by Dischargers for pH (or specific conductance if identified as an additional sampling parameter), all analyses shall be sent to and conducted at a laboratory certified for such analyses by the California Department of Public Health. Dischargers are required to report to the Water Board any sampling data collected more frequently than required in this General Permit (Section XXI.J.2)

APPENDIX 1

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

NATIONAL POLLUTION DISCHARGE ELIMINTATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

FACILITY NAME:____

Waste Discharge Identification (WDID) #:_______________________________

	FACILITY CONTACT	Consultant/Qualified Industrial Storm Water Practitioner (QISP)
Name		
Title		
Company		
Street Address		
City, State		
Zip		

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification (Section II.A)			
Pollution Prevention Team (Section X.D.1)			
Existing Facility Plans (Section X.D.2)			
Site Map(s) (Section X.E)			
Facility boundaries (Section X.E.3.a)			
Drainage areas (Section X.E.3.a)			
Direction of flow (Section X.E.3.a)			
On-facility water bodies (Section X.E.3.a)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Areas of soil erosion (Section X.E.3.a)			
Nearby water bodies (Section X.E.3.a)			
Municipal storm drain inlets (Section X.E.3.a)			
Points of discharge (Section X.E.3.b)			
Sampling Locations (Section X.E.3.b)			
Structural control measures (Section X.E.3.c)			
Impervious areas (Section X.E.3.d)			
Location of Directly Exposed Materials (Section X.E.3.e)			
Locations of significant spills and leaks (Section X.E.3.e)			
Areas of Industrial Activity (Section X.E.3.f)			
Areas of industrial activity (Section X.E.3.f)			
Storage areas/storage tanks (Section X.E.3.f)			
Shipping and receiving areas (Section X.E.3.f)			
Fueling areas (Section X.E.3.f)			
Vehicle and equipment storage/maintenance (Section X.E.3.f)			
Material handling/processing (Section X.E.3.f)			
Waste treatment/disposal (Section X.E.3.f)			
Dust or particulate generation (Section X.E.3.f)			
Cleaning and material reuse (Section X.E.3.f)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Other areas of industrial activities (Section X.E.3.f)			
List of Industrial Materials (Section X.F)			
Storage location			
Quantity			
Frequency			
Receiving and shipping location			
Quantity			
Frequency			
Handling location			
Quantity			
Frequency			
Potential Pollution Sources (Section X.G)			
Description of Potential Pollution Sources (Section X.G.1)			
Industrial processes (Section X.G.1.a)			
Material handling and storage areas (Section X.G.1.b)			
Dust & particulate generating activities (Section X.G.1.c)			
Significant spills and leaks (Section X.G.1.d)			
Non-storm water discharges (Section X.G.1.e)			
Erodible surfaces (Section X.G.1.f)			
Assessment of Potential Pollutant Sources (Section X.G.2)			
Narrative assessment of likely sources of pollutants (Section X.G.2.a)			
Narrative assessment of likely pollutants present in storm water discharges (Section X.G.2.a)			
Identification of additional BMPs Section X.G.2.b)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Identification of drainage areas with no exposure (Section X.G.2.c)			
Identification of additional parameters (Section X.G.2.d)			
Storm Water Best Management Practices (Section X.H)			
Minimum BMPs (Section X.H.1)			
Good housekeeping (Section X.H.1.a)			
Preventative maintenance (Section X.H.1.b)			
Spill response (Section X.H.1.c)			
Material handling and waste management (Section X.H.1.d)			
Erosion and sediment controls (Section X.H.1.e)			
Employee training program (Section X.H.1.f)			
Quality assurance and record keeping (Section X.H.1.g)			
Advanced BMPs (Section X.H.2)			
Implement advanced BMPs at the facility (Section X.H.2.a)			
Exposure Minimization BMPs (Section X.H.2.b.i)			
Storm Water containment and discharge reduction BMPS (Section X.H.2.b.ii)			
Treatment Control BMPs (Section X.H.2.b.iii)			
Other advance BMPs (Section X.H.2.b.iv)			
Temporary Suspension of Activities (Section X.H.3)			
BMPs necessary for stabilization of the facility (Section X.H.3)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
BMP Descriptions (Section X.H.4)			
Pollutant that a BMP reduces or prevents (Section X.H.4.a.i)			
Frequency of BMP implementation (Section X.H.4.a.ii)			
Location of BMP (Section X.H.4.a.iii)			
Person implementing BMP (Section X.H.4.a.iv)			
Procedures/maintenance/ instructions for BMP implementation (Section X.H.4.a.v)			
Equipment and tools for BMP implementation (Section X.H.4.a.vi)			
BMPs needing more frequent inspections (Section X.H.4.a.vii)			
Minimum BMP/applicable advanced BMPs not implemented at the facility (Section X.H.4.b)			
BMPs implemented in lieu of minimum or applicable advanced BMPs (Section X.H.4.c)			
BMP Summary Table (Section X.H.5)			
Monitoring Implementation Plan (Section X.I)			
Team members assisting in developing the MIP (Section X.I.1)			
Summary of visual observation procedures, locations, and details (Section X.I.2)			
Justifications if applicable for: Alternative discharge locations, Representative Sampling Reduction or, Qualified Combined Samples (Section X.I.3)			
Procedures for field instrument calibration (Section X.I.4)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Example of Chain of Custody (Section X.I.5)			
Annual Comprehensive Facility Compliance Evaluation (Section XV)			
Review of all visual inspection and monitoring records and sampling and analysis results conducted during the previous reporting year (Section XV.A)			
Visual inspection of all areas of industrial activity and associated potential pollutant sources (Section XV.B)			
Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials in accordance with the definitions in Section XVII (Section XV.C)			
Visual inspection of equipment needed to implement the BMPs (Section XV.D)			
Visual inspection of any structural and/or treatment control BMPs (Section XV.E)			
Review and assessment of all BMPs for each area of industrial activity and associated potential pollutant sources (Section XV.F)			
Assessment of other factors needed to complete the information described in Section XVI.B (Section XV.G)			

APPENDIX 2

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

(GENERAL PERMIT)

This Attachment provides general guidance instructions and guidance for obtaining NEC coverage. The actual NEC requirements are primarily contained in Section XVII of this General Permit.

A. INSTRUCTIONS:

Who May File for NEC Coverage

Sections 301 and 402(p) of the Clean Water Act (CWA), and Sections 1311 and 1342(p) of 33 United States Code prohibit the discharge of storm water associated with industrial activity to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is "conditionally excluded" for discharges of storm water associated with industrial activities (industrial storm water discharges) if the Discharger can certify that a condition of "No Exposure" exists at the industrial facility. A condition of "No Exposure" means that a Discharger's industrial activities and materials are not exposed to storm water. Industrial storm water discharges from construction and land disturbance activities are ineligible for the NEC coverage. Dischargers who file valid NECs in accordance with these instructions are not required to implement Best Available Technology Economically Achievable /Best Conventional Pollutant Control Technology and comply with the Storm Water Pollution Prevention Plan (SWPPP) and monitoring requirements of this General Permit.

Obtaining and Maintaining NEC Coverage

A Discharger must electronically certify and submit NEC Permit Registration Documents (PRDs) via State Water Resources Control Board's (State Water Board's) Storm Water Multi-Application and Report Tracking System (SMARTS) to obtain NEC coverage. This conditional exclusion does not become effective until the PRDs are submitted and the annual fee is paid. Upon receipt of the annual fee, the Discharger will electronically receive an NEC acceptance notification via SMARTS, which will include a Waste Discharge Identification (WDID) number. A Discharger must maintain a condition of "No Exposure" at the facility for the conditional exclusion to remain applicable. The Discharger must annually electronically re-certify the NEC via SMARTS to confirm that the conditions of "no exposure" are being maintained. If conditions change resulting in the exposure of materials and activities to storm water, the Discharger must electronically certify and submit PRDs via SMARTS for Notice of Intent (NOI) coverage under the General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit).

Fees

First time NEC coverage PRDs and the annual re-certification require a fee. Fees may be changed by State Water Board regulation, independent of this General Permit.

How to Prepare and Submit PRDs for NEC Coverage

A Discharger must electronically certify and submit PRDs for NEC coverage in accordance with the instructions provided at the State Water Board web site for SMARTS:

https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

A Discharger with multiple facilities that satisfy the conditions of "No Exposure" must certify and submit PRDs for each facility. The Discharger is required to inspect and evaluate each individual facility to determine the condition of No-Exposure. The Discharger must retain an electronic or paper copy of the NEC coverage acceptance notification for their records.

The following information is required in the PRDs:

Discharger Information

1. The legal business name of the business entity, public organization, or any other entity that operates the facility described in the certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility operations, not the plant or site manager.

2. The mailing address of the facility operator, including the city, state, and zip code.

3. The facility operator contact person, telephone number and e-mail address.

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

Facility Information

4. The legal business name of the facility.

5. The total acreage of the facility associated with industrial activity. (Facility size in acres is calculated by taking the square feet and dividing by 43,560.)

6. The complete physical street address (e.g. the street address used for express deliveries), including the city, State, and zip code. Do not use a P.O. Box number. If a physical street address does not exist, describe the location or provide the latitude and longitude of a point within the facility boundary. Latitude and longitude are available from United States Geological Survey quadrangle or topographic maps, or may be found using a mapping site on the internet.

7. The facility contact person, telephone number, and e-mail address.

8. The 4-digit Standard Industrial Classification (SIC) code that represents the facility primary industrial activity. Provide a brief description of the primary industrial activity. If applicable, enter other significant SIC codes and descriptions. To obtain these codes, see the 1987 SIC Manual or the Occupational Health and Safety Administration's site:

   http://www.osha.gov/pls/imis/sicsearch.html

9. If the facility is currently covered under the General Permit, include the WDID number. The WDID number will be used at a later date to terminate the facility's coverage under the General Permit as necessary.

Facility Mailing or Billing Address

Completion of this item is required the facility mailing address or billing address differs from the physical facility address provided above. The Discharger must indicate which address the annual fee invoice must be sent to if the State Water Board is unable to transmit the invoice electronically.

Site Maps

Site maps must be prepared and submitted in accordance with the requirements in Section X.E of this General Permit.

NEC Checklist

The Discharger must evaluate the eleven major areas that storm water exposure may occur, per the listing at the end of this appendix. The Discharger must be able to certify that none of these major areas have potential for exposure. If the Discharger cannot certify that every one of the eleven major areas do not have exposure, a potential for exposure exists at the facility and the facility is not eligible for NEC coverage. The Discharger must obtain (or continue) NOI coverage under this General Permit if the facility is not eligible for NEC coverage. After obtaining NOI coverage, the Discharger may implement facility modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then change their NOI coverage to NEC coverage by certifying the conditions of "No Exposure" are met.

Certification

Federal and state statutes provide for severe penalties for Dischargers that submit false information on the PRDs. Dischargers shall certify and submit PRDs via SMARTS for NEC coverage in accordance with Electronic Signature and Certification Requirements in Section XXI.K of this General Permit.

B. GUIDANCE:

Contact your local Regional Water Quality Control Board (Regional Water Board) office with questions regarding this guidance.

1. Who is Eligible to Qualify for the No Exposure Certification (NEC) - Conditional Exclusion?

All industrial categories listed in Attachment A of this General Permit (excluding construction) are eligible to apply for the NEC coverage.

2. Limitations on Eligibility for NEC coverage

In addition to construction projects not being eligible, the following situations limit the applicability of NEC coverage:

a. NEC coverage is available on a facility-wide basis only, not for individual drainage areas or discharge locations. Generally, if any exposed industrial materials or activities exist, or have a potential to exist, anywhere at a facility, NEC coverage is not applicable to the facility. If the Regional Water Board determines that a facility does have exposure or the facility's storm water discharges have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives/standards, the Regional Water Board can deny NEC coverage.

b. If changes at a facility result in potential exposure of industrial activities or materials, the facility is no longer eligible for NEC coverage. Dischargers shall register for NOI coverage under this General Permit prior to a planned facility change that will cause exposure, or within seven (7) calendar days after unplanned exposure occurs. If an unplanned exposure occurs due to an emergency response or one-time event that is unlikely to re-occur, a Discharger may contact the Regional Water Board to discuss whether the requirement to obtain NOI coverage can be waived. Unless the Discharger receives a written waiver from the Regional Water Board, the Discharger shall electronically certify and submit PRDs to obtain NOI coverage.

c. Current contamination resulting from historic industrial practices at the facility (e.g., soil contamination, groundwater contamination, etc.) represents a condition of exposure to waters of the United State; therefore a facility with historic contamination is not eligible for NEC coverage.

3. What is the Definition of No Exposure?

a. No Exposure means all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff.

b. Industrial materials and activities include, but are not limited to, material-handling equipment or activities; industrial machinery; raw materials, intermediate products, by-products, and final products; or waste products.

c. Material handling activities include storage, loading and unloading, transport, or conveyance of any raw material, intermediate product, by-product, final product, or waste product.

d. Final products intended to be used outdoors (e.g., automobiles) typically pose little risk of polluting storm water since not typically contaminated with pollutants that become mobilized by contact with storm water. Final products are exempt from the requirement for protection by a storm-resistant shelter to qualify for no exposure. Similarly, containers, racks, and other transport platforms (e.g., wooden pallets) used for the storage or conveyance of final products may also be stored outside if pollutant-free or pollutants do not mobilize via contact with storm water.

e. Storm-resistant shelters include: (1) completely roofed and walled buildings or structures, (2) structures with only a top cover (no side coverings) supported by permanent supports, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.) or being tracked out of the facility, and is not a source of pollutants in the industrial storm water discharges.

4. Industrial Materials/Activities Not Requiring a Storm-Resistant Shelter

The intent of the "No Exposure" exclusion is to maintain a condition of permanent "No Exposure". A storm-resistant shelter is not required for the following industrial materials and activities:

a. Drums, Barrels, Tanks, and Similar Containers that are sealed ("sealed" means banded or otherwise secured and without operational taps or valves), are not exposed provided those containers are not deteriorated, do not contain residual materials on the outside surfaces, and do not leak. Drums, barrels, etc., that are not opened while outdoors, or are not deteriorated or leaking, and that do not pose a risk of contaminating storm water runoff. Consider the following when making a "No Exposure" determination:

i. Materials shall not be added or withdrawn to/from containers while outdoors

ii. Simply moving containers while outside does not create exposure unless exposure occurs when pollutants are "tracked out" by the container handling equipment or vehicles.

iii. All outdoor containers shall be inspected to ensure they are not open, deteriorated, or leaking. When an outdoor container is observed as opened, deteriorated, or leaking, the container must immediately be closed, replaced, or sheltered. Frequent detection of open, deteriorated, or leaking containers, or failure to immediately close, replace, or shelter opened, deteriorated or leaking containers will cause a condition of exposure.

iv. Containers, racks, and other transport platforms (e.g., wooden pallets) used with drums, barrels, etc., can be stored outside providing they are contaminant-free and in good repair.

b. Above Ground Storage Tanks (ASTs) In addition to generally being considered as not exposed, ASTs may also be exempt from the prohibition against adding or withdrawing material to/from external containers. ASTs typically use transfer valves to dispense materials that support facility operations (e.g., heating oil, propane, butane, chemical feedstock) or fuel for delivery vehicles (gasoline, diesel, compressed natural gas). For operational

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

ASTs to qualify for “No Exposure”, the following must be satisfied:

i. The tank(s) shall be physically separated from and not associated with vehicle maintenance operations.

ii. There shall be no leaks from piping, pumps, or other equipment that has the potential to come in contact with storm water.

iii. Wherever feasible, the tank(s) shall have secondary containment (e.g., an impervious dike, berm or concrete retaining structure) to prevent runoff in the event of a structural failure or leaking transfer valve. Note: any resulting unpermitted discharge is in violation of the CWA.

c. Lidded Dumpsters. Lidded dumpsters containing waste materials, providing the containers are completely covered and nothing can drain out holes in the bottom, spilled when loaded into the dumpster, or spilled in loading into a garbage truck. Industrial waste materials and trash that is stored uncovered is considered exposed.

d. Adequately maintained vehicles, such as trucks, automobiles, forklifts, trailers or other general-purpose vehicles found onsite - but not industrial machinery that are not leaking, are in good repair or are not otherwise a potential source of contaminants:

i. Vehicles passing between buildings may be exposed to storm water, however if the vehicles are adequately maintained, a condition of exposure may not exist. Similarly, non-leaking vehicles awaiting maintenance at vehicle maintenance facilities are not considered as potential exposure. However, vehicles that have been washed or rinsed that are not completely dry prior to outside exposure have the potential to cause a condition of exposure. Vehicles that track materials out of the facility are considered to be mobilizing pollutants. Vehicles that exit maintenance bays are also considered to cause exposure.

ii. The mere conveyance between buildings of materials / products that are otherwise not allowed to be stored outdoors, does not create a condition of exposure, provided the materials/products are adequately protected from storm water and do not have the potential to be released as a result of a leak or spill.

e. Final products built and intended for use outdoors (e.g., new cars), provided the final products have not deteriorated, are not contaminated, or are not otherwise potential sources of contaminants.

Types of final products not qualifying for a certification of “No Exposure”:

i. Products that may be mobilized in storm water discharges (e.g., rock salt).

ii. Products, which may, when exposed, oxidize, deteriorate, leak, or otherwise be a potential source of contaminants (e.g., junk cars, stockpiled train rails).

iii. “Final” products that are, in actuality, “intermediate” products. Intermediate products are those used in the composition of yet another product (i.e., sheet metal, tubing, and paint used in making tractors).

iv. Even if the intermediate product is “final” for a manufacturer and destined for incorporation in a “final product intended for use outdoors,” the product is not allowed to be exposed because they may be chemically treated or are insufficiently impervious to weathering.

f. Special Conditions for Construction Activities
Permanent, uninterrupted sheltering of industrial activities or materials may not always be possible during facility renovation or construction. When such circumstances exist, the Discharger is not required to obtain coverage under an NPDES permit as long as the following conditions are met:

i. Materials and activities are protected with temporary covers or shelters (i.e. tarpaulins);

ii. Temporary covers or shelters prevent the contact of storm water to materials and activities;

iii. Materials are subject to wind dispersion are not stored under temporary sheltering;

iv. Temporary shelters are only used when necessary during facility renovation or construction and until permanent storm-resistant shelters as described above are available; and,

v. Temporary shelters are only used for a single period of ninety days or less. (Facilities with construction and renovation projects that will need the use of temporary shelters beyond 90 days, or that will require multiple periods of ninety

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

days or less, are required to be covered by an NPDES permit.)

5. **Other Potential Sources of Contaminants**

   a. Particulate Emissions from Roof Stacks and/or Vents: Deposits of particles or residuals from roof stacks/vents that have the potential to be mobilized by storm water runoff are considered exposed.

   b. Pollutants Potentially Mobilized by Wind Windblown materials cause a condition of exposure. Materials sheltered from precipitation are be deemed exposed if the materials has a potential to be mobilized by wind.

6. **Certifying a Condition of "No Exposure"**

   To obtain the NEC coverage, the Discharger must electronically certify and submit PRDs via SMARTS that the facility meets the definition of "No Exposure" and pay an annual fee. The Discharger must **submit PRDs for NEC coverage even if the Discharger was not previously required to file for NEC coverage under the previous General Permit**. These PRDs include a checklist requiring the Discharger to evaluate eleven major areas to determine whether there is exposure of industrial activities and materials at the facility. To qualify for NEC coverage the Discharger must satisfy all the NEC coverage conditions in this General Permit and certify that there is "No Exposure". The checklist: 1) aids the Discharger in determining if its facility is eligible for NEC coverage, and 2) furnishes the necessary documentation supporting relief from the General Permit's requirement of NOI coverage. Additionally, Dischargers with NEC coverage are not required to develop and implement SWPPPs or comply with the monitoring requirements.

   If a Discharger cannot certify that there is "No Exposure" at the facility, the Discharger must make appropriate changes at the facility to eliminate exposure prior to registering for future NEC coverage. Facility changes must remove all potential for pollutant exposure to storm water.

   An annual inspection and evaluation, re-certification and fee are required thereafter.

7. **Other NEC coverage Facts:**

   a. NEC coverage is only valid if the condition of "No Exposure" exists and is reasonably expected to continue to exist. Dischargers shall electronically certify and submit PRDs for NOI coverage when the condition of "No Exposure" is no longer expected to exist.

   b. Dischargers must file PRDs for NEC coverage for each qualifying facility.

   c. An NEC must be submitted for each separate facility qualifying for the "No Exposure" conditional exclusion.

   d. An NEC is non-transferable. If a new operator takes over facility operations, the new operator shall electronically certify and submit PRDs and applicable fees for new NEC coverage via SMARTS prior to the operations transfer. NEC coverage cannot be transferred from one physical location to another regardless of ownership.

8. **Operators May Be Required to Obtain NOI Coverage Based on the Protection Of Water Quality?**

   Operators who certified that their facilities qualify for NEC coverage may, nonetheless, be required by the Regional Water Board to obtain NOI coverage if the Regional Water Board determines that the facility's discharge has the potential to cause or contribute to an exceedance of applicable water quality objectives/standards or determines that exposure exists at the facility. The Regional Water Board may request information and/or inspect the facility to assess potential water quality impacts and to determine if NOI coverage is required. The Discharger shall take appropriate actions to ensure compliance with the General Permit.

9. **Steps to Obtain NEC coverage**

   This section will walk you through the process of obtaining NEC coverage.

   Step 1: Determine if your facility is subject to this General Permit (refer to Attachment A of this General Permit). If yes, proceed to Step 2. If not, stop here.

   If your facility is included in Attachment A and conducts industrial activities, you are required to **either** register for NOI coverage or NEC coverage.

   Step 2: Determine if your regulated industrial activity meets the definition of "No Exposure" and qualifies for the exclusion from permitting. If yes, proceed to Step 3. If no, stop here and obtain NOI coverage. An

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

evaluation of the facility must be conducted by facility personnel familiar with the facility and its operations. Inspect all facility areas and potential pollutant sources to determine whether the facility satisfies the "No Exposure" conditions.

Step 3: Electronically certify and submit the PRDs for NEC coverage via SMARTS and mail the annual fee to the State Water Board at the following address:

SWRCB
Surface Water Permitting Section
PO Box 1977
Sacramento, CA 95812-1977

To maintain NEC coverage, the NEC must re-certify and pay a fee annually. This may only be done if the condition of "No Exposure" continues to exist at the facility.

Step 4: If requested, staff from the Water Boards, local Municipal Separate Storm Sewer System (MS4), or United States Environmental Protection Agency must be allowed to inspect your facility. All inspection reports will be made publicly available.

Step 5: Maintain a condition of "No Exposure".

- NEC coverage is not a blanket exemption. Therefore, if facility physical or operational changes occur which cause exposure of industrial activities or materials to storm water, the Discharger must then immediately comply with all the requirements of this General Permit, including obtaining NOI coverage as applicable.
- To maintain the condition of "No Exposure", the Discharger shall annually evaluate the facility to assure that the conditions of "No Exposure" still exist. More frequent evaluations may be necessary in circumstances when facility operations are rapidly changing.
- Failure to maintain the condition of "No Exposure" or otherwise obtain NOI coverage may lead to the unauthorized discharge of storm water associated with industrial activity to waters of the United States, resulting in penalties under the CWA and Water Code.

C. Frequently Asked Questions:

Q1. Who is eligible for NEC Coverage?

A. Any Discharger operating a facility described in Attachment A may register for NEC coverage if their facility has a condition of "No Exposure".

Q2. How does an eligible Discharger file for NEC coverage and where is the annual fee sent?

A. The PRDs for NEC coverage shall be electronically certified and submitted in accordance with the instructions provided in SMARTS at the State Water Board website at: https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp. The fee is currently $242, but may be changed by regulation. Once NEC coverage is accepted, an invoice will be electronically sent to the Discharger. The annual fee and invoice shall be sent to:

State Water Resources Control Board
Division of Water Quality
Attention: Industrial Storm Water Unit
P.O. Box 1977
Sacramento, CA 95812-1977

Q3. If my facility's storm water discharges are covered by an individual permit, can I file for NEC coverage?

A. Yes. Storm water discharges covered by an individual permit are eligible for NEC coverage if the conditions at the facility satisfy the definition of "No Exposure" and you obtain approval to terminate individual permit coverage from the local Regional Water Board prior to PRD submittal. Approval from the Regional Water Board is mandatory. Many individual permits, for example, contain numeric storm water effluent limitations ("antibacksliding" provisions may prevent these facilities from qualifying for the "No Exposure" conditional exclusion).

Q4. My facility was originally excluded from the Phase I regulations because it was classified as a "light industrial facility". The facility has never had any exposure to storm water runoff. Do I now need to certify that the facility meets the No Exposure Exclusion from NPDES Storm Water Permitting?

A. Yes. See answer provided to question number 9, "What is the exclusion "conditional" upon?"

Q5. Do I have to file a Notice of Termination (NOT) <u>and</u> a register for NEC coverage if my facility has NOI coverage and qualifies for NEC coverage?

A. No. You are only required to register for NEC coverage. You must provide the WDID# in your NEC coverage PRDs in order for the State Water Board to change permit coverage status.

Q6. When and how often is a NEC coverage re-certification required?

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

A. Re-certification of NEC coverage is required annually (assuming the facility maintains its "No Exposure" status). The State Water Board will electronically transmit an NEC re-certification and annual fee notification to each facility operator who has filed for NEC coverage.

New Dischargers must register for NEC coverage before the commencement of facility operations. Dischargers that fail to file for NEC coverage or apply for NOI coverage before the commencement of facility operations will be out of compliance and subject to enforcement.

Existing Dischargers have two options for submitting NECs:

1. Facility operators of "light industrial" facilities who have been operating under their original, no-certification-required permitting exemption must submit the NEC at any time prior to October 1, 2015. Dischargers who have not submitted an NEC or applied for permit coverage by this due date will be considered out of compliance and subject to Water Board enforcement.

2. Dischargers who have NOI coverage may register for NEC coverage at any time following completion of facility changes that result in the condition of "No Exposure".

Q7. What happens if I know of changes that may cause exposure?

A. If exposure has the potential to occur in the near future due to some anticipated change at the facility, the Discharger must obtain NOI coverage to avoid potential enforcement for violations of this General Permit.

Q8. Is the NEC coverage transferable to a new Discharger?

A. No. If a new operator takes over your facility, the new operator must register for new NEC coverage prior to the transfer. A new application fee is required.

Q9. What is the exclusion "conditional" upon?

A. The exclusion from permit coverage requirements is "conditional" upon the certification of the Discharger that the facility does not have exposure of materials or activities to storm water. PRDs for NEC coverage shall be electronically submitted to the State Water Board and will not be accepted if incomplete. The Regional Water Board may review the information, contact and/or inspect the facility, and invalidate the NEC and require the Discharger to obtain NOI coverage. PRDs are public documents and will be available for public review via SMARTS.

Q10. Can secondary containment around an outdoor exposed area qualify for a condition of "No Exposure"?

A. If secondary containment is engineered to always prevent a discharge of collected rainfall (based on the historical rainfall record) and a simultaneous spill of any other industrial materials or liquids, the "No Exposure" condition may be claimed. Note that there must be proper disposal of any water or liquids collected from the containment (i.e., discharged in compliance with another NPDES permit, treated and discharged to the sanitary sewer, or trucked offsite to an appropriate disposal/treatment facility).

D. NEC Checklist

An NEC Checklist must be prepared by the Discharger demonstrating that: (1) the facility has been evaluated, (2) none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation, and (3) all unauthorized NSWDs have been eliminated:

1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;

2. Materials or residuals on the ground or in storm water inlets from spills/leaks;

3. Materials or products from past industrial activity;

4. Material handling equipment (except adequately maintained vehicles);

5. Materials or products during loading/unloading or transporting activities;

6. Materials or products stored outdoors (except final products intended for outside use, i.e., new cars, where exposure to storm water does not result in the discharge of pollutants);

7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

8. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

9. Waste material (except waste in covered, non-leaking containers, i.e., dumpsters);

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

10. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and

11. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

APPENDIX 3

WATERBODIES WITH CLEAN WATER ACT SECTION 303(D) LISTED IMPAIRMENTS

NATIONAL POLLUTION DISCHARGE ELIMINTATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The 303(d) impairments below are sourced from the 2010 Integrated Report. The rows in red are impairments for which industrial storm water Dischargers subject to this General Permit are not required to analyze for additional parameters unless directed by the Regional Water Board, because these parameters are typically not associated with industrial storm water. Test methods with substantially similar or more stringent method detection limits may be used if approved by the staff of the State Water Board prior to sampling and analysis and upon approval, will be added into SMARTS. The rows that are not in red are impairments for which Dischargers in the 303(d) impaired watershed are required to analyze for additional parameters, if applicable, because these parameters are more likely to be associated with industrial storm water. See General Permit Section XI.B.6.e. In the event that any of the impairments in this appendix are subsequently delisted, the Dischargers with discharges to that watershed are no longer required to analyze for the additional parameters for those impairments, and the provisions for new Dischargers with discharges to 303(d) impaired water bodies contained in Section VII.B of this General Permit no longer apply for those impairments.

The Excel spreadsheet containing the water bodies with 303(d) impairments is an attachment to this Appendix 3. To view the attachment from an electronic (pdf) version of this Appendix 3, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icon of an Excel spreadsheet. The Excel spreadsheet is also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (http://www.waterboards.ca.gov/).

Appendix G:
Permit Registration Documents

APPENDIX G

PERMIT REGISTRATION DOCUMENTS (PRDS)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT – Attachment D)

This Attachment provides an example of the information Dischargers are required to submit in the PRDs via the Storm Water Multiple Application and Report Tracking System (SMARTS). The actual PRD requirements are in Section II of this General Permit.

A. Who Must Submit PRDs

All Dischargers that operate facilities as described in Attachment A of this General Permit are subject to either Notice of Intent (NOI) or No Exposure Certification (NEC) Coverage and shall comply with the PRD requirements in this General Permit.

B. Who Is Not Required to Submit PRDs

Dischargers that operate facilities described below are not required to submit PRDs:

1. Facilities that are not described in Attachment A;
2. Facilities that are described in Attachment A but do not have discharges of storm water associated with industrial activity to waters of the United States; or,
3. Facilities that are already covered by an NPDES permit for discharges of storm water associated with industrial activity.

C. Annual Fees for NOI and NEC Coverage

Annual Fees for NOI and NEC coverage are established through regulations adopted by the State Water Board and are subject to change (see California Code of Regulations, title 23, section 2200 et seq.).

D. When and How to Apply

Dischargers proposing to conduct industrial activities subject to this General Permit must electronically certify and submit PRDs via the Storm Water Multiple Application Reporting and Tracking System (SMARTS)[1] no less than seven (7) days prior to the commencement of industrial activity. Existing Dischargers must submit PRDs for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015.

E. PRD Requirements for NOI Coverage

4. Notice of Intent (NOI) and Signed Electronic Authorization Form.
5. Site Map (Section X.E of this General Permit).
6. Storm Water Pollution Prevention Plan (see Section X of this General Permit).

F. Description of PRDs for NOI Coverage

7. The Notice of Intent (NOI) requires the following information:

a. Operator/Owner Information

Operator/Owner Company or Organization Name Contact
Contact First Name
Contact Last Name
Contact Title
Street Address
Address Line 2
City/State/Zip
Phone (e.g. 999-999-9999)
E-mail (e.g. abc@xyz.com)
Federal Tax ID

b. Facility Information

Facility Name
WDID Number (if applicable)
Contact First Name
Contact Last Name
Contact Title
Street Address
Address Line 2
City, State, Zip
County
Phone (e.g. 999-999-9999)
Emergency Phone (e.g. 999-999-9999)
E-mail (abc@xyz.com)
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Total Percentage Site Imperviousness Area of Facility (Acres)
Total Areas of Industrial Activities and Materials Exposed to Precipitation Primary SIC Code
Secondary SIC Code Tertiary SIC Code Regional Water Board

---

[1] The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <https://smarts.waterboards.ca.gov>. [as of June 26,2013].

a. Billing Information

Billing Name Contact
First Name Contact
Last Name Title
Street Address
Address Line 2
City/State/Zip
Phone (e.g. 999-999-9999)
E-mail (e.g. abc@xyz.com)

b. Receiving Water Information

Does your facility's storm water flow directly or indirectly into waters of the US such as river, lake, ocean, etc. (check box for directly or indirectly)

i. Indirectly to waters of the US
ii. Storm drain system - Enter owner's name:
iii. Directly to waters of the US (e.g., river, lake, creek, stream, bay, ocean, etc.)
iv. Name of the receiving water:

8. The Site Map(s) shall include the following Information:

a. The facility boundary;
b. Storm water drainage areas within the facility boundary;
c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;
d. On-facility surface water bodies;
e. Areas of soil erosion;
f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized Non-Storm Water Discharges (NSWDs);
h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);
j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
k. Locations where materials are directly exposed to precipitation;
l. Locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
m. Areas of industrial activity subject to this General Permit;
n. All storage areas and storage tanks;
o. Shipping and receiving areas;
p. Fueling areas;
q. Vehicle and equipment storage/maintenance areas;
r. Material handling and processing areas;
s. Waste treatment and disposal areas;
t. Dust or particulate generating areas;
u. Cleaning and material reuse areas; and,

v. Any other areas of industrial activity which may have potential pollutant sources.

9. The Storm Water Pollution Prevention Plan (SWPPP) must be prepared in accordance with Section X of this General Permit.
10. A NOI Certification by the Discharger that all PRDs submitted are correct and true.
11. SMARTS Electronic Authorization Form (Signed by any user authorized to certify and submit data electronically).

G. PRD Requirements for NEC Coverage

12. No Exposure Certification and Signed Electronic Authorization Form.
13. No Exposure Certification Checklist Consistent with Requirements in Section XVII.F.2 of this General Permit.
14. Current Site Map Consistent with Requirements in Section X.E of this General Permit.

H. Description of PRDs for NEC Coverage

15. The No Exposure Certification requires the following information:

a. Operator/Owner Information

Operator/Owner Name
Contact First Name
Contact Last Name Title
Street Address
Address Line 2
City/State/Zip
Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
Federal Tax ID

b. Facility Information

Facility Name Contact
First Name Contact
Last Name Title
Street Address
Address Line 2
City
County
Phone Ex (999-999-9999)
Emergency Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Percent of Site Imperviousness (%)
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board

c. Billing Information
Billing Name (if different than Operator/Owner)
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone (e.g. 999-999-9999)
E-mail (e.g. abc@xyz.com)

d. **SMARTS** Electronic **Authorization Form -** Signed by any user authorized to certify and submit data electronically.

e. **Certification by the Discharger** that all PRDs submitted are correct and true and that the conditions of no-exposure have been met.

16. The NEC Checklist (Section XVII.F.2 of this General Permit) must be prepared to demonstrate that, based upon a facility inspection and evaluation, none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

    a. Activities such as using, storing, or cleaning industrial machinery or equipment, and areas with materials or residuals from these activities;
    b. Materials or residuals on the ground or in storm water inlets from spills/leaks;
    c. Materials or products from past industrial activity;
    d. Material handling equipment (except adequately maintained vehicles);
    e. Materials or products during loading/unloading or transporting activities;
    f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
    g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
    h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
    i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters). Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,
    j. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

17. The Site Map(s) shall include the following information (see Section X.E of this General Permit):
    a. The facility boundary;
    b. Storm water drainage areas within the facility boundary;
    c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;
    d. On-facility surface water bodies;
    e. Areas of soil erosion;
    f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
    g. Location(s) of municipal storm drain inlets that may receive the facility's

industrial storm water discharges and authorized NSWDs;

h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);
j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
k. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
l. Areas of industrial activity subject to this General Permit;
m. All storage areas and storage tanks;
n. Shipping and receiving areas;
o. Fueling areas;
p. Vehicle and equipment storage/maintenance areas;
q. Material handling and processing areas;
r. Waste treatment and disposal areas;
s. Dust or particulate generating areas;
t. Cleaning and material reuse areas; and,
u. Any other areas of industrial activity which may have potential pollutant sources.

I. Obtaining Coverage

To obtain coverage under this General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

J. Additional Information

The Water Board may require the submittal of additional information in SMARTS if required to determine the appropriate fee for the facility as specified by the fee regulations.

K. Questions

If you have any questions on completing the PRDs or about SMARTS, please email stormwater@waterboards.ca.gov or call (866) 563-3107.

Appendix H:
SWPPP Amendment Form

SWPPP Amendment Form				
DATE CHANGES MADE	**DESCRIPTION OF CHANGES MADE TO SWPP TO REFLECT SITE CONDITIONS, STROM WATER MANAGEMENT AND MONITORING PROGRAM**	**PAGE, TABLE, MAP (INDICATE WHERE CHANGES WERE MADE)**	**PPT MEMBER MAKING THE CHANGE**	**DATE REVISED SWPPP SENT TO SMARTS***

*Significant changes to the SWPPP must be submitted to SMARTs within 30 day. Minor changes must be submitted every quarter (3 months).

Appendix I:
IGP – Table 2: Parameter NAL Values, Test Methods, and Reporting Units

Table 2 in the Industrial General Permit provides the minimum test methods that shall be used for a variety of common pollutants.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units				
PARAMETER	**TEST METHOD**	**REPORTING UNITS**	**ANNUAL NAL**	**INSTANTANEOUS MAXIMUM NAL**
PH*	**See Section XI.C.2**	**pH units**	**N/A**	**Less than 6.0 Greater than 9.0**
Suspended Solids (TSS)*, Total	**SM 2540-D**	**mg/L**	**100**	**400**
Oil & Grease (O&G)*, Total	**EPA 1664A**	**mg/L**	**15**	**25**
Iron, Total (FE)	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite as Nitrogen (N+N as N)	SM 4500-NO3-E	mg/L as N	0.68	

NOTES:

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition

EPA – U.S. EPA test methods

(H) – Hardness dependent

* Minimum parameters required by this General Permit

**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

*** When testing for Mercury in Impaired Water Bodies, the test method is: EPA 1631

Appendix J:

LIST OF SIGNIFICANT SPILLS AND LEAKS

To be filled out by inspector.

Sampler Name: ___________________

Date: _____________________________

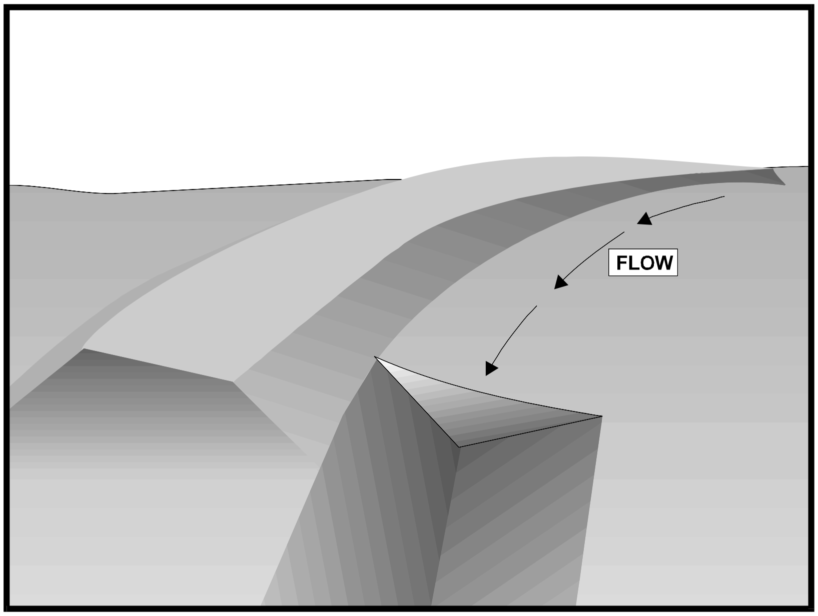
LIST OF SIGNIFICANT SPILLS AND LEAKS								
DATE	LOCATION	DESCRIPTION				RESPONSE PROCEDURE		PREVENTIVE MEASURES TAKEN (description & date)
		TYPE OF MATERIAL	QUANTITY	SOURCE, IF KNOWN	REASON FOR SPILL-LEAK	AMOUNT OF MATERIAL RECOVERED	MATERIAL NO LONGER EXPOSED TO STORMWATER (yes/no)	

NOTE:
1. List all spills and leaks of toxic or hazardous pollutants that were significant after the date of five years prior to the effective date of this permit.
2. Significant spills and leaks should include but are not limited to, release of oil or hazardous substances in excess of reportable quantities.

Appendix K:

BEST MANAGEMENT PRACTICES
BMPs

Earth Dikes and Drainage Swales EC-9



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

Suitable Applications

Earth dikes and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area and conveyed to another.

- Earth dikes and drainage swales may be used:
  - To convey surface runoff down sloping land
  - To intercept and divert runoff to avoid sheet flow over sloped surfaces
  - To divert and direct runoff towards a stabilized watercourse, drainage pipe or channel
  - To intercept runoff from paved surfaces
  - Below steep grades where runoff begins to concentrate
  - Along roadways and facility improvements subject to flood drainage

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

- At the top of slopes to divert runon from adjacent or undisturbed slopes
- At bottom and mid slope locations to intercept sheet flow and convey concentrated flows
- Divert sediment laden runoff into sediment basins or traps

Limitations

Dikes should not be used for drainage areas greater than 10 acres or along slopes greater than 10 percent. For larger areas more permanent drainage structures should be built. All drainage structures should be built in compliance with local municipal requirements.

- Earth dikes may create more disturbed area on site and become barriers to construction equipment.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted stormwater may cause downstream flood damage.
- Dikes should not be constructed of soils that may be easily eroded.
- Regrading the site to remove the dike may add additional cost.
- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local floodplain management requirements.
- Earth dikes/drainage swales are not suitable as sediment trapping devices.
- It may be necessary to use other soil stabilization and sediment controls such as check dams, plastics, and blankets, to prevent scour and erosion in newly graded dikes, swales, and ditches.
- Sediment accumulation, scour depressions, and/or persistent non-stormwater discharges can result in areas of standing water suitable for mosquito production in drainage swales.

Implementation

The temporary earth dike is a berm or ridge of compacted soil, located in such a manner as to divert stormwater to a sediment trapping device or a stabilized outlet, thereby reducing the potential for erosion and offsite sedimentation. Earth dikes can also be used to divert runoff from off site and from undisturbed areas away from disturbed areas and to divert sheet flows away from unprotected slopes.

An earth dike does not itself control erosion or remove sediment from runoff. A dike prevents erosion by directing runoff to an erosion control device such as a sediment trap or directing runoff away from an erodible area. Temporary diversion dikes should not adversely impact adjacent properties and must conform to local floodplain management regulations, and should not be used in areas with slopes steeper than 10%.

Slopes that are formed during cut and fill operations should be protected from erosion by runoff. A combination of a temporary drainage swale and an earth dike at the top of a slope can divert runoff to a location where it can be brought to the bottom of the slope (see EC-11, Slope Drains). A combination dike and swale is easily constructed by a single pass of a bulldozer or grader and compacted by a second pass of the tracks or wheels over the ridge. Diversion structures should be installed when the site is initially graded and remain in place until post construction BMPs are installed and the slopes are stabilized.

Diversion practices concentrate surface runoff, increasing its velocity and erosive force. Thus, the flow out of the drain or swale must be directed onto a stabilized area or into a grade stabilization structure. If significant erosion will occur, a swale should be stabilized using vegetation, chemical treatment, rock rip-rap, matting, or other physical means of stabilization. Any drain or swale that conveys sediment laden runoff must be diverted into a sediment basin or trap before it is discharged from the site.

General

- Care must be applied to correctly size and locate earth dikes, drainage swales. Excessively steep, unlined dikes, and swales are subject to erosion and gully formation.
- Conveyances should be stabilized.
- Use a lined ditch for high flow velocities.
- Select flow velocity based on careful evaluation of the risks due to erosion of the measure, soil types, overtopping, flow backups, washout, and drainage flow patterns for each project site.
- Compact any fills to prevent unequal settlement.
- Do not divert runoff onto other property without securing written authorization from the property owner.
- When possible, install and utilize permanent dikes, swales, and ditches early in the construction process.
- Provide stabilized outlets.

Earth Dikes

Temporary earth dikes are a practical, inexpensive BMP used to divert stormwater runoff. Temporary diversion dikes should be installed in the following manner:

- All dikes should be compacted by earth moving equipment.
- All dikes should have positive drainage to an outlet.
- All dikes should have 2:1 or flatter side slopes, 18 in. minimum height, and a minimum top width of 24 in. Wide top widths and flat slopes are usually needed at crossings for construction traffic.
- The outlet from the earth dike must function with a minimum of erosion. Runoff should be conveyed to a sediment trapping device such as a Sediment Trap (SE-3) or Sediment Basin

(SE-2) when either the dike channel or the drainage area above the dike are not adequately stabilized.

- Temporary stabilization may be achieved using seed and mulching for slopes less than 5% and either rip-rap or sod for slopes in excess of 5%. In either case, stabilization of the earth dike should be completed immediately after construction or prior to the first rain.

- If riprap is used to stabilize the channel formed along the toe of the dike, the following typical specifications apply:

Channel Grade	Riprap Stabilization
0.5-1.0%	4 in. Rock
1.1-2.0%	6 in. Rock
2.1-4.0%	8 in. Rock
4.1-5.0%	8 in. -12 in. Riprap

- The stone riprap, recycled concrete, etc. used for stabilization should be pressed into the soil with construction equipment.

- Filter cloth may be used to cover dikes in use for long periods.

- Construction activity on the earth dike should be kept to a minimum.

Drainage Swales

Drainage swales are only effective if they are properly installed. Swales are more effective than dikes because they tend to be more stable. The combination of a swale with a dike on the downhill side is the most cost effective diversion.

Standard engineering design criteria for small open channel and closed conveyance systems should be used (see the local drainage design manual). Unless local drainage design criteria state otherwise, drainage swales should be designed as follows:

- No more than 5 acres may drain to a temporary drainage swale.

- Place drainage swales above or below, not on, a cut or fill slope.

- Swale bottom width should be at least 2 ft

- Depth of the swale should be at least 18 in.

- Side slopes should be 2:1 or flatter.

- Drainage or swales should be laid at a grade of at least 1 percent, but not more than 15 percent.

- The swale must not be overtopped by the peak discharge from a 10-year storm, irrespective of the design criteria stated above.

- Remove all trees, stumps, obstructions, and other objectionable material from the swale when it is built.
- Compact any fill material along the path of the swale.
- Stabilize all swales immediately. Seed and mulch swales at a slope of less than 5 percent, and use rip-rap or sod for swales with a slope between 5 and 15 percent. For temporary swales, geotextiles and mats (EC-7) may provide immediate stabilization.
- Irrigation may be required to establish sufficient vegetation to prevent erosion.
- Do not operate construction vehicles across a swale unless a stabilized crossing is provided.
- Permanent drainage facilities must be designed by a professional engineer (see the local drainage design criteria for proper design).
- At a minimum, the drainage swale should conform to predevelopment drainage patterns and capacities.
- Construct the drainage swale with a positive grade to a stabilized outlet.
- Provide erosion protection or energy dissipation measures if the flow out of the drainage swale can reach an erosive velocity.

Costs

- Cost ranges from $15 to $55 per ft for both earthwork and stabilization and depends on availability of material, site location, and access.
- Small dikes: $2.50 - $6.50/linear ft; Large dikes: $2.50/yd^3.
- The cost of a drainage swale increases with drainage area and slope. Typical swales for controlling internal erosion are inexpensive, as they are quickly formed during routine earthwork.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect ditches and berms for washouts. Replace lost riprap, damaged linings or soil stabilizers as needed.
- Inspect channel linings, embankments, and beds of ditches and berms for erosion and accumulation of debris and sediment. Remove debris and sediment and repair linings and embankments as needed.
- Temporary conveyances should be completely removed as soon as the surrounding drainage area has been stabilized or at the completion of construction

References

Erosion and Sediment Control Handbook, S.J. Goldman, K. Jackson, T.A. Bursetynsky, P.E., McGraw Hill Book Company, 1986.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Metzger, M.E. 2004. Managing mosquitoes in stormwater treatment devices. University of California Division of Agriculture and Natural Resources, Publication 8125. On-line: http://anrcatalog.ucdavis.edu/pdf/8125.pdf

National Association of Home Builders (NAHB). Stormwater Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers. National Association of Home Builders, Washington, D.C., 1995

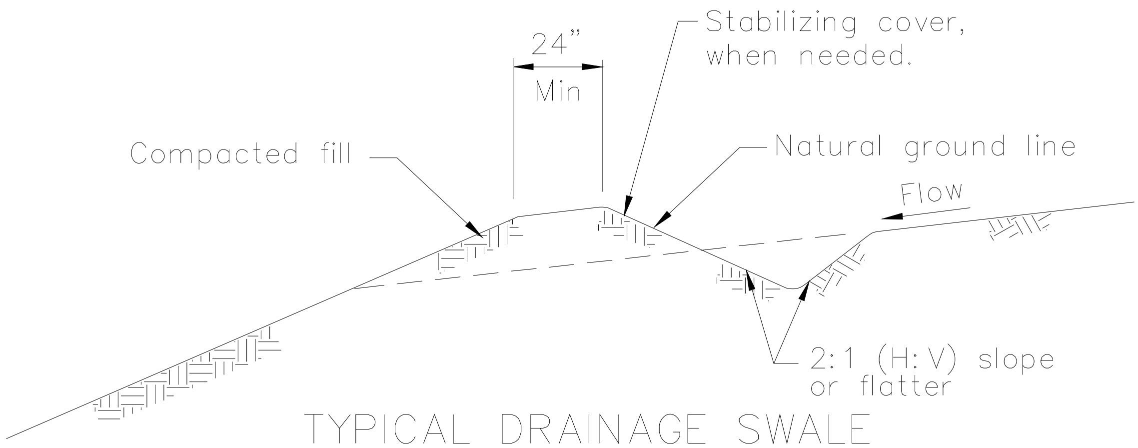
National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Southeastern Wisconsin Regional Planning Commission (SWRPC). Costs of Urban Nonpoint Source Water Pollution Control Measures. Technical Report No. 31. Southeastern Wisconsin Regional Planning Commission, Waukesha, WI. 1991

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

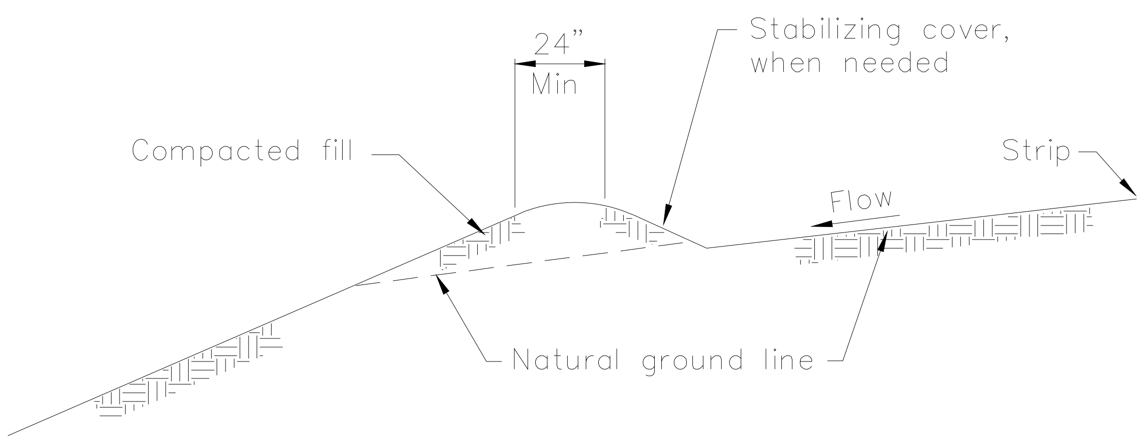
Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.



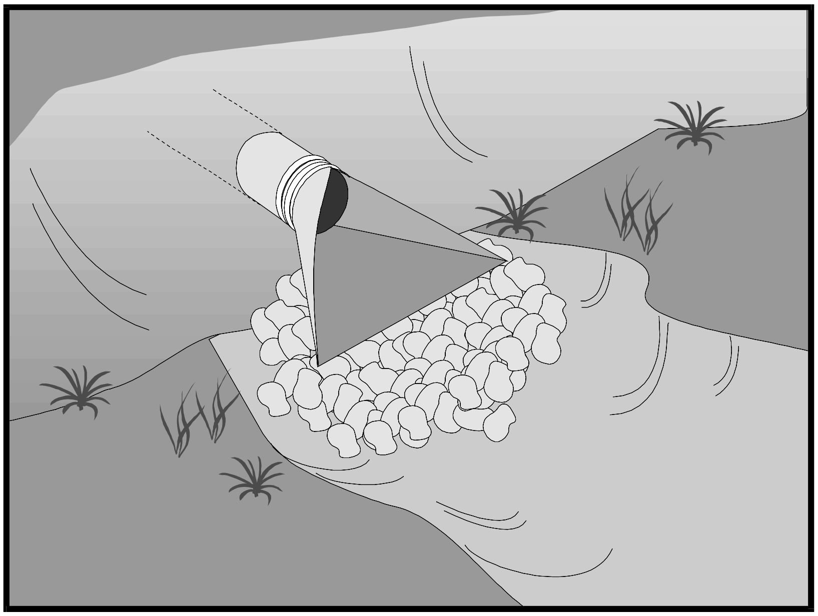
TYPICAL DRAINAGE SWALE
NOT TO SCALE

NOTES:

1. Stabilize inlet, outlets and slopes.
2. Properly compact the subgrade.



TYPICAL EARTH DIKE
NOT TO SCALE



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel to prevent scour of the soil caused by concentrated, high velocity flows.

Suitable Applications

Whenever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This includes temporary diversion structures to divert runon during construction.

- These devices may be used at the following locations:
  - Outlets of pipes, drains, culverts, slope drains, diversion ditches, swales, conduits, or channels.
  - Outlets located at the bottom of mild to steep slopes.
  - Discharge outlets that carry continuous flows of water.
  - Outlets subject to short, intense flows of water, such as flash floods.
  - Points where lined conveyances discharge to unlined conveyances

Limitations

- Large storms or high flows can wash away the rock outlet protection and leave the area susceptible to erosion.

- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock.
- Outlet protection may negatively impact the channel habitat.
- Grouted riprap may break up in areas of freeze and thaw.
- If there is not adequate drainage, and water builds up behind grouted riprap, it may cause the grouted riprap to break up due to the resulting hydrostatic pressure.
- Sediment accumulation, scour depressions, and/or persistent non-stormwater discharges can result in areas of standing water suitable for mosquito production in velocity dissipation devices.

Implementation

General

Outlet protection is needed where discharge velocities and energies at the outlets of culverts, conduits or channels are sufficient to erode the immediate downstream reach. This practice protects the outlet from developing small eroded pools (plange pools), and protects against gully erosion resulting from scouring at a culvert mouth.

Design and Layout

As with most channel design projects, depth of flow, roughness, gradient, side slopes, discharge rate, and velocity should be considered in the outlet design. Compliance to local and state regulations should also be considered while working in environmentally sensitive streambeds. General recommendations for rock size and length of outlet protection mat are shown in the rock outlet protection figure in this BMP and should be considered minimums. The apron length and rock size gradation are determined using a combination of the discharge pipe diameter and estimate discharge rate: Select the longest apron length and largest rock size suggested by the pipe size and discharge rate. Where flows are conveyed in open channels such as ditches and swales, use the estimated discharge rate for selecting the apron length and rock size. Flows should be same as the culvert or channel design flow but never the less than the peak 5 year flow for temporary structures planned for one rainy season, or the 10 year peak flow for temporary structures planned for two or three rainy seasons.

- There are many types of energy dissipaters, with rock being the one that is represented in the attached figure.
- Best results are obtained when sound, durable, and angular rock is used.
- Install riprap, grouted riprap, or concrete apron at selected outlet. Riprap aprons are best suited for temporary use during construction. Grouted or wired tied rock riprap can minimize maintenance requirements.
- Rock outlet protection is usually less expensive and easier to install than concrete aprons or energy dissipaters. It also serves to trap sediment and reduce flow velocities.
- Carefully place riprap to avoid damaging the filter fabric.

Non-Stormwater Discharges SC-10

Description

Non-stormwater discharges (NSWDs) are flows that do not consist entirely of stormwater. Some non-stormwater discharges do not include pollutants and may be discharged to the storm drain if local regulations allow. These include uncontaminated groundwater and natural springs. There are also some non-stormwater discharges that typically do not contain pollutants and may be discharged to the storm drain with conditions. These include: potable water sources, fire hydrant flushing, air conditioner condensate, landscape irrigation drainage and landscape watering, emergency firefighting, etc. as discussed in Section 2.

However there are certain non-stormwater discharges that pose an environmental concern. These discharges may originate from illegal dumping of industrial material or wastes and illegal connections such as internal floor drains, appliances, industrial processes, sinks, and toilets that are illegally connected to the nearby storm drainage system through on-site drainage and piping. These unauthorized discharges (examples of which may include: process waste waters, cooling waters, wash waters, and sanitary wastewater) can carry substances such as paint, oil, fuel and other automotive fluids, chemicals and other pollutants into storm drains.

Non-stormwater discharges will need to be addressed through a combination of detection and elimination. The ultimate goal is to effectively eliminate unauthorized non-stormwater discharges to the stormwater drainage system through implementation of measures to detect, correct, and enforce against illicit connections and illegal discharges of

Objectives

- *Cover*
- *Contain*
- *Educate*
- *Reduce/Minimize*
- *Product Substitution*

Targeted Constituents	
Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	✓
Preventative Maintenance	
Spill and Leak Prevention and Response	✓
Material Handling & Waste Management	
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	✓

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pollutants on streets and into the storm drain system and downstream water bodies.

Approach

Initially the Discharger must make an assessment of non-stormwater discharges to determine which types must be eliminated or addressed through BMPs. The focus of the following approach is the elimination of unauthorized non-stormwater discharges. See other BMP Fact Sheets for activity-specific pollution prevention procedures.

General Pollution Prevention Protocols

- Implement waste management controls described in SC-34 Waste Handling and Disposal.
- Develop clear protocols and lines of communication for effectively prohibiting non-stormwater discharges, especially those that are not classified as hazardous. These are often not responded to as effectively as they need to be.
- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" or similar stenciled or demarcated next to them to warn against ignorant or unintentional dumping of pollutants into the storm drainage system.
- Manage and control sources of water such as hose bibs, faucets, wash racks, irrigation heads, etc. Identify hoses and faucets in the SWPPP, and post signage for appropriate use.

Non-Stormwater Discharge Investigation Protocols

Identifying the sources of non-stormwater discharges requires the Discharger to conduct an investigation of the facility at regular intervals. There are several categories of non-stormwater discharges:

- Visible, easily identifiable discharges, typically generated as surface runoff, such as uncontained surface runoff from vehicle or equipment washing; and
- Non-visible, (e.g., subsurface) discharges into the site drainage system through a variety of pathways that are not obvious.

The approach to detecting and eliminating non-stormwater discharges will vary considerably, as discussed below:

Visible and identifiable discharges

- Conduct routine inspections of the facilities and of each major activity area and identify visible evidence of unauthorized non-stormwater discharges. This may include:
  - ✓ Visual observations of actual discharges occurring;

  - ✓ Evidence of surface staining, discoloring etc. that indicates that discharges have occurred;
  - ✓ Pools of water in low lying areas when a rain event has not occurred; and
  - ✓ Discussions with operations personnel to understand practices that may lead to unauthorized discharges.

- ☐ If evidence of non-stormwater discharges is discovered:
  - ✓ Document the location and circumstances using Worksheets 5 and 6 (Section 2 of the manual), including digital photos;
  - ✓ Identify and implement any quick remedy or corrective action (e.g., moving uncovered containers inside or to a proper location); and
  - ✓ Develop a plan to eliminate the discharge. Consult the appropriate activity-specific BMP Fact Sheet for alternative approaches to manage and eliminate the discharge.
- ☐ Consult the appropriate activity-specific BMP Fact Sheet for alternative approaches to manage and eliminate the discharge. Make sure the facility SWPPP is up-to-date and includes applicable BMPs to address the non-stormwater discharge.

Other Illegal Discharges (Non visible)

Illicit Connections

- ☐ Locate discharges from the industrial storm drainage system to the municipal storm drain system through review of "as-built" piping schematics.
- ☐ Isolate problem areas and plug illicit discharge points.
- ☐ Locate and evaluate discharges to the storm drain system.
- ☐ Visual Inspection and Inventory:
  - ✓ Inventory and inspect each discharge point during dry weather.
  - ✓ Keep in mind that drainage from a storm event can continue for a day or two following the end of a storm and groundwater may infiltrate the underground stormwater collection system.
  - ✓ Non-stormwater discharges are often intermittent and may require periodic inspections.

Review Infield Piping

- ☐ A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system.

- Inspect the path of loading/unloading area drain inlets and floor drains in older buildings.

- Never assume storm drains are connected to the sanitary sewer system.

Monitoring for investigation/detection of illegal discharges

- If a suspected illegal or unknown discharge is detected, monitoring of the discharge may help identify the content and/or suggest the source. This may be done with a field screening analysis, flow meter measurements, or by collecting a sample for laboratory analysis. Section 5 and Appendix D describe the necessary field equipment and procedures for field investigations.

- Investigative monitoring may be conducted over time. For example if, a discharge is intermittent, then monitoring might be conducted to determine the timing of the discharge to determine the source.

- Investigative monitoring may be conducted over a spatial area. For example, if a discharge is observed in a pipe, then monitoring might be conducted at accessible upstream locations in order to pinpoint the source of the discharge.

- Generally, investigative monitoring requiring collection of samples and submittal for lab analysis requires proper planning and specially trained staff.

Smoke Testing

Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two piping systems. Smoke testing is generally performed at a downstream location and the smoke is forced upstream using blowers to create positive pressure. The advantage to smoke testing is that it can potentially identify multiple potential discharge sources at once.

- Smoke testing uses a harmless, non-toxic smoke cartridges developed specifically for this purpose.

- Smoke testing requires specialized equipment (e.g., cartridges, blowers) and is generally only appropriate for specially trained staff.

- A Standard Operating Procedure (SOP) for smoke testing is highly desirable. The SOP should address the following elements:

  - ✓ Proper planning and notification of nearby residents and emergency services is necessary since introducing smoke into the system may result in false alarms;

  - ✓ During dry weather, the stormwater collection system is filled with smoke and then traced back to sources;

- ✓ Temporary isolation of segments of pipe using sand bags is often needed to force the smoke into leaking pipes; and
- ✓ The appearance of smoke in a waste vent pipe, at a sewer manhole, or even the base of a toilet indicates that there may be a connection between the sanitary and storm water systems.

- Most municipal wastewater agencies will have necessary staff and equipment to conduct smoke testing and they should be contacted if cross connections with the sanitary sewer are suspected. See SC-44 Drainage System Maintenance for more information.

Dye Testing

- Dye testing is typically performed when there is a suspected specific pollutant source and location (i.e., leaking sanitary sewer) and there is evidence of dry weather flows in the stormwater collection system.
- Dye is released at a probable upstream source location, either the facility's sanitary or process wastewater system. The dye must be released with a sufficient volume of water to flush the system.
- Operators then visually examine the downstream discharge points from the stormwater collection system for the presence of the dye.
- Dye testing can be performed informally using commercially available products in order to conduct an initial investigation for fairly obvious cross-connections.
- More detailed dye testing should be performed by properly trained staff and follow SOPs. Specialized equipment such as fluorometers may be necessary to detect low concentrations of dye.
- Most municipal wastewater agencies will have necessary staff and equipment to conduct dye testing and they should be contacted if cross connections with the sanitary sewer are suspected.

TV Inspection of Drainage System

- Closed Circuit Television (CCTV) can be employed to visually identify illicit connections to the industrial storm drainage system. Two types of CCTV systems are available: (1) a small specially designed camera that can be manually pushed on a stiff cable through storm drains to observe the interior of the piping, or (2) a larger remote operated video camera on treads or wheels that can be guided through storm drains to view the interior of the pipe.
- CCTV systems often include a high-pressure water jet and camera on a flexible cable. The water jet cleans debris and biofilm off the inside of pipes so the camera can take video images of the pipe condition.

- CCTV units can detect large cracks and other defects such as offsets in pipe ends caused by root intrusions or shifting substrate.

- CCTV can also be used to detect dye introduced into the sanitary sewer.

- CCTV inspections require specialized equipment and properly trained staff and are generally best left to specialized contractors or municipal public works staff.

Illegal Dumping

- Substances illegally dumped on streets and into the storm drain systems and creeks may include paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. These wastes can cause stormwater and receiving water quality problems as well as clog the storm drain system itself.

- Establish a system for tracking incidents. The system should be designed to identify the following:

  - ✓ Illegal dumping hot spots;

  - ✓ Types and quantities (in some cases) of wastes;

  - ✓ Patterns in time of occurrence (time of day/night, month, or year);

  - ✓ Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills);

  - ✓ An anonymous tip/reporting mechanism; and

  - ✓ Evidence of responsible parties (e.g., tagging, encampments, etc.).

- One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people at the facility who are aware of the problem and who have the tools to at least identify the incident, if not correct it. Therefore, train field staff to recognize and report the incidents.

Once a site has been cleaned:

- Post "No Dumping" signs with a phone number for reporting dumping and disposal.

- Landscaping and beautification efforts of hot spots may also discourage future dumping, as well as provide open space and increase property values.

- Lighting or barriers may also be needed to discourage future dumping.

- See fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Inspection

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Conduct field investigations of the industrial storm drain system for potential sources of non-stormwater discharges.
- Pro-actively conduct investigations of high priority areas. Based on historical data, prioritize specific geographic areas and/or incident type for pro-active investigations.

Spill and Leak Prevention and Response

- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.
- See SC-11 Spill Prevention Control and Cleanup.

Employee Training Program

- Training of technical staff in identifying and documenting illegal dumping incidents is required. The frequency of training must be presented in the SWPPP, and depends on site-specific industrial materials and activities.
- Consider posting a quick reference table near storm drains to reinforce training.
- Train employees to identify non-stormwater discharges and report discharges to the appropriate departments.
- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur. Employees should be familiar with the Spill Prevention Control and Countermeasure Plan. Employees should be able to identify work/jobs with high potential for spills and suggest methods to reduce possibility.
- Determine and implement appropriate outreach efforts to reduce non-permissible non-stormwater discharges.

- Conduct spill response drills annually (if no events occurred) in order to evaluate the effectiveness of the plan.

- When a responsible party is identified, educate the party on the impacts of his or her actions.

Quality Assurance and Record Keeping

Performance Evaluation

- Annually review internal investigation results; assess whether goals were met and what changes or improvements are necessary.

- Obtain feedback from personnel assigned to respond to, or inspect for, illicit connections and illegal dumping incidents.

- Develop document and data management procedures.

- A database is useful for defining and tracking the magnitude and location of the problem.

- Report prohibited non-stormwater discharges observed during the course of normal daily activities so they can be investigated, contained, and cleaned up or eliminated.

- Document that non-stormwater discharges have been eliminated by recording tests performed, methods used, dates of testing, and any on-site drainage points observed.

- Annually document and report the results of the program.

- Maintain documentation of illicit connection and illegal dumping incidents, including significant conditionally exempt discharges that are not properly managed.

- Document training activities.

Potential Limitations and Work-Arounds

Some facilities may have space constraints, limited staffing and time limitations that may preclude implementation of BMPs. Provided below are typical limitations and recommended "work-arounds."

- Many facilities do not have accurate, up-to-date 'as-built' plans or drawings which may be necessary in order to conduct non-stormwater discharge assessments.

    - ✓ Online tools such as Google Earth™ can provide an aerial view of the facility and may be useful in understanding drainage patterns and potential sources of non-stormwater discharges

    - ✓ Local municipal jurisdictions may have useful drainage systems maps.

- Video surveillance cameras are commonly used to secure the perimeter of industrial facilities against break-ins and theft. These surveillance systems may also be useful for capturing illegal dumping activities. Minor, temporary adjustments to the field of view of existing surveillance camera systems to target known or suspected problem areas may be a cost-effective way of capturing illegal dumping activities and identifying the perpetrators.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Capital facility cost requirements may be minimal unless cross-connections to storm drains are detected.

- Indoor floor drains may require re-plumbing if cross-connections are detected.

- Leaky sanitary sewers will require repair or replacement which can have significant costs depending on the size and industrial activity at the facility.

Maintenance (including administrative and staffing)

- The primary effort is for staff time and depends on how aggressively a program is implemented.

- Costs for containment, and disposal of any leak or discharge is borne by the Discharger.

- Illicit connections can be difficult to locate especially if there is groundwater infiltration.

- Illegal dumping and illicit connection violations requires technical staff to detect and investigate them.

Supplemental Information

Permit Requirements

The IGP authorizes certain Non-Storm Water Discharges (NSWDs) provided BMPs are included in the SWPPP and implemented to:

- Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;

- Reduce, to the extent practicable, the flow or volume of authorized NSWDs;

- Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards (WQS); and,

- Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability."

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Spill Prevention, Control & Cleanup SC-11

Photo Credit: Geoff Brosseau

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Many activities that occur at an industrial or commercial site have the potential to cause accidental or illegal spills. Preparation for accidental or illegal spills, with proper training and reporting systems implemented, can minimize the discharge of pollutants to the environment.

Spills and leaks are one of the largest contributors of stormwater pollutants. Spill prevention and control plans are applicable to any site at which hazardous materials are stored or used. An effective plan should have spill prevention and response procedures that identify potential spill areas, specify material handling procedures, describe spill response procedures, and provide spill clean-up equipment. The plan should take steps to identify and characterize potential spills, eliminate and reduce spill potential, respond to spills when they occur in an effort to prevent pollutants from entering the stormwater drainage system, and train personnel to prevent and control future spills.

Approach

Pollution Prevention

- Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

- Develop a Spill Prevention Control and Countermeasure (SPCC) Plan. The plan should include:

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

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- Description of the facility, owner and address, activities and chemicals present
- Facility map
- Notification and evacuation procedures
- Cleanup instructions
- Identification of responsible departments
- Identify key spill response personnel

■ Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of process materials that are brought into the facility.

Suggested Protocols (including equipment needs)

Spill Prevention

■ Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

■ If consistent illegal dumping is observed at the facility:

- Post "No Dumping" signs with a phone number for reporting illegal dumping and disposal. Signs should also indicate fines and penalties applicable for illegal dumping.
- Landscaping and beautification efforts may also discourage illegal dumping.
- Bright lighting and/or entrance barriers may also be needed to discourage illegal dumping.

■ Store and contain liquid materials in such a manner that if the tank is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.

■ If the liquid is oil, gas, or other material that separates from and floats on water, install a spill control device (such as a tee section) in the catch basins that collects runoff from the storage tank area.

■ Routine maintenance:

- Place drip pans or absorbent materials beneath all mounted taps, and at all potential drip and spill locations during filling and unloading of tanks. Any collected liquids or soiled absorbent materials must be reused/recycled or properly disposed.
- Store and maintain appropriate spill cleanup materials in a location known to all near the tank storage area; and ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
- Sweep and clean the storage area monthly if it is paved, *do not hose down the area to a storm drain.*

  - Check tanks (and any containment sumps) daily for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating with tanks in good condition. Collect all spilled liquids and properly dispose of them.

- Label all containers according to their contents (e.g., solvent, gasoline).

- Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous).

- Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations).

- Identify key spill response personnel.

Spill Control and Cleanup Activities

- Follow the Spill Prevention Control and Countermeasure Plan.

- Clean up leaks and spills immediately.

- Place a stockpile of spill cleanup materials where it will be readily accessible (e.g., near storage and maintenance areas).

- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste. Physical methods for the cleanup of dry chemicals include the use of brooms, shovels, sweepers, or plows.

- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.

- Chemical cleanups of material can be achieved with the use of adsorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.

- For larger spills, a private spill cleanup company or Hazmat team may be necessary.

Reporting

- Report spills that pose an immediate threat to human health or the environment to the Regional Water Quality Control Board.

- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour).

- Report spills to local agencies, such as the fire department; they can assist in cleanup.

- Establish a system for tracking incidents. The system should be designed to identify the following:

  - Types and quantities (in some cases) of wastes

  - Patterns in time of occurrence (time of day/night, month, or year)

- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)

- Responsible parties

Training

- Educate employees about spill prevention and cleanup.

- Well-trained employees can reduce human errors that lead to accidental releases or spills:

  - The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.

  - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.

- Employees should be educated about aboveground storage tank requirements. Employees responsible for aboveground storage tanks and liquid transfers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.

- Train employees to recognize and report illegal dumping incidents.

Other Considerations (Limitations and Regulations)

- A Spill Prevention Control and Countermeasure Plan (SPCC) is required for facilities that are subject to the oil pollution regulations specified in Part 112 of Title 40 of the Code of Federal Regulations or if they have a storage capacity of 10,000 gallons or more of petroleum. (Health and Safety Code 6.67)

- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.

- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, prohibiting any hard connections to the storm drain.

Requirements

Costs (including capital and operation & maintenance)

- Will vary depending on the size of the facility and the necessary controls.

- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of contaminated soil or water can be quite expensive.

Maintenance (including administrative and staffing)

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs.

Supplemental Information

Further Detail of the BMP

Reporting

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the facility and the effectiveness of BMPs. A good record keeping system helps the facility minimize incident recurrence, correctly respond with appropriate cleanup activities, and comply with legal requirements. A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm sewer. These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

Aboveground Tank Leak and Spill Control

Accidental releases of materials from aboveground liquid storage tanks present the potential for contaminating stormwater with many different pollutants. Materials spilled, leaked, or lost from tanks may accumulate in soils or on impervious surfaces and be carried away by stormwater runoff.

The most common causes of unintentional releases are:

- Installation problems
- Failure of piping systems (pipes, pumps, flanges, couplings, hoses, and valves)
- External corrosion and structural failure
- Spills and overfills due to operator error
- Leaks during pumping of liquids or gases from truck or rail car to a storage tank or vice versa

Storage of reactive, ignitable, or flammable liquids should comply with the Uniform Fire Code and the National Electric Code. Practices listed below should be employed to enhance the code requirements:

- Tanks should be placed in a designated area.
- Tanks located in areas where firearms are discharged should be encapsulated in concrete or the equivalent.
- Designated areas should be impervious and paved with Portland cement concrete, free of cracks and gaps, in order to contain leaks and spills.
- Liquid materials should be stored in UL approved double walled tanks or surrounded by a curb or dike to provide the volume to contain 10 percent of the volume of all of the containers or 110 percent of the volume of the largest container, whichever is greater. The area inside the curb should slope to a drain.
- For used oil or dangerous waste, a dead-end sump should be installed in the drain.
- All other liquids should be drained to the sanitary sewer if available. The drain must have a positive control such as a lock, valve, or plug to prevent release of contaminated liquids.
- Accumulated stormwater in petroleum storage areas should be passed through an oil/water separator.

Maintenance is critical to preventing leaks and spills. Conduct routine inspections and:

- Check for external corrosion and structural failure.
- Check for spills and overfills due to operator error.
- Check for failure of piping system (pipes, pumps, flanger, coupling, hoses, and valves).
- Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.

- Visually inspect new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.
- Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Frequently relocate accumulated stormwater during the wet season.
- Periodically conduct integrity testing by a qualified professional.

Vehicle Leak and Spill Control

Major spills on roadways and other public areas are generally handled by highly trained Hazmat teams from local fire departments or environmental health departments. The measures listed below pertain to leaks and smaller spills at vehicle maintenance shops.

In addition to implementing the spill prevention, control, and clean up practices above, use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- Perform all vehicle fluid removal or changing inside or under cover to prevent the run-on of stormwater and the runoff of spills.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Immediately drain all fluids from wrecked vehicles.
- Store wrecked vehicles or damaged equipment under cover.
- Place drip pans or absorbent materials under heavy equipment when not in use.
- Use adsorbent materials on small spills rather than hosing down the spill.
- Remove the adsorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don’t leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and contaminate stormwater. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.

- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- Design the fueling area to prevent the run-on of stormwater and the runoff of spills:

  - Cover fueling area if possible.

  - Use a perimeter drain or slope pavement inward with drainage to a sump.

  - Pave fueling area with concrete rather than asphalt.

- If dead-end sump is not used to collect spills, install an oil/water separator.

- Install vapor recovery nozzles to help control drips as well as air pollution.

- Discourage "topping-off" of fuel tanks.

- Use secondary containment when transferring fuel from the tank truck to the fuel tank.

- Use adsorbent materials on small spills and general cleaning rather than hosing down the area. Remove the adsorbent materials promptly.

- Carry out all Federal and State requirements regarding underground storage tanks, or install above ground tanks.

- Do not use mobile fueling of mobile industrial equipment around the facility; rather, transport the equipment to designated fueling areas.

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.

- Train employees in proper fueling and cleanup procedures.

Industrial Spill Prevention Response

For the purposes of developing a spill prevention and response program to meet the stormwater regulations, facility managers should use information provided in this fact sheet and the spill prevention/response portions of the fact sheets in this handbook, for specific activities. The program should:

- Integrate with existing emergency response/hazardous materials programs (e.g., Fire Department)

- Develop procedures to prevent/mitigate spills to storm drain systems

- Identify responsible departments

- Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures

- Address spills at municipal facilities, as well as public areas

- Provide training concerning spill prevention, response and cleanup to all appropriate personnel

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Stormwater Managers Resource Center http://www.stormwatercenter.net/

Vehicle & Equipment Fueling SC-20

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Description

Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil and grease, as well as heavy metals to stormwater runoff. Implementing the following management practices can help prevent fuel spills and leaks.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Use properly maintained off-site fueling stations whenever possible. These businesses are better equipped to handle fuel and spills properly.
- Educate employees about pollution prevention measures and goals.
- Focus pollution prevention activities on containment of spills and leaks, most of which may occur during liquid transfers.

Suggested Protocols

General

- "Spot clean" leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.

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- Manage materials and waste to reduce adverse impacts on stormwater quality.
- Label drains within the facility boundary, by paint/stencil (or equivalent), to indicate whether they flow to an oil/water separator, directly to the sewer, or to a storm drain. Labels are not necessary for plumbing fixtures directly connected to the sanitary sewer.
- Post signs to remind employees and customers not to top off the fuel tank when filling and signs that ban customers and employees from changing engine oil or other fluids at that location.
- Report leaking vehicles to fleet maintenance.
- Install inlet catch basin equipped with a small sedimentation basin or grit chamber to remove large particles from stormwater in highly impervious areas.
- Ensure the following safeguards are in place:
  - Overflow protection devices on tank systems to warn the operator to automatically shutdown transfer pumps when the tank reaches full capacity.
  - Protective guards around tanks and piping to prevent vehicle or forklift damage.
  - Clear tagging or labeling of all valves to reduce human error.

Fuel Dispensing Areas

- Maintain clean fuel-dispensing areas using dry cleanup methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills.
- If you periodically clean by washing, place a temporary plug in the downstream drain and pump out the accumulated water. Properly dispose the water. Note: permission from the local sewering agency must be obtained before discharging wash water to the sanitary sewer.
- Fit underground storage tanks with spill containment and overfill prevention systems meeting the requirements of Section 2635(b) of Title 23 of the California Code of Regulations.
- Fit fuel dispensing nozzles with "hold-open latches" (automatic shutoffs) except where prohibited by local fire departments.
- Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against "topping off" of vehicle fuel tanks.
- Design fueling area to prevent stormwater runoff and spills.
- Cover fueling area with an overhanging roof structure or canopy so that precipitation cannot come in contact with the fueling area and use a perimeter drain or slope pavement inward with drainage to sump; pave area with concrete rather than asphalt.
- Where covering is not feasible and the fuel island is surrounded by pavement, apply a suitable sealant that protects the asphalt from spilled fuels.

- Install vapor recovery nozzles to help control drips as well as air pollution.
- Use secondary containment when transferring fuel from the tank truck to the fuel tank.
- Cover storm drains in the vicinity during transfer.

Outdoor Waste Receptacle Area

- Spot clean leaks and drips routinely to prevent runoff of spillage.
- Minimize the possibility of stormwater pollution from outside waste receptacles by doing at least one of the following:
  - Use only watertight waste receptacle(s) and keep the lid(s) closed.
  - Grade and pave the waste receptacle area to prevent run-on of stormwater.
  - Install a roof over the waste receptacle area.
  - Install a low containment berm around the waste receptacle area.
  - Use and maintain drip pans under waste receptacles.
- Post "no littering" signs.

Air/Water Supply Area

- Minimize the possibility of stormwater pollution from air/water supply areas by doing at least one of the following:
  - Spot clean leaks and drips routinely to prevent runoff of spillage.
  - Grade and pave the air/water supply area to prevent run-on of stormwater.
  - Install a roof over the air/water supply area.
  - Install a low containment berm around the air/water supply area.

Inspection

- Aboveground Tank Leak and Spill Control:
  - Check for external corrosion and structural failure.
  - Check for spills and overfills due to operator error.
  - Check for failure of piping system.
  - Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.
  - Visually inspect new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.

  - Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.

  - Periodically, integrity testing should be conducted by a qualified professional.

- Inspect and clean, if necessary, storm drain inlets and catch basins within the facility boundary before October 1 each year.

Training
- Train all employees upon hiring and annually thereafter on proper methods for handling and disposing of waste. Make sure that all employees understand stormwater discharge prohibitions, wastewater discharge requirements, and these best management practices.

- Train employees on proper fueling and cleanup procedures.

- Use a training log or similar method to document training.

- Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.

Spill Response and Prevention
- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.

- Place a stockpile of spill cleanup materials where it will be readily accessible.

- Use adsorbent materials on small spills and general cleaning rather than hosing down the area. Remove the adsorbent materials promptly.

- Store portable absorbent booms (long flexible shafts or barriers made of absorbent material) in unbermed fueling areas.

- Report spills promptly.

- If a dead-end sump is not used to collect spills, install an oil/water separator.

Other Considerations
- Carry out all Federal and State requirements regarding underground storage tanks, or install above ground tanks.

Requirements

Costs
- The retrofitting of existing fueling areas to minimize stormwater exposure or spill runoff can be expensive. Good design must occur during the initial installation.

- Extruded curb along the "upstream" side of the fueling area to prevent stormwater run-on is of modest cost.

Maintenance
- Clean oil/water separators at appropriate intervals.

- Keep ample supplies of spill cleanup materials on-site.
- Inspect fueling areas and storage tanks on a regular schedule.

Supplemental Information

Design Considerations

Designing New Installations

The elements listed below should be included in the design and construction of new or substantially remodeled facilities.

Fuel Dispensing Areas

- Fuel dispensing areas must be paved with Portland cement concrete (or, equivalent smooth impervious surface), with a 2 to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater to the extent practicable. The fuel dispensing area is defined as extending 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less. The paving around the fuel dispensing area may exceed the minimum dimensions of the "fuel dispensing area" stated above.
- The fuel dispensing area must be covered, and the cover's minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area, as defined above. The cover must not drain onto the fuel dispensing area.
- If necessary, install and maintain an oil control device in the appropriate catch basin(s) to treat runoff from the fueling area.

Outdoor Waste Receptacle Area

- Grade and pave the outdoor waste receptacle area to prevent run-on of stormwater to the extent practicable.

Air/Water Supply Area

- Grade and pave the air/water supply area to prevent run-on of stormwater to the extent practicable.

Designated Fueling Area

- If your facility has large numbers of mobile equipment working throughout the site and you currently fuel them with a mobile fuel truck, consider establishing a designated fueling area. With the exception of tracked equipment such as bulldozers and perhaps small forklifts, most vehicles should be able to travel to a designated area with little lost time. Place temporary "caps" over nearby catch basins or manhole covers so that if a spill occurs it is prevented from entering the storm drain.

Examples

The Spill Prevention Control and Countermeasure (SPCC) Plan, which is required by law for some facilities, is an effective program to reduce the number of accidental spills and minimize contamination of stormwater runoff.

The City of Palo Alto has an effective program for commercial vehicle service facilities. Many of the program's elements, including specific BMP guidance and lists of equipment suppliers, are also applicable to industrial facilities.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Best Management Practice Guide for Retail Gasoline Outlets, California Stormwater Quality Task Force. 1997.

Vehicle and Equipment Repair SC-22

Photo Credit: Geoff Brosseau

Description

Vehicle or equipment maintenance and repair are potentially significant sources of stormwater pollution, due to use of harmful materials and wastes during maintenance and repair processes. Engine repair and service (e.g., parts cleaning), replacement of fluids (e.g., oil change), and out door equipment storage and parking (leaking vehicles) can impact water quality if stormwater runoff from areas with these activities becomes polluted by a variety of contaminants. Implementation of the following activities will prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment maintenance and repair activities.

Approach

- Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

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- Minimize use of solvents. Clean parts without using solvents whenever possible, or use water-based solvents for cleaning.
- Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.

Suggested Protocols

General

- Move maintenance and repair activities indoors whenever feasible.
- Store idle equipment under cover
- Use a vehicle maintenance area designed to prevent stormwater pollution - minimize contact of stormwater with outside operations through berming and appropriate drainage routing.
- Avoid hosing down your work areas. If work areas are washed, collect and direct wash water to sanitary sewer. Use dry sweeping if possible.
- Paint signs on storm drain inlets to indicate that they are not to receive liquid or solid wastes.
- Post signs at sinks to remind employees not to pour wastes down drains.
- Clean yard storm drain inlets(s) regularly and especially after large storms.
- Do not pour materials down storm drains.
- Cover the work area to limit exposure to rain.
- Place curbs around the immediate boundaries of process equipment.
- Build a shed or temporary roof over areas where parked cars await repair or salvage, especially wrecked vehicles. Build a roof over vehicles kept for parts.

Material and Waste Handling

- Designate a special area to drain and replace motor oil, coolant, and other fluids, where there are no connections to the storm drain or the sanitary sewer, and drips and spills can be easily cleaned up.
- Drain all fluids immediately from wrecked vehicles. Ensure that the drain pan or drip pan is large enough to contain drained fluids (e.g., larger pans are needed to contain antifreeze, which may gush from some vehicles).
- Do not pour liquid waste to floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- Do not put used or leftover cleaning solutions, solvents, and automotive fluids and in the sanitary sewer.
- Collect leaking or dripping fluids in drip pans or containers. Fluids are easier to recycle if kept separate.

- Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.

- Place oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal since municipalities prohibit or discourage disposal of these items in solid waste facilities. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters. Oil filters disposed of in trashcans or dumpsters can leak oil and contaminate stormwater.

- Store cracked batteries in a non-leaking secondary container and dispose of properly at recycling or household hazardous waste facilities.

Maintenance and Repair Activities

- Provide a designated area for vehicle maintenance.

- Keep equipment clean; don't allow excessive build-up of oil and grease.

- Use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture all spills and drips if temporary work is being conducted outside. Collected drips and spills must be disposed, reused, or recycled properly.

- Perform all vehicle fluid removal or changing inside or under cover if possible to prevent the run-on of stormwater and the runoff of spills:

  - Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, or remove other parts. Use a drip pan under any vehicle that might leak while working on it to keep splatters or drips off the shop floor.

  - Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.

  - Keep drip pans or containers under vehicles or equipment that may drip during repairs.

  - Do not change motor oil or perform equipment maintenance in non-appropriate areas.

- Drain oil and other fluids first if the vehicle or equipment is to be stored outdoors.

- Monitor parked vehicles closely for leaks. Pans should be placed under any leaks to collect the fluids for proper disposal or recycling.

- Use one of the following for lubricating vehicle-trailer coupling:

  - Adhesive lubricant

  - Plastic plates

  - Fifth wheels with plastic inserts

  - On-Board lubricating system

Parts Cleaning

- Mechanics should clean vehicle parts without using liquid cleaners wherever possible to reduce waste.
- Steam cleaning and pressure washing may be used instead of solvent parts cleaning. The wastewater generated from steam cleaning must be discharged to an on-site oil water separator that is connected to a sanitary sewer or blind sump. Non-caustic detergents should be used instead of caustic cleaning agents, detergent-based or water-based cleaning systems in place of organic solvent degreasers, and non-chlorinated solvent in place of chlorinated organic solvents for parts cleaning. Refer to SC21 for more information on steam cleaning.

Inspection

- Inspect vehicles and equipment for leaks regularly and repair immediately.
- Make sure incoming vehicles are checked for leaking oil and fluids. Do not allow leaking vehicles or equipment on-site.

Training

- Train employees and contractors in the proper handling and disposal of engine fluids and waste materials.
- Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures (You can use reusable cloth rags to clean up small drips and spills instead of disposables; these can be washed by a permitted industrial laundry. Do not clean them at home or at a coin-operated laundry business). Employees should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place an adequate stockpile of spill cleanup materials where it will be readily accessible.
- Clean leaks, drips, and other spills with as little water as possible. Use rags for small spills, a damp mop for general cleanup, and dry absorbent material for larger spills. Use the following three-step method for cleaning floors:
    - Clean spills with rags or other absorbent materials
    - Sweep floor using dry absorbent material
    - Mop the floor. Mop water may be discharged to the sanitary sewer via a toilet or sink.
- Remove the adsorbent materials promptly and dispose of properly when using adsorbent materials on small spills.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all work from being conducted indoors.
- It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours.
- Drain pans (usually 1 ft. x 1 ft.) are generally too small to contain antifreeze, so drip pans (3 ft. x 3 ft.) may have to be purchased or fabricated.
- Dry floor cleaning methods may not be sufficient for some spills. Use three-step method instead.
- Identification of engine leaks may require some use of solvents.
- Installation of structural treatment practices for pretreatment of wastewater discharges can be expensive.
- Prices for recycled materials and fluids may be higher than those of non-recycled materials.
- Some facilities may be limited by a lack of providers of recycled materials, and by the absence of businesses to provide services such as hazardous waste removal, structural treatment practice maintenance, or solvent equipment and solvent recycling.

Requirements

Costs

- Costs should be low, but will vary depending on the size of the facility.

Maintenance

- For facilities responsible for pre-treating their wastewater prior to discharging, the proper functioning of structural treatment practices is an important maintenance consideration. Routine cleanout of oil and grease is required for the devices to maintain their effectiveness, usually at least once a month. During periods of heavy rainfall, cleanout is required more often to ensure pollutants are not washed through the trap. Sediment removal is also required on a regular basis to keep the device working efficiently.
- It is important to sweep the maintenance area weekly, if it is paved, to collect loose particles, and wipe up spills with rags and other absorbent material immediately. Do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, 1,1,1-trichloroethane or methylene chloride. Many of these cleaners are harmful and must be disposed of as a hazardous waste. Cleaning without using liquid cleaners (e.g., wire brush) whenever possible reduces waste. Prevent spills and drips of solvents and cleansers to the shop floor. Do all liquid cleaning at a centralized station so the solvents and residues stay in one area. Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents.

- Clean parts without using liquid cleaners whenever possible to reduce waste.
- Prevent spills and drips of solvents and cleansers to the shop floor.
- Do all liquid cleaning at a centralized station so the solvents and residues stay in one area.
- Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

Recycling

Separating wastes allows for easier recycling and may reduce treatment costs. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents (e.g., 1,1,1-trichloroethane) separate from non-chlorinated solvents (e.g., kerosene and mineral spirits).

Many products made of recycled (i.e., refined or purified) materials are available. Engine oil, transmission fluid, antifreeze, and hydraulic fluid are available in recycled form. Buying recycled products supports the market for recycled materials.

- Recycling is always preferable to disposal of unwanted materials.
- Separate wastes for easier recycling. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents separate from non-chlorinated solvents.
- Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).
- Purchase recycled products to support the market for recycled materials.

Vehicle-Trailer Lubrication

Fifth-wheel bearings on trucks require routine lubrication. Typically chassis grease is applied to the fifth-wheel bearing at rates that result in grease dripping off of the bearing into the environment. To address this concern the following options are available:

- Use adhesive lubricant. Follow manufacturer's label regarding the use of adhesive lubricant for truck fifth-wheels. Typically this means applying no more than 6 oz. of grease. No visible extrusion of lubricant from the fifth-wheel bearing when truck and trailer are connected should be present.
- Use plastic plates oil on fifth-wheels with plastic inserts.
- Use on-board truck or on-board trailer lubrication system. If these systems apply lube thinner than National Grease Lubrication Institute #2, equipment for collection of used lubricant is needed to prevent excess lubricant from dripping off the truck.

Safer Alternatives

If possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous material:

- Use non-caustic detergents instead of caustic cleaning for parts cleaning.
- Use detergent-based or water-based cleaning systems in place of organic solvent degreasers. Wash water may require treatment before it can be discharged to the sewer.
- Replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check list of active ingredients to see whether it contains chlorinated solvents.
- Choose cleaning agents that can be recycled.

Examples

- Pick N Pull Auto Dismantlers in Rancho Cordova drains all fluids from automobiles before they enter the yard.
- Ecology Auto Wrecking in Rialto is surrounded by a steel plate/concrete fence and has a completely paved lot that is graded to a central low point. Collected stormwater is channeled through an underground drainage system of clarifiers and then stored in a 60,000 gallon UST before being processed through a filter system. In addition, the work area is covered, ventilated and has an additional sump. Vehicle fluids are drained in this area and segregated for recycling.
- All Auto Parts, Fontana, has a complete water recycling system in a 10,000 square foot concrete slab surrounded by a curb that contains all the runoff and sends it to the recycling system. All receiving, dismantling, and shipping occur on the slab.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/E

Outdoor Equipment Operations SC-32

Description

Outside process equipment operations and maintenance can contaminate stormwater runoff. Activities, such as grinding, painting, coating, sanding, degreasing or parts cleaning, landfills and waste piles, solid waste treatment and disposal, are examples of process operations that can lead to contamination of stormwater runoff. Source controls for outdoor process equipment operations and maintenance include reducing the amount of waste created, enclosing or covering all or some of the equipment, installing secondary containment, and training employees.

Approach

Pollution Prevention

- Perform the activity during dry periods.
- Use non-toxic chemicals for maintenance and minimize or eliminate the use of solvents.

Suggested Protocols

- Consider enclosing the activity in a building and connecting the floor drains to the sanitary sewer.
- Cover the work area with a permanent roof if possible.
- Minimize contact of stormwater with outside process equipment operations through berming and drainage routing (run-on prevention). If possible, connect process equipment area to public sewer or facility wastewater treatment system. Some municipalities require that secondary containment areas be connected to the sanitary sewer, prohibiting any hard connections to the storm drain.
- Dry clean the work area regularly.

Training

- Train employees to perform the activity during dry periods only or substituting benign materials for more toxic ones.
- Train employee and contractors in proper techniques for spill containment and cleanup. Employees should have the tools and knowledge to immediately begin cleaning up a spill should one occur.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Targeted Constituents

Sediment	✓
Nutrients	
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

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- Have employees trained in emergency spill cleanup procedures present when dangerous waste, liquid chemicals, or other wastes are delivered.

- Place a stockpile of spill cleanup materials where it will be readily accessible.

- Prevent operator errors by using engineering safe guards and thus reducing accidental releases of pollutant.

- Inspect storage areas regularly for leaks or spills. Also check for structural failure, spills and overfills due to operator error, and/or failure of piping system.

Other Considerations

- Providing cover may be expensive.

- Space limitations may preclude enclosing some equipment.

- Storage sheds often must meet building and fire code requirements.

Requirements

Costs

Costs vary depending on the complexity of the operation and the amount of control necessary for stormwater pollution control.

Maintenance

- Conduct routine preventive maintenance, including checking process equipment for leaks.

- Clean the storm drain system regularly.

Supplemental Information

Further Detail of the BMP

Hydraulic/Treatment Modifications

If stormwater becomes polluted, it should be captured and treated. If you do not have your own process wastewater treatment system, consider discharging to the public sewer system. Use of the public sewer might be allowed under the following conditions:

- If the activity area is very small (less than a few hundred square feet), the local sewer authority may be willing to allow the area to remain uncovered with the drain connected to the public sewer.

- It may be possible under unusual circumstances to connect a much larger area to the public sewer, as long as the rate of stormwater discharges does not exceed the capacity of the wastewater treatment plant. The stormwater could be stored during the storm and then transferred to the public sewer when the normal flow is low, such as at night.

Industries that generate large volumes of process wastewater typically have their own treatment system and corresponding permit. These industries have the discretion to use their wastewater treatment system to treat stormwater within the constraints of their permit requirements for process treatment. It may also be possible for the industry to discharge the stormwater directly to an effluent outfall without treatment as long as the total loading of the discharged process water and stormwater does not exceed the loading had a stormwater treatment device been used. This could be achieved by reducing the loading from the process wastewater treatment system. Check with your Regional Water Quality Control Board or local sewering agency, as this option would be subject to permit constraints and potentially regular monitoring.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Stormwater Managers Resource Center http://www.stormwatercenter.net

Waste Handling & Disposal SC-34

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Approach

Pollution Prevention

- Accomplish reduction in the amount of waste generated using the following source controls:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

California Stormwater Quality Association

Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.

- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.

- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.

- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.

- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.

- Transfer waste from damaged containers into safe containers.

- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post “No Littering” signs and enforce anti-litter laws.

- Provide a sufficient number of litter receptacles for the facility.

- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.

- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.

- Secure solid waste containers; containers must be closed tightly when not in use.

- Do not fill waste containers with washout water or any other liquid.

- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.

- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training
- Train staff in pollution prevention measures and proper disposal methods.
- Train employees and contractors in proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention
- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations (Limitations and Regulations)
Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs
Capital and O&M costs for these programs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance
- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP
Land Treatment System
Minimize runoff of polluted stormwater from land application by:

- Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, and there is a closed drainage system

- Avoiding application of waste to the site when it is raining or when the ground is saturated with water
- Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site
- Maintaining adequate barriers between the land application site and the receiving waters (planted strips are particularly good)
- Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins
- Performing routine maintenance to ensure the erosion control or site stabilization measures are working

Examples

The port of Long Beach has a state-of-the-art database for identifying potential pollutant sources, documenting facility management practices, and tracking pollutants.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual http://www.co.clark.wa.us/pubworks/bmpman.pdf

Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety. Harvard University. 2002.

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Contaminated or Erodible Areas SC-40

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Description

Areas within an industrial site that are bare of vegetation or are subject to activities that promote the suppression of vegetation are often subject to erosion. In addition, they may or may not be contaminated from past or current activities. If the area is temporarily bare because of construction, see SC-42, Building Repair, Remodeling, and Construction. Sites with excessive erosion or the potential for excessive erosion should consider employing the soil erosion BMPs identified in the Construction BMP Handbook. Note that this fact sheet addresses soils that are not so contaminated as to exceed hazardous waste criteria (see Title 22 California Code of Regulations for Hazardous Waste Criteria).

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

Preserve natural vegetation whenever possible. See also EC-2, Preservation of Existing Vegetation, in the Construction BMP Handbook.

Suggested Protocols

- Preserve natural vegetation.
- Analyze soil conditions.
- Re-vegetate when necessary.
- Remove contaminated soil.
- Utilize chemical stabilization when needed. See also EC-5, Soil Binders, and EC-13, Polyacrylamide, in the Construction BMP Handbook.
- Use geosynthetic membranes to control erosion if feasible. See also EC-7, Geotextiles and Mats, in the Construction BMP Handbook.

Training

Training is not a significant element of this best management practice.

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Other Considerations

- Disadvantages of preserving natural vegetation or revegetation include:
  - Requires substantial planning to preserve and maintain the existing vegetation
  - May not be cost-effective with high land costs
  - Lack of rainfall, inadequate irrigation and/or poor soils may limit the success of re-vegetated areas
- Disadvantages of chemical stabilization include:
  - Creation of impervious surfaces
  - May cause harmful effects on water quality
  - Is usually more expensive than vegetative cover

Requirements

Costs

Except for preservation of natural vegetation, each of the above solutions can be quite expensive depending upon the size of the area.

Maintenance

Maintenance should be minimal, except possibly if irrigation of vegetation is necessary.

Supplemental Information

Preserving Vegetation to Minimize Erosion

Preserving stabilized areas minimizes erosion potential, protects water quality, and provides aesthetic benefits. The most effective way to control erosion is to preserve existing vegetation. Preservation of natural vegetation provides a natural buffer zone and an opportunity for infiltration of stormwater and capture of pollutants in the soil matrix. This practice can be used as a permanent source control measure.

Vegetation preservation should be incorporated into the site. Preservation requires good site management to minimize the impact of construction when construction is underway and exposure of soils after construction. Proper maintenance is important to ensure healthy vegetation that can control erosion. Different species, soil types, and climatic conditions will require different maintenance activities such as mulching, fertilizing, liming, irrigation, pruning and weed and pest control. Maintenance should be performed regularly especially during construction phases.

The preferred approach is to leave as much native vegetation on-site as possible, thereby reducing or eliminating any erosion problem. However, assuming the site already has contaminated or erodible surface areas, there are four possible courses of action which can be taken:

- The area can be revegetated if it is not in use and therefore not subject to damage from site activities. In as much as the area is already devoid of vegetation, special measures are likely necessary. Lack of vegetation may be due to the lack of water and/or poor soils. The latter can perhaps be solved with fertilization, or the ground may simply be too compacted from prior use. Improving soil conditions may be sufficient to support the recovery of vegetation. Use process wastewater for irrigation if possible. Finally, see the Construction BMP Handbook for further procedures on establishing vegetation.

- Chemical stabilization can be used as an alternate method in areas where temporary seeding practices cannot be used because of season or climate. It can provide immediate, effective, and inexpensive erosion control. Application rates and procedures recommended by the manufacturer should be followed as closely as possible to prevent the products from forming ponds and creating large areas where moisture cannot penetrate the soil. See also EC-5, Soil Binders, and EC-13, Polyacrylamide, in the Construction BMP Handbook for more information. Advantages of chemical stabilization include:

  - Applied easily to the surface
  - Stabilizes areas effectively
  - Provides immediate protection to soils that are in danger of erosion

- Contaminated soils can be removed, however this is a last resort and quite expensive. The level and extent of the contamination must be determined. This determination and removal must comply with State and Federal regulations, permits must be acquired and fees paid.

- Geosynthetics may be used. Geosynthetics include those materials that are designed as an impermeable barrier to contain or control large amounts of liquid or solid matter. Geosynthetics have been developed primarily for use in landfills and surface impoundments, and the technology is well established. There are two general types of geosynthetics: geomembranes (impermeable) and geotextiles (permeable). Geomembranes are composed of one of three types of impermeable materials: elastomers (rubbers), thermoplasics (plastics), or a combination of these two types of materials. See also EC-7, Geotextiles and Mats, in the Construction BMP Handbook for more information. The advantages of these materials include:

  - A variety of compounds are available
  - Sheeting is produced in a factory environment
  - Polymeric membranes are flexible
  - Installation is simple

  Disadvantages include:

  - Chemical resistance must be determined for each application
  - Seaming systems may be a weak link in the system
  - Many materials are subject to attack from biotic, mechanical, or environmental sources

Geotextiles are uncoated synthetic textile products that are not watertight. They are composed of a variety of materials, most commonly polypropylene and polyester. Geotextiles serve five basic functions:

- Filtration
- Drainage
- Separation
- Reinforcement
- Armoring

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Parking/Storage Area Maintenance SC-43

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The protocols in this fact sheet are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

The goal of this program is to ensure stormwater pollution prevention practices are considered when conducting activities on or around parking areas and storage areas to reduce potential for pollutant discharge to receiving waters. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook)
- Keep accurate maintenance logs to evaluate BMP implementation.

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Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low quantities.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Discharge soapy water remaining in mop or wash buckets to the sanitary sewer through a sink, toilet, clean-out, or wash area with drain.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel, and dispose of litter in the trash.

Surface Cleaning

- Use dry cleaning methods (e.g., sweeping, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- Follow the procedures below if water is used to clean surfaces:
  - Block the storm drain or contain runoff.
  - Collect and pump wash water to the sanitary sewer or discharge to a pervious surface. Do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- Follow the procedures below when cleaning heavy oily deposits:
  - Clean oily spots with absorbent materials.
  - Use a screen or filter fabric over inlet, then wash surfaces.

- Do not allow discharges to the storm drain.
- Vacuum/pump discharges to a tank or discharge to sanitary sewer.
- Appropriately dispose of spilled materials and absorbents.

Surface Repair

- Preheat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets where applicable (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.
- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of parking facilities and stormwater conveyance systems associated with parking facilities on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up fluid spills immediately with absorbent rags or material.
- Dispose of spilled material and absorbents properly.

Other Considerations

Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

SC-43 Parking/Storage Area Maintenance

Requirements

Costs

Cleaning/sweeping costs can be quite large. Construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot regularly to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities regularly to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Only use only as much water as is necessary for dust control to avoid runoff.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org/

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Road and Street Maintenance SC-70

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. Use of the procedures outlined below, that address street sweeping and repair, bridge and structure maintenance, and unpaved roads will reduce pollutants in stormwater.

Approach

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.

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- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
  - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
  - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
  - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
  - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
  - Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
  - Develop and distribute flyers notifying residents of street sweeping schedules.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance

Pavement marking

- Schedule pavement marking activities for dry weather.

- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- Use water based paints whenever possible. If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete installation and repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, resurfacing, and surface sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses. During wet weather, cover stockpiles with plastic tarps or berm around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer or load hot bituminous material away from drainage systems or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for clean up and proper disposal of excess materials.
- Use only as much water as necessary for dust control, to avoid runoff.
- Sweep, never hose down streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment cleaning maintenance and storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

Bridge and Structure Maintenance

Paint and Paint Removal

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.

- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water, and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area. If such an area is not available, filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles, and debris out of storm drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets; a comma straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales staked in place.

Non-Stormwater Discharges

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Refer to SC-10 Non-Stormwater Discharges
- Identify location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require parking regulations to clear streets for cleaning.
- No currently available conventional sweeper is effective at removing oil and grease. Mechanical sweepers are not effective at removing finer sediments.
- Limitations may arise in the location of new bridges. The availability and cost of land and other economic and political factors may dictate where the placement of a new bridge will occur. Better design of the bridge to control runoff is required if it is being placed near sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between $60,000 and $120,000. Newer technologies might have prices approaching $180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
  - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
  - Traffic control officers may be required to enforce parking restrictions.
  - Skillful design of cleaning routes is required for program to be productive.
  - Arrangements must be made for disposal of collected wastes.

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information

Further Detail of the BMP

Street sweeping

There are advantages and disadvantages to the two common types of sweepers. The best choice depends on your specific conditions. Many communities find it useful to have a compliment of both types in their fleet.

Mechanical Broom Sweepers - More effective at picking up large debris and cleaning wet streets. Less costly to purchase and operate. Create more airborne dust.

Vacuum Sweepers - More effective at removing fine particles and associated heavy metals. Ineffective at cleaning wet streets. Noisier than mechanical broom sweepers which may restrict areas or times of operation. May require an advance vehicle to remove large debris.

Street Flushers - Not affected by biggest interference to cleaning, parked cars. May remove finer sediments, moving them toward the gutter and stormwater inlets. For this reason, flushing fell out of favor and is now used primarily after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM10). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

- Design new bridges to avoid the use of scupper drains and route runoff to land for treatment control. Existing scupper drains should be cleaned on a regular basis to avoid sediment/debris accumulation.
- Reduce the discharge of pollutants to surface waters during maintenance by using suspended traps, vacuums, or booms in the water to capture paint, rust, and paint removing agents. Many of these wastes may be hazardous. Properly dispose of this waste by referring to CA21 (Hazardous Waste Management) in the Construction Handbook.
- Train employees and subcontractors to reduce the discharge of wastes during bridge maintenance.

De-icing

- Do not over-apply deicing salt and sand, and routinely calibrate spreaders.
- Near reservoirs, restrict the application of deicing salt and redirect any runoff away from reservoirs.
- Consider using alternative deicing agents (less toxic, biodegradable, etc.).

References and Resources

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Excerpt - Fact Sheet SE-2 Sediment Basin

Stormwater Best Management Practice
Handbook Portal: **Construction**

CASQA
CALIFORNIA STORMWATER
QUALITY ASSOCIATION®

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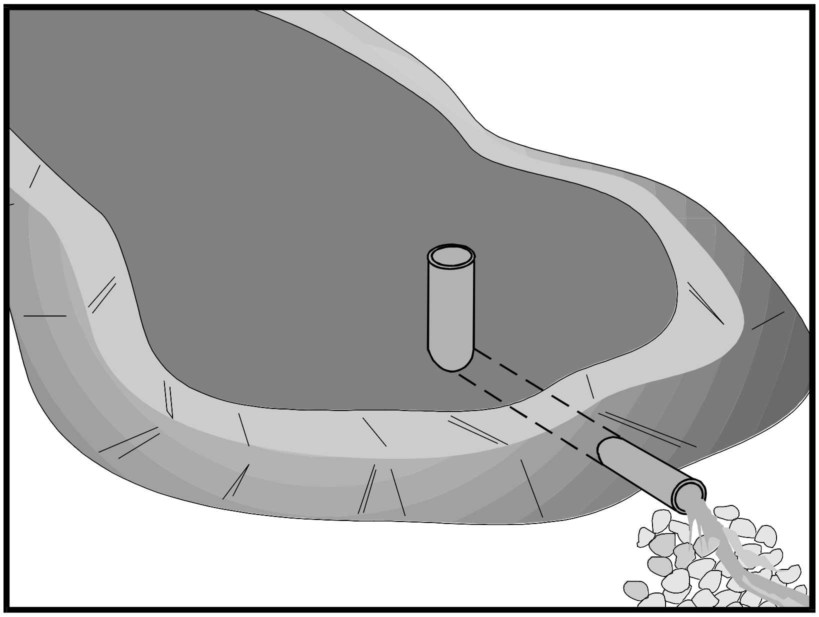
Sediment Basin SE-2



Description and Purpose

A sediment basin is a temporary basin formed by excavation or by constructing an embankment so that sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out before the runoff is released.

Sediment basin design guidance presented in this fact sheet is intended to provide options, methods, and techniques to optimize temporary sediment basin performance and basin sediment removal. Basin design guidance provided in this fact sheet is not intended to guarantee basin effluent compliance with numeric discharge limits (numeric action levels or numeric effluent limits for turbidity). Compliance with discharge limits requires a thoughtful approach to comprehensive BMP planning, implementation, and maintenance. Therefore, optimally designed and maintained sediment basins should be used in conjunction with a comprehensive system of BMPs that includes:

- Diverting runoff from undisturbed areas away from the basin
- Erosion control practices to minimize disturbed areas on-site and to provide temporary stabilization and interim sediment controls (e.g., stockpile perimeter control, check dams, perimeter controls around individual lots) to reduce the basin's influent sediment concentration.

At some sites, sediment basin design enhancements may be required to adequately remove sediment. Traditional

Categories

EC	Erosion Control	
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-3 Sediment Trap (for smaller areas)

(a.k.a. "physical") enhancements such as alternative outlet configurations or flow deflection baffles increase detention time and other techniques such as outlet skimmers preferentially drain flows with lower sediment concentrations. These "physical" enhancement techniques are described in this fact sheet. To further enhance sediment removal particularly at sites with fine soils or turbidity sensitive receiving waters, some projects may need to consider implementing Active Treatment Systems (ATS) whereby coagulants and flocculants are used to enhance settling and removal of suspended sediments. Guidance on implementing ATS is provided in SE-11.

Suitable Applications

Sediment basins may be suitable for use on larger projects with sufficient space for constructing the basin. Sediment basins should be considered for use:

- Where sediment-laden water may enter the drainage system or watercourses
- On construction projects with disturbed areas during the rainy season
- At the outlet of disturbed watersheds between 5 acres and 75 acres and evaluated on a site by site basis
- Where post construction detention basins are required
- In association with dikes, temporary channels, and pipes used to convey runoff from disturbed areas

Limitations

Sediment basins must be installed only within the property limits and where failure of the structure will not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities. In addition, sediment basins are attractive to children and can be very dangerous. Local ordinances regarding health and safety must be adhered to. If fencing of the basin is required, the type of fence and its location should be shown in the SWPPP and in the construction specifications.

- As a general guideline, sediment basins are suitable for drainage areas of 5 acres or more, but not appropriate for drainage areas greater than 75 acres. However, the tributary area should be evaluated on a site by site basis.
- Sediment basins may become an "attractive nuisance" and care must be taken to adhere to all safety practices. If safety is a concern, basin may require protective fencing.
- Sediment basins designed according to this fact sheet are only effective in removing sediment down to about the silt size fraction. Sediment-laden runoff with smaller size fractions (fine silt and clay) may not be adequately treated unless chemical (or other appropriate method) treatment is used in addition to the sediment basin.
- Basins with a height of 25 ft or more or an impounding capacity of 50 ac-ft or more must obtain approval from California Department of Water Resources Division of Safety of Dams (http://www.water.ca.gov/damsafety/).

- Water that stands in sediment basins longer than 96 hours may become a source of mosquitoes (and midges), particularly along perimeter edges, in shallow zones, in scour or below-grade pools, around inlet pipes, along low-flow channels, and among protected habitats created by emergent or floating vegetation (e.g. cattails, water hyacinth), algal mats, riprap, etc.

- Basins require large surface areas to permit settling of sediment. Size may be limited by the available area.

Implementation

General

A sediment basin is a controlled stormwater release structure formed by excavation or by construction of an embankment of compacted soil across a drainage way, or other suitable location. It is intended to trap sediment before it leaves the construction site. The basin is a temporary measure expected to be used during active construction in most cases and is to be maintained until the site area is permanently protected against erosion or a permanent detention basin is constructed.

Sediment basins are suitable for nearly all types of construction projects. Whenever possible, construct the sediment basins before clearing and grading work begins. Basins should be located at the stormwater outlet from the site but not in any natural or undisturbed stream. A typical application would include temporary dikes, pipes, and/or channels to convey runoff to the basin inlet.

Many development projects in California are required by local ordinances to provide a stormwater detention basin for post-construction flood control, desilting, or stormwater pollution control. A temporary sediment basin may be constructed by rough grading the post-construction control basins early in the project.

Sediment basins if properly designed and maintained can trap a significant amount of the sediment that flows into them. However, traditional basins do not remove all inflowing sediment. Therefore, they should be used in conjunction with erosion control practices such as temporary seeding, mulching, diversion dikes, etc., to reduce the amount of sediment flowing into the basin.

Planning

To improve the effectiveness of the basin, it should be located to intercept runoff from the largest possible amount of disturbed area. Locations best suited for a sediment basin are generally in lower elevation areas of the site (or basin tributary area) where site drainage would not require significant diversion or other means to direct water to the basin but outside jurisdictional waterways. However, as necessary, drainage into the basin can be improved by the use of earth dikes and drainage swales (see BMP EC-9). . The basin should not be located where its failure would result in the loss of life or interruption of the use or service of public utilities or roads.

Construct before clearing and grading work begins when feasible.

- Do not locate the basin in a jurisdictional stream.

- Basin sites should be located where failure of the structure will not cause loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities.
- Basins with a height of 25 ft or more or an impounding capacity of 50 ac-ft must obtain approval from the Division of Dam Safety. Local dam safety requirements may be more stringent.
- Limit the contributing area to the sediment basin to only the runoff from the disturbed soil areas. Use temporary concentrated flow conveyance controls to divert runoff from undisturbed areas away from the sediment basin.
- The basin should be located: (1) by excavating a suitable area or where a low embankment can be constructed across a swale, (2) where post-construction (permanent) detention basins will be constructed, and (3) where the basins can be maintained on a year-round basis to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area, and to maintain the basin to provide the required capacity.

Design

When designing a sediment basin, designers should evaluate the site constraints that could affect the efficiency of the BMP. Some of these constraints include: the relationship between basin capacity, anticipated sediment load, and freeboard, available footprint for the basin, maintenance frequency and access, and hydraulic capacity and efficiency of the temporary outlet infrastructure. Sediment basins should be designed to maximize sediment removal and to consider sediment load retained by the basin as it affects basin performance.

Three Basin Design Options (Part A) are presented below along with a Typical Sediment/Detention Basin Design Methodology (Part B). Regardless of the design option that is selected, designers also need to evaluate the sediment basin capacity with respect to sediment accumulation (See "*Step 3. Evaluate the Capacity of the Sediment Basin"),* and should incorporate approaches identified in "*Step 4. Other Design Considerations*" to enhance basin performance.

A) Basin Design Options:

Option 1:

Design sediment basin(s) using the standard equation:

$$A_s = \frac{1.2Q}{V_s} \qquad \text{(Eq. 1)}$$

Where:

A_s = Minimum surface area for trapping soil particles of a certain size

V_s = Settling velocity of the design particle size chosen (V_s = 0.00028 ft/s for a design particle size of 0.01 mm at 68°F)

1.2 = Factor of safety recommended by USEPA to account for the reduction in basin efficiency caused due to turbulence and other non ideal conditions.

$$Q = CIA \qquad \text{(Eq.2)}$$

Where

Q = Peak basin influent flow rate measured in cubic feet per second (ft^3/s)

C = Runoff coefficient (unitless)

I = Peak rainfall intensity for the 10-year, 6-hour rain event (in/hr)

A = Area draining into the sediment basin in acres

The design particle size should be the smallest soil grain size determined by wet sieve analysis, or the fine silt sized (0.01 mm [or 0.0004 in.]) particle, and the Vs used should be 100 percent of the calculated settling velocity.

This sizing basin method is dependent on the outlet structure design or the total basin length with an appropriate outlet. If the designer chooses to utilize the outlet structure to control the flow duration in the basin, the basin length (distance between the inlet and the outlet) should be a minimum of twice the basin width; the depth should not be less than 3 ft nor greater than 5 ft for safety reasons and for maximum efficiency (2 ft of sediment storage, 2 ft of capacity). If the designer chooses to utilize the basin length (with appropriate basin outlet) to control the flow duration in the basin, the basin length (distance between the inlet and the outlet) should be a specifically designed to capture 100% of the design particle size; the depth should not be less than 3 ft nor greater than 5 ft for safety reasons and for maximum efficiency (2 ft of sediment storage, 2 ft of capacity).

Basin design guidance provided herein assumes standard water properties (e.g., estimated average water temperature, kinematic viscosity, etc.) as a basis of the design. Designers can use an alternative design (Option 3) with site specific water properties as long as the design is as protective as Option 1.

The design guidance uses the peak influent flow rate to size sediment basins. Designers can use an alternative design (Option 3) with site specific average flow rates as long as the design is as protective as Option 1.

The basin should be located on the site where it can be maintained on a year-round basis and should be maintained on a schedule to retain the 2 ft of capacity.

Option 2:

Design pursuant to local ordinance for sediment basin design and maintenance, provided that the design efficiency is as protective or more protective of water quality than Option 1.

Option 3:

The use of an equivalent surface area design or equation provided that the design efficiency is as protective or more protective of water quality than Option 1.

B) Typical Sediment/Detention Basin Design Methodology:

Design of a sediment basin requires the designer to have an understanding of the site constraints, knowledge of the local soil (e.g., particle size distribution of potentially contributing soils), drainage area of the basin, and local hydrology. Designers should not assume that a sediment basin for location A is applicable to location B. Therefore, designers can use this factsheet as guidance but will need to apply professional judgment and knowledge of the site to design an effective and efficient sediment basin. The following provides a general overview of typical design methodologies:

Step 1. Hydrologic Design

- Evaluate the site constraints and assess the drainage area for the sediment basin. Designers should consider on- and off-site flows as well as changes in the drainage area associated with site construction/disturbance. To minimize additional construction during the course of the project, the designer should consider identifying the maximum drainage area when calculating the basin dimensions.

- If a local hydrology manual is not available it is recommended to follow standard rational method procedures to estimate the flow rate. The references section of this factsheet provides a reference to standard hydrology textbooks that can provide standard methodologies. If local rainfall depths are not available, values can be obtained from standard precipitation frequency maps from NOAA (downloaded from http://www.wrcc.dri.edu/pcpnfreq.html).

Step 2. Hydraulic Design

- Calculate the surface area required for the sediment basin using Equation 1. In which the flow rate is estimated for a 10-yr 6-hr event using rational method procedure listed in local hydrology manual and Vs is estimated using Stokes Law presented in Equation 3.

$$V_s = 2.81d^2 \qquad \text{(Eq.3)}$$

Where

V_s = Settling velocity in feet per second at 68˚F

d = diameter of sediment particle in millimeters (smallest soil grain size determined by wet sieve analysis or fine silt (0.01 mm [or 0.0004 in.])

- In general the basin outlet design requires an iterative trial and error approach that considered the maximum water surface elevation, the elevation versus volume (stage-storage) relationship, the elevation verses basin outflow (a.k.a.-discharge) relationship, and the estimated inflow hydrograph. To adequately design the basins to settle sediment, the outlet configuration and associated outflow rates can be estimated by numerous methodologies. The following provides some guidance for design the basin outlet:
    - An outlet should have more than one orifice.
    - An outlet design typically utilizes multiple horizontal rows of orifices (approximately 3 or more) with at least 2 orifices per row (see Figures 1 and 2 at the end of this fact sheet).

- Orifices can vary in shape.
- Select the appropriate orifice diameter and number of perforations per row with the objective of minimizing the number of rows while maximizing the detention time.
- The diameter of each orifice is typically a maximum of 3-4 inches and a minimum of 0.25-0.5 inches.
- If a rectangular orifice is used, it is recommended to have minimum height of 0.5 inches and a maximum height of 6 inches.
- Rows are typically spaced at three times the diameter center to center vertically with a minimum distance of approximately 4 inches on center and a maximum distance of 1 foot on center.
- To estimate the outflow rate, each row is calculated separately based on the flow through a single orifice then multiplied by the number of orifices in the row. This step is repeated for each of the rows. Once all of the orifices are estimated, the total outflow rate versus elevation (stage-discharge curve) is developed to evaluate the detention time within the basin.
- Flow through a single orifice can be estimated using an Equation 4:

$$Q = BC'A(2gH)^{0.5} \qquad \text{(Eq.4)}$$

Where
Q = Outflow rate in ft^3/s
C′ = Orifice coefficient (unitless)
A = Area of the orifice (ft^2)
g = acceleration due to gravity (ft^3/s)
H = Head above the orifice (ft)
B = Anticipated Blockage or clogging factor (unitless), It is dependent on anticipated sediment and debris load, trash rack configuration etc, so the value is dependent on design engineers professional judgment and/or local requirements (B is never greater than 1 and a value of 0.5 is generally used)

  - Care must be taken in the selection of orifice coefficient ("C′"); 0.60 is most often recommended and used. However, based on actual tests, Young and Graziano (1989), "Outlet Hydraulics of Extended Detention Facilities for Northern Virginia Planning District Commission", recommends the following:
    - C′ = 0.66 for thin materials; where the thickness is equal to or less than the orifice diameter, or
    - C′ = 0.80 when the material is thicker than the orifice diameter
- If different sizes of orifices are used along the riser then they have to be sized such that not more than 50 percent of the design storm event drains in one-third of the drawdown time (to provide adequate settling time for events smaller than the design storm event)

and the entire volume drains within 96 hours or as regulated by the local vector control agency. If a basin fails to drain within 96 hours, the basin must be pumped dry.

- Because basins are not maintained for infiltration, water loss by infiltration should be disregarded when designing the hydraulic capacity of the outlet structure.

- Floating Outlet Skimmer: The floating skimmer (see Figure 3 at the end of this fact sheet is an alternative outlet configuration (patented) that drains water from upper portion of the water column. This configuration has been used for temporary and permanent basins and can improve basin performance by eliminating bottom orifices which have the potential of discharging solids. Some design considerations for this alternative outlet device includes the addition of a sand filter or perforated under drain at the low point in the basin and near the floating skimmer. These secondary drains allow the basin to fully drain. More detailed guidelines for sizing the skimmer can be downloaded from http://www.fairclothskimmer.com/.

- Hold and Release Valve: An ideal sediment/detention basin would hold all flows to the design storm level for sufficient time to settle solids, and then slowly release the storm water. Implementing a reliable valve system for releasing detention basins is critical to eliminate the potential for flooding in such a system. Some variations of hold and release valves include manual valves, bladder devices or electrically operated valves. When a precipitation event is forecast, the valve would be close for the duration of the storm and appropriate settling time. When the settling duration is met (approximately 24 or 48 hours), the valve would be opened and allow the stormwater to be released at a rate that does not resuspend settled solids and in a non-erosive manner. If this type of system is used the valve should be designed to empty the entire basin within 96 hours or as stipulated by local vector control regulations.

Step 3. Evaluate the Capacity of the Sediment Basin

- Typically, sediment basins do not perform as designed when they are not properly maintained or the sediment yield to the basin is larger than expected. As part of a good sediment basin design, designers should consider maintenance cycles, estimated soil loss and/or sediment yield, and basin sediment storage volume. The two equations below can be used to quantify the amount of soil entering the basin.

- The Revised Universal Soil Loss Equation (RUSLE, Eq.5) can be used to estimate annual soil loss and the Modified Universal Soil Equation (MUSLE, Eq.6) can be used to estimate sediment yield from a single storm event.

$$A = R \times K \times LS \times C \times P \qquad \text{(Eq.5)}$$

$$Y = 95\left(Q \times q_p\right)^{0.56} \times K \times LS \times C \times P \qquad \text{(Eq.6)}$$

Where:

A = annual soil loss, tons/acre-year

R = rainfall erosion index, in 100 ft.tons/acre.in/hr

K = soil erodibility factor, tons/acre per unit of R

LS = slope length and steepness factor (unitless)

C = vegetative cover factor (unitless)

P = erosion control practice factor (unitless)

Y = single storm sediment yield in tons

Q = runoff volume in acre-feet

q_p = peak flow in cfs

- Detailed descriptions and methodologies for estimating the soil loss can be obtained from standard hydrology text books (See References section).

- Determination of the appropriate equation should consider construction duration and local environmental factors (soils, hydrology, etc.). For example, if a basin is planned for a project duration of 1 year and the designer specifies one maintenance cycle, RUSLE could be used to estimate the soil loss and thereby the designer could indicate that the sediment storage volume would be half of the soil loss value estimated. As an example for use of MUSLE, a project may have a short construction duration thereby requiring fewer maintenance cycles and a reduced sediment storage volume. MUSLE would be used to estimate the anticipated soil loss based on a specific storm event to evaluate the sediment storage volume and appropriate maintenance frequency.

- The soil loss estimates are an essential step in the design and it is essential that the designer provide construction contractors with enough information to understand maintenance frequency and/or depths within the basin that would trigger maintenance. Providing maintenance methods, frequency and specification should be included in design bid documents such as the SWPPP Site Map.

- Once the designer has quantified the amount of soil entering the basin, the depth required for sediment storage can be determined by dividing the estimated sediment loss by the surface area of the basin.

Step 4. Other Design Considerations

- Consider designing the volume of the settling zone for the total storm volume associated with the 2-year event or other appropriate design storms specified by the local agency. This volume can be used as a guide for sizing the basin without iterative routing calculations. The depth of the settling zone can be estimated by dividing the estimated 2-yr storm volume by the surface area of the basin.

- The basin volume consists of two zones:

  - A sediment storage zone at least 1 ft deep.

  - A settling zone at least 2 ft deep.

- The basin depth must be no less than 3 ft (not including freeboard).

- Proper hydraulic design of the outlet is critical to achieving the desired performance of the basin. The outlet should be designed to drain the basin within 24 to 96 hours (also referred to as "drawdown time"). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns.

- Confirmation of the basin performance can be evaluated by routing the design storm (10-yr 6-hr, or as directed by local regulations) through the basin based on the basin volume (stage-storage curve) and the outlet design (stage-discharge curve based on the orifice configuration or equivalent outlet design).

- Sediment basins, regardless of size and storage volume, should include features to accommodate overflow or bypass flows that exceed the design storm event.

  - Include an emergency spillway to accommodate flows not carried by the principal spillway. The spillway should consist of an open channel (earthen or vegetated) over undisturbed material (not fill) or constructed of a non-erodible riprap (or equivalent protection) on fill slopes.

  - The spillway control section, which is a level portion of the spillway channel at the highest elevation in the channel, should be a minimum of 20 ft in length.

- Rock, vegetation or appropriate erosion control should be used to protect the basin inlet, outlet, and slopes against erosion.

- The total depth of the sediment basin should include the depth required for sediment storage, depth required for settling zone and freeboard of at least 1 foot or as regulated by local flood control agency for a flood event specified by the local agency.

- The basin alignment should be designed such that the length of the basin is more than twice the width of the basin; the length should be determined by measuring the distance between the inlet and the outlet. If the site topography does not allow for this configuration baffles should be installed so that the ratio is satisfied. If a basin has more than one inflow point, any inflow point that conveys more than 30 percent of the total peak inflow rate has to meet the required length to width ratio.

- An alternative basin sizing method proposed by Fifield (2004) can be consulted to estimate an alternative length to width ratio and basin configuration. These methods can be considered as part of Option 3 which allows for alternative designs that are protective or more protective of water quality.

- Baffles (see Figure 4 at the end of this fact sheet) can be considered at project sites where the existing topography or site constraints limit the length to width ratio. Baffles should be constructed of earthen berms or other structural material within the basin to divert flow in the basin, thus increasing the effective flow length from the basin inlet to the outlet riser. Baffles also reduce the change of short circuiting and allows for settling throughout the basin.

- Baffles are typically constructed from the invert of the basin to the crest of the emergency spillway (i.e., design event flows are meant to flow around the baffles and flows greater than the design event would flow over the baffles to the emergency spillway).

- Use of other materials for construction of basin baffles (such as silt fence) may not be appropriate based on the material specifications and will require frequent maintenance (maintain after every storm event). Maintenance may not be feasible when required due to flooded conditions resulting from frequent (i.e., back to back) storm events. Use of alternative baffle materials should not deviate from the intended purpose of the material, as described by the manufacturer.

- Sediment basins are best used in conjunction with erosion controls.

- Basins with an impounding levee greater than 4.5 ft tall, measured from the lowest point to the impounding area to the highest point of the levee, and basins capable of impounding more than 35,000 ft^3, should be designed by a Registered Civil Engineer. The design should include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the basin outlet and bypass structures.

- A forebay, constructed upstream of the basin, may be provided to remove debris and larger particles.

- The outflow from the sediment basin should be provided with velocity dissipation devices (see BMP EC-10) to prevent erosion and scouring of the embankment and channel.

- The principal outlet should consist of a corrugated metal, high density polyethylene (HDPE), or reinforced concrete riser pipe with dewatering holes and an anti-vortex device and trash rack attached to the top of the riser, to prevent floating debris from flowing out of the basin or obstructing the system. This principal structure should be designed to accommodate the inflow design storm.

- A rock pile or rock-filled gabions can serve as alternatives to the debris screen, although the designer should be aware of the potential for extra maintenance involved should the pore spaces in the rock pile clog.

- The outlet structure should be placed on a firm, smooth foundation with the base securely anchored with concrete or other means to prevent floatation.

- Attach riser pipe (watertight connection) to a horizontal pipe (barrel). Provide anti-seep collars on the barrel.

- Cleanout level should be clearly marked on the riser pipe.

Installation

- Securely anchor and install an anti-seep collar on the outlet pipe/riser and provide an emergency spillway for passing major floods (see local flood control agency).

- Areas under embankments must be cleared and stripped of vegetation.

- Chain link fencing should be provided around each sediment basin to prevent unauthorized entry to the basin or if safety is a concern.

Costs

The cost of a sediment basin is highly variable and is dependent of the site configuration. To decrease basin construction costs, designers should consider using existing site features such as berms or depressed area to site the sediment basin. Designers should also consider potential savings associated with designing the basin to minimize the number of maintenance cycles and siting the basin in a location where a permanent BMP (e.g., extended detention basin) is required for the project site.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level and as required by local requirements. It is recommended that at a minimum, basins be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Examine basin banks for seepage and structural soundness.

- Check inlet and outlet structures and spillway for any damage or obstructions. Repair damage and remove obstructions as needed.

- Check inlet and outlet area for erosion and stabilize if required.

- Check fencing for damage and repair as needed.

- Sediment that accumulates in the basin must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage volume. Sediment removed during maintenance should be managed properly. The sediment should be appropriately evaluated and used or disposed of accordingly. Options include: incorporating sediment into earthwork on the site (only if there is no risk that sediment is contaminated); or off-site export/disposal at an appropriate location (e.g., sediment characterization and disposal to an appropriate landfill).

- Remove standing water from basin within 96 hours after accumulation.

- If the basin does not drain adequately (e.g., due to storms that are more frequent or larger than the design storm or other unforeseen site conditions), dewatering should be conducted in accordance with appropriate dewatering BMPs (see NS-2) and in accordance with local permits as applicable.

- To minimize vector production:

    - Remove accumulation of live and dead floating vegetation in basins during every inspection.

    - Remove excessive emergent and perimeter vegetation as needed or as advised by local or state vector control agencies.

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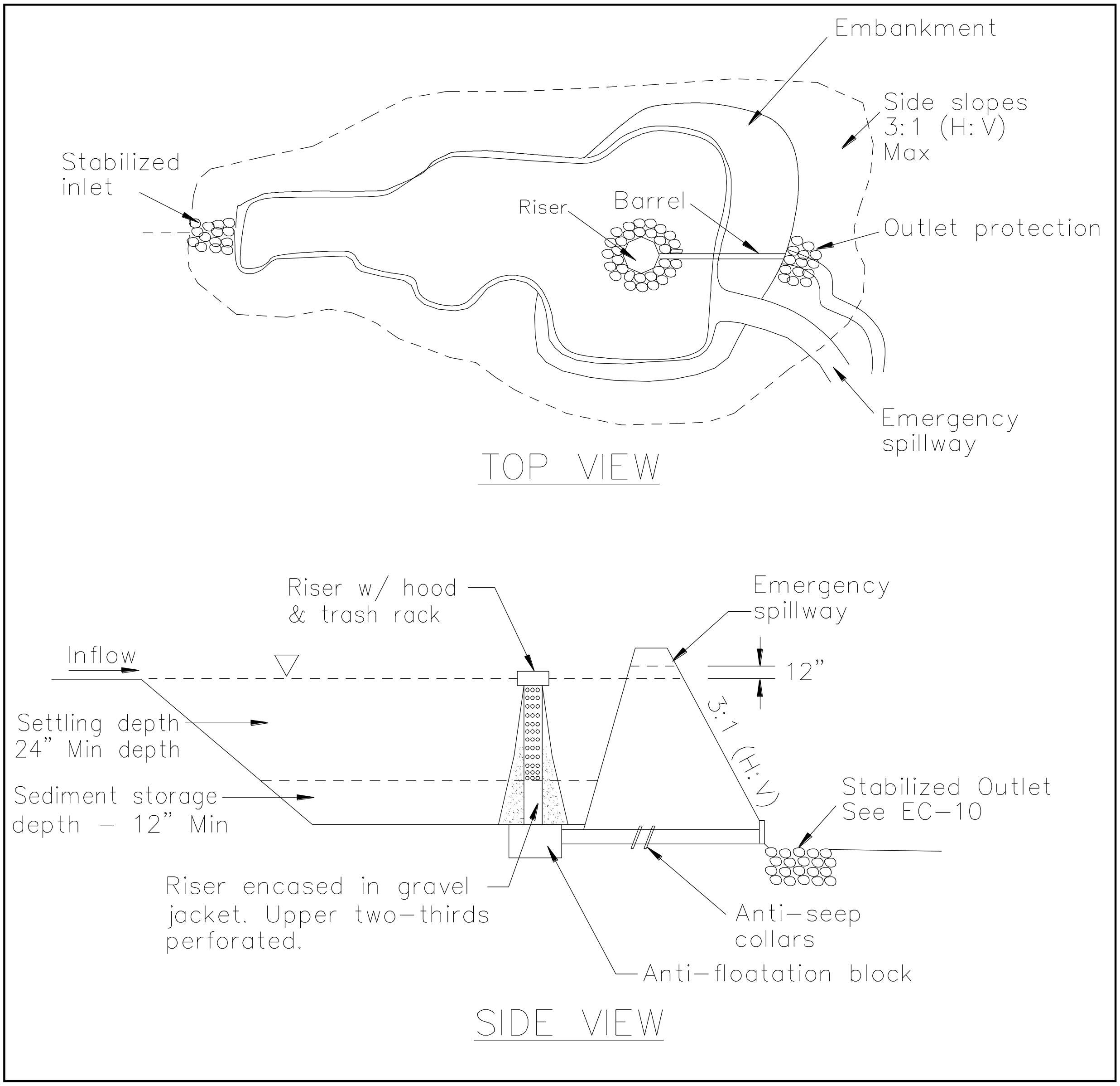


FIGURE 1: TYPICAL TEMPORARY SEDIMENT BASIN
MULTIPLE ORIFICE DESIGN
NOT TO SCALE

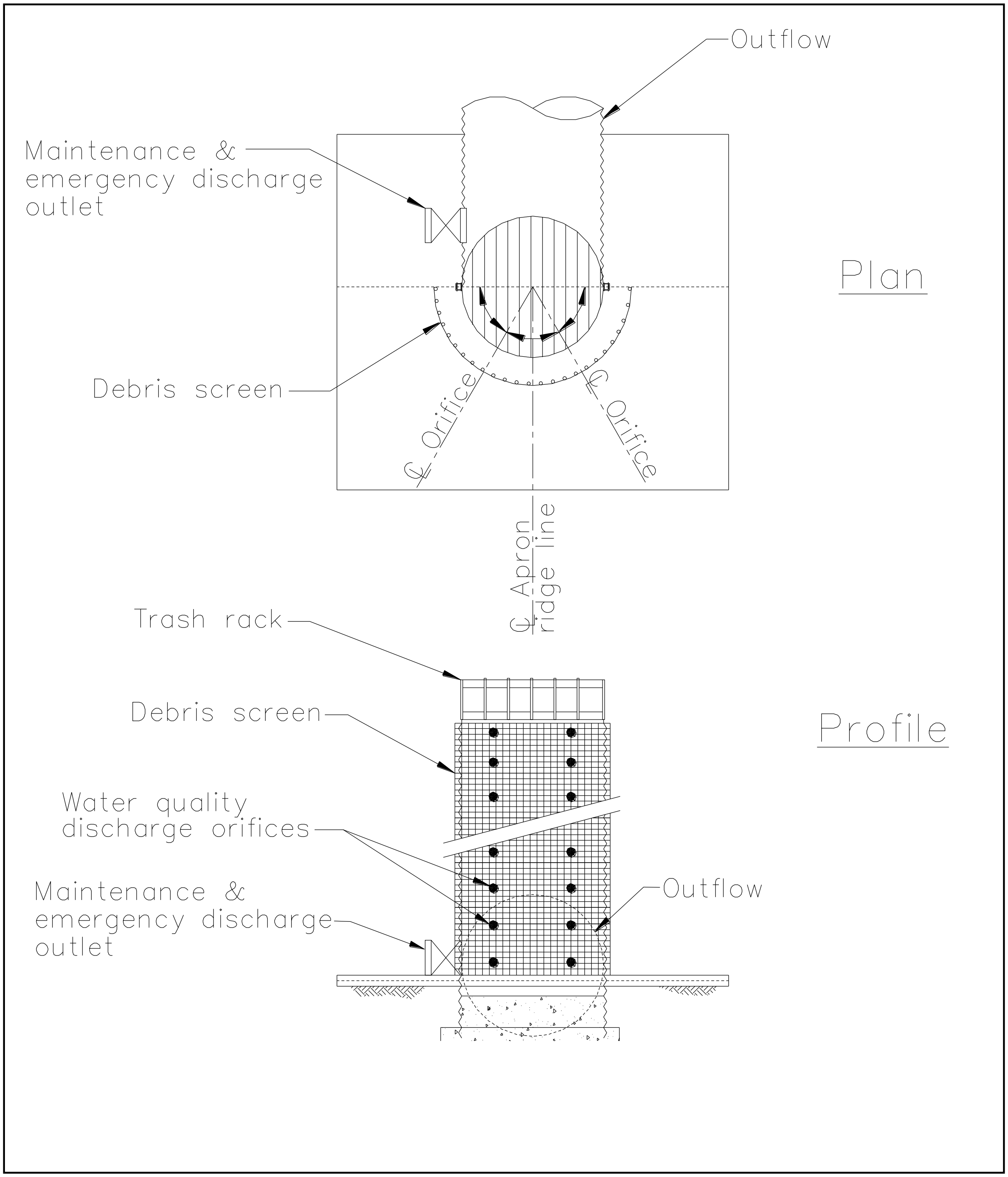


FIGURE 2: MULTIPLE ORIFICE OUTLET RISER
NOT TO SCALE

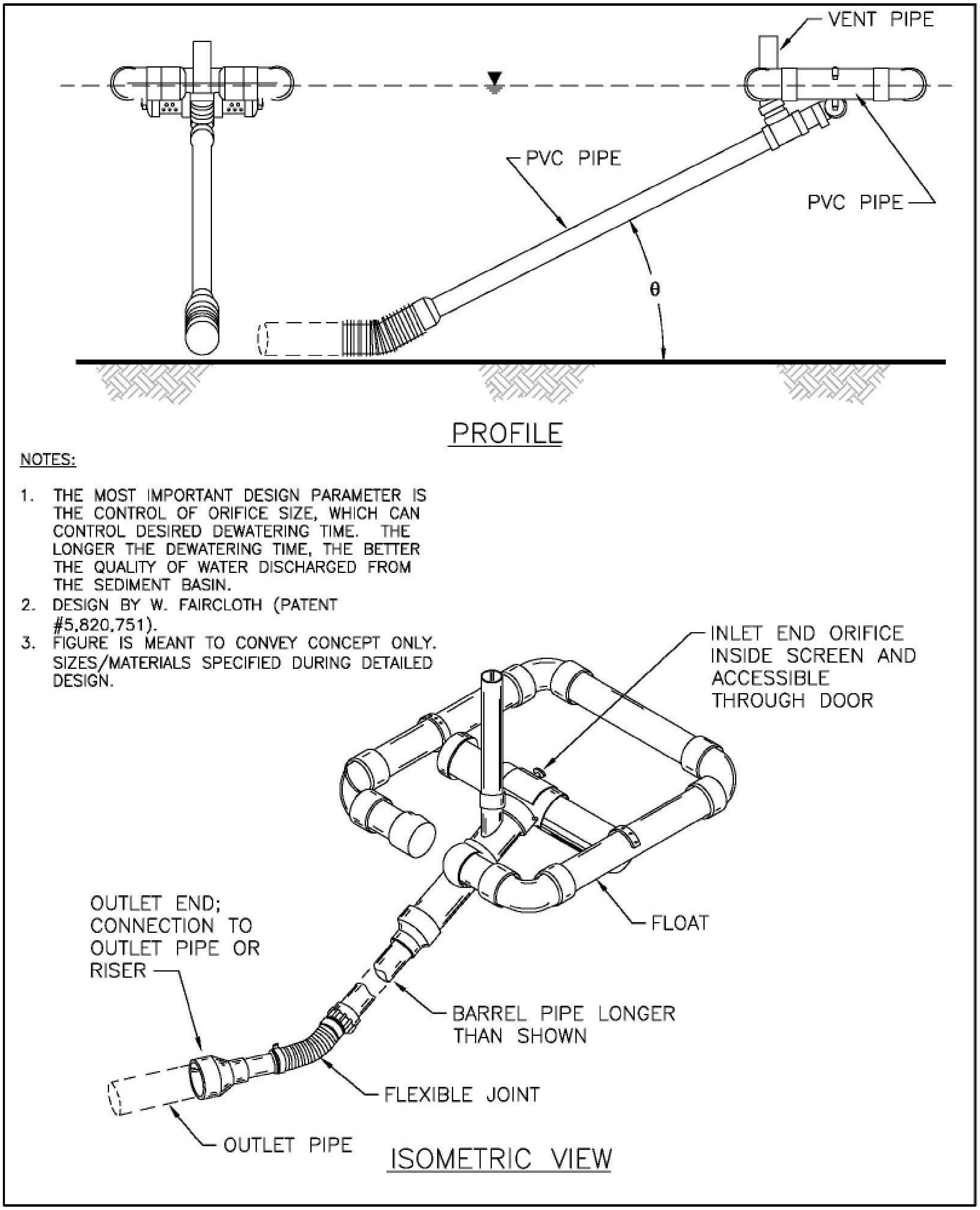


FIGURE 3: TYPICAL SKIMMER

NOT TO SCALE

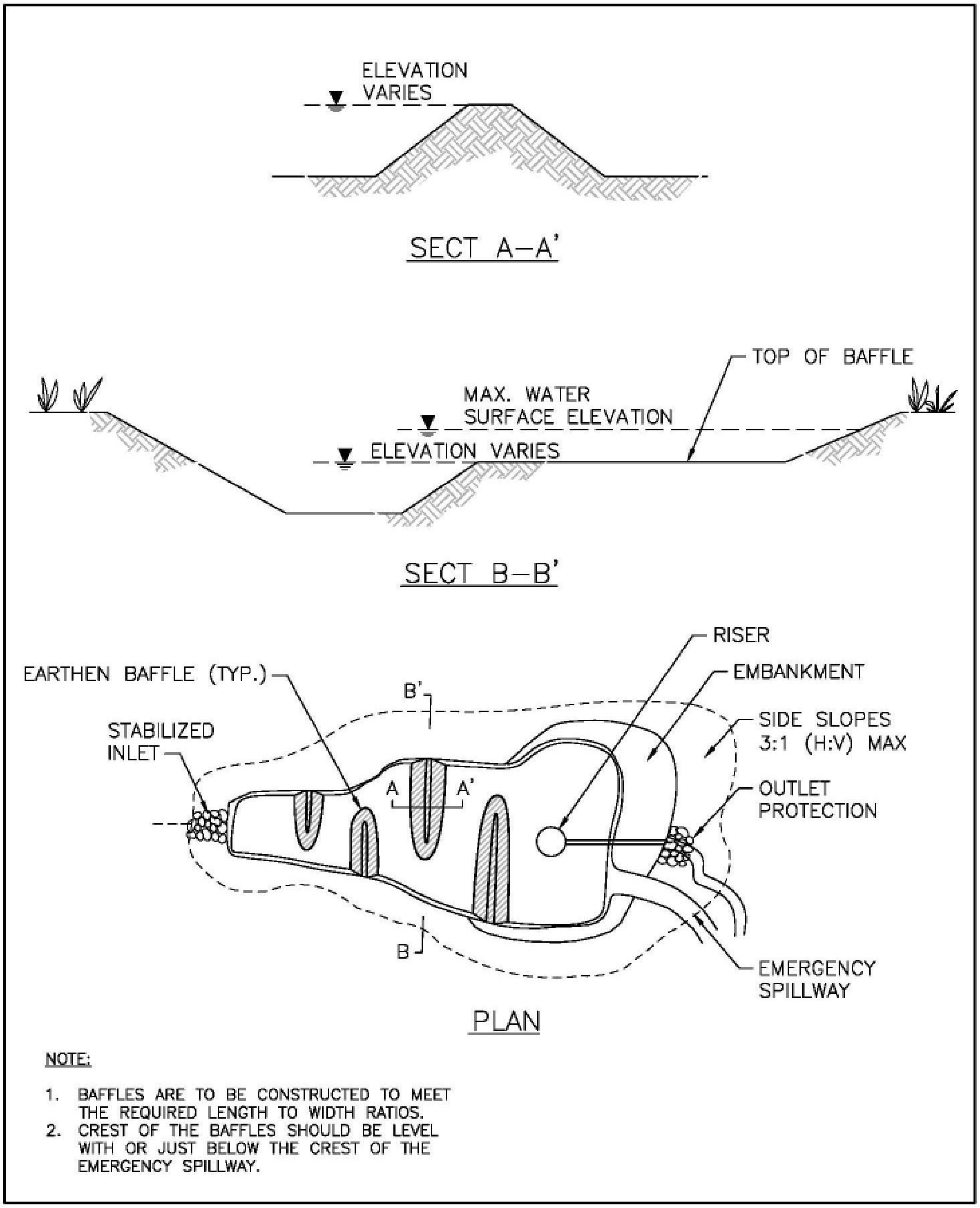


FIGURE 4: TYPICAL TEMPORARY SEDIMENT BASIN
WITH BAFFLES
NOT TO SCALE

Street Sweeping and Vacuuming SE-7

Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.
- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.

- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd^3 hopper) to $88/hour (9 yd^3 hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

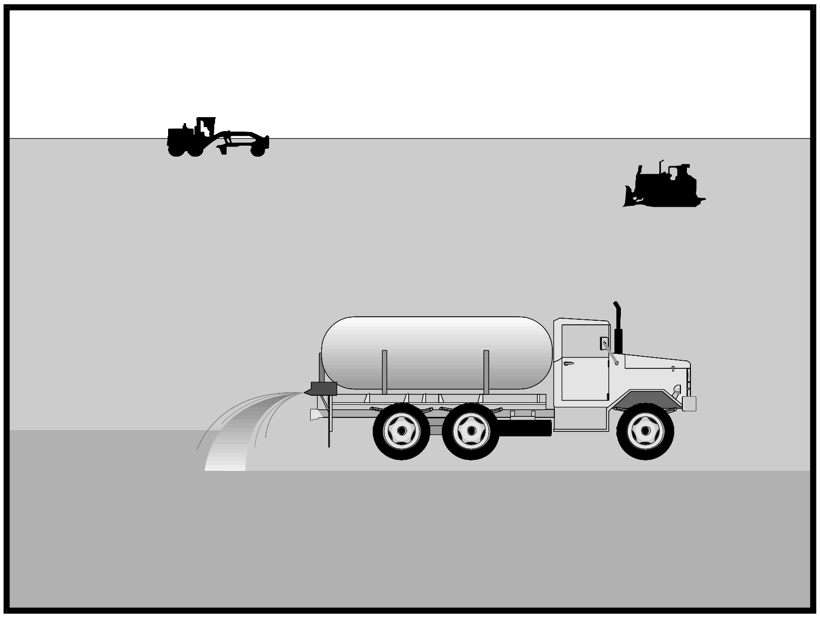
Inspection and Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	☑
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

Description and Purpose

Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Suitable Applications

Most BMPs that provide protection against water-based erosion will also protect against wind-based erosion and dust control requirements required by other agencies will generally meet wind erosion control requirements for water quality protection. Wind erosion control BMPs are suitable during the following construction activities:

- Construction vehicle traffic on unpaved roads
- Drilling and blasting activities
- Soils and debris storage piles
- Batch drop from front-end loaders
- Areas with unstabilized soil
- Final grading/site stabilization

Limitations

- Watering prevents dust only for a short period (generally less than a few hours) and should be applied daily (or more often) to be effective.
- Over watering may cause erosion and track-out.
- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil.
- Chemical dust suppression agents may have potential environmental impacts. Selected chemical dust control agents should be environmentally benign.
- Effectiveness of controls depends on soil, temperature, humidity, wind velocity and traffic.
- Chemical dust suppression agents should not be used within 100 feet of wetlands or water bodies.
- Chemically treated subgrades may make the soil water repellant, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.
- If the soil surface has minimal natural moisture, the affected area may need to be pre-wetted so that chemical dust control agents can uniformly penetrate the soil surface.

Implementation

Dust Control Practices

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. The following table presents dust control practices that can be applied to varying site conditions that could potentially cause dust. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures include minimizing surface areas to be disturbed, limiting onsite vehicle traffic to 15 mph or less, and controlling the number and activity of vehicles on a site at any given time.

Chemical dust suppressants include: mulch and fiber based dust palliatives (e.g. paper mulch with gypsum binder), salts and brines (e.g. calcium chloride, magnesium chloride), non-petroleum based organics (e.g. vegetable oil, lignosulfonate), petroleum based organics (e.g. asphalt emulsion, dust oils, petroleum resins), synthetic polymers (e.g. polyvinyl acetate, vinyls, acrylic), clay additives (e.g. bentonite, montimorillonite) and electrochemical products (e.g. enzymes, ionic products).

Site Condition	Dust Control Practices							
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel or Asphalt	Temporary Gravel Construction Entrances/Equipment Wash Down	Synthetic Covers	Minimize Extent of Disturbed Area
Disturbed Areas not Subject to Traffic	X	X	X	X	X			X
Disturbed Areas Subject to Traffic			X	X	X	X		X
Material Stockpiles		X	X	X			X	X
Demolition			X			X	X	
Clearing/ Excavation			X	X				X
Truck Traffic on Unpaved Roads			X	X	X	X	X	
Tracking					X	X		

Additional preventive measures include:

- Schedule construction activities to minimize exposed area (see EC-1, Scheduling).
- Quickly treat exposed soils using water, mulching, chemical dust suppressants, or stone/gravel layering.
- Identify and stabilize key access points prior to commencement of construction.
- Minimize the impact of dust by anticipating the direction of prevailing winds.
- Restrict construction traffic to stabilized roadways within the project site, as practicable.
- Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment should be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.
- If reclaimed waste water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality

Control Board (RWQCB) requirements. Non-potable water should not be conveyed in tanks or drain pipes that will be used to convey potable water and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes, and other conveyances should be marked, "NON-POTABLE WATER - DO NOT DRINK."

- Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Provide covers for haul trucks transporting materials that contribute to dust.
- Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and wheel wash areas.
- Stabilize inactive areas of construction sites using temporary vegetation or chemical stabilization methods.

For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater and should meet all applicable regulatory requirements.

Costs

Installation costs for water and chemical dust suppression vary based on the method used and the length of effectiveness. Annual costs may be high since some of these measures are effective for only a few hours to a few days.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check areas protected to ensure coverage.
- Most water-based dust control measures require frequent application, often daily or even multiple times per day. Obtain vendor or independent information on longevity of chemical dust suppressants.

References

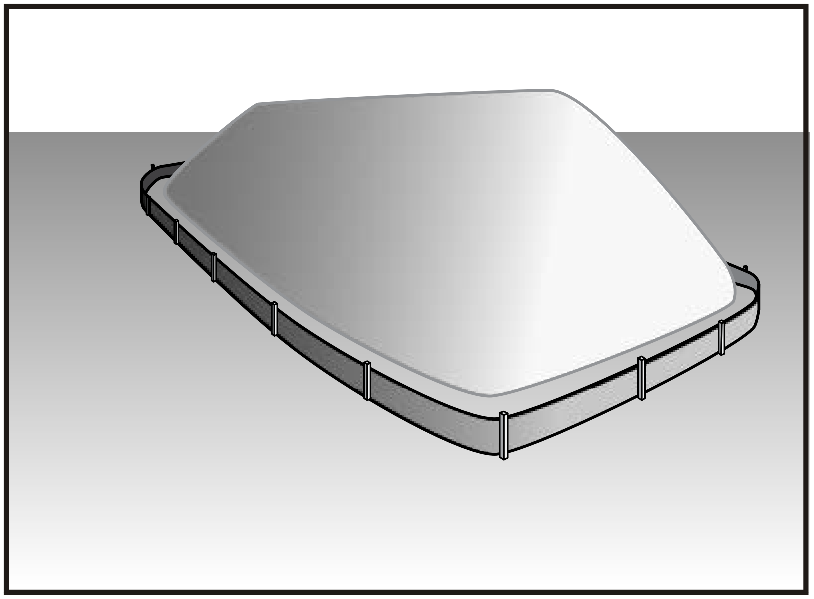
Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

California Air Pollution Control Laws, California Air Resources Board, updated annually.

Construction Manual, Chapter 4, Section 10, "Dust Control"; Section 17, "Watering"; and Section 18, "Dust Palliative", California Department of Transportation (Caltrans), July 2001.

Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide, California Air Resources Board, April 1991.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

- On larger sites, a minimum of 50 ft separation from concentrated flows of stormwater, drainage courses, and inlets is recommended.

- After 14 days of inactivity, a stockpile is non-active and requires further protection described below. All stockpiles are required to be protected as non-active stockpiles immediately if they are not scheduled to be used within 14 days.

- Protect all stockpiles from stormwater runon using temporary perimeter sediment barriers such as compost berms (SE-13), temporary silt dikes (SE-12), fiber rolls (SE-5), silt fences (SE-1), sandbags (SE-8), gravel bags (SE-6), or biofilter bags (SE-14). Refer to the individual fact sheet for each of these controls for installation information.

- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.

- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.

- Place bagged materials on pallets and under cover.

- Ensure that stockpile coverings are installed securely to protect from wind and rain.

- Some plastic covers withstand weather and sunlight better than others. Select cover materials or methods based on anticipated duration of use.

Protection of Non-Active Stockpiles

A stockpile is considered non-active if it either is not used for 14 days or if it is scheduled not to be used for 14 days or more. Stockpiles need to be protected immediately if they are not scheduled to be used within 14 days. Non-active stockpiles of the identified materials should be protected as follows:

Soil stockpiles

- Soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.

- Temporary vegetation should be considered for topsoil piles that will be stockpiled for extended periods.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- Stockpiles should be covered and protected with a temporary perimeter sediment barrier at all times.

Stockpiles of "cold mix"

- Cold mix stockpiles should be placed on and covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Stockpiles of fly ash, stucco, hydrated lime

- Stockpiles of materials that may raise the pH of runoff (i.e., basic materials) should be covered with plastic and surrounded by a berm.

Stockpiles/Storage of wood (Pressure treated with chromated copper arsenate or ammoniacal copper zinc arsenate

- Treated wood should be covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Protection of Active Stockpiles

A stockpile is active when it is being used or is scheduled to be used within 14 days of the previous use. Active stockpiles of the identified materials should be protected as follows:

- All stockpiles should be covered and protected with a temporary linear sediment barrier prior to the onset of precipitation.

- Stockpiles of "cold mix" and treated wood, and basic materials should be placed on and covered with plastic sheeting or comparable material and surrounded by a berm prior to the onset of precipitation.

- The downstream perimeter of an active stockpile should be protected with a linear sediment barrier or berm and runoff should be diverted around or away from the stockpile on the upstream perimeter.

Costs

For cost information associated with stockpile protection refer to the individual erosion or sediment control BMP fact sheet considered for implementation (For example, refer to SE-1 Silt Fence for installation of silt fence around the perimeter of a stockpile.)

Inspection and Maintenance

- Stockpiles must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- It may be necessary to inspect stockpiles covered with plastic sheeting more frequently during certain conditions (for example, high winds or extreme heat).

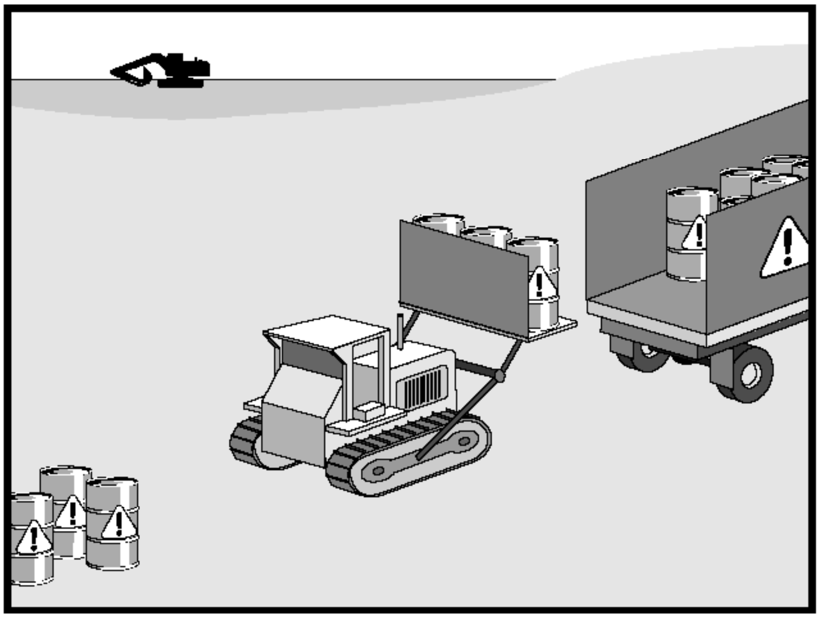
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.

- Sediment shall be removed when it reaches one-third of the barrier height.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Hazardous Waste Management WM-6



Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Hazardous waste management practices are implemented on construction projects that generate waste from the use of:

- Petroleum Products
- Asphalt Products
- Concrete Curing Compounds
- Pesticides
- Palliatives
- Acids
- Septic Wastes
- Paints
- Stains
- Solvents
- Wood Preservatives
- Roofing Tar
- Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302

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In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

Limitations

- Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.
- Nothing in this BMP relieves the contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
- This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to WM-7, Contaminated Soil Management.

Implementation

The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of a suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
  - Temporary containment facility should provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
  - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
  - Temporary containment facilities should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
  - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.

- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.

- Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.

- Drums should not be overfilled and wastes should not be mixed.

- Unless watertight, containers of dry waste should be stored on pallets.

- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application. Allow time for infiltration and avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.

- Paint brushes and equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste.

- Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. “Paint out” brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.

- The following actions should be taken with respect to temporary contaminant:

  - Ensure that adequate hazardous waste storage volume is available.

  - Ensure that hazardous waste collection containers are conveniently located.

  - Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.

  - Minimize production or generation of hazardous materials and hazardous waste on the job site.

  - Use containment berms in fueling and maintenance areas and where the potential for spills is high.

  - Segregate potentially hazardous waste from non-hazardous construction site debris.

  - Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas onsite.
- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paint.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The contractor's superintendent or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.
- Hazardous spills should be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.

- The National Response Center, at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Also notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.

- A copy of the hazardous waste manifests should be provided.

References

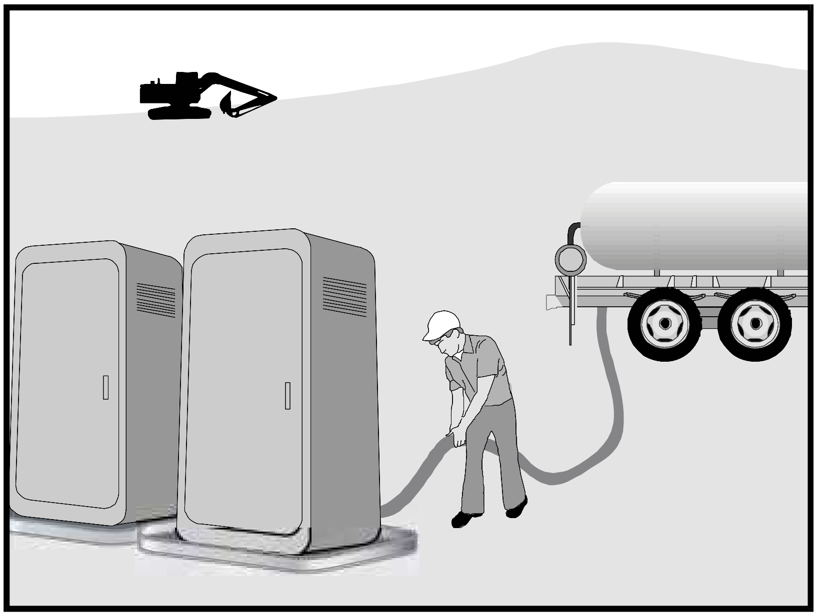
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Sanitary/Septic Waste Management WM-9



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

- Temporary sanitary facilities must be equipped with containment to prevent discharge of pollutants to the stormwater drainage system of the receiving water.
- Consider safety as well as environmental implications before placing temporary sanitary facilities.
- Wastewater should not be discharged or buried within the project site.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, should comply with the local health agency, city, county, and sewer district requirements.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- If a spill does occur from a temporary sanitary facility, follow federal, state and local regulations for containment and clean-up.

Education

- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and septic waste.
- Hold regular meetings to discuss and reinforce the use of sanitary facilities (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes or weighed down to prevent over turning.
- If spills or leaks from sanitary or septic facilities occur that are not contained and discharge from the site, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

APPENDIX L:

SWPPP Compliance Check List

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECK LIST

NATIONAL POLLUTION DISCHARGE ELIMINTATION SYSTEM (NPDES) GENERAL PERMIT
FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

FACILITY NAME: Sargent Quarry

Waste Discharge Identification (WDID) #: ____________

	FACILITY CONTACT	Consultant/Qualified Industrial Storm Water Practitioner
Name		Tom Platz
Title	Quarry Operations Manager	President
Company	Sargent Quarry	Triad/Holmes
Street Address	5 mi South of Gilroy, CA	549 Old Mammoth Road, P.O. Box 1570
City, State	Santa Clara County, CA	Mammoth Lakes, CA
Zip		

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification (Section II.A)			
Pollution Prevention Team (Section X.D.1)			
Existing Facility Plans (Section X.D.2)			
Site Map(s) (Section X.E)			
Facility boundaries (Section X.E.3.a)			
Drainage areas (Section X.E.3.a)			
Direction of flow (Section X.E.3.a)			
On-facility water bodies (Section X.E.3.a)			

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Areas of soil erosion (Section X.E.3.a)			
Nearby water bodies (Section X.E.3.a)			
Municipal storm drain inlets (Section X.E.3.a)			
Points of discharge (Section X.E.3.b)			
Sampling Locations (Section X.E.3.b)			
Structural control measures (Section X.E.3.c)			
Impervious areas (Section X.E.3.d)			
Location of Directly Exposed Materials (Section X.E.3.e)			
Locations of significant spills and leaks (Section X.E.3.e)			
Areas of Industrial Activity (Section X.E.3.f)			
Areas of industrial activity (Section X.E.3.f)			
Storage areas/storage tanks (Section X.E.3.f)			
Shipping and receiving areas (Section X.E.3.f)			
Fueling areas (Section X.E.3.f)			
Vehicle and equipment storage/maintenance (Section X.E.3.f)			
Material handling/processing (Section X.E.3.f)			
Waste treatment/disposal (Section X.E.3.f)			
Dust or particulate generation (Section X.E.3.f)			
Cleaning and material reuse (Section X.E.3.f)			

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Other areas of industrial activities (Section X.E.3.f)			
List of Industrial Materials (Section X.F)			
Storage location			
Quantity			
Frequency			
Receiving and shipping location			
Quantity			
Frequency			
Handling location			
Quantity			
Frequency			
Potential Pollution Sources (Section X.G)			
Description of Potential Pollution Sources (Section X.G.1)			
Industrial processes (Section X.G.1.a)			
Material handling and storage areas (Section X.G.1.b)			
Dust & particulate generating activities (Section X.G.1.c)			
Significant spills and leaks (Section X.G.1.d)			
Non-storm water discharges (Section X.G.1.e)			
Erodible surfaces (Section X.G.1.f)			
Assessment of Potential Pollutant Sources (Section X.G.2)			
Narrative assessment of likely sources of pollutants (Section X.G.2.a)			
Narrative assessment of likely pollutants present in storm water discharges (Section X.G.2.a)			
Identification of additional BMPs Section X.G.2.b)			

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Identification of drainage areas with no exposure (Section X.G.2.c)			
Identification of additional parameters (Section X.G.2.d)			
Storm Water Best Management Practices (Section X.H)			
Minimum BMPs (Section X.H.1)			
Good housekeeping (Section X.H.1.a)			
Preventative maintenance (Section X.H.1.b)			
Spill response (Section X.H.1.c)			
Material handling and waste management (Section X.H.1.d)			
Erosion and sediment controls (Section X.H.1.e)			
Employee training program (Section X.H.1.f)			
Quality assurance and record keeping (Section X.H.1.g)			
Advanced BMPs (Section X.H.2)			
Implement advanced BMPs at the facility (Section X.H.2.a)			
Exposure Minimization BMPs (Section X.H.2.b.i)			
Storm Water containment and discharge reduction BMPS (Section X.H.2.b.ii)			
Treatment Control BMPs (Section X.H.2.b.iii)			
Other advance BMPs (Section X.H.2.b.iv)			
Temporary Suspension of Activities (Section X.H.3)			
BMPs necessary for stabilization of the facility (Section X.H.3)			

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
BMP Descriptions (Section X.H.4)			
Pollutant that a BMP reduces or prevents (Section X.H.4.a.i)			
Frequency of BMP implementation (Section X.H.4.a.ii)			
Location of BMP (Section X.H.4.a.iii)			
Person implementing BMP (Section X.H.4.a.iv)			
Procedures/maintenance/ instructions for BMP implementation (Section X.H.4.a.v)			
Equipment and tools for BMP implementation (Section X.H.4.a.vi)			
BMPs needing more frequent inspections (Section X.H.4.a.vii)			
Minimum BMP/applicable advanced BMPs not implemented at the facility (Section X.H.4.b)			
BMPs implemented in lieu of minimum or applicable advanced BMPs (Section X.H.4.c)			
BMP Summary Table (Section X.H.5)			
Monitoring Implementation Plan (Section X.I)			
Team members assisting in developing the MIP (Section X.I.1)			
Summary of visual observation procedures, locations, and details (Section X.I.2)			
Justifications if applicable for: Alternative discharge locations, Representative Sampling Reduction or, Qualified Combined Samples (Section X.I.3)			
Procedures for field instrument calibration (Section X.I.4)			

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Example of Chain of Custody (Section X.I.5)			
Annual Comprehensive Facility Compliance Evaluation (Section XV)			
Review of all visual inspection and monitoring records and sampling and analysis results conducted during the previous reporting year (Section XV.A)			
Visual inspection of all areas of industrial activity and associated potential pollutant sources (Section XV.B)			
Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials in accordance with the definitions in Section XVII (Section XV.C)			
Visual inspection of equipment needed to implement the BMPs (Section XV.D)			
Visual inspection of any structural and/or treatment control BMPs (Section XV.E)			
Review and assessment of all BMPs for each area of industrial activity and associated potential pollutant sources (Section XV.F)			
Assessment of other factors needed to complete the information described in Section XVI.B (Section XV.G)			

Appendix I.5

Additional EIR Support

ADDITIONAL EIR SUPPORT

SARGENT QUARRY

SANTA CLARA COUNTY

OCTOBER 2020

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920
www.toddgroundwater.com

Table of Contents

List of Figures

1. INTRODUCTION

The County of Santa Clara (County) is the lead agency preparing an Environmental Impact Report (EIR) for the proposed Sargent Quarry Project. As part of the EIR and in response to environmental guidelines, Todd Groundwater has expanded the evaluation of potential impacts first documented in the November 3, 2016 memo “Sargent Ranch Quarry: Evaluation of Groundwater Conditions and Potential Mining Impacts”.

2. EIR SUPPORT TASKS

This section summarizes two specific evaluations of potential impacts of Sargent Quarry. These address cumulative impacts of the project to downstream beneficial uses of water and potential impacts to groundwater quality.

2.1. CUMULATIVE IMPACTS

Evaluation of the cumulative impacts to downstream uses pertains to potential changes in surface water and groundwater supply. In brief, the issue addresses whether project pumping in conjunction with other foreseeable changes in consumptive use of groundwater in the San Benito River and Pajaro River watersheds would reduce downstream Pajaro River flow to the point that it would no longer supply adequate recharge to meet beneficial uses, including uses for groundwater supply and for environmental benefits, i.e., steelhead habitat.

2.1.1. Impact: Decreased Groundwater Availability at a Regional Scale due to Increase in Consumptive Use

Groundwater users in the Llagas subbasin in Santa Clara County and the North San Benito basin in San Benito County would be unaffected from a water balance standpoint because they are upgradient of the project well and impacted river reach. Water users most likely to be affected would be downstream in the Pajaro Valley near Watsonville (Figure 1). Groundwater pumping in that area averaged 52,000 AFY during 2009-2013 (Carollo Engineers, 2014) and amounted to approximately 42,268 AF in water year 2019 (PVWMA, 2020).

Cumulative impacts to Pajaro River flow and recharge in the Pajaro Valley part of the Corralitos Basin could result from increased consumptive use of groundwater anywhere upstream of that area, which includes the watersheds of the San Benito and Pajaro Rivers. However, there is not a one-to-one correspondence between increased consumptive use and decreased Pajaro Valley recharge for two reasons. First, increased consumptive use in upstream basins depletes storage as well as stream flow. The storage deficit is typically replenished in wet seasons and wet years when Pajaro River flow exceeds the percolation capacity of the reach that passes through Pajaro Valley. Under that condition, additional flow does not appreciably increase percolation. Second, stream flow depletion concurrent with upstream pumping occurs over most of the year, including periods when Pajaro River flows exceed the percolation capacity of the Pajaro Valley reach.

The only reasonably foreseeable development project in the Pajaro River/San Benito River watershed is construction of the Pacheco Reservoir Expansion Project. Less specific projections of future groundwater use are included in Urban Water Management Plans for Gilroy and Hollister and in the Northern San Benito County draft groundwater sustainability plan. Each of these components of future groundwater use was considered.

Pacheco Reservoir Expansion Project (PREP)

The proposed PREP would consist of a 140,000-acre-foot reservoir on Pacheco Creek upstream of the Gilroy-Hollister groundwater basin. It would primarily store imported surface water from the Central Valley Project, but it would also capture runoff from the Pacheco Creek watershed upstream of the dam site. The effect of the reservoir on surface flows and groundwater recharge downstream of the project would depend mainly on planned releases for recharge and fish habitat. The rates and timing of those releases are still under discussion. However, preliminary proposals include generally higher flows and recharge during the dry season than presently occur. The releases would not flow all the way to Pajaro Valley, but by increasing average annual recharge to the Gilroy-Hollister Basin they would tend to increase groundwater discharge from that basin to the Pajaro River, which would tend to increase recharge opportunity in Pajaro Valley. Although the effect cannot be quantified at this time, it would probably be small and beneficial.

Future Growth in Gilroy and Hollister Areas

The City of Gilroy's 2015 Urban Water Management Plan projects an increase in municipal water use of 6,000 AFY by 2040. The City water supply consists of wells in the Llagas Subbasin of the Gilroy-Hollister Basin. The change in consumptive use of groundwater would be much smaller. About 63 percent of municipal use becomes wastewater that is either recycled for irrigation or percolated back into the groundwater basin (Akel Engineering Group, 2016). Furthermore, if urban growth is onto currently irrigated agricultural land, the urban use offsets the existing agricultural use. Because of the high percentage of return flow, per-acre consumptive use following urbanization can be lower than per-acre consumptive use for agriculture.

Growth projections for northern San Benito County were obtained from the draft groundwater sustainability plan, which is presently in progress. A future growth scenario was developed that estimated an increase of 9,000 AFY of municipal groundwater use in the Hollister area by 2068. Assuming a linear increase, that would correspond to roughly 4,500 AFY by 2040. As with the City of Gilroy, much of the water use is not consumptive. It becomes wastewater that is either percolated back to the groundwater basin or recycled for irrigation. Municipal use of imported CVP water is also projected to increase—by about 700 AFY—and wastewater generated by that use would further offset the increase in municipal groundwater pumping. Furthermore, if urban growth displaces currently irrigated agricultural land, the change in consumptive use of groundwater would likely be small. Simulations of this growth scenario assuming nearly all urban expansion would be onto non-irrigated lands indicated that the increase in pumping would be partially offset by increased percolation from streams and rivers. This would tend to decrease downstream flow in the Pajaro River, but the impact of that decrease on groundwater recharge in the Pajaro Valley area depends on whether the river is flowing to the ocean at that time.

Overall agricultural water use in the Llagas and northern San Benito County areas is not projected to change appreciably. Urbanization might displace some irrigated agriculture, as discussed above. Vineyards have been expanding in the Paicines and Tres Pinos Creek Valley areas of the San Benito River watershed, but the expansion is not expected to be large due to market conditions, and groundwater modeling shows that increased groundwater pumping for irrigation in those areas tends to be offset by increased river and creek percolation in winter, when downstream flows in the Pajaro River already exceed the recharge capacity of the Pajaro Valley area downstream.

The Sargent Quarry project itself has a cumulative impact on agricultural water use because it would prevent cultivation and irrigation on the non-irrigated 37-acre flat area that would be occupied by the processing plant and topsoil stockpile. If the site were converted to irrigated row crops instead, consumptive use would be on the order of 1.5 times greater than consumptive use by mine operations.

In summary, PREP and urban growth could increase consumptive use of groundwater upstream of the Pajaro Valley by anywhere from zero to several thousand acre-feet per year, depending largely on whether urban growth displaces currently irrigated cropland. The impact on groundwater recharge in the Pajaro Valley area would be smaller than the increase in consumptive use because some of the decrease in Pajaro River flow would be at times when percolation in the Pajaro Valley area is at its maximum capacity and the river is flowing to the ocean. In the context of this wide range of uncertainty and in the context of the Pajaro Valley groundwater budget, the 83 AFY of consumptive use during the mining phase of the Sargent Quarry project is small.

This impact is considered less than significant. Because of its small size in the context of regional water balances and Pajaro River flow, it would not cause any existing land uses to become infeasible due to a reduction in groundwater availability.

This conclusion is further supported by comparing the magnitude of Sargent Quarry consumptive use to changes in agricultural water use that occur for other reasons. For example, agricultural use of groundwater in Zone 6 of San Benito County during 1988-2015 fluctuated from 61 percent to 171 percent of average, with a difference of 22,000 AFY between the maximum and minimum years (Todd Groundwater, December 2015). Similar to the Sargent Quarry pumping effects, agricultural pumping reduces flow in the Pajaro River, which can reduce recharge in the Pajaro Valley when river flows are low. Sargent Quarry consumptive use amounts to only 0.4 percent of the magnitude of fluctuations in agricultural pumping. Its additive effect is too small to cause significant changes in land or water use in the Pajaro Valley area.

2.1.2. Impact: Depletion of Baseflow in the Pajaro River and Possible Reduction in Steelhead Habitat

Depletion of flow in the Pajaro River could impact in-stream beneficial uses in addition to downstream groundwater users. One beneficial use that is receiving considerable attention is habitat for South-Central California Coast Steelhead, a federally-listed threatened fish species. The National Marine Fisheries Service published a Steelhead Recovery Plan (2013) that notes the regional significance of the Pajaro River watershed. It describes degradation of steelhead habitat along mainstem reaches of the major central coast rivers as “severe to very severe”. In detail, however, the principal life history function of the mainstem reaches appears to be seasonal passage of fish migrating up- and downstream. The role of mainstem reaches as rearing habitat is “speculative” because flows, temperatures and sediment loads have all been altered from natural conditions since before any fish studies were ever conducted. Furthermore, of the 31 recommended “recovery actions” for the Pajaro River watershed, only two related to groundwater, and those called for studies (an analysis of groundwater extractions and monitoring of groundwater conditions) rather than a reduction in groundwater pumping.

The maximum depletion of river flow would likely be a relatively constant depletion equivalent to consumptive water use by the mining project. The 82.26 AFY of consumptive use corresponds to 0.1 cubic feet per second (cfs), an increase over previous estimates as the expected consumptive use estimate has been revised upwards. This equals at most 0.1 percent of average monthly flows during the primary migration months (December-April), based on monthly flows at the Pajaro River gage near Chittenden (upstream of the Pajaro Valley). Indry years the percentage reduction would be greater, but steelhead passage analyses for Pacheco Creek, the San Benito River and the Arroyo Seco have shown that passage opportunity is already zero in most dry years (Todd Groundwater, 2020a, 2020b). Conversely, the studies showed that passage opportunity is ample in wet years, with or without a small flow reduction. Finally, a flow depletion of 0.1 cfs impacts passage opportunity only when flow is within 0.1 cfs of the minimum passable flow, which is usually a brief window of time given typical flow recession rates. The impact on the duration of passage opportunity along the Pajaro River near Chittenden was estimated assuming a hypothetical minimum passage flow of 40 cfs. Flow in spring at that location recedes from 40.1 cfs to 40.0 cfs in 0.7-1.1 hours in almost all years. Given that flows greater than 40 cfs typically persist for many days within the migration season, this reduction in duration is clearly small.

A quantitative significance threshold for steelhead impacts along this mainstem reach is not obvious because minimum flows at critical riffles have not been surveyed, concurrent timing of passability through upstream reaches has not been evaluated, and frequency of impacts within the typical lifespan of a steelhead trout has not been estimated. Such an analysis is beyond the scope of this hydrologic analysis. Instead, this section reports the potential changes in river flow and leaves further interpretation to qualified biologists.

2.2. WATER QUALITY

Potential impacts to groundwater quality from the project could occur as a result of hazardous materials handling, salt loading, and mobilization of naturally occurring metals. Hazardous materials are incidental to quarry operations. The risk of groundwater contamination would be reduced to less than significant if the applicant follows best management practices and implements a Hazardous Materials Business Plan approved by Santa Clara County Division of Environmental Health.

The is currently no plans for dewatering water from the pits and therefore no discharge to Sargent Creek. If plans change, the water would be of similar quality to water that reaches the creek under existing conditions. However, the discharge would create perennial flow in the creek, which would alter the aquatic and riparian habitats along the creek.

2.2.1. Impact: Increase in Groundwater or Surface Water Salinity Due to Evaporation of Water during Project Operations

Evaporation from ponds and evapotranspiration (ET) by plants send pure water to the atmosphere, leaving any minerals in the water behind. This raises the salinity of the pond water or—in the case of plants—the soil water. Leakage from the pond and winter rains that flush the soil then transport the salinity down to the water table. The result is an increase in local ambient groundwater salinity. The areas affected by the increase are ones located downgradient of the project site. There are no nearby local downgradient groundwater users. Instead, local groundwater eventually discharges as base flow into the Pajaro River. The river is a source of recharge to the Pajaro Valley (Watsonville) area of the Corralitos Groundwater Basin.

The salt load caused by the project equals the annual consumptive use of groundwater multiplied by the concentration of total dissolved solids (TDS) in the groundwater. The project description identifies three categories of consumptive use: dust control (8.56 AFY), evaporation from the 0.55-acre wash pond (2.86 AFY), and ET from irrigation of landscaped areas (0.31 AFY). TDS data for local groundwater are not available, but average concentrations in the adjacent Llagas and Bolsa areas of the Gilroy-Hollister Groundwater Basin are 420 and 670 mg/L, respectively (Todd Groundwater, 2014a, 2014b). Using the higher concentration as a conservative estimate of ambient TDS at the project site produces an estimated salt load of 10.6 tons per year.

Salt loading at the project site would reach the water table at a seasonally variable rate, but dispersion and attenuation along the flow path from there to the river would tend to result in a relatively constant concentration where groundwater discharges into the Pajaro River. The greatest impact on river salinity and hence on river recharge in the Pajaro Valley area would be in late summer, when river flow at the gage near Chittenden is commonly around 10 cfs. Dividing 10.6 tons/year into 10 cfs of flow raises the TDS concentration by 1.1 mg/L. Pajaro River salinity at Chittenden has been measured over 150 times by the Central Coast Ambient Monitoring Programs, with an average result of 953 mg/L and a median result of

907 mg/L (CCAMP 2020). The Central Coast Basin Plan objective for Pajaro River TDS at Chittenden is 1,000 mg/L. The 1.1 mg/L increase that could result from the project would not cause average Pajaro River salinity to exceed that objective. Therefore, there does not appear to be a significant salinity impact caused by the project.

2.2.2. Impact: Potential Release of Metals into Surface Water or Groundwater due to Oxidation of Minerals in Excavated or Exposed Geologic Materials

In some mining environments, exposing subsurface geologic materials to the air triggers oxidation of some minerals, which can allow some metals to leach from those materials or form acid drainage waters. Iron Mountain Mine in the northern Coast Ranges is a well-known example. The proposed Sargent Quarry mining project was evaluated for the potential to cause such problems. The only geologic formation that would be disturbed and mined at the project site is the Etchegoin Formation, which in this area consists of late-Tertiary marine sandstones and siltstones with minor pebble conglomerates (Dibblee and Brabb, 1978). Acid mine drainage is usually caused by oxidation of sulfide minerals, which are present in igneous and metamorphic rocks but uncommon in sedimentary rocks because oxygen was present during the transport and deposition of the sand and silt materials. Exposure of the Etchegoin Formation would not cause acid mine drainage.

The mining project is downgradient of the nearby Llagas and Bolsa areas of the Gilroy-Hollister Groundwater Basin. Any water quality impacts would occur downstream along the Pajaro River or in the Pajaro Valley area of the Corralitos Basin, which is recharged by the river.

Clays embedded in the Etchegoin Formation could potentially contain small amounts of adsorbed mercury, arsenic or chromium, which are present in geologic materials in many parts of the Coast Ranges. The City of Watsonville pumps groundwater in the Pajaro Valley for municipal supply. Chromium and arsenic are both present in the groundwater, but at concentrations only 4-15 percent of the respective drinking water maximum contaminant levels (City of Watsonville, 2019). However, consideration of the specific conditions related to each of these metals suggests that none of them would be released or mobilized in significant quantities by the mining operation.

Large mercury mines are located in the Coast Ranges tens of miles north and south of the project site (the Almaden and New Idria mines). However, the mercury ore at those locations is in consolidated bedrock formations much older than the Etchegoin Formation. No such bedrock is present at the project site, so there would be no source of mercury associated with the mine.

Arsenic is present in Llagas, Bolsa and Pajaro area groundwaters, but not at high levels approaching the MCL. Arsenic becomes less mobile when oxidized. So if mining exposed any arsenic-bearing clay materials, arsenic would not tend to leach out.

Chromium is typically elevated in sediments derived from certain igneous rocks and—especially in the Coast Ranges—from serpentine (a type of metamorphic mineral). The

Sargent Quarry would not disturb or expose igneous or serpentine rocks, neither of which are present in the Etchegoin Formation.

Thus, the geologic provenance of the Etchegoin Formation and the oxidation-related solubility/mobility characteristics of metals of potential concern support a conclusion that the mining project would not release or mobilize quantities of metals that would pose a water quality concern.

3. UPDATES TO NOVEMBER 2016 TODD MEMO

In 2020, the applicant provided additional information about dewatering, and a final drainage plan for the project was completed. These new pieces of information were reviewed to determine whether they affected Todd Groundwater's prior analysis.

3.1. Phreatophytic Vegetation

In the 2016 analysis, Todd concluded that the mining excavations would likely intersect the water table. This was expected to produce some amount of seepage—probably small—through rock fractures intersecting the walls of the pits. The applicant has since asserted that the water table would not be reached. If that analysis is correct, the small areas of phreatophytic vegetation that Todd expected would naturally establish during the reclamation phase around seepage points or wet areas on the pit floor would not likely appear. Instead, groundwater would continue to flow unaffected via the subsurface to locations where it discharges to the lower reaches of Sargent Creek or to the Pajaro River.

3.2. Stormwater Drainage

The final drainage plan explains that during the mining phase, all rainfall runoff from the pit walls and bottoms would be directed to channels that convey the water to retention basins. All of the water would be percolated. Overall, this would lead to more groundwater recharge than under existing conditions because there would be much smaller losses to evapotranspiration by vegetation that presently covers the site. This would tend to cause a very slight increase in base flow and perhaps the extent of riparian vegetation along the lower reaches of Sargent Creek or the Pajaro River, where groundwater discharges into streams. During the reclamation phase, the bottom of Pit #1 would be graded to slope toward Sargent Creek, with no retention basin. Vegetation would become established on the quarry floor, and rainfall, runoff and recharge volumes would be similar to existing conditions. The bottom of Pit #3 would continue to be a closed depression. Runoff would continue to flow to a percolation basin during the reclamation phase. This would tend to increase groundwater recharge in the wet season by converting runoff to percolation. During the dry season, there would likely be a slight increase in evapotranspiration at the site depending on whether groundwater seepage continues to sustain moist conditions in and near the percolation pond.

3.3. Conclusion

All of these changes would be small in the context of the overall Sargent Creek watershed and would have negligible effects on the total amount of creek base flow and total area of vegetation dependent on groundwater.

4. REFERENCES

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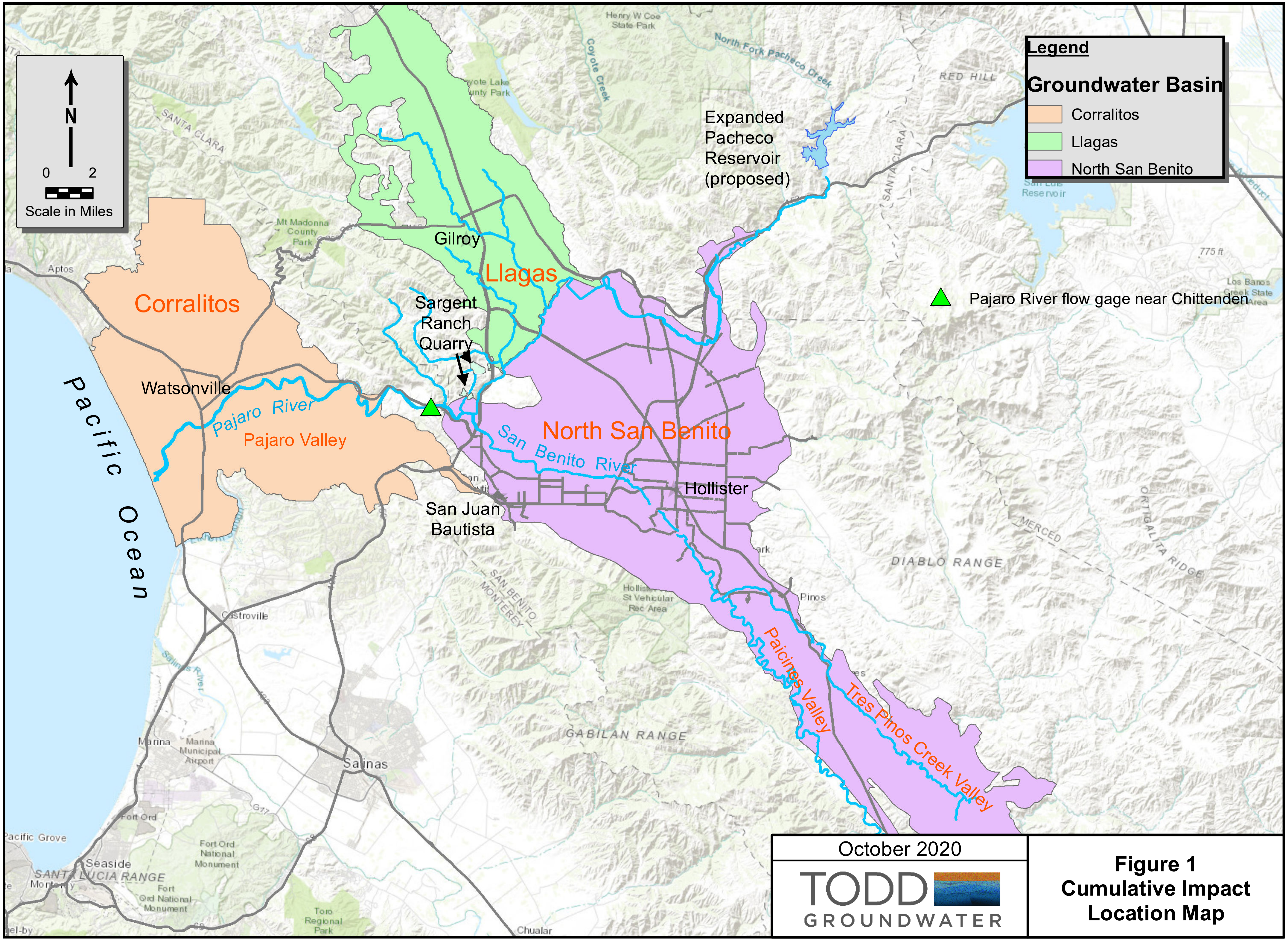
FIGURES



N
0 2
Scale in Miles
Legend
Groundwater Basin
Corralitos
Llagas
North San Benito
Expanded Pacheco Reservoir (proposed)
Pajaro River flow gage near Chittenden
Gilroy
Llagas
Corralitos
Sargent Ranch Quarry
Watsonville
Pajaro River
Pajaro Valley
Pacific Ocean
North San Benito
San Benito River
Hollister
San Juan Bautista
Paicines Valley
Tres Pinos Creek Valley
DIABLO RANGE
GABILAN RANGE
Salinas
Castroville
October 2020
TODD GROUNDWATER
Figure 1
Cumulative Impact Location Map