PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 / Groundwater Dewatering and Management Plan

Scope and Objective

This Groundwater Dewatering and Management Plan documents the procedures and protocols that Pacific Gas and Electric (PG&E) will use to manage dewatered groundwater during construction of Gas Pipeline Relocation Project R-349 on Line 101 in Palo Alto and East Palo Alto, California. This document has been prepared to satisfy the requirement of the Clean Water Act Section 401 Certification, dated April 7, 2015, CIWQS Place No. 757384, issued by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) to the San Francisquito Creek Joint Powers Authority (SFCJPA) for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project (Project).

PG&E is performing the natural gas pipeline construction described in the 401 Certification. Accordingly, PG&E has prepared this Groundwater Dewatering and Management Plan to satisfy the 401 Certification *General Waste Discharge Requirements*, Item 14b.

Project Overview

PG&E is planning to relocate approximately 3,350 feet of new 24-inch-diameter gas transmission pipeline that crosses beneath San Francisquito Creek, as shown on Figure 1. PG&E's work is being performed in conjunction with other necessary flood protection improvements managed by the SFCJPA and other stakeholders; this dewatering plan addresses groundwater management associated with the new gas pipeline installation.

Installation of this new gas pipeline will be performed in advance of the widening of the San Francisquito Creek levees and will ensure that future maintenance and inspection of this gas transmission pipeline can be performed safely.

Groundwater encountered in project excavations will require dewatering, management, and disposal to facilitate the installation of the gas pipeline. Dewatering operations will range from intermittent to continuous, depending on the construction method used, and will require discharges to sanitary sewer and storm drains. It is PG&E's intent for discharges to storm drains to be covered under this 401 Certification with the San Francisco Bay Water Board.

Construction mobilization for micro-tunneling under San Francisquito Creek is planned for September 1, 2016, and dewatering operations are anticipated to commence within 1 week of mobilization. An earlier partial mobilization may occur on the southern end of the project, outside the limit of biological constraints (that is, Clapper Rail habitat). This partial mobilization may involve staging of equipment and limited excavation activities outside of biological constraints. Some dewatering may occur during the partial mobilization to support this limited excavation, but the effluent would not be discharged to surface waters until full mobilization (September 1). Construction dewatering is anticipated for the duration of this project, which may extend until November 15, 2016.

Groundwater Dewatering Plan

Groundwater dewatering will be necessary at multiple locations along the project alignment to support installation of the new gas pipeline. PG&E will use two different construction methods for gas pipeline installation: micro tunnel boring and open cut trenching. Each construction method will use a separate dewatering approach, as discussed herein and as shown on Figure 2.

Micro Tunnel Bore Pit Dewatering Plan

Bore pits will be excavated on the western and eastern sides of San Francisquito Creek to enable placement of boring equipment below grade in a dry substrate.

Each bore pit will be continuously dewatered using a series of well points and submersible pumps installed outside the bore pit excavation. A total of three well points are planned for the eastern micro tunnel bore pit, and two well points are planned for the western micro tunnel bore pit, as shown on Figure 2. A schematic of the well point dewatering system is provided on Figure 3.

Submersible pumps in each well point will have a pumping capacity of approximately 50 gallons per minute (gpm). Each well point will be screened approximately 5 feet below the base of the planned micro tunnel bore pit excavation (that is, screened to 30 feet below ground surface [bgs] on the west and 26 feet bgs on the east).

Each well point will be connected by a manifold system of polyvinyl chloride (PVC) piping or flexible hose and conveyed to a series of portable steel storage tanks located adjacent to each bore pit work area on the eastern and western sides of San Francisquito Creek. A 6-inch-diameter high-density polyethylene (HDPE) pipe will be installed across Friendship Bridge (with secondary containment) to connect the western and eastern tank staging areas and to allow transfer of groundwater between storage areas, if needed.

It is anticipated that continuous dewatering will be necessary at project startup to assist with the installation of engineering controls (that is, interlocking sheet pile, grout, and a rat slab) to provide a stable and safe working environment and to assist with minimizing groundwater infiltration into the micro tunnel bore pit excavation. Once engineering controls are in place, PG&E will evaluate the need for continuous or intermittent dewatering to manage groundwater within the micro tunnel bore pit excavation.

During startup, it is anticipated that filtered groundwater may be discharged to sanitary sewer under permit with the City of Palo Alto or transported offsite for disposal. Once engineering controls are installed, filtered groundwater will be discharged to storm drain, as permitted.

Open Trench Dewatering Plan

A series of bell hole excavations, each measuring approximately 10 feet by 10 feet by 8 feet deep, will be excavated at regularly spaced intervals along the north - south trending portion of the project alignment on the eastern side of San Francisquito Creek. A small section of open trench is also proposed on the western side of San Franciscquito Creek, west of the micro tunnel bore pit, as shown on Figure 2.

Up to three bell hole excavations will be opened and dewatered at any one time and will use engineering controls (that is, box shoring) to limit groundwater intrusion and in-pit dewatering to remove nuisance groundwater from the excavation during construction. Dewatering of the open trench between the bell hole excavations is not anticipated.

The gas pipeline will be installed in open trenches between each of the bell holes by sinking the capped steel gas pipe into place and then welding it together in the dewatered bell hole excavations. Additional bell hole excavations may be necessary to complete this work based on site-specific conditions.

Up to two 50-gpm trash pumps with gravel sumps (for sediment reduction in accordance with best management practices) will be used to dewater each bell hole excavation. Each trash pump will be connected to a 2-inch-diameter hose that will then be connected to a 6-inch-diameter HDPE pipe conveyance system to transfer dewatered groundwater to the southern tank staging area near Geng Road for filtration and discharge to storm drain. A dewatering schematic is provided on Figure 4.

Estimated Groundwater Flows

Table 1 provides estimated daily groundwater flows based on the anticipated pumping equipment flow rates for each construction method during pipeline installation. These daily estimated flows may vary based on site-specific conditions and the performance of engineering controls.

Table 1. Estimated Daily Groundwater Yields
PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 / Groundwater Dewatering & Management Plan

Construction Method	Estimated Daily Groundwater Flow (gallons/day)*
Micro tunnel bore pit dewatering	360,000
Open trench (3 bell holes)	432,000

*To be verified in the field

Groundwater Characteristics

Representative groundwater samples were collected from two soil borings (Identification numbers: R-349-GW-INF-002 and R-349-GW-INF-003) located on the eastern side of San Franciscquito Creek at the northern and southern extents of the project alignment, as shown on Figure 5. Samples were collected on June 22 and June 28, 2016, and submitted for laboratory analysis of trigger pollutants consistent with the RWQCB Order No. R2-2012-0060, NPDES No. CAG912004, *General Waste Discharge Requirements For: Discharge or Reuse of Brackish Groundwater, Reverse Osmosis Concentrate Resulting from Treated Brackish Groundwater, and Extracted Groundwater from Structural Dewatering Requiring Treatment* (Groundwater General Permit) Table 2, Column B. Analytical results for constituents above their respective Groundwater General Permit pollutant trigger levels for discharges to Bay/Estuary are shown in Table 2. A complete groundwater analytical data summary is provided in Attachment 1.

Table 2. R-349 Groundwater Sample Results General Groundwater Permit Trigger Exceedances for Discharges to Bay/Estuary Palo Alto and East Palo Alto, California
PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 / Groundwater Dewatering & Management Plan

Sample Name	Chemical Name	Analytical Method	Unit	Result	RL	R2-2012-0060 GW General Permit – Column B Triggers for Discharges to Bay/Estuary
Northeast Groundwater Sample						
R-349-GW-INF-002-PreStrt1	Total Suspended Solids	SM2540B	mg/L	47,000	1000	30
R-349-GW-INF-002-PRESTRT1	TPH-motor oil	SW8015B	mg/L	0.072 Est. Conc./DNQ	0.1	
R-349-GW-INF-FF-002-PreStrt1	Copper	E200.8	µg/L	13 Est. Conc./DNQ	20	4.7
R-349-GW-INF-FF-002-PreStrt1	Nickel	E200.8	µg/L	62	20	19

Table 2. R-349 Groundwater Sample Results General Groundwater Permit Trigger Exceedances for Discharges to Bay/Estuary Palo Alto and East Palo Alto, California
PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 / Groundwater Dewatering & Management Plan

Sample Name	Chemical Name	Analytical Method	Unit	Result	RL	R2-2012-0060 GW General Permit – Column B Triggers for Discharges to Bay/Estuary
R-349-GW-INF-FF-002-PreStrt1	Selenium	E200.8	µg/L	18 Est. Conc./DNQ	20	5
Southeast Groundwater Sample						
R-349-GW-INF-003-PreStrt1A	Total Suspended Solids	SM2540B	mg/L	18,000	500	30
R-349-GW-INF-FF-003PreStrt1A	Copper	E200.8	µg/L	4.1	4.0	4.7

Notes:
µg/L = microgram per liter
mg/L = milligram per liter
RL = Reporting Limit

Field parameter measurements for each groundwater sample are summarized in the Field Monitoring Forms in Attachment 2. Results for pH range from 6.83 to 7.28 and are within the acceptable range of pH 6.5 to 8.5.

Groundwater Management Plan

Water Quality Objectives

Water quality objectives for the groundwater discharge are the Table 2, Column B trigger pollutants defined in the Groundwater General Permit. The San Francisco Bay Water Board has established these water quality criteria for copper, nickel, and lead to comply with the San Francisco Bay Region Basin Plan Water Quality Objectives (WQOs); therefore, PG&E considers these water quality criteria to be appropriate for use on this construction dewatering project.

PG&E has used the results of this evaluation to guide selection of additional monitoring constituents beyond those named in the 401 Certification (that is, turbidity, pH, temperature, dissolved sulfide, and dissolved oxygen). As noted in Table 2, the constituents exceeding the Groundwater General Permit pollutant trigger levels include metals (chromium, copper, lead, mercury, nickel, and selenium), and total solids (TS). PG&E will provide groundwater treatment to meet the trigger levels as described below and will monitor the influent and effluent for these constituents (in addition to the parameters specified in the 401 Certification). The parameters to be monitored and the monitoring program are described in the Discharge Monitoring Plan (Attachment 3).

Storage and Filtration

Groundwater dewatered from project excavations and dewatering well points will be transferred to a series of portable, 20,000-gallon-capacity, steel fractionation tanks with pop-up berms to provide secondary containment for incidental small leaks.

Approximately eight tanks are planned at each of the three dewatering staging areas as shown on Figure 2. A minimum of three tanks will be used to assist with settling suspended solids. Two tank staging locations correspond with the micro tunnel bore pit excavations located at the northern end of

the project on the eastern and western sides of San Francisquito Creek. The third tank staging location is located at the southern end of the project work area, on Palo Alto Golf Course north of Geng Road and the Baylands Athletic Center. An additional tank staging at the midpoint of the open trench project area with up to eight tanks will provide additional storage capacity for the project as needed. Water will be transferred between each staging area by transfer pumps.

The proposed groundwater filtration system will consist of settling tanks; transfer pump(s); bag or sand filtration units plumbed in parallel to allow for independent operation and maintenance; and media vessels that can be filled with various types of treatment media to meet the trigger levels for target constituents.

The filtration systems will be designed based on discharge water quality criteria and influent water quality. The filtration systems may include one or more of the following common treatment medias or technologies: GreenSand for removal of iron, manganese and arsenic; acid-washed coconut shell virgin activated carbon for removal of organic compounds, including petroleum hydrocarbons and chlorine; OMZ 1000 (or equivalent) suitable for removing ammonia, and heavy metals; and/or other specialty medias, such as ion exchange resins. If required, pH control may be used as needed with the addition of carbon dioxide or sodium hydroxide. The filtration system will be designed to address the constituents of concern that are required for permit compliance, with the most appropriate media accounting for the required retention times as specified by the manufacturer.

A total of three filtration systems are planned for this project, however additional filtration systems may be added to provide increased capacity, if needed. Two filtration systems associated with the micro tunnel bore pit excavation (that is, one for each bore pit excavation) and one filtration system on the southern end of the project work area associated with the open trench pipeline installations. Each filtration system will have a processing capacity of 200 gpm (that is, 288,000 gallons per day) with approximately a 15-million-gallon capacity prior to media vessel change out. Filtration system schematics are provided on Figures 3 and 4.

All filtration systems will be operated, monitored, and maintained by a Water Treatment Operator, trained to ensure that the filtration systems operate as designed.

Discharge Configuration

As noted in Section 3.1, it is anticipated that filtered groundwater may be discharged to sanitary sewer during startup operations for each filtration system under permits with the Cities of East Palo Alto and Palo Alto; or, alternatively, transported offsite for disposal. Discharge flow rates to the sanitary sewer during startup will likely be restricted to a value established by the sanitary sewer discharge permits. Note that, because of the elevated salinity of the groundwater (which is consistent with the salinity in San Francisquito Creek in proximity to the project), the cities can only accept very limited volumes of brackish groundwater to the sanitary sewer.

Following completion of system startup, and verification of water quality, filtered groundwater will be discharged to storm drain. Each filtration system will be connected to a 6-inch-diameter HDPE conveyance pipe or flexible hose for discharge to one or more approved storm drain inlets. Storm drain inlets proposed for discharge during this project are shown on Figure 2. Conditional approval from the City of Palo Alto for use of the storm drain inlets at Geng Road and the Palo Alto Golf Course is provided in Attachment 4. Approval for use of other storm drain inlets within the City of East Palo Alto are in process but were not finalized at the time of this submittal.

All storm drains will be monitored during discharge by an Environmental Inspector to ensure that the discharge does not create surcharging of the sewer system or other nuisance conditions.

Flow rates to proposed storm drain inlets will be confirmed with the City of Palo Alto and City of East Palo Alto. It is assumed that flow rates to these storm drain inlets may range from 100 to 400 gpm at all times.

While no direct discharge of filtered groundwater to the San Francisquito Creek is proposed during this construction project, an indirect discharge to the creek will occur via a storm drain connection at the O'Connor Pump Station. The storm drain inlet at the O'Connor Pump Station discharges to the creek via a storm water retention basin and concrete lined spillway with riprap erosion control. All other proposed storm drain inlets on the Palo Alto Golf Course and Geng Road drain to San Francisco Bay.

Startup

Startup procedures will be replicated for each filtration system and are described as follows:

The filtration vessel(s) will be supplied filled with media, pre-wetted and pH adjusted as needed, prior to being put into service. The media will then be filled with groundwater and de-aerated. The system will then be inspected by a California Registered Engineer to verify that it complies with the proposed design and that sampling locations are representative.

Sampling of influent and effluent in accordance with the discharge monitoring plan will be performed to confirm the performance of the filtration media prior to discharge. At least 3 filtration system volumes of raw water will be processed prior to collecting effluent samples. Water generated during startup compliance sampling will be transported offsite for disposal or discharged using a temporary discharge permit to the sanitary sewer.

Ongoing operation

The filtration system will be operated according to the Operation and Maintenance (O&M) Plan. During routine O&M visits, various data will be collected to evaluate the system's efficiency and optimize system performance including the following: flow rates, pressure, flow totalizer readings, chemical usage, and maintenance activities. Maintenance intervals will be based on review of the influent water quality and system performance monitoring following startup. The maintenance frequencies will be subject to change throughout the duration of the project as water quality changes with variations in the construction scope that would affect water quality.

Compliance Monitoring and Reporting

Discharge Monitoring

A Discharge Monitoring Plan (DMP) has been developed to address monitoring requirements for groundwater dewatered during this project and is provided as Attachment 3.

Receiving Water Sampling

The storm drain inlets proposed for use during this dewatering project are located within a larger sewer system that accepts flows from many contributors unrelated to this construction project. As such, the monitoring of receiving waters is not proposed, as these additional and unknown contributions to the storm drain system would be beyond the control and/or influence of this construction project.

Sampling frequency

Influent and Effluent samples are proposed on a monthly basis, as noted in the DMP. Daily field monitoring for select parameters will also be conducted in accordance with the DMP.

Laboratory analyses

Samples will be analyzed at Environmental Laboratory Accreditation Program-certified laboratories.

Field monitoring

PG&E will perform field monitoring as described in the DMP. Visual observations will be conducted at the dewatering source for the presence or absence of floating and suspended materials, oil and grease, discolorations, odors, trash/debris in the water at the time of dewatering. Field instruments will be maintained, calibrated, and operated according to manufacturers' instructions.

Action Levels, Exceedances, and Corrective Actions

PG&E will notify SFCJPA and the RWQCB within 24 hours of becoming aware of values above or outside of the trigger values. PG&E will cease discharge and evaluate the system to correct the problem. Influent and effluent samples will be collected when the system is restarted. Analytical results and a narrative of the issue, corrective actions, and re-startup sample results will be provided to the SFCJPA and RWQCB within 10 business days of receiving the final analytical reports from the laboratory.

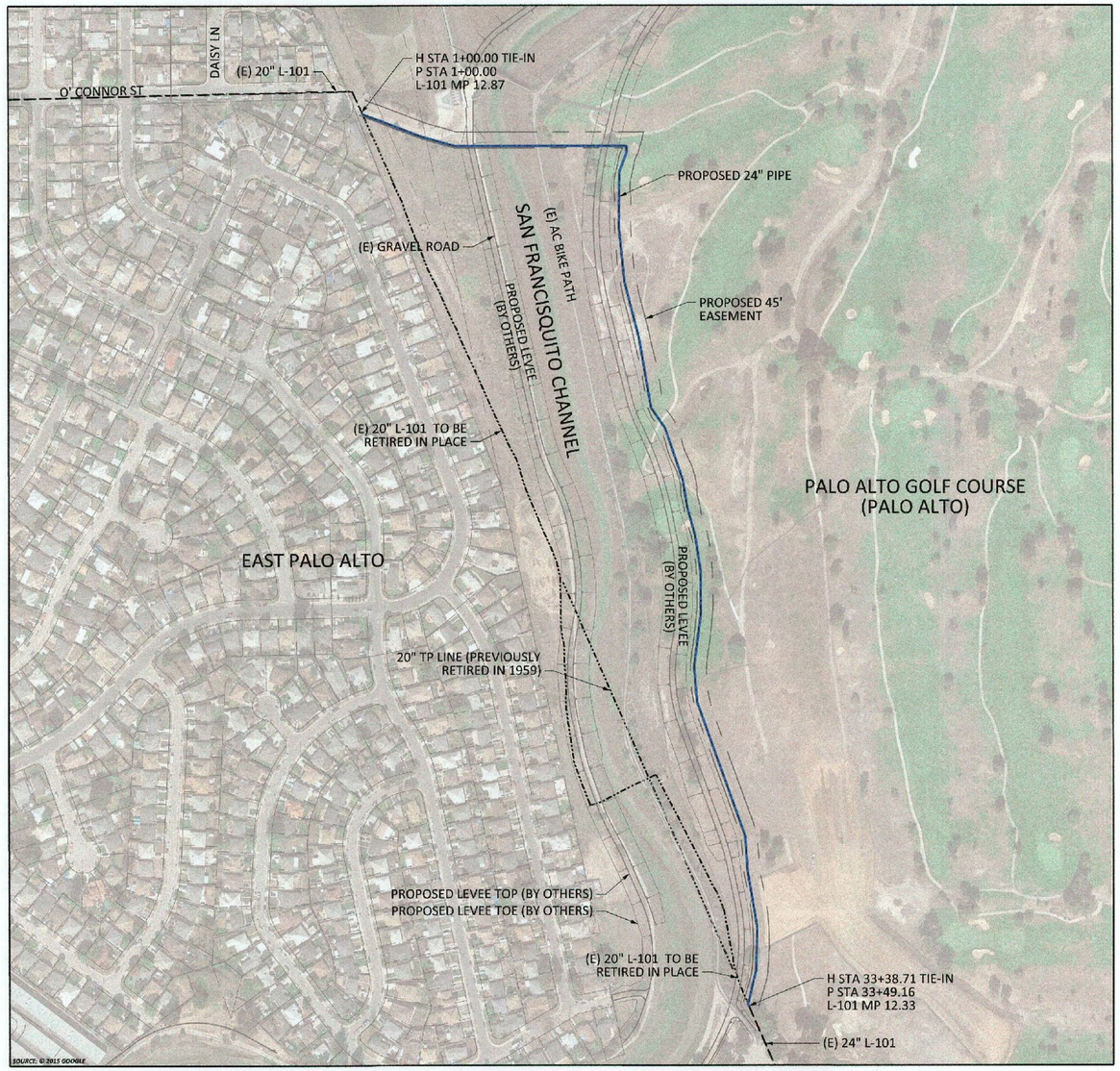
Reporting

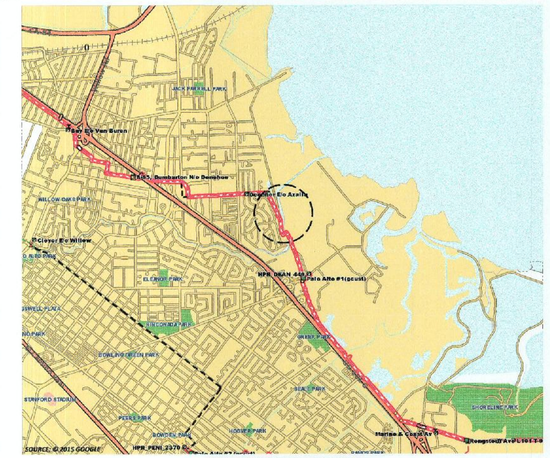
PG&E will submit a monitoring report to SFCJPA and the RWQCB, summarizing system operation and monitoring results, within 30 days after the end of the project.

Figures

CP AREA # L101-PEN
WALL MAP 3280
PLAT I6, I7, J7
SANTA CLARA COUNTY
SAN MATEO COUNTY

L-101, MP 12.33 - 12.87
Relocate 3,350 Feet of 24" Pipe
San Francisquito Creek - Palo Alto, East Palo Alto





VICINITY SKETCH
NOT TO SCALE
PALO ALTO & EAST PALO ALTO, CA

SCHEDULE OF SHEETS

SHEET 1 -- TITLE & INDEX
SHEET 2 -- CONSTRUCTION NOTES
SHEET 3 -- LEGEND & STAMPS
SHEET 4-7 -- PLAN & PROFILE
SHEET 8-10 -- DETAILS
SHEET 11 -- BILL OF MATERIALS
SHEET 12 -- DEACTIVATION SHEET

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ZERO IN ON SAFETY

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
0	12/2/15	ISSUED FOR CONSTRUCTION	31189651	D9SK	CDB6	K1F7	OHR1 JDQ4

REVISIONS

APPROVED BY	
	PSRS 40993
	SUPV K1F7
	DSGN D9SK
	DWN D9SK
	CHKD CDB6
	OK
JDQ4	DATE 11-17-15
OHR1	SCALES AS SHOWN

PIPELINE - TITLE & INDEX
L-101 MP 12.33 - 12.87
RELOCATE 3,350 FEET OF 24" PIPE
PALO ALTO, SANTA CLARA
EAST PALO ALTO, SAN MATEO
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

SAFETY PLEDGE
I ALWAYS PUT SAFETY FIRST.
I LOOK FOR AND ACT TO RESOLVE UNSAFE SITUATIONS.
I HELP AND ENCOURAGE OTHERS TO ACT SAFELY.

REGISTERED PROFESSIONAL ENGINEER
OSCAR H. ROSALES
M18299
MECHANICAL
STATE OF CALIFORNIA

BILL OF MATL	SEE SHEET 11
REF DWG LIST	SEE SHEET 2
SUPSDS	
SUPSD BY	
SHEET NO. 1 OF 12 SHEETS	
31189651	0

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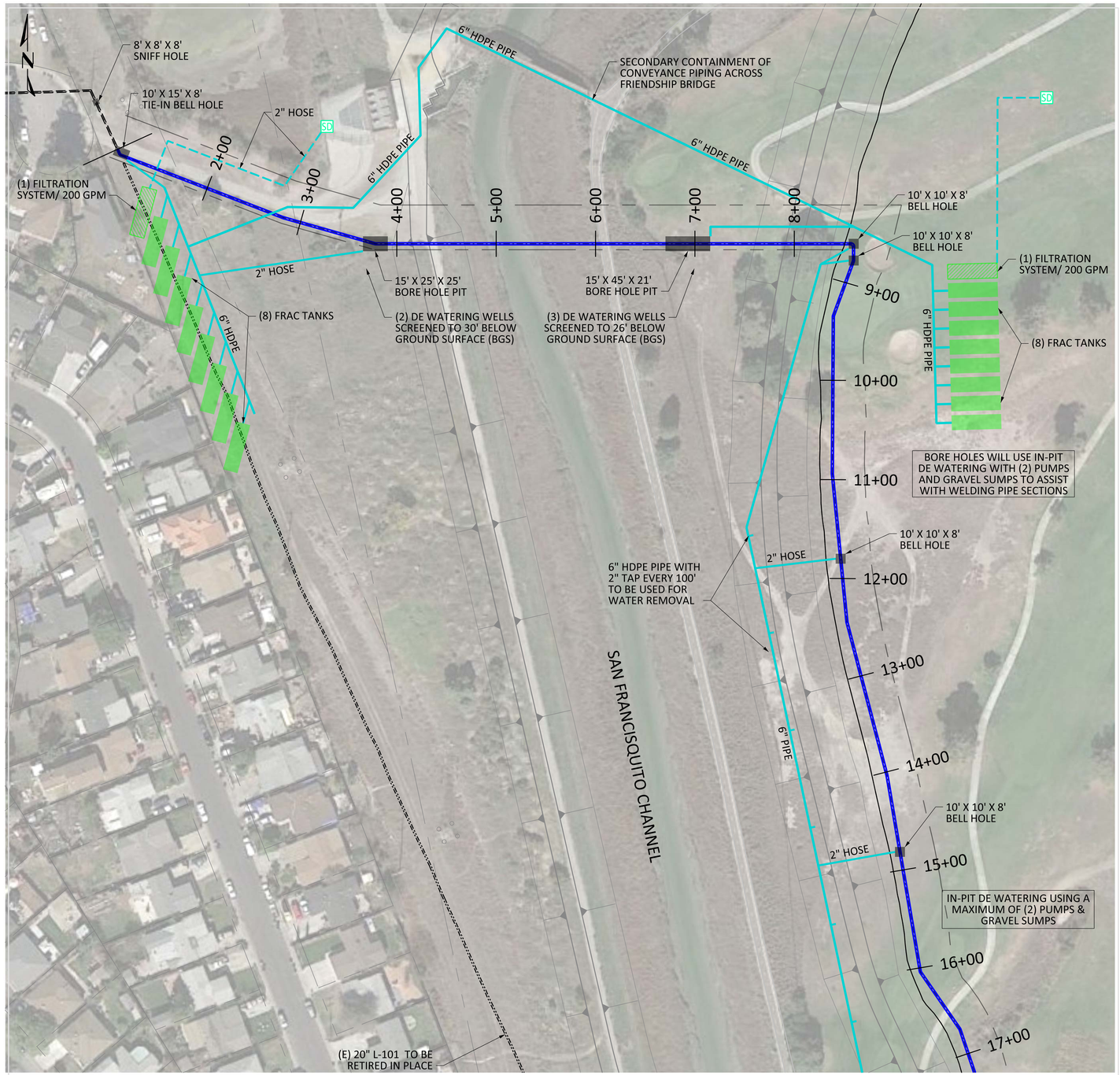

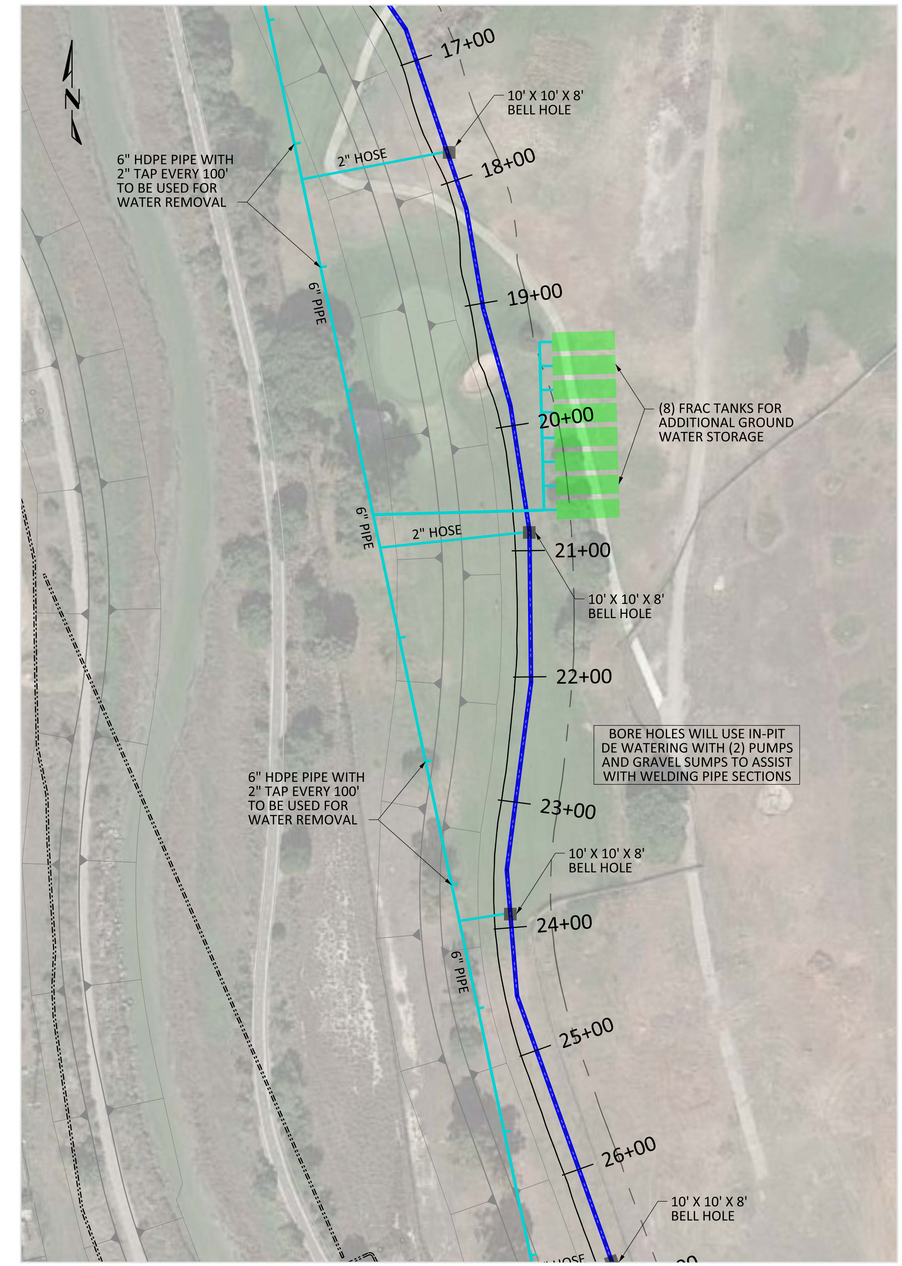

NOTE: AVERAGE BELL HOLE FOR WELDING PIPE SECTIONS WILL BE APPROX. 10' WIDE x 10' LONG x 8' DEEP, SPACED APPROX. EVERY 300'

LEGEND

- FRAC TANK
- BELL HOLE
- WATER CONTAINMENT PIPING
- WATER DISCHARG PIPING
- PROPOSED GAS LINE
- SD STORM DRAIN

WORKSPACE MAP

SCALE: 1" = 60'

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REVISIONS

APPROVED BY	
PSRS	40993
SUPV	K1F7
DSGN	D9Sk
DWN	D9Sk
CHKD	CDB6
OK	
DATE	7/1/2016
SCALES	AS SHOWN

PIPELINE - BILL OF MATERIALS
L-101, MP 12.33 - 12.87
RELOCATE 3,350 FEET OF 24" PIPE
PALO ALTO, SANTA CLARA
EAST PALO ALTO, SAN MATEO
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL	SEE SHEET 11
REF DWG LIST	SEE SHEET 2
SUPSDS	
SUPSD BY	
SHEET NO. 1 OF 2 SHEETS	
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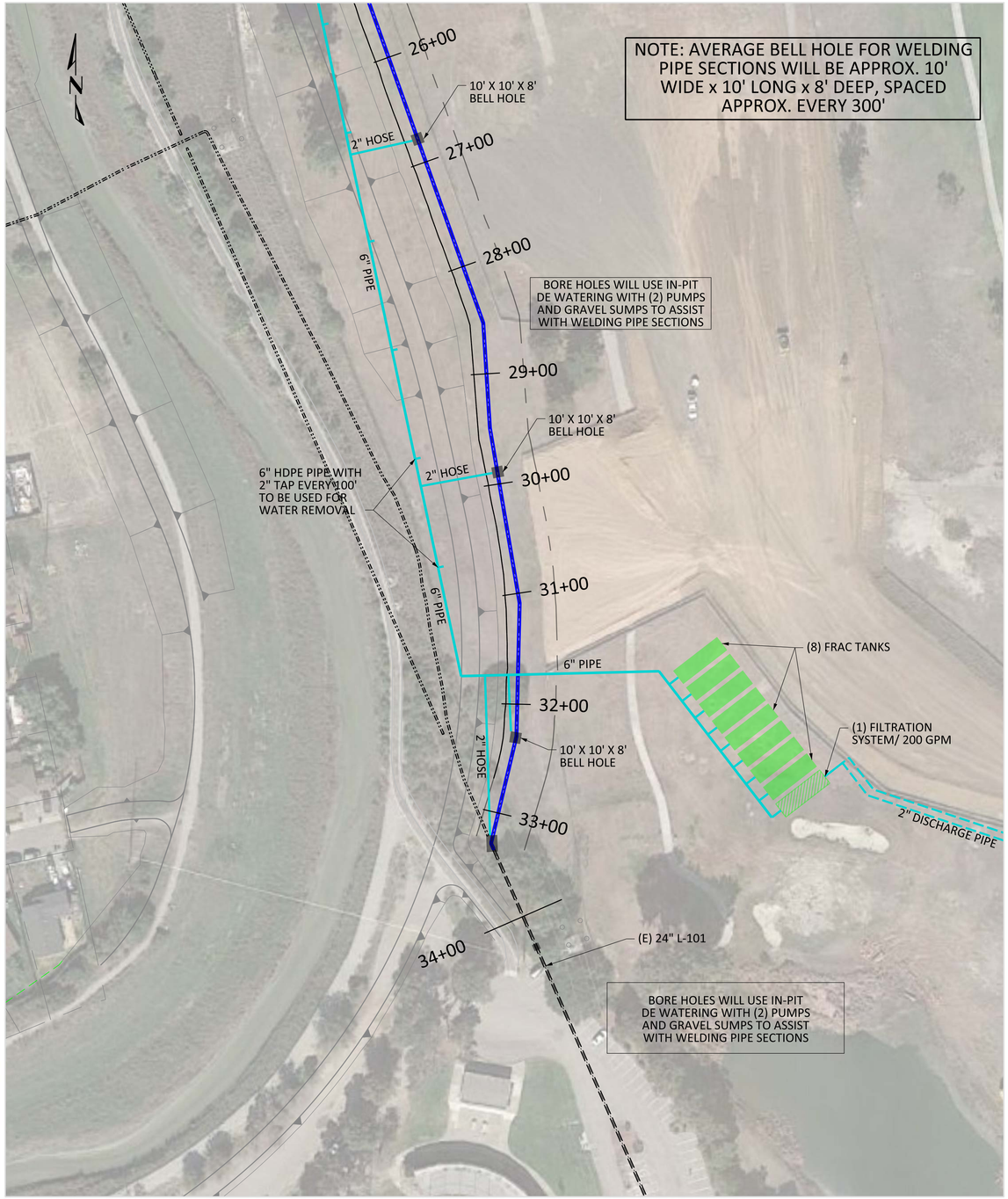

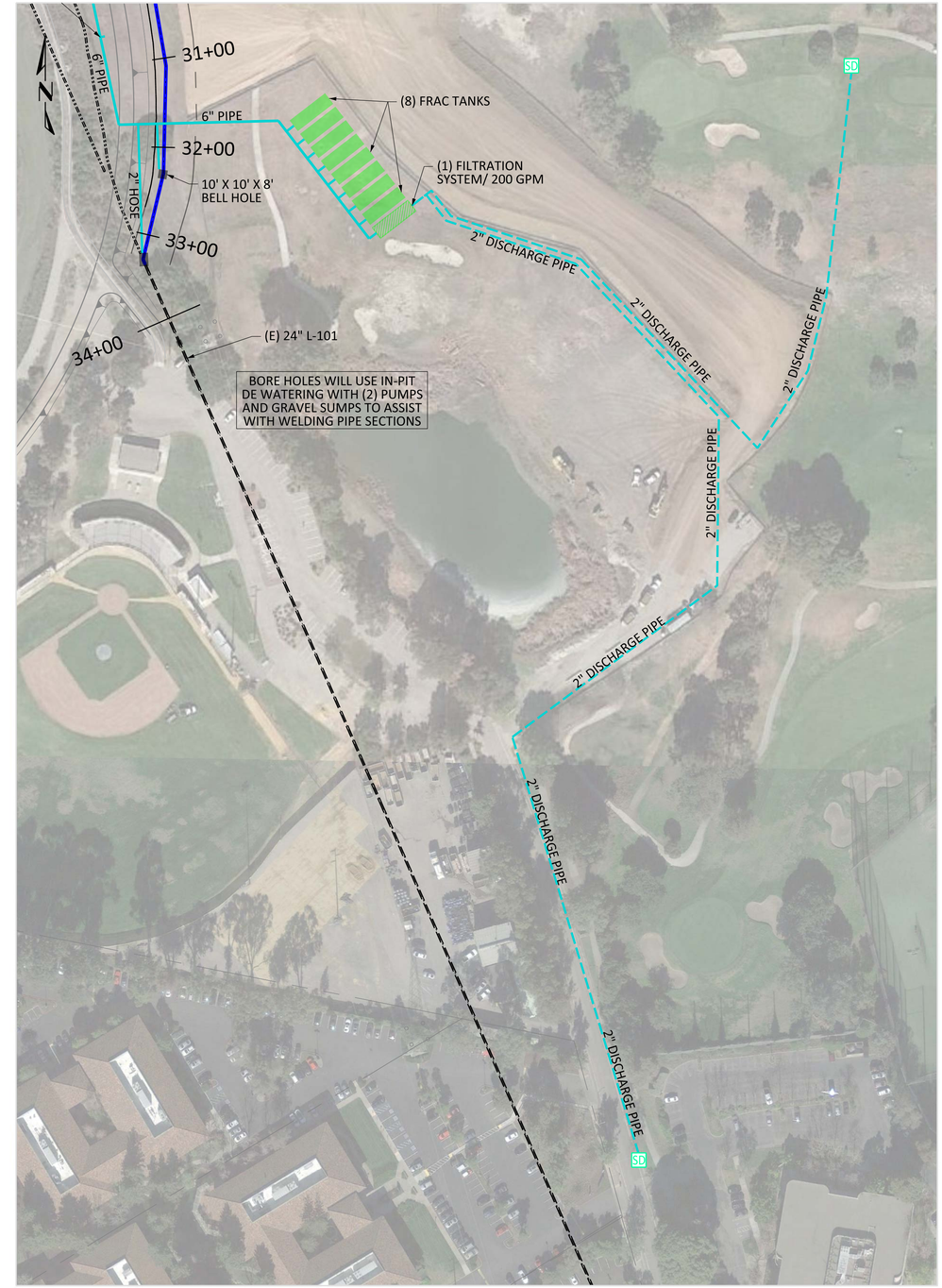

LEGEND

- FRAC TANK
- BELL HOLE
- WATER CONTAINMENT PIPING
- WATER DISCHARG PIPING
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- SD STORM DRAIN

WORKSPACE MAP

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PSRS	40993
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DSGN	D9Sk
DWN	D9Sk
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OK	
DATE	7/1/2016
SCALES	AS SHOWN

PIPELINE - WORKSPACE
L-101, MP 12.33 - 12.87
RELOCATE 3,350 FEET OF 24" PIPE
PALO ALTO, SANTA CLARA
EAST PALO ALTO, SAN MATEO
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SHEET NO. 2 OF 2 SHEETS	
31189651	0

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Figure 3
Micro Tunnel Bore Pit - Well Point Dewatering Schematic

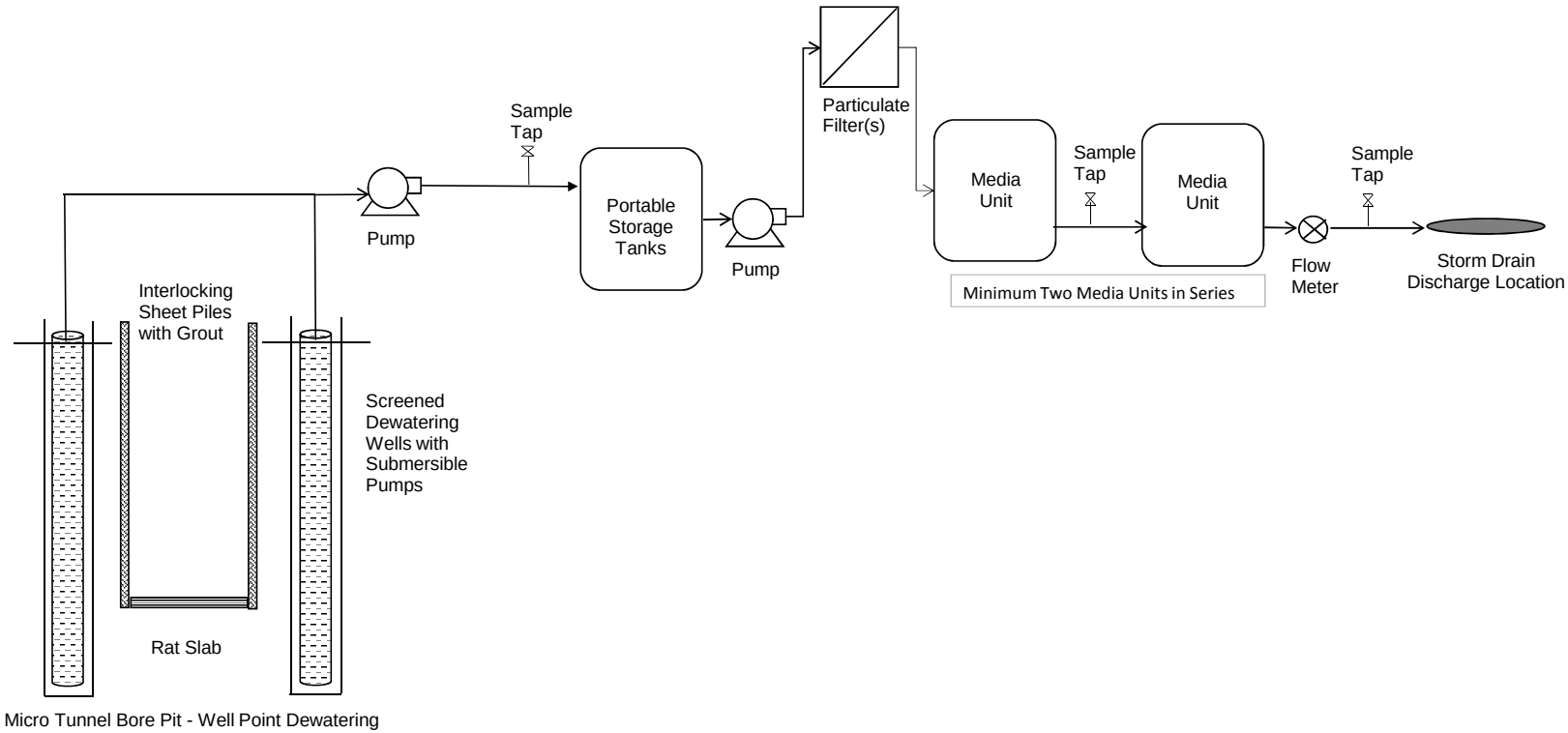
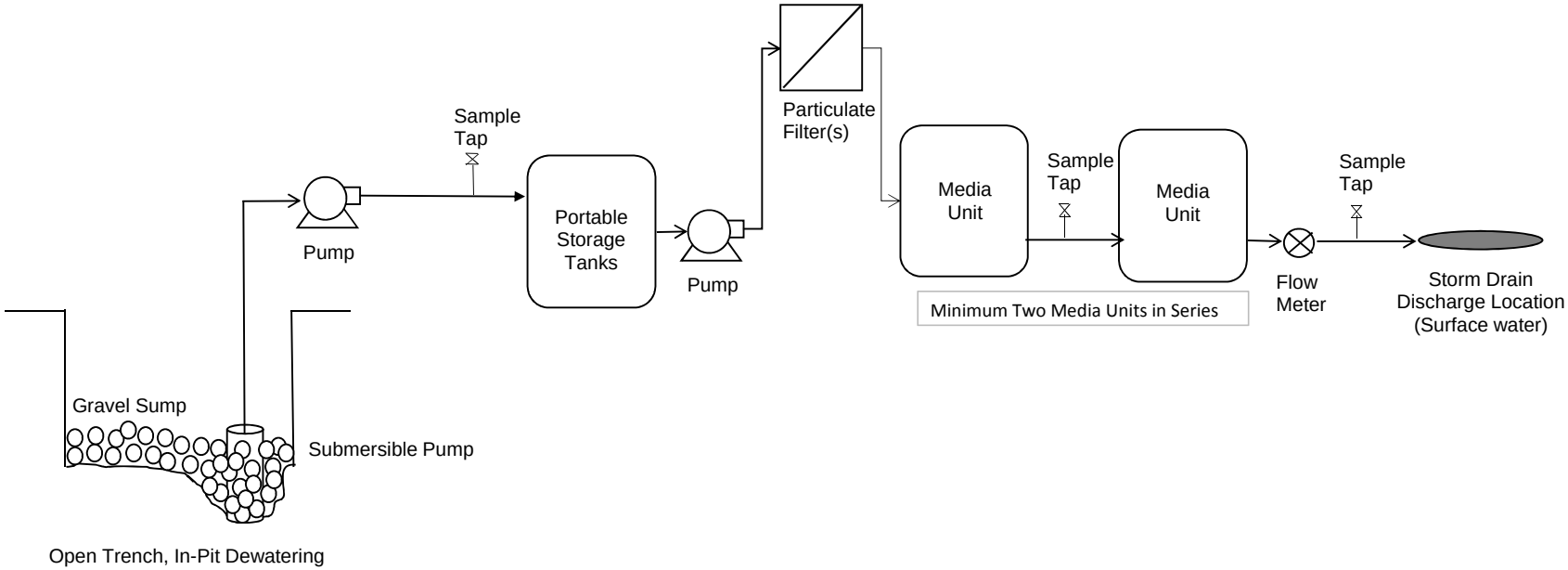
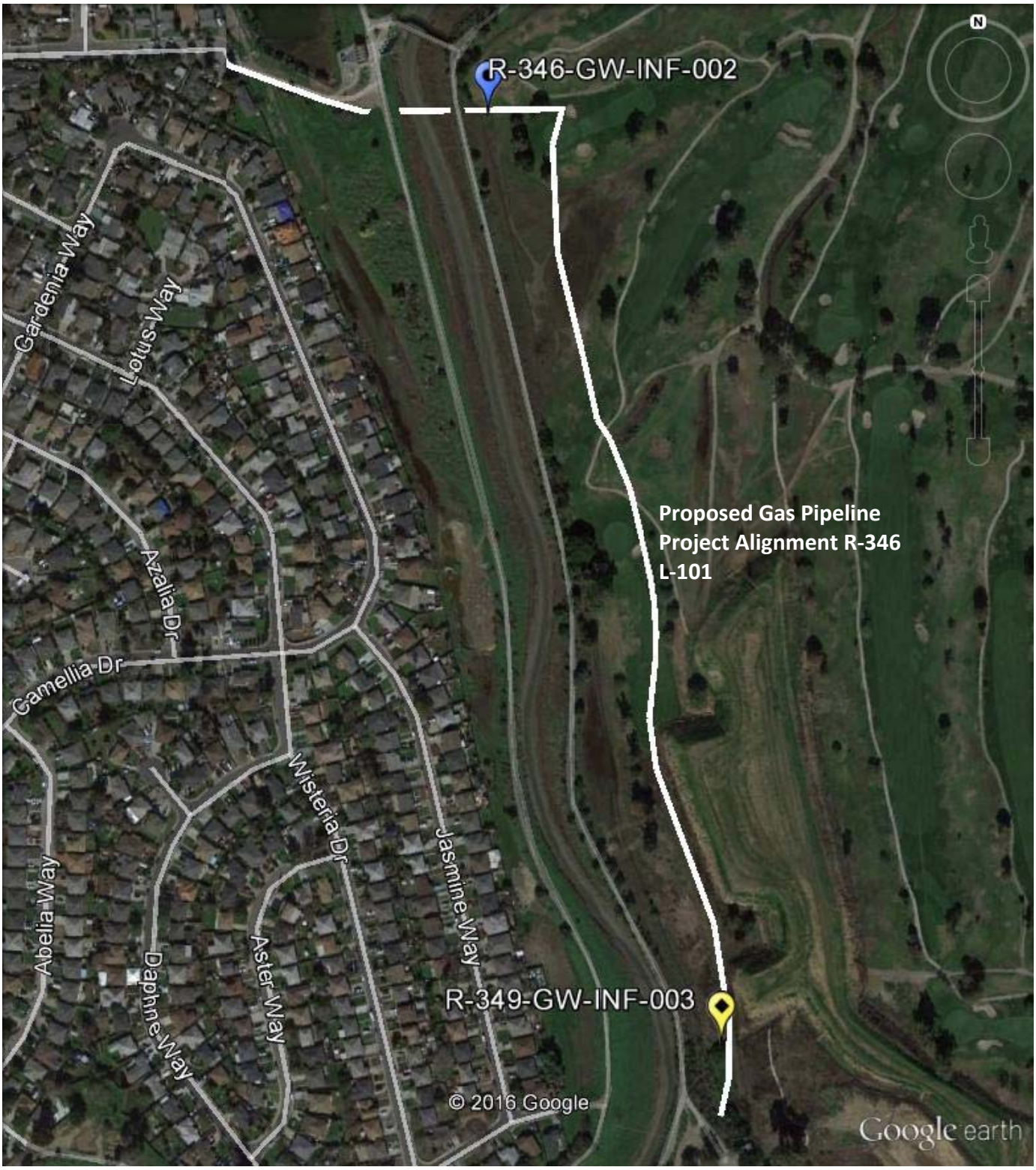


Figure 4
Open Trench, In-Pit Dewatering Schematic





Legend:

Hand Auger Boring

Direct Push Boring

Figure 5. R-349 Soil Boring Locations

Attachment 1

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
Northeast Groundwater Sample - R-349-GW-INF-002										
R-349-GW-INF-FF-002-PreStrt1	Calcium	E200.7	mg/L	1300	D	1	0.14		--	---
R-349-GW-INF-FF-002-PreStrt1	Magnesium	E200.7	mg/L	1200	B,D	0.5	0.19		--	---
R-349-GW-INF-FF-002-PreStrt1	Potassium	E200.7	mg/L	190	D	10	1		--	---
R-349-GW-INF-FF-002-PreStrt1	Sodium	E200.7	mg/L	5400	D	5	0.51		--	---
R-349-GW-INF-FF-002-PreStrt1	Antimony	E200.8	µg/L	ND	D,U	20	1.1		4300	0.5
R-349-GW-INF-FF-002-PreStrt1	Arsenic	E200.8	µg/L	19 Est. Conc./DNQ	D,J	20	7		36	2
R-349-GW-INF-FF-002-PreStrt1	Barium	E200.8	µg/L	95	D	10	2.1		--	---
R-349-GW-INF-FF-002-PreStrt1	Beryllium	E200.8	µg/L	2.7 Est. Conc./DNQ	D,J	10	1.4		--	---
R-349-GW-INF-FF-002-PreStrt1	Cadmium	E200.8	µg/L	ND	D,U	10	1.1		2.2	0.25
R-349-GW-INF-FF-002-PreStrt1	Chromium	E200.8	µg/L	ND	D,U	30	5		11	0.5
R-349-GW-INF-FF-002-PreStrt1	Cobalt	E200.8	µg/L	16	D	10	1		--	---
R-349-GW-INF-FF-002-PreStrt1	Copper	E200.8	µg/L	13 Est. Conc./DNQ	D,J	20	2.2	Y	4.7	0.5
R-349-GW-INF-FF-002-PreStrt1	Lead	E200.8	µg/L	ND	D,U	10	1		2.5	0.5
R-349-GW-INF-FF-002-PreStrt1	Molybdenum	E200.8	µg/L	13	D	10	1.1		--	---
R-349-GW-INF-FF-002-PreStrt1	Nickel	E200.8	µg/L	62	D	20	1.9	Y	19	1
R-349-GW-INF-FF-002-PreStrt1	Selenium	E200.8	µg/L	18 Est. Conc./DNQ	D,J	20	1.9	Y	5	2
R-349-GW-INF-FF-002-PreStrt1	Silver	E200.8	µg/L	ND	D,U	10	1		1.9	0.25
R-349-GW-INF-FF-002-PreStrt1	Thallium	E200.8	µg/L	ND	D,U	10	1		6.3	1
R-349-GW-INF-FF-002-PreStrt1	Vanadium	E200.8	µg/L	14 Est. Conc./DNQ	D,J	30	7.8		--	---
R-349-GW-INF-FF-002-PreStrt1	Zinc	E200.8	µg/L	18 Est. Conc./DNQ	D,J	100	17		81	1
R-349-GW-INF-FF-002-PreStrt1	Mercury	E245.1	µg/L	ND	U	0.2	0.03		0.025	0.5
R-349-GW-INF-FF-002-PreStrt1	Bicarbonate alkalinity as CaCO3	SM2320B	mg/L	440	D	8.2	8.2		--	---
R-349-GW-INF-FF-002-PreStrt1	Carbonate Alkalinity as CaCO3	SM2320B	mg/L	ND	D,U	8.2	8.2		--	---
R-349-GW-INF-FF-002-PreStrt1	Total Alkalinity as CaCO3	SM2320B	mg/L	440	D	8.2	8.2		--	---
R-349-GW-INF-FF-002-PRESTRT1	Chromium, hexavalent	SW7196A	mg/L	ND	U	0.01	0.01		0.011	0.01
R-349-GW-INF-FF-002-PreStrt2	Aluminum	E200.7	µg/L	410 Est. Conc./DNQ	D,J	500	260		--	---
R-349-GW-INF-FF-002-PreStrt2	Boron	E200.7	µg/L	1800	D	1000	100		--	---
R-349-GW-INF-FF-002-PreStrt2	Iron	E200.7	µg/L	16000	D	500	300		--	--
R-349-GW-INF-FF-002-PreStrt2	Lithium, Total Recoverable	E200.7	µg/L	360	D	200	66		--	---
R-349-GW-INF-FF-002-PreStrt2	Manganese	E200.7	µg/L	8200	D	100	40		--	---
R-349-GW-INF-002-PreStrt1	Total Kjeldahl Nitrogen	E351.2	mg/L	1.8		0.2	0.2		--	---
R-349-GW-INF-002-PreStrt1	Ortho phosphate	SM4500PE	mg/L	ND	U	0.01	0.01		--	---
R-349-GW-INF-002-PreStrt1	Total phosphorus	SM4500PE	mg/L	0.43		0.02	0.02		--	---
R-349-GW-INF-002-PreStrt1	Specific Conductance	A2510B	µmhos/cm	33800		1	1		--	---
R-349-GW-INF-002-PreStrt1	EC as NaCl (Salinity)	Calculation	mg/L	20000		1.0	1.0		--	---
R-349-GW-INF-002-PreStrt1	Unionized Ammonia as N	Calculation	mg/L	ND		0.0072	0.0072		--	---
R-349-GW-INF-002-PreStrt1	2,3,7,8-TCDD	E1613	pg/L	ND	U	0.864	0.132		1.4E -08	none
R-349-GW-INF-002-PreStrt1	Turbidity	E180.1	NTU	14000	D	100	100		--	---
R-349-GW-INF-002-PreStrt1	Antimony	E200.8	µg/L	ND	D,U	20	1.1		4300	0.5
R-349-GW-INF-002-PreStrt1	Arsenic	E200.8	µg/L	20	D	20	7		36	2
R-349-GW-INF-002-PreStrt1	Barium	E200.8	µg/L	190	D	10	2.1		--	---
R-349-GW-INF-002-PreStrt1	Beryllium	E200.8	µg/L	3 Est. Conc./DNQ	D,J	10	1.4		--	---
R-349-GW-INF-002-PreStrt1	Cadmium	E200.8	µg/L	ND	D,U	10	1.1		2.2	0.25
R-349-GW-INF-002-PreStrt1	Chromium	E200.8	µg/L	27 Est. Conc./DNQ	D,J	30	5	Y	11	0.5
R-349-GW-INF-002-PreStrt1	Cobalt	E200.8	µg/L	15	D	10	1		--	---
R-349-GW-INF-002-PreStrt1	Copper	E200.8	µg/L	39	D	20	2.2	Y	4.7	0.5
R-349-GW-INF-002-PreStrt1	Lead	E200.8	µg/L	5.3 Est. Conc./DNQ	D,J	10	1	Y	2.5	0.5
R-349-GW-INF-002-PreStrt1	Molybdenum	E200.8	µg/L	8.5 Est. Conc./DNQ	D,J	10	1.1		--	---
R-349-GW-INF-002-PreStrt1	Nickel	E200.8	µg/L	75	D	20	1.9	Y	19	1
R-349-GW-INF-002-PreStrt1	Selenium	E200.8	µg/L	14 Est. Conc./DNQ	D,J	20	1.9	Y	5	2
R-349-GW-INF-002-PreStrt1	Silver	E200.8	µg/L	ND	D,U	10	1		1.9	0.25
R-349-GW-INF-002-PreStrt1	Thallium	E200.8	µg/L	ND	D,U	10	1		6.3	1
R-349-GW-INF-002-PreStrt1	Vanadium	E200.8	µg/L	36	D	30	7.8		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-002-PreStrt1	Zinc	E200.8	µg/L	53 Est. Conc./DNQ	D,J	100	17		81	1
R-349-GW-INF-002-PreStrt1	Mercury	E245.1	µg/L	ND	U	0.2	0.03		0.025	0.5
R-349-GW-INF-002-PreStrt1	Mercury	E245.1	µg/L	0.026		0.020	0.020	Y	0.025	0.5
R-349-GW-INF-002-PreStrt1	Sulfate	E300.0	mg/L	1400	D	50	7		--	---
R-349-GW-INF-002-PreStrt1	Total Cyanide	E335.4	mg/L	ND	U	0.005	0.0031		0.0029	5
R-349-GW-INF-002-PreStrt1	Ammonia as N	E350.1	mg/L	1.4		0.1	0.025		--	---
R-349-GW-INF-002-PreStrt1	Methylene Blue Active Substances	E425.1	mg/L	ND	U	0.1	0.015		--	---
R-349-GW-INF-002-PreStrt1	Ethylene Dibromide (EDB)	E504.1	µg/L	ND	U	0.01	0.0041		--	---
R-349-GW-INF-002-PreStrt1	4,4´-DDD	E608	µg/L	ND	U	0.005	0.0018		0.00084	0.05
R-349-GW-INF-002-PreStrt1	4,4´-DDE	E608	µg/L	ND	U	0.005	0.0018		0.00059	0.05
R-349-GW-INF-002-PreStrt1	4,4´-DDT	E608	µg/L	ND	U	0.005	0.0018		0.00059	0.01
R-349-GW-INF-002-PreStrt1	Aldrin	E608	µg/L	ND	U	0.005	0.002		0.00014	0.005
R-349-GW-INF-002-PreStrt1	Alpha-BHC	E608	µg/L	ND	U	0.005	0.0018		0.013	0.01
R-349-GW-INF-002-PreStrt1	Alpha-Chlordane	E608	µg/L	ND	U	0.005	0.0013		--	---
R-349-GW-INF-002-PreStrt1	Aroclor-1016	E608	µg/L	ND	U	0.2	0.061		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1221	E608	µg/L	ND	U	0.2	0.2		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1232	E608	µg/L	ND	U	0.2	0.12		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1242	E608	µg/L	ND	U	0.2	0.15		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1248	E608	µg/L	ND	U	0.2	0.06		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1254	E608	µg/L	ND	U	0.2	0.06		0.00017	0.5
R-349-GW-INF-002-PreStrt1	Aroclor-1260	E608	µg/L	ND	U	0.2	0.051		0.00017	0.5
R-349-GW-INF-002-PreStrt1	beta-BHC	E608	µg/L	ND	U	0.005	0.0038		0.046	0.005
R-349-GW-INF-002-PreStrt1	Delta-Bhc	E608	µg/L	ND	U	0.005	0.0017		--	---
R-349-GW-INF-002-PreStrt1	Dieldrin	E608	µg/L	ND	U	0.005	0.0025		0.00014	0.01
R-349-GW-INF-002-PreStrt1	Endosulfan I	E608	µg/L	ND	U	0.005	0.0027		0.0087	0.02
R-349-GW-INF-002-PreStrt1	Endosulfan II	E608	µg/L	ND	U	0.005	0.0025		0.0087	0.01
R-349-GW-INF-002-PreStrt1	Endosulfan Sulfate	E608	µg/L	ND	U	0.005	0.0024		--	---
R-349-GW-INF-002-PreStrt1	Endrin	E608	µg/L	ND	U	0.005	0.0033		0.0023	0.01
R-349-GW-INF-002-PreStrt1	Endrin Aldehyde	E608	µg/L	ND	U	0.01	0.0036		0.81	0.01
R-349-GW-INF-002-PreStrt1	gamma-BHC	E608	µg/L	ND	U	0.005	0.0019		0.063	0.02
R-349-GW-INF-002-PreStrt1	gamma-Chlordane	E608	µg/L	ND	U	0.005	0.0035		--	---
R-349-GW-INF-002-PreStrt1	Heptachlor	E608	µg/L	ND	U	0.005	0.0032		0.00021	0.01
R-349-GW-INF-002-PreStrt1	Heptachlor Epoxide	E608	µg/L	ND	U	0.005	0.0048		0.00011	0.01
R-349-GW-INF-002-PreStrt1	Methoxychlor	E608	µg/L	ND	U	0.005	0.0035		--	---
R-349-GW-INF-002-PreStrt1	Toxaphene	E608	µg/L	ND	U	2	0.2		0.0002	none
R-349-GW-INF-002-PRESTRT1	3,3-Dichlorobenzidine	E625	µg/L	ND	U	10	2.0		0.077	5
R-349-GW-INF-002-PRESTRT1	Benzidine	E625	µg/L	ND	U	20	2.4		0.00054	5
R-349-GW-INF-002-PreStrt1	Total Solids	SM2540B	mg/L	47000	D	1000	1000	Y	30	none
R-349-GW-INF-002-PreStrt1	Total Dissolved Solids	SM2540C	mg/L	26000	D	1000	1000		--	---
R-349-GW-INF-002-PRESTRT1	Chromium, hexavalent	SW7196A	mg/L	ND	U	0.01	0.01		0.011	0.01
R-349-GW-INF-002-PreStrt1	Methanol	SW8015	µg/L	ND	U	100	10		--	---
R-349-GW-INF-002-PRESTRT1	TPH-Diesel	SW8015	mg/L	ND	U	0.1	0.061		--	---
R-349-GW-INF-002-PRESTRT1	TPH-motor oil	SW8015B	mg/L	0.072 Est. Conc./DNQ	J	0.1	0.057	Y	0.05	none
R-349-GW-INF-002-PRESTRT1	TPH-Gasoline	SW8015-P	mg/L	ND	U	0.02	0.05		--	---
R-349-GW-INF-002-PreStrt1	Diisopropyl ether	SW8260	µg/L	ND	U	0.5	0.1		--	---
R-349-GW-INF-002-PreStrt1	Ethanol	SW8260	µg/L	ND	U	12.5	0.2		--	---
R-349-GW-INF-002-PreStrt1	Ethyl tert-butyl ether	SW8260	µg/L	ND	U	0.5	0.04		--	---
R-349-GW-INF-002-PreStrt1	t-Butyl alcohol	SW8260	µg/L	ND	U	1	0.1		--	---
R-349-GW-INF-002-PreStrt1	tert-Amyl methyl ether	SW8260	µg/L	ND	U	0.5	0.03		--	---
R-349-GW-INF-002-PreStrt1	1,1,1,2-Tetrachloroethane	SW8260B	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-002-PreStrt1	1,1,1-Trichloroethane	SW8260B	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-002-PreStrt1	1,1,2,2-Tetrachloroethane	SW8260B	µg/L	ND	U	0.5	0.17		11	1
R-349-GW-INF-002-PreStrt1	1,1,2-Trichloro-1,2,2-trifluoroethane	SW8260B	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-002-PreStrt1	1,1,2-Trichloroethane	SW8260B	µg/L	ND	U	0.5	0.16		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-002-PreStrt1	1,1-Dichloroethane	SW8260B	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-002-PreStrt1	1,1-Dichloroethene	SW8260B	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-002-PreStrt1	1,1-Dichloropropene	SW8260B	µg/L	ND	U	0.5	0.085		--	---
R-349-GW-INF-002-PreStrt1	1,2,3-Trichlorobenzene	SW8260B	µg/L	ND	U	0.5	0.16		--	---
R-349-GW-INF-002-PreStrt1	1,2,3-Trichloropropane	SW8260B	µg/L	ND	U	1	0.24		--	---
R-349-GW-INF-002-PreStrt1	1,2,4-Trichlorobenzene	SW8260B	µg/L	ND	U	0.5	0.19		--	---
R-349-GW-INF-002-PreStrt1	1,2,4-Trimethylbenzene	SW8260B	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dibromo-3-chloropropane	SW8260B	µg/L	ND	U	1	0.44		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dichlorobenzene	SW8260B	µg/L	ND	U	0.5	0.072		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dichloroethane	SW8260B	µg/L	ND	U	0.5	0.17		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dichloroethene (Total)	SW8260B	µg/L	ND	U	1	0.23		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dichloropropane	SW8260B	µg/L	ND	U	0.5	0.13		39	1
R-349-GW-INF-002-PreStrt1	1,3,5-Trimethylbenzene	SW8260B	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-002-PreStrt1	1,3-Dichlorobenzene	SW8260B	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-002-PreStrt1	1,3-Dichloropropane	SW8260B	µg/L	ND	U	0.5	0.086		--	---
R-349-GW-INF-002-PreStrt1	1,3-Dichloropropene	SW8260B	µg/L	ND	U	1	0.21		1700	2
R-349-GW-INF-002-PreStrt1	1,4-Dichlorobenzene	SW8260B	µg/L	ND	U	0.5	0.062		--	---
R-349-GW-INF-002-PreStrt1	2,2-Dichloropropane	SW8260B	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-002-PreStrt1	2-Butanone (MEK)	SW8260B	µg/L	ND	U	10	2.5		--	---
R-349-GW-INF-002-PreStrt1	2-Chloroethyl Vinyl Ether	SW8260B	µg/L	ND	U	10	1		--	---
R-349-GW-INF-002-PreStrt1	2-Chlorotoluene	SW8260B	µg/L	ND	U	0.5	0.2		--	---
R-349-GW-INF-002-PreStrt1	4-Chlorotoluene	SW8260B	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-002-PreStrt1	4-Methyl-2-pentanone (MIBK)	SW8260B	µg/L	ND	U	10	2.1		--	---
R-349-GW-INF-002-PreStrt1	Acetone	SW8260B	µg/L	ND	U	10	4.6		--	---
R-349-GW-INF-002-PreStrt1	Acrolein	SW8260B	µg/L	ND	U	20	7.9		--	---
R-349-GW-INF-002-PreStrt1	Acrylonitrile	SW8260B	µg/L	ND	U	5	1.2		0.66	2
R-349-GW-INF-002-PreStrt1	Benzene	SW8260B	µg/L	ND	U	0.5	0.083		--	---
R-349-GW-INF-002-PreStrt1	Bromobenzene	SW8260B	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-002-PreStrt1	Bromochloromethane	SW8260B	µg/L	ND	U	0.5	0.24		--	---
R-349-GW-INF-002-PreStrt1	Bromodichloromethane	SW8260B	µg/L	ND	U	0.5	0.14		46	2
R-349-GW-INF-002-PreStrt1	Bromoform	SW8260B	µg/L	ND	U	0.5	0.27		360	2
R-349-GW-INF-002-PreStrt1	Bromomethane	SW8260B	µg/L	ND	U	1	0.25		--	---
R-349-GW-INF-002-PreStrt1	Carbon Disulfide	SW8260B	µg/L	ND	U	1	0.38		--	---
R-349-GW-INF-002-PreStrt1	Carbon tetrachloride	SW8260B	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-002-PreStrt1	Chlorobenzene	SW8260B	µg/L	ND	U	0.5	0.093		--	---
R-349-GW-INF-002-PreStrt1	Chloroethane	SW8260B	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-002-PreStrt1	Chloroform	SW8260B	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-002-PreStrt1	Chloromethane	SW8260B	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-002-PreStrt1	cis-1,2-Dichloroethene	SW8260B	µg/L	ND	U	0.5	0.085		--	---
R-349-GW-INF-002-PreStrt1	cis-1,3-Dichloropropene	SW8260B	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-002-PreStrt1	Dibromochloromethane	SW8260B	µg/L	ND	U	0.5	0.13		34	2
R-349-GW-INF-002-PreStrt1	Dibromomethane	SW8260B	µg/L	ND	U	0.5	0.24		--	---
R-349-GW-INF-002-PreStrt1	Dichlorodifluoromethane	SW8260B	µg/L	ND	U	0.5	0.099		--	---
R-349-GW-INF-002-PreStrt1	Ethylbenzene	SW8260B	µg/L	ND	U	0.5	0.098		--	---
R-349-GW-INF-002-PreStrt1	Ethylene Dibromide (EDB)	SW8260B	µg/L	ND	U	0.5	0.16		--	---
R-349-GW-INF-002-PreStrt1	Hexachlorobutadiene	SW8260B	µg/L	ND	U	0.5	0.17		50	none
R-349-GW-INF-002-PreStrt1	Isopropylbenzene	SW8260B	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-002-PreStrt1	Methylene chloride	SW8260B	µg/L	ND	U	1	0.48		--	---
R-349-GW-INF-002-PreStrt1	Methyl-t-butyl ether (MTBE)	SW8260B	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-002-PreStrt1	Naphthalene	SW8260B	µg/L	ND	U	0.5	0.36		--	---
R-349-GW-INF-002-PreStrt1	n-Butylbenzene	SW8260B	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-002-PreStrt1	n-Propylbenzene	SW8260B	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-002-PreStrt1	o-Xylene	SW8260B	µg/L	ND	U	0.5	0.082		--	---
R-349-GW-INF-002-PreStrt1	p- & m-Xylenes	SW8260B	µg/L	ND	U	0.5	0.28		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-002-PreStrt1	p-Isopropyltoluene	SW8260B	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-002-PreStrt1	sec-Butylbenzene	SW8260B	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-002-PreStrt1	Styrene	SW8260B	µg/L	ND	U	0.5	0.068		--	---
R-349-GW-INF-002-PreStrt1	t-Butyl alcohol	SW8260B	µg/L	ND	U	10	4.9		--	---
R-349-GW-INF-002-PreStrt1	tert-Butylbenzene	SW8260B	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-002-PreStrt1	Tetrachloroethene	SW8260B	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-002-PreStrt1	Toluene	SW8260B	µg/L	ND	U	0.5	0.093		--	---
R-349-GW-INF-002-PreStrt1	trans-1,2-Dichloroethene	SW8260B	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-002-PreStrt1	trans-1,3-Dichloropropene	SW8260B	µg/L	ND	U	0.5	0.079		--	---
R-349-GW-INF-002-PreStrt1	Trichloroethene	SW8260B	µg/L	ND	U	0.5	0.085		--	---
R-349-GW-INF-002-PreStrt1	Trichlorofluoromethane	SW8260B	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-002-PreStrt1	Vinyl Chloride	SW8260B	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-002-PreStrt1	Xylenes, Total	SW8260B	µg/L	ND	U	1	0.36		--	---
R-349-GW-INF-002-PreStrt1	1,4-Dioxane	SW8270	µg/L	ND	U	1	0.53		--	---
R-349-GW-INF-002-PreStrt1	1,2,4-Trichlorobenzene	SW8270C	µg/L	ND	U	2	0.87		--	---
R-349-GW-INF-002-PreStrt1	1,2-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.39		--	---
R-349-GW-INF-002-PreStrt1	1,2-Diphenylhydrazine	SW8270C	µg/L	ND	U	2	0.43		0.54	1
R-349-GW-INF-002-PreStrt1	1,3-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.5		--	---
R-349-GW-INF-002-PreStrt1	1,4-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.55		--	---
R-349-GW-INF-002-PreStrt1	2,4,5-Trichlorophenol	SW8270C	µg/L	ND	U	5	0.66		--	---
R-349-GW-INF-002-PreStrt1	2,4,6-Trichlorophenol	SW8270C	µg/L	ND	U	5	0.51		6.5	10
R-349-GW-INF-002-PreStrt1	2,4-Dichlorophenol	SW8270C	µg/L	ND	U	2	0.63		--	---
R-349-GW-INF-002-PreStrt1	2,4-Dimethylphenol	SW8270C	µg/L	ND	U	2	0.6		--	---
R-349-GW-INF-002-PreStrt1	2,4-Dinitrophenol	SW8270C	µg/L	ND	U	10	2.5		--	---
R-349-GW-INF-002-PreStrt1	2,4-Dinitrotoluene	SW8270C	µg/L	ND	U	2	0.75		9.1	5
R-349-GW-INF-002-PreStrt1	2,6-Dinitrotoluene	SW8270C	µg/L	ND	U	2	0.56		--	---
R-349-GW-INF-002-PreStrt1	2-Chloronaphthalene	SW8270C	µg/L	ND	U	2	0.34		--	---
R-349-GW-INF-002-PreStrt1	2-Chlorophenol	SW8270C	µg/L	ND	U	2	0.44		--	---
R-349-GW-INF-002-PreStrt1	2-Methylnaphthalene	SW8270C	µg/L	ND	U	2	0.38		--	---
R-349-GW-INF-002-PreStrt1	2-Methylphenol	SW8270C	µg/L	ND	U	2	0.55		--	---
R-349-GW-INF-002-PreStrt1	2-Nitroaniline	SW8270C	µg/L	ND	U	2	0.6		--	---
R-349-GW-INF-002-PreStrt1	2-Nitrophenol	SW8270C	µg/L	ND	U	2	0.68		--	---
R-349-GW-INF-002-PreStrt1	3- & 4-Methylphenol	SW8270C	µg/L	ND	U	2	0.72		--	---
R-349-GW-INF-002-PreStrt1	3,3-Dichlorobenzidine	SW8270C	µg/L	ND	U	10	0.65		0.077	5
R-349-GW-INF-002-PreStrt1	3-Nitroaniline	SW8270C	µg/L	ND	U	2	0.92		--	---
R-349-GW-INF-002-PreStrt1	4,6-Dinitro-2-methylphenol	SW8270C	µg/L	ND	U	10	1.8		--	---
R-349-GW-INF-002-PreStrt1	4-Bromophenyl Phenyl Ether	SW8270C	µg/L	ND	U	2	0.42		--	---
R-349-GW-INF-002-PreStrt1	4-Chloro-3-methylphenol	SW8270C	µg/L	ND	U	5	0.48		--	---
R-349-GW-INF-002-PreStrt1	4-Chloroaniline	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-002-PreStrt1	4-Chlorophenyl phenyl ether	SW8270C	µg/L	ND	U	2	0.46		--	---
R-349-GW-INF-002-PreStrt1	4-Nitroaniline	SW8270C	µg/L	ND	U	5	1.3		--	---
R-349-GW-INF-002-PreStrt1	4-Nitrophenol	SW8270C	µg/L	ND	U	2	1.9		--	---
R-349-GW-INF-002-PreStrt1	Acenaphthene	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-002-PreStrt1	Acenaphthylene	SW8270C	µg/L	ND	U	2	0.34		--	---
R-349-GW-INF-002-PreStrt1	Anthracene	SW8270C	µg/L	ND	U	2	0.32		--	---
R-349-GW-INF-002-PreStrt1	Azobenzene	SW8270C	µg/L	ND	U	2	0.34		--	---
R-349-GW-INF-002-PreStrt1	Benzidine	SW8270C	µg/L	ND	U	20	2.7		0.00054	5
R-349-GW-INF-002-PreStrt1	Benzo (a) anthracene	SW8270C	µg/L	ND	U	2	0.37		0.049	5
R-349-GW-INF-002-PreStrt1	Benzo (a) pyrene	SW8270C	µg/L	ND	U	2	0.87		0.049	10
R-349-GW-INF-002-PreStrt1	Benzo (b) fluoranthene	SW8270C	µg/L	ND	U	2	0.88		0.049	10
R-349-GW-INF-002-PreStrt1	Benzo (g,h,i) perylene	SW8270C	µg/L	ND	U	2	1.2		--	---
R-349-GW-INF-002-PreStrt1	Benzo (k) fluoranthene	SW8270C	µg/L	ND	U	2	0.96		0.049	10
R-349-GW-INF-002-PreStrt1	Benzoic Acid	SW8270C	µg/L	ND	U	10	2		--	---
R-349-GW-INF-002-PreStrt1	Benzyl Alcohol	SW8270C	µg/L	ND	U	2	0.44		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-002-PreStrt1	Bis (2-chloro-1-methylethyl) ethe	SW8270C	µg/L	ND	U	2	0.58		--	---
R-349-GW-INF-002-PreStrt1	Bis (2-chloroethoxy) methane	SW8270C	µg/L	ND	U	2	0.45		--	---
R-349-GW-INF-002-PreStrt1	Bis (2-chloroethyl) ether	SW8270C	µg/L	ND	U	2	0.86		1.4	1
R-349-GW-INF-002-PreStrt1	bis(2-Ethylhexyl)phthalate	SW8270C	µg/L	ND	U	5	0.67		5.9	5
R-349-GW-INF-002-PreStrt1	Butylbenzylphthalate	SW8270C	µg/L	ND	U	2	0.77		--	---
R-349-GW-INF-002-PreStrt1	Chrysene	SW8270C	µg/L	ND	U	2	0.42		0.049	10
R-349-GW-INF-002-PreStrt1	Dibenzo (a,h) anthracene	SW8270C	µg/L	ND	U	3	1.6		0.049	10
R-349-GW-INF-002-PreStrt1	Dibenzofuran	SW8270C	µg/L	ND	U	2	0.32		--	---
R-349-GW-INF-002-PreStrt1	Diethyl phthalate	SW8270C	µg/L	ND	U	2	0.35		--	---
R-349-GW-INF-002-PreStrt1	Dimethyl phthalate	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-002-PreStrt1	Di-N-Butylphthalate	SW8270C	µg/L	ND	U	2	0.33		--	---
R-349-GW-INF-002-PreStrt1	Di-n-octylphthalate	SW8270C	µg/L	ND	U	2	0.61		--	---
R-349-GW-INF-002-PreStrt1	Fluoranthene	SW8270C	µg/L	ND	U	2	0.61		--	---
R-349-GW-INF-002-PreStrt1	Fluorene	SW8270C	µg/L	ND	U	2	0.54		--	---
R-349-GW-INF-002-PreStrt1	Hexachlorobenzene	SW8270C	µg/L	ND	U	2	0.48		0.00077	1
R-349-GW-INF-002-PreStrt1	Hexachlorobutadiene	SW8270C	µg/L	ND	U	2	0.48		50	1
R-349-GW-INF-002-PreStrt1	Hexachlorocyclopentadiene	SW8270C	µg/L	ND	U	2	0.52		--	---
R-349-GW-INF-002-PreStrt1	Hexachloroethane	SW8270C	µg/L	ND	U	2	0.9		8.9	1
R-349-GW-INF-002-PreStrt1	Indeno (1,2,3-c,d) pyrene	SW8270C	µg/L	ND	U	2	1.2		0.049	10
R-349-GW-INF-002-PreStrt1	Isophorone	SW8270C	µg/L	ND	U	2	0.31		--	---
R-349-GW-INF-002-PreStrt1	Naphthalene	SW8270C	µg/L	ND	U	2	0.27		--	---
R-349-GW-INF-002-PreStrt1	Nitrobenzene	SW8270C	µg/L	ND	U	2	0.37		--	---
R-349-GW-INF-002-PreStrt1	N-Nitrosodimethylamine	SW8270C	µg/L	ND	U	2	1.2		8.1	5
R-349-GW-INF-002-PreStrt1	N-Nitrosodi-N-propylamine	SW8270C	µg/L	ND	U	2	0.58		1.4	1
R-349-GW-INF-002-PreStrt1	N-Nitrosodiphenylamine	SW8270C	µg/L	ND	U	2	0.57		--	---
R-349-GW-INF-002-PreStrt1	Pentachlorophenol	SW8270C	µg/L	ND	U	10	1.8		7.9	5
R-349-GW-INF-002-PreStrt1	Phenanthrene	SW8270C	µg/L	ND	U	2	0.5		--	---
R-349-GW-INF-002-PreStrt1	Phenol	SW8270C	µg/L	ND	U	2	0.49		--	---
R-349-GW-INF-002-PreStrt1	Pyrene	SW8270C	µg/L	ND	U	2	0.45		--	---
R-349-GW-INF-002-PreStrt1	Pyridine	SW8270C	µg/L	ND	U	10	0.84		--	---
R-349-GW-INF-002-PreStrt1	Acenaphthene	SW8270C-SIM	µg/L	ND	U	0.1	0.03		--	---
R-349-GW-INF-002-PreStrt1	Acenaphthylene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		--	---
R-349-GW-INF-002-PreStrt1	Anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.036		--	---
R-349-GW-INF-002-PreStrt1	Benzo (a) anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		0.049	5
R-349-GW-INF-002-PreStrt1	Benzo (a) pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		0.049	10
R-349-GW-INF-002-PreStrt1	Benzo (b) fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.031		0.049	10
R-349-GW-INF-002-PreStrt1	Benzo (g,h,i) perylene	SW8270C-SIM	µg/L	ND	U	0.1	0.031		--	---
R-349-GW-INF-002-PreStrt1	Benzo (k) fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.032		0.049	5
R-349-GW-INF-002-PreStrt1	Chrysene	SW8270C-SIM	µg/L	ND	U	0.1	0.028		0.049	10
R-349-GW-INF-002-PreStrt1	Dibenzo (a,h) anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.034		0.049	10
R-349-GW-INF-002-PreStrt1	Fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		--	---
R-349-GW-INF-002-PreStrt1	Fluorene	SW8270C-SIM	µg/L	ND	U	0.1	0.039		--	---
R-349-GW-INF-002-PreStrt1	Indeno (1,2,3-c,d) pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.032		0.049	10
R-349-GW-INF-002-PreStrt1	Naphthalene	SW8270C-SIM	µg/L	ND	U	0.1	0.024		--	---
R-349-GW-INF-002-PreStrt1	Phenanthrene	SW8270C-SIM	µg/L	ND	U	0.1	0.036		--	---
R-349-GW-INF-002-PreStrt1	Pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.054		--	---
R-349-GW-INF-002-PreStrt2	Asbestos	E100.2	MFL	ND	U	5.0	5.0		--	---
R-349-GW-INF-002-PreStrt2	Aluminum	E200.7	µg/L	38000	D	500	260		--	---
R-349-GW-INF-002-PreStrt2	Boron	E200.7	µg/L	1700	D	1000	100		--	---
R-349-GW-INF-002-PreStrt2	Iron	E200.7	µg/L	71000	D	500	300		--	--
R-349-GW-INF-002-PreStrt2	Lithium, Total Recoverable	E200.7	µg/L	390	D	200	66		--	---
R-349-GW-INF-002-PreStrt2	Manganese	E200.7	µg/L	8700	D	100	40		--	---
R-349-GW-INF-002-PreStrt2	Chloride	E300.0	mg/L	12000	D	50	9.2		--	---
R-349-GW-INF-002-PreStrt2	Fluoride	E300.0	mg/L	ND	D,U	2.5	0.55		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-002-PreStrt2	Nitrate as NO3 (Calc)	E300.0	mg/L	ND	D,U	22	4.8		--	---
R-349-GW-INF-002-PreStrt2	Nitrate/Nitrite as N	E353.2	mg/L	0.04 Est. Conc./DNQ	J	0.1	0.011		--	---
R-349-GW-INF-002-PreStrt2	Nitrite Nitrogen by IC	E353.2	mg/L	ND	U	0.05	0.01		--	---
Southeast Groundwater Sample - R-349-GW-INF-003										
R-349-GW-INF-FF-003PreStrt1A	Antimony	E200.8	µg/L	ND	D,U	4.0	0.22		4300	0.5
R-349-GW-INF-FF-003PreStrt1A	Arsenic	E200.8	µg/L	20	D	4.0	1.4		36	2
R-349-GW-INF-FF-003PreStrt1A	Barium	E200.8	µg/L	99	D	2.0	0.42		--	---
R-349-GW-INF-FF-003PreStrt1A	Beryllium	E200.8	µg/L	1.2 Est. Conc./DNQ	D,J	2.0	0.28		--	---
R-349-GW-INF-FF-003PreStrt1A	Cadmium	E200.8	µg/L	ND	D,U	2.0	0.22		2.2	0.25
R-349-GW-INF-FF-003PreStrt1A	Chromium	E200.8	µg/L	1.2 Est. Conc./DNQ	D,J	6.0	1		11	0.5
R-349-GW-INF-FF-003PreStrt1A	Cobalt	E200.8	µg/L	1.9 Est. Conc./DNQ	D,J	2.0	0.2		--	---
R-349-GW-INF-FF-003PreStrt1A	Copper	E200.8	µg/L	4.1	D	4.0	0.44		4.7	0.5
R-349-GW-INF-FF-003PreStrt1A	Lead	E200.8	µg/L	0.25 Est. Conc./DNQ	D,J	2.0	0.2		2.5	0.5
R-349-GW-INF-FF-003PreStrt1A	Molybdenum	E200.8	µg/L	58	D	2.0	0.22		--	---
R-349-GW-INF-FF-003PreStrt1A	Nickel	E200.8	µg/L	12	D	4.0	0.38		19	1
R-349-GW-INF-FF-003PreStrt1A	Selenium	E200.8	µg/L	3.2 Est. Conc./DNQ	D,J	4.0	0.38		5	2
R-349-GW-INF-FF-003PreStrt1A	Silver	E200.8	µg/L	ND	D,U	2.0	0.2		1.9	0.25
R-349-GW-INF-FF-003PreStrt1A	Thallium	E200.8	µg/L	ND	D,U	2.0	0.2		6.3	1
R-349-GW-INF-FF-003PreStrt1A	Vanadium	E200.8	µg/L	2.5 Est. Conc./DNQ	D,J	6.0	1.6		--	---
R-349-GW-INF-FF-003PreStrt1A	Zinc	E200.8	µg/L	8.7 Est. Conc./DNQ	D,J	20	3.4		81	1
R-349-GW-INF-FF-003PreStrt1A	Mercury	E245.1	µg/L	ND	U	0.2	0.03		0.025	0.5
R-349-GW-INF-FF-003-PreStrt1A	Calcium	E200.7	mg/L	180		2	0.28		--	---
R-349-GW-INF-FF-003-PreStrt1A	Magnesium	E200.7	mg/L	330		1	0.38		--	---
R-349-GW-INF-FF-003-PreStrt1A	Potassium	E200.7	mg/L	180		20	2		--	---
R-349-GW-INF-FF-003-PreStrt1A	Sodium	E200.7	mg/L	3900		10	1		--	---
R-349-GW-INF-FF-003-PreStrt1A	Bicarbonate alkalinity as CaCO3	SM2320B	mg/L	850		8.2	8.2		--	---
R-349-GW-INF-FF-003-PreStrt1A	Carbonate Alkalinity as CaCO3	SM2320B	mg/L	ND	U	8.2	8.2		--	---
R-349-GW-INF-FF-003-PreStrt1A	Total Alkalinity as CaCO3	SM2320B	mg/L	850		8.2	8.2		--	---
R-349-GW-INF-FF-003-PreStrt1A	Chromium, hexavalent	SW7196A	mg/L	ND	U	0.01	0.01		0.011	0.005
R-349-GW-INF-FF-003-PreStrt2	Aluminum	E200.7	µg/L	500	D	500	260		--	---
R-349-GW-INF-FF-003-PreStrt2	Boron	E200.7	µg/L	4100	D	1000	100		--	---
R-349-GW-INF-FF-003-PreStrt2	Iron	E200.7	µg/L	6000	D	500	300		--	--
R-349-GW-INF-FF-003-PreStrt2	Lithium	E200.7	µg/L	90 Est. Conc./DNQ	D,J	200	66		--	---
R-349-GW-INF-FF-003-PreStrt2	Manganese	E200.7	µg/L	980	D	100	40		--	---
R-349-GW-INF-003-PreStrt1	Total Kjeldahl Nitrogen	E351.2	mg/L	1.7		0.2	0.2		--	---
R-349-GW-INF-003-PreStrt1	Ortho phosphate	SM4500PE	mg/L	ND	U	0.01	0.01		--	---
R-349-GW-INF-003-PreStrt1	Total phosphorus	SM4500PE	mg/L	1.6		0.1	0.1		--	---
R-349-GW-INF-003-PreStrt1	Sulfide	SM4500S	mg/L	ND	U	0.02	0.02		--	---
R-349-GW-INF-003-PreStrt1	Chromium, hexavalent	SW7196A	mg/L	ND	U	0.01	0.01		0.011	0.005
R-349-GW-INF-003-PreStrt1	TPH-diesel	SW8015B	mg/L	ND	U	0.098	0.06		--	---
R-349-GW-INF-003-PreStrt1	TPH-gasoline	SW8015B	mg/L	ND	U	0.05	0.02		--	---
R-349-GW-INF-003-PreStrt1	TPH-motor oil	SW8015B	mg/L	ND	U	0.098	0.056		--	---
R-349-GW-INF-003-PreStrt1A	EC as NaCl (Salinity)	Calculation	mg/L	11000		1.0	1.0		--	---
R-349-GW-INF-003-PreStrt1A	Unionized Ammonia as N	Calculation	mg/L	0.0081		0.005	0.005		--	---
R-349-GW-INF-003-PreStrt1A	Turbidity	E180.1	NTU	1700	D	10	10		--	---
R-349-GW-INF-003-PreStrt1A	Antimony	E200.8	µg/L	ND	D,U	4.0	0.22		4300	0.5
R-349-GW-INF-003-PreStrt1A	Arsenic	E200.8	µg/L	22	D	4.0	1.4		36	2
R-349-GW-INF-003-PreStrt1A	Barium	E200.8	µg/L	200	D	2.0	0.42		--	---
R-349-GW-INF-003-PreStrt1A	Beryllium	E200.8	µg/L	1.4 Est. Conc./DNQ	D,J	2.0	0.28		--	---
R-349-GW-INF-003-PreStrt1A	Cadmium	E200.8	µg/L	ND	D,U	2.0	0.22		2.2	0.25
R-349-GW-INF-003-PreStrt1A	Chromium	E200.8	µg/L	13	D	6.0	1.0	Y	11	0.5
R-349-GW-INF-003-PreStrt1A	Cobalt	E200.8	µg/L	4.1	D	2.0	0.20		--	---
R-349-GW-INF-003-PreStrt1A	Copper	E200.8	µg/L	15	D	4.0	0.44	Y	4.7	0.5
R-349-GW-INF-003-PreStrt1A	Lead	E200.8	µg/L	2.9	D	2.0	0.20	Y	2.5	0.5

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-003-PreStrt1A	Molybdenum	E200.8	µg/L	51	D	2.0	0.22		--	---
R-349-GW-INF-003-PreStrt1A	Nickel	E200.8	µg/L	21	D	4.0	0.38	Y	19	1
R-349-GW-INF-003-PreStrt1A	Selenium	E200.8	µg/L	3.1 Est. Conc./DNQ	D,J	4.0	0.38		5	2
R-349-GW-INF-003-PreStrt1A	Silver	E200.8	µg/L	ND	D,U	2.0	0.2		1.9	0.25
R-349-GW-INF-003-PreStrt1A	Thallium	E200.8	µg/L	ND	D,U	2.0	0.2		6.3	1
R-349-GW-INF-003-PreStrt1A	Vanadium	E200.8	µg/L	18	D	6.0	1.6		--	---
R-349-GW-INF-003-PreStrt1A	Zinc	E200.8	µg/L	32	D	20	3.4		81	1
R-349-GW-INF-003-PreStrt1A	Mercury	E245.1	µg/L	ND	U	0.2	0.03		0.025	0.5
R-349-GW-INF-003-PreStrt1A	Mercury	E245.1	µg/L	ND	U	0.02	0.02		0.025	0.5
R-349-GW-INF-003-PreStrt1A	Total Cyanide	E335.4	mg/L	ND	U	0.005	0.0031		0.0029	0.005
R-349-GW-INF-003-PreStrt1A	Ammonia as N	E350.1	mg/L	0.93		0.1	0.025		--	---
R-349-GW-INF-003-PreStrt1A	Methylene Blue Active Substances	E425.1	mg/L	ND	U	0.015	0.015		--	---
R-349-GW-INF-003-PreStrt1A	Ethylene Dibromide (EDB)	E504.1	µg/L	ND	U	0.01	0.0041		--	---
R-349-GW-INF-003-PreStrt1A	4,4´-DDD	E608	µg/L	ND	U	0.005	0.0018		0.00084	0.05
R-349-GW-INF-003-PreStrt1A	4,4´-DDE	E608	µg/L	ND	U	0.005	0.0018		0.00059	0.05
R-349-GW-INF-003-PreStrt1A	4,4´-DDT	E608	µg/L	ND	U	0.005	0.0018		0.00059	0.01
R-349-GW-INF-003-PreStrt1A	Aldrin	E608	µg/L	ND	U	0.005	0.002		0.00014	0.005
R-349-GW-INF-003-PreStrt1A	Alpha-BHC	E608	µg/L	ND	U	0.005	0.0018		0.013	0.01
R-349-GW-INF-003-PreStrt1A	Alpha-Chlordane	E608	µg/L	ND	U	0.005	0.0013		--	---
R-349-GW-INF-003-PreStrt1A	Aroclor-1016	E608	µg/L	ND	U	0.2	0.061		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1221	E608	µg/L	ND	U	0.2	0.2		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1232	E608	µg/L	ND	U	0.2	0.12		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1242	E608	µg/L	ND	U	0.2	0.15		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1248	E608	µg/L	ND	U	0.2	0.06		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1254	E608	µg/L	ND	U	0.2	0.06		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	Aroclor-1260	E608	µg/L	ND	U	0.2	0.051		0.00017	0.5
R-349-GW-INF-003-PreStrt1A	beta-BHC	E608	µg/L	ND	U	0.005	0.0038		0.046	0.005
R-349-GW-INF-003-PreStrt1A	Delta-Bhc	E608	µg/L	ND	U	0.005	0.0017		--	---
R-349-GW-INF-003-PreStrt1A	Dieldrin	E608	µg/L	ND	U	0.005	0.0025		0.00014	0.01
R-349-GW-INF-003-PreStrt1A	Endosulfan I	E608	µg/L	ND	U	0.005	0.0027		0.0087	0.02
R-349-GW-INF-003-PreStrt1A	Endosulfan II	E608	µg/L	ND	U	0.005	0.0025		0.0087	0.01
R-349-GW-INF-003-PreStrt1A	Endosulfan Sulfate	E608	µg/L	ND	U	0.005	0.0024		--	---
R-349-GW-INF-003-PreStrt1A	Endrin	E608	µg/L	ND	U	0.005	0.0033		0.0023	0.01
R-349-GW-INF-003-PreStrt1A	Endrin Aldehyde	E608	µg/L	ND	U	0.01	0.0036		0.81	0.01
R-349-GW-INF-003-PreStrt1A	gamma-BHC	E608	µg/L	ND	U	0.005	0.0019		0.063	0.02
R-349-GW-INF-003-PreStrt1A	gamma-Chlordane	E608	µg/L	ND	U	0.005	0.0035		--	---
R-349-GW-INF-003-PreStrt1A	Heptachlor	E608	µg/L	ND	U	0.005	0.0032		0.00021	0.01
R-349-GW-INF-003-PreStrt1A	Heptachlor Epoxide	E608	µg/L	ND	U	0.005	0.0048		0.00011	0.01
R-349-GW-INF-003-PreStrt1A	Methoxychlor	E608	µg/L	ND	U	0.005	0.0035		--	---
R-349-GW-INF-003-PreStrt1A	Toxaphene	E608	µg/L	ND	U	2	0.2		0.0002	none
R-349-GW-INF-003-PreStrt1A	3,3-Dichlorobenzidine	E625	µg/L	ND	U	9.6	2.0		0.077	5
R-349-GW-INF-003-PreStrt1A	Benzidine	E625	µg/L	ND	U	19	2.3		0.00054	5
R-349-GW-INF-003-PreStrt1A	Specific Conductance	SM2510B	µmhos/cm	18500		1	1		--	---
R-349-GW-INF-003-PreStrt1A	Total Solids	SM2540B	mg/L	18000		500	500	Y	30	none
R-349-GW-INF-003-PreStrt1A	Total Dissolved Solids	SM2540C	mg/L	10000	D	500	500		--	---
R-349-GW-INF-003-PreStrt1A	Methanol	SW8015B	µg/L	ND	U	10	10		--	---
R-349-GW-INF-003-PreStrt1A	1,1,1,2-Tetrachloroethane	SW8260	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-003-PreStrt1A	1,1,1-Trichloroethane	SW8260	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-003-PreStrt1A	1,1,2,2-Tetrachloroethane	SW8260	µg/L	ND	U	0.5	0.17		11	1
R-349-GW-INF-003-PreStrt1A	1,1,2-Trichloro-1,2,2-trifluoroethane	SW8260	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-003-PreStrt1A	1,1,2-Trichloroethane	SW8260	µg/L	ND	U	0.5	0.16		--	---
R-349-GW-INF-003-PreStrt1A	1,1-Dichloroethane	SW8260	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-003-PreStrt1A	1,1-Dichloroethene	SW8260	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-003-PreStrt1A	1,1-Dichloropropene	SW8260	µg/L	ND	U	0.5	0.085		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-003-PreStrt1A	1,2,3-Trichlorobenzene	SW8260	µg/L	ND	U	0.5	0.16		--	---
R-349-GW-INF-003-PreStrt1A	1,2,3-Trichloropropane	SW8260	µg/L	ND	U	1	0.24		--	---
R-349-GW-INF-003-PreStrt1A	1,2,4-Trichlorobenzene	SW8260	µg/L	ND	U	0.5	0.19		--	---
R-349-GW-INF-003-PreStrt1A	1,2,4-Trimethylbenzene	SW8260	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dibromo-3-chloropropane	SW8260	µg/L	ND	U	1	0.44		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dichlorobenzene	SW8260	µg/L	ND	U	0.5	0.072		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dichloroethane	SW8260	µg/L	ND	U	0.5	0.17		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dichloroethene (Total)	SW8260	µg/L	ND	U	1	0.23		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dichloropropane	SW8260	µg/L	ND	U	0.5	0.13		39	1
R-349-GW-INF-003-PreStrt1A	1,3,5-Trimethylbenzene	SW8260	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-003-PreStrt1A	1,3-Dichlorobenzene	SW8260	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-003-PreStrt1A	1,3-Dichloropropane	SW8260	µg/L	ND	U	0.5	0.086		--	---
R-349-GW-INF-003-PreStrt1A	1,3-Dichloropropene	SW8260	µg/L	ND	U	1	0.21		1700	2
R-349-GW-INF-003-PreStrt1A	1,4-Dichlorobenzene	SW8260	µg/L	ND	U	0.5	0.062		--	---
R-349-GW-INF-003-PreStrt1A	2,2-Dichloropropane	SW8260	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-003-PreStrt1A	2-Butanone (MEK)	SW8260	µg/L	ND	U	10	2.5		--	---
R-349-GW-INF-003-PreStrt1A	2-Chloroethyl Vinyl Ether	SW8260	µg/L	ND	U	10	1		--	---
R-349-GW-INF-003-PreStrt1A	2-Chlorotoluene	SW8260	µg/L	ND	U	0.5	0.2		--	---
R-349-GW-INF-003-PreStrt1A	4-Chlorotoluene	SW8260	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-003-PreStrt1A	4-Methyl-2-pentanone (MIBK)	SW8260	µg/L	ND	U	10	2.1		--	---
R-349-GW-INF-003-PreStrt1A	Acetone	SW8260	µg/L	ND	U	10	4.6		--	---
R-349-GW-INF-003-PreStrt1A	Acrolein	SW8260	µg/L	ND	U	20	7.9		--	---
R-349-GW-INF-003-PreStrt1A	Acrylonitrile	SW8260	µg/L	ND	U	5	1.2		0.66	2
R-349-GW-INF-003-PreStrt1A	Benzene	SW8260	µg/L	ND	U	0.5	0.083		--	---
R-349-GW-INF-003-PreStrt1A	Bromobenzene	SW8260	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-003-PreStrt1A	Bromochloromethane	SW8260	µg/L	ND	U	0.5	0.24		--	---
R-349-GW-INF-003-PreStrt1A	Bromodichloromethane	SW8260	µg/L	ND	U	0.5	0.14		46	2
R-349-GW-INF-003-PreStrt1A	Bromoform	SW8260	µg/L	ND	U	0.5	0.27		360	2
R-349-GW-INF-003-PreStrt1A	Bromomethane	SW8260	µg/L	ND	U	1	0.25		--	---
R-349-GW-INF-003-PreStrt1A	Carbon Disulfide	SW8260	µg/L	ND	U	1	0.38		--	---
R-349-GW-INF-003-PreStrt1A	Carbon tetrachloride	SW8260	µg/L	ND	U	0.5	0.18		--	---
R-349-GW-INF-003-PreStrt1A	Chlorobenzene	SW8260	µg/L	ND	U	0.5	0.093		--	---
R-349-GW-INF-003-PreStrt1A	Chloroethane	SW8260	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-003-PreStrt1A	Chloroform	SW8260	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-003-PreStrt1A	Chloromethane	SW8260	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-003-PreStrt1A	cis-1,2-Dichloroethene	SW8260	µg/L	ND	U	0.5	0.085		--	---
R-349-GW-INF-003-PreStrt1A	cis-1,3-Dichloropropene	SW8260	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-003-PreStrt1A	Dibromochloromethane	SW8260	µg/L	ND	U	0.5	0.13		34	2
R-349-GW-INF-003-PreStrt1A	Dibromomethane	SW8260	µg/L	ND	U	0.5	0.24		--	---
R-349-GW-INF-003-PreStrt1A	Dichlorodifluoromethane	SW8260	µg/L	ND	U	0.5	0.099		--	---
R-349-GW-INF-003-PreStrt1A	Ethylbenzene	SW8260	µg/L	ND	U	0.5	0.098		--	---
R-349-GW-INF-003-PreStrt1A	Ethylene Dibromide (EDB)	SW8260	µg/L	ND	U	0.5	0.16		--	---
R-349-GW-INF-003-PreStrt1A	Hexachlorobutadiene	SW8260	µg/L	ND	U	0.5	0.17		50	none
R-349-GW-INF-003-PreStrt1A	Isopropylbenzene	SW8260	µg/L	ND	U	0.5	0.14		--	---
R-349-GW-INF-003-PreStrt1A	Methylene chloride	SW8260	µg/L	ND	U	1	0.48		--	---
R-349-GW-INF-003-PreStrt1A	Methyl-t-butyl ether (MTBE)	SW8260	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-003-PreStrt1A	Naphthalene	SW8260	µg/L	ND	U	0.5	0.36		--	---
R-349-GW-INF-003-PreStrt1A	n-Butylbenzene	SW8260	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-003-PreStrt1A	n-Propylbenzene	SW8260	µg/L	ND	U	0.5	0.11		--	---
R-349-GW-INF-003-PreStrt1A	o-Xylene	SW8260	µg/L	ND	U	0.5	0.082		--	---
R-349-GW-INF-003-PreStrt1A	p- & m-Xylenes	SW8260	µg/L	ND	U	0.5	0.28		--	---
R-349-GW-INF-003-PreStrt1A	p-Isopropyltoluene	SW8260	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-003-PreStrt1A	sec-Butylbenzene	SW8260	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-003-PreStrt1A	Styrene	SW8260	µg/L	ND	U	0.5	0.068		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-003-PreStrt1A	t-Butyl alcohol	SW8260	µg/L	ND	U	10	4.9		--	---
R-349-GW-INF-003-PreStrt1A	tert-Butylbenzene	SW8260	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-003-PreStrt1A	Tetrachloroethene	SW8260	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-003-PreStrt1A	Toluene	SW8260	µg/L	ND	U	0.5	0.093		--	---
R-349-GW-INF-003-PreStrt1A	trans-1,2-Dichloroethene	SW8260	µg/L	ND	U	0.5	0.15		--	---
R-349-GW-INF-003-PreStrt1A	trans-1,3-Dichloropropene	SW8260	µg/L	ND	U	0.5	0.079		--	---
R-349-GW-INF-003-PreStrt1A	Trichloroethene	SW8260	µg/L	ND	U	0.5	0.085		--	---
R-349-GW-INF-003-PreStrt1A	Trichlorofluoromethane	SW8260	µg/L	ND	U	0.5	0.13		--	---
R-349-GW-INF-003-PreStrt1A	Vinyl Chloride	SW8260	µg/L	ND	U	0.5	0.12		--	---
R-349-GW-INF-003-PreStrt1A	Xylenes, Total	SW8260	µg/L	ND	U	1	0.36		--	---
R-349-GW-INF-003-PreStrt1A	Diisopropyl ether	SW8260B	µg/L	ND	U	0.5	0.1		--	---
R-349-GW-INF-003-PreStrt1A	Ethanol	SW8260B	µg/L	ND	U	12.5	0.2		--	---
R-349-GW-INF-003-PreStrt1A	Ethyl tert-butyl ether	SW8260B	µg/L	ND	U	0.5	0.04		--	---
R-349-GW-INF-003-PreStrt1A	t-Butyl alcohol	SW8260B	µg/L	ND	U	1	0.1		--	---
R-349-GW-INF-003-PreStrt1A	tert-Amyl methyl ether	SW8260B	µg/L	ND	U	0.5	0.03		--	---
R-349-GW-INF-003-PreStrt1A	1,2,4-Trichlorobenzene	SW8270C	µg/L	ND	U	2	0.87		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.39		--	---
R-349-GW-INF-003-PreStrt1A	1,2-Diphenylhydrazine	SW8270C	µg/L	ND	U	2	0.43		0.54	1
R-349-GW-INF-003-PreStrt1A	1,3-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.5		--	---
R-349-GW-INF-003-PreStrt1A	1,4-Dichlorobenzene	SW8270C	µg/L	ND	U	2	0.55		--	---
R-349-GW-INF-003-PreStrt1A	1,4-Dioxane	SW8270C	µg/L	ND	U	5	0.53		--	---
R-349-GW-INF-003-PreStrt1A	2,4,5-Trichlorophenol	SW8270C	µg/L	ND	U	5	0.66		--	---
R-349-GW-INF-003-PreStrt1A	2,4,6-Trichlorophenol	SW8270C	µg/L	ND	U	2	0.51		6.5	10
R-349-GW-INF-003-PreStrt1A	2,4-Dichlorophenol	SW8270C	µg/L	ND	U	2	0.63		--	---
R-349-GW-INF-003-PreStrt1A	2,4-Dimethylphenol	SW8270C	µg/L	ND	U	10	0.6		--	---
R-349-GW-INF-003-PreStrt1A	2,4-Dinitrophenol	SW8270C	µg/L	ND	U	2	2.5		--	---
R-349-GW-INF-003-PreStrt1A	2,4-Dinitrotoluene	SW8270C	µg/L	ND	U	2	0.75		9.1	5
R-349-GW-INF-003-PreStrt1A	2,6-Dinitrotoluene	SW8270C	µg/L	ND	U	2	0.56		--	---
R-349-GW-INF-003-PreStrt1A	2-Chloronaphthalene	SW8270C	µg/L	ND	U	2	0.34		--	---
R-349-GW-INF-003-PreStrt1A	2-Chlorophenol	SW8270C	µg/L	ND	U	2	0.44		--	---
R-349-GW-INF-003-PreStrt1A	2-Methylnaphthalene	SW8270C	µg/L	ND	U	2	0.38		--	---
R-349-GW-INF-003-PreStrt1A	2-Methylphenol	SW8270C	µg/L	ND	U	2	0.55		--	---
R-349-GW-INF-003-PreStrt1A	2-Nitroaniline	SW8270C	µg/L	ND	U	2	0.6		--	---
R-349-GW-INF-003-PreStrt1A	2-Nitrophenol	SW8270C	µg/L	ND	U	2	0.68		--	---
R-349-GW-INF-003-PreStrt1A	3- & 4-Methylphenol	SW8270C	µg/L	ND	U	10	0.72		--	---
R-349-GW-INF-003-PreStrt1A	3,3-Dichlorobenzidine	SW8270C	µg/L	ND	U	10	0.65		0.077	5
R-349-GW-INF-003-PreStrt1A	3-Nitroaniline	SW8270C	µg/L	ND	U	10	0.92		--	---
R-349-GW-INF-003-PreStrt1A	4,6-Dinitro-2-methylphenol	SW8270C	µg/L	ND	U	2	1.8		--	---
R-349-GW-INF-003-PreStrt1A	4-Bromophenyl Phenyl Ether	SW8270C	µg/L	ND	U	5	0.42		--	---
R-349-GW-INF-003-PreStrt1A	4-Chloro-3-methylphenol	SW8270C	µg/L	ND	U	2	0.48		--	---
R-349-GW-INF-003-PreStrt1A	4-Chloroaniline	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-003-PreStrt1A	4-Chlorophenyl phenyl ether	SW8270C	µg/L	ND	U	5	0.46		--	---
R-349-GW-INF-003-PreStrt1A	4-Nitroaniline	SW8270C	µg/L	ND	U	2	1.3		--	---
R-349-GW-INF-003-PreStrt1A	4-Nitrophenol	SW8270C	µg/L	ND	U	2	1.9		--	---
R-349-GW-INF-003-PreStrt1A	Acenaphthene	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-003-PreStrt1A	Acenaphthylene	SW8270C	µg/L	ND	U	2	0.34		--	---
R-349-GW-INF-003-PreStrt1A	Anthracene	SW8270C	µg/L	ND	U	2	0.32		--	---
R-349-GW-INF-003-PreStrt1A	Azobenzene	SW8270C	µg/L	ND	U	20	0.34		--	---
R-349-GW-INF-003-PreStrt1A	Benzidine	SW8270C	µg/L	ND	U	20	2.7		0.00054	5
R-349-GW-INF-003-PreStrt1A	Benzo (a) anthracene	SW8270C	µg/L	ND	U	2	0.37		0.049	5
R-349-GW-INF-003-PreStrt1A	Benzo (a) pyrene	SW8270C	µg/L	ND	U	2	0.87		0.049	10
R-349-GW-INF-003-PreStrt1A	Benzo (b) fluoranthene	SW8270C	µg/L	ND	U	2	0.88		0.049	10
R-349-GW-INF-003-PreStrt1A	Benzo (g,h,i) perylene	SW8270C	µg/L	ND	U	2	1.2		--	---
R-349-GW-INF-003-PreStrt1A	Benzo (k) fluoranthene	SW8270C	µg/L	ND	U	10	0.96		0.049	10

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-003-PreStrt1A	Benzoic Acid	SW8270C	µg/L	ND	U	2	2		--	---
R-349-GW-INF-003-PreStrt1A	Benzyl Alcohol	SW8270C	µg/L	ND	U	2	0.44		--	---
R-349-GW-INF-003-PreStrt1A	Bis (2-chloroethoxy) methane	SW8270C	µg/L	ND	U	2	0.45		--	---
R-349-GW-INF-003-PreStrt1A	Bis (2-chloroethyl) ether	SW8270C	µg/L	ND	U	2	0.86		1.4	1
R-349-GW-INF-003-PreStrt1A	bis(2-Ethylhexyl)phthalate	SW8270C	µg/L	ND	U	5	0.67		5.9	5
R-349-GW-INF-003-PreStrt1A	Butylbenzylphthalate	SW8270C	µg/L	ND	U	2	0.77		--	---
R-349-GW-INF-003-PreStrt1A	Chrysene	SW8270C	µg/L	ND	U	2	0.42		0.049	10
R-349-GW-INF-003-PreStrt1A	Dibenzo (a,h) anthracene	SW8270C	µg/L	ND	U	3	1.6		0.049	10
R-349-GW-INF-003-PreStrt1A	Dibenzofuran	SW8270C	µg/L	ND	U	2	0.32		--	---
R-349-GW-INF-003-PreStrt1A	Diethyl phthalate	SW8270C	µg/L	ND	U	2	0.35		--	---
R-349-GW-INF-003-PreStrt1A	Dimethyl phthalate	SW8270C	µg/L	ND	U	2	0.4		--	---
R-349-GW-INF-003-PreStrt1A	Di-N-Butylphthalate	SW8270C	µg/L	ND	U	2	0.33		--	---
R-349-GW-INF-003-PreStrt1A	Di-n-octylphthalate	SW8270C	µg/L	ND	U	2	0.61		--	---
R-349-GW-INF-003-PreStrt1A	Fluoranthene	SW8270C	µg/L	ND	U	2	0.61		--	---
R-349-GW-INF-003-PreStrt1A	Fluorene	SW8270C	µg/L	ND	U	2	0.54		--	---
R-349-GW-INF-003-PreStrt1A	Hexachlorobenzene	SW8270C	µg/L	ND	U	2	0.48		0.00077	1
R-349-GW-INF-003-PreStrt1A	Hexachlorobutadiene	SW8270C	µg/L	ND	U	2	0.48		50	1
R-349-GW-INF-003-PreStrt1A	Hexachlorocyclopentadiene	SW8270C	µg/L	ND	U	2	0.52		--	---
R-349-GW-INF-003-PreStrt1A	Hexachloroethane	SW8270C	µg/L	ND	U	2	0.9		8.9	1
R-349-GW-INF-003-PreStrt1A	Indeno (1,2,3-c,d) pyrene	SW8270C	µg/L	ND	U	2	1.2		0.049	10
R-349-GW-INF-003-PreStrt1A	Isophorone	SW8270C	µg/L	ND	U	2	0.31		--	---
R-349-GW-INF-003-PreStrt1A	Naphthalene	SW8270C	µg/L	ND	U	2	0.27		--	---
R-349-GW-INF-003-PreStrt1A	Nitrobenzene	SW8270C	µg/L	ND	U	2	0.37		--	---
R-349-GW-INF-003-PreStrt1A	N-Nitrosodimethylamine	SW8270C	µg/L	ND	U	2	1.2		8.1	5
R-349-GW-INF-003-PreStrt1A	N-Nitrosodi-N-propylamine	SW8270C	µg/L	ND	U	2	0.58		1.4	1
R-349-GW-INF-003-PreStrt1A	N-Nitrosodiphenylamine	SW8270C	µg/L	ND	U	2	0.57		--	---
R-349-GW-INF-003-PreStrt1A	Pentachlorophenol	SW8270C	µg/L	ND	U	10	1.8		7.9	5
R-349-GW-INF-003-PreStrt1A	Phenanthrene	SW8270C	µg/L	ND	U	2	0.5		--	---
R-349-GW-INF-003-PreStrt1A	Phenol	SW8270C	µg/L	ND	U	2	0.49		--	---
R-349-GW-INF-003-PreStrt1A	Pyrene	SW8270C	µg/L	ND	U	2	0.45		--	---
R-349-GW-INF-003-PreStrt1A	Pyridine	SW8270C	µg/L	ND	U	10	0.84		--	---
R-349-GW-INF-003-PreStrt1A	Acenaphthene	SW8270C-SIM	µg/L	ND	U	0.1	0.03		--	---
R-349-GW-INF-003-PreStrt1A	Acenaphthylene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		--	---
R-349-GW-INF-003-PreStrt1A	Anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.036		--	---
R-349-GW-INF-003-PreStrt1A	Benzo (a) anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		0.049	5
R-349-GW-INF-003-PreStrt1A	Benzo (a) pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		0.049	10
R-349-GW-INF-003-PreStrt1A	Benzo (b) fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.031		0.049	10
R-349-GW-INF-003-PreStrt1A	Benzo (g,h,i) perylene	SW8270C-SIM	µg/L	ND	U	0.1	0.031		--	---
R-349-GW-INF-003-PreStrt1A	Benzo (k) fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.032		0.049	5
R-349-GW-INF-003-PreStrt1A	Chrysene	SW8270C-SIM	µg/L	ND	U	0.1	0.028		0.049	10
R-349-GW-INF-003-PreStrt1A	Dibenzo (a,h) anthracene	SW8270C-SIM	µg/L	ND	U	0.1	0.034		0.049	10
R-349-GW-INF-003-PreStrt1A	Fluoranthene	SW8270C-SIM	µg/L	ND	U	0.1	0.035		--	---
R-349-GW-INF-003-PreStrt1A	Fluorene	SW8270C-SIM	µg/L	ND	U	0.1	0.039		--	---
R-349-GW-INF-003-PreStrt1A	Indeno (1,2,3-c,d) pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.032		0.049	10
R-349-GW-INF-003-PreStrt1A	Naphthalene	SW8270C-SIM	µg/L	ND	U	0.1	0.024		--	---
R-349-GW-INF-003-PreStrt1A	Phenanthrene	SW8270C-SIM	µg/L	ND	U	0.1	0.036		--	---
R-349-GW-INF-003-PreStrt1A	Pyrene	SW8270C-SIM	µg/L	ND	U	0.1	0.054		--	---
R-349-GW-INF-003-PreStrt1B	2,3,7,8-TCDD	E1613	pg/L	ND	U	0.762	0.157		1.4E -08	none
R-349-GW-INF-003-PreStrt2	Asbestos	E100.2	MFL	ND	U	4.9	4.9		--	---
R-349-GW-INF-003-PreStrt2	Aluminum	E200.7	µg/L	13000	D	500	260		--	---
R-349-GW-INF-003-PreStrt2	Boron	E200.7	µg/L	4000	D	1000	100		--	---
R-349-GW-INF-003-PreStrt2	Iron	E200.7	µg/L	31000	D	500	500		--	--
R-349-GW-INF-003-PreStrt2	Lithium	E200.7	µg/L	180 Est. Conc./DNQ	D,J	200	66		--	---
R-349-GW-INF-003-PreStrt2	Manganese	E200.7	µg/L	1200	D	100	40		--	---

Sample Name	Chemical Name	Analytical Method	Unit	Result	Lab Qual	RL	MDL	EXCEEDS	R2-2012-0060 Groundwater General Permit Trigger - Column B	SIP ML
R-349-GW-INF-003-PreStrt2	Chloride	E300.0	mg/L	5800	D	25	4.6		--	---
R-349-GW-INF-003-PreStrt2	Fluoride	E300.0	mg/L	1.1 Est. Conc./DNQ	D,J	2.5	0.55		--	---
R-349-GW-INF-003-PreStrt2	Nitrate as NO3 (Calc)	E300.0	mg/L	ND	D,U	22	4.8		--	---
R-349-GW-INF-003-PreStrt2	Nitrate/Nitrite as N	E353.2	mg/L	0.031 Est. Conc./DNQ	J	0.1	0.011		--	---
R-349-GW-INF-003-PreStrt2	Nitrite Nitrogen by IC	E353.2	mg/L	ND	U	0.05	0.01		--	---

Notes:
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter'
B = chemical also detected in the method blank
D = diluted
DNQ = Detected, but not quantified
Est. Conc. = estimated concentration
J = estimated
MDL = method detection limit
MFL = million fibers per liter
mg/L = milligrams per liter
ND = not detected
NTU = Nephelometric Turbidity Unit
RL = reporting limit
SIP ML = State Implementation Policy Minimum Level
U = not detected
-- = No R2-2012-0060 Groundwater General Permit Trigger
---= Not Applicable

Attachment 2

PG&E Strength Test Program
WATER MONITORING FIELD DATA FORM

Date: 6/28/2016 Segment# R-349 Location: Palo Alto
County: Santa Clara Closest intersection: Geng Road & Embarcadero Road
EI Water sampling specialist: Boris Sanchez
Water Sample Collected & Field Analyzed by : Boris Sanchez
Project coordinator: Nathan Berner EFS
Weather conditions: Sunny 88F, no wind
Brief description of site & ongoing activities: Groundwater sampling
Additional comments: _____

A. Type of Water Collection Point

☐ Inline sample port ☐ Contractor provided vessel ☐ Baker tank (port) ☒ Baker tank (bailer)
☐ Poly tank (port) ☐ Other (describe): _____

B. Type of Water to be Sampled

☒ Groundwater ☐ Rinse water ☐ Leak test water ☐ Cleaning solution
Is water filtered? ☐ Yes ☐ No (if yes, method used) _____
☐ Other (describe): _____

C. Presampling Equipment pH Calibration Log

Date: 6/28/2016 Time: 0930
Make/model # Hanna/HI 98128
pH 4.01 Buffer reading: 4.36 Buffer solution lot # 5GJ249 (exp. date): oct/17
pH 7.01 Buffer reading: 7.09 Buffer solution lot # 5GJ352 (exp. date): oct/17
pH 10.01 Buffer reading: 10.12 Buffer solution lot # 5GJ040 (exp. date): oct/17

D. Field Measurement

Field equipment (in addition to pH) used for field measurements (make/model#): BW Clip - BWC2-H 5220BWC01153102097

E. Water Sample Field Parameters

Sample Identification	Sampling location	Time	Water temperature	pH (unitless)	Specific conductance* (mS/cm)	Turbidity* (NTU)	Residual chlorine* (mg/L)
R-349-GW-INF-002-PreStrt1	NE002	1015	23.6	6.83	NA	NA	NA
R-349-GW-INF-002-PreStrt2	NE002	1100	23.6	6.83	NA	NA	NA

**please attach calibration documentation for field measurements and include with this form submittal*

Water Sampler Signature: Boris Sanchez Digitally signed by Boris Sanchez Date: 2016.06.29 11:16:32 -07'00'

PG&E Strength Test Program
WATER MONITORING FIELD DATA FORM

Date: 6/22/2016 Segment# R-349 Location: Palo Alto
County: Santa Clara Closest intersection: Geng & Embarcadero
EI Water sampling specialist: Boris Sanchez
Water Sample Collected & Field Analyzed by : Boris Sanchez & Tamara Frank
Project coordinator: Nathan Berner
Weather conditions: Sunny 81F, no wind
Brief description of site & ongoing activities: Potholing to sample gw & soil
Additional comments: _____

A. Type of Water Collection Point

☐ Inline sample port ☐ Contractor provided vessel ☐ Baker tank (port) ☐ Baker tank (bailer)
☐ Poly tank (port) ☒ Other (describe): GeoPump

B. Type of Water to be Sampled

☒ Groundwater ☐ Rinse water ☐ Leak test water ☐ Cleaning solution
Is water filtered? ☒ Yes ☐ No (if yes, method used) 1 micron filters
☐ Other (describe): _____

C. Presampling Equipment pH Calibration Log

Date: 6/22/2016 Time: 0800
Make/model # _____
pH 4.01 Buffer reading: 4.08 Buffer solution lot # 5GJ249 (exp. date): oct/17
pH 7.01 Buffer reading: 7.10 Buffer solution lot # 5GJ352 (exp. date): oct/17
pH 10.01 Buffer reading: 10.11 Buffer solution lot # 5GJ040 (exp. date): oct/17

D. Field Measurement

Field equipment (in addition to pH) used for field measurements (make/model#): BW Clip - BWC2-H 5220BWC01153102097

E. Water Sample Field Parameters

Sample Identification	Sampling location	Time	Water temperature	pH (unitless)	Specific conductance* (mS/cm)	Turbidity* (NTU)	Residual chlorine* (mg/L)
R-349-GW-INF-003-PreStrt1A	003SE	1300	21.4	7.28	NA	NA	NA
R-349-GW-INF-003-PreStrt1B	003SE	1355	21.4	7.28	NA	NA	NA
R-349-GW-INF-003-PreStrt2	003SE	1340	21.4	7.28	NA	NA	NA

**please attach calibration documentation for field measurements and include with this form submittal*

Water Sampler Signature: Boris Sanchez Digitally signed by Boris Sanchez Date: 2016.06.23 10:52:48 -07'00'

Attachment 3

ATTACHMENT 3

Discharge Monitoring Plan for PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 / Groundwater Discharge to Storm drain, East Palo Alto and Palo Alto, California

Background

This Discharge Monitoring Plan (DMP) has been prepared to address monitoring of dewatered groundwater discharges to storm drain to satisfy the requirement of the Clean Water Act Section 401 Certification (401 Certification), dated April 7, 2015, CIWQS Place No. 757384, issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) to the San Francisquito Creek Joint Powers Authority (SFCJPA) for the San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project (Project).

Pacific Gas and Electric (PG&E) is performing the natural gas pipeline construction described in the 401 Certification. Accordingly, PG&E has prepared this Groundwater Dewatering and Management Plan to satisfy the 401 Certification *General Waste Discharge Requirements*, Item 14b.

Groundwater will be dewatered from project excavations via a combination of well points and in pit dewatering techniques, prior to filtration and discharge to the storm drain, as described in the *PG&E Gas Pipeline Relocation Project R-349, CIWQS #757384 Groundwater Dewatering & Management Plan* dated July 7, 2016.

Pollutants and Concentrations Believed to be Present in Discharge

Representative groundwater samples were collected from two soil borings located within the project alignment and were submitted for laboratory analysis of trigger pollutants consistent with the RWQCB Order No. R2-2012-0060, National Pollutant Discharge Elimination System (NPDES) No. CAG912004, *General Waste Discharge Requirements For: Discharge or Reuse of Brackish Groundwater, Reverse Osmosis Concentrate Resulting from Treated Brackish Groundwater, and Extracted Groundwater from Structural Dewatering Requiring Treatment* (Groundwater General Permit) Table 2, Column B.

The constituents listed in the General Groundwater Permit Table 2, Column B, and corresponding analytical methods are as follows:

Analyte	Method
Total metals CAM17	EPA 200.8/245.1
Field-filtered metals	EPA 200.8/245.1 and 200.7
Aluminum, boron, iron, and manganese	EPA 200.7
Low level mercury	EPA 245.1

Analyte	Method
TS – TDS	SM 2540B
VOCs	SW8260B
SVOCs	SW8270B
PAHs	SW8270C SIM
Pesticides/PCBs	EPA 608
Sulfide	SM4500S
Sulfate, Chloride, Fluoride	E300
Total and ortho phosphorous	SM4500PE
Dioxin/furans (TCDD only)	EPA 1613B
Cyanide 2.9 µg/L or less RL	EPA 335.4
Hexavalent chromium	SW7199
Specific conductance	A2510B
Nitrate/nitrite as N	E353.2

Notes:
µg/L = microgram per liter
N = nitrogen
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
RL = Reporting Limit
SVOC = semivolatile organic compound
TCDD = 2,3,7,8-Tetrachlorodibenzo-p-Dioxin
TDS = total dissolved solids
TS = total solids
VOC = volatile organic compound

The following constituents detected at concentrations above their respective Groundwater General Permit trigger levels or other applicable water quality objectives will be monitored as part of this discharge monitoring plan:

- Total suspended solids (TSS)
- Copper
- Nickel
- Selenium
- Total petroleum hydrocarbons (TPH)-motor oil

In addition, the following constituents specified in the 401 Certification will be monitored:

- pH
- Dissolved sulfide
- Turbidity
- Temperature
- Dissolved oxygen

Monitoring Locations

Influent and effluent sample ports will be located on each of the treatment systems and will be labeled appropriately.

Monitoring Procedures, Parameters, and Frequencies

Samples will be collected in accordance with the PG&E Quality Assurance Work Plan (QAWP); the QAWP is available for review on request. All samples will be analyzed for the following constituents, methods, and frequencies:

Analyte	Frequency	Method
Copper, nickel, selenium	Monthly	EPA 200.8/245.1 and 200.7
TSS	Monthly	SM 2540B
TPH-mo	Monthly	EPA 8015B
Dissolved sulfide	Monthly	SM4500-S2-D
pH	Daily	SOP-F01 / Field Measurement
Turbidity	Daily	SM2130 / Field Measurement
Temperature	Daily	EPA 170.1 / Field Measurement
Dissolved oxygen	Daily	Field Measurement

One influent sample and one effluent sample will be collected on the first day of discharge, and then on a monthly basis, for laboratory analyses to verify water quality of target constituents reported above Groundwater General Permit trigger levels. All field parameters will be monitored daily during discharge, in accordance with the 401 Certification requirements.

The laboratory performing the analyses will be certified under the California Environmental Laboratory Accreditation Program.

All monitoring records will be retained for at least 3 years from the date of generation of the record and will include the following:

- Date, exact place, and time of sampling or measurement
- Individual(s) who performed the sampling or measurement
- Date(s) analyses were performed
- Calibration records of field monitoring equipment
- Individual(s) who performed the analyses
- Analytical technique or method used
- Results of the analyses

Reporting Schedule

The R-349 pipeline relocation project is scheduled to mobilize in September 2016 (or earlier) and is anticipated to be completed by November 15, 2016. Results for all analyses and the total volume of filtered groundwater discharged to storm drain will be reported for the 4th Quarter reporting period and will be submitted no later than February 15, 2017. Should the project be delayed, a report will be submitted within the 6-month period that the discharge occurs.

Attachment 4

Quayle, Stephen/BAO

From: Teresi, Joe <Joe.Teresi@CityofPaloAlto.org>
Sent: Tuesday, July 05, 2016 4:02 PM
To: Quayle, Stephen/BAO
Cc: Enzminger, Jeff/SJC; Scherbak, Paul/BAO; txaj@pge.com; Hada, Rajeev; Murray, Kevin; tbyler@sfcjpa.org; Struve, Kirsten; Nafziger, Mike; Jeremias, Michel; Dale Siemens; Springer, Bill; Chu, Kinh; Wiedmann, Brian
Subject: RE: R-349 San Francisquito Creek - Request for permission to use storm drains and flow rate approvals – REVISED
Attachments: Insurance Certificate Submission Requirements revised.pdf; Street Work Permit Form.pdf; Street Work Permit Info Handout.pdf; City_of_Palo_Alto_ Proposed_Storm_Drain_Inlets_ 160705_sbq.pdf

Stephen,

Per our telephone conversation, I am willing to allow the discharge of excavation dewatering associated with PG&E's gas main relocation into portions of the City's storm drain system on a conditional basis, as described below. If at all possible, the preferred disposal protocol would be direct discharge to San Francisquito Creek.

The following is my understanding of the proposed protocol for discharge of water from the gas main trench/pit dewatering:

1. Water pumped from the trenches/pits will be treated prior to discharge through the use of multiple settling tanks and filtration systems to control TDS and turbidity of the discharge. **Please provide a detailed description of the treatment system(s).**
2. Initial discharge will be into the sanitary sewer system to allow for testing of the effluent and adjustment of the settlement/filtration systems.
3. Once the quality of the effluent has been tested, verified, and stabilized, the discharge will be directed to the storm drain system at the locations depicted on the attached exhibit. The maximum flow rate at each individual discharge point will be 200 gallons per minute (gpm). **What are the proposed constituent concentrations that must be met prior to discharge to the storm drain system?**
4. The sanitary sewer discharge option will be available during periods when the storm drain system is unavailable due to weather or other construction-related constraints.

I approve the proposed discharge of excavation dewatering associated with PG&E's gas main relocation into portions of the City's storm drain system, under the following conditions:

1. The water will be discharged per the protocol described above.
2. PG&E or its contractor shall obtain a **Street Work Permit**, including the payment of applicable fees and submittal of required insurance certificates, from the Public Works Engineering Services Division prior to discharge to the storm drain system. I have attached a Street Work Permit form, permit instructions, and insurance requirements for your reference. Permits are obtained from the Public Works Engineering Services Division at the City's Development Center, 285 Hamilton Avenue.
3. The maximum allowable flow rate at each individual discharge point shall be initially set at 200 gallons per minute (gpm). If the discharge flow rate causes exceedances in the capacity of any of the storm drain pipelines or the on-site Golf Course storm water pumping facility, the discharge rates shall be reduced accordingly to eliminate such exceedances.
4. No discharge of water to the storm drain system shall be permitted during rain events at the site.
5. No discharge of water to the storm drain system shall be permitted if such discharges hinder the City's contractor's ability to perform work on the Golf Course Reconfiguration Project.

6. PG&E or its contractor shall assume full responsibility for the quality of the water discharged to the City's storm drain system and shall bear responsibility for any fines and/or penalties imposed due to any water quality violations associated with its discharge.

Joe Teresi
Senior Engineer
City of Palo Alto
Public Works Engineering Services
(650) 329-2129

From: Stephen.Quayle@CH2M.com [mailto:Stephen.Quayle@CH2M.com]
Sent: Tuesday, July 05, 2016 1:58 PM
To: Teresi, Joe
Cc: Jeff.Enzminger@CH2M.com; Paul.Scherbak@CH2M.com; txaj@pge.com
Subject: R-349 San Francisquito Creek - Request for permission to use storm drains and flow rate approvals – REVISED

Hi Joe,

R-349 San Francisquito Creek - Request for permission to use storm drains and flow rate approvals – REVISED

As per our discussion, after walking the proposed storm drain inlets, PG&E would like to revise the proposed storm drain inlets on the south end of the Palo Alto Golf Course. I am resubmitting a complete set of maps showing three proposed storm drain inlets. PG&E would like to request the use the three storm drains listed below for our project with the Joint Powers Authority along San Francisquito Creek. The attached drawings show the locations the proposed storm drain inlets.

- Palo Alto Golf Course – North - request for 200 gpm flow rate
- Palo Alto Golf Course – South - request for 200 gpm flow rate (revised location)
- Geng Road Catch Basin CB-014-5-09 - request for 200 gpm flow rate

PG&E would like to request a discharge flow rate of 200 gallons per minute at each of the storm drain inlets. As per your request, we had an engineer review the storm drain network on the Palo Alto Golf Course. The engineer estimated that each of the two proposed inlets (Palo Alto GC- North and Palo Alto GC – South) could each handle 400 gallons per minute (combined flow rate on the Golf Course of 800 gpm). Therefore, our requested combined flow rate on the Golf Course of 400 gpm is below the potential flow rate of 800 gpm.

As described above, PG&E requests concurrence from the City of Palo Alto regarding the following:

- **Permission to use the three storm drain inlets listed above.**
- **Approval of a 200 gpm flow rate for each of the three storm drains (cumulative flow rate of 600 gpm).**

Pleases let us know if you have any questions. Thanks for your help.

Regards,

Stephen

Stephen Quayle, P.G.
Project Manager/Project Geologist
Environmental & Nuclear Business Group
M 1 510 316 3644

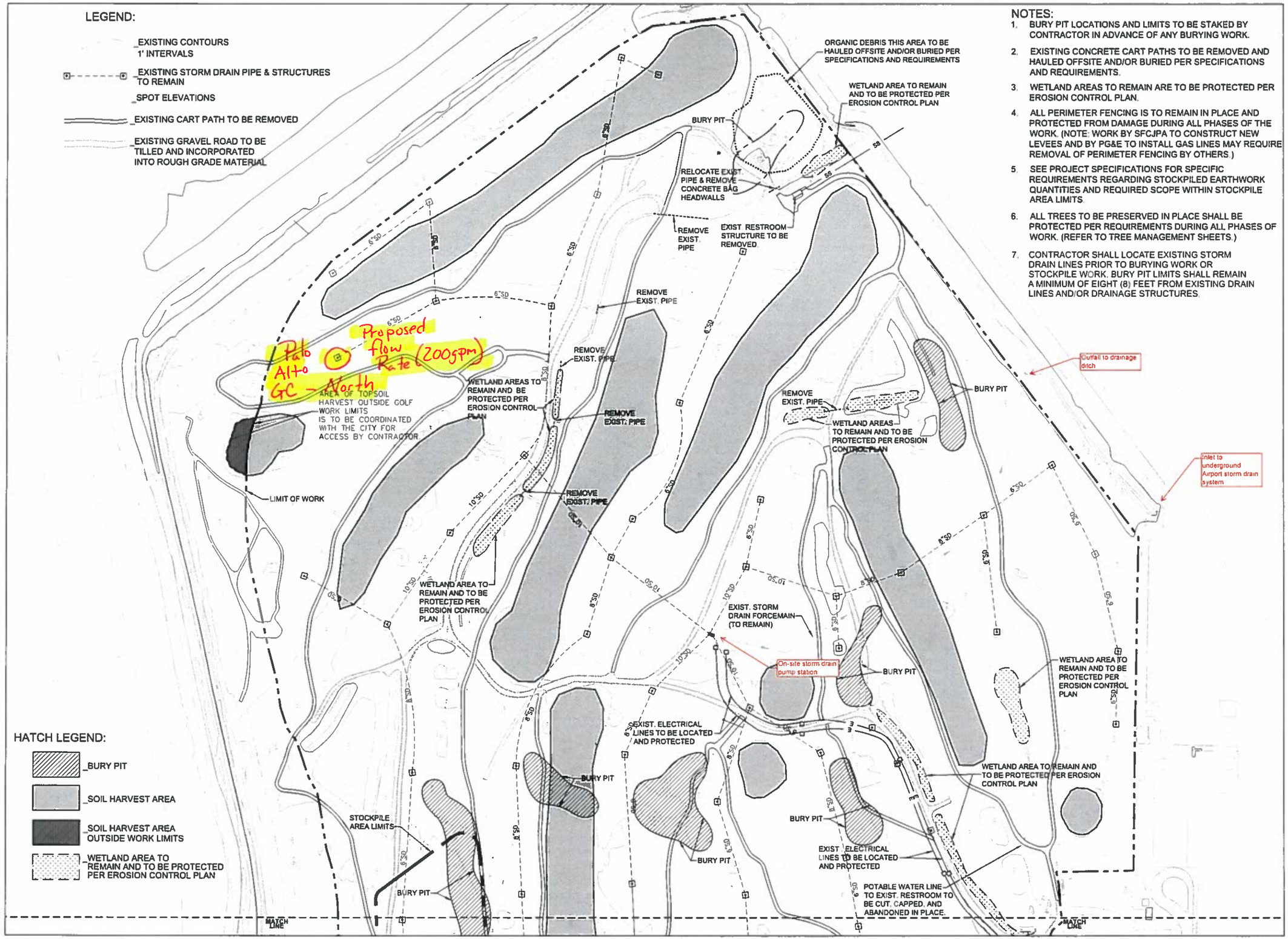
CH2M
www.ch2m.com | LinkedIn | Twitter | Facebook

LEGEND:

- EXISTING CONTOURS 1' INTERVALS
- EXISTING STORM DRAIN PIPE & STRUCTURES TO REMAIN
- SPOT ELEVATIONS
- EXISTING CART PATH TO BE REMOVED
- EXISTING GRAVEL ROAD TO BE TILLED AND INCORPORATED INTO ROUGH GRADE MATERIAL

NOTES:

1. BURY PIT LOCATIONS AND LIMITS TO BE STAKED BY CONTRACTOR IN ADVANCE OF ANY BURYING WORK.
2. EXISTING CONCRETE CART PATHS TO BE REMOVED AND HAULED OFFSITE AND/OR BURIED PER SPECIFICATIONS AND REQUIREMENTS.
3. WETLAND AREAS TO REMAIN ARE TO BE PROTECTED PER EROSION CONTROL PLAN.
4. ALL PERIMETER FENCING IS TO REMAIN IN PLACE AND PROTECTED FROM DAMAGE DURING ALL PHASES OF THE WORK. (NOTE: WORK BY SFCJPA TO CONSTRUCT NEW LEVEES AND BY PG&E TO INSTALL GAS LINES MAY REQUIRE REMOVAL OF PERIMETER FENCING BY OTHERS.)
5. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS REGARDING STOCKPILED EARTHWORK QUANTITIES AND REQUIRED SCOPE WITHIN STOCKPILE AREA LIMITS.
6. ALL TREES TO BE PRESERVED IN PLACE SHALL BE PROTECTED PER REQUIREMENTS DURING ALL PHASES OF WORK. (REFER TO TREE MANAGEMENT SHEETS.)
7. CONTRACTOR SHALL LOCATE EXISTING STORM DRAIN LINES PRIOR TO BURYING WORK OR STOCKPILE WORK. BURY PIT LIMITS SHALL REMAIN A MINIMUM OF EIGHT (8) FEET FROM EXISTING DRAIN LINES AND/OR DRAINAGE STRUCTURES.



HATCH LEGEND:

- BURY PIT
- SOIL HARVEST AREA
- SOIL HARVEST AREA OUTSIDE WORK LIMITS
- WETLAND AREA TO REMAIN AND TO BE PROTECTED PER EROSION CONTROL PLAN

REFERENCE	DATE
P. Buckley	02-03-14
Final review FR	04-18-16

REGISTERED PROFESSIONAL ENGINEER LEON E. OBERKAMPER No. 12094 CIVIL STATE OF CALIFORNIA

OBERKAMPER & ASSOCIATES
CIVIL ENGINEERS, INC
7200 REDWOOD BLVD SUITE 308
NOVATO, CA 94945
TEL 415-897-3800
FAX 415-897-2020
WWW.OBERKAMPER.COM

CITY OF PALO ALTO, CALIFORNIA
BAYLANDS GOLF LINKS
1875 EMBARCADERO ROAD
PROJECT NO. PG-13003

NORTH

0 100' 200' 300' ft.

Demolition Plan / North

SHEET
5 of 47

Page 1 of 3

Revised Storm Drain Inlets

S. Quayle 7/5/16

NOTES:

1. BURY PIT LOCATIONS AND LIMITS TO BE STAKED BY CONTRACTOR IN ADVANCE OF ANY BURYING WORK.
2. EXISTING CONCRETE CART PATHS TO BE REMOVED AND HAULED OFFSITE AND/OR BURIED PER SPECIFICATIONS AND REQUIREMENTS.
3. WETLAND AREAS TO REMAIN ARE TO BE PROTECTED PER EROSION CONTROL PLAN.
4. ALL PERIMETER FENCING IS TO REMAIN IN PLACE AND PROTECTED FROM DAMAGE DURING ALL PHASES OF THE WORK. (NOTE: WORK BY SFCJPA TO CONSTRUCT NEW LEVEES AND BY PG&E TO INSTALL GAS LINES MAY REQUIRE REMOVAL OF PERIMETER FENCING BY OTHERS.)
5. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS REGARDING STOCKPILED EARTHWORK QUANTITIES AND REQUIRED SCOPE WITHIN STOCKPILE AREA LIMITS.
6. ALL TREES TO BE PRESERVED IN PLACE SHALL BE PROTECTED PER REQUIREMENTS DURING ALL PHASES OF WORK. (REFER TO TREE MANAGEMENT SHEETS.)
7. CONTRACTOR SHALL LOCATE EXISTING STORM DRAIN LINES PRIOR TO BURYING WORK OR STOCKPILE WORK. (BURY PIT LIMITS SHALL REMAIN A MINIMUM OF EIGHT (8) FEET FROM EXISTING DRAIN LINES AND/OR DRAINAGE STRUCTURES)

REFERENCE	DATE
P. Buckley	02-03-14
Final review FR	04-18-16

REGISTERED PROFESSIONAL ENGINEER JOHN E. OBERKAMPER No. 12094 CIVIL STATE OF CALIFORNIA

OBERKAMPER & ASSOCIATES
CIVIL ENGINEERS, INC
7200 REDWOOD BLVD SUITE 308
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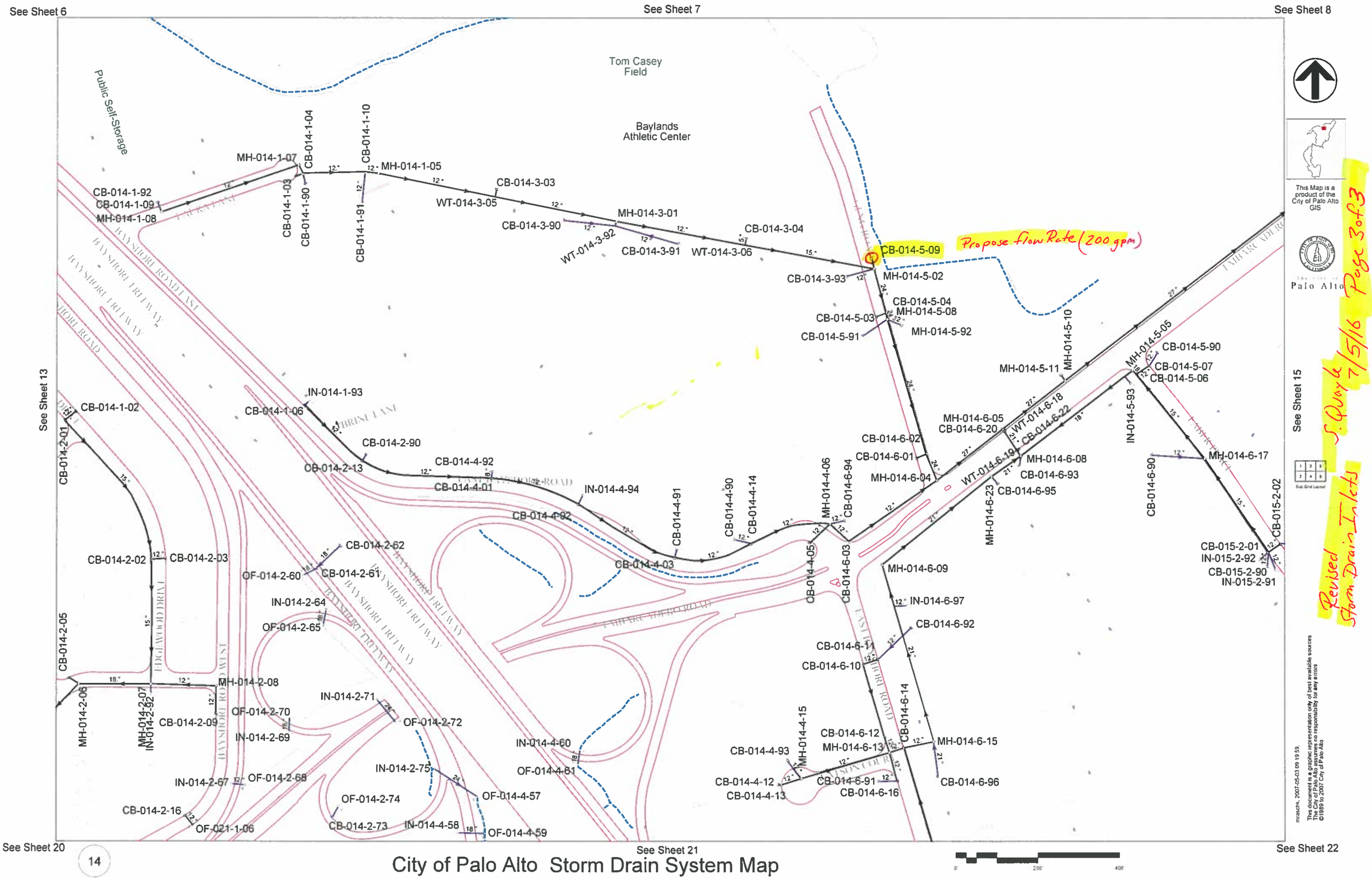
CITY OF PALO ALTO, CALIFORNIA
BAYLANDS GOLF LINKS
1875 EMBARCADERO ROAD
PROJECT NO. PG-13003

Demolition Plan / South

SHEET
4 of 47

Page 2 of 3

Revised Storm Drain Inlets S. Quayle 7/5/16



City of Palo Alto Storm Drain System Map

Revised Storm Drain Inlets

S. Quayle 7/5/16 Page 3 of 3

City of Palo Alto
Public Works Engineering
Phone: 650/329-2151 FAX: 650/329-2240
www.CityofPaloAlto.org/depts/pwd/forms_permits

Street Work Permits

What's a Street Work Permit, and when is one needed?

Sometimes called a Street Opening Permit, this document is required whenever work will be done in a City right-of-way which will break the surface of the ground or will impact City improvements (such as sidewalks, pavement or utilities). The permit lets the City know what work is proposed to be done, and provides a way for the City to approve, monitor and inspect the work.

What's a City right-of-way?

The right-of-way is property controlled by the City for the use of the public as a way for traffic to travel. Traffic can mean vehicles, bicycles or pedestrians. The right-of-way is usually associated with a street, avenue, alley, or lane. *Note that the right-of-way is not just the paved portion, but the entire width from private property line to private property line*. Many residents are surprised to find that in most residential areas the right-of-way starts several feet behind the sidewalk in an area considered by them to be their private yard.

How much does the permit cost?

A Street Work Permit costs 5% of the value of the work to be performed in the right-of-way, with a $260 minimum fee in 2013/14. Fees may be adjusted in succeeding years

Who applies?

Normally, the contractor performing the work takes out the permit. It is possible for a general contractor to take out a permit for work to be performed by subcontractors which can minimize the number of permits required for larger projects involving many subcontractors. In any case, the Permittee must have a State Contractor's License for the type of work to be performed.

What paperwork is required to apply?

An application/permit form may be obtained from a Public Works Engineering representative at the City of Palo Alto Development Center, 285 Hamilton Ave, or on our website. The filled out application must be submitted with a reasonably accurate drawing showing the location and nature of the work to be done. The drawing must show any street trees within roughly 10 feet of the work. Simple replacement in-kind sidewalk or driveway approach work does not usually require a drawing unless there are trees nearby. If the work will include a change from the existing alignments or locations of the sidewalk, driveway approach, etc., a drawing must be submitted. Also, if the work will be on a sidewalk or in the street, a traffic control plan meeting City requirements must be supplied.

Any drawings submitted should be at least 8½ x 11, but no larger than 11x17. If the submission of larger plans is necessary, the applicant is required to submit eight copies.

What are the insurance requirements?

Evidence of insurance coverage is also required (see below for basic requirements). You may refer to the CPA-PW handout *Insurance Certificate Submission Requirements* for a more detailed description of these requirements. <u>This required insurance must be maintained for the life of the permit</u>.

A certificate of insurance must be issued to the City of Palo Alto, Public Works Engineering, as Certificate Holder, that:

1. Provides minimum liability coverage of $1,000,000 each for personal injury and property damage. These minimums may be raised, based on evaluation by the City Risk Manager.

2. <u>The explicit naming of the City of Palo Alto, its Officers, Officials, Employees, Agents and Volunteers as additional insured.</u> This statement may be placed in a comments section on the face of the certificate or be on a standard insurance industry form for naming additional insured, such as CG 20 12 11 85 (*Additional Insured - State or Political Subdivision - Permits*). The form must state the policy numbers to which it applies.

3. The insured to be the same party as the applicant. If the application is made for a "d.b.a." name, that name must also appear on the certificate as an insured.
4. There must be a definite period of applicability. "Open" or "Continuous" are not acceptable expiration

dates.

5. Relevant policy numbers and a wet signature must be shown on the face of the certificate and all attachments.

6. An endorsement and statement on the certificate specifying that "this insurance is primary coverage and that any city insurance is excess coverage only".

7. The provision for thirty (30) days notice to the City of Palo Alto for cancellation or change of coverage.

8. The liability insurance policy shall include a contractual liability endorsement providing insurance coverage for the Permittee's agreement to indemnify the City.

These certificates may be mailed to the address at the top front of this document, brought to a Public Works representative in the Development Center, or faxed to the above fax number (a fax should include the fact that it is for Public Works Engineering).

Why is insuring the City necessary? Doesn't it have its own insurance?

Should someone suffer an injury because of the permitted work activities, and a lawsuit is filed, it is likely that the plaintiff will name the City as one of the defendants, because the work is on City-controlled property with City approval. Because the City is named as an additional insured, the applicant's insurance company will be required to defend the City, relieving the City of the burden and cost of defending itself, or of going to the expense of having itself removed from the suit.

How long does it take?

If there is already an approved insurance certificate on file and the work is very simple, it may be possible to issue the permit over the counter. In general, though, it is necessary for other City departments to review for possible impact in their areas of responsibility.

It could take as many as two weeks or more to get all departmental reviews done, although most permits get approved within five to ten working days.

There are two items that cause the greatest delays in permit approval:

a. Insurance documents that do not conform to all of the requirements listed above, and

b. Failure to provide an adequate traffic control plan when the permitted activity will impact pedestrian or vehicular traffic. Traffic Engineering and the Police Department require submittal of a detailed plan showing such things as cone placement and spacing, sign placement and wording, etc.

Once the above items are fulfilled and approved, the permit should be issued as soon as possible.

Once I have the permit, are there any other requirements?

The City's Public Works Inspectors must be called at 650/496-6929 a minimum of one work day before beginning any work. An inspector will come out to discuss the project and give tips and advice on how to be sure you meet City requirements. And, of course, you should contact Underground Service Alert (USA), at (800) 227-2600, if you plan to do any excavation work. At the conclusion of work, the Inspectors must again be called for a final inspection, sign-off and permit closure.

This publication is intended to be an informal means of informing the public about a City process. Although it is assumed the information provided is accurate, the sheet is not intended to create any sort of legal obligation on the City's part. The actual process is governed by City ordinances, regulations and procedures, and the reader should make specific inquiry to the City for specific cases.

City of Palo Alto
Public Works Engineering
Phone: 650/329-2151 FAX: 650/329-2240
Inspection: 650/496-6929

STREET WORK PERMIT

Permit No. ___**STR-**___

Type of Construction: ___Sidewalk ___Driveway Approach ___Other _____
___Curb & Gutter ___Underground Utilities _____

Location of Work:

Permittee/Contractor: _____

Address: _____

Contractor's License Number: _____ Phone: _____

Expected Start Date: **Expected Completion Date:**

Estimate of Work in Public Right-of-Way:		Estimated Quantities	Estimated Cost
Curb & Gutter	- lineal feet	_____	$ _____
Sidewalk	- square feet	_____	_____
DW Approach	- square feet	_____	_____
Pavement	- square feet	_____	_____
Utility Lateral	- lineal feet	_____	_____
Other: _____		_____	_____
		Total Cost:	$ _____

--PW STAFF USE ONLY--
This Permit is subject to the following Conditions or Remarks:
___ See Permit Conditions on Attachment(s): A B C D E F G H I J K L
_____
___ Other Permit Conditions:
_____
_____

--PW STAFF USE ONLY--
PERMIT FEES:
Fixed $ _____
5% Cost $ _____
Street Cut $ _____
Dewatering $ _____
Parking $ _____
TOTAL $ _____
Date Paid: _____

INSURANCE CERTIFICATE:
General Liability I-_____
Auto Liability I-_____

Permittee affirms that the facts stated hereon are true and agrees that they, their agents, employees and contractors shall perform all work described hereon in conformance with ordinances and standard specifications of the City of Palo Alto, all pertinent State laws and to the plans and specifications approved by the City Engineer. The work allowed in this permit shall be performed by an appropriately licensed contractor as required in the Palo Alto Municipal Code. The Permittee shall pay the cost of all soils investigation and compaction tests, and shall reimburse the City for any services provided as may be required by the City Engineer, Utilities Department or Police Department. Permittee further agrees to hold the City of Palo Alto, it's officers, agents, and employees harmless from all costs and damages which might arise from the Permittee's use or occupancy of the public right-of-way. The Permittee also agrees to maintain required insurance coverage through the closure of the permit and sign off by the Public Works Inspector. This permit is subject to all attached conditions made part of the permit document and may be revoked at any time for violation of any of these conditions.

*X*_____ _____ _____ _____
Authorized Permittee Signature **Date** Permit Issuer Issuance Date

_____
Print Name

Work Satisfactorily Completed: Inspector _____ Date _____

For inspection call the Public Works Inspector @ (650) 496-6929 -- Provide minimum one working day advance notice

Insurance Certificate Submission Guide

CITY OF PALO ALTO

PUBLIC WORKS
Engineering Services Division
pwecips@cityofpaloalto.org – 650.329.2151

To obtain a permit for working or placing a private facility in the public right-of-way or public property, it is necessary to file with the Public Works Engineering Services Division an approved insurance certificate prior to permit issuance. See reverse page for sample certificate.

COVERAGE REQUIREMENTS

Coverage Type	Requirement	Minimum Limits* EACH OCCURRENCE	Minimum Limits* AGGREGATE
Comprehensive General Liability:	Bodily Injury	$1,000,000	$1,000,000
INCLUDING:	Property Damage	$1,000,000	$1,000,000
• Occurrence-based Coverage			
• Personal Injury			
• Broad Form Property Damage	Bodily Injury & Property		
• Blanket Contractual	Damage Combined	$1,000,000	$1,000,000
Comprehensive Automobile Liability:**	Bodily Injury (Each Person)	$1,000,000	
INCLUDING:	Bodily Injury (Each Occurrence)	$1,000,000	
• Owned	Property Damage	$1,000,000	
• Hired	Bodily Injury & Property		
• Non-Hired	Damage Combined	$1,000,000	

** These minimums may be raised for some permits based on the evaluation by the City Risk Manager.*
*** Automobile liability insurance is required for a* Street Work Permit *only.*

(A) **BEST'S KEY RATING GUIDE** Required insurance coverage shall be provided through carriers with a **Best's Key Rating of A:VII or higher** and are admitted to do business in the State of California. The certificate of insurance must be completed and executed by an authorized representative of the company providing insurance. This required insurance must be maintained for the life of the permit.

(B) **ADDITIONAL INSURED** For the Comprehensive General Liability policy, provide an endorsement that explicitly names the city as additional insured with the following statement: ***"The City of Palo Alto, its Officers, Officials, Employees, Agents and Volunteers are named additional insured"***. This statement must be placed on a CG 20 12 (*Additional Insured - State or Political Subdivision - Permits)*. The form must state the policy number(s) to which it applies and be certified by an authorized insurance agent. Reference to this attachment must be provided on the face of the certificate.

(C) **PRIMARY COVERAGE** An included endorsement and statement on the certificate specifying the following: ***"This insurance is primary coverage and that any city insurance is excess coverage only"***.

(D) **CERTIFICATE HOLDER** The City of Palo Alto, Public Works Engineering Services Division, 285 Hamilton Avenue Palo Alto CA 94301, must be named as Certificate Holder.

(E) **CRANE WORK** Where work involves a crane, riggers coverage shall be provided in the amounts above.

(F) **POLICY NUMBERS** Relevant policy numbers must be shown on the face of the certificate and all attachments.

(G) **INSURED NAME** The insured shall be the same party as the applicant. If the application is made for a "d.b.a." name, that name must also appear on the certificate as an insured.

(H) **CANCELLATION** The provision for 30 day notice to the City of Palo Alto for cancellation or change of coverage.

(I) **EFFECTIVE PERIOD** There must be a definite period of applicability. "Open" or "continuous" are not acceptable expiration dates.

(J) **INDEMNIFICATION** The liability insurance policy shall include a contractual liability endorsement providing insurance coverage for the Permittee's agreement to indemnify the City.

-- Please see reverse for sample certificate –

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
(Broker Name)
(Broker Address)
(Broker Phone Number)

CONTACT NAME:
PHONE (A/C, No, Ext):
FAX (A/C, No):
E-MAIL ADDRESS:

A

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : (Underwriter Name)	
INSURER B : (Underwriter Name, if applicable)	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
G
(Insured Entity Name)
(Insured Entity Address)

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR X Hook Liability X Over the road GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC			F (Must be a number, not TBD)	(Must be a date, not "open" or "continuous")		EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$ 1,000,000
							GENERAL AGGREGATE	$ 1,000,000
							PRODUCTS - COMP/OP AGG	$ 1,000,000
								$
B	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			I (Must be a number, not TBD)	(Must be a date, not "open" or "continuous")		COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					WC STATU-TORY LIMITS OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

B The City of Palo Alto, its officers, officials, employees, agents, and volunteers are named additional insured.

C This insurance is primary and any city insurance is excess coverage only.

CERTIFICATE HOLDER

D
City of Palo Alto
Public Works Engineering Services
285 Hamilton Avenue
Palo Alto, CA 94301

H CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVE.

AUTHORIZED REPRESENTATIVE

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