SUMMARY OF FINDINGS FOR THE ANNUAL DRAINAGE CHANNEL FIELD ASSESSMENT AND MAINTENANCE PRIORITIZATION PROJECT (PHASE 1) FOR THE CITY OF SAN DIEGO – MASTER STORM WATER SYSTEM MAINTENANCE PROGRAM (MMP) MAP 47: 7969 AND 7971 ENGINEER ROAD

Job Number 17204-D

August 4, 2015

RICK
ENGINEERING COMPANY

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Job Number 17204-D

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1.0 Executive Summary

This report and preliminary analyses concludes that the Channel Prioritization Score for the 7969 and 7971 Engineer Road (MMP Map 47) is **89.8 out of 100**. This score is above average and indicates that the channel is highly recommended for maintenance. If the channel is maintained to reflect the as-built condition, the hydraulic capacity of the channel will increase from the current less than 2-year storm event capacity to a 100-year storm event capacity. In addition to the hydraulic capacity, the analyses considered other factors including water quality, community input and aesthetics. The analyses concluded that these other factors are generally in good condition and the benefits of maintaining the channel are mainly to reduce the flood risk.

2.0 Introduction

This report summarizes the findings for the Annual Drainage Channel Field Assessment and Maintenance Prioritization Project (Phase 1) for the City of San Diego for Master Storm Water System Maintenance Program (MMP), dated October 2011, Map 47: 7969 and 7971 Engineer Road. Refer to Appendix A for the MMP Storm Water Facilities Key Map and Map 47.

Purpose

As part of the Master Storm Water System Maintenance Program (MMP), the City of San Diego performed site visits to drainage channels within the MMP and designated several drainage channels as maintenance priorities. The purpose of Phase 1 of this project is to perform a desktop analysis to evaluate the drainage channels identified by the City of San Diego and rank them in order of significance for the purposes of City of San Diego maintenance activities.

3.0 Desktop Channel Maintenance Prioritization Analysis

The desktop channel maintenance prioritization analysis is based on the following items which were reviewed and evaluated to determine the maintenance priority:

- City of San Diego Operations and Maintenance (O&M) Channel Maintenance Inspection Forms completed for the channel by the City of San Diego (Refer to Appendix B)
- Site photos taken by the City of San Diego (Refer to Appendix B)
- Available as-built plans (Refer to Appendix G)
- Hydraulic Analysis (Refer to Section 5.0 and Appendix D for detailed output)

Section 5.1 of the MMP discusses the Annual Maintenance Needs Determination Process. As part of the determination process, the MMP recommends that certain factors be evaluated including flood risk to life and property, water quality, community input and aesthetics. These four factors were utilized

for this channel maintenance prioritization analysis. For the purposes of prioritizing the channel for maintenance activities, each main factor is weighted as shown in Table 1 below:

Table 1

Channel Prioritization Assessment Factors and Weighting	
Factor	**Percent Weighted (%)**
Flood Risk	75
Water Quality	10
Community Input	10
Aesthetics	5

As part of the channel prioritization analysis, each of the main factors has been divided into sub-factors. To determine the Flood Risk factor, a basic hydraulic analysis was performed for the channel. The hydraulic analysis is described in more detail in the Hydraulic Analysis section (Section 5.0) of this report. The remaining factors, Water Quality, Community Input and Aesthetics were assessed based on the site photos and the information provided on the (O&M) Channel Maintenance Inspection Form completed for the channel provided by the City of San Diego. These factors and sub-factors and how they relate to the Channel Prioritization Score are shown in more detail on the Channel Prioritization Assessment Sheet located in Appendix E.

4.0 Hydrologic Summary

Estimated Peak Discharges

A drainage study for the channel was not available at the authorship of this report. The drainage channel is not a Federal Emergency Management Agency (FEMA) defined channel and no detailed hydrologic analysis was available. Therefore, the 100-year storm event peak discharge (Q100) for the channel was estimated based on the size of the watershed tributary to the channel as shown in Table 2 below:

Table 2

100-year Peak Discharge (Q100) Estimation Based on Watershed Size				
Watershed Area (square	<1	1	2	>4
cfs per acre	4	2	1.5	1

cfs = cubic feet per second

The 2-, 5-, 10-, 25-, and 50-year storm event flow rates were then approximated by taking the ratio of the unknown storm event 6-hour precipitation and the 100-year storm event 6-hour precipitation, and then multiplying Q100 by the ratio to estimate the flow rate for the unknown storm event. Hydrologic support material is located in Appendix C. A summary of the estimated peak discharges are provided in the table below:

Table 3

Summary of Approximate Hydrologic Data						
Drainage Area: 64 acres						
6-hour Precipitation	1.1	1.4	1.6	1.8	2.1	2.3
Frequency	**2-Year**	**5-Year**	**10-Year**	**25-Year**	**50-Year**	**100-Year**
Discharge (cfs)	125	157	182	205	239	256

cfs = cubic feet per second

5.0 Hydraulic Analysis

A basic hydraulic analysis of the channel was performed to assess the Flood Risk factor. The channel assessment limits are shown on Map 47 located in Appendix A. Manning's equation was utilized to calculate the capacity of the channel under two conditions:

1. As-built Conditions: based on the material and geometry as shown on the available as-built plans. (Refer to Appendix G)
2. Current Conditions: based on the vegetation and sediment levels estimated from the site photos taken by the City of San Diego and information provided on the (O&M) Channel Maintenance Inspection Form prepared by the City of San Diego.

Culvert crossings that may exist within the channel reach were not analyzed as part of this hydraulic analysis. Existing culverts may be inefficient or undersized, however the culvert hydraulics were not considered as part of this analysis.

The multiple storm event peak discharges previously calculated in Section 4.0 were evaluated under each condition to assess the capacity of the channel and evaluate the benefit of performing maintenance activities on the channel. See the table below for a summary of the hydraulic results and Appendix D for detailed hydraulic output.

Table 4

Summary of Hydraulic Analysis Results			
CURRENT CHANNEL CAPACITY		**AS-BUILT CHANNEL CAPACITY**	
Current Condition (cfs)	**Equivalent Storm Event (year)**	**As-built Condition (cfs)**	**Equivalent Storm Event (year)**
95.4	<2	491	100

cfs = cubic feet per second

6.0 Other Channel Prioritization Factors

Sections 4.0 and 5.0 above discuss the determination process for the Flood Risk factor. For more information on the assessment of the Water Quality, Community Input, and Aesthetics factors please refer to the Channel Prioritization Assessment Sheet in Attachment E. The Channel Prioritization Assessment Sheet lists and describes the sub-factors that are considered in the determination of the four main channel assessment factors.

7.0 Summary of Findings and Recommendations

A summary of the Channel Assessment is shown in the table below:

Table 5

Channel Prioritization Assessment Scoring Summary		
Factor	**Percent Weighted (%)**	**Weighted Factor Score/Maximum**
Flood Risk	75	73.8/75
Water Quality	10	6/10
Community Input	10	5/10
Aesthetics	5	5/5
	Overall Channel Score:	*89.8/100*

Additionally, the following items should be noted:

- There is dense vegetation at the culvert at the downstream end of the channel reach. A high risk of vegetation flowing downstream and clogging the culvert exists.
- There are household trash and palm cuttings inside the channel that most probably come from the surrounding property owners.

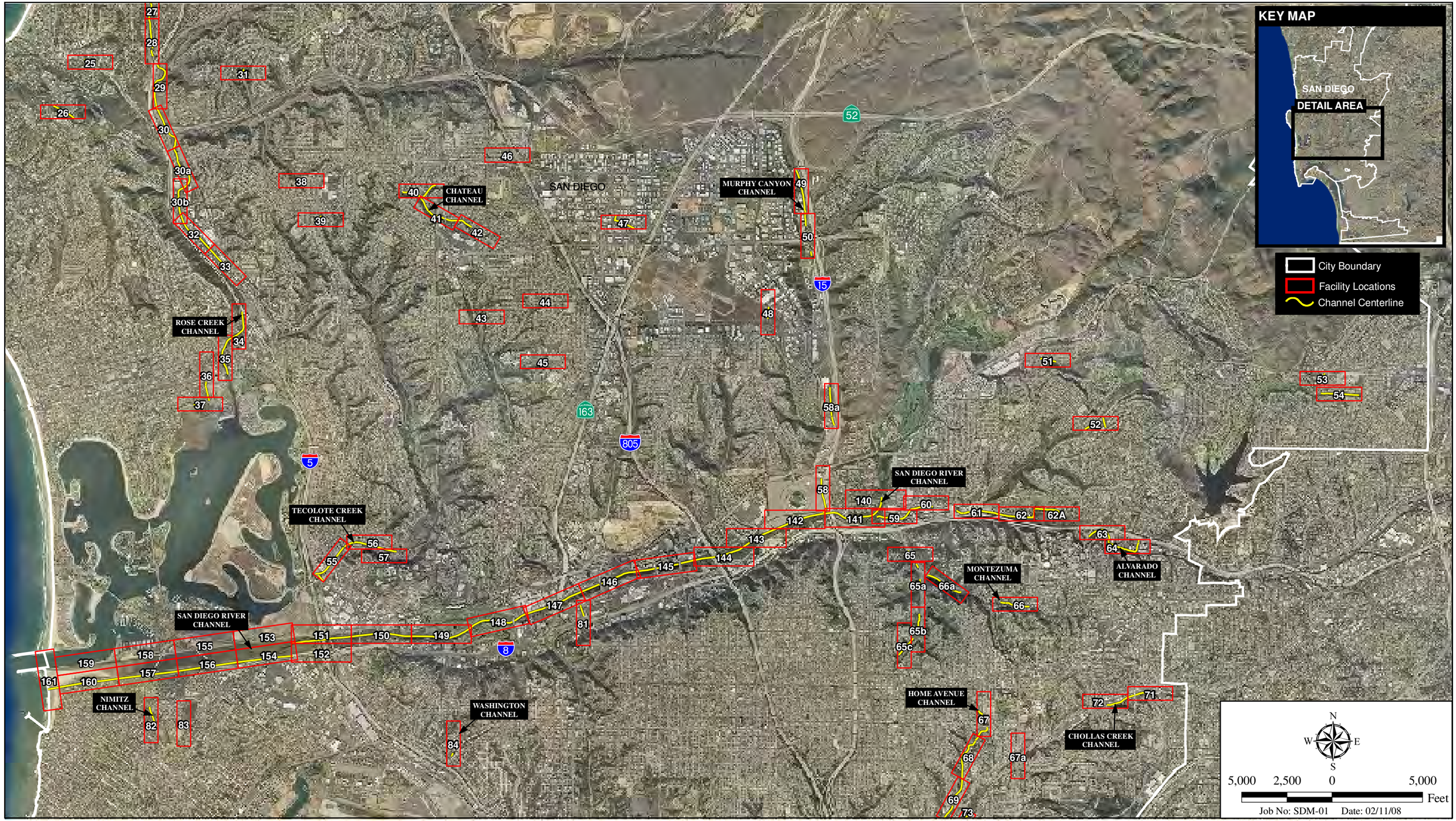
Based on the evaluation of the four weighted channel prioritization factors described in Section 3.0 of this report, the Channel Prioritization Score for MMP Map 47: 7969 and 7971 Engineer Road is **89.8**. Refer to the Channel Prioritization Assessment Sheet located in Appendix E for details on the evaluation of the weighted factors and resulting score for this channel.

It is recommended that this drainage channel be maintained to increase the current capacity of the channel from less than a 2-year storm event back to a 100-year storm event capacity.

A summary of the channel including an aerial map, channel prioritization score, and other pertinent information is shown on the exhibit titled “Channel Maintenance Prioritization Summary Sheet” located in Appendix F.

Appendix A

Master Storm Water System Maintenance Program (MMP), dated October 2011, Storm Water Facilities Key Map and Map 47: 7969 and 7971 Engineer Road



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Stormwater Facilities - I-8 Corridor

CITY OF SAN DIEGO MASTER STORMWATER SYSTEM MAINTENANCE PROGRAM

HELIX

Figure 2c

I:\ArcGIS\S\SDM-01 StormDrainMaintenance\Map\ENV\MasterPlan\Map47.mxd -RK

Access and Staging Areas

CITY OF SAN DIEGO MASTER STORMWATER SYSTEM MAINTENANCE PROGRAM

Appendix B
City of San Diego Operations and Maintenance (O&M)
Channel Maintenance Inspection Forms completed
for the channel and Site photos taken by the City of San Diego

Operations and Maintenance

Channel Maintenance Inspection Form

Date: 5/12/15 Time: pm

Channel Map No.: 47 Engineer RD Watershed: J.D.

Inspector: Sam Richard Weather: Sunny

Initial Inspection yes Follow Up Inspection

A. Channel Condition

1=Poor Condition/Needs Immediate Attention

2= Moderate Condition

3= Good Condition

Item	Condition	Comments
1. Structure Condition	1 2 (3) N/A	
2. Erosion	1 2 (3) N/A	
3. Trash/Debris	1 (2) 3 N/A	Type of trash and source: House Hold trash palm cuttings
4. Water Conveyance/ Volume	1 (2) 3 N/A	
5. Standing Water	(N)	
A. Ponding	(N)	
B. Noticeable odors	Y N	
C. Algae	(N)	
6. Vegetation	(1) 2 3 N/A	Approx. Coverage/Density of Vegetation: 95%
A. Invasive (Arundo)	(1) 2 3 N/A	
B. Native	(1) 2 3 N/A	
7. Sediment	1 2 (3) N/A	Approx. Depth/Coverage of Sediment: 5%
8. Transients/ encampments	Y N	

B. Culverts and Outfalls

1= Poor Condition/Needs Immediate Attention

2= Moderate Condition

3= Good Condition

Item	Condition	Comments
1. Structure Condition	1 2 (3) N/A	
2. Trash/Debris/Sediment	1 (2) 3 N/A	
3. Clogging	1 (2) 3 N/A	

C. See Map Attached

-Identify Key Issues on Map

-Inspect and take photographs from vantage points identified on Map

Other Comments:

D. To Be Completed by Management

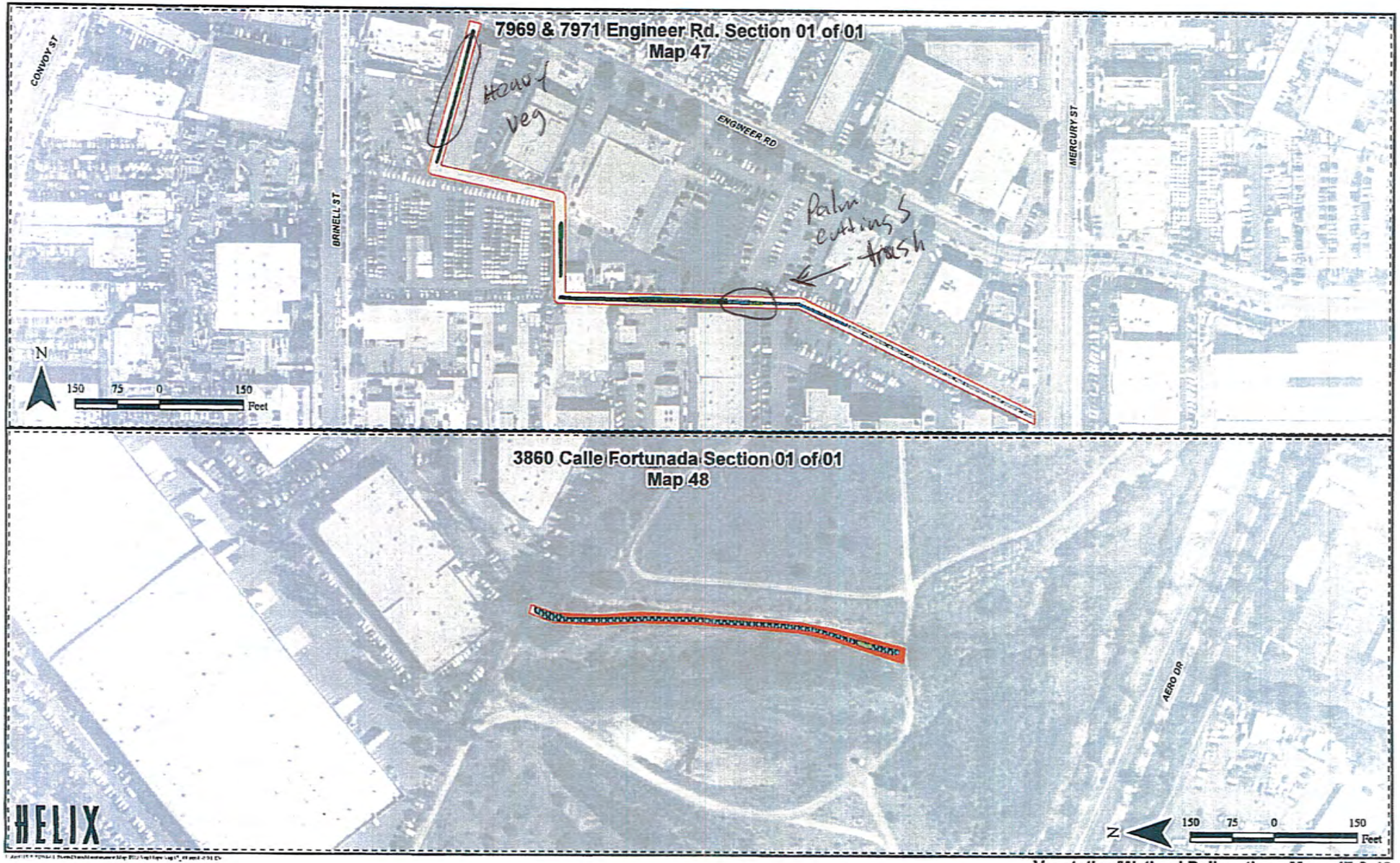
Follow Up Actions
1.
2.
3.

E. Infrastructure Failure Issues

Item	Condition	Comments
1. Broken Concrete/Gunite?	Y (N) N/A	
2. Broken/Missing Trash Fence?	Y (N) N/A	
3. Broken/Missing Poles/Supports?	Y (N) N/A	
4. Exposed Rebar?	Y (N) N/A	
5. Rock/Debris Accumulation?	Y (N) N/A	
6. Potential Flooding/Litigation?	Y (N) N/A	
7. Slope Failure?	Y (N) N/A	

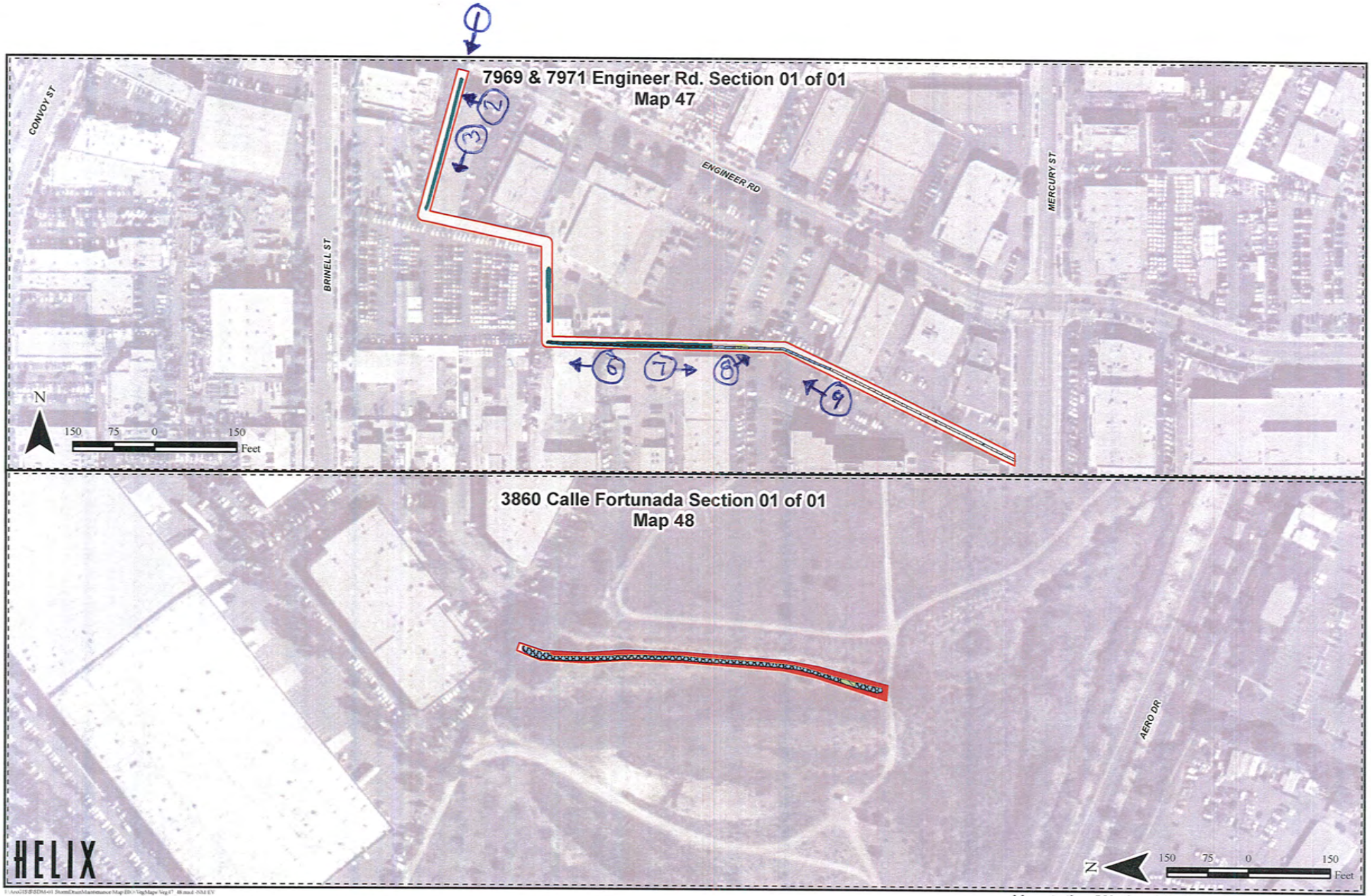
Other Comments/Observations:

Trash and Palm cutting's Behind 7990 Dagget St in channel



Vegetation/Wetland Delineation - Maps 47 & 48

CITY OF SAN DIEGO MASTER STORMWATER SYSTEM MAINTENANCE PROGRAM



Vegetation/Wetland Delineation - Maps 47 & 48

CITY OF SAN DIEGO MASTER STORMWATER SYSTEM MAINTENANCE PROGRAM

Engineer Road.1 (5-12-2015).JPG

Engineer Road.2 (5-12-2015).JPG

Engineer Road.3 (5-12-2015).JPG

Engineer Road.6 (5-12-2015).JPG

Engineer Road.7 (5-12-2015).JPG

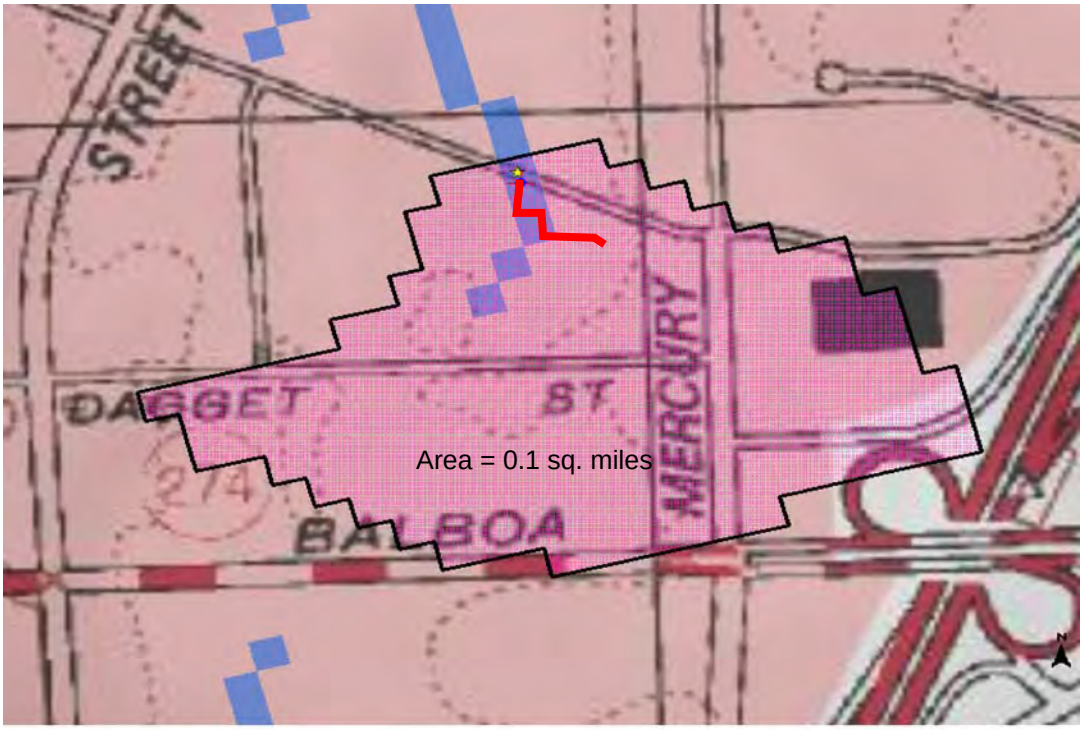
Engineer Road.8 (5-12-2015).JPG

Engineer Road.9 (5-12-2015).JPG

Appendix C
Hydrologic Support Material

USGS California StreamStats

Engineer Road Channel Watershed MMP Map 47



Explanation

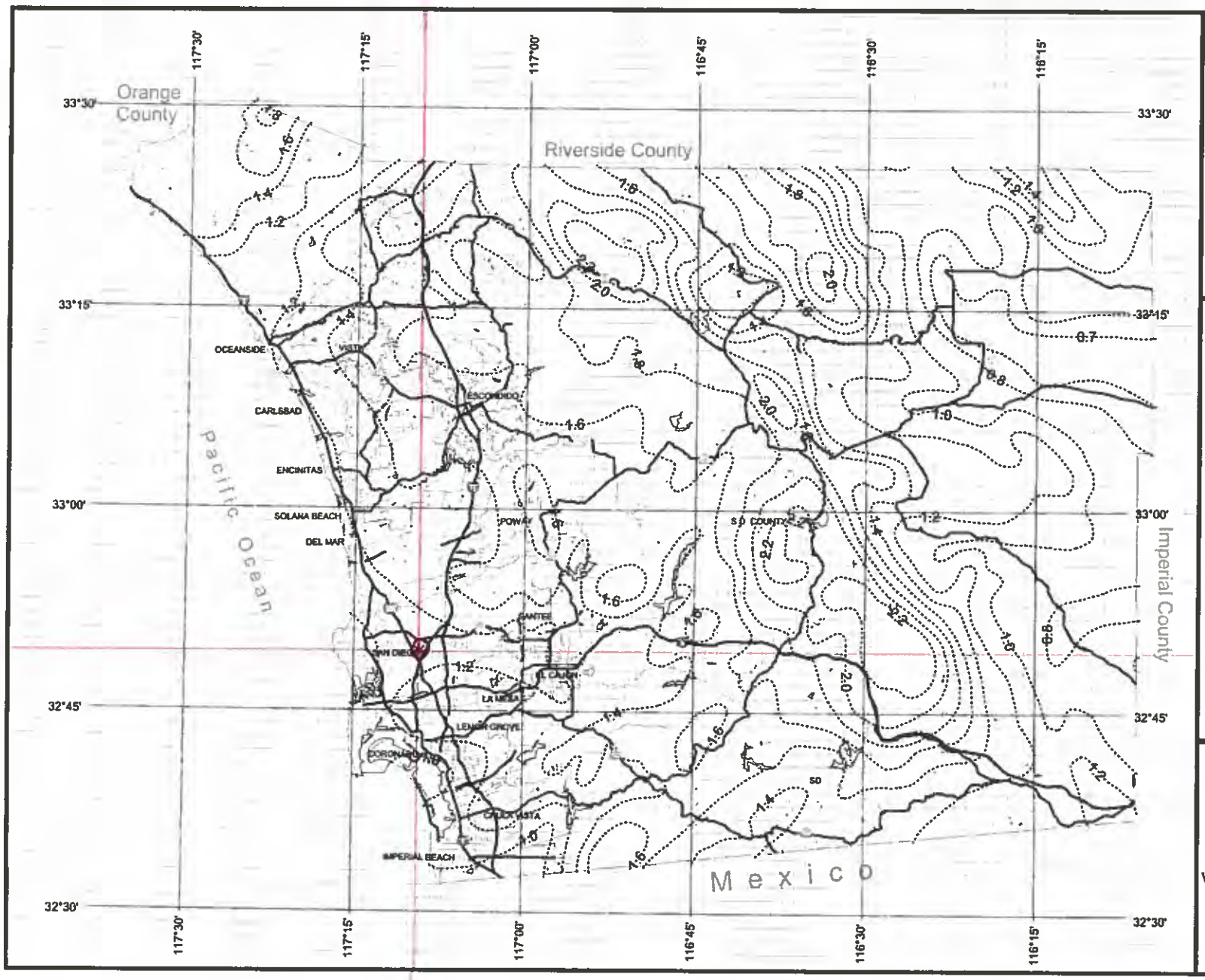
- GlobalWatershedPoint
- Centroid
- huc_net_Junctions
- GlobalWatershed
- Synthetic Stream Grid
- Gaging Station, Continuous Record
- Low Flow, Partial Record
- Peak Flow, Partial Record
- Peak and Low Flow, Partial Record
- Stage Only
- Low Flow, Partial Record, Stage
- Miscellaneous Record
- Unknown
- hucpoly
- streams
- ExcludePoly
- Approximate channel area

San Diego County Hydrology Manual

Prepared by the County of San Diego
Department of Public Works
Flood Control Section

June 2003

LIST OF APPENDICES



County of San Diego Hydrology Manual

Rainfall Isopluvials

2 Year Rainfall Event - 6 Hours

Isopluvial (inches)

(*) P_6 = 1.1 inches

DPW GIS

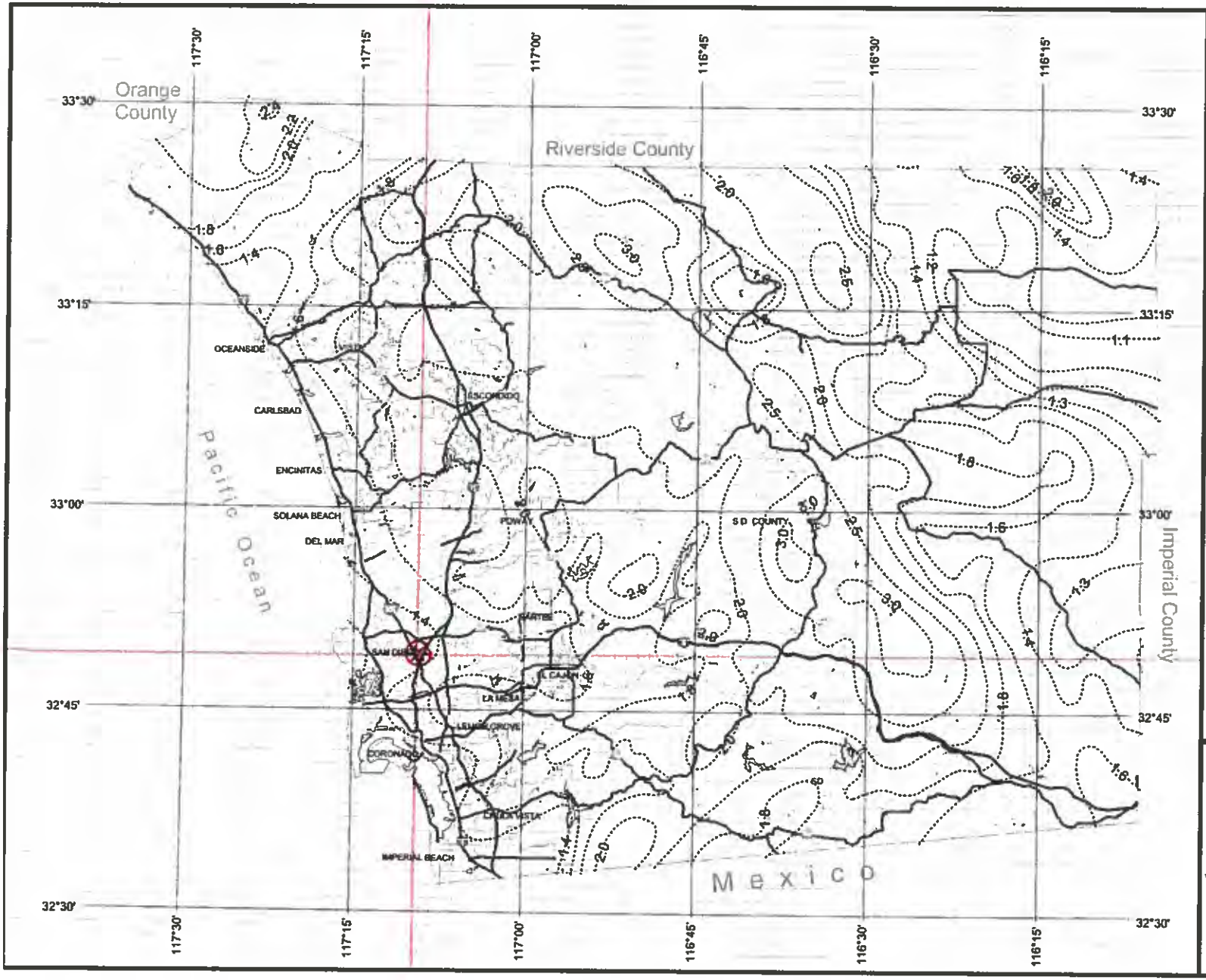
SanGIS

N W E S

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials



5 Year Rainfall Event - 6 Hours

Isopluvial (inches)

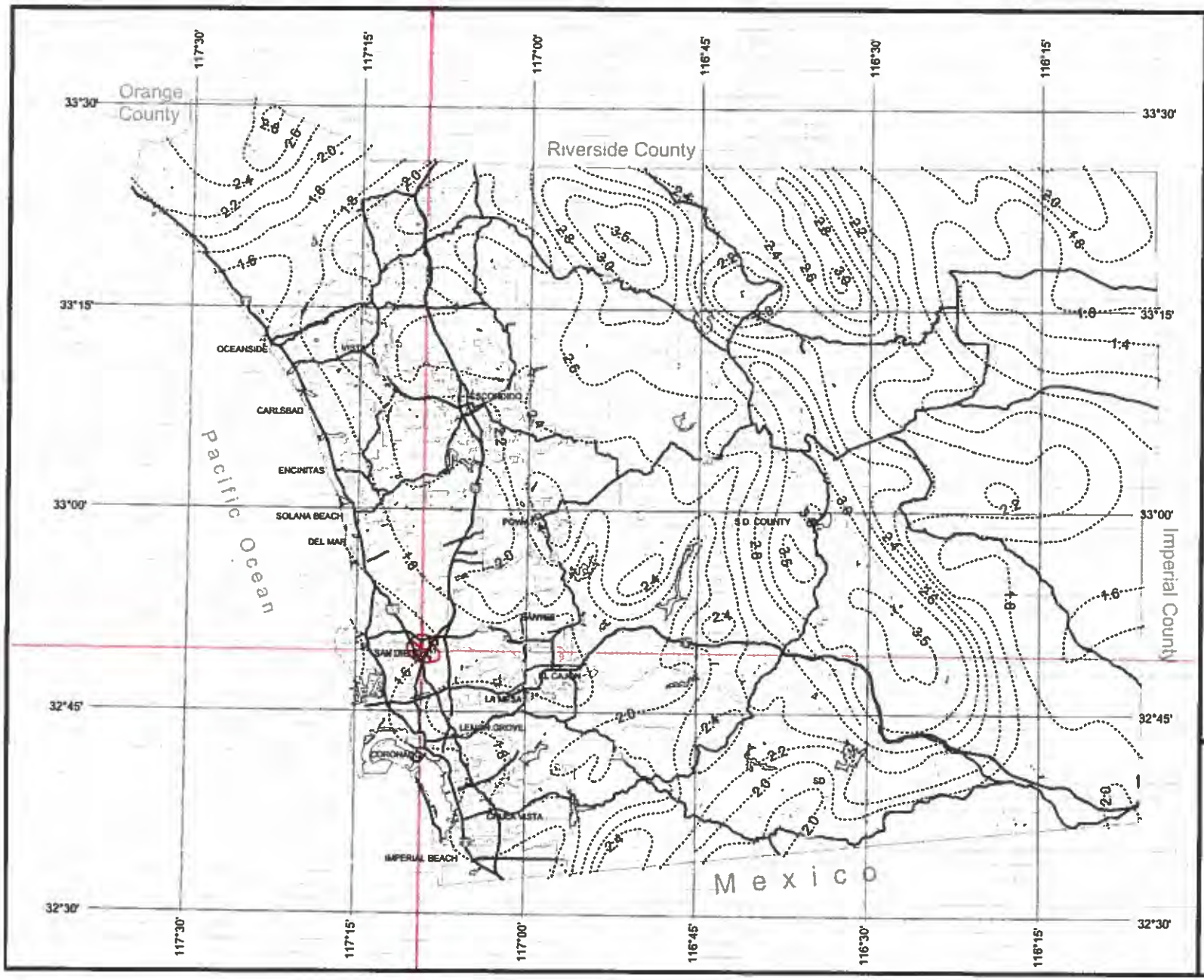
* P_6 = 1.4 inches

DPW GIS

SanGIS

N W E S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 6 Hours

Isopluvial (inches)

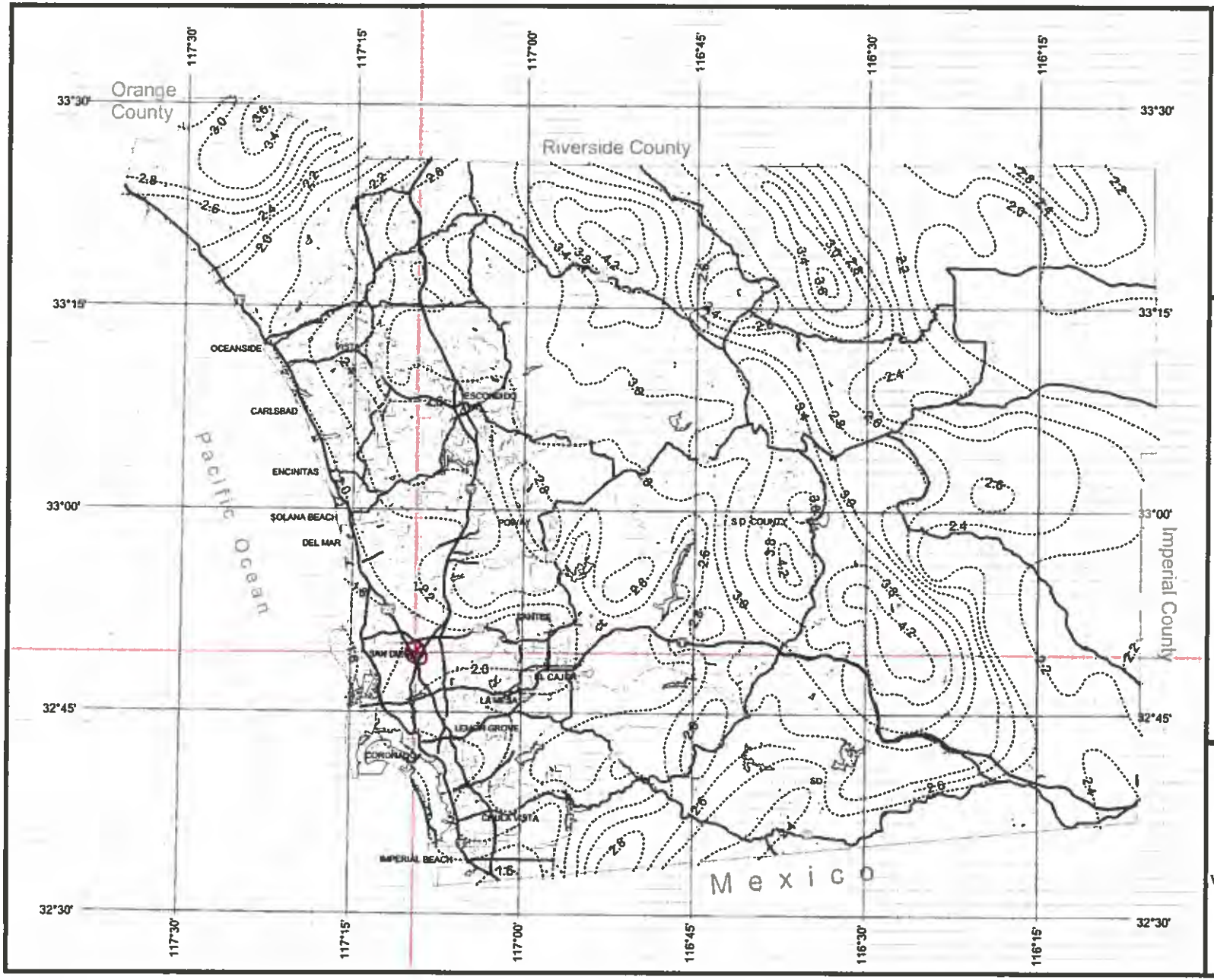
$P_6 = 1.6$ inches

DPW GIS

SanGIS

N W E S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 6 Hours

Isopluvial (inches)

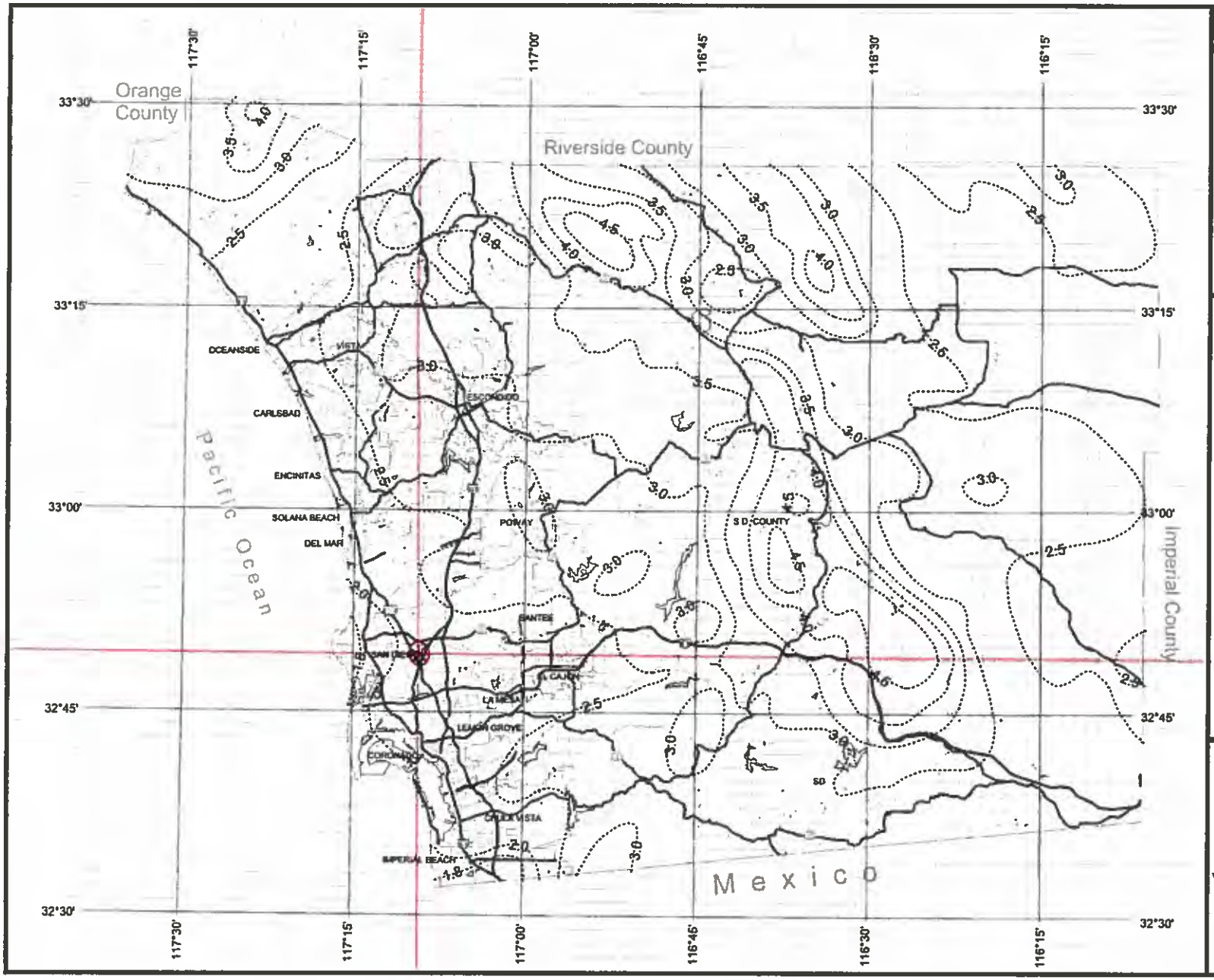
(25) P_6 = 1.8 inches

DPW GIS

SanGIS

N W E S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 6 Hours

Isopluvial (inches)

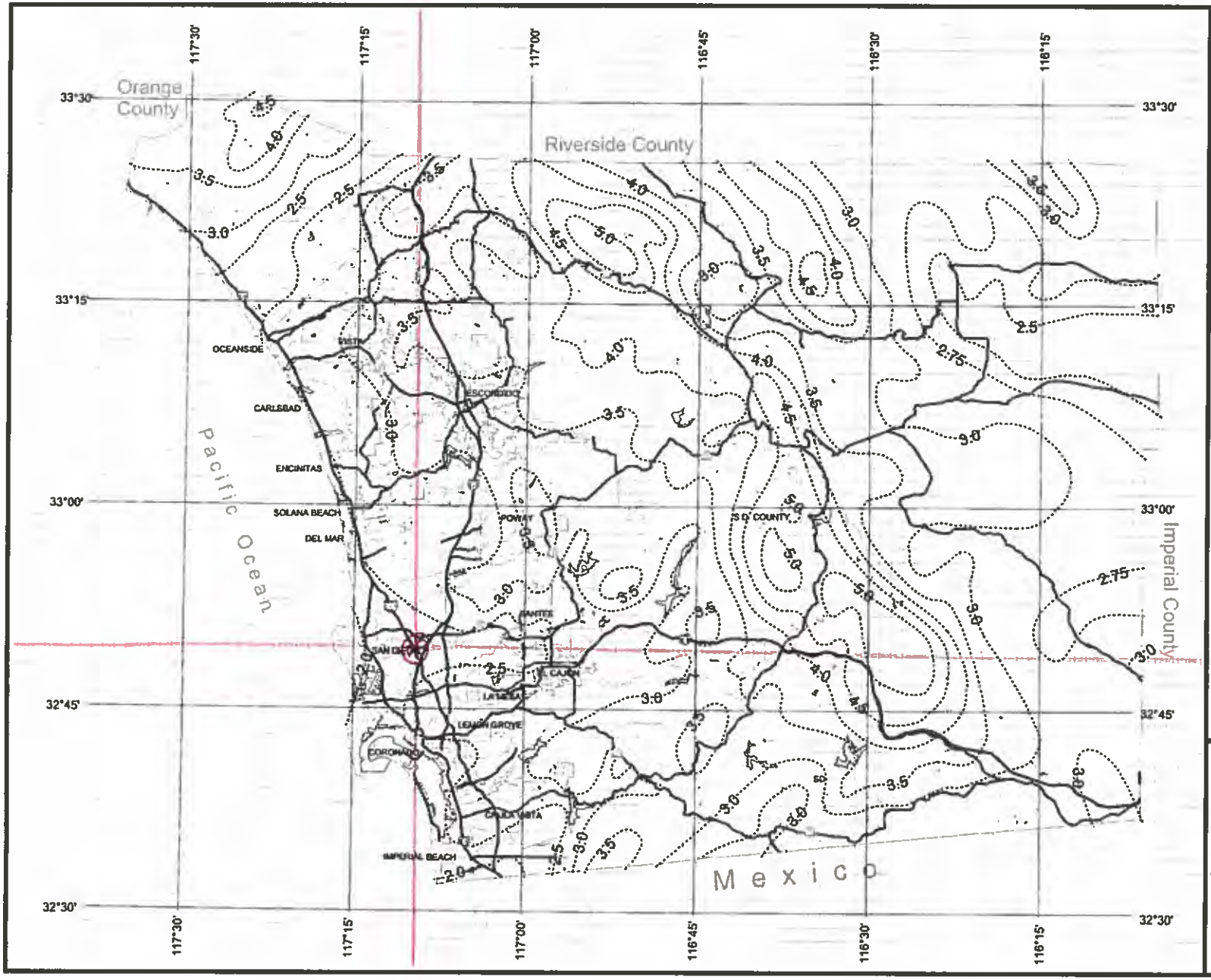
* P_6 = 2.1 inches

DPW GIS

GIS

N W E S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

* P_6 = 2.25 inches

DPW GIS

SanGIS

N W E S

3 0 3 Miles

Appendix D
Hydraulic Analysis Output

Hydraulic Analysis Report

Project Data

Project Title: Engineer Road

Designer: Rick Engineering Company J-17204-D

Project Date: Friday, June 19, 2015

Project Units: U.S. Customary Units

Channel Analysis: As-built_Engineer_Road_Map47_100

Notes: This channel is lined with pneumatically applied mortar and is shown in as-builts to have a bottom width of 3 feet, 4 feet deep, and side slopes of 1:1. The channel has an overall slope of 0.0185 ft/ft. Pursuant to Table 1-104.14A of the City of San Diego Drainage Design Manual, dated April 1984, the roughness coefficient used for the channel side slopes and channel bottom is 0.018. This roughness coefficient is based on air blown mortar.

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 1.0000 (ft/ft)

Side Slope 2 (Z2): 1.0000 (ft/ft)

Channel Width: 3.0000 (ft)

Longitudinal Slope: 0.0185 (ft/ft)

Manning's n: 0.0180

Depth: 4.0000 (ft)

Result Parameters

Flow: 491.7686 (cfs)

Area of Flow: 28.0000 (ft^2)

Wetted Perimeter: 14.3137 (ft)

Hydraulic Radius: 1.9562 (ft)

Average Velocity: 17.5632 (ft/s)

Top Width: 11.0000 (ft)

Froude Number: 1.9400

Critical Depth: 5.5382 (ft)

Critical Velocity: 10.3999 (ft/s)

Critical Slope: 0.0046 (ft/ft)

Critical Top Width: 14.0764 (ft)

Calculated Max Shear Stress: 4.6176 (lb/ft^2)

Calculated Avg Shear Stress: 2.2582 (lb/ft^2)

Channel Analysis: Current_Condition_Engineer_Road_Map47_<2

Notes: This channel is lined with pneumatically applied mortar and is shown in as-builts to have a bottom width of 3 feet, 4 feet deep, and side slopes of 1:1. The channel has an overall slope of 0.0185 ft/ft. Pursuant to Table 1-104.14A of the City of San Diego Drainage Design Manual, dated April 1984, the roughness coefficient used for the channel side slopes and channel bottom is 0.09. This roughness coefficient is based on medium to dense brush.

Input Parameters

Channel Type: Custom Cross Section

Station (ft)	Elevation (ft)	Manning's n
0.00	4.00	0.0900
3.80	0.20	0.0900
7.20	0.20	0.0900
11.00	4.00	-----

Cross Section Data

Longitudinal Slope: 0.0185 (ft/ft)

Depth: 3.8000 (ft)

Result Parameters

Flow: 95.3729 (cfs)

Area of Flow: 27.3600 (ft^2)

Wetted Perimeter: 14.1480 (ft)

Hydraulic Radius: 1.9338 (ft)

Average Velocity: 3.4859 (ft/s)

Top Width: 11.0000 (ft)

Froude Number: 0.3895

Critical Depth: 2.3019 (ft)

Critical Velocity: 7.2666 (ft/s)

Critical Slope: 0.1332 (ft/ft)

Critical Top Width: 8.0037 (ft)

Calculated Max Shear Stress: 4.6176 (lb/ft^2)

Calculated Avg Shear Stress: 2.2582 (lb/ft^2)

Composite Manning's n Equation: Lotter method

Manning's n: 0.0900

CITY OF SAN DIEGO

DRAINAGE DESIGN MANUAL

APRIL • 1984

TABLE OF CONTENTS (Continued)

TABLE 1-104.14A

DESIGN VALUES FOR MANNINGS ROUGHNESS COEFFICIENT (n)

TYPE OF CHANNEL	N VALUE
Unlined Channels:	
Clay Loam	0.023
Sand	0.020
Gravel	0.030
Rock	0.040
Lined Channels:	
Portland Cement Concrete	0.015
Air Blown Mortar	0.018
Asphalt Concrete	0.018
Grass Lined Channels: (Shallow depths)	
2 inch length	0.050
4 - 6 inch length	0.060
6 - 12 inch length	0.120
12 - 24 inch + length	0.200
Pavement and Gutters:	
Concrete	0.015
Asphalt Concrete	0.018
Natural Streams: (Less than 100 feet wide at flood stage)	
1. Regular section	
a. Some grass and weeds, little or no brush	0.030
b. Dense growth of weeds, depth of flow substantially greater than weed height	0.040
c. Some weeds, light brush on bank	0.040
d. Some weeds, heavy brush on banks	0.060
e. With trees in channel, branches submerged at flood stage, increase above values by	0.015

TABLE 1-104.14A (Continued)

2.	Irregular section, with pools, slight channel meander increase all values listed in 1. Regular Section, by	0.015

Flood Plains: (adjacent to natural streams)

1.	Pasture, no brush	
	a. Short grass	0.030
	b. High grass	0.040
2.	Cultivated areas	
	a. No crop	0.040
	b. Mature row crops	0.040
	c. Mature field crops	0.050
3.	Heavy weeds, scattered brush	0.050
4.	Light brush and trees	0.060
5.	Medium to dense brush	0.090
6.	Dense willows	0.170
7.	Cleared land with tree stumps, 100-150 per acre	0.060
8.	Heavy stand of timer, little undergrowth	
	a. Flood depth below branches	0.110
	b. Flood depth reaches branches	0.140

Appendix E
Channel Prioritization Assessment Sheet

Channel Prioritization Assesment Sheet for 7969 and 7971 Engineer Road MMP Map 47				**Total Channel Score:**	**89.8 /100**	
Flood Hazard (75% of total weight)				**Score**	factor weight	Weighted Points
Δ capacity				**Sum of sub-factor a-c scores:**	**14**	*25%*	17.5
	a. Risk of flooding	Current Channel Normal depth capacity[1]:	95.4 cfs <2 -yr. storm event	*2-yr.=score of 5; 5-yr.=score of 4; 10-yr.=score of 3; 25-yr.=score of 2; 50-yr.=score of 1; 100-yr.=score of 0*	(out of 15)		
	b. Increase in storm event capacity	Channel As-Built normal depth capacity[1]:	491 cfs 100 -yr. storm event	*1 point given for every level increase in -year storm event capacity, post-maintenance*			
	c. Net percent increase in channel capacity post-maintenance		415%	*Less than 100% = score of 0; 100%-199% = score of 1; 200%-299% = score of 2; 300%-399% = score of 3; 400%-500%= score of 4; Greater than 500% = score of 5*			
Consequence of flooding adjacent areas				0 1 2 3 **4**	50%	37.5
	Surrounding area land use:		Residential	*Residential = score of 4; Commercial = score of 4; Roads = score of 2; Agriculture = score of 1; Other = score of 1*			
	(area within 100 feet of the channel or area in which more than 10,000 ft² is impacted from flooding.)						
	Is there open space surrounding the channel?		No	*If yes, subtract land use score by 1*			
Clogging Potential				0 1 2 3 **4**	25%	18.75
	Are there trees/large debris that have potential to flow D/S and clog culverts/the channel?		Yes. No clogging reported, but photos show potential				
				Total Weighted Flood Hazard Points			**73.8**
Water Quality/Channel Condition (10% of total weight)							
Trash/Debris				0 **1** 2 3 4	20%	1
	Type of trash and Source:	*There are trash and palm cuttings behind 7990 Daggest St. in Channel*					
Standing water				0 1 **2** 3 4	15%	1
	Ponding?		Yes				
	Noticeable odors?		Not Provided				
	Algae?		Yes				
Sediment				0 1 2 **3** 4	35%	3
	Approx. sediment coverage: (Based on information provided on City of San Diego O&M Channel Maintenance Inspection Form)		5%				
	Rock/debris Accumulation?		No				
Transients/encampments				**0** 1 2 3 4	10%	0
Culverts and Outfalls				0 1 2 3 **4**	10%	1
	Culvert structure condition		Contains some sediment and prone to				
Infrastructure Issues				**0** 1 2 3 4	10%	0
	Broken concrete/gunite?		No				
	Broken or missing trash fence/fence poles/supports?		No				
	Slope failure?		No				
				Total Weighted Water Quality Points			**6.0**
Community Input (10% of total weight)							
Community Complaints Received				**YES** NO	50%	5
Community Outreach Input				**0** 1 2 3 4	50%	0
				Total Weighted Community Input Points			**5.0**
Aesthetics (5% of total weight)							
Aesthetics				0 1 2 3 **4**	100%	5
	Are the aesthetics of the channel compromised?		Yes				
				Total Weighted Aesthetics Points			**5.0**

1. See appendix D for geometry parameters

Scoring Legend	
0	Factor is in good condition and does not need attention
1	Factor is in good condition, but will eventually need attention
2	Factor needs attention
3	Factor is in bad condition and needs attention
4	Factor is in severe condition and needs immediate attention

Appendix F
Channel Maintenance Prioritization Summary Sheet

Legend

- Photo Location
- Channel Survey
- City Storm Drain Structure
- City Storm Drain

W:\17204_D_ChannelRanking\GIS\17204_Channel_Prioritization_Update.mxd Aerial Image: 04.2013

Photos:

Assessment Results

- **Channel Prioritization Score:** *89.8 out of 100*
  - **Flood Hazard Score:** *73.8 out of 75*
  - **Water Quality Score:** *6 out of 10*
  - **Community Input Score:** *5 out of 10*
  - **Aesthetics Score:** *5 out of 5*
- **Capacity Prior to Maintenance:** *Less than 2-year storm event*
- **Capacity After Maintenance (As-built Capacity) :** *100-year storm event*
- **Clogging Potential:** *HIGH*
- **Approximate Vegetation Coverage:** *HIGH*
- **Surrounding Area:** *Industrial*
- **Infrastructure Failures:** *NONE*
- **Site Evaluation Date:** *May 12, 2015*
- **Notes/Comments:** *There are trash and palm cuttings behind 7990 Daggest St. in Channel*

RICK ENGINEERING COMPANY

Scale in Feet: 0 110 220 — North

Channel: 7969 and 7971 Engineer Road

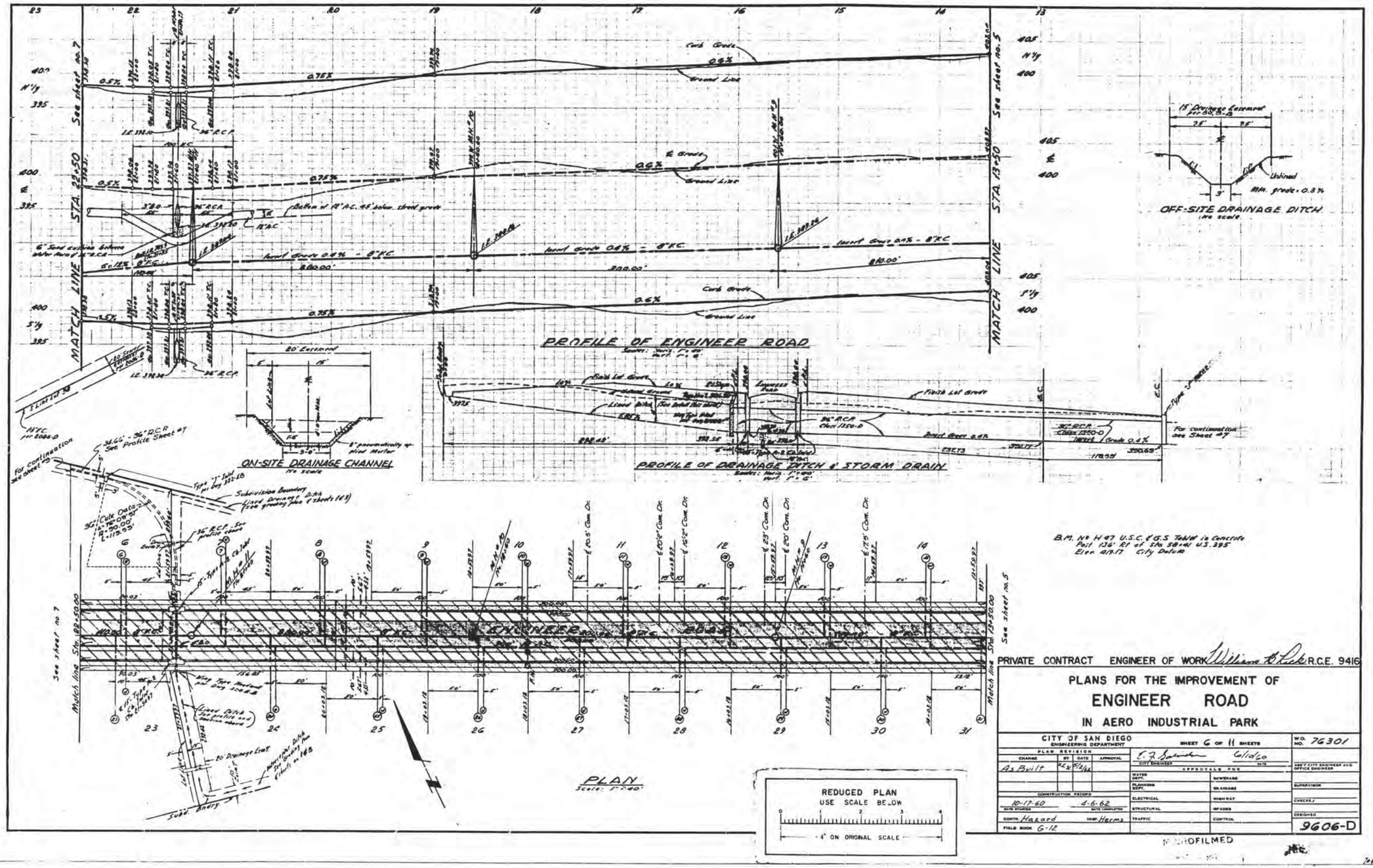
MMP Map # 47

Channel Maintenance Prioritization Summary Sheet

17204-D

August 11, 2015

Appendix G
Available As-built plans



PRIVATE CONTRACT ENGINEER OF WORK William R. Lick R.C.E. 9416

PLANS FOR THE IMPROVEMENT OF ENGINEER ROAD IN AERO INDUSTRIAL PARK

CITY OF SAN DIEGO ENGINEERING DEPARTMENT — SHEET 6 OF 11 SHEETS — W.O. NO. 76301

PLAN REVISION				
CHANGE	BY	DATE	APPROVAL	
As Built	RCK	6/2/62		

CITY ENGINEER — DATE — APPROVALS FOR

WATER DEPT.	SEWERAGE	ASST. CITY ENGINEER AND OFFICE ENGINEER
PLANNING DEPT.	DRAINAGE	SUPERVISOR
ELECTRICAL	HIGHWAY	CHECKED
STRUCTURAL	GRADES	DESIGNED
TRAFFIC	CONTROL	

CONSTRUCTION RECORD

10-17-60	4-6-62
DATE STARTED	DATE COMPLETED
CONTR. Hazard	INSP. Herms
FIELD BOOK G-12	

9606-D

NOT MICROFILMED

Appendix H
Compact Disc
PDF Version of Full Report