



Memorandum

To: *Stormwater Quality Standards Study Task Force*

From: *CDM*

Date: *November 28, 2005*

Subject: *Technical Memorandum – Receiving Water Attribute Determination*

Attribute maps of three study reaches were developed for the Stormwater Quality Standards Study Task Force (Task Force). These maps show the physical characteristics of segments within each study reach, and define segments with uniform characteristics. The information can be used to assist the Task Force assess physical channel conditions related to recreational use potential within the three study reaches. The three study reaches are:

- Santa Ana Delhi Channel from Upper Newport Bay to Warner Avenue in the City of Santa Ana (Not named in the Basin Plan)
- Temescal Wash from Prado Wetlands to the Riverside Canal (Reaches 1A and 1B in the Basin Plan)
- Mill-Cucamonga Creek from Prado Wetlands to the confluence of Old Deer Creek and Cucamonga Creek (Mill Creek in the Basin Plan)

Attribute Set

During the August 25, 2005 Task Force Meeting, CDM presented a draft list of attribute data to be recorded for each of the study reaches. Modifications were made to the attribute set based on comments that were received by Task Force members. The following attributes were identified for each of the study reaches:

- Bed material
- Side slope material
- Bottom width
- Side slope
- Channel height

- Longitudinal slope
- Presence/ Absence of low-flow channel
- Presence/ Absence of fencing

Source Data

Record drawings were obtained from Orange County Resources and Development Management Department (RDMD), Riverside County Flood Control District (RCFCD), and San Bernardino County Flood Control District (SBCFCD). Attribute data was extracted from the record drawings and used to identify segments with common characteristics. Field verification was conducted to verify channel characteristic data obtained from the record drawings. Transitions between segments were determined by identifying where changes in the attributes occur.

Transitions between Segments

Segments were identified based on relevant characteristics changes. For instance, if the bottom width of the channel increased or decreased by 20 percent or more, then a new segment was introduced. Other attribute changes that led to identification of a new segment within each reach were changes in bed material and side slope material (concrete, rip-rap, or natural), side slope (vertical, trapezoidal, or natural), or the existence of a low flow channel (absent or present). Station data at the segment transitions was recorded to facilitate mapping of like segments for each study reach.

The existence of fencing was also verified. According to record drawings, sections of channels in highly urbanized or developed areas were for the most part fenced and gated. In some natural sections of the channels, fencing is not present, but gates are present near road access points (bridge crossings).

Mapping

Maps were developed for each of the study reaches that indicate the start and end of like segments. Each segment is identified with a unique segment name. Attribute data for each segment is presented in a table format for each map at the end of this memorandum (Table 1). Sections of two segments in the Santa Ana Delhi Channel reach are closed culvert sections, as the channel crosses under two major highways.

The Task Force concurred that the surrounding land use would be an important characteristic for evaluation. The maps are overlaid upon a Southern California Area Government land use GIS layer.



CLIENT Stormwater Quality Standards Study Task Force
 PROJECT Phase II Channel Attributes
 DETAIL Segment Breaks for Temescal Wash, Santa Ana Delhi Channel, and Cucamonga Creek

COMPUTED BY Jesse Aguilar
 DATE 11/28/2005
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Ontario, CA

Segment ID	Bottom Width (Ft)	Depth (Ft)	Side Slope (Ft)	Side Material	Bed Material	Bed Long. Slope	Length (Ft) (Approximate)	Low Flow Channel	Fence	Record Drawing Station Range
Temescal Wash	80 to 130	11 to 16	Varies	Varies	Varies	0.20% to 3.60%	30,908	Varies	Both Sides	20+32 to 203+60
TW1	N/A	N/A	Natural	Natural	Natural	N/A	12,580	N/A	None	N/A
TW2	80 to 100	11	2 to 1	Rip-Rap	Rip-Rap	0.20%	1,868	No	Both Sides	20+32 to 39+00
TW3	100	14	1.5 to 1	Concrete	Concrete	0.43%	7,010	Yes	Both Sides	39+00 to 109+10
TW4	130	16	1.5 to 1	Concrete	Concrete	3.60%	190	Yes	Both Sides	109+10 to 111+00
TW5	84	14	Vertical	Concrete	Concrete	0.32%	9,260	No	Both Sides	111+00 to 203+60

Segment ID	Bottom Width (Ft)	Depth (Ft)	Side Slope (Ft)	Side Material	Bed Material	Bed Long. Slope	Length (Ft) (Approximate)	Low Flow Channel	Fence	Record Drawing Station Range
Santa Ana Delhi Channel	22 to 55	14 to 15.5	Varies	Varies	Varies	0.045% to 2.0%	29,091	Varies	Both Sides	16+00 to 288+71
SAD1	N/A	N/A	Natural	Natural	Natural	N/A	1,820	N/A	None	N/A
SAD2 *	22 to 24	15.5	1.25 to 1	Rip-Rap/Concrete	Rip-Rap	0.07% to 2.0%	2,410	No	Both Sides	16+00 to 40+10
SAD3 **	55	14.5	Vertical	Concrete	Concrete	0.045% to 0.070	12,467	Yes	Both Sides	40+10 to 164+77
SAD4 ***	50	14	Vertical	Concrete	Concrete	0.07%	4,423	Yes	Both Sides	164+77 to 209+00
SAD5	20	14	2 to 1	Rip Rap	Rip Rap	0.07%	4,913	Yes	Both Sides	209+00 to 258+13
SAD6	32	14	Vertical	Concrete	Concrete	0.07%	3,058	No	Both Sides	258+13 to 288+71

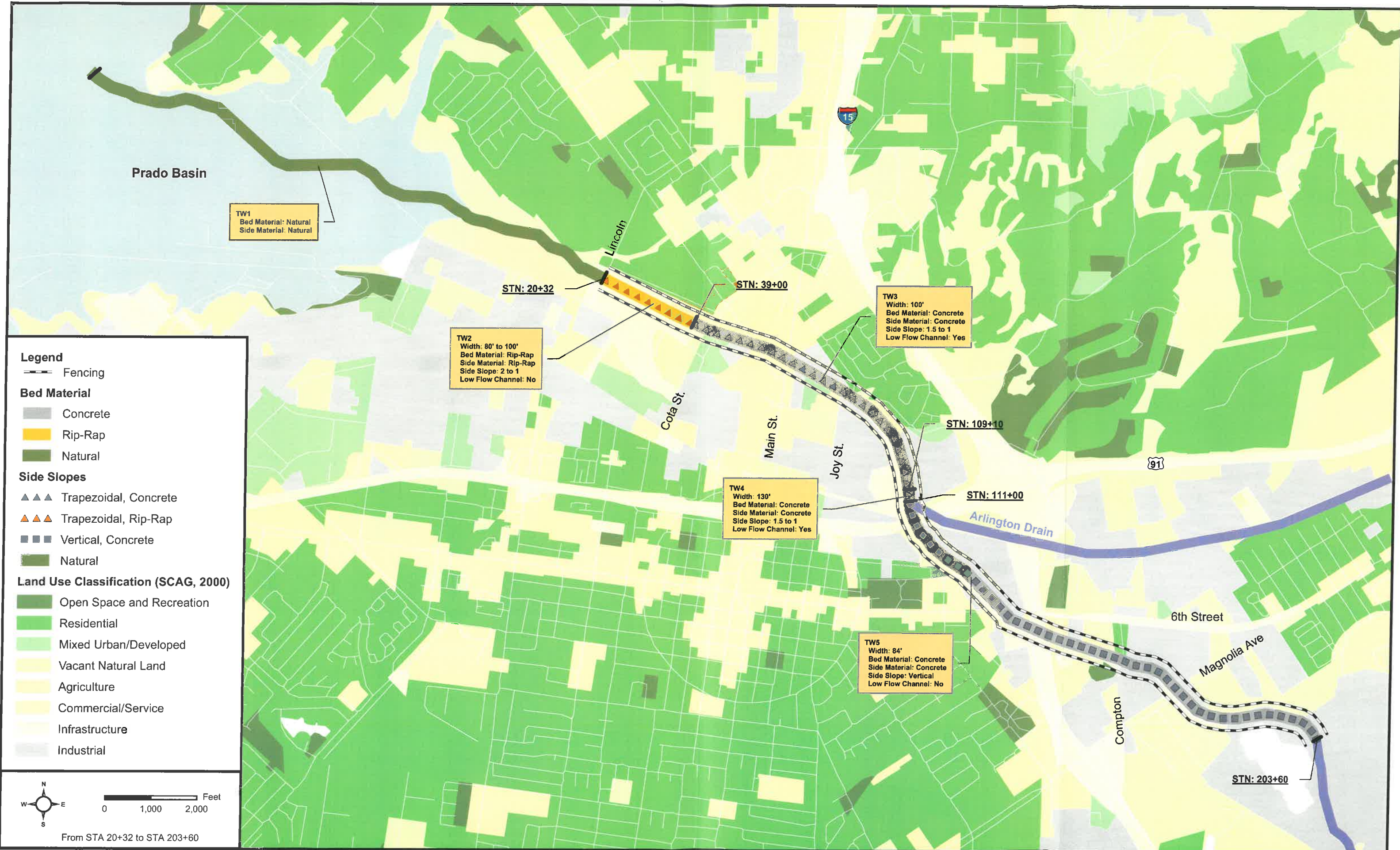
Segment ID	Bottom Width (Ft)	Depth (Ft)	Side Slope (Ft)	Side Material	Bed Material	Bed Long. Slope	Length (Ft) (Approximate)	Low Flow Channel	Fence	Record Drawing Station Range
Mill Cucamonga Creek	70 to 138	16 to 18	Varies	Varies	Varies	0.07% to 1.0%	32,372	No	Varies	225+48 to 457+00
CC1	N/A	N/A	N/A	Natural	Natural	N/A	9,220	N/A	None	N/A
CC2	138	17	4 to 1	Rip-Rap	Natural	0.07%	952	No	Gate Fence	225+48 to 235+00
CC3	70 to 78	18	2 to 1	Concrete	Concrete	0.61% to 1.0%	20,050	No	Both sides	235+00 to 435+50
CC4	70 to 110	16	Vertical	Concrete	Concrete	0.72%	750	No	Both sides	435+50 to 443+00
CC5	86	16	Vertical	Concrete	Concrete	0.72%	1,400	No	West Side (Gate Fence on The East Side)	443+00 to 457+00

* Drawings show side slope material to be rip-rap on the east side of the channel. Field verification indicates some rip-rap segments have become more natural in material type. A portion of the west side is concrete material.

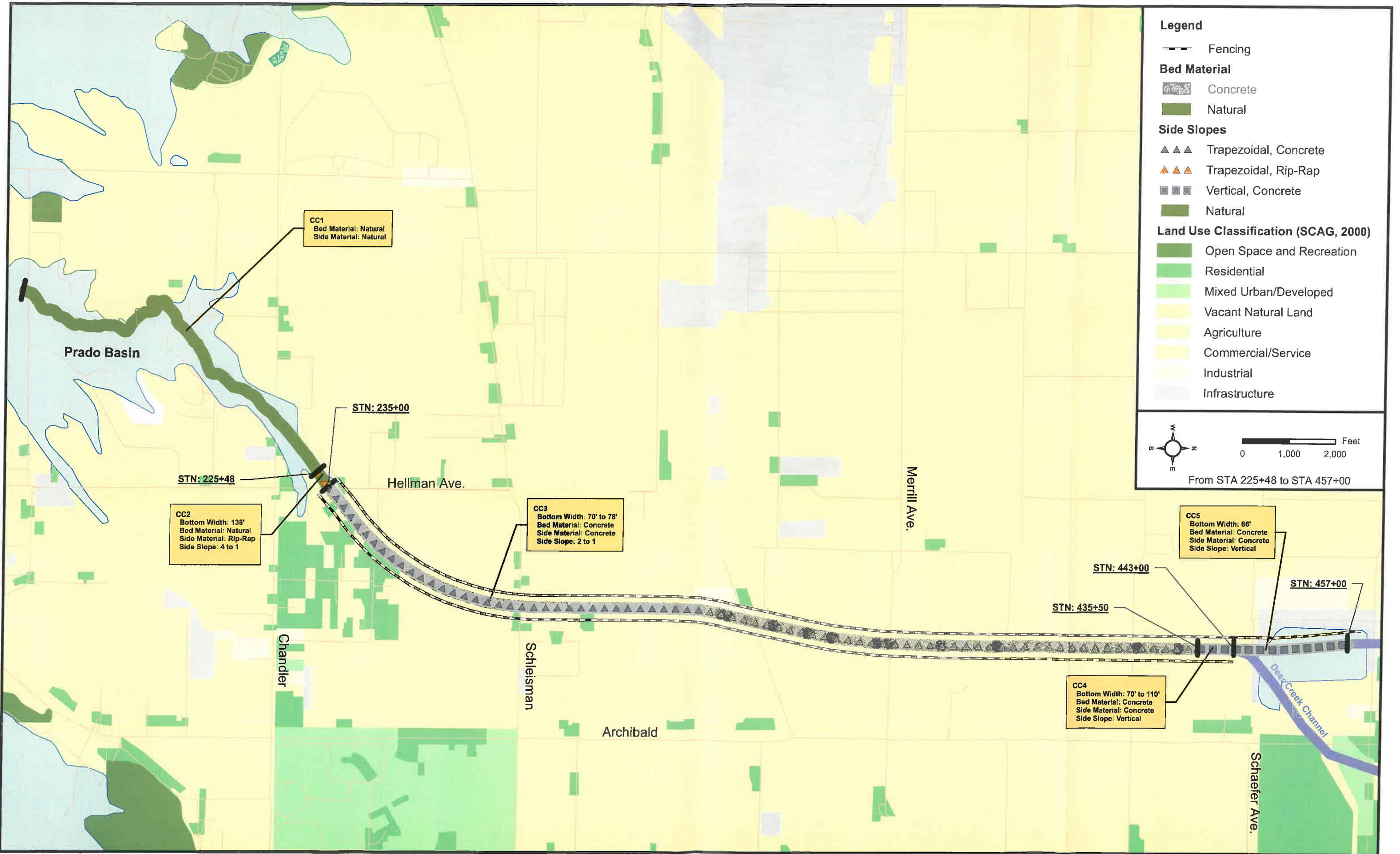
** The channel is a closed culvert North of Bristol Avenue at the Costa Mesa Freeway (Hwy 55) for approximately half a mile and it comes back to surface South of Baker Avenue.

*** The channel is a closed culvert South of the 405 Highway for approximately half a mile and then is an open channel South of Sunflower Avenue.

Characteristics of Temescal Wash Study Reach



Characteristics of Mill-Cucamonga Creek Study Reach



Legend

- Fencing
- Bed Material**
 - Concrete
 - Natural
- Side Slopes**
 - ▲▲▲ Trapezoidal, Concrete
 - ▲▲▲ Trapezoidal, Rip-Rap
 - ■ ■ Vertical, Concrete
 - Natural
- Land Use Classification (SCAG, 2000)**
 - Open Space and Recreation
 - Residential
 - Mixed Urban/Developed
 - Vacant Natural Land
 - Agriculture
 - Commercial/Service
 - Industrial
 - Infrastructure

From STA 225+48 to STA 457+00

0 1,000 2,000 Feet

W N E S

CC1
Bed Material: Natural
Side Material: Natural

CC2
Bottom Width: 138'
Bed Material: Natural
Side Material: Rip-Rap
Side Slope: 4 to 1

STN: 235+00

CC3
Bottom Width: 70' to 78'
Bed Material: Concrete
Side Material: Concrete
Side Slope: 2 to 1

STN: 443+00

STN: 435+50

CC4
Bottom Width: 70' to 110'
Bed Material: Concrete
Side Material: Concrete
Side Slope: Vertical

CC5
Bottom Width: 86'
Bed Material: Concrete
Side Material: Concrete
Side Slope: Vertical

STN: 457+00

Schaefer Ave.

Deer Creek Channel

Merrill Ave.

Archibald

Schleisman

Chander

Prado Basin

Hellman Ave.

Characteristics of Santa Ana Delhi Channel Study Reach

