Homeless Encampment - Phase 1A Water Quality Monitoring and Trash Assessments Program

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Acronyms

Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BDL	Below Detection Limit
°C	Degrees Celsius
CDFW	California Department of Fish & Wildlife
CEDEN	California Environmental Data Exchange Network
cfs	cubic feet per second
cfu	Colony Forming Unit
E. coli	*Escherichia coli*
HF183	*Bacteroides* Human-host Specific Marker
Homeless Study	Assessing Homelessness Impacts on Water Quality, Riparian and Aquatic Habitat in Upper Santa Ana River Watershed
MBB	Mission Boulevard Bridge
mg/L	Milligrams per Liter
mL	Milliliters
MPN	Most Probable Number
MSAR	Middle Santa Ana River
MSB	Market Street Bridge
MST	Microbial Source Tracking
NTU	Nephelometric Units
OCR	Orange County Register
QAPP	Quality Assurance Project Plan
RBMP	Regional Bacteria Monitoring Program
RCFC&WCD	Riverside County Flood Control & Water Conservation District
RTA	Rapid Trash Assessment
Santa Ana Water Board	Santa Ana Regional Water Quality Control Board
SAWPA	Santa Ana Watershed Project Authority
SDSU	San Diego State University
State Water Board	State Water Resources Control Board
STV	Statistical Threshold Value
Task Force	MSAR Watershed TMDL Task Force
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
µS/cm	Microsiemens/centimeter
USGS	United States Geological Survey
VBB	Van Buren Boulevard Bridge
WQCP	Water Quality Control Plant

1. Introduction

1.1 Project Background

Homeless encampments have the potential to impact water quality in a number of ways, including elevated bacterial indicator concentrations from human waste and trash buildups and introduction of hazardous materials. Homeless encampments also may impact the integrity of riparian and aquatic habitats and aquatic and terrestrial species that rely on those habitats. Impacts from homeless encampment activity on water quality and habitat can be documented, at least anecdotally. For example, for constituents such as trash, just the presence of the trash is itself an impact. However, for other constituents, e.g., bacteria or toxic chemicals and hazardous substances, that may be associated with trash, actual data that directly link homeless encampment activity to lower water quality appear to be limited or unavailable. Regardless, it is generally assumed that impacts do occur because of the lack of adequate sanitary waste disposal facilities and presence of toxic chemicals in some trash.

Given these potential impacts and to support watershed planning efforts, the Santa Ana Watershed Project Authority (SAWPA) and its member agencies commissioned a study in 2019 to develop an understanding of homeless encampment activity and potential impacts of this activity on the environment in the upper Santa Ana River watershed. This study included the following activities:

- Develop a better understanding of potential impacts of homeless encampments on water quality and riparian and aquatic habitat based on an assessment of existing information
- Identify areas in the upper Santa Ana River watershed where encampments are concentrated.
- Based on the findings from the above activities, prepare a Preliminary Water Quality Monitoring Program for potential implementation by SAWPA. The purpose of the monitoring program would be to gather data from areas within the upper Santa Ana River watershed, where homeless encampments are typically present, to evaluate potential impacts to water quality and aquatic and riparian habitats.

The findings from the study are reported in the following report: *Assessing Homelessness Impacts on Water Quality, Riparian and Aquatic Habitat in Upper Santa Ana River Watershed* ("Homeless Study") (SAWPA 2020b).

Ultimately, the Homeless Study identified five areas within in the upper Santa Ana River riparian channel where homeless encampments were concentrated (**Figure 1-1**). All of these locations had two things in common – they are located in areas where the river is flowing during dry weather conditions and there is vegetative cover, including overhead cover in more densely vegetated areas, e.g., in Santa Ana River Reach 3. The Preliminary Monitoring

Program recommended future monitoring activities focus on three of the five locations: Market Street Bridge crossing; Mission Boulevard Bridge crossing and upstream of the Van Buren Boulevard Bridge). The Homeless Study recommended implementation of a phased water quality and habitat monitoring program, beginning with a dry weather conditions monitoring program ("Phase 1A"). This monitoring program could be expanded in subsequent phases to collect data associated with wet weather conditions and incorporate other types of data collection including physical habitat and bioassessments.

Following completion of the Homeless Study, SAWPA recommended implementation of the proposed Phase 1A monitoring program. This report has been prepared to present the findings from the implementation of that program.

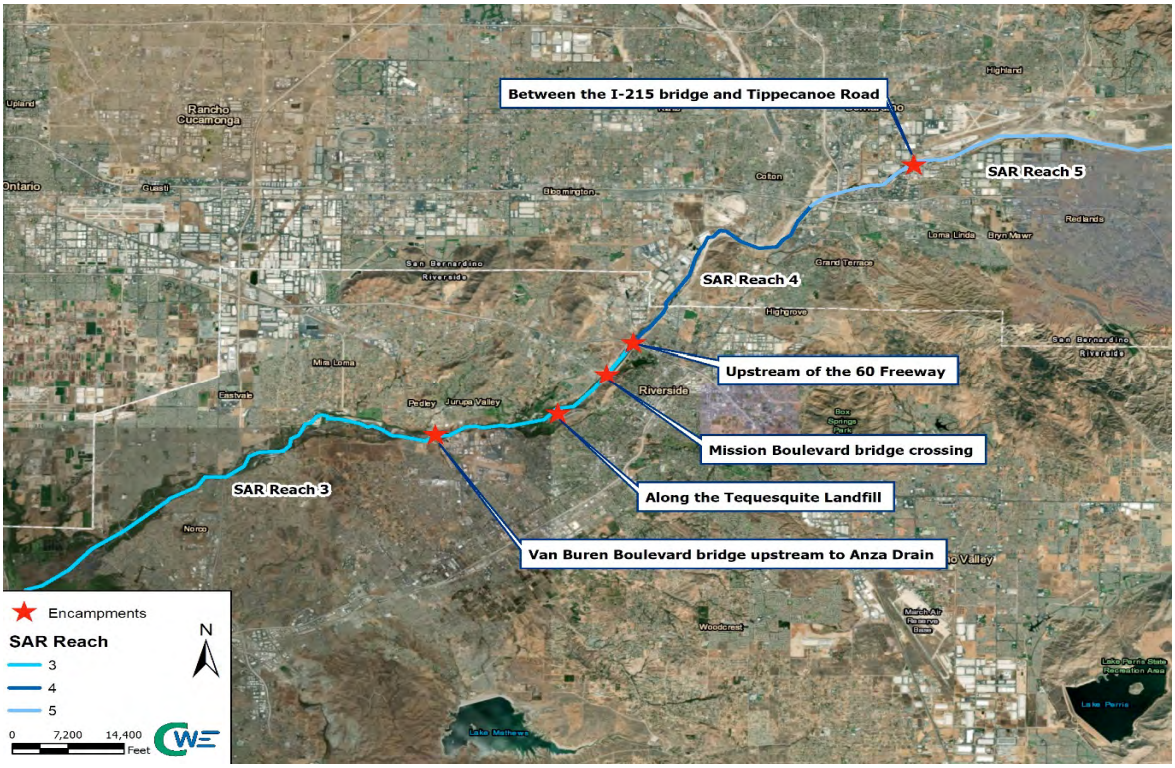

Figure 1-1. Key Areas with Concentrations of Homeless Encampments in the Upper Santa Ana River Watershed (Figure 2-1 in Homeless Study; see SAWPA 2020b)

1.2 Homeless Encampment Impacts on Water Quality

1.2.1 SAWPA Homeless Study

The Homeless Study provides a summary of its findings regarding impacts from homeless encampments in the upper Santa Ana River watershed on water quality and habitat. First, no water quality data were found that demonstrated a direct link between homeless encampment activity and degraded water quality, e.g., elevated bacterial indicator concentrations. While

no such data were found, it was noted that the Middle Santa Ana River (MSAR) Bacteria Synoptic Study, implemented by SAWPA and the MSAR Watershed Total Maximum Daily Load (TMDL) Task Force ("Task Force") (established to support bacteria TMDL implementation activities), observed detectable levels of human source bacteria in the Santa Ana River near the Mission Boulevard Bridge crossing on one of six sample dates in 2019. Given the high concentration of homeless encampments in that area, this finding was not a surprise; however, the detection of human source bacteria only occurred once in the six-week period during which samples were being collected for the MSAR Synoptic Study. Accordingly, the Homeless Study noted that more data would need to be collected to make any conclusions regarding the relationship between homeless encampment activity in the Santa Ana River and impacts to water quality.

The Homeless Study also described many of the environmental impacts from homeless encampment activity observed by others in the Santa Ana River watershed. Examples of impacts observed included:

- Trash;
- Degradation of riparian areas, including vegetation, habitat, and riverbanks;
- Man-made diversions built in the river;
- Impacts to the physical integrity of levees; and
- Impacts from fire

1.2.2 San Diego State University Study

San Diego State University (SDSU) implemented a study that evaluated water quality impacts from homeless encampments in the San Diego River watershed under dry and wet weather conditions. In its project report, the SDSU Study concluded the following regarding impacts under dry weather conditions (Mladenov et al. 2020):[1]

> "Water samples collected during dry weather conditions at locations directly upstream and downstream of three active homeless encampments along the San Diego River and two of its tributaries had greater downstream concentrations of fecal indicator bacteria, Escherichia coli and fecal enterococci, but these bacteria may also originate from non-human fecal sources, such as pets and birds. By contrast, a human-associated microbial indicator of fecal pollution, the HF183 marker of *Bacteroides*, was only detected sporadically, and the concentrations were too low to conclude if there was a significant difference between upstream and downstream samples. There was also no significant change in the concentrations of caffeine and sucralose, two chemical pollutants associated with human waste. <u>Within the scope of this study, there was no evidence that homeless encampments</u>

[1] Findings included in the SDSU Study Report have also been published in Verbyla et al. 2021.

are causing increases in the concentration of microbial pollutants in water during dry weather conditions." (emphasis added).

Prior to the implementation of this Phase 1A monitoring program in the Santa Ana River, the SDSU Study is the only other study we are aware of from southern California that provides findings regarding impacts of homeless encampments on water quality during dry weather conditions.[2]

1.3 Study Purpose and Objectives

Following completion of the Homeless Study, SAWPA in partnership with the Riverside County Flood Control & Water Conservation District (RCFC&WCD) and San Bernardino County Department of Public Works authorized the implementation of the Phase 1A monitoring program to evaluate potential impacts of homeless encampments in the Santa Ana River riparian channel on water quality during dry weather conditions. The Phase 1A monitoring program included the following project objectives:

- Assess the potential impacts of three homeless encampments on water quality during dry weather conditions in the Santa Ana River riparian channel; and
- Quantify the potential water quality and trash deposition impacts caused by homeless encampments during dry weather conditions to assist SAWPA and its member agencies in assessing the magnitude of impacts and determining appropriate needed actions.

To address these project objectives the Phase 1A monitoring program included the following elements:

- Conduct preliminary site visits to verify the presence of concentrated homeless encampments at the selected monitoring locations and finalize selection of upstream and downstream monitoring sites at each monitoring location;
- Estimate the population of homeless individuals within each area selected for the monitoring program;
- Complete four dry weather condition monitoring events at each monitoring site, including collection of field measurements and water quality samples, completion of a Rapid Trash Assessment (RTA) and documentation of general conditions through observation and photographs.

[2] Southern California Coastal Water Research Project (SCCWRP) drafted a 2019 Conceptual Workplan titled, *Quantifying Sources of Human Fecal Contamination Loading to the San Diego River* to support an investigation of sources of human fecal wastes in the San Diego River Watershed, including potentially from homeless encampment activity. To date, we are unaware of any relevant water quality data collected as a result of the implementation of this SCCWRP Workplan that could inform this Study.

1.4 Report Roadmap

This Phase 1A Study Report includes all findings from the monitoring program in the following sections:

- *Section 2: Study Area Description and Design* – This section provides description of (a) each of the upstream and downstream monitoring sites within each of the three selected monitoring locations; and (b) overview of the approach used to collect data from each monitoring site.
- *Section 3: Study Results*– This section summarizes all water quality findings including field measurements, bacteria concentrations, analyses of selected bacteria source markers and RTA results.
- *Section 4: Findings and Recommendations* – This section provides a summary of the key findings from the study and any recommendations for additional data collection.
- *Section 5*: *References*
- *Appendices*: Additional study data and information from each monitoring event are provided in the following appendices:
  - Appendix A: Field data sheets
  - Appendix B: Photograph logs
  - Appendix C: RTA worksheets
  - Appendix D: Babcock Laboratory Reports
  - Appendix E: Weston Solutions Laboratory Reports

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2. Study Area Description and Design

This section provides information on the study area and the process to select monitoring locations within the Santa Ana River riparian channel. A site description is provided for each of the selected monitoring locations, as well as an overview of the data collection procedures. Finally, for each of the monitoring locations, an estimated homeless population is provided based on findings from the examination of aerial imagery and field visits.

2.1 Upper Santa River Watershed

The Santa Ana River Watershed covers an area of approximately 2,650 square miles and includes portions of Orange, Riverside, and San Bernardino County, and a small portion of Los Angeles County. The mainstem Santa Ana River is the primary waterbody in the watershed. It flows in a generally southwest direction nearly 100 miles, from its headwaters to the Pacific Ocean. The monitoring activities implemented under this project target a portion of the upper Santa Ana River watershed, which is defined as the Santa Ana River above Prado Dam including the Chino Basin Region (**Figure 2-1**).

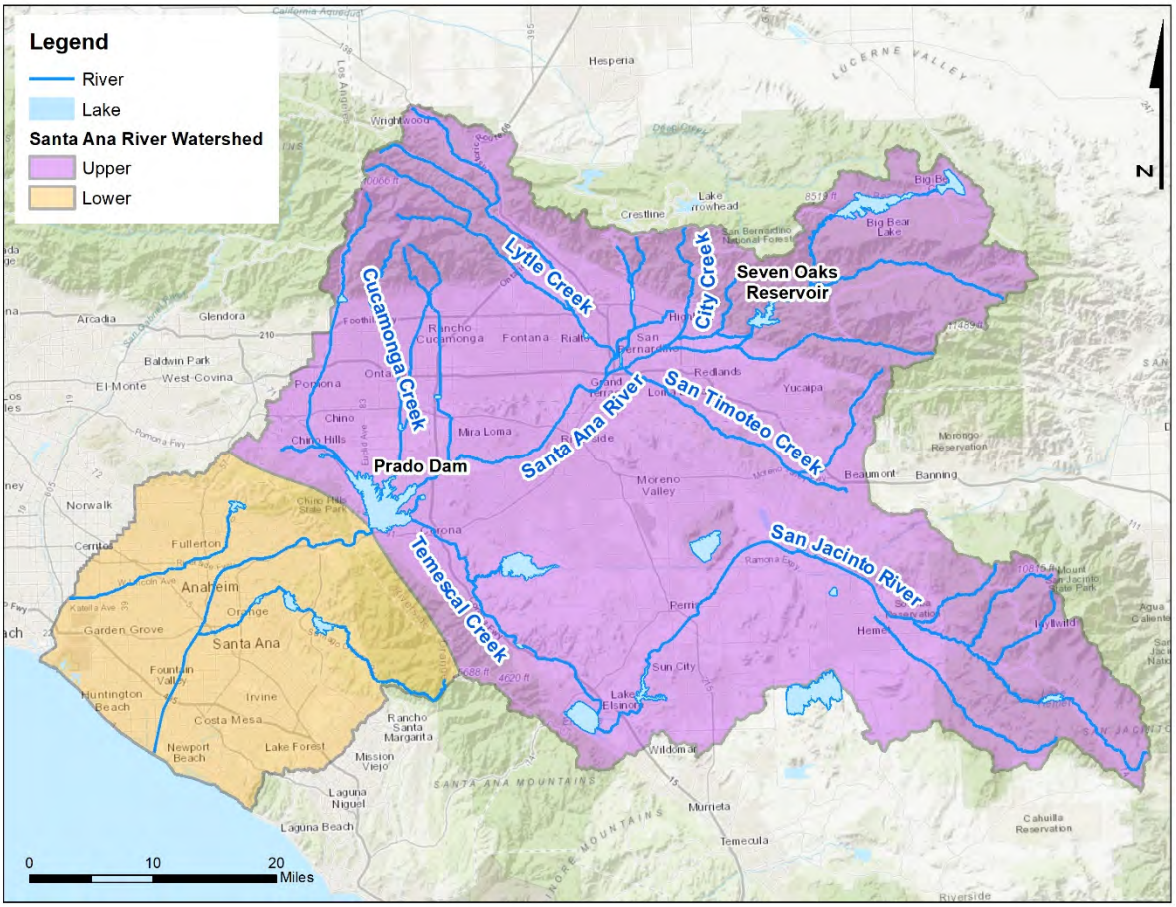

Figure 2-1. Upper and Lower Portions of the Santa Ana River Watershed in Southern California.

The Santa Ana River headwaters are located in the San Bernardino Mountains in the northeastern part of the watershed. Major tributaries to the Santa Ana River in the upper part of the watershed include Warm Creek, Lytle Creek, and San Timoteo Creek. In the north central portion of the watershed, several major Santa Ana River tributaries arise in the San Gabriel Mountains and drain generally south into the Chino Basin before their confluence with the Santa Ana River. Key tributaries include Day Creek, Cucamonga Creek and San Antonio Creek. The upper watershed drains to Prado Basin where Prado Dam captures all surface flows. Prado Basin is a large flood control basin with dense riparian vegetation; at the upper end of the Basin, the Temescal Creek subwatershed drains to the Santa Ana River from the south.

Many of the waterbodies in the upper watershed carry little to no flow during dry conditions because of the presence of extensive recharge basins in this region. Where flow is prevalent, e.g., in Reach 3 of the Santa Ana River (Prado Dam upstream to Mission Boulevard Bridge) and portions of Chino and Cucamonga Creeks, the source of much of the flow under dry weather conditions is highly treated effluent from local and regional wastewater treatment facilities.

2.2 Selection of Monitoring Sites

The Homeless Study identified five key areas where homeless encampments were concentrated within the upper Santa Ana River watershed (see Figure 1-1) (SAWPA 2020b). All of these areas, which were located along the mainstem Santa Ana River, had two characteristics in common: (a) flowing water is present at the location and there is at least some overhead cover provided by vegetation or bridges. The Homeless Study recommended that three of the original five areas be included in a monitoring program to evaluate potential impacts of homeless encampments on water quality: Market Street Bridge, Mission Boulevard Bridge and the Van Buren Boulevard Bridge (**Figure 2-2**). The following subsections describe the stepwise process to finalize monitoring locations.

2.2.1 Preliminary Identification of Monitoring Sites

The Homeless Study included a proposed Preliminary Monitoring Program that identified preliminary upstream and downstream monitoring locations at each of the three areas recommended for monitoring (SAWPA 2020b): Market Street Bridge (upstream = MSB-1; downstream = MSB-2); Mission Boulevard Bridge (upstream – MBB-1; downstream = MBB-2); and Van Buren Boulevard Bridge (upstream = VBB-1; downstream = VBB-2). These upstream and downstream sampling locations were selected based on the following considerations:

- *Upstream Monitoring Site* – Selected site was located upstream of the expected sphere of influence of the targeted homeless encampment area. The site was intended to provide defensible baseline water quality and habitat data where impacts from homeless encampment activities were expected to be minimized.

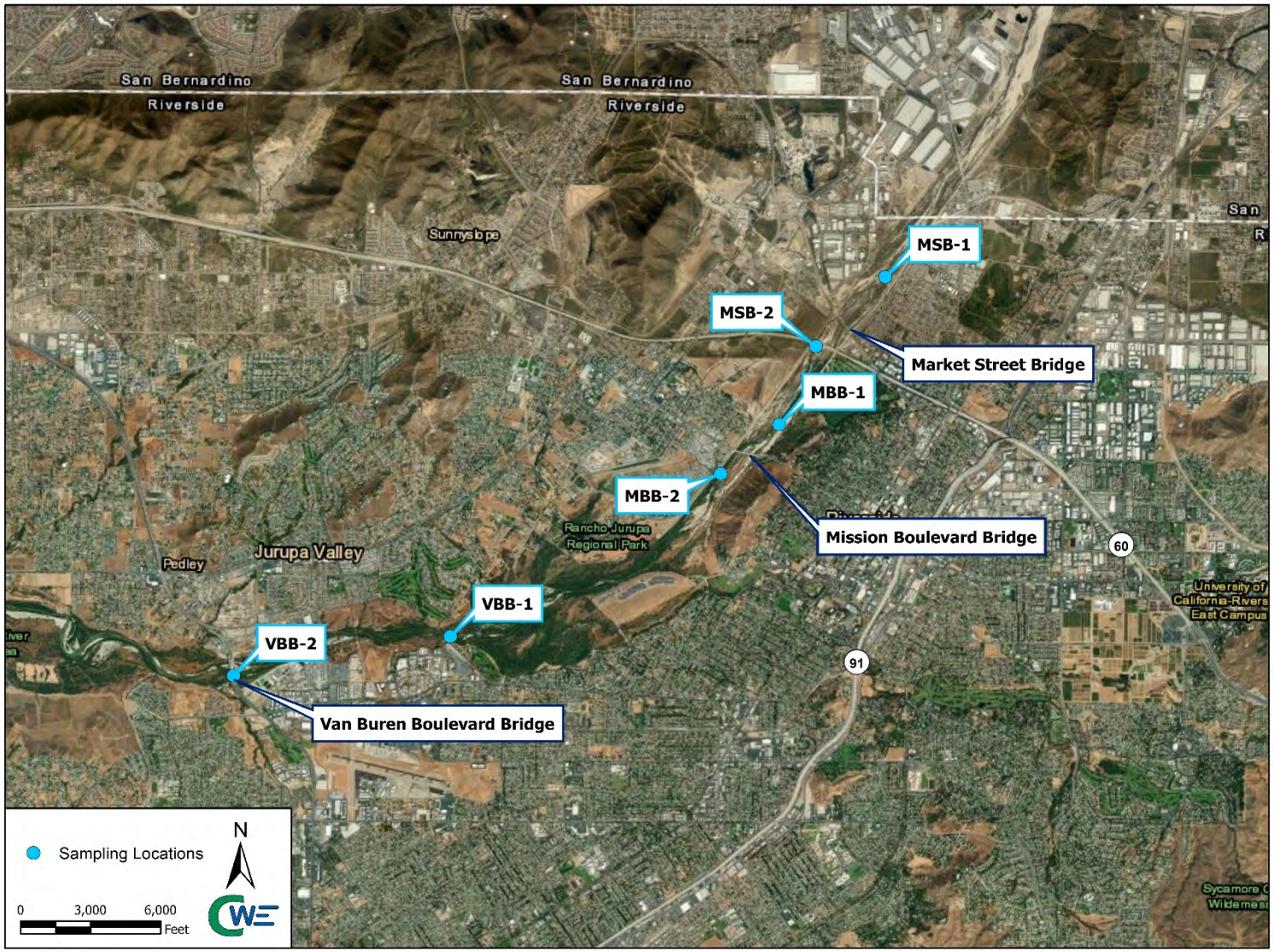

Figure 2-2. Santa Ana River Monitoring Sites for the Phase 1A Monitoring Program (MSB = Market Street Bridge; MBB = Mission Boulevard Bridge; VBB = Van Buren Boulevard Bridge) (1= upstream site; 2 = downstream site)

- *Downstream Monitoring Site* – Selected site was located downstream of the homeless encampment area, where: (a) impacts from the immediate upstream homeless encampment activity on water quality would most likely be observed; but (b) sufficiently downstream to minimize disturbance to homeless encampment residents and safeguard monitoring personnel.

2.2.2 Preliminary Site Visits

The Homeless Study identified preliminary upstream and downstream monitoring locations based on best professional judgement, including experience working in the river; however, no site visits occurred. Therefore, under this Study, the field team completed two preliminary site visits to further evaluate the recommended monitoring sites.

The first preliminary site visit occurred on July 15, 2021. During this event, the team visited each of the preliminary upstream and downstream monitoring sites associated with each of the targeted homeless encampment areas. The team first finalized locations for the upstream and downstream monitoring sites, and then obtained data on (a) current conditions, including photographs, baseline field measurements for selected constituents (temperature, dissolved oxygen, electrical conductivity, pH and turbidity) and (b) qualitatively assessed ambient trash levels.

The second preliminary site visit occurred on August 26, 2021. The primary purpose of this visit was to confirm the continued existence of homeless encampments observed during the first preliminary field visit and collection additional observational data. Prior to conducting this site visit, the team confirmed the long-term existence of the targeted homeless encampments areas based on aerial imagery provided by SAWPA (3-inch, high resolution, color imagery). The aerial imagery of the monitoring sites and the surrounding riparian corridor was captured on June 26-27, 2021, two months prior to the second site visit. The findings from this visit, coupled with the aerial imagery, were used to estimate the homeless population associated with each targeted homeless encampment area (see additional discussion of population estimates under Section 2.3 below).

The findings from each of the preliminary field visits are documented in a technical memorandum submitted to SAWPA on November 15, 2021 (CWE, GEI Consultants and CDM Smith 2021c). The memorandum includes site photographs and documentation of field observations.

2.2.3 Final Monitoring Sites

Based on the findings from the first preliminary site visit in July 2021, several of the original upstream and downstream monitoring sites recommended in the Preliminary Monitoring Program (SAWPA 2020b) were modified so that the monitoring site aligned better with the objectives of this study. Changes included: (a) due to dense vegetation, moved MSB-1 downstream 500 feet to improve accessibility for sampling; (b) moved MBB-1 upstream 500

feet to so that the sampling site was outside the sphere of influence of homeless encampments located near the original monitoring site; and (c) moved MBB-2 upstream about 2,000 feet to be closer to the lower end of concentrated homeless encampment activity around the Mission Boulevard Bridge monitoring location.

Table 2-1 identifies the final upstream and downstream monitoring sites around each of the three areas of homeless encampments. As shown above, Figure 2-2 illustrates the general location of each of the three homeless encampment areas. The sections below provide a brief description of each of these monitoring locations, including additional figures showing the monitoring locations in more detail.

Table 2-1. Final Monitoring Sites for Phase 1A Study

Site ID	Site Description	Latitude	Longitude
MSB-1	Market Street Bridge (Upstream)	34.012225°	-117.373937°
MSB-2	Market Street Bridge (Downstream)	34.003759°	-117.383668°
MBB-1	Mission Boulevard Bridge (Upstream)	33.994278°	-117.388737°
MBB-2	Mission Boulevard Bridge (Downstream)	33.988286°	-117.396920°
VBB-1	Van Buren Boulevard (Upstream)	33.968298°	-117.434863°
VBB-2	Van Buren Boulevard (Downstream)	33.963253°	-117.465433°

2.3 Monitoring Site Characteristics

A description of each of the upstream and downstream monitoring sites, associated with each of the three homeless encampment areas, is provided below. The site descriptions are based on the two preliminary site visits conducted in July and August 2021 (see Section 2.2). For each homeless encampment area, a population range estimate is provided. This estimate is based on (a) aerial imagery analysis; (b) field observations during the preliminary site visits; and (c) SAWPA (2020b) Homeless Study, which documented that a single homeless encampment typically includes 2-4 people.[3]

2.3.1 Market Street Bridge

The upstream Market Street Bridge monitoring site (MSB-1) was selected in an area where very few encampments have been observed. The downstream Market Street Bridge monitoring site (MSB-2) was selected in an area below where a significant number of encampments have been documented underneath and downstream of the 60 Freeway and the Market Street Bridges (**Figure 2-3**). **Figure 2-4** provides upstream and downstream views at the MSB-1 and MSB-2 monitoring sites.

[3] The estimate of 2-4 people per homeless encampment is based on the best professional judgement and experience of the various entities interviewed during preparation of SAWPA (2020b) Homeless Study.

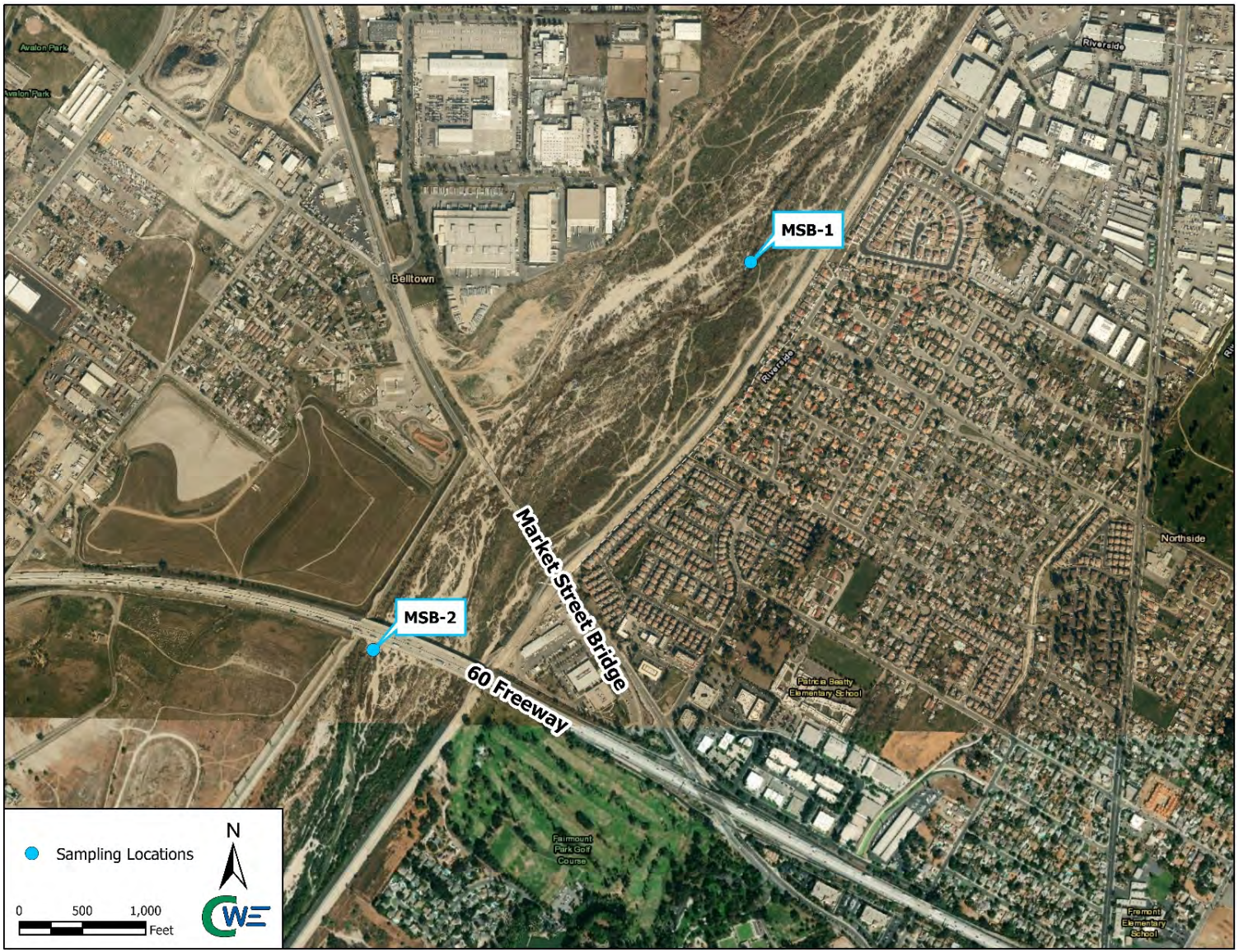

Figure 2-3. Aerial View of the Market Street Bridge Monitoring Sites (1 = Upstream; 2 = Downstream)

Figure 2-4. Market Street Bridge (MSB) Monitoring Sites, September 21, 2021. (a) Upper photographs at upstream site MSB-1: Left – looking upstream; Right – looking downstream; (b) Lower photographs at downstream site MSB-2: Left – looking upstream; Right – looking downstream

During the July preliminary site visit, the monitoring team observed evidence of former homeless encampments near the upstream MSB-1 but no active encampments were found. In contrast, the team observed three active encampments within 100 feet of MSB-2. Significant amounts of litter were observed along the Santa Ana River and within the encampments themselves (e.g., see **Figure 2-5**). The most common types of trash and litter found included plastic, masks, glass bottles, food waste, and rubber balloons. The team observed one homeless individual near MSB-2 and also noted a strong, ambient urine odor within the vicinity of MSB-2.

During the second preliminary field visit in August, the monitoring team observed trash levels and water quality conditions similar to what as observed during the July field visit. The team also observed a new pooled area upstream of MSB-1. The pooled area, created by recreators and/or people experiencing homelessness, was formed by gathering rocks and sand to enclose a portion of the river to improve opportunities for instream recreation. The team also recorded ten new encampments between MSB-1 and MSB-2, with the majority located at the northeastern corner of the Market Street Bridge. **Figure 2-6** illustrates an example of the newly identified encampments. Similar to July, the field team observed significant amounts of trash and debris near MSB-2. New trash observations included diapers, straws, cigarettes and fecal matter.[4] In addition, there was evidence of the existence of past campfires and a continued persistent urine odor in the vicinity of the downstream sample location. The team observed three homeless individuals within 100 feet of MSB-2.

Figures 2-7 and **2-8** provide aerial imagery around the MSB monitoring locations. Based on analysis of this imagery and findings during the second site visit, the team estimated that 163 encampments were active within the Market Street Bridge reach. Assuming 2-4 individuals per encampment, the associated population is estimated to range between 326 and 652 people.

2.3.2 Mission Boulevard Bridge

The upstream Mission Boulevard Bridge monitoring location (MBB-1) was selected in an area that represents the divide between the Market Street Bridge and Mission Boulevard Bridge encampment areas (**Figure 2-9**). The downstream Mission Boulevard Bridge monitoring location (MBB-2) was generally selected to coincide with a monitoring site that has been previously sampled by others as part of ongoing work by the Task Force. SAWPA (2020a) documents the findings from the most recent bacteria-related work completed by the Task Force in Reach 3 of the Santa Ana River.[5] **Figure 2-10** provides photographs of the upstream and downstream monitoring sites at this location.

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[4] An additional source of diapers in riverbeds can be from recreational activity by families.

[5] MSAR Synoptic Study is available here: https://sawpa.org/wp-content/uploads/2020/05/Final-Synoptic-Study-Report_021020_BabcockLabQAQC-Report-Appended_051920.pdf; other Task Force information is may be found here: https://sawpa.org/task-forces/middle-santa-ana-river-watershed-tmdl-task-force/

Figure 2-5. Encampment Near Site MSB-2 with Significant Amounts of Litter

Figure 2-6. Newly Identified Encampments Near Site MSB-2

Figure 2-7. Aerial Imagery of the Santa Ana River Upstream of Monitoring Site MSB-1 (red triangles indicate locations of homeless encampments based on analysis of the image)

Figure 2-8. Aerial Imagery of the Santa Ana River Between Monitoring Sites MSB-1 and MSB-2 (red triangles indicate locations of homeless encampments based on analysis of the image)

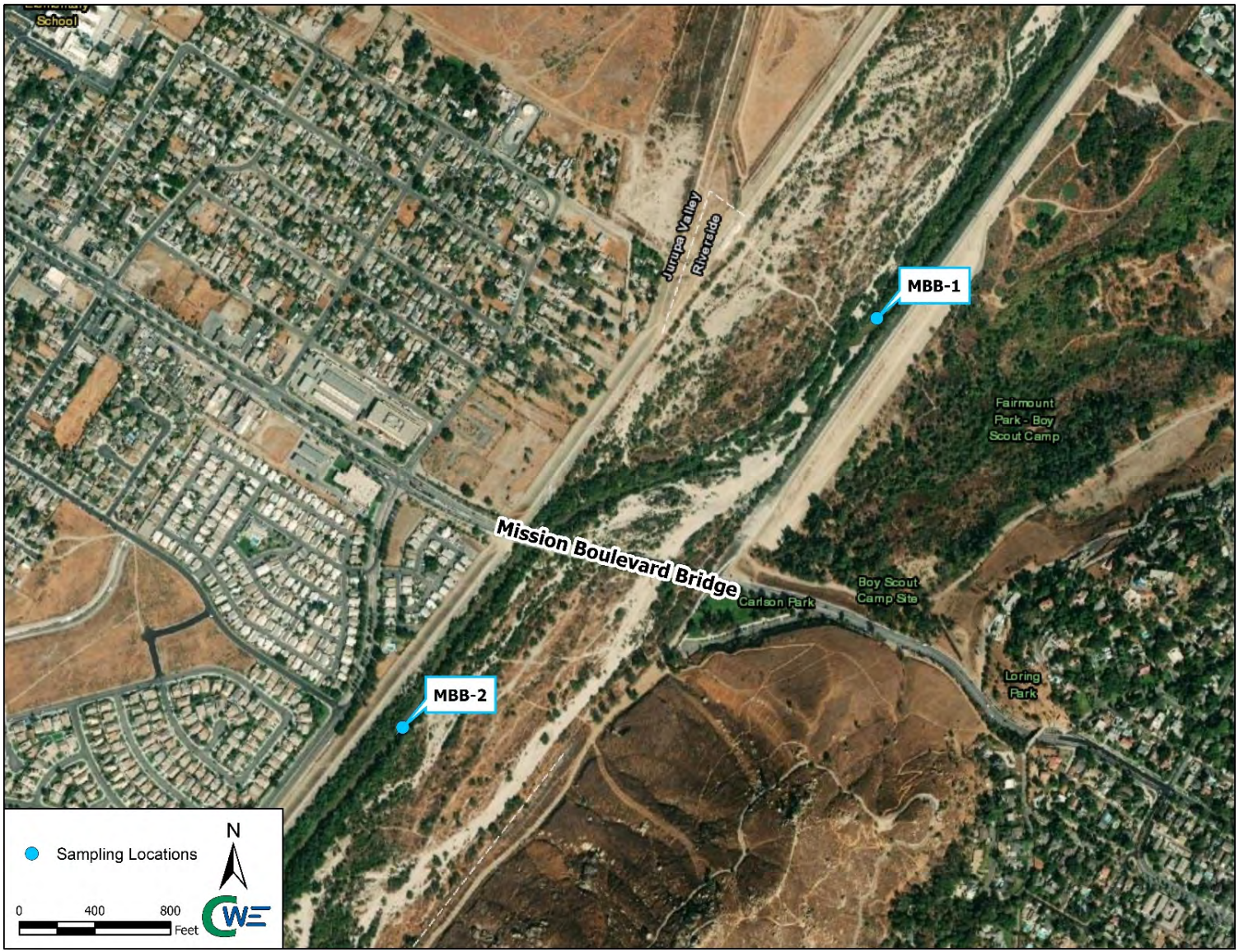

Figure 2-9. Aerial View of the Mission Boulevard Bridge Monitoring Sites (1 = Upstream; 2 = Downstream)

Figure 2-10. Mission Bridge Boulevard (MBB) Monitoring Site, September 21, 2021. (a) Upper photographs at upstream site MBB-1: Left – looking upstream; Right – looking downstream; (b) Lower photographs at downstream site MBB-2: Left – looking upstream; Right – looking downstream

As noted above, during the July preliminary site visit, the monitoring team observed numerous encampments near the originally proposed MBB-1 location; therefore, the team moved the location 500 feet upstream to be outside the encampments' apparent sphere of influence. The new location had significant amounts of litter along the rip-rap and the Santa Ana River itself. Additionally, the site had a strong smoke odor, potentially due to nearby encampment activities. Also as noted above, MBB-2 was moved upstream about 2,000 feet upstream to move the site closer to active encampments. **Figure 2-11** provides an example of the encampments upstream of the selected MBB-2 monitoring location. Four homeless people were observed during the site visit. The team noted significant amounts of litter, including plastics, deteriorated clothing, abandoned furniture, and tires; in addition, team members noted and documented several potential examples of open defecation activities.

On the second preliminary site visit, one new encampment was observed about 500 feet upstream of MBB-1; all other previously recorded encampments in the area were still present. The MBB-1 location continued to have an ambient smoke odor. Downstream at MBB-2, the monitoring team recorded six new encampments; most of these camps were located underneath the Mission Boulevard Bridge and were not previously visible in the aerial imagery. Trash levels were similar to levels observed in the July site visit; significant trash was present approximately 150 east of the Santa Ana River (e.g., see **Figure 2-12**). Several homeless people were along the Santa Ana River Trail; but no homeless individuals were observed at the MBB-1 or MBB-2 monitoring locations during the site visit.

Figures 2-13 and **2-14** provide aerial imagery of the MBB monitoring locations. Based on analysis of this imagery and findings during this site visit, the team estimated a total of 111 encampments present within the Mission Boulevard Bridge monitoring reach. Total population estimate varied between 222 and 444 individuals.

2.3.3 Van Buren Boulevard Bridge

The upstream site (VBB-1) is located downstream of Martha McLean Park, but upstream of the Phoenix Drain tributary confluence to avoid the potential for flows from the drain to dilute in-river flows (**Figure 2-15**). The downstream site (VBB-2) was located upstream of the Van Buren Boulevard Bridge to avoid two important confluences in that area of the Santa Ana River: (a) Riverside Water Quality Control Plant's effluent channel that delivers highly treated wastewater effluent to the river; and (b) Anza Drain that includes discharges from Hole Lake. The VBB-2 site is immediately downstream of the Santa Ana River at the Metropolitan Water District Crossing monitoring site ("WW-S1"), which serves as a key compliance location for the MSAR Bacteria TMDL and is sampled as part of the Santa Ana River Regional Bacteria Monitoring Program (RBMP, e.g., see SAWPA 2021a).[6] **Figure 2-16** provides photographs of the upstream and downstream monitoring sites at this location.

[6] Information about this monitoring program and Annual Monitoring Reports may be obtained here: https://sawpa.org/task-forces/regional-water-quality-monitoring-task-force/

Figure 2-11. Example of Homeless Encampments Near MBB-2

Figure 2-12. Accumulated Litter 150 Feet East of the Santa Ana River Near the MBB-2 Monitoring Site

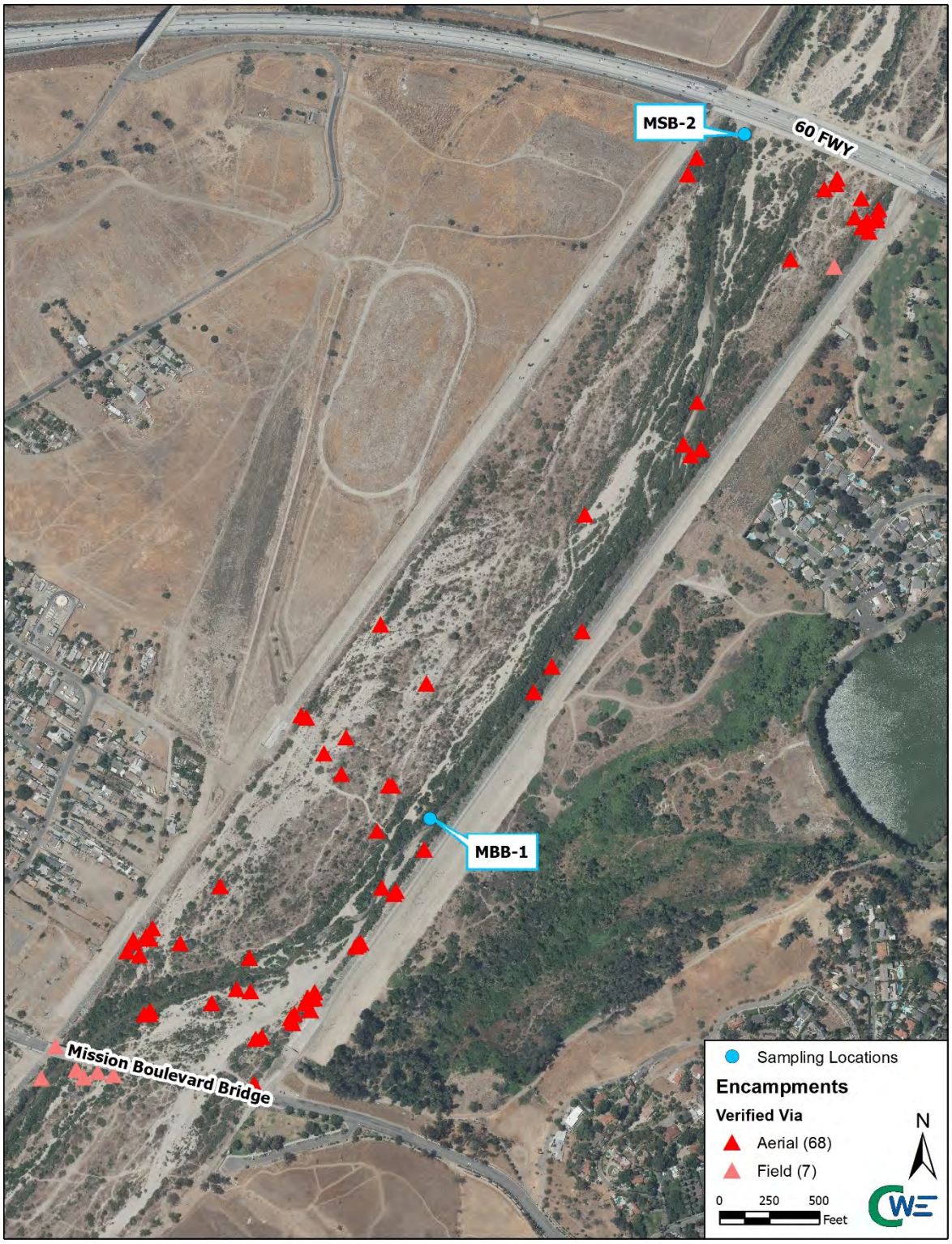

Figure 2-13. Aerial Imagery of the Santa Ana River Near Monitoring Site MBB-1 (red triangles indicate locations of homeless encampments based on analysis of the image)

Figure 2-14. Aerial Imagery of the Santa Ana River Near Monitoring Site MBB-2 (red triangles indicate locations of homeless encampments based on analysis of the image)

Figure 2-15. Aerial View of the Van Buren Boulevard Bridge Monitoring Sites (1 = Upstream; 2 = Downstream) (closeup provided in lower right to show location of Riverside Water Quality Control Plant (WQCP) effluent channel)

Figure 2-16. Van Buren Bridge (VBB) Monitoring Sites. (a) Upper photographs at upstream site VBB-1 (November 18, 2021): Left – looking upstream; Right – looking downstream; (b) Lower photographs at downstream site VBB-2 (October 21, 2021): Left – looking upstream; Right – looking downstream

During the July preliminary site visit, the monitoring team observed one family recreating downstream of VBB-1 and a moderate amount of trash. It is assumed that the source of this trash is primarily from recreational activity, given the vast majority of the observed litter was food waste. Dense vegetation obscures most of the encampments near VBB-2; however, the field team was able to photograph the encampments from the top of the Van Buren Boulevard Bridge (**Figure 2-17**). The most common forms of trash observed at VBB-2 included plastics, paper products, aluminum cans and glass bottles. During the July visit, the team observed one homeless individual and documented and photographed the impacts from the Lake Fire, which occurred one month prior to the visit. This fire originated at the northern end of the Van Buren Boulevard Bridge and extended approximately 100 feet north of the Santa Ana River and the VBB-2 site (**Figure 2-18)**.

During the August site visit, no new encampments were observed near the VBB-1 site. Trash levels at VBB-1 had decreased from the previous July visit; however, as noted above, this change most likely can be attributed to volunteer organizations cleaning up the site since it is a popular recreational area for the Santa Ana River. For example, Keep Riverside Clean and Beautiful annually conducts two clean-up events: Ward 1 Cleanup[7] and the Santa Ana River & Trail Cleanup.[8] Two new encampments were observed near the VBB-2 site, specifically upstream of the Van Buren Boulevard Bridge and in between the Santa Ana River and Riverside WQCP effluent discharge channel. The team observed two homeless individuals at VBB-2; additional observations at this site included an ambient smoke odor and increased trash levels since the July site visit.

Figures 2-19 and 2-20 provide aerial imagery of the Santa Ana River near the VBB monitoring sites. Based on analysis of this imagery and findings during this site visit, a total of 146 encampments were estimated within the Van Buren Boulevard reach. Total population estimate varied between 292 and 584 individuals.

2.4 Water Quality Monitoring

The Phase 1A Study completed four dry weather condition sampling events during the fall and winter of 2021-2022.[9] These sampling events were guided by the Monitoring Plan and Quality Assurance Project Plan (QAPP) prepared to support the project (SAWPA 2021b). With the exception of the January sample dates, sample collection dates coincided with data collection efforts ongoing under the Santa Ana River RBMP administered by SAWPA.[10] The sections below provide a general overview of the data collection activities and laboratory analyses carried out during each sample event. SAWPA (2021b) provides additional details regarding sample collection and analysis procedures.

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[7] https://www.facebook.com/CMErinEdwards/photos/a.218304035624983/933891237399589/
[8] https://www.facebook.com/KeepRiversideCleanandBeautiful/photos/a.259181829084815 9/5162400323789930/
[9] Dry weather conditions are defined as no measurable rainfall within a 72-hour period prior to sampling. If this condition is met, dry weather sampling can proceed. If not, the sample event is postponed until the minimum dry weather conditions criteria have been met.
[10] https://sawpa.org/task-forces/regional-water-quality-monitoring-task-force/#geographic-setting

Figure 2-17. Observed New Encampments Near the VBB-2 Monitoring Site

Figure 2-18. Burned Vegetation From the Lake Fire that Occurred Near the VBB-2 Monitoring Site (fire occurred approximately one month prior this picture being taken on July 15, 2021)

Figure 2-19. Aerial Imagery of the Santa Ana River Near Monitoring Site VBB-1 (red triangles indicate locations of homeless encampments based on analysis of the image)

Figure 2-20. Aerial Imagery of the Santa Ana River Near Monitoring Site VBB-2 (red triangles indicate locations of homeless encampments based on analysis of the image)

2.4.1 Dry Weather Monitoring Events

Table 2-2 summarizes the planned and completed sample dates for each of the four dry weather monitoring events. With the exception of Event #4, all planned sample dates were met. Event #4 had to be postponed for more than two weeks because of an extended period of wet weather that occurred in the Santa Ana River watershed during the last two weeks of December.

Table 2-2. Planned and Completed Monitoring Event Dates

Event	Planned	Completed
1	September 21, 2021	September 21, 2021
2	October 21, 2021	October 21, 2021
3	November 18, 2021	November 18, 2021
4	December 16, 2021	January 6, 2022

Figure 2-21 illustrates the daily flow (cubic feet/second [cfs]) at the United States Geological Survey (USGS) Santa Ana River at MWD Crossing flow gauge, located in close proximity to the VBB-1 monitoring site. Two wet weather events occurred in December 2022. A relatively short duration event occurred on December 15, 2021 (Ontario International Airport - total rainfall = 1.97 inches). This event was followed by a second longer duration wet weather period that began on December 24, 2021 and ended on December 31, 2021 (Ontario International Airport; total rainfall = 5.07 inches).[11] Figure 2-21 shows the wet weather flow response in the river. Dry weather or baseline flow conditions did not return to normal until early January 2022.

2.4.2 Data Collection Activities

During each monitoring event the field team completed the following activities: (a) record in-situ water quality measurements for selected field parameters; (b) collect water samples for laboratory analysis; (c) conduct an RTA; and (d) document observations and take photographs. Below is a summary of each of these activities; the project Monitoring Plan and QAPP provide additional details (SAWPA 2021b).

2.4.2.1 Field Documentation

Field teams completed a field data sheet for each monitoring site visited. Documented information included water sample collection records, physical measurements, flow rate, and field observations. **Appendix A** provides the field data sheets for each monitoring event. Field teams also took digital photographs at each site, which were documented on a project photo log. At a minimum, the team took the following photographs at each monitoring site:

[11] Precipitation data from the Ontario International Airport rain gauge downloaded on March 2, 2022: https://mesowest.utah.edu/cgi-bin/droman/precip_monitor.cgi?state=CA&type=0&rawsflag=3&orderby=n

View of the waterbody facing upstream and downstream and a view of the right and left banks. Additional photos were taken as needed to document evidence of trash or waste from encampments, evidence of new and/or nearby encampments since the last sampling event, or any other visible impacts caused by homeless encampment activity. **Appendix B** provides the photographs taken during each monitoring event.

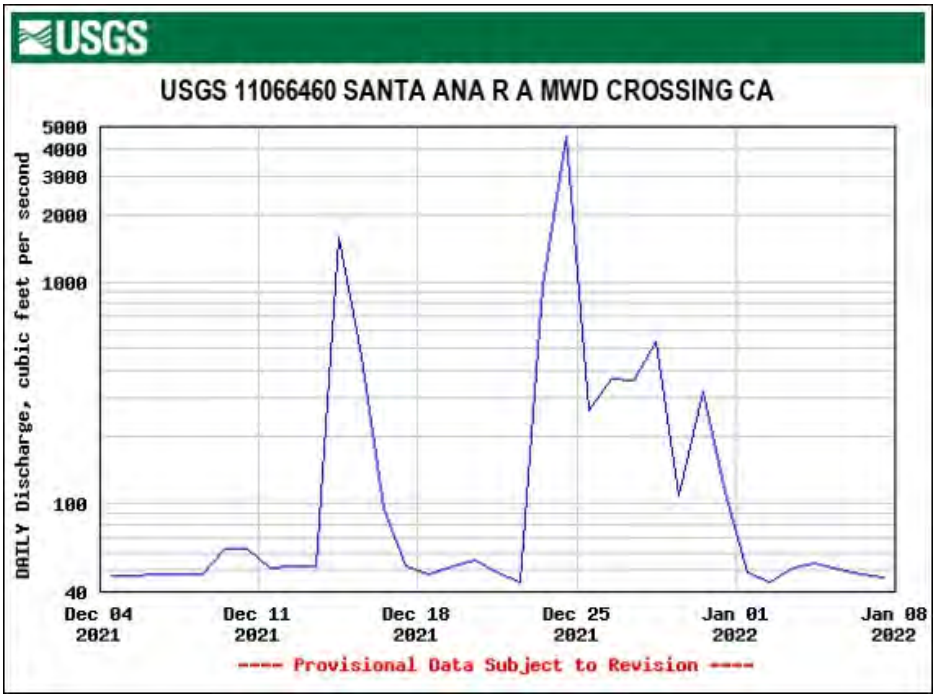

Figure 2-21. Daily Discharge at USGS Gauge Santa Ana River at MWD Crossing (December 4, 2021 to January 8, 2022)

2.4.2.2 Water Quality Parameters

The field team deployed a multi-parameter data sonde to collect measurements of the following water quality parameters at each monitoring site: temperature, dissolved oxygen, electrical conductivity, pH and turbidity. For all four monitoring events, water samples were collected and submitted to laboratories to analyze for *Escherichia* (*E. coli*), human marker HF183 and Total Suspended Solids (TSS). In addition, during the November and December monitoring events, additional water samples were collected for analysis of bacteria from dog (DG37) or pig (Pig2BAC) fecal matter.[12] The project Monitoring Plan and QAPP provide detailed information on the collection, preservation and delivery of water samples to testing

[12] After the completion of the first two monitoring events in September and October, observations of the human bacteria marker HF183 were limited, suggesting other sources of bacteria are present in the river. Analysis of dog and pig bacteria markers were added to the project to test for other likely potential sources of *E. coli* in the river based on dog and feral pig field observations. Water sample collection to test for these parameters was included in the November and January monitoring events.

laboratories (SAWPA 2021). Water quality results were uploaded into the California Environmental Data Exchange Network (CEDEN).

2.4.2.3 Rapid Trash Assessment

Implementation of the State Water Resources Control Board (State Water Board) RTA protocol includes activities such as trash collection and identification, completion of the RTA Worksheet to provide a score and categorization for each monitoring site and documentation of site observations (San Francisco Regional Water Quality Control Board 2004). During each sample event at each site, the field team implemented the RTA protocol.

In general, the State Water Board RTA protocol involves picking up and recording trash items found within a 100-foot linear section along the waterbody in the same area associated with the monitoring site. The RTA is conducted along the same 100-foot linear section during each monitoring event. When repeated multiple times throughout a year, this protocol allows for the assessment of temporal change in water quality impairment caused by trash, usage patterns, and trash deposition trends.

SAWPA (2021b) provides a complete description of the RTA methodology and RTW Worksheet used to document field observations and score each site. The RTA Worksheet includes an assessment of the following six condition categories:

- Level of trash
- Actual number of trash items found
- Threat to aquatic life
- Threat to human health,
- Illegal dumping and littering
- Accumulation of trash.

Ultimately, the methodology provides a qualitative and quantitative analysis of levels of trash, examines impacts the trash is having on water quality and documents how trash enters the waterbody at the site. Within each assessed category, narrative language is provided to assist the team with the selection of a score for each category. For example, a heavy accumulation of trash in the water leads to lower scores in comparison to no trash being found.

The RTA Worksheet assessment of a site results in a total score that ranges from 0 to 120 and categorization of the site into one of the following four categories:

- Poor – 0 to 30;
- Marginal – 31 to 60;
- Suboptimal – 61 to 90; and
- Optimal – 91 to 120

In addition, a total volume and weight of trash collected is calculated after conclusion of the assessment over the 100-foot linear section. Repeated assessments allow for spatial and temporal comparisons, e.g., differences in trash upstream versus downstream of a homeless encampment area or whether conditions are improving or worsening over time. **Appendix C** provides the RTA Worksheets completed at each during each monitoring event.

2.4.3 Laboratory Analysis

Water quality samples were delivered to the following laboratories for analysis within appropriate holding times and following standard chain-of-custody procedures (SAWPA 2021b):

- *E. coli* and TSS: Babcock Laboratories, Inc., Riverside, CA (see **Appendix D** for Babcock Laboratory Reports)
- *Bacteroides* markers for human (HF183), dog (DG37) and pig (Pig2Bac) sources of *E. coli*: Weston Solutions Laboratory, Carlsbad, CA (see **Appendix E** for Weston Solutions Laboratory Reports)

Analysis of *Bacteroides* markers is an accepted Microbial Source Tracking (MST) technique to identify specific sources of fecal contamination. The original project Monitoring Plan/QAPP only included analysis of the human source *Bacteroides* marker HF183. However, after the completion of two monitoring events, water quality data results indicated the presence of human sources of bacteria was limited, while the concentration of *E. coli* bacteria steadily increased from upstream to downstream. Following a discussion with local stakeholders regarding other potential sources of bacteria in the river, the monitoring team recommended the addition of water quality analyses for dog and pig bacteria source markers during the final two sampling events. These markers were added for the following reasons:

- Dog (DG37) – Domestic dogs are commonly observed around homeless encampments; and
- Pig (Pig2Bac)– Although not commonly seen, it is generally known that a feral wild pig herd lives in the Santa Ana River bed.

Following approval of the team's recommendations, laboratory analyses for the dog and pig bacteria source markers were added to the study.

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3. Study Findings

This section summarizes the results from data collection efforts from the project study area: rapid trash assessment, field measurements and laboratory analyses. Four dry weather monitoring events were conducted on September 21, October 21 and November 18 in 2021 and January 6 in 2022. As noted in Section 2, with the exception of the fourth event in January 2022, which had to be rescheduled due to wet weather conditions, sample collection efforts coincided with other bacteria data collection efforts ongoing in Santa Ana River Reach 3.

3.1 Rapid Trash Assessment

The State Water Board RTA Protocol was employed by this monitoring program to evaluate the impacts of trash from homeless encampments on water quality. Two major transport mechanisms of trash in the Santa Ana River due to homelessness include: (a) direct littering or dumping; and (b) downstream transport and accumulation. Given this Study was conducted during dry weather conditions, littering and dumping was the primary trash transport mechanism observed during RTA events. However, the January sampling event occurred soon after an extended period of wet weather conditions and not surprisingly, the downstream transport and accumulation mechanism was observed more frequently at the monitoring sites. The subsections below summarize the results of the RTA completed at each monitoring site during the Study.

3.1.1 Market Street Bridge

MSB-1 was the monitoring site least-impacted by trash with an average of 25 pieces of trash picked up over all RTAs. Plastics (36%) and biodegradable debris (36%) were the most common trash categories found at MSB-1 (**Figure 3-1**). The average RTA score for MSB-1 was 78, which categorizes the site as "Suboptimal." MSB-1 was the only site that had an average RTA score that was categorized above poor or marginal. This outcome is likely because MSB-1 was the most upstream monitoring site in the Study and there were few to no homeless encampments observed directly upstream of the site.

An average of 117 pieces of trash was collected during each RTA at MSB-2. This site had the highest average amount of trash items collected during the Study. The most common trash items collected at the site were plastics (29.9%), glass (26.5%), and biodegradable items (23.1%) (**Figure 3-2**). There were a significant number of glass items at this site. This is most likely because the site is directly underneath the Market Street Bridge and is an area where unsheltered individuals frequently make campfires and dispose of glass bottles.

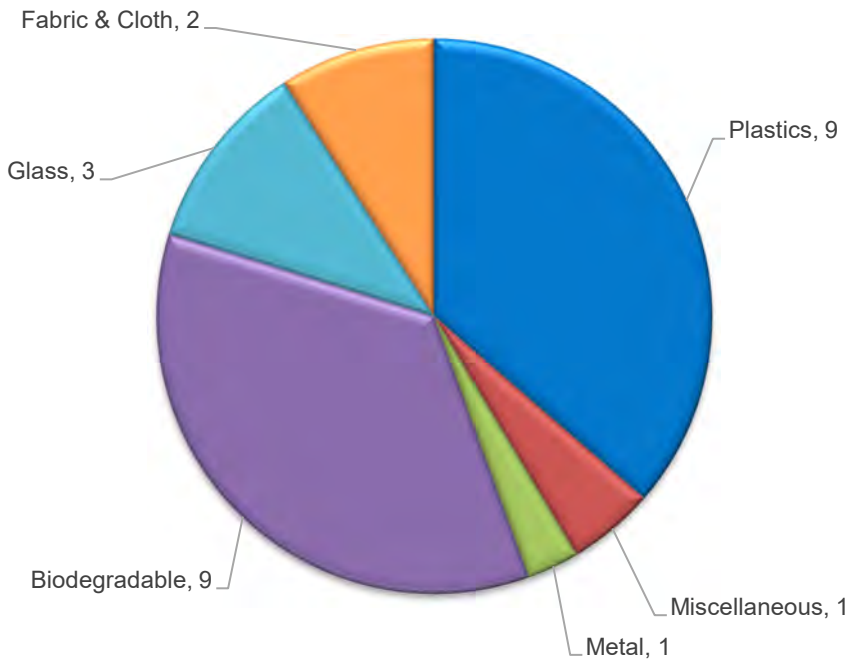

Figure 3-1. Average Number of Pieces of Trash Picked-up by Category at MSB-1

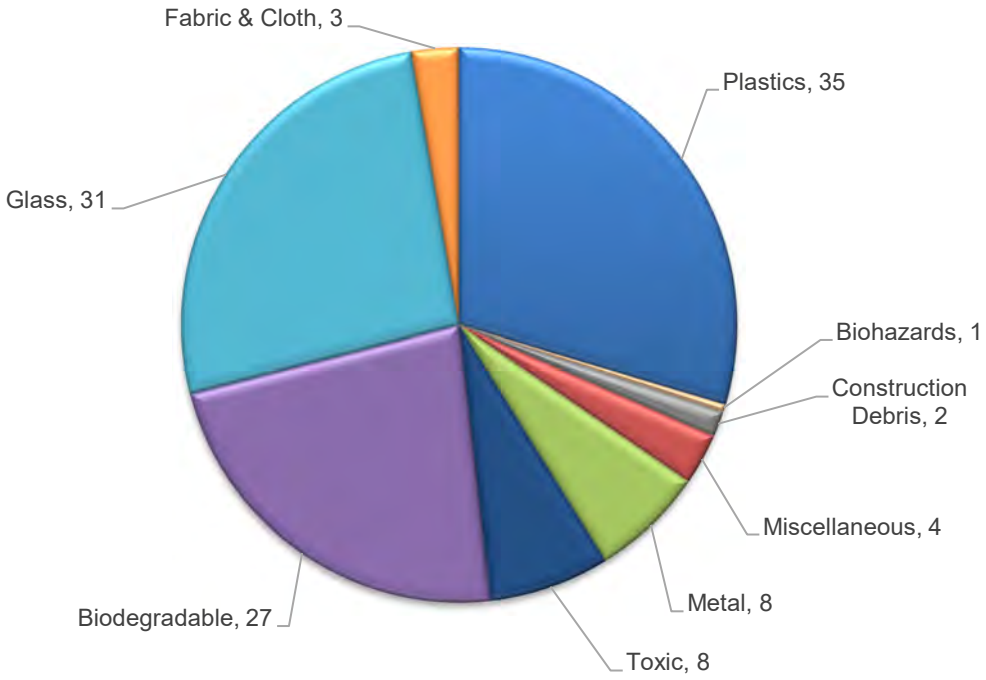

Figure 3-2. Average Number of Pieces of Trash Picked-up by Category at MSB-2

The average RTA score for MSB-2 was 35, which is categorized as "Marginal." However, the average score was skewed by the results from the January sampling event, which occurred right after a wet weather runoff event. If the January RTA results are removed, the average score for MSB-2 would be 28 or "Poor." The RTA score for MSB-2 was significantly impacted by the scoring categories for level of trash, the actual number of trash items collected, threat to aquatic life, and threat to human health. Overall, MSB-2 was the site with the most significant visual impairment, i.e., large amounts of trash were extremely noticeable when visiting the site.

Overall, there was more trash observed at MSB-2, the downstream monitoring site, than observed at MSB-1, the baseline site for this monitoring location. MSB-1 is more difficult to access. It is approximately a mile away from a major roadway and has few to no homeless encampments directly upstream of the site. In contrast, MSB-2 is located right next to the Market Street Bridge and is immediately downstream of a large concentration of homeless encampments.

3.1.2 Mission Boulevard Bridge

An average of 64 pieces of trash was collected during each RTA at MBB-1. The most common trash collected during the assessments included: Plastics (35.9%), biodegradable waste (21.9%) and fabrics and cloth (20.3%) (**Figure 3-3**). The average RTA score for MBB-1 was 51, which is categorized as "Marginal." The RTA condition scoring categories receiving the lowest scores varied by monitoring event, ranging from threat to aquatic life, illegal dumping and littering to accumulation of trash. This variability suggests that the trash transport mechanism varies at this site.

MBB-2 had significantly more waste in comparison to MBB-1, averaging approximately 83 pieces of trash picked up during each RTA. The most common trash items collected were plastics (37.3%), biodegradable waste (25.3%) and fabrics and cloth (13.3%) (**Figure 3-4**). The average RTA score for MBB-2 was 41 or "Marginal." The scoring categories that impacted MBB-2's score the most included: actual number of trash items found, threat to aquatic life and threat to human health. The scoring for these trash condition categories was affected because of the presence of toxic and biohazardous waste.

As was observed at the Market Street Bridge monitoring location, the Mission Boulevard Bridget had more trash at the downstream location (MBB-2) than at the upstream location (MBB-1). Again, this is likely due to the high density of homeless encampments observed just upstream of the MBB-2 monitoring site.

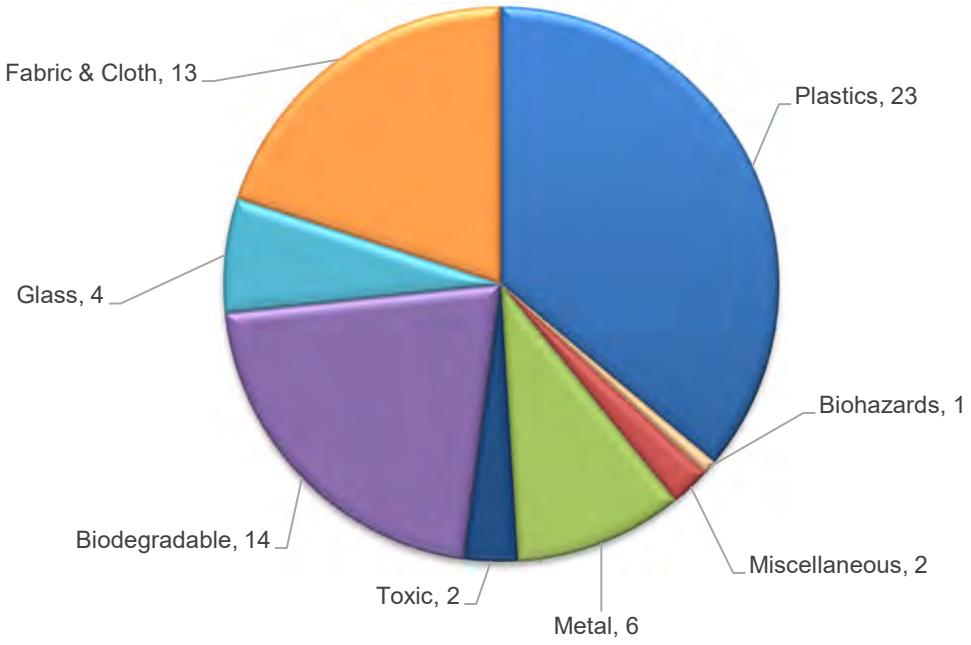

Figure 3-3. Average Number of Pieces of Trash Picked-up by Category at MBB-1

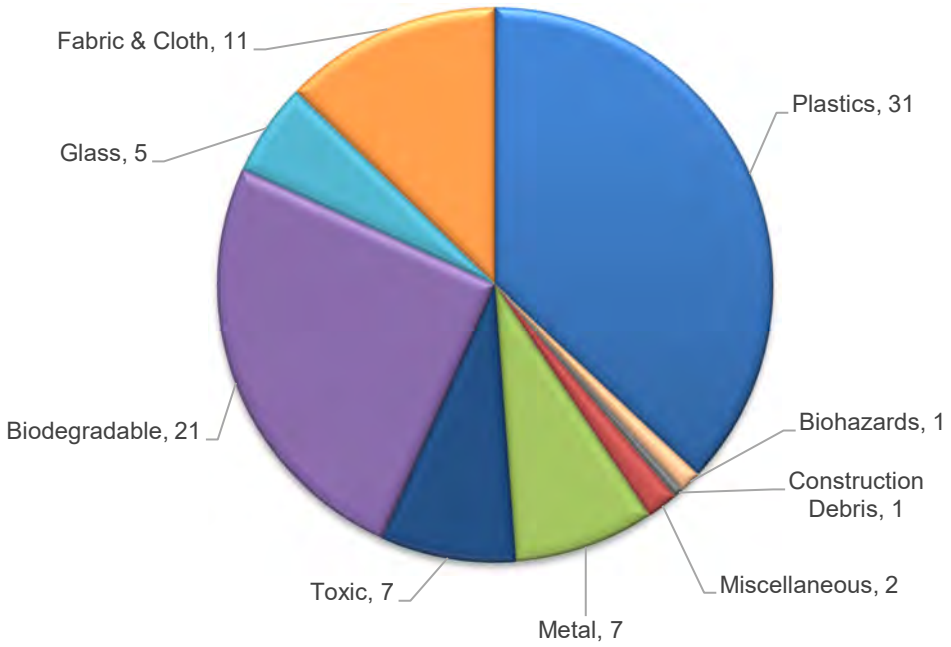

Figure 3-4. Average Number of Pieces of Trash Picked-up by Category at MBB-2

3.1.3 Van Buren Boulevard Bridge

An average of 81 pieces of trash was picked up during each RTA at the upstream monitoring site (VBB-1). The most common types of litter found included plastics (39.5%), biodegradable waste (29.3%), metals (8.6%) and glass (8.6%) (**Figure 3-5).** The average RTA score for VBB-1 was 55, or "Marginal." The RTA scoring categories that impacted VBB-1's score the most included: actual number of trash items found and threat to aquatic life. The scores for these categories were significantly impacted by to the abundance of trash such as plastics and cigarette butts which are considered harmful to aquatic habitat.

An average of 95 pieces of trash was collected during each RTA at VBB-2. The most common items found were plastics (36.8%), biodegradable waste (21.1%) and glass (10.5%) (**Figure 3-6**). The average RTA score at VBB-2 was 42 or "Marginal." The scoring categories that most impacted VBB-2's scores included: actual number of trash items found, threat to aquatic life and threat to human health. In particular, this site received low scores for these condition categories due to the presence of toxic and biohazardous items.

As was observed at the Market Street Bridge (MSB) and Mission Boulevard Bridge (MBB) monitoring locations, more trash was observed at the VBB downstream location (VBB-2) than at the upstream location (VBB-2). Both of the VBB sites had similar distributions in the types of trash items found. VBB-1 had more biodegradable waste than VBB-2, but this may be because the VBB-1 site is located near Martha McLean – Anza Narrows Park, which attracts recreators to the area that often leave behind trash. It should also be noted that RTA results at VBB-1 could be impacted by volunteer-led cleanups near the monitoring site. Various organizations, such as Keep Riverside Clean & Beautiful and the Rivers and Lands Conservancy, often host clean-ups along the Santa Ana River trail. These clean-up activities may coincide with clean-ups that occur along the Santa Ana River shoreline.

3.1.4 Summary of Rapid Trash Assessment Results

With the exception of MSB-1, the most common RTA score category observed among all sites was "Marginal." The primary reason for lower RTA scores (i.e., more affected by trash) at any site was impacts observed in the following trash condition categories: Threat to aquatic habitat, number of trash items found and threat to human health.

The monitoring team collected a total of 492.3 pounds of trash over the four dry weather events (**Table 3-1**). The amount of trash picked up during the January sampling event was lower than the other three dry weather events due to several storms that occurred from mid to late December, causing a lot of the trash to be transported downstream. Additionally, many large objects, such as tires, shopping carts, and motor vehicle parts were noted on the field forms, but were unable to be picked up due to weight constraints, which impacts the total weight of items collected.

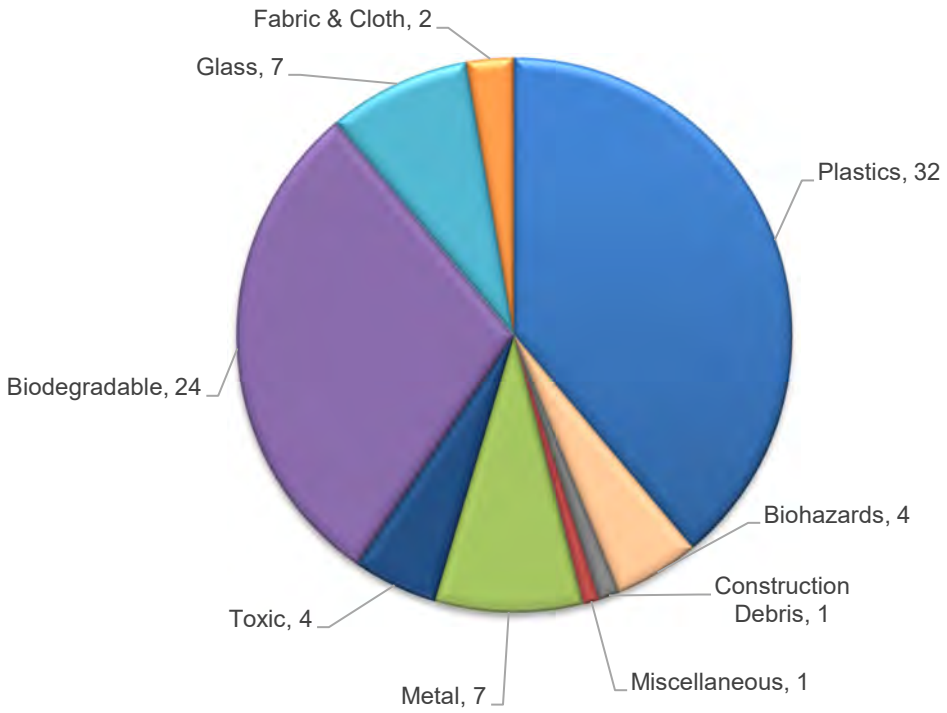

Figure 3-5. Average Number of Pieces of Trash Picked-up by Category at VBB-1

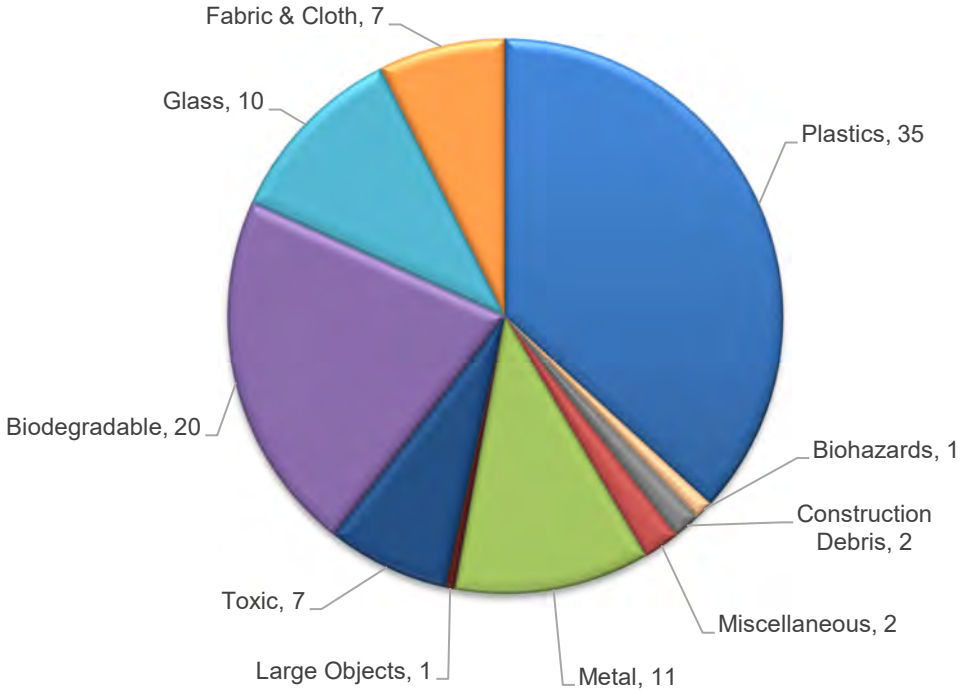

Figure 3-6. Average Number of Pieces of Trash Picked-up by Category at VBB-2

Table 3-1. Rapid Trash Assessment Results - Weight (lbs) and Site Score

Site ID	9/21/2021		10/21/2021		11/18/2021		1/6/2022	
	lbs	Site Score	lbs	Site Score	lbs	Site Score	lbs	Site Score
MSB-1	9.7	70/Suboptimal	6.5	84/Suboptimal	3.9	84/Suboptimal	5.0	75/Suboptimal
MSB-2	16.5	26/Poor	10.5	29/Poor	33.2	28/Poor	15.2	60/Suboptimal
MBB-1	27.9	54/Marginal	37.5	45/Marginal	24.2	53/Marginal	9.0	53/Marginal
MBB-2	35.4	44/Marginal	46.8	39/Marginal	33.7	40/Marginal	8.1[1]	41/Marginal[1]
VBB-1	13.4	44/Marginal	13.0	45/Marginal	3.3	71/Suboptimal	26.8	61/Suboptimal
VBB-2	25.7	37/Marginal	36.5	44/Marginal	40.6	34/Marginal	9.9	53/Marginal
Total	**128.6**	--	**150.8**	--	**138.9**	--	**74.0**	--

[1] On this sample date, the RTA at MBB-2 concluded after eight minutes due to safety concerns by field personnel. A complete RTA takes 15 minutes; therefore, the total pounds of trash at this site is likely about two times higher.

Given the amount of trash collected at the monitoring sites, the data strongly suggest that a significant amount of the trash deposited in the Santa Ana Riverbed is a direct result of homeless encampment activities. Moreover, given the consistency of the weight of trash observed from one event to the next, trash is being redeposited over time at a significant rate. **Table 3-2** summarizes the types of trash observed over time. While plastics and biodegradable materials were the most commonly collected items, toxic or biohazardous items were also often observed. Accordingly, we can conclude that trash from homeless encampment activity is likely impacting water quality and riparian and aquatic habitat.

3.2 Water Quality Findings

As noted in Section 2, a water quality sonde was used in the field to measure temperature, pH, dissolved oxygen, electrical conductivity, and turbidity. Water quality samples were collected during all four sample events and analyzed for TSS, *E. coli*, and *Bacteroides* human marker HF183. In addition, water quality samples were collected to analyze for *Bacteroides* markers for dog (DG37) and pig (Pig2Bac) during the final two sample events.

3.2.1 Field-related Parameters

Figures 3-7 through **3-12** summarizes findings from the water quality field measurements. Key observations are summarized as follows:

- Overall, water temperature has a direct relationship with ambient air temperatures and thus not only varies by time of day but also by season. As expected, water sample temperatures were lower in November and January, in comparison to the samples taken in September and October (**Figure 3-7**).

Table 3-2. Trash Types Observed During RTA Events, as a Percentage of Total Items Recorded

Trash Type	Market Street Bridge		Mission Boulevard Bridge		Van Buren Bridge		Average		
	MSB-1 (%)	MSB-2 (%)	MBB-1 (%)	MBB-2 (%)	VBB-1 (%)	VBB-2 (%)	Downstream Sites (%)	Upstream Sites (%)	All Sites (%)
Plastics	36	29	35	37	39	37	35	37	35
Biohazards	0	1	2	1	5	1	2	2	2
Construction Debris	0	1	0	1	1	2	1	0	1
Metal	4	7	9	8	9	11	8	7	8
Toxic	0	7	3	8	5	7	5	3	5
Biodegradable	36	23	22	25	29	21	26	29	26
Glass	12	26	6	5	9	11	11	9	11
Fabric & Cloth	8	3	20	13	2	7	9	10	9
Large Objects	0	0	0	0	0	1	0	0	0
Miscellaneous	4	3	3	2	1	2	3	3	3

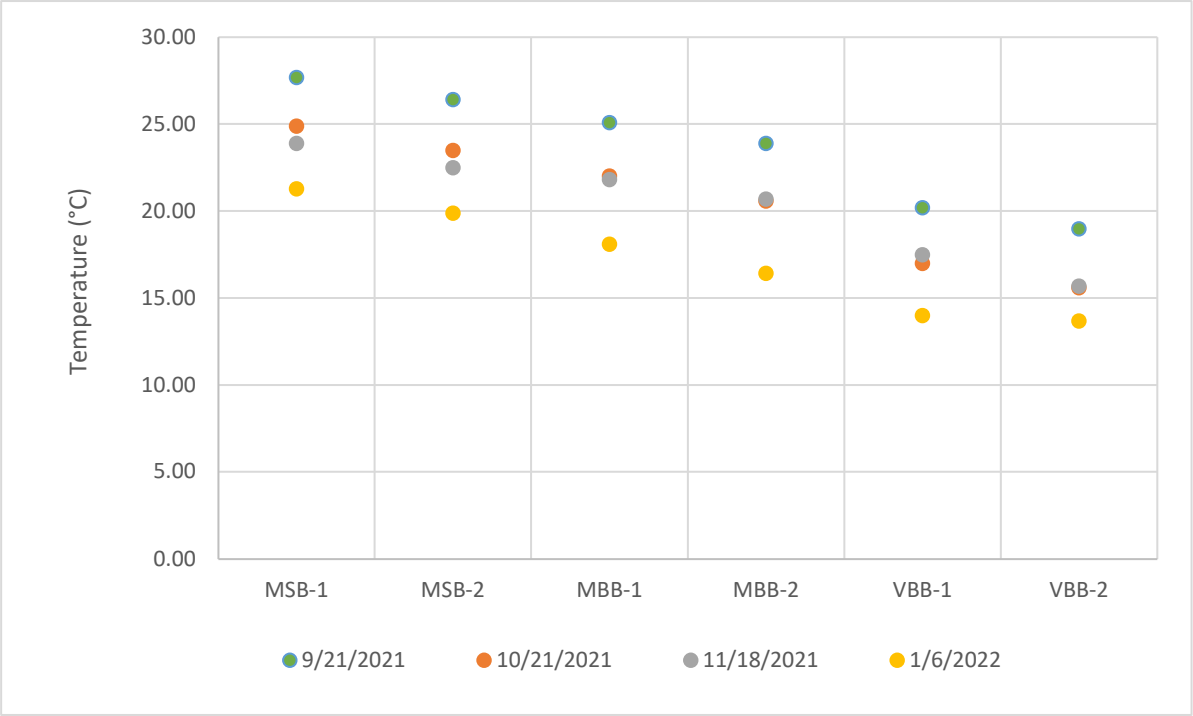

Figure 3-7. Distribution of Temperature Measurements at the Study Monitoring Sites (Note: Consistent progression of decreasing water temperatures from MSB-1 to VBB-2 is mostly likely related to two factors: (1) less vegetative cover at upstream sites; and (2) time of day when temperature measurements were made during each event. For each of the four events, sampling always began at the most downstream site (VBB-2) and ended at the most upstream site (MSB-1); it typically took 3-4 hours to collect all data from all six sites.)

- All pH results during the study met the allowable range for pH (6.5-8.5 Standard Units), as established by the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (Santa Ana Water Board 2016) (**Figure 3-8**).
- Observed dissolved oxygen levels ranged between 7.5 and 9.5 mg/L (**Figure 3-9**), well above the Basin Plan water quality objective to protect the Warm Freshwater Habitat (WARM) beneficial use designations (minimum concentration of 5 mg/L).
- **Figure 3-10** depicts the distribution of specific conductivity measurements observed at all monitoring sites. In general, conductivity remained relatively consistent at each site throughout the four dry weather monitoring events. Typically, conductivity increases the further downstream you go in a watershed. The large increase at the downstream monitoring site near Van Buren Bridge (VBB-2) is potentially related to the influx of flows from the Phoenix drain tributary, which converges with the mainstem just downstream of VBB-1.
- Turbidity levels remained relatively low at all locations during the four dry weather events (**Figure 3-11**). One sample taken at MBB-2 on January 6, 2022 was slightly elevated. The monitoring team observed instream construction activities just upstream of the Mission Boulevard Bridge that disturbed sediment in the Santa Ana River. This likely caused the higher turbidity measurement.
- TSS concentrations at all monitoring locations were generally low, with the exception of one outlier sample collected at MBB-2 on January 6, 2022 (**Figure 3-12)**. As noted above for turbidity, the elevated sample result was likely due to instream construction activities occurring upstream of the monitoring location.

3.2.2 Bacteria-related Parameters

During each monitoring event, water samples were collected for *E. coli* and *Bacteroides* HF183 analysis. Additionally, beginning with the November sampling event water samples were also collected for analysis of *Bacteroides* markers DG37 and Pig2Bac. **Figure 3-13** presents the distribution of *E. coli* concentrations observed at all monitoring sites during the four dry weather events; **Table 3-3** provides the results for each sample collected.

Figure 3-13 also provides a comparison of the observed *E. coli* concentrations to the statistical threshold value (STV) of 320 colony forming units (cfu)/100 milliliters (mL) (not to be exceeded by more than 10% of samples collected within a calendar month), established as a statewide water quality objective under the Statewide Bacteria Provisions (State Water Board 2019). Compliance with the applicable geometric mean *E. coli* target established under the MSAR Bacteria TMDL or Statewide Bacteria Provisions could not be evaluated because minimum data thresholds were not meant by this Study.[13]

[13] MSAR Bacteria TMDL – Geometric mean (113 cfu/mL) is calculated from 5 sample results collected over a 30-day period; Statewide Bacteria Provisions – Geomean mean (100 cfu/mL) is generally based on not less than five sample results distributed over a 6-week.

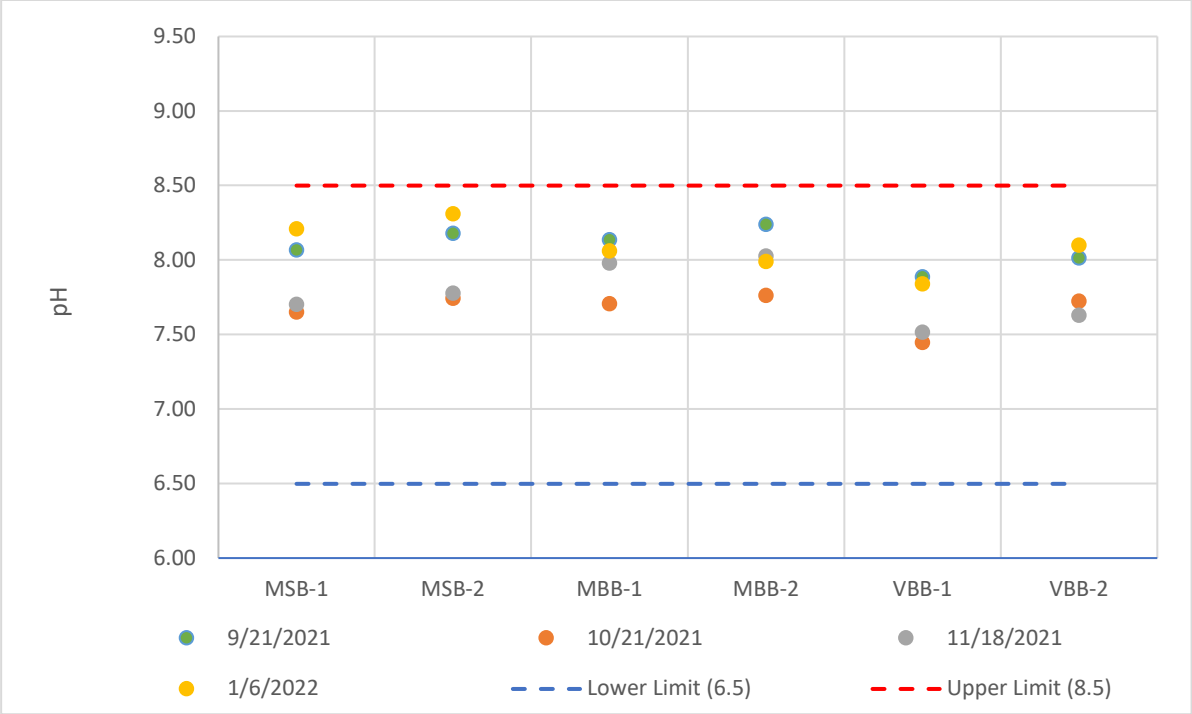

Figure 3-8. Distribution of pH Measurements at the Study Monitoring Sites (lower and upper limits based on Santa Ana Water Board Basin Plan)

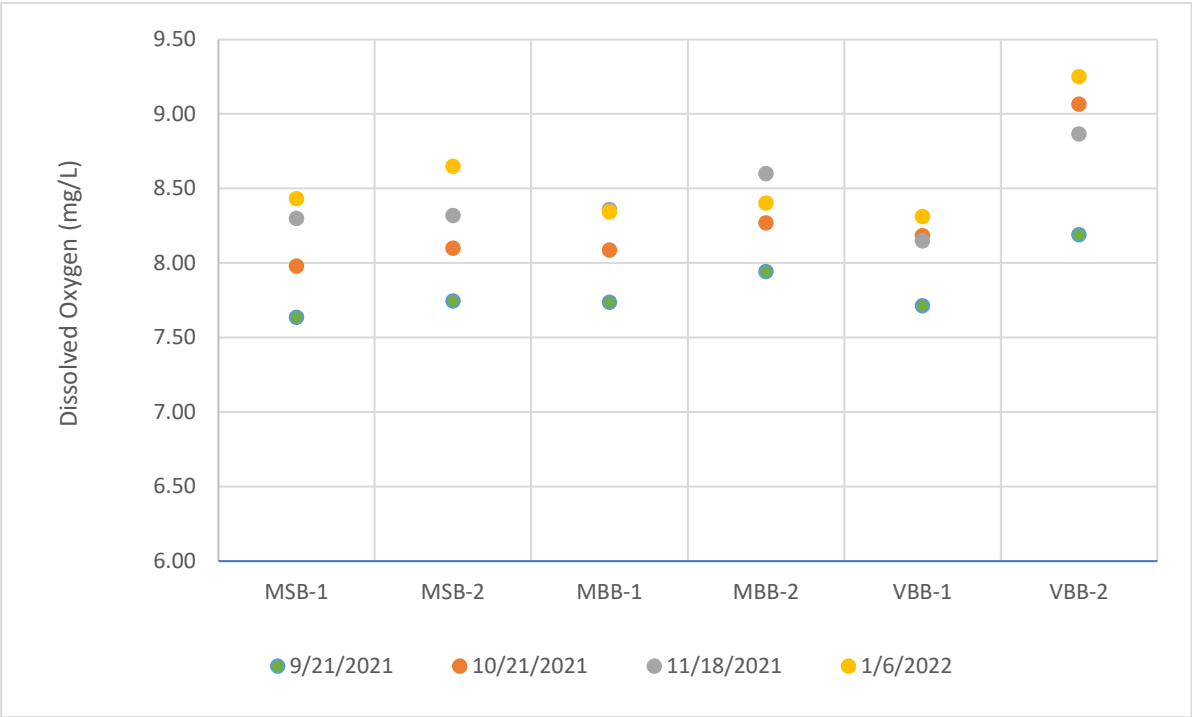

Figure 3-9. Distribution of Dissolved Oxygen Measurements at the Study Monitoring Sites (Basin Plan water quality objective is a minimum dissolved oxygen concentration of 5 mg/L)

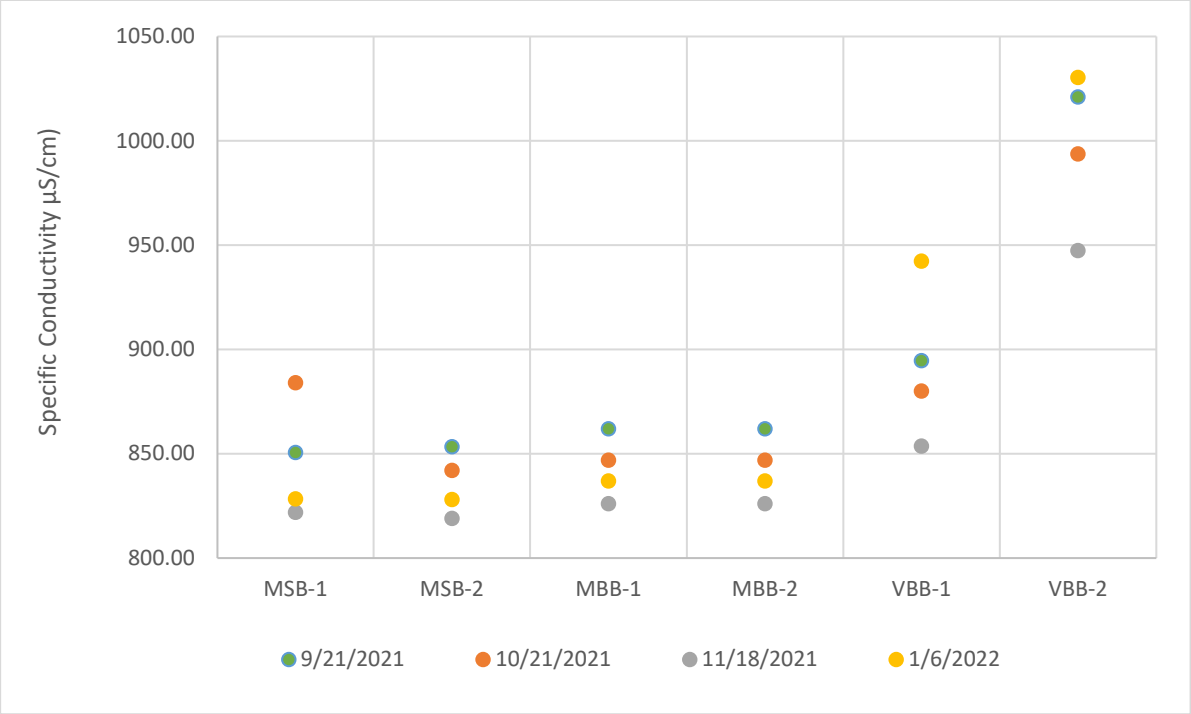

Figure 3-10. Distribution of Conductivity Measurements at the Study Monitoring Sites

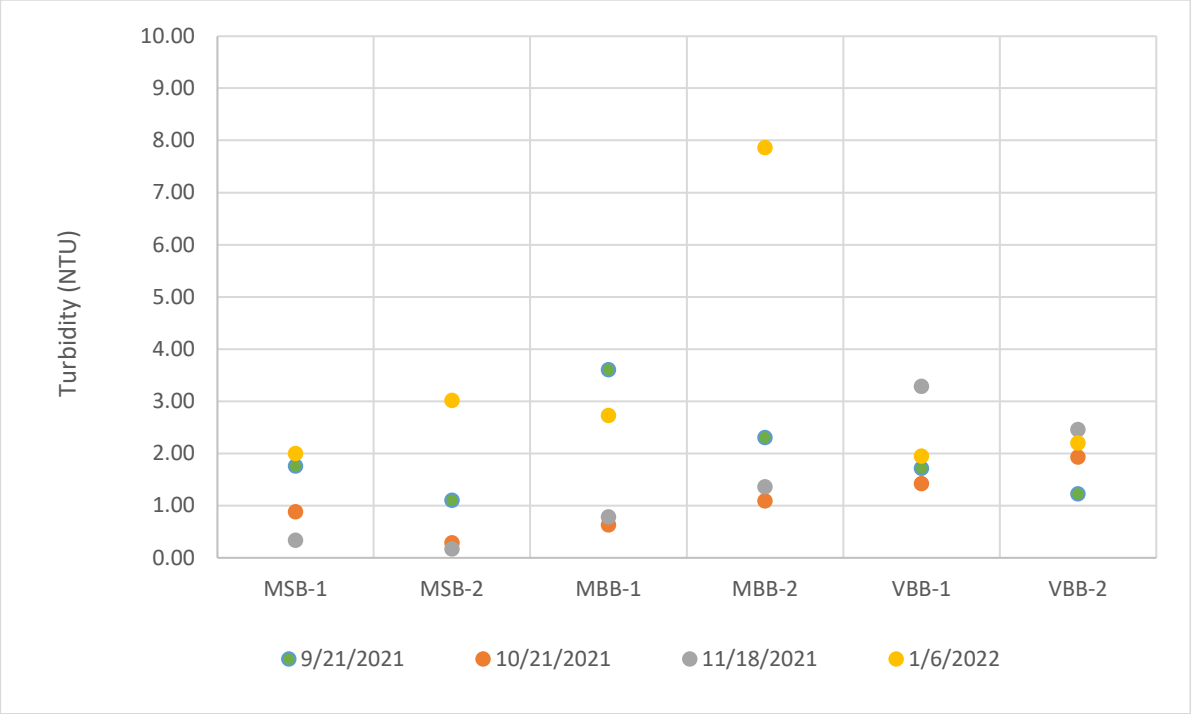

Figure 3-11. Distribution of Turbidity Measurements at the Study Monitoring Sites

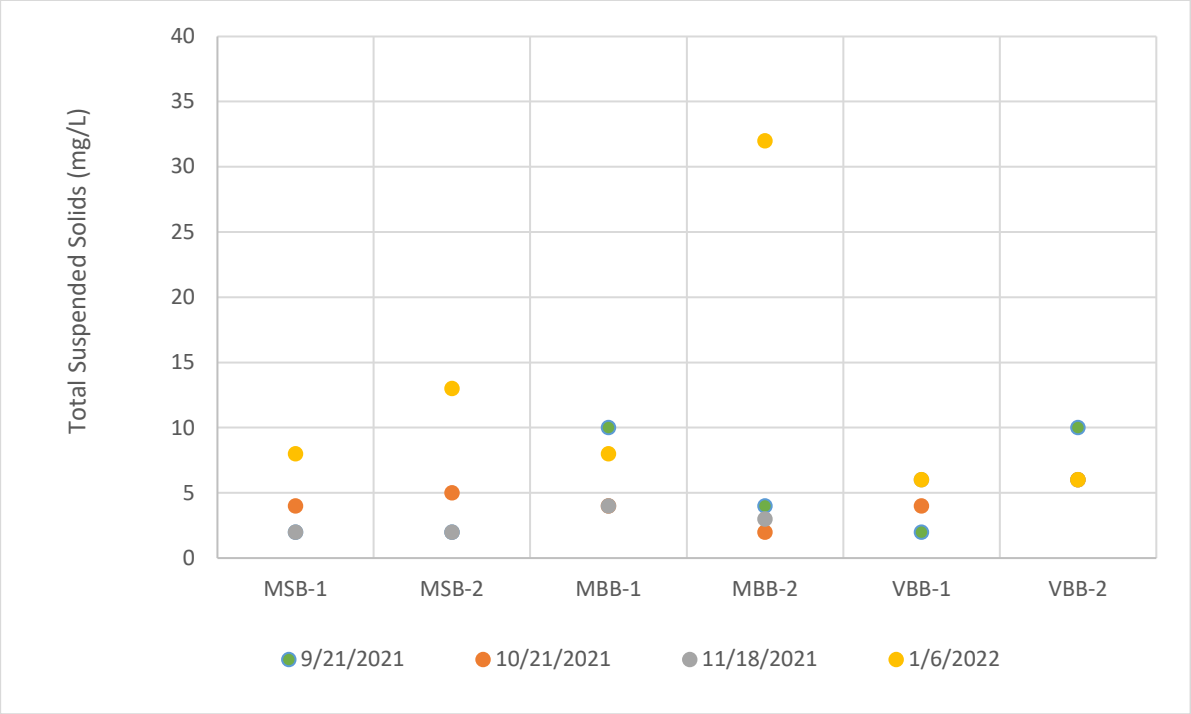

Figure 3-12. Distribution of Total Suspended Solids Concentrations at the Study Monitoring Sites

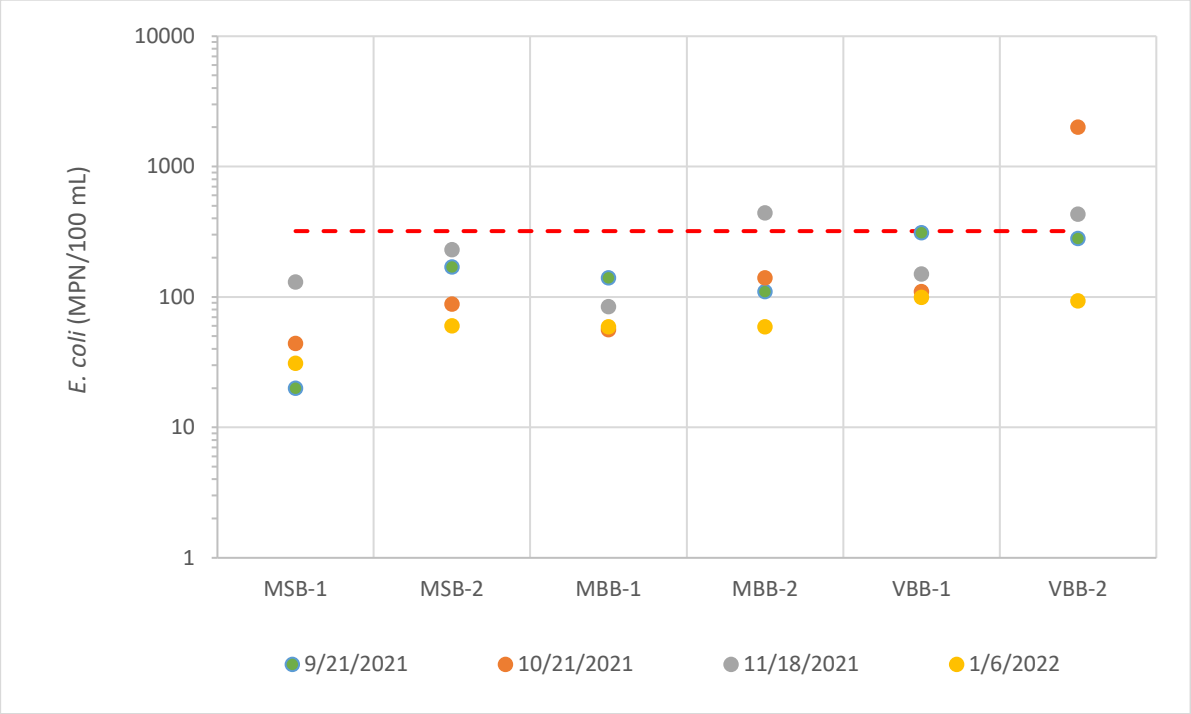

Figure 3-13. Distribution of *E. coli* Concentrations at the Study Monitoring Sites (dashed line represents the single sample "Statistical Threshold Value" water quality objective of 320 cfu/100 mL established by the Statewide Bacteria Provisions, see text)

Table 3-3. *E. coli* Concentrations Observed at Study Monitoring Sites (MPN/100 mL)

Site ID	9/21/2021	10/21/2021	11/18/2021	1/6/2022
MSB-1	20	44	130	31
MSB-2	170	88	230	60
MBB-1	140	56	84	59
MBB-2	110	140	440	59
VBB-1	310	110	150 Duplicate = 150	99
VBB-2	280 Duplicate = 150	2000	430	93

Three samples exceeded the STV. These exceedances occurred at MBB-2 and VBB-2 – both of these monitoring sites were located downstream of major areas of homeless encampments. In addition to the site-specific results, the Study results show a generally increasing *E. coli* concentration trend from the most upstream monitoring site (MSB-1) to the most downstream site (VBB-2) (see Figure 3-13).

Bacteroides markers HF183, DG37, and Pig2Bac can be used to detect fecal pollution in aquatic environments from humans, dogs and feral pigs, respectively. The purpose of including *Bacteroides* analysis as an MST technique in this monitoring program was to (1) identify potential water quality impacts in the Santa Ana River from homeless individuals, their dog companions or presence of feral pigs near the monitoring location; and (2) determine if there are any discernable trends in the receiving water when comparing *E. coli* to *Bacteroides*.

Table 3-4 summarizes the HF183 results observed for each of the water samples collected during all monitoring events. Most water sample results were non-detect for HF183. Where numeric concentrations are shown in Table 3-4, these results were below the laboratory detection limit (shown as BDL in Table 3-4). For these results, the analytical laboratory could only estimate the concentration value; all estimated concentrations were at very low levels. While a single BDL result was obtained at various sites over the duration of the study, it is important to note that there was a persistent human signal detected at VBB-2, where three of four sample results had low levels of HF183.

Table 3-5 shows the DG37 concentrations from water samples taken during the last two dry weather monitoring events. All results were non-detect, except one sample collected from MSB-2. However, the sample result was below the detection limit with a very low estimated concentration. These findings suggest that dog fecal waste is not likely a significant source of fecal bacteria at any of the sites included in this Study.

Table 3-4. Human Marker HF183 Results from Study Monitoring Sites (Copies/100 mL) (ND = Non-Detect; BDL = Below Detection Limit; Dup = Duplicate Sample)

Site ID	9/21/2021		10/21/2021		11/18/2021		1/6/2022	
	Result	Quantity	Result	Quantity	Result	Quantity	Result	Quantity
MSB-1	ND	--	ND	--	ND	--	ND	--
MSB-2	ND	--	ND	--	ND	--	ND	--
MBB-1	BDL	51	ND	--	ND	--	ND	--
MBB-2	ND	--	ND	--	BDL	33	ND	--
VBB-1	ND	--	ND	--	ND	-- (Dup = ND)	BDL	34
VBB-2	BDL	35 (Dup = 47)	ND	--	BDL	64	BDL	31

Table 3-5. Dog Marker DG37 Results from Study Monitoring Sites (Copies/100 mL) (ND = Non-Detect; BDL = Below Detection Limit)

Site ID	11/18/2021		1/6/2022	
	Result	Quantity	Result	Quantity
MSB-1	ND	--	ND	--
MSB-2	BDL	33	ND	--
MBB-1	ND	--	ND	--
MBB-2	ND	--	ND	--
VBB-1	ND	-- (Duplicate = ND)	ND	--
VBB-2	ND	ND	ND	--

Table 3-6 provides the Pig2Bac results during the November and January sampling events. During both events, Pig2Bac was detected at very high levels at three monitoring sites: MBB-2, VBB-1, and VBB-2. Although the January sample results were significantly lower than concentrations observed during the November event, the concentrations are still very high for samples collected a week after a significant wet weather runoff event. These data suggest that the feral pig population in the Santa Ana River bottom may be a significant contributor to fecal contamination in the river. During a project briefing, stakeholders noted that a population of feral pigs is believed to reside in the river bottom near Fairmount Park in Riverside. This park is located just upstream of MBB-1. Findings from this Study, which show high concentrations of pig fecal matter below MBB-1, align well with the observations made by stakeholders.

Table 3-6. Pig Marker Pig2Bac Results from Study Monitoring Sites (Copies/100 mL) (ND = Non-Detect; BDL = Below Detection Limit)

Site ID	11/18/2021		1/6/2022	
	Result	Quantity	Result	Quantity
MSB-1	ND	--	ND	--
MSB-2	ND	--	ND	--
MBB-1	ND	--	BDL	66
MBB-2	Detected	945	Detected	102
VBB-1	Detected	1,924 (Duplicate = 1,734)	Detected	261
VBB-2	Detected	26,915	Detected	1,919

3.2.3 Summary of Water Quality Results

For the most part, measurements of field parameters were similar between upstream and downstream sites at each monitoring location. One exception was conductivity measurements at the Van Buren Bridge location where conductivity was typically higher at the downstream location (VBB-2). The cause of this elevated conductivity is unknown at this time.

Overall, the *E. coli* data indicated generally higher concentrations with increased distance downstream from MSB-1. For example, the median *E. coli* concentrations increase from MSB to VBB (see top median values in **Figure 3-14**). This finding aligns with other monitoring or studies conducted in the watershed (e.g., see SAWPA 2021a or SAWPA 2020a). In addition, the median *E. coli* values were higher at the downstream monitoring sites at each monitoring location. None of the upstream/downstream differences was particularly large, but the pattern was consistent. Findings from the analysis of the human marker HF183 suggest that under dry weather conditions, this increase is not related to presence of human waste and homeless encampments. Instead, the increase in *E. coli* may be related to other sources such as feral pigs. Additional data collection efforts will be necessary to further characterize sources of bacteria in the Santa Ana River.

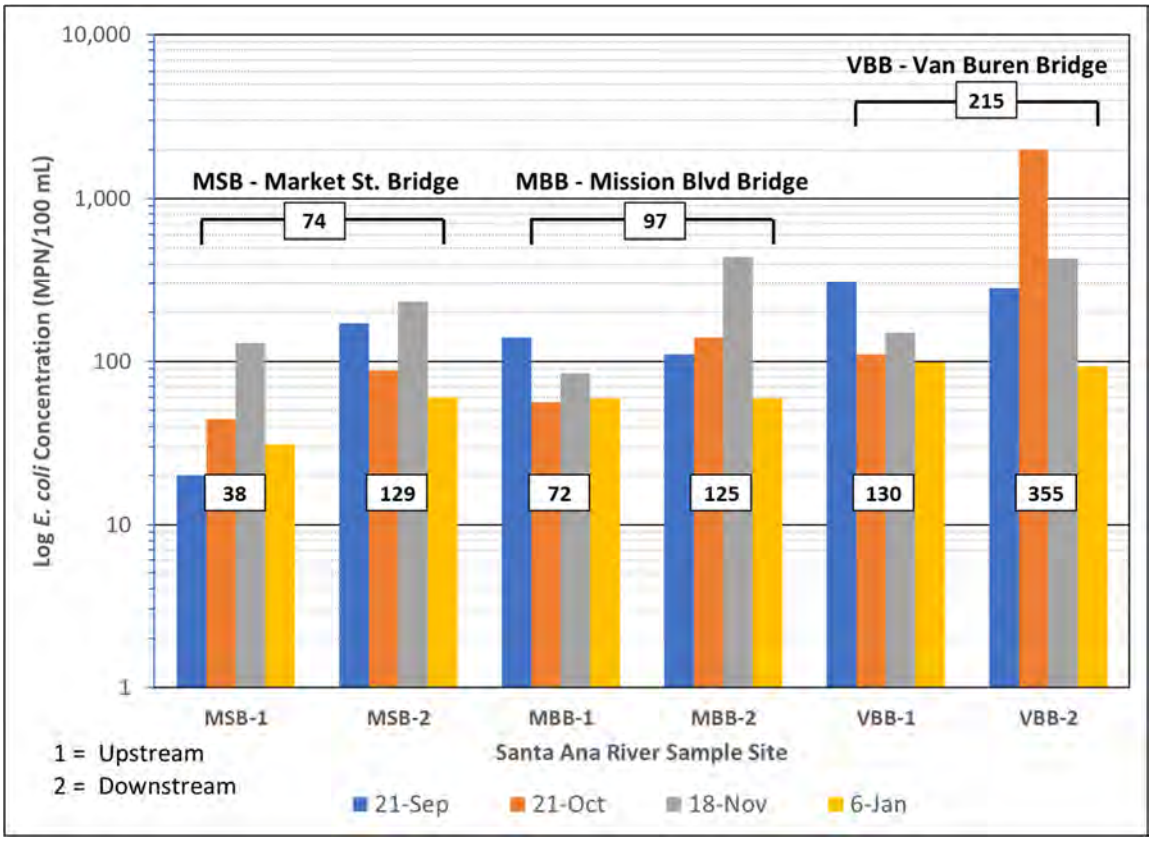

Figure 3-14. *E. coli* Concentrations at Study Monitoring Sites during Each Dry Weather Event (Bars = event-specific *E. coli* results; black numbers = median *E. coli* results by monitoring site or monitoring location)

4. Findings and Recommendations

This section provides a summary of the key findings from the Phase 1A Study. Based on those findings, the project team provide recommendations for consideration by SAWPA and other stakeholders.

4.1 Key Findings

4.1.1 Rapid Trash Assessments

This Study relied on State Water Board approved methods for assessing and characterizing trash in state waterbodies. Using this RTA methodology, this Study provides the following key findings from the project area:

- All monitoring sites have high levels of trash. When compared to volunteer-led cleanup events at southern California beaches and the Santa Ana River, the comparative amount of trash picked up during each RTA completed during this Study is very high. Anecdotally, each volunteer during a beach cleanup event will typically pick up 1-2 pounds of trash over a period of an hour, while during a Santa Ana River cleanup event, each volunteer typically picks up 10-15 pounds of trash over the same type of period[14]. The RTAs in this Study were performed over a period of 15 minutes each. Thirteen of 24 RTAs completed for this Study (54%) resulted in a collection of more than 15 pounds of trash in just 15 minutes.
- Monitoring sites located directly downstream of each area of concentrated homeless encampments tended to have higher levels of trash. Specifically, based on the amount of trash collected by weight, the downstream site had more trash that the upstream site during 83% of the monitoring events. If the outlier January 6 RTA event at MBB-2 is (where the RTA was concluded early due to safety concerns) is excluded, the frequency that the downstream site had higher levels of trash increases to 91% of the events.

Notably, many toxic items, such as chemical containers, spray paint cans, batteries, and cigarette butts were observed in the river bottom. Likewise, biohazardous waste (including human waste/diapers, pet waste and syringes/pipettes) was observed at least once per each monitoring event day. Both toxic items and biohazardous waste can significantly impact water quality.

4.1.2 Bacteria-related Water Quality Concentrations

Bacteria concentrations were typically greater downstream of areas of concentrated homeless encampments, but that location-specific trend occurs within the broader Santa Ana River

[14] Based on experience of CWE staff, e.g., staff have previously coordinated over 40 volunteer cleanup events and provided an estimate of the average amount of trash picked up during the cleanup events. In addition,

Reach 3 trend of increasing *E. coli* concentrations from the most upstream site (MSB-1) to the most downstream site (VBB-1) (see Figures 3-13 and 3-14). Of interest is the question - Is this trend related to homeless encampment activity or is it caused by the presence of other sources of bacteria?

Analyses of bacteria human source marker HF183 suggest that human fecal matter is not an important contributor to increased *E. coli* concentrations from upstream to downstream (see Table 3-4) under dry weather conditions. Human fecal matter was physically observed multiple times in the riverbed at sites VBB-2, once at VBB-1, once at MBB-2 and once at MSB-2 (e.g., see descriptions of monitoring sites in Section 2.3 and photographs in Appendix B). Although human fecal matter was observed, detections of human source bacteria in water samples were very limited. This finding is consistent with the observations reported from the SDSU Study (see Mladenov et al. 2020 and summary in Section 1.2.2). The consistency of the findings from this Study with those from the SDSU Study suggest that human waste resulting from homeless encampment activity in the riverbed is not likely an important source of *E. coli* bacteria in the Santa Ana River – at least under dry weather conditions.

In addition to the limited finding of human sources of *E. coli* in water samples, the limited water quality analyses conducted in November and January to evaluate dogs as a bacteria source found that dog fecal matter was also not an important source of *E. coli* in the Santa Ana River. Dogs are commonly observed in association with homeless encampments and have the potential to be an important contributor of bacteria to the river; however, under dry weather conditions this fecal matter, like human fecal matter, may not be an important source. Thus, the general increase in *E. coli* concentrations from upstream to downstream are likely from other sources of *E. coli* in the watershed.

At the same time the Study added a dog bacteria source marker (DG37) to the water quality analyses, the Study also added analysis of a pig marker (Pig2Bac). Project stakeholders had noted that feral pigs have been observed for decades in the Santa Ana River riverbed in Reach 3, e.g., downstream of Fairmount Park in Riverside (located just upstream of monitoring site MBB-1).[15] Feral pigs have also been observed at the Hidden Valley Wildlife Area in Riverside, just upstream of the MSAR Bacteria TMDL watershed-wide compliance site, Santa Ana River at Pedley Avenue (WW-S4).[16]

In addition to these stakeholder observations, a recent article in the Orange County Register (OCR) noted a very recent siting of feral pigs in the Corona area in January 2022. The OCR article also provided some history of pig encounters in the area noting that in the 1990s, it was estimated that the population of feral pigs likely ranged from 300-400 animals and that these pigs have been observed for decades in parts of Riverside County: "*mainly around the*

[15] Information provided by Mike Gardner, SAWPA Board Commissioner, during stakeholder coordination meeting on November 8, 2021
[16] Information provided by Pat Boldt at the February 17, 2022, Task Force Meeting

Santa Ana River, Prado Reservoir and surrounding areas, including Corona, Norco, Jurupa Valley and Riverside."[17] Stakeholders have noted that feral pigs are likely to frequently enter the river to cool down because the pigs cannot sweat to regulate body temperature.[18] This behavior would certainly make it more likely for the pigs to defecate directly in the river during dry weather conditions.

Findings from the two monitoring events that included a pig source marker analysis showed that pig sources of *E. coli* were important contributors to *E. coli* concentrations at the downstream MBB monitoring site (MBB-2) and at both VBB monitoring sites (VBB-1 and VBB-2). Determining the consistency of these findings and the spatial extent that pigs may be contributing to *E. coli* concentrations in Santa Ana River Reach 3 will require additional data collection.

4.2 Recommendations for Additional Study

The Homeless Study, which provided the basis for this Study, proposed a phased monitoring program to evaluate impacts of homeless encampments on water quality (SAWPA 2020b):

- Phase 1 consisted of a preliminary or initial sampling program that would only include collection of data during dry weather conditions. It included two alternatives:
  - *Phase 1A* included water quality sampling and RTAs from four dry weather events; and
  - *Phase 1B* included all Phase 1A elements but also incorporated physical habitat assessments to evaluate potential impacts to riparian and aquatic habitats.
- Phase 2, if implemented, would expand on the Phase 1 work to include more dry weather event sampling to increase confidence in the representativeness of the findings and add in two additional components (a) wet weather event sampling; and (b) bioassessments.

The required level of effort and estimated program costs increase significantly from Phase 1A through Phases 1B and Phase 2. Accordingly, it was decided to initially fund only the Phase 1A Study to gather preliminary data on potential impacts of homeless encampments on water quality. Given the objectives of this Phase 1A Study and the key findings summarized above, the project team offers a few recommendations regarding additional homeless encampment studies and related matters.

[17] https://www.ocregister.com/2022/01/14/wild-hungry-pigs-still-rampaging-around-santa-ana-river/
[18] Information provided by Pat Boldt at the February 17, 2022, Task Force Meeting.

4.2.1 Need for Additional Evaluations of Water Quality Impacts from Homeless Encampment Activity

4.2.1.1 Trash Levels

In 2015, State Water Board adopted amendments to the State's "Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries" to address trash concerns, specifically to protect aquatic life, public health beneficial uses and reduce environmental issues associated with trash in state waters (State Water Board 2015). RTA results clearly show that the presence of homeless encampments significantly contributes to the volume of trash debris in the Santa Ana River bed. Typically, the volume and weight of trash was greater downstream of areas of with concentrations of homeless encampments. While visual impacts of trash in the Santa Ana River were already apparent before this Study, the Phase 1A Study provides quantitative data on the amount of trash present at various locations in the riverbed. The amount of trash is significant, but not surprising given the estimated number encampments and homeless individuals living in the riverbed. We do not expect additional field studies to assess trash levels will result in any change to the finding that the presence of concentrated areas of homeless encampments is contributing to trash impacts in Santa Ana River Reach 3. Accordingly, if additional water quality-related studies are implemented to evaluate impacts from homeless encampment activity, we do not believe it is necessary to conduct additional RTAs.

4.2.1.2 Bacteria

<u>Dry Weather Conditions</u>

Phase 1A included only four dry weather monitoring events. Although this sample set is relatively small, taking into account the results from both the *E. coli* concentration data and source marker analyses, it is unlikely that human sources of bacteria, emanating from homeless encampment activity, were a significant contributor of bacteria in the Santa Ana River Reach 3 – at least under dry weather conditions during the time period of this Study. These results are consistent with observations from the SDSU study (see Section 1.2.2). Accordingly, additional bacteria-related data collection under dry weather conditions may not be necessary. The observations of excess trash due to encampment activity is sufficient to make a finding that homeless encampment activity is impacting water quality.

<u>Wet Weather Conditions</u>

To date, the project team is unaware of any studies that have been conducted in the Santa Ana River Reach 3 to evaluate water quality impacts from homeless encampment activity under wet weather conditions. The Homeless Study included a wet weather sampling component as part of the proposed Phase 2 monitoring program. A follow-up study focused on wet weather impacts from homelessness may provide value as the flow conditions being evaluated are certainly different. In particular, elevated flows will inundate bank areas where

human fecal matter is more likely to be present given that these are the areas within the riverbed where “toilet” or “latrine” facilities are most likely to be present. Inundation of these areas provides the best opportunity to mobilize human fecal material within the riverbed. Understanding contributions of bacteria from homeless encampment activity under wet conditions, if any, would benefit future work related to addressing requirements applicable to the MSAR TMDL under wet weather conditions.

Monitoring water quality impacts focused on homeless encampment activity under wet weather conditions would require careful consideration of how samples are collected. In general, the larger the volume of a wet weather event, the more difficult it may be to evaluate the impact of homeless activity on water quality. Bacterial indicator levels typically increase during the rising hydrograph of a rainfall runoff event and then typically quickly taper off within about 24 hours after the peak of the storm event (SAWPA 2021a). This same pattern would be expected upstream and downstream of an area of homeless encampments. However, to determine if there is an upstream/downstream difference in the magnitude of bacterial indicators as related to encampments, it would be necessary to sample in a manner that evaluates the local response to a wet weather runoff rather than a watershed-level response that would likely include bacterial indicators from multiple sources in the watershed. The best scenario for evaluating a local wet weather response would be to sample lower volume wet weather events, i.e., flow events where a high flow suspension of recreational uses would not be met (as defined by the Basin Plan).

4.2.2 Coordination with Other Santa Ana River Watershed Management Activities

The Santa Ana Water Board adopted a bacteria indicator TMDL for several waterbodies in the MSAR, including Santa Ana River Reach 3 in 2005. Two water quality compliance sites are regularly sampled by the RBMP in Santa Ana River Reach 3 to evaluate compliance with this TMDL (WW-S1: Santa Ana River at MWD Crossing; WW-S4: Santa Ana River at Pedley Avenue). Even though the responsible entities in the watershed (primarily the MS4s) are actively implementing a range of BMPs to mitigate sources of bacteria within the MS4s, these Santa Ana River sites are not currently meeting TMDL numeric targets (SAWPA 2021a). A recent MSAR TMDL Task Force study demonstrated that non-compliance of TMDL targets at WW-S1 and WW-S4 during dry weather is caused by significant non-MS4 sources of bacteria in the watershed (SAWPA 2020a). These same non-MS4 sources likely contribute to exceedances of numeric targets during wet weather, but quantification of such sources will be more challenging under wet weather conditions.

Recently, the 2019 MSAR Bacteria Synoptic Study observed detectable levels of human source bacteria in the Santa Ana River near the Mission Boulevard Bridge crossing on one of six sample dates during dry weather conditions in 2019 (SAWPA 2020a). This finding led to some speculation that homeless encampments in the Santa Ana River Reach 3 may potentially be an important “unaccounted for” source of bacteria in the river (i.e., not

measured in MS4 outfalls that drain to the impaired water segment). The Basin Plan categorizes homeless encampments as a controllable indicator bacteria source. Thus, if found to be an important source and cause of non-compliance, then the need to reduce or eliminate this source of bacteria would be significantly elevated. The entity or entities responsible for addressing this source of bacteria are not defined, at least by the TMDL.[19]

While the current Phase 1A Study did detect the presence of human marker HF183, the sites it was observed at varied, and when observed, concentrations were very low. While only four monitoring events limit our ability to make a conclusive finding, it appears to be unlikely that open defecation of human fecal waste from homeless encampment activity is an important source of *E. coli* bacteria in Santa Ana River Reach 3 under dry weather conditions. Therefore, homeless encampment activity is not likely an important contributor to the reservoir of "unaccounted for" bacteria in the river. These findings corroborate results from the SDSU Study in the San Diego River. Accordingly, additional sampling to further study the relationship between homeless encampment activity and *E. coli* concentrations in the Santa Ana River under dry weather conditions is not recommended.

While this Study did not find a relationship between encampment activity and *E. coli* concentrations, preliminary findings from the November and January monitoring events suggest that feral pigs may be an important source of *E. coli* bacteria in the river. Accordingly, it is recommended that the MSAR TMDL Task Force carry out additional testing for the Pig2Bac marker through the RBMP at the following watershed wide compliance sites within the MSAR watershed:

- WW-S1 - WW-S1 is located between Phase 1A monitoring sites VBB-1 and VBB-2 and both of these sites had significant detection rates of Pig2Bac.
- WW-S4 - located just downstream of the Hidden Valley Wildlife Area, which is an area that has been noted by stakeholders as having a feral pig population (see discussion above).
- WW-Mission – located in the Santa Ana River below the Mission Boulevard Bridge.
- WW-M6 –Mill-Cucamonga Creek below the Mill Creek Wetlands.

Data from these sites will provide information regarding the extent of the presence of feral pigs in this portion of the MSAR watershed. In addition to collecting additional Pig2Bac marker data from these sites, it is recommended that the Task Force coordinate with the California Department Fish & Wildlife (CDFW) Region 6 to gather more information

[19] It is important to note that the entities identified as responsible parties in the MSAR Bacteria TMDL, e.g., MS4 Permittees and agricultural interests, are not responsible for controllable sources of bacteria that are found in the river. They are only responsible for sources that are covered by their respective permits, e.g., MS4 permittees are only responsible for addressing controllable sources in areas under the jurisdiction of the MS4 Permit.

regarding the nature and extent of the feral pig population within Reach 3 of the Santa Ana River.

Finally, given the ongoing impacts of homeless encampments in the river and potential water quality-related problems, it is recommended that SAWPA and, as appropriate, the MSAR TMDL Task Force, continue to coordinate with agencies within Riverside County and the City of Riverside on their efforts to address homeless activity concerns in the riverbed, e.g., through implementation of the Santa Ana River Bottom Encampment Response Plan. Through this Plan, efforts to connect homeless individuals to housing services and conduct clean-up efforts are ongoing. Over time, these efforts will continue to reduce environmental impacts of homeless encampment activity in the watershed, not just from trash, but other impacts such as those that may be created by fire.

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Homeless Encampment - Phase 1A Water Quality Monitoring and Trash Assessments Program

Appendices

Appendix A – Field Data Sheets

A-1: September 21, 2021

A-2: October 21, 2021

A-3: November 18, 2021

A-4: January 6, 2022

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Appendix A-1, September 21, 2021

Field Data Sheets

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Downstream

Site ID: VBB-2

Date: 9 / 21 / 2021

Time (24-hr clock): 7:40

Sampling Team: NJ / RK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	1021	1021	1021	1021
Dissolved Oxygen: (mg/L)	8.16	8.22	8.19	8.19
pH:	8.01	8.01	8.02	8.01
Turbidity: (NTU)	1.33	1.23	1.12	1.2
Temp (water): (°C)	19	19	19	19
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 10 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	10.5 in ☑ cm ☐	1.23 ft/sec ☑ m/sec ☐	3.265. over 4ft
50% across	3 in ☑ cm ☐	1.88 ft/sec ☑ m/sec ☐	2.135
90% across	8 in ☑ cm ☐	1.15 ft/sec ☑ m/sec ☐	3.25

Estimated Flow 13.26 ft³/sec ☑ m³/sec ☐ *Q (ft³/sec) = (0.2*W*D₁₀/12*V₁₀) + (0.6*W*D₅₀/12*V₅₀) + (0.2*W*D₉₀/12*V₉₀)*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli* or Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ✗

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None

Types of Trash and Litter Found: Plastic. paper. glass bottles.

Number/Location of Encampments Observed: None. 2 PEH were observed while leaving the monitoring location

Other Impacts caused by Homelessness: trash.

Sample at 7:50 am.

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Upstream

Site ID: VBB-1

Date: 9 / 21 / 2021

Time (24-hr clock): 8:15

Sampling Team: NJ / RK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	895	894	895	895
Dissolved Oxygen: (mg/L)	7.71	7.71	7.72	7.71
pH:	7.92	7.9	7.84	7.89
Turbidity: (NTU)	1.74	2.06	1.34	1.7
Temp (water): (°C)	20.2	20.2	20.2	20.2
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 56 feet ☑ meters ☐

Cross-section:	Depth (*D*)		Velocity (*V*)		Comments
10% across	2 in ☑ cm ☐		2 ft/sec ☑ m/sec ☐		25
50% across	6 in ☑ cm ☐		3.28 ft/sec ☑ m/sec ☐		1.225 over 4ft.
90% across	3.5 in ☑ cm ☐		1.24 ft/sec ☑ m/sec ☐		3.225

Estimated Flow 56.13 ft³/sec ☑ m³/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: PZM along bike path.

Types of Trash and Litter Found: plates. food wrappers. paper. most likely from recreation activities.

Number/Location of Encampments Observed: various along bike path

Other Impacts caused by Homelessness: trash.

Sample at: 8:35.

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Downstream

Site ID: MBB-2

Date: 9 / 21 / 2021

Time (24-hr clock): 8:50

Sampling Team: NJ / RK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	858	857	858	858
Dissolved Oxygen: (mg/L)	7.95	7.94	7.94	7.94
pH:	8.25	8.24	8.23	8.24
Turbidity: (NTU)	1.75	1.98	3.19	2.3
Temp (water): (°C)	23.9	23.9	23.9	23.9
Other:				

Flow Connectivity ☒ Y/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)		Velocity (*V*)		Comments
10% across	10 in ☑ cm ☐		1.58 ft/sec ☑ m/sec ☐		2.53s }
50% across	1.5 in ☑ cm ☐		1.1 ft/sec ☑ m/sec ☐		3.63s } over 4ft.
90% across	2 in ☑ cm ☐		1.49 ft/sec ☑ m/sec ☐		2.68s }

Estimated Flow 9.9 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: plastic bags. food wrappers. clothing. shoes.

Number/Location of Encampments Observed: various

Other Impacts caused by Homelessness: Active Fire upstream from monitoring location.

Sample at 9:15 am

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Upstream

Site ID: MBB-1

Date: 9 / 21 / 2021

Time (24-hr clock): 9:40.

Sampling Team: RK / NJ.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	862	862	862	862
Dissolved Oxygen: (mg/L)	7.74	7.74	7.73	7.74
pH:	8.15	8.13	8.13	8.14
Turbidity: (NTU)	4.18	3.11	3.52.	3.6.
Temp (water): (°C)	25.1	25.1	25.1	25.1
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	11 in ☑ cm ☐	2.99 ft/sec ☑ m/sec ☐	1.345 } over 4ft.
50% across	3 in ☑ cm ☐	1.7 ft/sec ☑ m/sec ☐	2.355 }
90% across	2 in ☑ cm ☐	1.45 ft/sec ☑ m/sec ☐	2.755 }

Estimated Flow 25 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None

Types of Trash and Litter Found: blankets. tarp. cloth/shoes wrappers.

Number/Location of Encampments Observed: various downstream from monitoring location

Other Impacts caused by Homelessness: excessive trash.

sample at 9:50 am

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Downstream

Site ID: MSB-2

Date: 9 / 21 / 2021

Time (24-hr clock): 10:20

Sampling Team: RK / NJ

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	853	853	854	853.3
Dissolved Oxygen: (mg/L)	7.76	7.74	7.74	7.75
pH:	8.2	8.17	8.17	8.18
Turbidity: (NTU)	1.66	0.87	0.77	1.1
Temp (water): (°C)	26.4	26.4	26.5	26.4
Other:				

Flow Connectivity (Y) N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	2.5 in ☑ cm ☐	1.34 ft/sec ☑ m/sec ☐	2.985
50% across	8 in ☑ cm ☐	3.28 ft/sec ☑ m/sec ☐	1.225 over 4ft
90% across	2 in ☑ cm ☐	1.41 ft/sec ☑ m/sec ☐	2.845

Estimated Flow 35.36 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: bottles. cans. food wrappers. cardboards.

Number/Location of Encampments Observed: several underneath the bridge.

Other Impacts caused by Homelessness: excessive trash.

Sample at 10:30 am

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Upstream

Site ID: MSB-1

Date: 9 / 21 / 2021

Time (24-hr clock): 11:10.

Sampling Team: NJ / RK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	852	852	848	850.7
Dissolved Oxygen: (mg/L)	7.64	7.63	7.64	7.64
pH:	8.1	8.06	8.04.	8.07
Turbidity: (NTU)	2.84	1.51	0.92	1.76
Temp (water): (°C)	27.7	27.7	27.7	27.7
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	3 in ☑ cm ☐	2.67 ft/sec ☑ m/sec ☐	1.55
50% across	9 in ☑ cm ☐	4.44 ft/sec ☑ m/sec ☐	0.95 over 4ft
90% across	2 in ☑ cm ☐	2.72 ft/sec ☑ m/sec ☐	1.475

Estimated Flow 55.6 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny.

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: ~~trash~~ plastic bags. textiles.

Number/Location of Encampments Observed: 1 downstream

Other Impacts caused by Homelessness: None

Sample at 11:20 am

Appendix A-2, October 21, 2021

Field Data Sheets

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Downstream

Site ID: VBB-2

Date: 10 / 21 / 21

Time (24-hr clock): 7:00 am

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	993	994	994	993.7
Dissolved Oxygen: (mg/L)	9.07	9.07	9.06	9.07
pH:	7.77	7.71	7.69	7.72
Turbidity: (NTU)	1.85	1.93	2.01	1.9
Temp (water): (°C)	15.6	15.6	15.6	15.6
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 20 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	11 in ☑ cm ☐	0.53 ft/sec ☑ m/sec ☐	4 | 7.54
50% across	9.5 in ☑ cm ☐	1.88 ft/sec ☑ m/sec ☐	4 | 2.13
90% across	8.5 in ☑ cm ☐	1.54 ft/sec ☑ m/sec ☐	4 | 2.59

Estimated Flow 24.17 ft^3/sec ☑ m^3/sec ☐ *Q (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli* or Enterococci:** ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS:** ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: PEH walking in river

Types of Trash and Litter Found: plastic, paper, food waste

Number/Location of Encampments Observed: ~~[illegible]~~; PEH walking upstream; 4 encampments South of Sampling point

Other Impacts caused by Homelessness: 1 bucket of human excrement, evidence of campfire, trash

Sample @ 7:15

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Upstream

Site ID: VBB-1

Date: 10 / 21 / 21

Time (24-hr clock): 8:00

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	880	880	880	880
Dissolved Oxygen: (mg/L)	8.19	8.18	8.18	8.18
pH:	7.45 ~~8.19~~	7.45 ~~8.18~~	7.44 ~~8.18~~	7.45
Turbidity: (NTU)	1.38	1.48	1.41	1.4
Temp (water): (°C)	17.0	17.0	17.0	17.0
Other:				

Flow Connectivity ☒ Y ☐ N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 50 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	16 in ☑ cm ☐	2.52 ft/sec ☑ m/sec ☐	4 / 1.59
50% across	9.25 in ☑ cm ☐	2.33 ft/sec ☑ m/sec ☐	4 / 1.72
90% across	7 in ☑ cm ☐	1.99 ft/sec ☑ m/sec ☐	4 / 2.01

Estimated Flow 99.09 ft^3/sec ☑ m^3/sec ☐ *Q (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: nylon tent, clothes, plastics, food waste

Number/Location of Encampments Observed: various along bike path

Other Impacts caused by Homelessness: trash

Sample at 8:10

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Downstream

Site ID: MBB-2

Date: 10 / 21 / 21

Time (24-hr clock): 8:45

Sampling Team: AR / KK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	845	844	845	845
Dissolved Oxygen: (mg/L)	8.27	8.27	8.27	8.27
pH:	7.85	7.77	7.77	7.76
Turbidity: (NTU)	1.01	1.21	1.05	1.1
Temp (water): (°C)	20.6	20.6	20.6	20.6
Other:				

Flow Connectivity ☒ Y/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	6.25 in ☑ cm ☐	2.04 ft/sec ☑ m/sec ☐	4/1.96
50% across	3.75 in ☑ cm ☐	1.62 ft/sec ☑ m/sec ☐	4/2.47
90% across	13.75 in ☑ cm ☐	2.37 ft/sec ☑ m/sec ☐	4/1.69

Estimated Flow 26.48 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides***: ✓

Additional bottle sets are included for field duplicates and trip blanks _____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: clothes, plastics, wood,

Number/Location of Encampments Observed: 10-12 along river bed/stone

Other Impacts caused by Homelessness: trash

Sample @ 8:45

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Upstream

Site ID: MBB-1

Date: 10 / 21 / 21

Time (24-hr clock): 920

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	847	847	847	847
Dissolved Oxygen: (mg/L)	8.08	8.09	8.09	8.07
pH:	7.70	7.71	7.71	7.71
Turbidity: (NTU)	0.62	0.65	0.63	0.6
Temp (water): (°C)	22.0	22.0	22.1	22.0
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	3 in ☑ cm ☐	1.56 ft/sec ☑ m/sec ☐	4/2.56
50% across	5 in ☑ cm ☐	1.94 ft/sec ☑ m/sec ☐	4/2.06
90% across	13 in ☑ cm ☐	1.94 ft/sec ☑ m/sec ☐	4/2.06

Estimated Flow 24.58 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: UCR students surveying downstream

Types of Trash and Litter Found: clothes, plastic, food waste

Number/Location of Encampments Observed: 6 - 8

Other Impacts caused by Homelessness: trash

Sample @ 9:30

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Downstream

Site ID: MSB-2

Date: 10 / 21 / 21

Time (24-hr clock): 10:15

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	842	841	841	842
Dissolved Oxygen: (mg/L)	8.10	8.10	8.10	8.10
pH:	7.75	7.74	7.74	7.74
Turbidity: (NTU)	0.28	0.30	0.31	.29
Temp (water): (°C)	23.5	23.5	23.5	23.5
Other:				

Flow Connectivity ☒ Y ☐ N (Describe) Receiving Water Body

Flow measurements ***(check boxes for units of measure):***

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	4.5 in ☑ cm ☐	1.66 ft/sec ☑ m/sec ☐	4/2.41
50% across	11.5 in ☑ cm ☐	2.43 ft/sec ☑ m/sec ☐	4/1.65
90% across	7.25 in ☑ cm ☐	1.51 ft/sec ☑ m/sec ☐	4/2.65

Estimated Flow ~~24.58~~ 26.48 ft³/sec ☑ m³/sec ☐ *Q (ft³/sec) = (0.2*W*D10/12*V10) + (0.6*W*D50/12*V50) + (0.2*W*D90/12*V90)*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci:** ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: PEH + dog walking in stream

Types of Trash and Litter Found: plastic, food

Number/Location of Encampments Observed: 3 west of sample pt.

Other Impacts caused by Homelessness: trash

Back @ 10:25

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Upstream

Site ID: MSB-1

Date: 10 / 21 / 21

Time (24-hr clock): 10:30

Sampling Team: AR / KK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	844	844	844	844
Dissolved Oxygen: (mg/L)	7.98	7.98	7.98	7.98
pH:	7.66	7.65	7.64	7.65
Turbidity: (NTU)	.43	1.52	.69	0.88
Temp (water): (°C)	24.9	24.9	24.9	24.9
Other:				

Flow Connectivity ☒ Y ☐ N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	8.75 in ☑ cm ☐	2.92 ft/sec ☑ m/sec ☐	4 / 1.37
50% across	11.75 in ☑ cm ☐	2.67 ft/sec ☑ m/sec ☐	4 / 1.50
90% across	5 in ☑ cm ☐	1.78 ft/sec ☑ m/sec ☐	4 / 2.25

Estimated Flow 53.6 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: food waste, plastics

Number/Location of Encampments Observed: 1 downstream

Other Impacts caused by Homelessness: trash

Back @ 10:45

Appendix A-3, November 18, 2021

Field Data Sheets

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Downstream

Site ID: VBB-2

Date: 11 / 18 / 2021

Time (24-hr clock): 7:10

Sampling Team: NJ / PK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	947	947	948	947.3
Dissolved Oxygen: (mg/L)	8.87	8.86	8.87	8.87
pH:	7.64	7.63	7.62	7.63
Turbidity: (NTU)	2.43	2.43	2.51	2.46
Temp (water): (°C)	15.7	15.7	15.7	15.7
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 20 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	10 in ☑ cm ☐	1.83 ft/sec ☑ m/sec ☐	2.19s } over 4ft
50% across	13 in ☑ cm ☐	2.52 ft/sec ☑ m/sec ☐	1.59s } over 4ft
90% across	9 in ☑ cm ☐	1.68 ft/sec ☑ m/sec ☐	2.38s } over 4ft

Estimated Flow 43.83 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: plastics. food waste. feces. metals

Number/Location of Encampments Observed: 3-4 by RCPs near access gate. 2 underneath bridge

Other Impacts caused by Homelessness: burnt area by access gate

sample at 7:20

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Upstream

Site ID: VBB-1

Date: 11 / 18 / 21

Time (24-hr clock): 8:10

Sampling Team: NJ / PK / _____

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	853	854	854	854
Dissolved Oxygen: (mg/L)	8.15	8.15	8.15	8.15
pH:	7.48	7.55	7.52	7.52
Turbidity: (NTU)	5.01	2.29	2.55	3.28
Temp (water): (°C)	17.5	17.5	17.5	17.5
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 50 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	9 in ☑ cm ☐	0.99 ft/sec ☑ m/sec ☐	4.065
50% across	6 in ☑ cm ☐	2.52 ft/sec ☑ m/sec ☐	1.595 over 4ft.
90% across	2.5 in ☑ cm ☐	1.53 ft/sec ☑ m/sec ☐	2.615

Estimated Flow 48.32 ft³/sec ☑ m³/sec ☐ *Q (ft³/sec) = (0.2*W*D₁₀/12*V₁₀) + (0.6*W*D₅₀/12*V₅₀) + (0.2*W*D₉₀/12*V₉₀)*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli* or Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ✓

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: minimal trash. plastics. food waste.

Number/Location of Encampments Observed: None.

Other Impacts caused by Homelessness: N/A.

sample at 8:20

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Downstream

Site ID: MBB-2

Date: 11 / 18 / 21

Time (24-hr clock): 8:40

Sampling Team: NJ / RK.

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	824	824	823	824
Dissolved Oxygen: (mg/L)	8.6	8.6	8.6	8.6
pH:	8	8.04	8.04	8.03
Turbidity: (NTU)	1.06	1.33	1.69	1.4
Temp (water): (°C)	20.7	20.7	20.7	20.7
Other:				

Flow Connectivity (Y) N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)		Velocity (*V*)		Comments
10% across	3	in ☑ cm ☐	1.97	ft/sec ☑ m/sec ☐	2.035
50% across	4.5	in ☑ cm ☐	2.14	ft/sec ☑ m/sec ☐	1.875
90% across	12	in ☑ cm ☐	3.36	ft/sec ☑ m/sec ☐	1.195

Estimated Flow 31.3 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli* or Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None

Types of Trash and Litter Found: backpacks. plastic. cardboard. blankets

Number/Location of Encampments Observed: 3-5 downstream from monitoring location. over 10 upstream. before VBB

Other Impacts caused by Homelessness: burnt area. upstream

sample at 9:00

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Upstream

Site ID: MBB-1

Date: 11 / 18 / 21

Time (24-hr clock): 9:25

Sampling Team: NJ / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	826	826	826	826.
Dissolved Oxygen: (mg/L)	8.36	8.36	8.36	8.36
pH:	7.94	8	8	7.98
Turbidity: (NTU)	0.85	0.64	0.87	0.8
Temp (water): (°C)	21.8	21.8	21.9	21.8
Other:				

Flow Connectivity ☒ Y/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 15 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	2 in ☑ cm ☐	2.17 ft/sec ☑ m/sec ☐	1.84 s
50% across	4 in ☑ cm ☐	2.37 ft/sec ☑ m/sec ☐	1.69 s over 4ft.
90% across	9 in ☑ cm ☐	2.56 ft/sec ☑ m/sec ☐	1.56 s

Estimated Flow 23.26 ft³/sec ☑ m³/sec ☐ *Q (ft³/sec) = (0.2*W*D₁₀/12*V₁₀) + (0.6*W*D₅₀/12*V₅₀) + (0.2*W*D₉₀/12*V₉₀)*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None.

Types of Trash and Litter Found: plastics. clothing. blankets. metals.

Number/Location of Encampments Observed: around 6. downstream along river.

Other Impacts caused by Homelessness: N/A

Sample at 9:30

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Downstream

Site ID: MSB-2

Date: 11 / 18 / 21

Time (24-hr clock): 10:00

Sampling Team: RK / NJ

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	819	819	819	819
Dissolved Oxygen: (mg/L)	8.32	8.32	8.32	8.32
pH:	7.77	7.79	7.77	7.78
Turbidity: (NTU)	0.17	0.17	0.16	0.17
Temp (water): (°C)	22.5	22.5	22.5	22.5
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	6 in ☑ cm ☐	1.49 ft/sec ☑ m/sec ☐	2.68 s
50% across	9.5 in ☑ cm ☐	2.21 ft/sec ☑ m/sec ☐	1.81 s over 4ft
90% across	4 in ☑ cm ☐	1.25 ft/sec ☑ m/sec ☐	3.19 s

Estimated Flow 3206 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci:** ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None

Types of Trash and Litter Found: bottles & cans, cardboard, plastic

Number/Location of Encampments Observed: 4 camps under bridge by monitoring location

Other Impacts caused by Homelessness: N/A

sample at 10:05

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Upstream

Site ID: MSB-1

Date: 11 / 18 / 21

Time (24-hr clock): 10:35.

Sampling Team: NJ / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	822	822	822	822.
Dissolved Oxygen: (mg/L)	8.3	8.3	8.3	8.3
pH:	7.72	7.7	7.69	7.7
Turbidity: (NTU)	0.29	0.34	0.38.	0.30
Temp (water): (°C)	23.9	23.9	23.9	23.9
Other:				

Flow Connectivity ☒ Y/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	5 in ☑ cm ☐	1.91 ft/sec ☑ m/sec ☐	2.095
50% across	12 in ☑ cm ☐	3.2 ft/sec ☑ m/sec ☐	1.265 } over 4ft.
90% across	6.5 in ☑ cm ☐	0.87 ft/sec ☑ m/sec ☐	4.625

Estimated Flow 54 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: None

Types of Trash and Litter Found: minimal bottles. plastics..

Number/Location of Encampments Observed: None.

Other Impacts caused by Homelessness: N/A dog footprints around

sample at 10:45

Appendix A-4, January 6, 2022

Field Data Sheets

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Downstream

Site ID: VBB-2

Date: 1 / 6 / 22

Time (24-hr clock): 7:00

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	1030	1030	1031	1030
Dissolved Oxygen: (mg/L)	9.25	9.25	9.25	9.25
pH:	8.10	8.16	8.10	8.10
Turbidity: (NTU)	2.27	2.07	2.27	2.20
Temp (water): (°C)	13.7	13.7	13.7	13.7
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 30 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	10.5 in ☑ cm ☐	1.86 ft/sec ☑ m/sec ☐	4/2.15
50% across	9.5 in ☑ cm ☐	2.15 ft/sec ☑ m/sec ☐	4/1.84
90% across	9.5 in ☑ cm ☐	2.52 ft/sec ☑ m/sec ☐	4/1.59

Estimated Flow 52.4 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci:** ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: clear

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: plastics, food waste, styro foam

Number/Location of Encampments Observed: 2 tents South

Other Impacts caused by Homelessness: small burn areas; smells like fire

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Van Buren Boulevard - Upstream

Site ID: VBB-1

Date: 1 / 6 / 22

Time (24-hr clock): 8:00

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	943	942	942	942
Dissolved Oxygen: (mg/L)	8.32	8.31	8.31	8.31
pH:	7.84	7.84	7.84	7.84
Turbidity: (NTU)	2.09	1.83	1.92	1.9
Temp (water): (°C)	14.0	14.0	14.0	14.0
Other:				

Flow Connectivity ☑ Y/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 50 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	7.25 in ☑ cm ☐	1.97 ft/sec ☑ m/sec ☐	4/2.03
50% across	8 in ☑ cm ☐	2.86 ft/sec ☑ m/sec ☐	4/1.40
90% across	5.5 in ☑ cm ☐	2.09 ft/sec ☑ m/sec ☐	4/1.91

Estimated Flow 78.68 ft^3/sec ☑ m^3/sec ☐ *Q (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$*

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks _____

Site Observations:

Weather: Clear Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: food waste, plastics, clothing

Number/Location of Encampments Observed: none

Other Impacts caused by Homelessness: trash

Evidence of pig tracks @ site.

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Downstream

Site ID: MBB-2

Date: 1 / 6 / 22

Time (24-hr clock): 9:00

Sampling Team: MR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	818	818	817	818
Dissolved Oxygen: (mg/L)	8.41	8.40	8.40	8.40
pH:	7.99	7.99	7.99	7.99
Turbidity: (NTU)	7.71	7.99	7.88	7.9
Temp (water): (°C)	16.5	16.4	16.4	16.4
Other:				

Flow Connectivity ☑ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	7.75 in ☑ cm ☐	1.91 ft/sec ☑ m/sec ☐	4 / 2.09
50% across	4 in ☑ cm ☐	2.56 ft/sec ☑ m/sec ☐	4 / 1.56
90% across	4.25 in ☑ cm ☐	1.56 ft/sec ☑ m/sec ☐	4 / 2.56

Estimated Flow 21.73 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli* or Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides***: ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: Plastics, wrappers, clothes, food waste

Number/Location of Encampments Observed: 5 on levy; 15-20 between WWMission and MBB-2

Other Impacts caused by Homelessness: trash; dogs along waterbody & cats.

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Mission Boulevard Bridge - Upstream

Site ID: MBB-1

Date: 1 / 6 / 22

Time (24-hr clock): 9:45

Sampling Team: AP / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	837	837	837	837
Dissolved Oxygen: (mg/L)	8.35	8.34	8.34	8.34
pH:	8.06	8.06	8.06	8.06
Turbidity: (NTU)	2.79	2.71	2.68	2.7
Temp (water): (°C)	18.1	18.1	18.1	18.1
Other:				

Flow Connectivity ☒ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 35 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	3.25 in ☑ cm ☐	1.44 ft/sec ☑ m/sec ☐	4 / 2.78
50% across	1.25 in ☑ cm ☐	1.04 ft/sec ☑ m/sec ☐	4 / 8.82
90% across	4.25 in ☑ cm ☐	1.58 ft/sec ☑ m/sec ☐	4 / 2.53

Estimated Flow 8.92 ft^3/sec ☑ m^3/sec ☐ *Q* (ft^3/sec) = $(0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: plastics, clothing, food waste

Number/Location of Encampments Observed: 4 downstream

Other Impacts caused by Homelessness: trash, dogs along river

dredging occuring downstream

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Downstream

Site ID: MSB-2

Date: 1 /6 /22

Time (24-hr clock): 10:15

Sampling Team: AR /

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	828	828	828	828
Dissolved Oxygen: (mg/L)	8.65	8.65	8.65	8.65
pH:	8.31	8.31	8.31	8.31
Turbidity: (NTU)	3.05	2.99	3.01	3.02
Temp (water): (°C)	19.9	19.9	19.9	19.9
Other:				

Flow Connectivity ☑ Y N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	8.75 in ☑ cm ☐	3.57 ft/sec ☑ m/sec ☐	4/1.12
50% across	5.25 in ☑ cm ☐	2.12 ft/sec ☑ m/sec ☐	4/1.89
90% across	3.25 in ☑ cm ☐	.90 ft/sec ☑ m/sec ☐	4/4.45

Estimated Flow 28.15 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ..... ✓

1 – 1,000 mL polyethylene bottle for **TSS**: ..... ✓

1 – 1,000 mL polyethylene bottle for ***Bacteroides:*** ..... ✓

Additional bottle sets are included for field duplicates and trip blanks ..... ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: plastics, bottles, tires

Number/Location of Encampments Observed: 3-4 adjacent to site

Other Impacts caused by Homelessness: trash, burn areas due to camp fires; dogs living in nearby encampment.

Santa Ana River Watershed Homelessness Monitoring Program - Field Data Sheet

General Information:

Site Name: Market Street Bridge - Upstream

Site ID: MSB-1

Date: 1 / 6 / 21

Time (24-hr clock): 10:45

Sampling Team: AR / RK

Field Measurements: *(average of three readings)*

	Reading #1	Reading #2	Reading #3	Average
Conductivity: mS/cm ☐ µS/cm ☑	829	828	828	828
Dissolved Oxygen: (mg/L)	8.44	8.43	8.43	8.43
pH:	8.21	8.21	8.21	8.21
Turbidity: (NTU)	2.21	1.9	1.89	2.00
Temp (water): (°C)	21.3	21.3	21.3	21.3
Other:				

Flow Connectivity (Y)/N (Describe) Receiving Water Body

Flow measurements *(check boxes for units of measure)*:

Total Section Width (*W*): 25 feet ☑ meters ☐

Cross-section:	Depth (*D*)	Velocity (*V*)	Comments
10% across	7.25 in ☑ cm ☐	2 ft/sec ☑ m/sec ☐	4/2.00
50% across	8.25 in ☑ cm ☐	1.85 ft/sec ☑ m/sec ☐	4/2.16
90% across	6.75 in ☑ cm ☐	1.89 ft/sec ☑ m/sec ☐	4/2.12

Estimated Flow 30.4 ft^3/sec ☑ m^3/sec ☐ $Q\ (ft^3/sec) = (0.2*W*D_{10}/12*V_{10}) + (0.6*W*D_{50}/12*V_{50}) + (0.2*W*D_{90}/12*V_{90})$

Grab Sampling: Filled and labeled *(check if applicable)*

1 – 100 mL or 125 mL polyethylene bottle (w/ $NaSO_4$ preservative) for ***E. coli*** *or* **Enterococci**: ✓

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

1 – 1,000 mL polyethylene bottle for ***Bacteroides***: ✓

Additional bottle sets are included for field duplicates and trip blanks ____

Site Observations:

Weather: Sunny

Visual Evidence of REC-1 Activity: none

Types of Trash and Litter Found: plastics, clothes, food waste

Number/Location of Encampments Observed: 1 observed downstream

Other Impacts caused by Homelessness: trash

Appendix B – Photograph Logs

B-1: September 21, 2021

B-2: October 21, 2021

B-3: November 18, 2021

B-4: January 6, 2022

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Appendix B-1, September 21, 2021

Photograph Log

Photo: 1 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** Upstream view from VBB-2	

Photo: 2 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** Downstream view from VBB-2	

Photo: 3 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** View of western bank at VBB-2, and evidence of a former encampment and campfire activity	

Photo: 4 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** View of eastern bank at VBB-2, and scattered trash throughout the riparian vegetation	

Photo: 5 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** View of the different types of trash collected during the rapid trash assessment at VBB-2	

Photo: 6 **Location ID:** VBB-2 **Date:** 09/21/2021 **Description:** View of the total amount of trash collected during the rapid trash assessment	

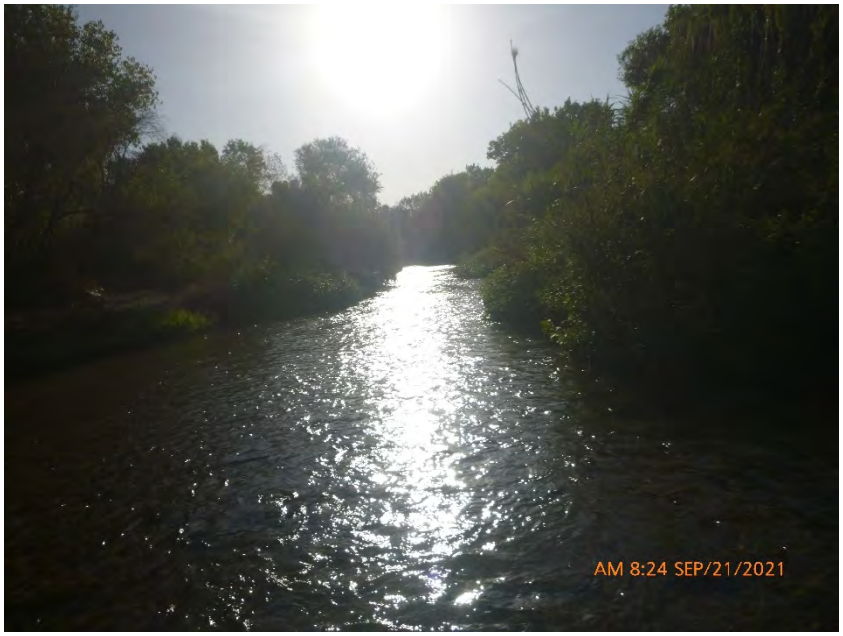
Photo: 7 **Location ID:** VBB-1 **Date:** 09/21/2021 **Description:** Upstream view from VBB-1	

Photo: 8 **Location ID:** VBB-1 **Date:** 09/21/2021 **Description:** Downstream view from VBB-1	

Photo: 9 **Location ID:** VBB-1 **Date:** 09/21/2021 **Description:** View of the eastern bank at VBB-1	

Photo: 10 **Location ID:** VBB-1 **Date:** 09/21/2021 **Description:** View of scattered debris along the eastern bank at VBB-1	

Photo: 11 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** View of an encampment fire upstream of MBB-2	

Photo: 12 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** View of an encampment along the western bank at MBB-2	

Photo: 13 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** Upstream view from MBB-2	

Photo: 14 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** Downstream view from MBB-2	

Photo: 15 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** View of the types of trash found during the rapid trash assessment along the eastern bank at MBB-2	

Photo: 16 **Location ID:** MBB-2 **Date:** 09/21/2021 **Description:** View of the types of trash found during the rapid trash assessment along the western bank at MBB-2	

Photo: 17 **Location ID:** MBB-1 **Date:** 09/21/2021 **Description:** Upstream view from MBB-1	

Photo: 18 **Location ID:** MBB-1 **Date:** 09/21/2021 **Description:** Downstream view from MBB-1	

Photo: 19 **Location ID:** MBB-1 **Date:** 09/21/2021 **Description:** View of scattered debris along the eastern bank at MBB-1	

Photo: 20 **Location ID:** MBB-1 **Date:** 09/21/2021 **Description:** View of scattered debris along the western bank at MBB-1	

Photo: 21 **Location ID:** MSB-2 **Date:** 09/21/2021 **Description:** Upstream view from MSB-2	

Photo: 22 **Location ID:** MSB-2 **Date:** 09/21/2021 **Description:** Downstream view from MSB-2	

Photo: 23 **Location ID:** MSB-2 **Date:** 09/21/2021 **Description:** View of scattered trash and debris along the western bank at MSB-2	

Photo: 24 **Location ID:** MSB-2 **Date:** 09/21/2021 **Description:** View of the types of trash and debris collected during the rapid trash assessment at MSB-2	

Photo: 25 **Location ID:** MSB-2 **Date:** 09/21/2021 **Description:** View of the procedure to weigh trash for the rapid trash assessment at MSB-2.	

Photo: 26 **Location ID:** MSB-1 **Date:** 09/21/2021 **Description:** Downstream view from MSB-1 and the procedure to delineate a 100-ft stretch for the rapid trash assessment	

Photo: 27 **Location ID:** MSB-1 **Date:** 09/21/2021 **Description:** Upstream view from MSB-1	

Photo: 28 **Location ID:** MSB-1 **Date:** 09/21/2021 **Description:** View of the types of debris and litter found at MSB-1	

Appendix B-2, October 21, 2021

Photograph Log

Photo: 1 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** Upstream view from VBB-2	

Photo: 2 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** Downstream view from VBB-2	

Photo: 3 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** View of western bank at VBB-2, and evidence of former campfire activity	

Photo: 4 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** View of an individual experiencing homelessness crossing the river at VBB-2	

Photo: 5 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** View of scattered trash found along the eastern bank at VBB-2	

Photo: 6 **Location ID:** VBB-2 **Date:** 10/21/2021 **Description:** View of scattered trash found along the western bank at VBB-2	

Photo: 7 **Location ID:** VBB-1 **Date:** 10/21/2021 **Description:** Upstream view from VBB-1	

Photo: 8 **Location ID:** VBB-1 **Date:** 10/21/2021 **Description:** Downstream view from VBB-1	

Photo: 9 **Location ID:** VBB-1 **Date:** 10/21/2021 **Description:** View of the eastern bank at VBB-1	

Photo: 10 **Location ID:** VBB-1 **Date:** 10/21/2021 **Description:** View of scattered debris along the eastern bank at VBB-1	

Photo: 11 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** View of scattered trash and debris found along the western bank at VBB-1	

Photo: 12 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** Upstream view from MBB-2	

Photo: 13 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** Downstream view from MBB-2	

Photo: 14 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** View of scattered trash and debris along the western bank at MBB-2	

Photo: 15 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** View of scattered trash and debris along the eastern bank at MBB-2	

Photo: 16 **Location ID:** MBB-2 **Date:** 10/21/2021 **Description:** View of large objects found during the rapid trash assessment at MBB-2	

Photo: 17 **Location ID:** MBB-1 **Date:** 10/21/2021 **Description:** View of encampments just downstream of MBB-1	

Photo: 18 **Location ID:** MBB-1 **Date:** 10/21/2021 **Description:** Upstream view from MBB-1	

Photo: 19 **Location ID:** MBB-1 **Date:** 10/21/2021 **Description:** Downstream view from MBB-1 and view of REC-1 activity	

Photo: 20 **Location ID:** MBB-1 **Date:** 10/21/2021 **Description:** View of scattered debris, trash, and dumped items along the eastern bank at MBB-1	

Photo: 21 **Location ID:** MBB-1 **Date:** 10/21/2021 **Description:** View of the types of trash and debris collected during the rapid trash assessment at MBB-1	

Photo: 22 **Location ID:** MSB-2 **Date:** 10/21/2021 **Description:** Upstream view from MSB-2	

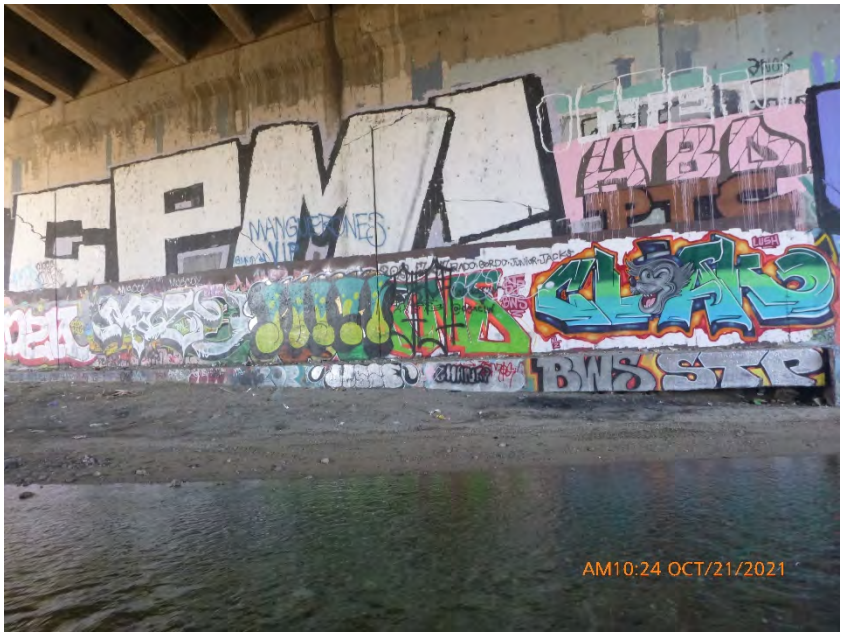
Photo: 23 **Location ID:** MSB-2 **Date:** 10/21/2021 **Description:** View of the western bank at MSB-2	

Photo: 24 **Location ID:** MSB-2 **Date:** 10/21/2021 **Description:** View of the eastern bank at MSB-2	

Photo: 25 **Location ID:** MSB-2 **Date:** 10/21/2021 **Description:** Downstream view from MSB-2 and view of a person experiencing homelessness with their dog	

Photo: 26 **Location ID:** MSB-2 **Date:** 10/21/2021 **Description:** View of another dog at MSB-2	

Photo: 27 **Location ID:** MSB-1 **Date:** 10/21/2021 **Description:** Upstream view from MSB-1	

Photo: 28 **Location ID:** MSB-1 **Date:** 10/21/2021 **Description:** Downstream view from MSB-1	

Appendix B-3, November 18, 2021

Photograph Log

Photo: 1 **Location ID:** VBB-2 **Date:** 11/18/2021 **Description:** View of VBB-2 looking towards the eastern bank	

Photo: 2 **Location ID:** VBB-2 **Date:** 11/18/2021 **Description:** Downstream view from VBB-2	

Photo: 3 **Location ID:** VBB-2 **Date:** 11/18/2021 **Description:** View of western bank at VBB-2	

Photo: 4 **Location ID:** VBB-2 **Date:** 11/18/2021 **Description:** View of fecal matter found along the western bank at VBB-2	

Photo: 5 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** View of new encampments upstream of the SoCalGas Project, near WW-S1	

Photo: 6 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** View of new encampments near WW-S1	

Photo: 7 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** Upstream view from VBB-1	

Photo: 8 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** Downstream view from VBB-1	

Photo: 9 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** View of the eastern bank at VBB-1	

Photo: 10 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** View of the relatively trash-free eastern bank at VBB-1	

Photo: 11 **Location ID:** VBB-1 **Date:** 11/18/2021 **Description:** View of fecal matter found at VBB-1 along the eastern bank	

Photo: 12 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** Upstream view from MBB-2	

Photo: 13 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** Downstream view from MBB-2	

Photo: 14 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** View of scattered trash and debris along the western bank at MBB-2	

Photo: 15 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** View of scattered trash and debris embedded in riparian vegetation along the eastern bank at MBB-2	

Photo: 16 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** View of encampments just upstream of MBB-2	

Photo: 17 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** View of wildfire impacts, just upstream of MBB-2	

Photo: 18 **Location ID:** MBB-2 **Date:** 11/18/2021 **Description:** View of encampments just upstream of MBB-2, along the western bank	

Photo: 19 **Location ID:** MBB-1 **Date:** 11/18/2021 **Description:** View of illegally dumped items along the rip rap and pathway to MBB-1	

Photo: 20 **Location ID:** MBB-1 **Date:** 11/18/2021 **Description:** Upstream view from MBB-1	

Photo: 21 **Location ID:** MBB-1 **Date:** 11/18/2021 **Description:** Downstream view from MBB-1	

Photo: 22 **Location ID:** MBB-1 **Date:** 11/18/2021 **Description:** View of trash embedded in the river's substrate at MBB-1	

Photo: 23 **Location ID:** MSB-2 **Date:** 11/18/2021 **Description:** Upstream view from MSB-2	

Photo: 24 **Location ID:** MSB-2 **Date:** 11/18/2021 **Description:** View of encampments near MSB-2	

Photo: 25 **Location ID:** MSB-2 **Date:** 11/18/2021 **Description:** View of dog tracks at MSB-2	

Photo: 26 **Location ID:** MSB-2 **Date:** 11/18/2021 **Description:** View of a former campfire along the western bank at MSB-2	

Photo: 27 **Location ID:** MSB-1 **Date:** 11/18/2021 **Description:** Upstream view from MSB-1	

Photo: 28 **Location ID:** MSB-1 **Date:** 11/18/2021 **Description:** Downstream view from MSB-1	

Appendix B-4, January 6, 2022

Photograph Log

Photo: 1 **Location ID:** VBB-2 **Date:** 01/06/2022 **Description:** Upstream view of VBB-2	

Photo: 2 **Location ID:** VBB-2 **Date:** 01/06/2022 **Description:** View of VBB-2 looking towards the eastern bank	

Photo: 3 **Location ID:** VBB-2 **Date:** 01/06/2022 **Description:** View of western bank at VBB-2	

Photo: 4 **Location ID:** VBB-2 **Date:** 01/06/2022 **Description:** View of a new encampment upstream of VBB-2	

Photo: 5 **Location ID:** VBB-1 **Date:** 01/06/2022 **Description:** Upstream view from VBB-1	

Photo: 6 **Location ID:** VBB-1 **Date:** 01/06/2022 **Description:** View of eastern bank at VBB-1	

Photo: 7 **Location ID:** VBB-1 **Date:** 01/06/2022 **Description:** Downstream view from VBB-1	

Photo: 8 **Location ID:** VBB-1 **Date:** 01/06/2022 **Description:** View of trash embedded in riparian vegetation along the eastern bank of VBB-1	

Photo: 9 **Location ID:** VBB-1 **Date:** 01/06/2022 **Description:** View of a feral pig track at VBB-1	

Photo: 10 **Location ID:** MBB-2 **Date:** 01/06/2022 **Description:** View of active encampment activity and new encampments on RCFC&WCD right-of-way	

Photo: 11 **Location ID:** MBB-2 **Date:** 01/06/2022 **Description:** Upstream view from MBB-2	

Photo: 12 **Location ID:** MBB-2 **Date:** 01/06/2022 **Description:** Downstream view from MBB-2	

Photo: 13 **Location ID:** MBB-2 **Date:** 01/06/2022 **Description:** View of litter and debris embedded in riparian vegetation along the western bank of MBB-2	

Photo: 14 **Location ID:** MBB-2 **Date:** 01/06/2022 **Description:** View of scattered trash and debris along the eastern bank at MBB-2	

Photo: 15 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** View of a new encampment just downstream of MBB-1	

Photo: 16 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** Upstream view from MBB-1	

Photo: 17 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** View of western bank at MBB-1	

Photo: 18 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** Downstream view from MBB-1	

Photo: 19 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** View of trash embedded in riparian vegetation along the eastern bank at MBB-1	

Photo: 20 **Location ID:** MBB-1 **Date:** 01/06/2022 **Description:** View of dredging activity downstream of MBB-1	

Photo: 21 **Location ID:** MSB-2 **Date:** 01/06/2022 **Description:** Upstream view from MSB-2	

Photo: 22 **Location ID:** MSB-2 **Date:** 01/06/2022 **Description:** Downstream view from MSB-2	

Photo: 23 **Location ID:** MSB-2 **Date:** 01/06/2022 **Description:** View of the relatively clean eastern bank at MSB-2	

Photo: 24 **Location ID:** MSB-2 **Date:** 01/06/2022 **Description:** View of an area that no longer has encampments; encampments moved to the top of the levee due to recent storms and flooding	

Photo: 25 **Location ID:** MSB-1 **Date:** 01/06/2022 **Description:** Upstream view from MSB-1 and a new encampment on the western bank	

Photo: 26 **Location ID:** MSB-1 **Date:** 01/06/2022 **Description:** View of trash embedded in riparian vegetation along the western bank at MSB-1	

Photo: 27 **Location ID:** MSB-1 **Date:** 01/06/2022 **Description:** View of trash embedded in riparian vegetation along the eastern bank at MSB-1	

Photo: 28 **Location ID:** MSB-1 **Date:** 01/06/2022 **Description:** Downstream view from MSB-1	

Appendix C – Rapid Trash Assessment Data

C-1: September 21, 2021

C-2: October 21, 2021

C-3: November 18, 2021

C-4: January 6, 2022

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Appendix C-1, September 21, 2021

Rapid Trash Assessment Data

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 9/21/2021 7:20
MONITORING GROUP, STAFF: NJ / RK SAMPLE ID NO. 20210921VBB-2
SITE DESCRIPTION (Station Name, No., etc.): VBB-2.

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 37 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.963853, -117.465433

HIGH WATER LINE: ~10 ft off shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

17.1+8.6 = 25.7 lbs

1 full bag of trash and a camping chair.

~42 gal of trash (158 L)

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	III	Aluminum Foil	
Plastic Bottles	卌	Aluminum or Steel Cans	I
Plastic Bottle Caps	IIII	Bottle Caps	卌 卌
Plastic Cup Lid/Straw	II	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 卌 II	Metal Object	III
Soft Plastic Pieces	卌 卌 卌 II	**LARGE (specify below)**	
Hard Plastic Pieces	III	Appliances	
Styrofoam cups pieces		Furniture	I
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	I	Chemical Containers	I
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	I
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar	I	**BIODEGRADABLE**	
Bricks		Paper	卌 卌 卌
Wood Debris	I	Cardboard	
Other (write-in)		Food Waste	卌 III
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	卌 卌 卌 卌 IIII
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	卌
Other (write-in)		Natural Fabric (cotton, wool)	II
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 9/21/2021
MONITORING GROUP, STAFF: NJ / RIC SAMPLE ID NO. 20210921VBB-1
SITE DESCRIPTION (Station Name, No., etc.): VBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 (2) 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 44 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.968298, -117.434863

HIGH WATER LINE: ~10 feet from Shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

13.4 lbs. about 1/3 of a full trash bag

~28 gallons of trash (~105.3 L)

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	II	Aluminum Foil	III
Plastic Bottles	IIII	Aluminum or Steel Cans	II
Plastic Bottle Caps	卌 IIII	Bottle Caps	卌 卌 II
Plastic Cup Lid/Straw	卌 IIII	Metal Pipe Segments	I
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings	I	Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 卌 IIII	Metal Object	
Soft Plastic Pieces	卌 卌 卌 III	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	卌 卌	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	卌 I	Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	II
Dead Animals		Lighters	I
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts III
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	卌 III
Wood Debris	I	Cardboard	II
Other (write-in)		Food Waste	卌 卌 卌 卌 卌 卌 卌
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	卌
Hose Pieces		Glass pieces	卌 卌
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	III
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River . DATE/TIME: 9/21/2021 . 8:50-
MONITORING GROUP, STAFF: RK / NJ SAMPLE ID NO. 20200921MBB-2
SITE DESCRIPTION (Station Name, No., etc.): MBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 44 - Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.988286, -117.396920

HIGH WATER LINE: ~10 ft from Shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

35.4 lbs. 2/3 of a full bag.

~28 gallons of trash (105.3 L)

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC	**METAL**
Plastic Bags 𝍸 |	Aluminum Foil |
Plastic Bottles 𝍸 |	Aluminum or Steel Cans ||
Plastic Bottle Caps 𝍸 |	Bottle Caps
Plastic Cup Lid/Straw |||	Metal Pipe Segments |
Plastic Pipe Segments	Auto Parts (specify below) |||
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper 𝍸 𝍸 𝍸 |||	Metal Object |
Soft Plastic Pieces 𝍸 |||	**LARGE (specify below)**
Hard Plastic Pieces	Appliances
Styrofoam cups pieces 𝍸 𝍸 |	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD	**TOXIC**
Human Waste/Diapers |	Chemical Containers |
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans ||
Dead Animals	Lighters
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS	Vehicle Batteries Cigarette Butts ||
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE**
Bricks	Paper
Wood Debris	Cardboard 𝍸 |
Other (write-in)	Food Waste 𝍸 𝍸 ||
MISCELLANEOUS	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons	**GLASS**
Ceramic pots/shards	Glass bottles ||||
Hose Pieces	Glass pieces ||
Golf Balls	**FABRIC AND CLOTH**
Tennis Balls	Synthetic Fabric 𝍸 𝍸 𝍸 |||
Other (write-in)	Natural Fabric (cotton, wool)
Other (write-in)	Other (write-in) 6 shoes

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 9/21/2021. 9:40-
MONITORING GROUP, STAFF: RK / NJ SAMPLE ID NO. 20210921 MBB-1
SITE DESCRIPTION (Station Name, No., etc.): MBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 54 - Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.994278, -117.358737

HIGH WATER LINE: ~10 feet from Shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

27.9 lbs. about ½ of a full trash bag.

~21 gallons of trash (79 liters)

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC	**METAL**
Plastic Bags |||	Aluminum Foil
Plastic Bottles 卌 卌	Aluminum or Steel Cans ||||
Plastic Bottle Caps ||	Bottle Caps
Plastic Cup Lid/Straw |||	Metal Pipe Segments
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper 卌 || •	Metal Object ||
Soft Plastic Pieces 卌 |	**LARGE (specify below)**
Hard Plastic Pieces ||	Appliances
Styrofoam cups pieces ||	Furniture
Styrofoam Pellets ||	Garbage Bags of Trash
Fishing Line |	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD	**TOXIC**
Human Waste/Diapers |	Chemical Containers ||
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans
Dead Animals	Lighters ||
Other (write-in)	Small Batteries |
CONSTRUCTION DEBRIS	Vehicle Batteries Cigarette Butts
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE**
Bricks	Paper ||||
Wood Debris	Cardboard ||||
Other (write-in)	Food Waste 卌 卌 ||
MISCELLANEOUS	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons ||	**GLASS**
Ceramic pots/shards	Glass bottles |||
Hose Pieces	Glass pieces ||||
Golf Balls	**FABRIC AND CLOTH**
Tennis Balls	Synthetic Fabric 卌 卌 卌 卌
Other (write-in)	Natural Fabric (cotton, wool) |
Other (write-in)	Other (write-in) 3 shoes

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 9/21/2021 . 10:20 .
MONITORING GROUP, STAFF: NJ / RK SAMPLE ID NO. 20210921MSB-2
SITE DESCRIPTION (Station Name, No., etc.): MSB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 26 - Poor

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.003759, -117.353668

HIGH WATER LINE: ~10 feet from shoreline

UPPER EXTENT OF BANKS OR SHORE: NA

NOTES:

16.5 lbs. ½ a trash bag

~21 gallons of trash (79 liters)

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC	**METAL**
Plastic Bags	Aluminum Foil
Plastic Bottles 𝍸 III	Aluminum or Steel Cans IIII
Plastic Bottle Caps III	Bottle Caps I
Plastic Cup Lid/Straw III	Metal Pipe Segments I
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper 𝍸 𝍸 III	Metal Object II
Soft Plastic Pieces 𝍸 𝍸 II	**LARGE (specify below)**
Hard Plastic Pieces	Appliances
Styrofoam cups pieces 𝍸 I	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD	**TOXIC**
Human Waste/Diapers	Chemical Containers I
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans 𝍸 𝍸
Dead Animals	Lighters II
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS	Vehicle Batteries Cigarette Butts I
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE**
Bricks	Paper 𝍸 III
Wood Debris I	Cardboard 𝍸 𝍸 𝍸 𝍸 I
Other (write-in)	Food Waste 𝍸 𝍸 IIII
MISCELLANEOUS	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons I	**GLASS**
Ceramic pots/shards	Glass bottles 𝍸 𝍸 𝍸 I
Hose Pieces	Glass pieces 𝍸 III
Golf Balls	**FABRIC AND CLOTH**
Tennis Balls	Synthetic Fabric IIII
Other (write-in)	Natural Fabric (cotton, wool) •
Other (write-in)	Other (write-in) 2 shoes

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 9/21/2021 11:10.
MONITORING GROUP, STAFF: NJ IRK SAMPLE ID NO. 20210921 MSB-1
SITE DESCRIPTION (Station Name, No., etc.): MSB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 70 - suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.012225, -117.373937

HIGH WATER LINE: ~10 feet from shoreline

UPPER EXTENT OF BANKS OR SHORE:

NOTES:

9.7 lbs of trash (1/4 of trash bag)

~ 10.5 gallons of trash (39.5 Liters of trash

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC	**METAL**
Plastic Bags |	Aluminum Foil
Plastic Bottles ||	Aluminum or Steel Cans ||
Plastic Bottle Caps ~~||||~~	Bottle Caps
Plastic Cup Lid/Straw |	Metal Pipe Segments
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper ||	Metal Object
Soft Plastic Pieces |||	**LARGE (specify below)**
Hard Plastic Pieces	Appliances
Styrofoam cups pieces ||	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD	**TOXIC**
Human Waste/Diapers	Chemical Containers
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans
Dead Animals	Lighters
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS	Vehicle Batteries Cigarette Butts
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE**
Bricks	Paper ||||
Wood Debris	Cardboard ~~||||~~ ||
Other (write-in)	Food Waste |||
MISCELLANEOUS	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons |	**GLASS**
Ceramic pots/shards	Glass bottles |||
Hose Pieces	Glass pieces ||
Golf Balls	**FABRIC AND CLOTH**
Tennis Balls	Synthetic Fabric |
Other (write-in)	Natural Fabric (cotton, wool)
Other (write-in)	Other (write-in) 2 Shoes

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

Appendix C-2, October 21, 2021

Rapid Trash Assessment Data

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 10/21/21 7:15
MONITORING GROUP, STAFF: AR / RK SAMPLE ID NO. 20210821 VBB-2
SITE DESCRIPTION (Station Name, No., etc.): VBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 44 - Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.963253, -117.465433

HIGH WATER LINE: 10 feet from Shoreline.

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

16.5 + 20 = 36.5 lbs of trash

42 gallons of trash

158 L

VBB-2

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	||||	Aluminum Foil	|||
Plastic Bottles	||	Aluminum or Steel Cans	卌 ||||
Plastic Bottle Caps	||	Bottle Caps	|||
Plastic Cup Lid/Straw	||||	Metal Pipe Segments	||
Plastic Pipe Segments	|||	Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 |||	Metal Object	|||
Soft Plastic Pieces	卌 卌 ||	**LARGE (specify below)**	
Hard Plastic Pieces	||	Appliances	
Styrofoam cups pieces		Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	|
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	|	Chemical Containers	|
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes	|	Spray Paint Cans	||
Dead Animals		Lighters	|||
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts 卌
Concrete (not placed)		Other (write-in)	
Rebar	|	**BIODEGRADABLE**	
Bricks		Paper	卌 ||
Wood Debris	|	Cardboard	||||
Other (write-in)		Food Waste	卌 卌 ||||
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	卌	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons	||	**GLASS**	
Ceramic pots/shards		Glass bottles	卌 |||
Hose Pieces		Glass pieces	||
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	|||
Other (write-in) ~~tire~~		Natural Fabric (cotton, wool)	|
Other (write-in)		Other (write-in) shoes	||

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA River DATE/TIME: 10/21/21 8:00
MONITORING GROUP, STAFF: AR | RK SAMPLE ID NO. 20211021VBB-7
SITE DESCRIPTION (Station Name, No., etc.): VBB-7

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 45 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.963253, -117.465423

HIGH WATER LINE: ~10ft off shoreline

UPPER EXTENT OF BANKS OR SHORE:

NOTES:

13 lbs of trash

42 gals (158 L)

RAPID TRASH ASSESSMENT WORKSHEET

VOB-7

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	I	Aluminum Foil	I
Plastic Bottles	II	Aluminum or Steel Cans	IIII
Plastic Bottle Caps	III	Bottle Caps	II
Plastic Cup Lid/Straw	~~IIII~~	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	~~IIII~~ II	Metal Object	
Soft Plastic Pieces	~~IIII~~ ~~IIII~~	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	II	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp	I	Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	I~~IIII~~ II	Chemical Containers	I
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	I
Dead Animals		Lighters	II
Other (write-in)		Small Batteries	I
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts III
Concrete (not placed)		Other (write-in)	
Rebar	I	**BIODEGRADABLE**	
Bricks		Paper	~~IIII~~ ~~IIII~~
Wood Debris	I	Cardboard	IIII
Other (write-in)		Food Waste	~~IIII~~ III
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	I	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	III
Hose Pieces		Glass pieces	I
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls	I	Synthetic Fabric	II
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	Shoe I

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Sonk River DATE/TIME: 10/21/21 8:45
MONITORING GROUP, STAFF: AR/RK SAMPLE ID NO. 20211021MBB-2
SITE DESCRIPTION (Station Name, No., etc.): MBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 39 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.988286, -117.396920

HIGH WATER LINE: 10 feet from shoreline.

UPPER EXTENT OF BANKS OR SHORE:

NOTES:

36.8 + 10 lb
Total 46.8 lbs

42 gal (158 L) bag

MBB-2

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	卌	Aluminum Foil	
Plastic Bottles	1	Aluminum or Steel Cans	卌
Plastic Bottle Caps		Bottle Caps	1
Plastic Cup Lid/Straw	1111	Metal Pipe Segments	
Plastic Pipe Segments	1	Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 卌	Metal Object	1
Soft Plastic Pieces	卌 1	**LARGE (specify below)**	
Hard Plastic Pieces	1	Appliances	
Styrofoam cups pieces	1•	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	1	Chemical Containers	11
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	1
Dead Animals		Lighters	1
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	卌 卌 11
Wood Debris	1	Cardboard	卌 1
Other (write-in)		Food Waste	卌 卌 卌 卌 111
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	11
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	卌 1111
Other (write-in)		Natural Fabric (cotton, wool)	11
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA River DATE/TIME: 10/21/21 9:30
MONITORING GROUP, STAFF: AR / RK SAMPLE ID NO. 20211021MBB-1
SITE DESCRIPTION (Station Name, No., etc.): MBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 45 → Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.944276, -117.388757

HIGH WATER LINE: 10 feet from shoreline.

UPPER EXTENT OF BANKS OR SHORE:

NOTES:

~~37.5~~ 37.5 lbs

~~30 gal~~ 3/4 of 42 gal bag (31.5 gallons collected)

RAPID TRASH ASSESSMENT WORKSHEET

MBD-1

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	𝍸 |	Aluminum Foil	||
Plastic Bottles	|	Aluminum or Steel Cans	𝍸
Plastic Bottle Caps	||	Bottle Caps	
Plastic Cup Lid/Straw	𝍸	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	||||	Metal Object	|
Soft Plastic Pieces	𝍸	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	|	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	|
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	||
Wood Debris		Cardboard	||
Other (write-in)		Food Waste	𝍸 ||
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	|	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	|||
Hose Pieces	|	Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	𝍸 𝍸 |
Other (write-in)		Natural Fabric (cotton, wool)	|||
Other (write-in)		Other (write-in)	Shoes |||

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA River DATE/TIME: 10/21/21 10:15
MONITORING GROUP, STAFF: AR / RK SAMPLE ID NO. 20211021MSB-2
SITE DESCRIPTION (Station Name, No., etc.): MSB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	~~15~~ 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 29 – Poor

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.003759, -117.383666

HIGH WATER LINE: ~10 feet from shoreline

UPPER EXTENT OF BANKS OR SHORE: —

NOTES:

10.5 lbs

1/2 42 gall bags => 21 gallons of trash or 79 liters

MSB-2

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	111	Aluminum Foil	
Plastic Bottles	1111	Aluminum or Steel Cans	5 11
Plastic Bottle Caps	11	Bottle Caps	
Plastic Cup Lid/Straw	5 1111	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	5 5 111	Metal Object	1111
Soft Plastic Pieces	5 5	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	5 5 1	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	1	Chemical Containers	1
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	5 1
Dead Animals		Lighters	1
Other (write-in)		Small Batteries	1
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts 11
Concrete (not placed)		Other (write-in)	
Rebar	1	**BIODEGRADABLE**	
Bricks		Paper	5 5
Wood Debris	111	Cardboard	5 11
Other (write-in)		Food Waste	5 5 5 11
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	5	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons	5 111	**GLASS**	
Ceramic pots/shards		Glass bottles	5 1111
Hose Pieces		Glass pieces	111
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA River DATE/TIME: 10/21/21 10:45
MONITORING GROUP, STAFF: AK/RK SAMPLE ID NO. 20211021MSB-1
SITE DESCRIPTION (Station Name, No., etc.): MSB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 84 - Suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.012225, -117.373937

HIGH WATER LINE: ~10 feet from shoreline

UPPER EXTENT OF BANKS OR SHORE:

NOTES:

6.5 lbs (1/4 of trash bag)

~11 gallons of trash or 41.6 Liters

MS B-1

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	II	Aluminum Foil	
Plastic Bottles		Aluminum or Steel Cans	
Plastic Bottle Caps		Bottle Caps	
Plastic Cup Lid/Straw		Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper		Metal Object	
Soft Plastic Pieces	~~IIII~~	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces		Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	III
Wood Debris		Cardboard	II
Other (write-in)		Food Waste	IIII
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	II	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons	II	**GLASS**	
Ceramic pots/shards		Glass bottles	
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

Appendix C-3, November 18, 2021

Rapid Trash Assessment Data

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: ~~SA~~ Santa Ana River DATE/TIME: ~~10/~~ 11/18/21 7:10
MONITORING GROUP, STAFF: RK / NJ SAMPLE ID NO. 20211118 VBB-2
SITE DESCRIPTION (Station Name, No., etc.): VBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 34 - Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.963253, -117.465433

HIGH WATER LINE: ~ 10 ft offshore

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

40.6 lbs. 3/4 of 1.42 gal trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	|||	Aluminum Foil	|
Plastic Bottles	||	Aluminum or Steel Cans	||
Plastic Bottle Caps	~~||||~~	Bottle Caps	
Plastic Cup Lid/Straw	||||	Metal Pipe Segments	|
Plastic Pipe Segments		Auto Parts (specify below)	|
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	||||	Metal Object	||
Soft Plastic Pieces	|||	**LARGE (specify below)**	
Hard Plastic Pieces	•	Appliances	
Styrofoam cups pieces	|	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	|	Chemical Containers	|||
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	||
Dead Animals		Lighters	|
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts ~~||||~~ |
Concrete (not placed)		Other (write-in)	
Rebar	|	**BIODEGRADABLE**	
Bricks		Paper	||||
Wood Debris	|	Cardboard	
Other (write-in)		Food Waste	~~||||~~ ~~||||~~
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	|||
Hose Pieces		Glass pieces	||
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	~~||||~~
Other (write-in)		Natural Fabric (cotton, wool)	||
Other (write-in)		Other (write-in)	1 shoe 2 welcome mats

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 11/18/2021 8:10
MONITORING GROUP, STAFF: RKIN SAMPLE ID NO. 20211118 VBB-1
SITE DESCRIPTION (Station Name, No., etc.): VBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 71 - suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.968298. -117.434863

HIGH WATER LINE: 110ft from shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A.

NOTES:

3.3 lbs 1/8 of 1. 42gal trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	|	Aluminum Foil	
Plastic Bottles	|	Aluminum or Steel Cans	|
Plastic Bottle Caps	|||	Bottle Caps	
Plastic Cup Lid/Straw	||	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	||	Metal Object	
Soft Plastic Pieces		**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces		Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	|||	Chemical Containers	|
Pet Waste	|	Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	||
Wood Debris		Cardboard	|
Other (write-in)		Food Waste	~~||||~~
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons	|	**GLASS**	
Ceramic pots/shards		Glass bottles	||
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	|
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 11/18/21 8:40
MONITORING GROUP, STAFF: RK/NJ SAMPLE ID NO. 20211118 MBB-2
SITE DESCRIPTION (Station Name, No., etc.): MBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 40 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.988286, -117.396920

HIGH WATER LINE: ~10 ft from shore

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

33.7 lbs. 3/4 of 1, 42 gal trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	11	Aluminum Foil	
Plastic Bottles	111	Aluminum or Steel Cans	~~1111~~ 1
Plastic Bottle Caps	1	Bottle Caps	
Plastic Cup Lid/Straw	11	Metal Pipe Segments	
Plastic Pipe Segments	1	Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	1111	Metal Object	1
Soft Plastic Pieces	11	**LARGE (specify below)**	
Hard Plastic Pieces	1	Appliances	
Styrofoam cups pieces	11	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp	1	Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	11
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	11
Dead Animals		Lighters	1
Other (write-in)	1 pill bottle	Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	
Concrete (not placed)		Cigarette Butts	111
Rebar		Other (write-in)	
Bricks		**BIODEGRADABLE**	
Wood Debris	1	Paper	1111
Other (write-in)		Cardboard	~~1111~~
MISCELLANEOUS		Food Waste	~~1111~~ 11
Synthetic Rubber	111	Yard Waste (incl. trees)	
Foam Rubber		Leaf Litter Piles	
Balloons		Other (write-in)	
Ceramic pots/shards		**GLASS**	
Hose Pieces		Glass bottles	111
Golf Balls		Glass pieces	~~1111~~ 1
Tennis Balls		**FABRIC AND CLOTH**	
Other (write-in)	2 backpacks	Synthetic Fabric	111
Other (write-in)		Natural Fabric (cotton, wool)	1
		Other (write-in)	2 shoes

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 11/18/21 9:25
MONITORING GROUP, STAFF: RK/NJ SAMPLE ID NO. 20211118 MBB-1
SITE DESCRIPTION (Station Name, No., etc.): MBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 53 -Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.994278 , -117.388737

HIGH WATER LINE: 410 ft from Shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

24.2 lbs 3/4 of 1, 42gal. trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	||	Aluminum Foil	|
Plastic Bottles	||	Aluminum or Steel Cans	||||
Plastic Bottle Caps	||	Bottle Caps	
Plastic Cup Lid/Straw		Metal Pipe Segments	
Plastic Pipe Segments	|	Auto Parts (specify below)	||
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	||||	Metal Object	|
Soft Plastic Pieces	||	**LARGE (specify below)**	
Hard Plastic Pieces	~~||~~	Appliances	
Styrofoam cups pieces	||	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp	|	Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	||
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	
Wood Debris	|	Cardboard	|||
Other (write-in)		Food Waste	~~||||~~ ~~||||~~ |
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber	||	Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	||||
Hose Pieces		Glass pieces	||
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	~~||||~~
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	2 shoes.

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 11/18/21 10:00
MONITORING GROUP, STAFF: NJ RK SAMPLE ID NO. 20211118 MSB-2
SITE DESCRIPTION (Station Name, No., etc.): MSB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 28 - POOR

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.003759, -117.383668

HIGH WATER LINE: ~ 10 ft from shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

35.2 lbs. 1/2 of 1.42 gal trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	I	Aluminum Foil	I
Plastic Bottles	II	Aluminum or Steel Cans	III
Plastic Bottle Caps	I	Bottle Caps	
Plastic Cup Lid/Straw	IIII	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	II
Plastic Six-Pack Rings	II	Wire (barb, chicken wire etc.)	
Plastic Wrapper	~~IIII~~ II	Metal Object	I
Soft Plastic Pieces		**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	~~IIII~~ ~~IIII~~ ~~IIII~~	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes	I	Spray Paint Cans	III
Dead Animals		Lighters	I
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts III
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	II
Wood Debris	II	Cardboard	~~IIII~~ III
Other (write-in)		Food Waste	~~IIII~~ ~~IIII~~
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~
Hose Pieces		Glass pieces	~~IIII~~ ~~IIII~~ ~~IIII~~ II ~~IIII~~
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	I
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 11/18/21 10:35
MONITORING GROUP, STAFF: RK/NJ SAMPLE ID NO. 20211118MSB-1
SITE DESCRIPTION (Station Name, No., etc.): MSB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 84 - Suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.012225 , -117.373977

HIGH WATER LINE: ~10 ft shoreline

UPPER EXTENT OF BANKS OR SHORE: NA

NOTES:

3.9 lbs 1/10 of 1, 42 gal trash bag.

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC	**METAL**
Plastic Bags	Aluminum Foil
Plastic Bottles	Aluminum or Steel Cans
Plastic Bottle Caps	Bottle Caps
Plastic Cup Lid/Straw	Metal Pipe Segments
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper	Metal Object
Soft Plastic Pieces ||	**LARGE (specify below)**
Hard Plastic Pieces	Appliances
Styrofoam cups pieces	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD	**TOXIC**
Human Waste/Diapers |	Chemical Containers
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans
Dead Animals	Lighters
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS	Vehicle Batteries Cigarette Butts
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE**
Bricks	Paper
Wood Debris	Cardboard
Other (write-in)	Food Waste |
MISCELLANEOUS	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons	**GLASS**
Ceramic pots/shards	Glass bottles ||
Hose Pieces	Glass pieces
Golf Balls	**FABRIC AND CLOTH**
Tennis Balls	Synthetic Fabric |
Other (write-in)	Natural Fabric (cotton, wool)
Other (write-in)	Other (write-in)

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

Appendix C-4, January 6, 2022

Rapid Trash Assessment Data

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 1/6/22 7:00
MONITORING GROUP, STAFF: AR/RK SAMPLE ID NO. 20220106VBB-2
SITE DESCRIPTION (Station Name, No., etc.): VBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 53 – Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.963253, -117.465433

HIGH WATER LINE: ~10 feet of Shore

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

9.9 lbs 1/4 trash bag => 10.5 gallons.

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	II	Aluminum Foil	
Plastic Bottles	II	Aluminum or Steel Cans	
Plastic Bottle Caps		Bottle Caps	
Plastic Cup Lid/Straw	III	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	II
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 I	Metal Object	
Soft Plastic Pieces		**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	卌 卌 卌 卌 I	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	I
Dead Animals		Lighters	
Other (write-in)		Small Batteries	I
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	卌
Wood Debris		Cardboard	卌 I
Other (write-in)		Food Waste	卌 II
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons	I	**GLASS**	
Ceramic pots/shards		Glass bottles	II
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	IIII
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	I shoe

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 1/6/22 8:00
MONITORING GROUP, STAFF: RK / AK SAMPLE ID NO. 20220106 VABB1
SITE DESCRIPTION (Station Name, No., etc.): VABB-P

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs..	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 61 - suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.968298, -117.434863

HIGH WATER LINE: ~10 feet of Shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

26.8 lb 1/2 trash bag => 21 gallons

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	1	Aluminum Foil	
Plastic Bottles	1	Aluminum or Steel Cans	1
Plastic Bottle Caps		Bottle Caps	1
Plastic Cup Lid/Straw	11	Metal Pipe Segments	
Plastic Pipe Segments	1	Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌 11	Metal Object	
Soft Plastic Pieces	111	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	111	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp	1	Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	1
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks	1	Paper	卌 11
Wood Debris		Cardboard	卌
Other (write-in)		Food Waste	卌 111
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	1111
Hose Pieces		Glass pieces	11
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	11
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA RIVER DATE/TIME: 1/6/22 9:00
MONITORING GROUP, STAFF: PR/RK SAMPLE ID NO. 20220106MBB-2
SITE DESCRIPTION (Station Name, No., etc.): MBB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 41 - Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.988286, -117.396920

HIGH WATER LINE: ~10 feet of shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

8.1 lbs 1/4 trash bag => 10.5 gallons

* Trash assessment ended after 8 minutes per safety protocols. The monitoring team was being observed by a group of unsheltered individuals who were not responding to friendly conversation.

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	11	Aluminum Foil	
Plastic Bottles	1	Aluminum or Steel Cans	1HT
Plastic Bottle Caps		Bottle Caps	
Plastic Cup Lid/Straw	1HT	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	HT	Metal Object	
Soft Plastic Pieces		**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	11	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes	1	Spray Paint Cans	1111
Dead Animals		Lighters	1
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	Butane can 1111
Rebar		**BIODEGRADABLE**	
Bricks		Paper	1111
Wood Debris		Cardboard	11
Other (write-in)		Food Waste	11
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	1
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls	1	Synthetic Fabric	
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	shoe 1

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 1/6/22
MONITORING GROUP, STAFF: MR RK SAMPLE ID NO. 20220106 MBB-1
SITE DESCRIPTION (Station Name, No., etc.): MBB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	~~5 to~~ 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 53-Marginal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 33.994278 , -117.368737

HIGH WATER LINE: ~10 feet of Shoreline

UPPER EXTENT OF BANKS OR SHORE: NA

NOTES:

9 lbs 1/4 trash bag => 10.5 gal of trash

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	卌 |	Aluminum Foil	|
Plastic Bottles	|	Aluminum or Steel Cans	||
Plastic Bottle Caps	|	Bottle Caps	
Plastic Cup Lid/Straw	||	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	|||	Metal Object	
Soft Plastic Pieces		**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	|	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers	|	Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	|||
Wood Debris		Cardboard	|
Other (write-in)		Food Waste	卌
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	|
Hose Pieces		Glass pieces	
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	||
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: SANTA ANA River DATE/TIME: 1/6/22 10:15
MONITORING GROUP, STAFF: AR RK SAMPLE ID NO. 20220106 MSB-2
SITE DESCRIPTION (Station Name, No., etc.): MSB-2

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 60 - Suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.003759, -117.383668

HIGH WATER LINE: ~10 feet of Sycamore

UPPER EXTENT OF BANKS OR SHORE: N/A

NOTES:

15.2 1/3 trash bag => 14 gallons of trash

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags		Aluminum Foil	
Plastic Bottles	|	Aluminum or Steel Cans	||
Plastic Bottle Caps		Bottle Caps	|
Plastic Cup Lid/Straw	卌	Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	|
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	|	Metal Object	|
Soft Plastic Pieces	||	**LARGE (specify below)**	
Hard Plastic Pieces	|	Appliances	
Styrofoam cups pieces		Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	|
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	||
Wood Debris		Cardboard	|||
Other (write-in)		Food Waste	卌
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	卌 卌 ||
Hose Pieces		Glass pieces	卌 |||
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	shoes 卌

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: Santa Ana River DATE/TIME: 1/6/22 10:45
MONITORING GROUP, STAFF: AC RC SAMPLE ID NO. 20220106 MSB-1
SITE DESCRIPTION (Station Name, No., etc.): MSB-1

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.	Trash is evident in low to medium levels on first glance. Stream-bank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.	Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.	6 to 25 trash items based on a rapid survey of a 100-foot stream reach.	26 to 50 trash items based on a rapid survey of a 100-foot stream reach.	Over 50 trash items based on a rapid survey of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.	Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.	Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.	No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **one** of the following: hypodermic needles, pipettes, or other medical waste ; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).	Presence of **more than one** of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping and Littering	Any observed trash is incidental litter (less than 5 items) or carried downstream from another location. No evidence of illegal dumping.	Some evidence of in-stream or shoreline littering; and/or some evidence of illegal dumping, such as a sign prohibiting dumping along with observed garbage bags of material. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris (e.g., convenience stores or fast food).	Prevalent in-stream or shoreline littering; and/or the presence of **one** of the following: furniture, appliances, or bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Significant litter on shoreline or stream banks and streambed; and/or evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, garbage bags, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Accumulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Observable trash, if any, appears to have been directly deposited at the stream location.	Some evidence that litter and debris have been transported from upstream areas to the location. Less than 5 trash items have been transported from upstream locations, based on evidence such as silt marks, faded colors or location near high water marks.	5 to 20 items of observable trash are carried to the location from upstream, as evidenced by its location near high water marks and siltation marks on the debris.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 20 items of observable trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score 75- Suboptimal

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: 34.02225, -117.373927

HIGH WATER LINE: ~10 feet of shoreline

UPPER EXTENT OF BANKS OR SHORE: N/A.

NOTES:

5 16 1/4 trash bag

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (|) if found below high water line, and (•) if above)

PLASTIC		**METAL**	
Plastic Bags	|	Aluminum Foil	
Plastic Bottles	|	Aluminum or Steel Cans	|
Plastic Bottle Caps	|	Bottle Caps	
Plastic Cup Lid/Straw		Metal Pipe Segments	
Plastic Pipe Segments		Auto Parts (specify below)	
Plastic Six-Pack Rings		Wire (barb, chicken wire etc.)	
Plastic Wrapper	卌	Metal Object	
Soft Plastic Pieces	|	**LARGE (specify below)**	
Hard Plastic Pieces		Appliances	
Styrofoam cups pieces	||	Furniture	
Styrofoam Pellets		Garbage Bags of Trash	
Fishing Line		Tires	
Tarp		Shopping Carts	
Other (write-in)		Other (write-in)	
BIOHAZARD		**TOXIC**	
Human Waste/Diapers		Chemical Containers	
Pet Waste		Oil/Surfactant on Water	
Syringes or Pipettes		Spray Paint Cans	
Dead Animals		Lighters	
Other (write-in)		Small Batteries	
CONSTRUCTION DEBRIS		Vehicle Batteries	Cigarette Butts
Concrete (not placed)		Other (write-in)	
Rebar		**BIODEGRADABLE**	
Bricks		Paper	|
Wood Debris		Cardboard	||
Other (write-in)		Food Waste	||||
MISCELLANEOUS		Yard Waste (incl. trees)	
Synthetic Rubber		Leaf Litter Piles	
Foam Rubber		Other (write-in)	
Balloons		**GLASS**	
Ceramic pots/shards		Glass bottles	|
Hose Pieces		Glass pieces	|||
Golf Balls		**FABRIC AND CLOTH**	
Tennis Balls		Synthetic Fabric	卌
Other (write-in)		Natural Fabric (cotton, wool)	
Other (write-in)		Other (write-in)	

SPECIFIC DESCRIPTION OF ITEMS FOUND (if any):

Appendix D– Babcock Laboratory Reports

D-1: September 21, 2021

D-2: October 21, 2021

D-3: November 18, 2021

D-4: January 6, 2022

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Appendix D-1, September 21, 2021

Babcock Laboratory Report

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
C1I2404-01	VBB-2	Liquid	09/21/21 07:50	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-02	VBB-1	Liquid	09/21/21 08:35	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-03	MBB-2	Liquid	09/21/21 09:15	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-04	MBB-1	Liquid	09/21/21 09:50	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-05	MSB-2	Liquid	09/21/21 10:30	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-06	MSB-1	Liquid	09/21/21 11:20	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-07	20210921HomelessFB	Liquid	09/21/21 08:10	Nan Jia	09/21/21 11:59	Ryan Kearns
C1I2404-08	20210921HomelessDup	Liquid	09/21/21 08:10	Nan Jia	09/21/21 11:59	Ryan Kearns

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
VBB-2	Liquid	09/21/21 07:50	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	10	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	>24000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	280	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
VBB-1	Liquid	09/21/21 08:35	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	2	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	>24000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	310	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
MBB-2	Liquid	09/21/21 09:15	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	4	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	17000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	110	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
MBB-1	Liquid	09/21/21 09:50	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	10	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	>24000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	140	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-05

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
MSB-2	Liquid	09/21/21 10:30	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	2	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	20000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	170	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-06

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
MSB-1	Liquid	09/21/21 11:20	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	2	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	17000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	20	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-07

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
20210921HomelessFB	Liquid	09/21/21 08:10	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	ND	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	ND	1.0	1.0	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	ND	1.0	1.0	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

BABCOCK Laboratories, Inc.
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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Laboratory Reference Number

C1I2404-08

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
20210921HomelessDup	Liquid	09/21/21 08:10	09/21/21 11:59

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Suspended Solids	12	2	2	mg/L	SM 2540D	09/27/21 15:41	TJK	
MMO/MUG - Quanti-Tray 2000 - SM 9223 B								
Total Coliform	>24000	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	
E. coli	150	10	10	MPN/100ml	SM 9223B	09/22/21 09:55	HVA	

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Client Name:	CDM Smith - Los Angeles	Analytical Report:	Page 10 of 11
Contact:	Steven Wolosoff	Project Name:	SAR Monitoring
Address:	600 Wilshire Blvd., Ste. 750 Los Angeles, CA 90017	Project Number:	SAWPA Phase 1A Homelessness
Report Date:	30-Sep-2021	**Work Order Number:**	**C1I2404**

Received on Ice (Y/N): Yes Temp: 15 °C

Notes and Definitions

ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / ''' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.

Tania D. Huizar For Amanda Christy Porter

cc: CWE Corp. Cindy Rivers

e-Short_No Alias.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

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Client Name: CDM Smith - Los Angeles
Contact: Steven Wolosoff
Address: 600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017

Report Date: 30-Sep-2021

Analytical Report: Page 11 of 11
Project Name: SAR Monitoring
Project Number: SAWPA Phase 1A Homelessness

Work Order Number: C1I2404

Received on Ice (Y/N): Yes Temp: 15 °C

Client: CWE
Contact: Ryan Kearns
Phone No. (714) 526-7500 ext 218
FAX No.
Email: rkearns@cwecorp.com
Project Name: SAWPA Phase 1A Homelessness
Project Location: Santa Ana River
Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply
Additional Reporting Requests: Include QC Data Package: Yes No; FAX Results: Yes No; Email Results: Yes No; State EDT: Yes No (Include Source Number in Notes)

Sampler Information
Name: Nan Ji
Employer: CWE
Signature:

Sample ID	Date	Time	Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Total # of Containers	Routine	Resample	Special	QT 18hr T.Coliform/E.Coli	TSS	Matrix	Notes
VBB-2	9/21/2021	7:50	X				X					2				X	X	L	
VBB-1	9/21/2021	8:35	X				X					2				X	X	L	
MBB-2	9/21/2021	9:15	X				X					2				X	X	L	
MBB-1	9/21/2021	9:50	X				X					2				X	X	L	
MSB-2	9/21/2021	10:30	X				X					2				X	X	L	
MSB-1	9/21/2021	11:20	X				X					2				X	X	L	
20210921HomelessFB	9/21/2021	8:10	X				X					2				X	X	L	
20210921HomelessDup	9/21/2021	8:10	X				X					2				X	X	L	

Matrix: DW = Drinking Water; GW = Groundwater; WW = Wastewater; S = Source; SG = Sludge; L = Liquid; M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Ryan Kearns - CWE	9-21-21 1159		

(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No
Temperature: 15 °C Cooler Blank
Sample Meets Laboratory Acceptance Criteria? Yes No
Permission to continue: Yes No
Deviation/Notes:
Signature/Date:

C1I2404
Rc'd: 09/21/2021 11:59
JLH

Page 1 of 1

Appendix D-2, October 21, 2021

Babcock Laboratory Report

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Client Name:	CWE Corp	Analytical Report:	Page 1 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1J2793**
Report Date:	04-Nov-2021	Received on Ice (Y/N):	Yes Temp: 10°C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
C1J2793-01	VBB-2	Liquid	10/21/21 07:45	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner
C1J2793-02	VBB-1	Liquid	10/21/21 08:10	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner
C1J2793-03	MBB-2	Liquid	10/21/21 08:45	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner
C1J2793-04	MBB-1	Liquid	10/21/21 09:30	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner
C1J2793-05	MSB-2	Liquid	10/21/21 10:25	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner
C1J2793-06	MSB-1	Liquid	10/21/21 10:45	Alexa Reasoner	10/21/21 11:38	Alexa Reasoner

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Client Name:	CWE Corp	Analytical Report:	Page 2 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
Report Date:	04-Nov-2021	**Work Order Number:**	**C1J2793**
		Received on Ice (Y/N):	Yes Temp: 10°C

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
C1J2793-01 *Sampled: 10/21/21 07:45*							
VBB-2							
Total Suspended Solids	6	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>24000	10	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	2000	10	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
C1J2793-02 *Sampled: 10/21/21 08:10*							
VBB-1							
Total Suspended Solids	4	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>24000	10	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	110	10	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
C1J2793-03 *Sampled: 10/21/21 08:45*							
MBB-2							
Total Suspended Solids	2	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	140	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
C1J2793-04 *Sampled: 10/21/21 09:30*							
MBB-1							
Total Suspended Solids	4	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	56	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
C1J2793-05 *Sampled: 10/21/21 10:25*							
MSB-2							
Total Suspended Solids	5	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	88	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	

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Client Name:	CWE Corp	Analytical Report:	Page 3 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
Report Date:	04-Nov-2021	**Work Order Number:**	**C1J2793**
		Received on Ice (Y/N):	Yes Temp: 10°C

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
C1J2793-06 *Sampled: 10/21/21 10:45*							
MSB-1							
Total Suspended Solids	4	2	mg/L	SM 2540D	10/23/21 12:45	BAA	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	
E. coli	44	1.0	MPN/100ml	SM 9223B	10/22/21 10:30	HVA	

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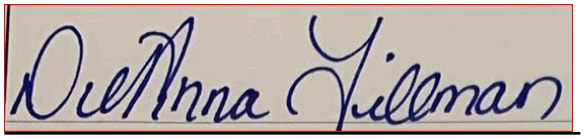
Client Name:	CWE Corp	Analytical Report:	Page 4 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1J2793**
Report Date:	04-Nov-2021	Received on Ice (Y/N):	Yes Temp: 10°C

Notes and Definitions

ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / ''' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.



DeAnna Lynn Tillman For KayeLani A. Marshall

cc:

e-Tab_ Summary.rpt

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

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Client Name:	CWE Corp	Analytical Report:	Page 5 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1J2793**
Report Date:	04-Nov-2021	Received on Ice (Y/N):	Yes Temp: 10 °C

Client: CWE | Contact: Ryan Kearns | Phone No. (714) 526-7500 ext 218

FAX No. | Email: rkearns@cwecorp.com

Project Name: SAWPA Phase 1A Homelessness | Turn Around Time: (Routine) *3-5 Day Rush *48 Hour Rush *24 Hour Rush

Project Location: Santa Ana River | *Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests: Include QC Data Package: ☐ Yes ☐ No; FAX Results: ☐ Yes ☐ No; Email Results: ☐ Yes ☐ No; State EDT: ☐ Yes ☐ No (Include Source Number in Notes)

Sampler Information: Name: Alexa Reasoner; Employer: CWE; Signature:

Sample ID	Date	Time	Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Total # of Containers	Routine	Resample	Special	QT 18hr T.Coliform/E.Coli	TSS	Matrix	Notes
VBB-2	10/21/2021	7:45	X				X					2				X	X	L	
VBB-1	10/21/2021	8:10	X				X					2				X	X	L	
MBB-2	10/21/2021	8:45	X				X					2				X	X	L	
MBB-1	10/21/2021	9:30	X				X					2				X	X	L	
MSB-2	10/21/2021	10:25	X				X					2				X	X	L	
MSB-1	10/21/2021	10:40	X				X					2				X	X	L	

Matrix: DW = Drinking Water; GW = Groundwater; WW = Wastewater; S = Source; SG = Sludge; L = Liquid; M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Alexa Reasoner CWE	10/21/21 11:38		

(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria #62

Sample(s) Submitted on Ice? (Yes) No
Custody Seal(s) Intact? Yes No (N/A)
Sample(s) Intact? (Yes) No
Temperature: 10 (°C) ☐ Cooler Blank

Sample Meets Laboratory Acceptance Criteria? (Yes) No
Permission to continue: Yes No
Deviation/Notes:
Signature/Date:

Logged in By/Date: 28

C1J2793
Rc'd: 10/21/2021 11:38
RRC

Appendix D-3, November 18, 2021

Babcock Laboratory Report

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Client Name:	CWE Corp	Analytical Report:	Page 1 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1K2161**
Report Date:	06-Dec-2021	Received on Ice (Y/N):	Yes Temp: 3 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
C1K2161-01	VBB-2	Liquid	11/18/21 07:20	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-02	VBB-1	Liquid	11/18/21 08:20	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-03	MBB-2	Liquid	11/18/21 09:00	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-04	MBB-1	Liquid	11/18/21 09:30	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-05	MSB-2	Liquid	11/18/21 10:05	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-06	MSB-1	Liquid	11/18/21 10:45	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-07	20211118HomelessDup	Liquid	11/18/21 07:50	Nan Jia	11/18/21 11:26	Nan Jia
C1K2161-08	20211118HomelessFB	Liquid	11/18/21 07:50	Nan Jia	11/18/21 11:26	Nan Jia

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Client Name:	CWE Corp	Analytical Report:	Page 2 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
Report Date:	06-Dec-2021	**Work Order Number:**	**C1K2161**
		Received on Ice (Y/N):	Yes Temp: 3 °C

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
C1K2161-01 *Sampled: 11/18/21 07:20*							
VBB-2							
Total Suspended Solids	6	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	>24000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	430	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-02 *Sampled: 11/18/21 08:20*							
VBB-1							
Total Suspended Solids	6	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	>24000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	150	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-03 *Sampled: 11/18/21 09:00*							
MBB-2							
Total Suspended Solids	3	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	20000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	440	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-04 *Sampled: 11/18/21 09:30*							
MBB-1							
Total Suspended Solids	4	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	20000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	84	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-05 *Sampled: 11/18/21 10:05*							
MSB-2							
Total Suspended Solids	2	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	24000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	230	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	

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Client Name:	CWE Corp	Analytical Report:	Page 3 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
Report Date:	06-Dec-2021	**Work Order Number:**	**C1K2161**
		Received on Ice (Y/N):	Yes Temp: 3 °C

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
C1K2161-06 *Sampled: 11/18/21 10:45*							
MSB-1							
Total Suspended Solids	2	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	20000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	130	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-07 *Sampled: 11/18/21 07:50*							
20211118HomelessDup							
Total Suspended Solids	6	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	>24000	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	150	10	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
C1K2161-08 *Sampled: 11/18/21 07:50*							
20211118HomelessFB							
Total Suspended Solids	ND	2	mg/L	SM 2540D	11/24/21 09:33	TJK	
Total Coliform	ND	1.0	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	
E. coli	ND	1.0	MPN/100ml	SM 9223B	11/19/21 09:40	HVA	

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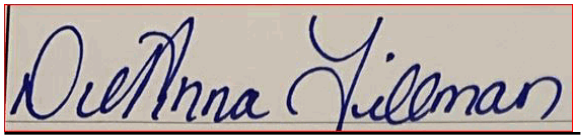
Client Name:	CWE Corp	Analytical Report:	Page 4 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1K2161**
Report Date:	06-Dec-2021	Received on Ice (Y/N):	Yes Temp: 3 °C

Notes and Definitions

ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / ''' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.



DeAnna Lynn Tillman For KayeLani A. Marshall

cc:

e-Tab_ Summary.rpt

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

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Client Name:	CWE Corp	Analytical Report:	Page 5 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C1K2161**
Report Date:	06-Dec-2021	Received on Ice (Y/N):	Yes Temp: 3 °C

Client: CWE
Contact: Ryan Kearns
Phone No. (714) 526-7500 ext 218
FAX No.
Email: rkearns@cwecorp.com
Project Name: SAWPA Phase 1A Homelessness
Project Location: Santa Ana River
Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply
Additional Reporting Requests: Include QC Data Package: Yes No; FAX Results: Yes No; Email Results: Yes No; State EDT: Yes No (Include Source Number in Notes)

Sampler Information
Name: Nan Jia
Employer: CWE
Signature: Nlu

Sample ID	Date	Time	Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/ZnAcetate	NH4Cl	MCAA	Total # of Containers	Routine	Resample	Special	QT 18hr T.Coliform/E.Coli	TSS	Matrix	Notes
VBB-2	11/18/2021	7:20	X				X					2				X	X	L	
VBB-1	11/18/2021	8:20	X				X					2				X	X	L	
MBB-2	11/18/2021	9:00	X				X					2				X	X	L	
MBB-1	11/18/2021	9:20	X				X					2				X	X	L	
MSB-2	11/18/2021	10:05	X				X					2				X	X	L	
MSB-1	11/18/2021	10:45	X				X					2				X	X	L	
20211118HomelessDup	11/18/2021	7:50	X				X					2				X	X	L	
20211118HomelessFB	11/18/2021	7:50	X				X					2				X	X	L	

Matrix: DW = Drinking Water; GW = Groundwater; WW = Wastewater; S = Source; SG = Sludge; L = Liquid; M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Nlu	Nan Jia / CWE	11/18/21 / 1126		

(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria

Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No
Temperature: 3 °C ☐ Cooler Blank
Sample Meets Laboratory Acceptance Criteria? Yes No
Permission to continue: Yes No
Deviation/Notes:
Signature/Date:

C1K2161
Rc'd: 11/18/2021 11:26
BXG

Appendix D-4, January 6, 2022

Babcock Laboratory Report

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name:	CWE Corp	Analytical Report:	Page 1 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C2A0688**
Report Date:	21-Jan-2022	Received on Ice (Y/N):	Yes Temp: 1 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
C2A0688-01	VBB-2	Liquid	01/06/22 07:15	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner
C2A0688-02	VBB-1	Liquid	01/06/22 08:00	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner
C2A0688-03	MBB-2	Liquid	01/06/22 09:00	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner
C2A0688-04	MBB-1	Liquid	01/06/22 09:45	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner
C2A0688-05	MSB-2	Liquid	01/06/22 10:20	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner
C2A0688-06	MSB-1	Liquid	01/06/22 10:50	Alexa Reasoner	01/06/22 11:25	Alexa Reasoner

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Client Name:	CWE Corp	Analytical Report:	Page 2 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C2A0688**
Report Date:	21-Jan-2022	Received on Ice (Y/N):	Yes Temp: 1 °C

Testing performed by: Babcock Laboratories, Inc. - Riverside
CA ELAP No. 2698, EPA No. CA00102, NELAP No. OR4035

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
C2A0688-01 *Sampled: 01/06/22 07:15*							
VBB-2							
Total Suspended Solids	6	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	93	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
C2A0688-02 *Sampled: 01/06/22 08:00*							
VBB-1							
Total Suspended Solids	6	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	99	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
C2A0688-03 *Sampled: 01/06/22 09:00*							
MBB-2							
Total Suspended Solids	32	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	59	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
C2A0688-04 *Sampled: 01/06/22 09:45*							
MBB-1							
Total Suspended Solids	8	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	59	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
C2A0688-05 *Sampled: 01/06/22 10:20*							
MSB-2							
Total Suspended Solids	13	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	60	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	

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Client Name:	CWE Corp	Analytical Report:	Page 3 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C2A0688**
Report Date:	21-Jan-2022	Received on Ice (Y/N):	Yes Temp: 1 °C

Testing performed by: Babcock Laboratories, Inc. - Riverside
CA ELAP No. 2698, EPA No. CA00102, NELAP No. OR4035

C2A0688-06 *Sampled: 01/06/22 10:50*

MSB-1

	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Total Suspended Solids	8	2	mg/L	SM 2540D	01/12/22 08:42	TJK	
Total Coliform	>2400	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	
E. coli	31	1.0	MPN/100ml	SM 9223B	01/07/22 10:00	VSS	

BABCOCK Laboratories, Inc.
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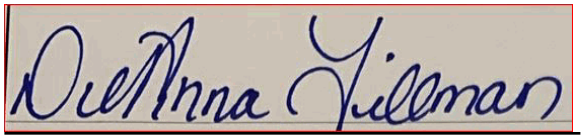
Client Name:	CWE Corp	Analytical Report:	Page 4 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C2A0688**
Report Date:	21-Jan-2022	Received on Ice (Y/N):	Yes Temp: 1 °C

Notes and Definitions

ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / ''' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.



DeAnna Lynn Tillman For KayeLani A. Marshall

cc:

e-Tab_ Summary.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

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Client Name:	CWE Corp	Analytical Report:	Page 5 of 5
Contact:	Ryan Kearns	Project Number:	SAWPA Phase 1A Homelessness
Address:	1561 E. Orangethorpe Avenue Suite 240 Fullerton, CA 92831	Project Name:	2021-SAWPA Homelessness Monitoring Program
		Work Order Number:	**C2A0688**
Report Date:	21-Jan-2022	Received on Ice (Y/N):	Yes Temp: 1°C

Client: CWE | Contact: Ryan Kearns | Phone No. (714) 526-7500 ext 218

FAX No. | Email: rkearns@cwecorp.com

Additional Reporting Requests: Include QC Data Package: ☐ Yes ☐ No; FAX Results: ☐ Yes ☐ No; Email Results: ☐ Yes ☐ No; State EDT: ☐ Yes ☐ No (Include Source Number in Notes)

Project Name: SAWPA Phase 1A Homelessness | Turn Around Time: (Routine) *3-5 Day Rush *48 Hour Rush *24 Hour Rush

Project Location: Santa Ana River | *Lab TAT Approval: By: *Additional Charges May Apply

Sampler Information: Name: Alexa Reasoner; Employer: CWE; Signature:

Sample ID	Date	Time	Unpreserved	H2SO4	HCl	HNO3	Na2S2O3	NaOH	NaOH/Zn Acetate	NH4Cl	MCAA	Total # of Containers	Routine	Resample	Special	QT 18hr T.Coliform/E.Coli	TSS	Matrix	Notes
VBB-2	1/6/2022	7:15	X				X					2				X	X	L	
VBB-1	1/6/2022	8:06	X				X					2				X	X	L	
MBB-2	1/6/2022	9:00	X				X					2				X	X	L	
MBB-1	1/6/2022	9:45	X				X					2				X	X	L	
MSB-2	1/6/2022	10:20	X				X					2				X	X	L	
MSB-1	1/6/2022	10:50	X				X					2				X	X	L	

Matrix: DW = Drinking Water; GW = Groundwater; WW = Wastewater; S = Source; SG = Sludge; L = Liquid; M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Alexa Reasoner	1/6/22 1175		

(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria

Sample(s) Submitted on Ice? (Yes) No | Sample Meets Laboratory Acceptance Criteria? (Yes) No

Custody Seal(s) Intact? Yes No (N/A) | Permission to continue: Yes No

Sample(s) Intact? (Yes) No | Deviation/Notes:

Temperature: °C ☐ Cooler Blank | Signature/Date:

C2A0688
Rc'd: 01/06/2022 11:25
BXG

Page 1 of 1

Appendix E– Weston Laboratory Reports

E-1: September 21, 2021

E-2: October 21, 2021

E-3: November 18, 2021

E-4: January 6, 2022

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Appendix E-1, September 21, 2021

Weston Solutions Laboratory Report

WESTON SOLUTIONS, INC.
5817 Dryden Pl, Suite 101
Carlsbad, CA 92008
(760) 795-6900 / (760) 931-1580
www.westonsolutions.com

Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 1
Date Received: 09/21/21
n Samples: 9

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 2
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 9
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20210921VBB-2	VBB-2	09/21/21	0750	Surface Water	100	BDL	§<	35	15	copies/100 mL	86	86	1	0
20210921VBB-1	VBB-1	09/21/21	0835	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20210921MBB-2	MBB-2	09/21/21	0915	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20210921MBB-1	MBB-1	09/21/21	0950	Surface Water	100	BDL	§<	51	25	copies/100 mL	86	86	2	0
20210921MSB-2	MSB-2	09/21/21	1030	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20210921MSB-1	MSB-1	09/21/21	1120	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20210921FieldBlank	VBB-2	09/21/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20210921FieldDup	VBB-2	09/21/21	0750	Surface Water	100	BDL	§<	47	20	copies/100 mL	86	86	2	0
20210921LabDup	VBB-2	09/21/21	0750	Surface Water	100	BDL	§<	42	20	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 1
Date Received: 09/21/21
n Samples: 9

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method Blanks: passed
No Template Controls: passed
Positive Extraction Controls[A]: passed
Inhibition Control[B]: HF183 (B.dorei) / Sketa

Method: ddPCR
n= 2
n= 6
n= 9

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1326	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1331	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0051 15386 dHF183CM

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 1
Date Received: 09/21/21

Comments:

QA/QC Information

Assay: Human Bacteroidales - HF183TMCaMan

standard source: genomic DNA

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Copies per genome 7

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 10/6/2021
Laboratory Manager (Melody McNay) Date

Report template version 8.35

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

Appendix E-2, October 21, 2021

Weston Solutions Laboratory Report

WESTON SOLUTIONS, INC.
5817 Dryden Pl, Suite 101
Carlsbad, CA 92008
(760) 795-6900 / (760) 931-1580
www.westonsolutions.com

Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 2
Date Received: 10/21/21
n Samples: 6

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20211021VBB-2	VBB-2	10/21/21	0745	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211021VBB-1	VBB-1	10/21/21	0810	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211021MBB-2	MBB-2	10/21/21	0845	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211021MBB-1	MBB-1	10/21/21	0930	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211021MSB-2	MSB-2	10/21/21	1025	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211021MSB-1	MSB-1	10/21/21	1045	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 2
Date Received: 10/21/21
n Samples: 6

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1358	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1359	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0061 15386 dHF183CM

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 2
Date Received: 10/21/21

Comments:

QA/QC Information

Assay: Human Bacteroidales - HF183TMCaMan

standard source: genomic DNA

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Copies per genome 7

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 11/3/2021
Laboratory Manager (Melody McNay) Date

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Carlsbad, CA 92008
(760) 795-6900 / (760) 931-1580
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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

Appendix E-3, November 18, 2021

Weston Solutions Laboratory Report

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 9
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20211118VBB-2	VBB-2	11/18/21	0720	Surface Water	100	BDL	§<	64	44	copies/100 mL	86	86	2	0
20211118VBB-1	VBB-1	11/18/21	0820	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MBB-2	MBB-2	11/18/21	0900	Surface Water	100	BDL		33	2	copies/100 mL	86	86	1	0
20211118MBB-1	MBB-1	11/18/21	0930	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MSB-2	MSB-2	11/18/21	1005	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MSB-1	MSB-1	11/18/21	1045	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FB	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FieldDup	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118LabDup	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method Blanks: passed
No Template Controls: passed
Positive Extraction Controls[A]: passed
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Method: ddPCR
n= 3
n= 6
n= 9

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1396	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1399	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0069 15386 dHF183CM

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 3
Date Received: 11/18/21

Comments:

QA/QC Information

Assay: Human Bacteroidales - HF183TMCaMan

standard source: genomic DNA

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Copies per genome 7

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 12/22/2021
Laboratory Manager (Melody McNay) Date

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Dog Lachnospiraceae - DG37
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 9
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20211118VBB-2	VBB-2	11/18/21	0720	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118VBB-1	VBB-1	11/18/21	0820	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MBB-2	MBB-2	11/18/21	0900	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MBB-1	MBB-1	11/18/21	0930	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MSB-2	MSB-2	11/18/21	1005	Surface Water	100	BDL	§<	33	4	copies/100 mL	86	86	1	0
20211118MSB-1	MSB-1	11/18/21	1045	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FB	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FieldDup	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118LabDup	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Dog Lachnospiraceae - DG37
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 9
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1393	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1401	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0070 15386 dDG37

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 3
Date Received: 11/18/21

Comments:

QA/QC Information

Assay: Dog Lachnospiraceae - DG37

standard source: plasmid, undigested

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 12/22/2021
Laboratory Manager (Melody McNay) Date

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Pig Bacteroidales - Pig2Bac
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 3
Positive Extraction Controls[A]: passed n= 9
Inhibition Control[B]: HF183 (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20211118VBB-2	VBB-2	11/18/21	0720	Surface Water	100	Detected, ROQ		26,915	1,949	copies/100 mL	86	86	941	0
20211118VBB-1	VBB-1	11/18/21	0820	Surface Water	100	Detected, ROQ		1,924	179	copies/100 mL	86	86	67	0
20211118MBB-2	MBB-2	11/18/21	0900	Surface Water	100	Detected, ROQ		945	203	copies/100 mL	86	86	33	0
20211118MBB-1	MBB-1	11/18/21	0930	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MSB-2	MSB-2	11/18/21	1005	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118MSB-1	MSB-1	11/18/21	1045	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FB	VBB-1	11/18/21	0750	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20211118FieldDup	VBB-1	11/18/21	0750	Surface Water	100	Detected, ROQ		1,734	326	copies/100 mL	86	86	61	0
20211118LabDup	VBB-1	11/18/21	0750	Surface Water	100	Detected, ROQ		1,928	130	copies/100 mL	86	86	67	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 3
Date Received: 11/18/21
n Samples: 9

Assay: Pig Bacteroidales - Pig2Bac
µL Template per Reaction: 5
Method Blanks: passed
No Template Controls: passed
Positive Extraction Controls[A]: passed
Inhibition Control[B]: HF183 (B.dorei) / Sketa

Method: ddPCR
n= 3
n= 3
n= 9

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1394	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0071 15386 dPig

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 3
Date Received: 11/18/21

Comments:

QA/QC Information
Assay: Pig Bacteroidales - Pig2Bac

standard source: plasmid, undigested

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody L McNay 12/22/2021
Laboratory Manager (Melody McNay) Date

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

Appendix E-4, January 6, 2022

Weston Solutions Laboratory Report

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20220106VBB-2	VBB-2	01/06/22	0715	Surface Water	100	BDL	§<	31	3	copies/100 mL	86	86	1	0
20220106VBB-1	VBB-1	01/06/22	0800	Surface Water	100	BDL	§<	34	5	copies/100 mL	86	86	1	0
20220106MBB-2	MBB-2	01/06/22	0900	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MBB-1	MBB-1	01/06/22	0945	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MSB-2	MSB-2	01/06/22	1020	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MSB-1	MSB-1	01/06/22	1050	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Human Bacteroidales - HF183TMCaMan
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1417	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1428	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0078 15386 dHF183CM

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 4
Date Received: 01/06/22

Comments:

QA/QC Information
Assay: Human Bacteroidales - HF183TMCaMan

standard source: genomic DNA

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Copies per genome 7

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 2/3/2022
Laboratory Manager (Melody McNay) Date

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

NT = not tested.

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Dog Lachnospiraceae - DG37
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20220106VBB-2	VBB-2	01/06/22	0715	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106VBB-1	VBB-1	01/06/22	0800	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MBB-2	MBB-2	01/06/22	0900	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MBB-1	MBB-1	01/06/22	0945	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MSB-2	MSB-2	01/06/22	1020	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MSB-1	MSB-1	01/06/22	1050	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Dog Lachnospiraceae - DG37
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1429	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1437	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0079 15386 dDG37

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 4
Date Received: 01/06/22

Comments:

QA/QC Information

Assay: Dog Lachnospiraceae - DG37

standard source: plasmid, undigested

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
BDL: Max cycle number>Sampe Cq≥LOD(Cq), Equivocal result.
DNQ: LOD(Cq)>Sample Cq≥LLOQ(Cq), positive binary result.
ROQ: Sample Cq<LLOQ (Cq), positive result.
LLOQ (EPA Methods 1696/97): Upper 95% Prediction Interval at 10 cpr
LLOQ (all other methods): lowest concentration with amplification rate of 100% (>20 reps)

In addition, SLOD and SLLOQ values are provided. These are sample specific detection limits which take into account sample processing, for example volumes or mass.

Categorical Results:
ROQ and DNQ = positive; ND = negative
BDL results are categorized as "equivocal" because a signal was observed below the reporting limit (usually LOD, EPA Method 1696:LLOQ). The result can therefore not be classified as either a negative or positive with great confidence. Weston uses BDL concentration values to compute averages unless directed otherwise by Client. Sites with chronic BDL results may warrant

Abbreviations: BDL = Below Detection Limit; cpr = copies per reaction; Cq = quantification (threshold) cycle; DNQ = Detectable But Not Quantifiable; LLOQ = Lower Limit of Quantification; LOD = Limit of Detection; n=number; N/A = Not Applicable; ND = Not Detected; NDsub = substitution value for nondetects; PCR = Polymerase chain reaction; rxs = reactions; StdDev = Standard Deviation; sub = substitution; ROQ = Range of Quantification; SLLOQ = Sample Specific Lower Limit of Quantification; SLOD = Sample Specific Limit of Detection.

Melody McNay 2/3/2022
Laboratory Manager (Melody McNay) Date

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Weston Solutions Lab Report - Abbreviations and Footnotes

Abbreviations

Avg	Average
BDL	Below Detection Limit
cpr	Copies Per Reaction
Final Cq	Quantification cyle used to make concentration estimate
ddPCR	Droplet Digital Polymerase Chain Reaction
DNQ	Detectable, not quantifiable
FB	Field Blank
FW	Fresh Water
GW	Ground Water
IAC	Internal Amplification Control
LLOQ	Lower Limit of Quantification
LOD	Limit of Detection
MB	Method Blank
n	Number
N/A	Not Applicable
ND	Not Detected
NTC	No Template Control
PCR	Polymerase Chain Reaction
qPCR	Quantitative Polymerase Chain Reaction
R^2	Correlation Coefficient
ROQ	Range of Quantification
rxns	Reactions
SLLOQ	Sample Specific Lower Limit of Quantification
SLOD	Sample Specific Limit of Detection
SLT	Salt Water
StdDev	Standard Deviation
Std. Error	Calibration model slope and intercpet standard error
sub	Substitution
SW	Storm Water
TSC	Target Sequence Copies
WW	Wastewater

Footnotes

[A] Sample Process Control (SPC), Sketa assay for salmon sperm

[B] Inhibition Control: If not EPA Method 1696/1697: assay used for 2-well spike with DNA dilution method

[C] see explanation for ND, BDL, DNQ, and ROQ on Part C

[D] If shown: §: Average computed for ND result by

a) qPCR: substituting Cq with maximum number of cycles (Boehm et al., 2013) or

b) ddPCR: substituting with 1 cpr; the result can be therfore interpreted as less than the given value.

ϕ: QC flag, see notes on Part C

[E] Concentration = mean of at least 3 technical replicates.

[F] Standard Deviation of at least 3 technical replicates.

[G] For enterococci, results are given in Target Sequence Copies (TSC), as per EPA Method 1611 (standard concs in TSC/ul = copies/ul x 4).

[H] SLOD and SLLOQ: sample specific detection and quantification limits calculated based on sample specific processing volumes see more information on Part C.

[I] Inhibition Categories:

0 = no inhibition observed

1 = inhibition observed, but overcome in diluted sample

2 = inhibition not overcome in diluted sample: The given concentration may be underestimated for positive samples

3 = Dilution needed to overcome inhibition did not yield amplification. Given concentration may be underestimated.

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Weston Solutions Lab Report - Sample Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Pig Bacteroidales - Pig2Bac
µL Template per Reaction: 5
Method: ddPCR
Method Blanks: passed n= 3
No Template Controls: passed n= 6
Positive Extraction Controls[A]: passed n= 6
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Sample ID	Site ID	Date Sampled	Time Sampled	Matrix	Volume Filtered (mL)	Sample Result[C]	Qualifier[D]	Sample Concentration[E]	Sample Stdev[F]	Units[G]	SLOD[H]	SLLOQ[H]	cpr	Inhibition Result[I]
20220106VBB-2	VBB-2	01/06/22	0715	Surface Water	100	Detected, ROQ		1,919	168	copies/100 mL	86	86	67	0
20220106VBB-1	VBB-1	01/06/22	0800	Surface Water	100	Detected, ROQ		261	8	copies/100 mL	86	86	9	0
20220106MBB-2	MBB-2	01/06/22	0900	Surface Water	100	Detected, ROQ	§<	102	94	copies/100 mL	86	86	4	0
20220106MBB-1	MBB-1	01/06/22	0945	Surface Water	100	BDL	§<	66	39	copies/100 mL	86	86	2	0
20220106MSB-2	MSB-2	01/06/22	1020	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0
20220106MSB-1	MSB-1	01/06/22	1050	Surface Water	100	ND	§<	29	0	copies/100 mL	86	86	1	0

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Weston Solutions Lab Report - Lab Control Results

Project: SAWPA Homelessness Impacts Study
Client: CWE
Survey: No. 4
Date Received: 01/06/22
n Samples: 6

Assay: Pig Bacteroidales - Pig2Bac
µL Template per Reaction: 5
Method Blanks: passed
No Template Controls: passed
Positive Extraction Controls[A]: passed
Inhibition Control[B]: HF183 ddPCR (B.dorei) / Sketa

Method: ddPCR
n= 3
n= 6
n= 6

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result[E]
Extraction Blank 1	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 2	Weston	Lab Blank	ND	§<	1.00	PASS
Extraction Blank 3	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1419	Weston	Lab Blank	ND	§<	1.00	PASS
NTC 1430	Weston	Lab Blank	ND	§<	1.00	PASS

Sample ID	Site ID	Matrix	Sample Result[C]	Qualifier[D]	cpr	QC Result

Lab Report 0080 15386 dPig

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Weston Solutions Lab Report - Standard Curve Metrics

Project: SAWPA Homelessness Impacts Study
Client: CWE

Survey: No. 4
Date Received: 01/06/22

Comments:

QA/QC Information

Assay: Pig Bacteroidales - Pig2Bac

standard source: plasmid, undigested

Method Detection Limits	**ND sub**	**LOD**	**LLOQ**
cpr (copies per reaction):	1.0	3.0	3.0

Sample result calculations use cpr values based on the following definitions:
ND: Cq=maximum cycle number, negative result.
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Melody McNay 2/3/2022
Laboratory Manager (Melody McNay) Date

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[A] Sample Process Control (SPC), Sketa assay for salmon sperm

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