Appendix G

Proposed Conditions Assessment for Water, Sewer, and Storm Drain

Morena Boulevard Station Area Specific Plan
Proposed Conditions Assessment

PREPARED FOR: Placeworks

PREPARED BY: Kenneth T. Kozlik

Fuscoe Engineering, Inc.

DATE: October 11, 2017

In order to support the development of the Morena Boulevard Station Area Specific Plan, the proposed water, sewer and storm drain infrastructure has been assessed to determine the potential impacts of the Specific Plan on this infrastructure. This assessment is based on information provided by the City of San Diego, as well as approximate, planning level calculations where needed.

Proposed Land Use Summary

The Morena Boulevard Specific Plan does not propose grading, utilities or drainage design for the subareas. Proposed grading, utilities and drainage design will be provided on a project-by-project basis at the time of final design. This proposed conditions assessment is therefore based on the land uses proposed by the Specific Plan. The proposed change in Land Use in the Specific Plan area is summarized in the table listed below.

Existing Lane Use	Proposed Land Use	Size (ac)	Population (+/-)
Residential	Mobile Home Park	9.22	+652
Commercial Community	General Commercial	13.06	+576
Residential	General Commercial	10.91	+33
Commercial Neighborhood	Fire Station	0.25	+25
Commercial Community	Residential	3.69	-205
Commercial Neighborhood	General Commercial	9.64	+425
Commercial Community	Community Village	37.50	+3,085
Industrial	Community Village	10.61	+92
Commercial Community	Institutional	10.14	-278
Industrial	Institutional	2.73	-427
Commercial Community	Community Commercial*	3.95	+168
Commercial Community	Park	0.81	-45
Total			+3,813

*Increase of density to 15-54 Du/Ac

Water

The City of San Diego Public Utilities Department has planned maintenance that will upgrade/replace some of the older and undersized waterlines within the Morena Boulevard Station Area. This work is scheduled to be completed from 2018 to 2023, and is shown on the Anticipated Water System Upgrades exhibit in Attachment 1. This work includes replacing the 16" CI line in Morena Boulevard with a 16" PVC line, and replacing numerous AC lines with PVC. Where the existing AC lines are undersized, the new PVC lines will be upsized to meet current standards. The City of San Diego currently requires an 8" minimum diameter for public water mains, with a 12" minimum in commercial zones to meet fire flow requirements.

Implementation of the Morena Boulevard Station Area Specific Plan includes zoning changes that will introduce more commercial and mixed-use zones. Commercial and mixed-use projects in the Specific Plan area will need to upsize additional water mains to 12" if they are outside of areas that are served by 12" mains. Based on the proposed land use, these potential additional water system upgrades have been identified on the anticipated water systems upgrade exhibit in Attachment 1. If projects under the Specific Plan are implemented prior to the planned upgrades of the water system, the projects may need to construct the water system upgrades ahead of their planned schedule. Additionally, Individual projects within the Specific Plan may be required to perform a water study to ensure sufficient water pressure and fire flow, and to identify any water infrastructure upgrades which may be needed for that individual project.

Sewer

The existing sewer system in the Morena Boulevard Study area is also administered by the City of San Diego Public Utilities Department. See the exhibit in Attachment 2 for the existing sewer system. The sewer lines in the project area can be divided into two classifications- small mains and trunk sewers. The small mains form the collection system within the area, and convey sewer flows from individual properties to the trunk sewers. The trunk sewers are larger diameter sewer lines that convey flows from multiple small mains, as well as from adjacent neighborhoods. The major trunk sewers include lines in Morena Boulevard, Anna Avenue, Tecolote Road, Lehigh Street, Frankfort Street, and Ingulf Street. The major trunk sewers have been studied to properly convey sewer flows from proposed development.

The City of San Diego Sewer Modeling Section conducts flow analyses on the City's trunk sewer lines for both current conditions and for projected growth. The most recently available data examined measured flows in 2012 and projected flows in 2025 for both dry weather (DWF) and wet weather (WWF) conditions. The 2025 projections, however, do not include the implementation of the Morena Boulevard Station Area Specific Plan. To assess the capacity of the trunk sewers to accept a potential increase in flows from the project area, the 2012 and 2025 flow data was examined.

To be able to determine if the proposed specific plan will increase discharge to the sewer trunk lines, proposed peak flow rates have been calculated. These calculations have been performed in accordance with the City of San Diego Sewer Design Guide 2015. Proposed condition sewer generation calculations were determined based on the proposed change in zoning in the project area. See Attachment 3 for a summary of the changes to sewer flows under the proposed specific plan. Most areas will exhibit an insignificant change in flow. The areas that will exhibit the greatest increase in Wet and Dry Weather Flow are the proposed planned Community Villages near the

Tecolote Station and Morena Station. The development of the Tecolote Station and Morena Station will increase the existing peak wet weather flow by 0.30 cfs and 0.34 cfs, respectively. The effect of the 0.30 cfs increase from Tecolote Station and a small portion from Morena Station will occur at the existing 72" reinforced concrete pipe, raising the existing normal depth from 50.41 in to 50.50 in at most. This slight increase will still be within design parameters of the 72" concrete pipe.

The remaining increase of flow increase from Morena Station will enter an existing 66" pipe where the existing trunk line information is not currently available. Given the minor increase in flow relative to the capacity of a 66" pipe, it is not anticipated that the increase will cause any detrimental impacts.

The small mains are 8"-15" in diameter, and consist of vitrified clay (VC) and PVC pipes. Individual projects within the Specific Plan may be required to perform a sewer study to ensure sufficient sewer capacity is available, and to identify any sewer infrastructure upgrades which may be needed for that individual project.

As part of future infrastructure associated with the Pure Water program, the City of San Diego is in preliminary planning stages for a new sewer pump station in the project area. The pump will be located in the area bounded by Friars Road, Morena Boulevard, and Interstate 5, in the southwestern corner of the project area. No timeline is yet available for the construction of this pump station and a specific location has not been selected.

Storm Drain

The public storm drain system in the Morena Boulevard Station Area has also been studied to assess the potential of impacts from the implementation of the Specific Plan. The topography of the project area generally falls from the east to the west, and thus this is the direction of storm drain flow. For this analysis, the project area has been divided into six drainage basins, Basins A through F, based on the discharge points. Please refer to the Existing Drainage Basins exhibit in Attachment 3 for a graphical depiction of these basins.

Basin A consists of the southeastern portion of the project area that drains to the San Diego River. Runoff in this area is collected by storm drain systems that convey flows southwesterly to the River. Basin B is located in the southwesterly portion of the project, and drains to a 60" diameter storm drain that discharges to an open channel along Interstate 5. Basin C drains to Tecolote Creek via multiple underground storm drain systems, and includes the south-central portion of the project area both north and south of Tecolote Creek. Basin D is located in the north-central portion of the project, and ultimately discharges to Mission Bay via multiple underground storm drain systems. Basins E and F are in the northerly portion of the project area, and drain to large diameter storm drains that also collect runoff from the offsite areas to the east. The storm drains in Basin E and F both discharge to Mission Bay.

To be able to determine if the proposed specific plan will increase discharge to the public storm drain system, approximate proposed condition peak flow rates have been calculated. These calculations have been performed in accordance with the San Diego County Hydrology Manual using the Rational Method. Proposed condition runoff calculations were determined based on the proposed zoning in the project area. Peak discharges were calculated for the 2-year, 10-year, and 100-year storms. Runoff calculations can be found in Attachment 4, and are summarized in the table below.

Existing

Basin	Area (ac)	Runoff Coefficient, C	Q(2) cfs	Q(10) cfs	Q(100) cfs
A	75.52	0.82	88	129	177
B	76.64	0.85	93	135	186
C	73.97	0.80	84	123	169
D	37.47	0.77	54	78	107
E	14.50	0.76	20	30	41
F	26.55	0.81	40	58	80

Proposed

Basin	Area (ac)	Runoff Coefficient, C	Q(2) cfs	Q(10) cfs	Q(100) cfs
A	75.52	0.83	90	131	180
B	76.64	0.90	98	142	196
C	73.97	0.81	86	125	172
D	37.47	0.83	58	84	116
E	14.50	0.77	21	30	41
F	26.55	0.81	40	58	80

Table 2 – Existing vs. Proposed Runoff

Basins A-E all exhibit an increase in peak discharge. Basin B & D exhibit the greatest increase in peak discharge. Basin A, C, & E experience insignificant minor increase of 3 CFS or less. Basin B experiences the largest increase of 10 CFS. This is largely due to the zoning change from light industrial to general industrial. All of Basin B will drain to an existing 60" reinforced concrete pipe. Individual development projects within the Basin will need to verify the capacity of the existing storm drain system and may need to provide onsite detention of peak flows if the downstream capacity is insufficient.

Basin D will increase its existing flow rate by 9 CFS based on the proposed zoning. The main reason for this increase is due to the proposed Residential – Medium zone and additional industrial zone. Basin D is served by multiple discharge points through various storm drain systems. Therefore, development within these two proposed zones will need to perform a site-specific drainage study to ensure sufficient capacity is available, and to identify any storm drain infrastructure upgrades or onsite detention which may be needed for that individual project.

It should be noted that these calculations are for the area within the Morena Boulevard Station Area boundary only, and do not reflect offsite watersheds which drain through the project area. These flowrates are meant only to determine if the change in land use associated with the Specific Plan will generally increase or reduce discharge to the public storm drain system.

Storm Water Quality

Hydrologic Unit Contribution

The Morena Specific Plan lies within 2 Hydrologic Areas. All planned development within the Clairemont Mesa area of the Specific Plan is located within the Mission Bay and La Jolla Watershed,

within the Miramar and Tecolote Subarea. Its Hydrologic Unit Number are 906.4 and 906.5, respectively. Most of the proposed development within the Linda Vista area of the Specific Plan will be located within the San Diego River Watershed, within the Lower San Diego subarea. Its hydrologic unit number is 907.11.

The Mission Bay and La Jolla Watershed covers a land area of approximately 64 square miles, making it the smallest hydrologic unit in san Diego County. It has an estimated population of 232,000 residents. Roughly 37% of the watershed remains undeveloped or otherwise dedicated to open space. The remaining 63% of the serves many different developments, including residential (28%), freeways and roads (16%), office and institutional (7%), and commercial/industrial/agricultural (12%).

With a land area of approximately 434 square miles, the San Diego River watershed is the second largest hydrologic unit (HU) in San Diego County. It also has the highest population (~520,000) of the County's watersheds and contains portions of the cities of San Diego, El Cajon, La Mesa, Poway, Santee, and several unincorporated jurisdictions. Important hydrologic resources in the watershed include five water storage reservoirs, a large groundwater aquifer, extensive riparian habitat, coastal wetlands, and tidepools. Approximately 44% of the San Diego River watershed is currently undeveloped. Most of this undeveloped land is in the upper, eastern portion of the watershed, while the lower reaches are more highly urbanized with residential (19%), freeways and roads (6%), and commercial/industrial (2%) land uses predominating.

The project site can be divided into two major hydrologic basins, one draining to Mission Bay in the Mission Bay and La Jolla watershed area, and the other draining directly to the San Diego River. Within the Mission Bay and La Jolla watershed, Miramar Hydrologic Area encompasses the San Clemente Creek and Rose Creek, which both drain towards Mission Bay and the Pacific Ocean. The Tecolote Creek is the primary water body in the Tecolote Hydrologic Area and discharges to Mission Bay. The Kendall-Frost Mission Bay Marsh Reserve and Northern Wildlife Preserve along the northern edge of Mission Bay have been specifically designated as sensitive areas.

The San Diego River watershed makes up the remainder of the project area. The Lower San Diego Subarea suffers the most water quality problems of all other watersheds due to its dense urbanization and geographic extent. Its drainage area currently serves County of San Diego in combination with the Cities of Santee, El Cajon, La Mesa, and San Diego. The Lower San Diego system consists several water bodies that are listed as impaired under Section 303(d) of the Clean Water Act, which are listed below. The San Diego River discharges to the Pacific Ocean.

Beneficial Uses

Mission Bay/La Jolla Watershed

Beneficial Uses	Inland Surface Water	Coastal Water	Reservoirs and Lakes	Ground Water
Agricultural Supply (AGR)	X			X
Aquaculture (AQUA)		X		
Biological Habitats of Special Significance (BIOL)		X		
Cold Freshwater Habitat (COLD)	X		X	
Commercial and Sport Fishing (COMM)		X		

Contact Water Recreation (REC-1)	X	X	X	
Hydrogen Generation (POW)			X	
Estuarine Habitat (EST)		X		
Industrial Process Supply (PRO)				
Industrial Service Supply (PROC)	X	X	X	X
Marine Habitat (MAR)		X		
Migration of Aquatic Organisms (MIGR)		X		
Municipal and Domestic Supply (MUN)			X	X
Navigation (NAV)		X		
Non-contact Water Recreation (REC-2)	X	X	X	
Rare, Threatened, or Endangered Species (RARE)	X	X		
Shellfish Harvesting (SHELL)		X		
Spawning, Reproduction and/or Early Development (SPWN)		X		
Warm Freshwater Habitat (WARM)	X		X	
Wildlife Habitat (WILD)	X	X	X	

San Diego River Watershed

Beneficial Uses	Inland Surface Water	Coastal Water	Reservoirs and Lakes	Ground Water
Agricultural Supply (AGR)	X			X
Aquaculture (AQUA)		X		
Biological Habitats of Special Significance (BIOL)		X		
Cold Freshwater Habitat (COLD)	X		X	
Commercial and Sport Fishing (COMM)		X		
Contact Water Recreation (REC-1)	X	X	X	
Estuarine Habitat (EST)		X		
Hydrogen Generation (POW)			X	
Industrial Process Supply (PRO)	X		X	X
Industrial Service Supply (PROC)	X	X	X	X
Marine Habitat (MAR)		X		
Migration of Aquatic Organisms (MIGR)		X		
Municipal and Domestic Supply (MUN)	X		X	X
Navigation (NAV)		X		
Non-contact Water Recreation (REC-2)	X	X	X	
Rare, Threatened, or Endangered Species (RARE)		X		
Shellfish Harvesting (SHELL)		X		
Spawning, Reproduction and/or Early Development (SPWN)		X		
Warm Freshwater Habitat (WARM)	X		X	
Wildlife Habitat (WILD)	X	X	X	

303(D) Status

According to the California 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) published by the State Water Resources Control Board (SWRCB). Rose Creek was listed as impaired and impacted by selenium and aquatic toxicity. Tecolote Creek is affected by aquatic toxicity, turbidity, and elevated levels of cadmium, copper, indicator bacteria, lead, nitrogen,

phosphorus, selenium, and zin. Mission Bay also suffers from occasional eutrophic conditions and high levels of lead, enterococcus, fecal coliform bacteria, and total coliform bacteria. The San Diego River is impaired from Fecal Coliform, Enterococcus Bacteria, Low Dissolved Oxygen, Nitrogen, Phosphorus, Total Dissolved Solids, Toxicity, and Manganese.

Low Impact Development Element

In a hydrologic context, Low Impact Development BMPs include features that attempt to mimic predevelopment hydrologic and water quality conditions from a project site. Such features include infiltration, storage, and filtration based practices and may contain flow through planters, vegetated buffer areas, vegetated swales, curb cuts to landscaping, and bioretention/rain gardens. Redevelopment projects within Morena Boulevard Station Area Specific Plan shall implement LID BMPs where possible.

Pollutant Control

Individual projects will need to implement storm water pollutant control BMPs to comply with the City of San Diego Storm Water Standards. Pollutant control BMPs are engineered facilities to reduce the quantity of pollutants in storm water discharges through retention, detention, infiltration, biofiltration and/or evapotranspiration. The following sections describes the various pollutant control categories in detail.

Harvest and Use

Harvest and Use is a BMP option that captures and stores storm water runoff for later use. Proposed individual projects within the Specific Plan would need to undergo a feasibility screening to determine if there is a demand for harvested water within the respective project which would justify a harvest and use system.

Infiltration/Soil Characteristics

The proposed study area is heavily developed. The site generally slopes from east to west. Detailed geotechnical investigations will be performed at the time of final engineering on a project-by-project basis. Soil data contained in this report has been obtained from soil maps developed by the Soil Conservation Service.

As mapped by the Soil Conservation Service, most of the project area is Hydrologic Soil Type "D". Soil Type "A" and "C" were present in few instances. Infiltration within Soil Type "A" should be studied per individual projects by the hired geotechnical engineer to determine if site conditions allow full infiltration, partial infiltration, or no infiltration. Soil types "C" and "D" are generally considered to be incompatible for full infiltration, but projects in these areas will need to evaluate the potential for partial infiltration BMPs.

Biofiltration

The soil characteristics within much of the Morena Boulevard Station Specific Plan are not ideal for infiltration. In this case, Biofiltration BMPs are great alternatives to satisfy pollutant control. Typical biofiltration captures and detains inflows and discharges through underdrain or surface outlet

structures. Treatment is done through filtration, sedimentation, sorption, biochemical process and/or vegetative uptake.

Hydromodification Element

Redevelopment projects in Morena Boulevard Station Area Specific Plan will be subject to the Hydromodification Management Requirements following City of San Diego Storm Water Standards. Proposed projects may be exempt from hydromodification management requirements if it meets any one of the following conditions:

- The project is not a PDP.
- The proposed project will discharge to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;
- The proposed project will discharge runoff directly to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean; or
- The proposed project will discharge runoff directly to an area identified by the Copermittees as an appropriate for an exemption by the WMAA for the watershed in which the project resides.

Individual projects will be required to evaluate their exemption status on a case by case basis. If a project does not qualify for any of the possible exemptions listed above, the project will be required to implement hydromodification controls per City of San Diego Storm Water Standards. Based on mapping prepared for the Watershed Management Area Analysis (WMAA), portions of Specific Plan area will be exempt from Hydromodification. Please see the Hydromodification Exemption exhibit in Attachment 5, which shows the storm drain systems that are identified as exempt in the WMAA, and the portions of the Specific Plan area that are likely exempt.

For projects which are required to implement hydromodification controls, the project may choose to use a lower flow threshold of $0.1Q_2$ or use the Southern California Coastal Water Research Project channel screening tools outlined in the Storm Water Standards to determine the susceptibility of the downstream channel. A lower flow threshold of $0.5Q_2$ is used for "Low" susceptibility channels, a lower flow threshold of $0.3Q_2$ s used for "Medium" susceptibility channels, and a lower flow threshold of $0.1Q_2$ is used for "High" susceptibility channels. Based on these thresholds, hydromodification controls must meet peak flow and duration criteria, per Section 6.3.4 of the City of San Diego Storm Water Standards.

Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMPs or by a series of structural BMPs, however separate calculations are required to demonstrate that pollutant control performance standards and hydromodification management standards are met.

ATTACHMENTS

Attachment 1	Anticipated Water System Upgrades Exhibit
Attachment 2	Existing Sewer System Exhibit
Attachment 3	Planned Sewer Generation Calculations
Attachment 4	Planned Storm Drain Peak Flow Calculations
Attachment 5	Hydromodification Exemption Exhibit

ATTACHMENT 1

Anticipated Water System Upgrades Exhibit

SCALE: 1"= 800'

PLAN LAND USE LEGEND
RESIDENTIAL – LOW (5–9 DU/AC)
RESIDENTIAL – MEDIUM (15–29 DU/AC)
RESIDENTIAL – MEDIUM HIGH (30–44 DU/AC)
MOBILE HOME PARK
NEIGHBORHOOD COMMERCIAL (0–29 DU/AC)
GENERAL COMMERCIAL
LIGHT INDUSTRIAL
FIRE STATION
COMMUNITY COMMERCIAL (0–29 DU/AC)
COMMUNITY COMMERCIAL (15–54 DU/AC)
COMMUNITY VILLAGE (0–54 DU/AC)[3]
INDUSTRIAL
INSTITUTIONAL
PARK

[3]TECOLOTE STATION: UP TO 109 DU/AC

[3]MORENA STATION: UP TO 73 DU/AC

CLAIREMONT DR

E MISSION BAY DR

MORENA BLVD

INTERSTATE 5

TECOLOTE ROAD

TECOLOTE STATION

MORENA STATION

FRIARS RD

LEGEND

EXISTING WATER MAIN

PLANNED FUTURE WATER MAIN UPGRADES (PVC)[1]

FUTURE WATER MAIN UPGRADES (PVC)[2]

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ▫ fax 858.597.0335
www.fuscoe.com

[1]REQUIRED FOR 2025 PLANNED DEVELOPMENT

[2]ANTICIPATED FOR PROPOSED SPECIFIC PLAN LAND USE

MORENA BLVD CORRIDOR
ANTICIPATED WATER SYSTEM UPGRADES
CITY OF SAN DIEGO
2017 OCTOBER

ATTACHMENT 2

Existing Sewer System Exhibit

SCALE: 1" = 800'

CLAIREMONT DR

MORENA BLVD

E MISSION BAY DR

INTERSTATE 5

TS 011–MORENA BLVD–30"

TS 011–MORENA BLVD–21"

TS009–WEST LINDA VISTA–24"

TECOLOTE ROAD

TS 008–TECOLOTE CANYON–21"

TS009–WEST LINDA VISTA–18"

TS 011–MORENA BLVD–33"

TS 004–EAST MISSION BAY–60"

TS 114–MORENA BLVD INTERCEPTOR–72"

TS 011–MORENA BLVD–33"

FRIARS RD

INTERSTATE 8

APPROXIMATE LOCATION OF PROPOSED SEWER PUMP STATION

LEGEND

- PROJECT BOUNDARY
- EXISTING SMALL SEWER MAIN
- EXISTING TRUNK SEWER
- EXISTING SEWER MANHOLE

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ◦ fax 858.597.0335
www.fuscoe.com

MORENA BLVD CORRIDOR
EXISTING SEWER EXHIBIT
CITY OF SAN DIEGO
OCTOBER 10, 2017

F:\PROJECTS\511\023_SUPPORT FILES\REPORTS\PROPOSED CONDITIONS ASSESSMENT\EXISTING SEWER.DWG (10-10-2017 2:59:03PM) Plotted by: Kevin Wei

ATTACHMENT 3

Planned Sewer Generation Calculations

Clairemont Mesa												
Existing		Proposed		Size (AC)	Existing	Proposed	Existing	Proposed	Existing	Proposed	Delta	Trunk Sewer ID (Size)
Zone	EP	Land Use	EP		Total Pop		PDWF (GPD)		PDWF (CFS)		Flow	
IL-3-1	187.5	Light Industrial	187.5	4.13	774	774	88,697	88,697	0.14	0.14	0.00	Unaffected
RM-1-1	46.12	Mobil Home Park (0-43 DU/AC)	111.8	6.06	279	678	36,704	79,006	0.06	0.12	0.07	TS 011 (21"), TS 008 (21")
RS-1-7	31.5	Mobil Home Park (0-43 DU/AC)	111.8	3.16	100	353	15,015	44,960	0.02	0.07	0.05	TS 009 (24")
RS-1-7	31.5	Residential Low (5-9 DU/AC)	31.5	0.88	28	28	4,964	4,964	0.01	0.01	0.00	Unaffected
CP-1-1	87	General Commercial	131.1	0.64	56	84	9,080	12,950	0.01	0.02	0.01	TS 011 (33")
CC-4-2	87	General Commercial	131.1	12.42	1,081	1,628	118,354	168,798	0.18	0.26	0.08	TS 011 (21"), TS 009 (24"), TS 008 (21")
RM-2-5	87	Residential Medium (15-29 DU/AC)	87	3.38	294	294	38,356	38,356	0.06	0.06	0.00	Unaffected
RM-2-5	87	General Commercial	131.1	0.36	31	47	5,517	7,869	0.01	0.01	0.00	Unaffected
RM-3-7	111.8	Residential High (30-44 DU/AC)	113.42	10.55	1,179	1,197	127,682	129,282	0.20	0.20	0.00	Unaffected
CN-1-2	87	Neighborhood Commercial (0-29 DU/AC)	87	1.86	162	162	22,868	22,868	0.04	0.04	0.00	Unaffected
CN-1-2	87	Fire Station	187.5	0.25	22	47	4,024	7,823	0.01	0.01	0.01	TS 011 (33")
CC-4-2	87	Residential Low (5-9 DU/AC)	31.5	3.69	321	116	41,383	17,172	0.06	0.03	-0.04	Unaffected
CN-1-3	87	General Commercial	131.1	9.32	811	1,222	92,302	131,643	0.14	0.20	0.06	TS 011 (10")
CN-1-2	87	General Commercial	131.1	0.32	28	42	4,983	7,106	0.01	0.01	0.00	Unaffected
Linda Vista												
CC-4-2	87	Community Commercial (0-29 DU/AC)	87	20.42	1,777	1,777	182,028	182,028	0.28	0.28	0.00	Unaffected
CC-4-2	87	Neighborhood Commercial (0-29 DU/AC)	87	0.55	48	48	7,963	7,963	0.01	0.01	0.00	Unaffected
CC-4-2	87	Community Village (109 DU/AC)	196.2	9.1	792	1,785	90,413	182,816	0.14	0.28	0.14	TS 114 (72")
CC-4-2	87	Community Village (73 DU/AC)	160.6	17.78	1,547	2,855	161,467	274,525	0.25	0.42	0.17	TS 114 (72"), N/A
IL-3-1	187.5	Community Village (109 DU/AC)	196.2	10.61	1,989	2,082	200,764	208,804	0.31	0.32	0.01	TS 114 (72"), N/A
CC-1-1	87	Community Commercial (0-29 DU/AC)	87	1.8	157	157	22,228	22,228	0.03	0.03	0.00	Unaffected
IL-3-1	187.5	Industrial	187.5	39.53	7,412	7,412	626,961	626,961	0.97	0.97	0.00	Unaffected
CC-3-4	87	Community Commercial (0-29 DU/AC)	87	8.03	699	699	81,133	81,133	0.13	0.13	0.00	Unaffected
CC-1-1	87	Community Village (73 DU/AC)	160.6	3.09	269	496	35,489	60,339	0.05	0.09	0.04	TS 114 (72"), N/A
CC-3-4	87	Community Village (73 DU/AC)	160.6	4.9	426	787	52,901	89,942	0.08	0.14	0.06	N/A
CC-5-1	87	Community Village (73 DU/AC)	160.6	2.63	229	422	30,867	52,479	0.05	0.08	0.03	N/A
CC-5-1	87	Institutional	31.2	4.98	433	155	53,648	22,078	0.08	0.03	-0.05	Unaffected
IL-3-1	187.5	Institutional	31.2	2.73	512	85	61,980	13,120	0.10	0.02	-0.08	Unaffected
CC-1-3	87	Institutional	31.2	0.63	55	20	8,957	3,686	0.01	0.01	-0.01	Unaffected
CC-3-4	87	Institutional	31.2	4.53	394	141	49,424	20,340	0.08	0.03	-0.05	Unaffected
CC-5-1	87	Community Commercial (15-54 DU/AC)	129.6	3.95	344	512	43,896	61,985	0.07	0.10	0.03	N/A
CC-3-4	87	Park	31.2	0.81	70	25	11,134	4,582	0.02	0.01	-0.01	Unaffected

ATTACHMENT 4

Planned Storm Drain Peak Flow Calculations

Morena Boulevard Station Area Hydrology Study
Runoff Coefficient Calculations

Based on Table 3-1 of the Hydrology Manual

Land Use	% Imp	Runoff Coefficient	Total Area (ac)
		Soil Type D	Pr. Conditions
Residential - Low (5-9 DU/AC)	42%	0.58	4.57
Residential - Medium (15-29 DU/AC)	70%	0.73	3.38
Residential - Medium High (30-44 DU/AC)	80%	0.79	10.24
Mobile Home Park	80%	0.79	9.22
Neighborhood Commerical (0-29 DU/AC)	80%	0.79	2.41
General Commercial	85%	0.82	32.04
Light Industrial	90%	0.85	4.37
Fire Station	90%	0.85	0.25
Community Commercial (0-29 DU/AC)	80%	0.79	30.26
Community Commercial (15-24 DU/AC)	85%	0.82	3.95
Community Village (0-54 DU/AC)	90%	0.85	48.11
Industrial	95%	0.87	39.53
Institutional	90%	0.85	12.89
Park	10%	0.41	0.81
Street/Road	-	-	102.59

Basin A

Total Area 75.52

Land Use	Area (Ac)
	Soil Type D
Community Commercial (0-29 DU/AC)	11.71
Community Commercial (15-54 DU/AC)	4.59
Community Village (Morena Station)	35.61
Industrial	6.00
Institutional	16.57
Park	1.05
Total Area (Ac)	**75.53**
Weighted Runoff Coefficent	**0.83**

Basin B

Total Area 76.64

Land Use	Area (Ac)
	Soil Type D
Community Commercial (0-29 DU/AC)	7.37
Community Village (Telcolote Station)	12.96
Industrial	56.30
Total Area (Ac)	**76.63**
Weighted Runoff Coefficent	**0.90**

Basin C

Total Area 73.97

Land Use	Area (Ac)
	Soil Type D
Mobile Park Home	7.59
Neighborhood Commerical	0.88
General Commercial	6.97
Light Industrial	7.08
Community Commercial (0-29 DU/AC)	31.09
Community Village (Telcolote Station)	20.34
Total Area (Ac)	**73.95**
Weighted Runoff Coefficent	**0.81**

Basin D

Total Area 37.47

Land Use	Area (Ac)
	Soil Type D
Residential - Low (5-9 DU/AC)	2.40
Residential - Medium (15-29 DU/AC)	5.33
Residential - Medium High (30-44 DU/AC)	5.08
Mobile Home Park	3.53
Neighborhood Commerical (0-29 DU/AC)	3.61
General Commercial	15.46
Light Industrial	1.42
Fire Station	0.62
Total Area (Ac)	**37.47**
Community Village (Telcolote Station)	0.02
Weighted Runoff Coefficent	**0.83**

Basin E

Total Area 14.50

Land Use	Area (Ac)
	Soil Type D
Residential - Low (5-9 DU/AC)	3.13
Residential - Medium High (30-44 DU/AC)	1.20
General Commercial	10.16
Total Area (Ac)	**14.49**
Weighted Runoff Coefficent	**0.77**

Basin F

Total Area 26.55

Land Use	Area (Ac)
	Soil Type D
Residential - Medium High (30-44 DU/AC)	10.03
General Commercial	16.52
Total Area (Ac)	**26.55**
Weighted Runoff Coefficent	**0.81**

Morena Boulevard Station Area Specific Plan
Proposed Conditions Hydrology Calculations

Q = CIA

Intensity = 7.44 * P_6 * (Tc ^ -0.645)
100-year P_6: 2.2 in.
10-year P_6: 1.6 in.
2-year P_6: 1.1 in.

Basin A
C = 0.83
A = 75.52 Ac
Tc = 15.00 min.

Design Storm	I (in/hr)	Q (cfs)
100-year	2.85	179.8
10-year	2.08	130.8
2-year	1.43	89.9

Basin B
C = 0.90
A = 76.64 Ac
Tc = 15.00 min.

Design Storm	I (in/hr)	Q (cfs)
100-year	2.85	195.8
10-year	2.08	142.4
2-year	1.43	97.9

Basin C
C = 0.81
A = 73.97 Ac
Tc = 15.00 min.

Design Storm	I (in/hr)	Q (cfs)
100-year	2.85	172.0
10-year	2.08	125.1
2-year	1.43	86.0

Basin D
C = 0.83
A = 37.47 Ac
Tc = 10.00 min.

Design Storm	I (in/hr)	Q (cfs)
100-year	3.71	115.5
10-year	2.70	84.0
2-year	1.85	57.8

Basin E
C = 0.77
A = 14.50 Ac
Tc = 10.00 min.

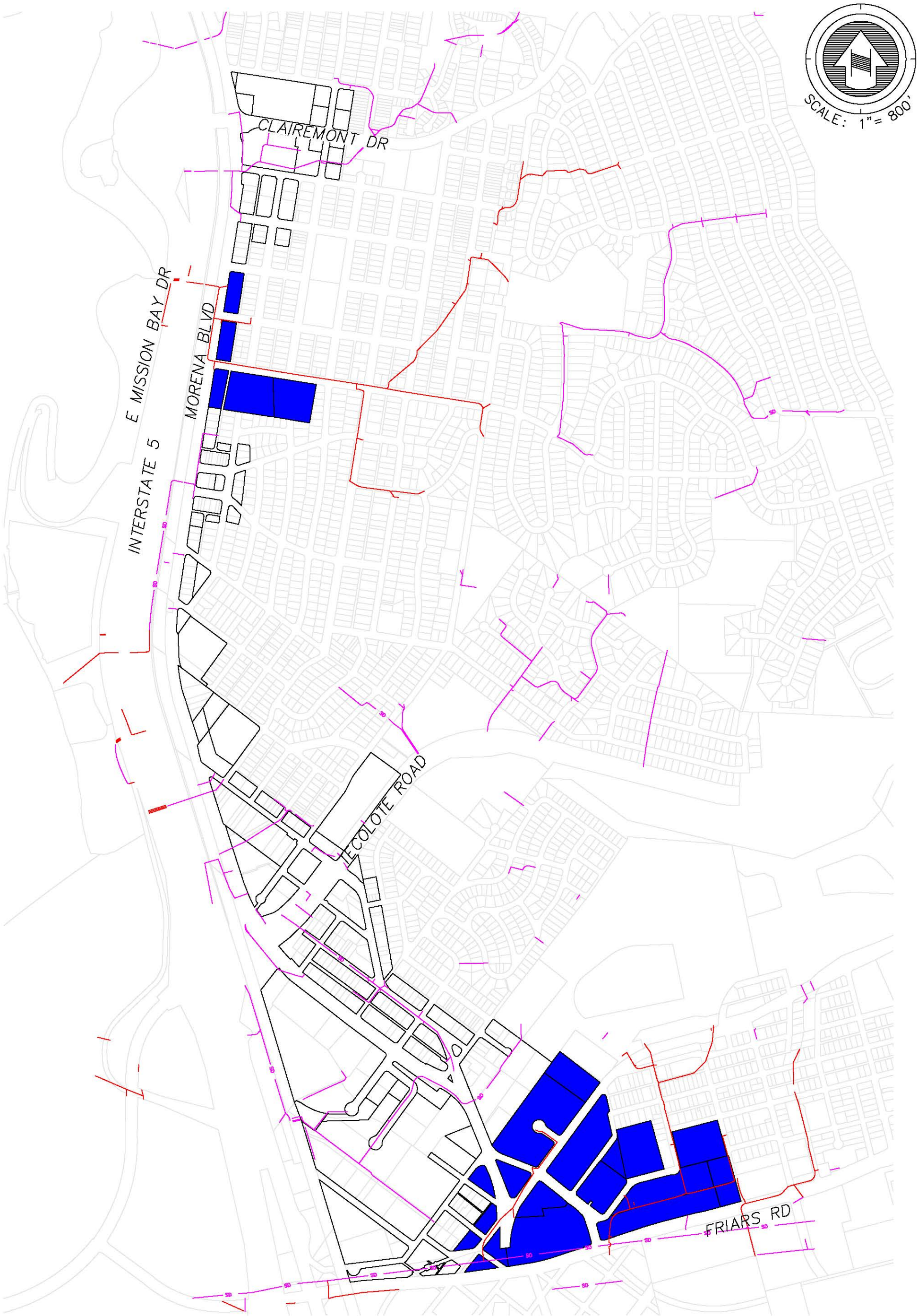
Design Storm	I (in/hr)	Q (cfs)
100-year	3.71	41.1
10-year	2.70	29.9
2-year	1.85	20.6

Basin F
C = 0.81
A = 26.55 Ac
Tc = 10.00 min.

Design Storm	I (in/hr)	Q (cfs)
100-year	3.71	79.6
10-year	2.70	57.9
2-year	1.85	39.8

ATTACHMENT 5

Hydromodification Exemption Exhibit



LEGEND

EXISTING STORM DRAIN — SD

EXEMPT STORM DRAIN SYSTEMS IDENTIFIED IN WMAA

PLAN AREAS TRIBUTARY TO EXEMPT STORM DRAIN SYSTEMS

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ▫ fax 858.597.0335
www.fuscoe.com

MORENA BLVD CORRIDOR HYDROMODIFICATION EXEMPTION CITY OF SAN DIEGO 2017 OCTOBER

F:\PROJECTS\511\023_SUPPORT FILES\REPORTS\PROPOSED CONDITIONS ASSESSMENT\HYDROMODIFICATION EXEMPTION EXHIBIT.DWG (10-11-2017 2:32:22PM) Plotted by: Kevin Wei