

**CAR14****2008**

Site ID	Site Name	Thomas Guide	Latitude °N	Longitude °W
CAR14	Tributary to Lake San Marcos @ End of El Chico Lane	1128, C3	33.11896	-117.20744
<b>Location Description</b>				
Located on a tributary at the end of El Chico Lane and discharged to the east side of Lake San Marcos.				
Primary Land Use	Secondary Land Use	Conveyance Type	Watercourse	
Residential	Agriculture	Earthen Channel	Unnamed	

## SITE SUMMARY



Figure 1. CAR14 site photo  
(July 21, 2008)

This site was located on an unnamed tributary at the end of El Chico Lane and discharged to the east side of Lake San Marcos. This earthen channel received water runoff from portions of the residential area around Lake San Marcos and the City of San Marcos and discharged to Lake San Marcos approximately 50 feet downstream.

In 2008, the site was monitored on July 21, August 14, September 8, and September 16. The site had ponded water on all visits. The action levels for indicator bacteria were exceeded on July 21 and on the August 14 follow up visit. Follow up bacteria samples collected on September 16, showed bacteria concentrations below the action levels and therefore, the IC/ID was resolved and the investigation discontinued. Ammonia exceeded the action level on September 8, and best

professional judgment was used to determine that an IC/ID investigation was not warranted since the exceedance was determined to be a localized environmental condition. No other action levels were exceeded.

In the previous four years (2004-2007), no action levels were exceeded.

**MONITORING EVENTS AT SITE CAR14 IN 2008**

Site ID	Location	Date	Field	Analytical	IC/ID	Parameter Investigated	Latitude °N	Longitude °W
CAR14	Tributary to Lake San Marcos @ End of El Chico Lane	7/21/2008	X	X			33.11896	-117.20744
CAR14	Tributary to Lake San Marcos @ End of El Chico Lane	8/14/2008	X	X	X	Bacteria	33.11896	-117.20744
CAR14A	Gutter on La Plaza Drive (downstream side of road before inlet)	8/14/2008	X	X	X	Bacteria	33.11873	-117.20729
CAR14B	Gutter on La Plaza Drive (upstream side of road before inlet)	8/14/2008	X	X	X	Bacteria	33.11866	-117.20721
CAR14	Tributary to Lake San Marcos @ End of El Chico Lane	9/8/2008	X				33.11896	-117.20744
CAR14B	Gutter on La Plaza Drive (upstream side of road before inlet)	9/8/2008	X		X	Ammonia	33.11866	-117.20721
CAR14	Tributary to Lake San Marcos @ End of El Chico Lane	9/16/2008	X	X	X	Bacteria	33.11896	-117.20744
CAR14C	Curb drain #1, 50' upstream of inlet to tributary to Lake San Marcos @ end of El Chico Lane	9/16/2008	X	X	X	Bacteria	33.11871	-117.20707
CAR14D	Curb drain #2, 80' upstream of inlet to tributary to Lake San Marcos @ end of El Chico Lane	9/16/2008	X	X	X	Bacteria	33.11878	-117.20701
CAR14E	Curb drain #3, 120' upstream of inlet to tributary to Lake San Marcos @ end of El Chico Lane	9/16/2008	X	X	X	Bacteria	33.11885	-117.20689

Site ID	Location	Date	Field	Analytical	IC/ID	Parameter Investigated	Latitude °N	Longitude °W
CAR14F	Curb drain #4, 180' upstream of inlet to tributary to Lake San Marcos @ end of El Chico Lane	9/16/2008	X	X	X	Bacteria	33.11888	-117.20669

## FIELD SCREENING AND ANALYTICAL MONITORING

This site was monitored on July 21, August 14, September 8, and September 16, 2008. Water flow and/or physicochemical properties were measured in situ. Grab samples were collected for field measurement of ammonia, nitrate, orthophosphate, and MBAS and for laboratory analysis of constituents required by the Permit or deemed valuable to the Program.

### Field Screening Results

The site had ponded water on all visits. On September 8, 2008, field staff measured an ammonia as N concentration of 1.0 mg/L equaling the action level of 1.0 mg/L ammonia as N as summarized in Table 1. Chemical reduction of nitrate to ammonia in standing water was suspected to be the cause of the elevated ammonia level. A low level of dissolved oxygen supports this conclusion. A confirmation sample was collect at CAR14B (an inlet on La Plaza Drive that drains directly to the CAR14 site) and the ammonia as N concentration was below the action level. As this is a localized environmental condition, best professional judgment was used to determine that an IC/ID investigation was not necessary. No other field parameters measured exceeded action levels.

**Table 1. CAR14 Ammonia Concentrations (mg/L)**

Sample Site	Sample Date	Estimated Flow (cfs)	Ammonia as N (mg/L)
CAR14	7/29/2008	Ponded	0.3
CAR14	9/8/2008	Ponded	1.0
CAR14B	9/8/2008	0.004	0.2
<b>Action Level</b>			<b>1.0</b>

### Analytical Monitoring Results

The action level for total coliform equaled the action level and Enterococcus exceeded the action level as summarized in Table 2. All other analytical parameters measured in the laboratory did not exceed action levels.

### **IC/ID Investigation – Bacteria**

On July 21, 2008, staff collected samples for analysis of indicator bacteria. The site was a pond of water that did not discharge to Lake San Marcos but did have a small flow entering the pond from the street. Total coliform and Enterococcus concentrations equaled or exceeded the action level as summarized in Table 2. Staff conducted an IC/ID investigation for indicator bacteria on August 14, 2008. Two CAR14 IC/ID sites were sampled (see Figure 2). Both sites exceeded that action levels. The sources of water at the CAR14A site were irrigation over spray from a residence on La Plaza Drive and CAR14B were from curb drains on La Plaza Drive discharging groundwater to the gutter.

On September 16, 2008, staff collected a bacteria sample at the CAR14 site and bacteria concentrations were below the action levels therefore, the IC/ID was resolved and the investigation discontinued (see Figure 3 for a topographical map of the drainage). Four IC/ID sites were sampled upstream (CAR14C, CAR14D, CAR14E and CAR14F). One of the four sites exceeded an action level but no bacteria source was identified. All four IC/ID sites were curb drains on La Plaza (see Figures 4 and 5).

**Table 2. CAR14 Bacterial Concentrations (MPN/100 mL)**

<b>Sample Site</b>	<b>Sample Date</b>	<b>Estimated Flow (cfs)</b>	<b>Total Coliform</b>	<b>Fecal Coliform</b>	<b>Enterococcus</b>
CAR14	7/21/2008	Ponded	50,000	5,000	50,000
CAR14	8/14/2008	Ponded	160,000	16,000	50,000
CAR14A	8/14/2008	0.003	300,000	50,000	50,000
CAR14B	8/14/2008	0.004	50,000	50,000	50,000
CAR14	9/16/2008	Ponded	24,000	1,400	1,700
CAR14C	9/16/2008	<0.001	30,000	130	1,300
CAR14D	9/16/2008	<0.001	3,000	N/D	20
CAR14E	9/16/2008	<0.001	50,000	800	1,100
CAR14F	9/16/2008	<0.001	3,000	N/D	20
<b>Action Level</b>			<b>50,000</b>	<b>20,000</b>	<b>10,000</b>

Figure 2: CAR14 IC/ID Site Locations and Land Use.

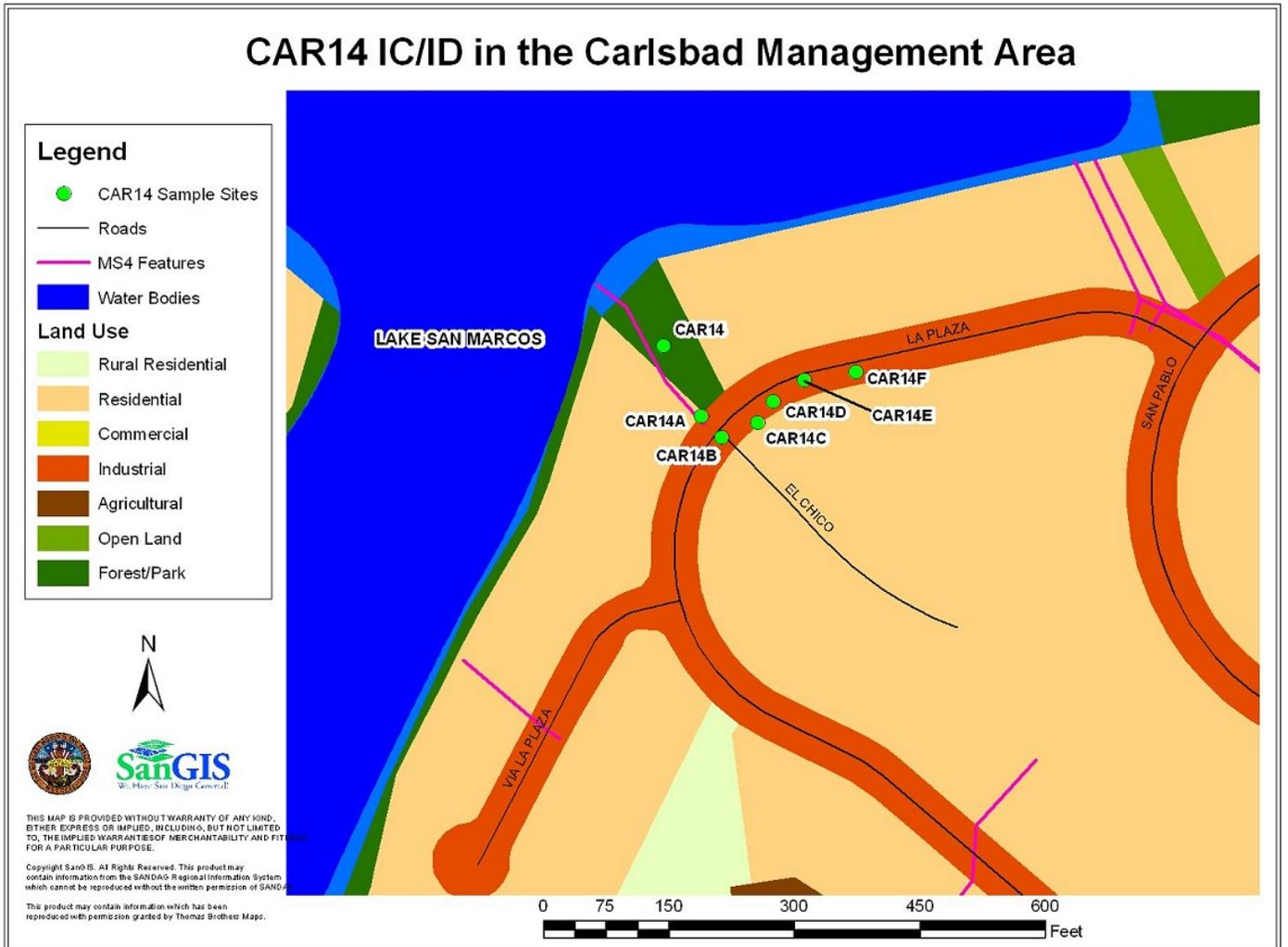


Figure 3: Topographical map of the CAR14 drainage.

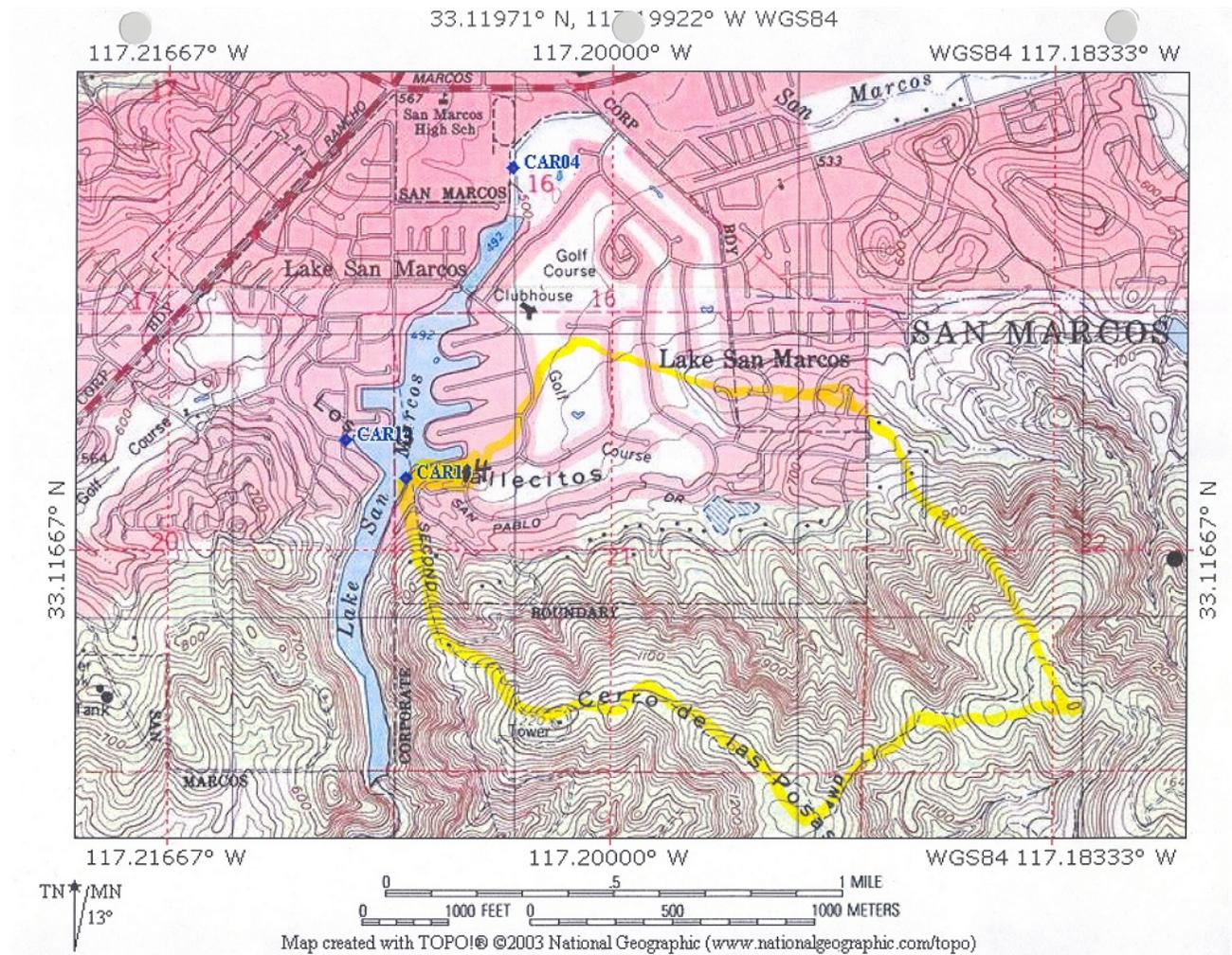


Figure 4. CAR14B Inlet on La Plaza Drive discharging to the CAR14 site. (September 8, 2008)



Figure 5. CAR14D Curb drain on La Plaza Drive 80' upstream of inlet to CAR14 site. (September 8, 2008)