Attachment C
Site Photographs and Field Description for the AgSEP Monitoring Sites

Cypress Channel at Kimball Avenue (also USEP monitoring site)

Sample Location:
Monitoring on Cypress Channel will be conducted on the upstream side of the Kimball Avenue road crossing. The best location for collection of water samples and flow measurements is approximately 150 feet north of the road crossing. This segment of Cypress Channel is unlined and there is a sufficient depth of flow during dry weather to collect a sample. Collection of a cross section velocity profile for measurement of flow is feasible at this location.

Site Access:
This site is accessed by parking on the Cypress Channel SBCFCD access road on the north side of Kimball Avenue across from the Inland Empire Utilities Agency offices. There is no fencing or access gate at this location.

Cypress Channel looking upstream from Kimball Avenue

Attachment C

Attachment C

Grove Avenue Channel at Merrill Avenue

Sample Location:
Sampling for this site will be conducted at the southwest corner of the Grove Avenue & Merrill Avenue intersection, directly upstream of the entrance of the Grove Avenue Channel as runoff flows south on Grove Avenue and crosses south over Merrill Avenue. Trash racks and fencing enclose the entrance of the channel.

Site Access:
Park along Merrill Avenue on the south side of the street, west of Grove Avenue.

View of Grove Avenue looking north; flows proceed south along gutter

View of Grove Avenue Channel looking south

Attachment C

Close up view of Grove Avenue Channel; collect sample before flow enters through trash racks.

Attachment C

Eucalytus Avenue at Walker Avenue

Sample Location:
Sampling for this site will be conducted at the unpaved street gutter on the west side of Walker Avenue, as sheet flow proceeds south on Walker Avenue and then west along Eucalyptus Avenue (unpaved areas).

Site Access:
Park along Eucalyptus Avenue on the south side of the street

View looking north at Walker Avenue; collect sample from sheet flow runoff at the roadside

View of Eucalyptus Avenue looking in west direction; flow proceeds west along side of road

Eucalyptus Avenue at Cleveland Avenue (Backup site to Walker Avenue site if surface flows are insufficient)

Sample Location:
Sampling for this site will be conducted on the west side of Cleveland Avenue from the unpaved street gutter as sheet flow proceeds south on Cleveland Avenue and then west along the Eucalyptus Avenue.

Site Access:
Park along Eucalyptus Avenue on the south side of the street, east of Cleveland Avenue.

View of Cleveland Avenue looking north; collect sheet flow at road side

View of Eucalyptus Avenue looking in west direction

Attachment C

Euclid Avenue Channel at Pine Avenue

Sample Location:
Sampling for this site will be conducted at the discharge outfall pipe located on the south side of Pine Avenue. Stormwater flows proceed along an open channel on the east side of Euclid Avenue and proceed east along Pine Avenue into an open partially lined channel on the north side of Pine Avenue. The flows are conveyed under the Pine Avenue via a small diameter corrugated metal pipe, which daylights at the sample point.

Site Access:
Park on Pine Avenue on the south side of the street to the west of discharge pipe.

View looking east on Pine Avenue; sample location is at outfall pipe emerging from under Pine Avenue

View of open channel along Pine Avenue looking in west direction

Attachment D
Site Photographs and Field Description for the BMP Effectiveness Monitoring Sites

Attachment D

Northern Bioswale Segment #1, Corona

Sample Location:

Sampling for this site will be conducted at the main influent of the bioswale where a discharge pipe with headwall is located on the western portion of the bioswale. The discharge pipe daylights from below Temescal Canyon Road. A sampling pole can be used to collect the sample. The effluent sample location is located at the downstream (proceeding east) end of the bioswale. A steady stream of water may be observed at the effluent location right where the unpaved access road crosses the terminus of the bioswale.

Site Access:

This site is accessed via the entrance of the city of Corona Wastewater Treatment Plant No. 3 located at Temescal Canyon Road, south of Cajalco Rd. After entering the driveway, turn right (before WWTP gate) and drive along the unpaved access road that lines the bioswale as it proceeds from west to east.

Downstream view of bioswale

View of bioswale influent

Attachment D

View of terminal end of bioswale; Access road is located in the foreground

Close-up view of effluent sampling point

Extended Detention Basin, Sycamore Canyon Wilderness Park, City of Riverside

Sample Location:
Sampling for this site will be conducted at the influent pipe of the extended detention basin. Dry weather and wet weather flows are conveyed to the extended detention basin via a drainage pipe that is located below ground under the Ralph's parking lot and daylights at the extended detention basin.

The outlet riser structure is the first one of two effluent sampling locations. The second effluent sampling location is an outfall pipe (8-inch) emerging from under a constructed spillway, downstream of the riser structure.

Site Access:
In order to conduct monitoring activities, access to the extended detention basin will be required via the Ralphs facility located at 1500 Eastridge Avenue, Riverside, California.

The entrance gate to the park is accessible only with assistance from Ralphs facility staff. The City is arranging acquisition of a key for direct access.

Aerial view of extended detention basin; Influent located west of Ralphs parking lot located on right side

View of influent pipe

Attachment D

View of outlet riser structure

View of effluent discharge pipe downstream of spillway

Attachment D

Kristar Perk Filter, City of Canyon Lake

Sample Location::
Sampling for this site will be conducted at the curb gutter prior to flows entering the retrofitted drain inlet with Kristar Perk Filter. The effluent sample will be collected by removing the manhole and using a sampling pole with collection bottle and collected downstream of the filter cartridges.

Site Access:
The City of Canyon Lake is a gated city. The main entrance to the city is located at the intersection of Canyon Lake Drive South and Railroad Canyon Road.

The drain inlet is located on the north side of Canyon Lake Drive North, between Cross Hill Drive and Lands End Place (approximately 70 yards east of Cross Hill Drive).

Aerial view of location of catch basin located between Cross Hill Drive and Lands End Place

Attachment D

View of catch basin with Perk Filter device (see below)

Perk Filter device and cartridges

Attachment D

Kristar Up-Flo Filter, City of Canyon Lake

Sample Location:
Sampling for this site will be conducted at the curb gutter prior to flows entering the retrofitted drain inlet with the Up-Flo Filter. The effluent sample will be collected by removing the manhole and using a sampling pole with collection bottle and collected downstream of the filter cartridges.

Site Access:
The City of Canyon Lake is a gated city. The main entrance to the city is located at the intersection of Canyon Lake Drive South and Railroad Canyon Road.

The drain inlet is located on the north side of Canyon Lake Drive, located between Santa Maria Drive and Outrigger Drive (approximately 200 yards west of Outrigger Drive).

Aerial view of drain inlet

Attachment D

View of catch basin

View of Up-Flo Filters inside catch basin

Attachment D

StormFilter, City of Ontario

Sample Location::
Influent sampling for this site will be conducted at the drain inlet prior to flows entering the StormFilter unit. The effluent sample will be collected by removing the manhole (requires a manhole hook) and using a sampling pole with collection bottle to collect samples downstream of the filter cartridges.

Site Access:
Site is located at 2850 Inland Empire Blvd, Ontario, California. Park in the parking lot adjacent to the drain inlet and StormFilter unit manholes.

Attachment D

Access man holes to StormFilter unit

View of cartridges inside StormFilter vault

Attachment E
Field Data Sheet Forms

Attachment E

MSAR Pathogen TMDL
Field Data Sheet

General Information:

Site Name: _____

Site ID: _____

Date: ___/___ /_____

Time (24-hr clock): _____

Sampling Team: _____ /_____

Field Measurements:

Conductivity: _____ (m S/cm)

Dissolved Oxygen: _____ (mg/L)

pH: _____

Turbidity: _____ (NTU)

Temp (water): _____ (^{o}C)

For USEP, AGSEP, and BMP Effectiveness Monitoring Program Sites Only:

Flow: _____ (ft/sec)

Flow Connectivity (USEP only): Y/N (Describe)

_____

_____

Grab Sampling: Filled and labeled (check)

1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
for ***E. coli*** and **Fecal Coliform**: _____

1 – 1,000 mL polyethylene bottle for **TSS**: _____

Additional Grab Sampling For USEP and AGSEP Monitoring Program Sites Only:

1 – 1,000 mL polyethylene bottle for ***Bacteroides*** _____

Note:

Additional bottles sets are included for field duplicates and field blanks
(Check if applicable): _____

Other Observations:

_____

_____

_____

MSAR Pathogen TMDL Field Data Sheet
(For BMP Effectiveness Monitoring only)

General Information:

Site Name: _____

Site ID: _____

Date: ___/___ /_____

Time (24-hr clock): _____

Sampling Team: _____ /_____

Field Measurements:

Conductivity: _____ (m S/cm)

Dissolved Oxygen: _____ (mg/L)

pH: _____

Turbidity: _____ (NTU)

Temp (water): _____ (^{o}C)

Flow: _____ (ft/sec)

==========

Grab Sampling: Filled and labeled (check)

INFLUENT Sample 1:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative) for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 1:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative) for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

==========

INFLUENT Sample 2:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 2:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 3:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 3:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 4:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 4:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 5:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 5:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 6:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 6:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 7:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 7:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 8:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 8:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 9:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 9:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

INFLUENT Sample 10:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

Lag Time: _____ min

Comments: (Provide reasons for deviation from lag time procedures)

_____

_____

EFFLUENT Sample 10:

- Sample Time (24-hour clock): _____
- 1 – 120 mL polyethylene bottle (includes sodium thiosulfate preservative)
  for ***E. coli*** and **Fecal Coliform**: _____
- 1 – 1,000 mL polyethylene bottle for **TSS**: _____

==========

Note:

Additional bottles sets are included for field duplicates and field blanks

(Check if applicable): _____

Other Observations:

_____

_____

_____

Attachment F
Chain of Custody Forms

County of Orange, Health Care Agency
Water Quality Laboratory
700 Shellmaker Rd.
Newport Beach, CA 92660 ELAP #2545
PHONE: (949) 219-0423 FAX: (949) 219-0426

STUDY: MSAR Pathogen TMDL Monitoring Project

SUBMITTING AGENCY:

WEATHER:

To be completed by Field Sampler	To be completed by Laboratory

FIELD DATA	LABORATORY REPORT
Date Collected	Date Received____________ Received by____________
Sampler	Time In____________ Time Run____________ Date/Time Read____________

Constituent	Time	Sample Type (Grab, Duplicate, Field/Equipment Blank)	Station Number / Location of Sampling Station	Total Suspended Solids	MF Dilution (mL)	Fecal Coliforms		Escherichia coli		
				TSS		m-FC Agar		m-TEC		Report Date/ Initials
				mg TSS/1L		CFU's	CFU/100ml	CFU's	CFU/100ml	
					100.0					
					10.0					
					1.0					
					0.1					
Laboratory No.					0.01					
					0.001					
					0.0001					

Constituent	Time	Sample Type (Grab, Duplicate, Field/Equipment Blank)	Station Number / Location of Sampling Station	Total Suspended Solids	MF Dilution (mL)	Fecal Coliforms		Escherichia coli		
				TSS		m-FC Agar		m-TEC		Report Date/ Initials
				mg TSS/1L		CFU's	CFU/100ml	CFU's	CFU/100ml	
					100.0					
					10.0					
					1.0					
					0.1					
Laboratory No.					0.01					
					0.001					
					0.0001					

Constituent	Time	Sample Type (Grab, Duplicate, Field/Equipment Blank)	Station Number / Location of Sampling Station	Total Suspended Solids	MF Dilution (mL)	Fecal Coliforms		Escherichia coli		
				TSS		m-FC Agar		m-TEC		Report Date/ Initials
				mg TSS/1L		CFU's	CFU/100ml	CFU's	CFU/100ml	
					100.0					
					10.0					
					1.0					
					0.1					
Laboratory No.					0.01					
					0.001					
					0.0001					

Constituent	Time	Sample Type (Grab, Duplicate, Field/Equipment Blank)	Station Number / Location of Sampling Station	Total Suspended Solids	MF Dilution (mL)	Fecal Coliforms		Escherichia coli		
				TSS		m-FC Agar		m-TEC		Report Date/ Initials
				mg TSS/1L		CFU's	CFU/100ml	CFU's	CFU/100ml	
					100.0					
					10.0					
					1.0					
					0.1					
Laboratory No.					0.01					
					0.001					
					0.0001					

Relinquished by:	Received by:	Field or Lab Remarks:
Print Name:	Print Name:	
Signature:	Signature:	
Date / Time:	Date / Time:	
Relinquished by:	Received by:	
Print Name:	Print Name:	
Signature:	Signature:	
Date / Time:	Date / Time:	
Relinquished by:	Received by:	
Print Name:	Print Name:	
Signature:	Signature:	
Date / Time:	Date / Time:	

ORANGE COUNTY WATER DISTRICT

10500 Ellis Avenue, Fountain Valley, CA 92708

Telephone: (714) 378-3200 Fax: (714) 378-3373

CHAIN OF CUSTODY RECORD

NO.	SAMPLING AGENCY	WRMS STATION NAME	Sample Date	Sample Time	Sampled BY	COMMENTS		NO. OF Bottles	ANALYSIS
1						EC=	Ph=		
						TEMP=	DO=		
2						EC=	Ph=		
						TEMP=	DO=		
3						EC=	Ph=		
						TEMP=	DO=		
4						EC=	Ph=		
						TEMP=	DO=		
5						EC=	Ph=		
						TEMP=	DO=		
6						EC=	Ph=		
						TEMP=	DO=		
7						EC=	Ph=		
						TEMP=	DO=		
8						EC=	Ph=		
						TEMP=	DO=		
9						EC=	Ph=		
						TEMP=	DO=		
10						EC=	Ph=		
						TEMP=	DO=		

RELINQUISHED BY:	DATE/TIME	ED BY:	
RELINQUISHED BY:	DATE/TIME	ED BY:	DATE/TIME
SPECIAL INSTRUCTIONS:		**BILL ACCOUNT NO.:**	

Dr. Wuertz Laboratory

University of California, Davis Civil & Environmental Engineering TEL: 530.754.6407 FAX: 530 752 7872

CHAIN-OF-CUSTODY

DATE

Lab

Origination **ADDRESS** **PHONE** **FAX**							**REQUESTED**								
SAMPLED															
PROJECT:															
Wuertz															
Wuertz PROJECT															
Client Sample	**Sample Date**	**Sample Time**	**Sample Matric**	**Container #**	**Container Type**	**Container Pres.**									**Note**

SENDER	**RELIQUINSHED**	
	Signature:	
	Print	
	Company	
	Date:	Time
LABORATORY	**RECEIVED**	
	Signature:	
	Print	
	Company	
	Date:	Time

Attachment G
Form for use in Conducting Flow Measurements by Developing a Cross Section Velocity Profile

Attachment G

FLOW MEASUREMENTS

Location _____

Portable Flowmeter Used _____ Recorder _____

Date _____

Time _____

Left Bank _____ Right Bank _____ Page _____ of _____

	Distance from Left Bank	Section Width	Section Depth	Flow Velocity				Average V*	Area A**	Discharge (avg VXA)
				VO.6	VO.2	VO.8	VO.9			
1										
2										
3										
								Total Discharge		

Stream Flow Conditions (I.e., muddy, clear, debris, etc…): _____

_____

* Average Velocity =VO.6 for stream depths between 0.3 and 2.5 feet (six-tenths method).
=(VO.2 + VO.8)/2 for stream depths greater than 2.5 feet (two-point method).
=VO.9 if flow is less than 0.3 feet deep (maximum velocity X 0.9).

** Area =total depth x width