WATER SERVICE DISTRIBUTION STUDY

FOR THE

CAMPUS POINT NDP
10290 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121

April 19, 2021

Prepared by:

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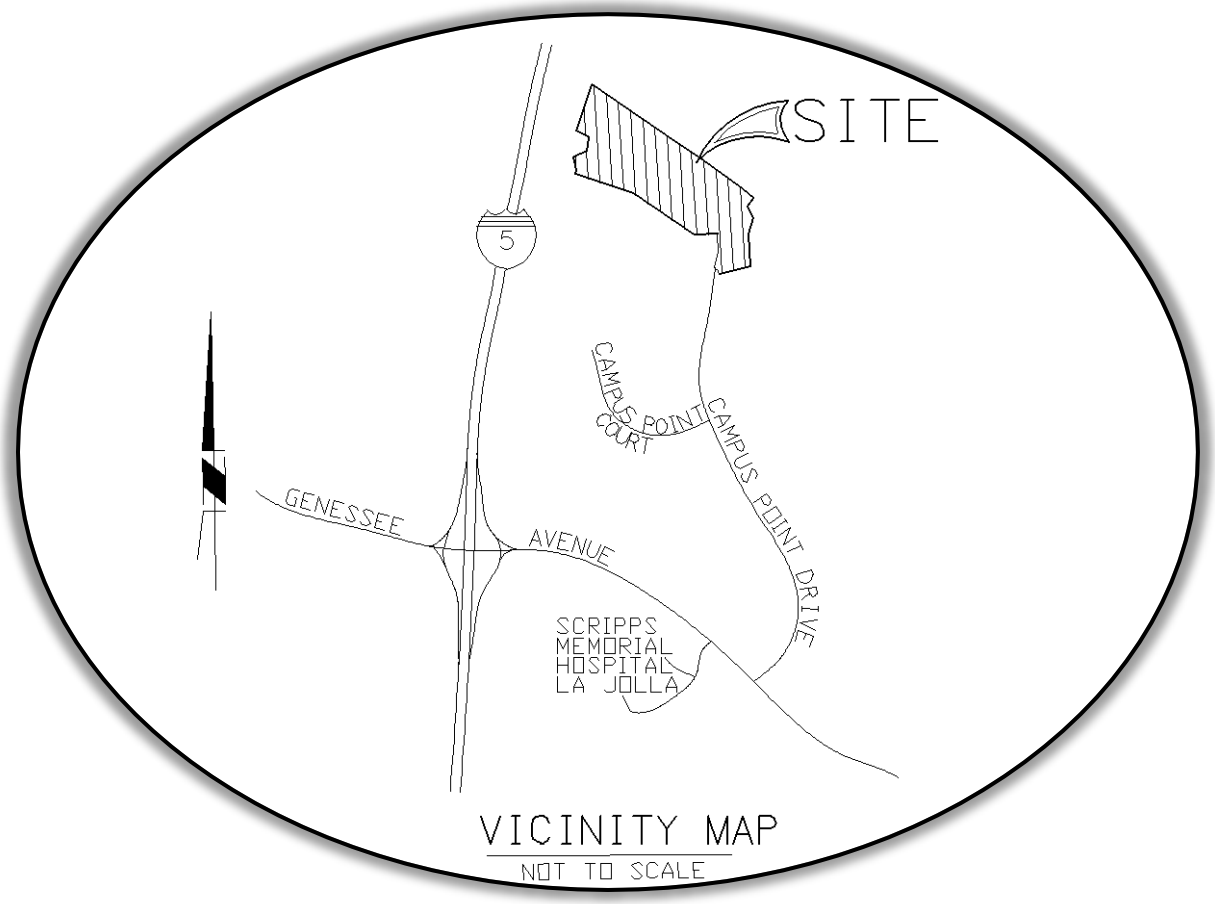
04/19/2021
Date

MBI JN 174310

I. SUMMARY

A water distribution system hydraulic study was performed for the new commercial development located within the Campus Point business park in the City of San Diego, California (see Vicinity Map Figure 1). The purpose of this study is to ascertain the available domestic water and fire flows from the proposed private onsite fire main extension. The project site is located at 10290 Campus Point Drive, in the "Golden Triangle" area of San Diego, north of Genesee Avenue and east of I-5, on a 16.52 acre parcel (APN 343-230-14-00). The existing site consists of several existing commercial buildings, parking lots, hardscape, and landscape which will be demolished to make room for the construction of new office/lab buildings, a new parking structure, and new hardscape and landscaping. The project will include the extension of a new looped 8-inch fire main and other utilities. An illustrative view of the proposed project is provided in Appendix 1.

Figure 1 -- Vicinity Map



The purpose of the study is to perform a hydraulic analysis of the proposed project to determine the available fire flow while maintaining minimum residual pressures of 20 psi throughout the fire loop and connecting public water supply. Multiple concurrent hydrant analysis was performed based on the building requirements in the California Fire Code to determine if the proposed system was able to meet the requirements.

Additionally, it should be noted that the water analysis was done for build out/ final conditions on site. There are several phases described below that are anticipated to take place during construction in which domestic water meters may be upsized as required by the building demands.

Phase 1
- Demolish 4110 Campus Pt Ct and 10260 Campus Pt Dr
- Construct new CP5 building
- Provide new master water service for CP5 and 4161 Campus Pt Ct
- Abandon onsite public main and vacate water easement

Phase 2
- Construct CP3/CP4 and parking structure (PS2)
- Upsize water service and meter as required. Kill existing service as required

Phase 3
- Construct Amenity Buildings

Phase 4
- Construct CP7

II. WATER SYSTEM ANALYSIS

The analysis of the proposed fire service distribution system was performed using the Infowater modeling software program by Innovyze. The water model was developed by imputing junction and pipe data taken from utility drawings and hydrant flow test data.

Ground elevations in the area of the proposed site range from approximately 280 feet above mean sea level (MSL) along the portion of Campus Point Drive located south of the site to approximately 304 feel MSL near the property center. A conservative Hazen-Williams pipe roughness coefficient ("C"-factor) of 130, was utilized for the proposed on-site fire main (PVC C900) and while a C-factor of 120 was used for the dual parallel 12-inch offsite public water main (ACP) and all other existing main. Existing and proposed pipes and junctions, representative of the public mains and onsite private fire distribution system, were assigned identification numbers which correspond to the type of function (i.e. Main and Lateral) the section of pipe serves. Refer to Appendix B – Water Model Layout.

Fire main Reduced Pressure Detector Assemblies (RPDA) and a 4-inch master meter were also added at anticipated locations where the private mains will need to be isolated from the public 12-inch mains. The RPDA's and master meter were input into the water model as General Purpose valves. An appropriate flow vs headloss curve was then assigned to each respective valve.

It is important to note that each building in the project will contain a sprinkler fire suppression system. The model was developed to determine the amount of fire flow available on-site from each hydrant during maximum day domestic demands from existing and proposed buildings in the immediate vicinity. All existing and proposed demands were assigned to domestic connection points on the existing offsite public main which traverses the eastern edge of the site.

Domestic Demands, Fire Demands and Model Development

Seven (7) existing buildings, designated CP1, 2, 3, and CPS1, 2, 3, and 4 are in the immediate vicinity (north and east) of the proposed project site. Five (5) new buildings and a new parking garage will be constructed as part of the proposed project. Each of these facilities have, or will have, domestic water demands except for the parking garage. The average demands for existing buildings CP1 and CP2 were calculated from flow meter data. The average demands for all other existing and proposed buildings were calculated using the City of San Diego Water Facility Design Guidelines (WFDG) Table 2-2 which specifies 5,000 gallons/net acre day water demand for Commercial and Institutional type buildings. The Maximum Day Demand and Peak Hour Demand Factors were also determined to be 2.0 and 5.0 respectively per the WFDG Table 2-3 and 2-4. A summary of the calculated existing and proposed domestic water demands is provided in Table 1. The Maximum Day Demand was applied to the designated domestic water supply nodes located on the public water main.

Table 1 – Domestic Water Demands

Model Node	Model Demand No.	Facility	Building Area (sqft)	Avg Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
J10	1	CP1- 10300 Campus Point Dr.	463,791	27.3	54.6	136.5
J26	1	CP2- 10290 Campus Point Dr.	267,934	50.0	100.0	250.0
J22	1	CP3- (New)	103,559	8.3	16.5	41.3
J68	1	CP4 (New)	210,607	16.8	33.6	83.9
J68	1	CP5- (New)	165,791	13.2	26.4	66.1
J66	1	CP6 (New)	136,500	10.9	21.8	54.4
J108	1	CP7 (New)	211,792	16.9	33.8	84.4
-	1	Parking Structure P2 (New)	70,000	-	-	-
J42	1	CPS1- 4242 Campus Point Ct.	128,163	10.2	20.4	51.1
J34	1	CPS2-10210 Campus Point Dr.	64,981	5.2	10.4	25.9
J78	1	CPS3- 4224 Campus Point Ct.	98,088	7.8	15.6	39.1
J42	1	CPS4- 4244 Campus Point Ct.	7,017	0.6	1.1	2.8
Totals Demands				167.1	334.2	835.5

The model was calibrated based on fire hydrant flow data provided by the City of San Diego for the existing public hydrant located at Campus Point Drive just north of existing Building CP-2 (10290 Campus Point Drive). The hydrant flow result was based on the City's calibrated hydraulic water model. (Refer to Appendix C – Hydrant Flow Request). The results of the hydrant flow test were used to verify the initial boundary conditions and calibration of the hydraulic model. The actual observed static and residual hydrant flow pressures are compared to the simulated results in the following Table 2.

Table 2: Actual Observed Versus Simulated Model Hydrant Test Results

Hydrant No.	Test Flow (gpm)	Static Pressure (PSI)			Residual Pressure (psi)		
		Observed	Simulated	% Diff	Observed	Simulated	% Diff
FH-001	1,659	130	129.47	0.41	116	115.91	0.08

Based on the above results, the hydraulic model will provide simulated fire flows that will be representative of expected real world conditions.

Water mains are normally designed based on meeting fire demands. Such design practice is based on the fact that fire flow requirements usually exceed the normal domestic, industrial, and other demands imposed on the water system. Fire flow is defined as the rate of water flow, at a specified residual pressure, and for a specified duration that is necessary to control a major fire in a specific structure. The specified residual pressure for the subject model was set at 20 psi.

The model also allows the user to apply a velocity constraint to the system which is used by the model to calculate the available fire flow that can be achieved under the specified velocity constraint. The velocity constraint used for the subject model was set at 15 ft/sec.

Note: Available fire flow can also be limited by supply capacity and hydrant location. These factors are taken into consideration by setting a fire flow duration and looping distribution system to increase flow.

Under this condition and for any junction node designating a hydrant location, the fire flow available Q_A at a target pressure can be computed from the following equation:

$$Q_A = Q_F \times \left[\frac{P_S - P_A - c\,(P_F - P_A)}{P_S - P_F} \right]^{1/N}$$

Where,

$$c = \left[\frac{Q_S}{Q_F} \right]^{N}$$

Qs designates the static demand at the node, P_S is the static pressure, Q_F is the normal fire flow demand, P_F is the pressure at the normal fire demand, and N is a flow exponent that is dependent on the Headloss expression used. The above equation is used by the model to represent the analytical solution of the basic pressure-flow equilibrium relationship and is applicable to any system of consistent units.

The redistribution of pressures throughout a network as flow demands and operating conditions are changed is directly accounted for in Infowater (the program). The program implicitly accounts for all hydraulic changes of the distribution system that are required to supply water to the hydrants. The program computes distribution main fire flows for all junction nodes (hydrant locations) or any user-specified network domain in the water system. For this model, the network domain included all proposed onsite hydrants labeled for modeling purposes which are shown in Appendix A. The target pressure (Pa) is user-specified and is defined as the minimum residual pressure allowed at each hydrant in the selected domain during a fire. The computed available flow which can be delivered to the fire is compared with the required fire flow to determine the adequacy of the overall system. The program also identifies the critical node with the minimum pressure, for each fire flow calculation within the selected domain. This information is used to determine system integrity for firefighting needs

The program explicitly computes design flows at junction nodes (hydrant locations) based on a user-specified minimum design pressure and maximum velocity constraints to be maintained throughout the selected network domain. The design flow represents the maximum flow available at a hydrant location such that the system pressure anywhere within the selected domain does not drop below the minimum design pressure specified. Based on the critical node identified (junction node with minimum pressure), the program explicitly determines the design flow for each junction node in the selected domain needed to maintain the minimum system design pressure.

The user defined boundary conditions are listed below:

Residual Pressure:	**20 psi**
Max Velocity Constraint:	**15 ft/sec**
Accuracy:	**0.001**
Max Iterations:	**100**
Critical Node Searching Range:	**Fire Nodes**

The required fire flow, number of hydrants, and flow durations required for each building was determined based on the 2016 California Fire Code, Minimum Required Fire-Flow and Flow Duration for Buildings – Appendix B, Table B105.1. This information is summarized in Table 3 and was used in the model to ensure minimum fire requirements were met. A 50 percent sprinkler reduction to the required fire flow was applied to all new buildings based upon the previous reviews with the City of San Diego regarding interpretation of the code 2013 California Fire Code. The newer 2016 Fire Code allows for a 75 percent reduction in fire flow for buildings with sprinkler fire suppression systems.

Table 3: Required Building Fire Flows

Building	Building Type	GFA (ft^2)	Fire Flow (gpm)	Flow Duration (hrs)	50% Reduction (gpm)	Min # of Hydrants
CP3	IIB	103,559	6750	4	3375	3
CP4	IIB	210,607	8000	4	4000	4
CP5	IIB	165,791	8000	4	4000	4
CP6	IIB	136,500	8000	4	4000	4
CP7	IIB	211,792	8000	4	4000	4
Parking Structure	IIB	70,000	4750	4	2375	3

The following analysis determines the maximum fire flow that can be sustained onsite using multiple concurrent hydrants while maintaining a minimum residual pressure of 20 psi throughout the public and onsite water distribution system. The following Tables 4 through 9 provide the results of the multiple concurrent hydrant fire flow analysis for each proposed building location. For this study, Peak Hour Domestic Demands were not analyzed because plumbing fixture counts are not yet available.

Table 4: Results – Multiple Concurrent Hydrant Fire Flows for Building CP3 (3 Hydrants)

Hydrant ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J140	0	128.64	1,125.00	1,125.00	68.91	1,265.92	20
J142	0	128.65	1,125.00	1,125.00	79.79	1,881.19	20
J144	0	132.98	1,125.00	1,125.00	84.43	2,079.51	20
Total Available Multiple Hydrant Flow						**5,227**	

Table 5: Results – Multiple Concurrent Hydrant Fire Flows for Building CP4 (4 Hydrants)

Hydrant ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J94	0	130.14	1,000.00	1,000.00	54.67	1,001.51	20
J118	0	129.31	1,000.00	1,000.00	58.54	2,058.12	20
J132	0	119.51	1,000.00	1,000.00	50.44	1,057.45	20
J136	0	129.65	1,000.00	1,000.00	54.61	993.59	20
Total Available Multiple Hydrant Flow						**5,111**	

Table 6: Results – Multiple Concurrent Hydrant Fire Flows for Building CP5 (4 Hydrants)

ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J86	0	132.97	1,000.00	1,000.00	50.75	1,318.38	20
J90	0	132.11	1,000.00	1,000.00	47.89	1,089.61	20
J94	0	130.14	1,000.00	1,000.00	47.93	1,126.54	20
J136	0	129.65	1,000.00	1,000.00	49.45	1,287.00	20
Total Available Multiple Hydrant Flow						**4,822**	

Table 7: Results – Multiple Concurrent Hydrant Fire Flows for Building CP6 (4 Hydrants)

ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J86	0	133.01	1,000.00	1,000.00	60.06	1,339.22	20
J90	0	132.14	1,000.00	1,000.00	57.56	1,132.98	20
J110	0	131.79	1,000.00	1,000.00	59.64	1,323.84	20
J136	0	129.68	1,000.00	1,000.00	58.55	1,295.89	20
Total Available Multiple Hydrant Flow						**5,092**	

Table 8: Results – Multiple Concurrent Hydrant Fire Flows for Building CP7 (4 Hydrants)

ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J82	0	131.94	1,000.00	1,000.00	51.16	1,203.77	20
J86	0	132.97	1,000.00	1,000.00	51.94	1,250.89	20
J110	0	131.76	1,000.00	1,000.00	51.68	1,259.78	20
J114	0	131.36	1,000.00	1,000.00	50.77	1,187.60	20
Total Available Multiple Hydrant Flow						**4,902**	

Table 9: Results – Multiple Concurrent Hydrant Fire Flows for Parking Structure (3 Hydrants)

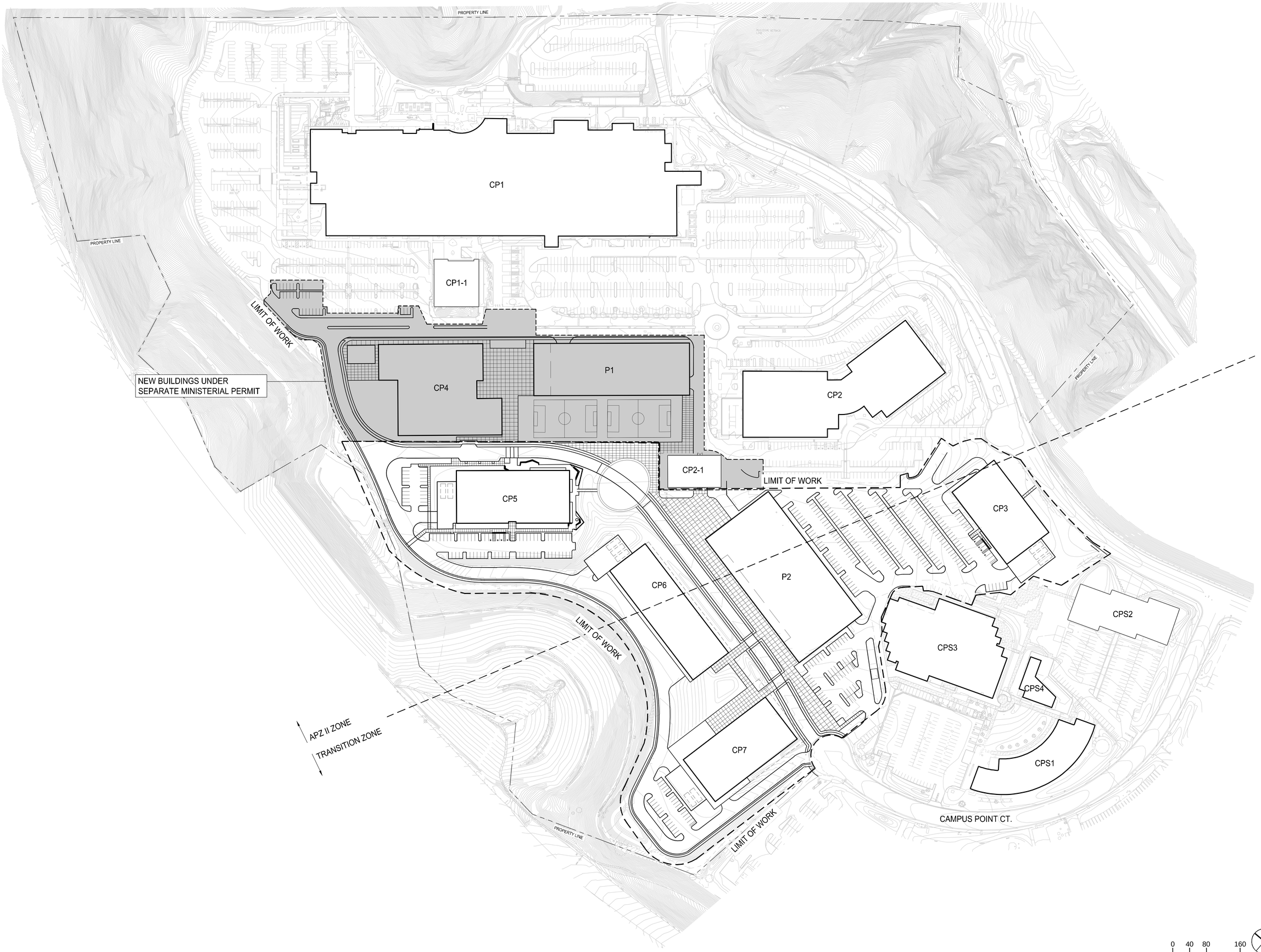
ID	Base Demand (gpm)	Base Pressure (psi)	Fire Demand (gpm)	Combined Demand (gpm)	Residual Pressure (psi)	Available Flow (gpm)	Available Pressure (psi)
J106	0	131.41	800.00	800.00	99.99	1,467.54	20
J110	0	131.79	800.00	800.00	103.88	1,860.15	20
J128	0	128.84	800.00	800.00	101.52	1,857.16	20
Total Available Multiple Hydrant Flow						**5,185**	

III. CONCLUSION & RECOMMENDATIONS

The results of the Fire Flow design test indicate that the offsite system has adequate capacity to deliver a fire flow demand for all proposed buildings as required by the 2016 California Fire Code. Calibrated water model results indicate that available onsite fire flow obtained from multiple hydrants while maintaining a residual pressure of 20 psi under Maximum Day Demand condition exceeds the CFC minimum requirements. (Refer to Tables 3 through 9).

All proposed water utilities within the public right-of-way shall be designed in accordance with the current City of San Diego Water Design Guide and Standards. All on-site water utilities shall be designed in accordance with the current California Plumbing Code (CPC) and California Fire Code (CFC). Approval for all on-site water utilities shall be obtained from the City of San Diego Developmental Services Departments DSD– Suppression, Fire – Plan Review, and BDR – Mechanical.

APPENDIX A – ILLUSTRATIVE SITE PLAN



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OVERALL SITE PLAN 01

LPA

ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING

619-795-2555 Office

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LPADesignStudios.com

1600 National Avenue
San Diego, California 92113

Campus Point Master Plan
Neighborhood Development Permit

CAMPUS POINT COURT
SAN DIEGO, CA 92121

Developed for:
ALEXANDRIA REAL ESTATE EQUITIES, INC.

Revision	Date

Submittal	Date
ORIGINAL PERPARATION DATE	11/01/2019
REVISION DATE	11/20/2019
NPD - 2ND CITY SUBMITTAL	05/04/2020
NPD - 3RD CITY SUBMITTAL	06/12/2020
NDP - 4TH CITY SUBMITTAL	07/17/2020
NDP - 5TH CITY SUBMITTAL	09/04/2020
NDP - 6TH CITY SUBMITTAL	11/02/2020
NDP - 7TH CITY SUBMITTAL	01/28/2021
NDP - 8TH CITY SUBMITTAL	03/19/2021

PTS# 651935

Job Number	19125.20
Date Published	07.17.2020
Checked By	AG, CKA
Scale	1" = 80'-0"

OVERALL SITE PLAN

L0.01

IRVINE • SACRAMENTO • SAN DIEGO • SAN JOSE • DALLAS • SAN ANTONIO

July 17, 2020

City of San Diego
DEVELOPMENT SERVICES
1222 1st Avenue
San Diego, CA 92101

Re: Campus Point: NDP Amendment
LPA Project No. 1912520
City SD Pts No. 651935

PROJECT DESCRIPTION:

THE 84.79 ACRE PROJECT SITE IS BOUND BY CAMPUS POINT DRIVE TO THE EAST, OPEN SPACE TO THE NORTHEAST, NORTH, AND WEST, AND CAMPUS POINT COURT TO THE SOUTH. THE PROJECT SITE CONSISTS OF AN 8 PARCELS CAMPUS AND IS LOCATED WITHIN THE UNIVERSITY COMMUNITY PLANNING AREA OF SAN DIEGO. THE EXISTING PARCELS ARE DESCRIBED AS FOLLOWS.

ID	Address	Legal Description	APN
A	10300 Campus Point Drive	PARCEL 1 (PM 10898)	343-230-13
B	10290 Campus Point Drive	PARCEL 2 (PM 10898)	343-230-14
C	4110 Campus Point Court	PARCEL 1 (PM 20824)	343-230-38
D	4161 Campus Point Court	PARCEL 2 (PM 20824)	343-230-43
E	10260 Campus Point Drive	PARCEL 1 & 3 (PM 14065)	343-230-42
F	4210 & 4224 Campus Point Court	PARCEL 3 (PM 20824)	343-230-40
G	4242 & 4244 Campus Point Court	PARCEL 4 (PM 20824)	343-230-41
H	10210 Campus Point Drive	PARCEL 1 (PM 12822)	343-230-17

THE EXISTING DEVELOPMENT INTENSITY OF THE COMBINED SITES IS 1,673,633 GFA AS NOTED BELOW.

- PARCELS A & B = 1,060,108 GFA
- PARCEL C = 44,795 GFA
- PARCEL D = 163,817 GFA
- PARCEL E = 106,664 GFA
- PARCEL F = 98,088 GFA
- PARCEL G = 135,180 GFA
- PARCEL H = 64,981 GFA

EXISTING ENTITLEMENT VS. PROPOSED ENTITLEMENT

EXISTING BUILDINGS =	1,345,250 GFA
EXISTING BUILDINGS TO BE DEMOLISHED =	315,276 GFA
NEW BUILDINGS PROCESSED SEPARATELY =	245,607 GFA
PROPOSED NEW BUILDINGS =	626,032 GFA
TOTAL PROPOSED DEVELOPMENT =	1,901,613 GFA
NET INCREASE OVER EXISTING APPROVED ENTITLEMENT =	**227,980 GFA**

THE APPLICANT PROPOSES TO INCREASE THE EXISTING APPROVED DEVELOPMENT INTENSITY OF THE COMBINED SITES FROM 1,673,633 GFA TO 1,901,613 GFA. THE NET INCREASE OF THE PROPOSED DEVELOPMENT INTENSITY OVER THE PREVIOUS IS 227,980 GFA.

THE PROPOSED DEVELOPMENT INTENSITY INCREASE WILL BE INCLUSIVE OF EXISTING BUILDINGS TO REMAIN (CP1, CP1-1, CP2, CP2-1, CPS1, CPS2, CPS3, CPS4 = 1,345,250 GFA), PLUS NEW BUILDINGS BEING PROCESSED SEPARATELY UNDER MINISTERIAL PERMIT (CP4, P1 = 245,607 GFA), PLUS PROPOSED NEW BUILDINGS WITHIN THIS PERMIT (CP3, CP5, CP6, CP7, P2 = 626,032 GFA). OTHER PROPOSED IMPROVEMENTS: INCLUDE RECONFIGURATION OF THE MAIN "BOULEVARD" (PRIVATE ROAD), PROVIDING CIRCULATION THROUGH THE CAMPUS.

APPLICANT SEEKS CITY OF SAN DIEGO DISCRETIONARY REVIEW AND APPROVAL OF THE NEW, PROPOSED FACILITIES AND ASSOCIATED SITE IMPROVEMENTS COVERED HEREIN.

BUILDING INFORMATION

EXISTING BUILDINGS:
THERE ARE NINE EXISTING BUILDINGS PLUS TWO UTILITY/CENTRAL PLANT STRUCTURES LISTED AS FOLLOWS. THE UTILITY/CENTRAL PLANT STRUCTURES ARE ROOFED AND ARE NOT NORMALLY OCCUPIED EXCEPT FOR OCCASIONAL MAINTENANCE PERSONNEL. THUS, THE SQUARE FOOTAGES OF SUCH FACILITIES ARE NOT INCLUDED IN THE DEVELOPMENT INTENSITY CALCULATION. THE EXISTING BUILDINGS HOUSE PRIMARILY SCIENTIFIC RESEARCH AND DEVELOPMENT USES.

- "CP1" - 463,791 GFA, 2-STORY, MULTI-TENANT BUILDING
- "CP2" – 267,934 GFA, 4-STORY, SINGLE-TENANT BUILDING
- "10260" – 106,664 GFA, 6-STORY, MULTI-TENANT BUILDING
- "4110" – 44,795 GFA, 2-STORY, MULTI-TENANT BUILDING
- "4161" – 163,817 GFA, 3-STORY, SINGLE-TENANT BUILDING
- "CPS1" – 128,163 GFA, 7-STORY, MULTI-TENANT BUILDING
- "CPS2" – 64,981 GFA, 3-STORY, MULTI-TENANT BUILDING
- "CPS3" – 98,088 GFA, 2-STORY, MULTI-TENANT BUILDING
- "CPS4" – 7,017 GFA, 1-STORY, AMENITY BUILDING
- "CP1-1" – 9,044 SF (EXCLUDED FROM GFA), 1-STORY CENTRAL PLANT BUILDING
- "CP2-1" – 7,310 SF (EXCLUDED FROM GFA), 1-STORY CENTRAL PLANT BUILDING
- TOTAL EXISTING BUILDINGS = 1,345,250 GFA

EXISTING BUILDINGS TO BE DEMOLISHED:

THREE OF THE ABOVE EXISTING BUILDINGS ARE PLANNED TO BE DEMOLISHED AND THEIR AREA IS THEREFORE EXCLUDED FROM THE PROPOSED DEVELOPMENT INTENSITY TABULATIONS. THESE EXISTING BUILDINGS ARE "10260, 4110, AND 4161". TOTAL EXISTING BUILDINGS TO BE DEMOLISHED = 315,276 GFA.

NEW BUILDINGS BEING PROCESSED SEPARATELY UNDER MINISTERIAL PERMIT:
THERE ARE ALSO THE FOLLOWING TWO NEW BUILDINGS BEING PROCESSED UNDER SEPARATE MINISTERIAL PERMITS (SEPARATE FROM ENTITLEMENT EFFORT).

- "CP4" – 210,607 GFA, 5-STORY OVER 1 LEVEL SUBTERRANEAN, MULTI-TENANT BUILDING
- "P1" – 35,000 GFA ACCESSORY AMENITY, 846 STALL, 6 LEVELS OVER 1 LEVEL SUBTERRANEAN, PARKING STRUCTURE
- TOTAL NEW BUILDINGS PROCESSED SEPARATELY = 245,607 GFA

PROPOSED NEW BUILDINGS

THE FOLLOWING ADDITIONAL NEW BUILDINGS ARE PROPOSED:

- "CP3" – 103,559 GFA, 4-STORY OVER 1 LEVEL SUBTERRANEAN PARKING, MULTI-TENANT BUILDING
- "CP5" – 99,561 GFA, 3-STORY OVER 2 LEVELS SUBTERRANEAN BASEMENT, SINGLE-TENANT BUILDING
- "CP6" – 136,500 GFA, 4-STORY OVER 1 LEVEL SUBTERRANEAN PARKING, MULTI-TENANT BUILDING
- "CP7" – 211,792 GFA, 7-STORY OVER 2 LEVELS SUBTERRANEAN PARKING, MULTI-TENANT BUILDING
- "P2" – 69,620 GFA R&D, 5,000 GFA ACCESSORY AMENITY, 1,251 STALL, 5 LEVELS OVER 2 LEVELS SUBTERRANEAN, PARKING STRUCTURE
- TOTAL PROPOSED NEW BUILDINGS = 626,032 GFA

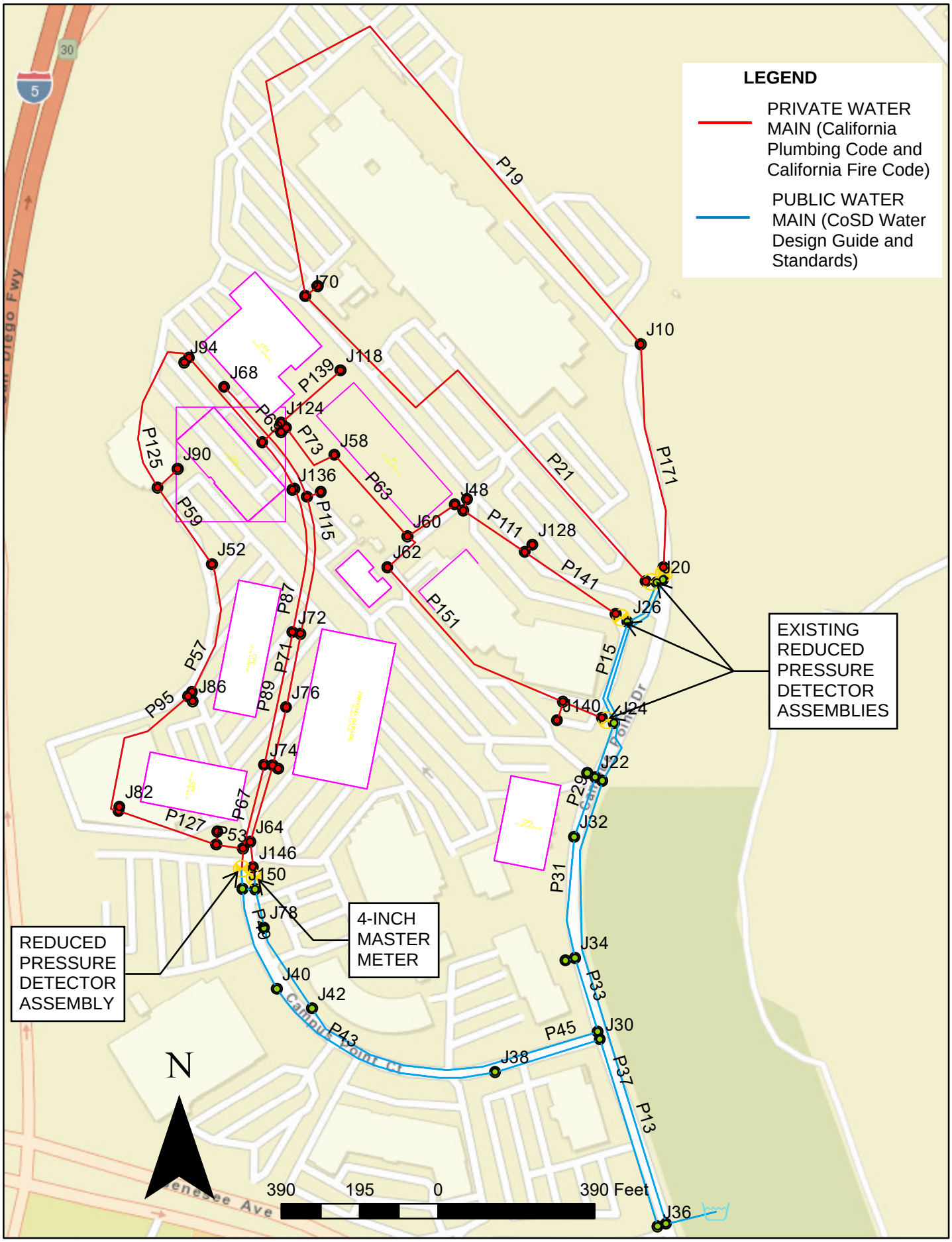
Building Name	Address	GFA (SF)	Year Constructed	Building Heights
EXISTING BUILDINGS TO REMAIN				
CP1	10300 Campus Point Dr	463,791	1979	43' - 5"
CP2	10290 Campus Point Dr	267,934	1997	74' - 4"
CPS1	4242 Campus Point Ct	128,163	1987	75' - 0"
CPS2	10210 Campus Point Dr	64,981	1987	40' - 0"
CPS3	4210 & 4224 Campus Point Ct	98,088	1987	30' - 6"
CPS4	4244 Campus Point Ct	7,017	1987	23' - 10"
		1,029,974		
EXISTING CENTRAL PLANT BUILDINGS				
CP1-1	10300 Campus Point Dr	0	1979	25' - 0"
CP2-1	10290 Campus Point Dr	0	1997	30' - 0"
		0		
BUILDINGS PROCESSED UNDER SEPARATE MINISTERIAL PERMIT				
CP4	TBD	210,607	TBD	TBD
P1	TBD	35,000	TBD	TBD
		245,607		
PROPOSED BUILDINGS				
CP3	TBD	103,559	TBD	64' - 9 1/2"
CP5	TBD	99,561	TBD	61' - 0"
CP6	TBD	136,500	TBD	64' - 0"
CP7	TBD	211,792	TBD	109' - 9 1/2"
P2	TBD	74,620	TBD	65' - 3 1/2"
		626,032		
TOTAL		1,901,613		

Building Name	Address	GFA	Year Constructed	Building Heights
EXISTING BUILDINGS TO BE DEMOLISHED				
4110 CPC	4110 Campus Point Ct	-44,795	1991	30' - 6"
4161 CPC	4161 Campus Point Ct	-163,817	1988	49' - 0"
10260 CPC	10260 Campus Point Dr.	-106,664	1987	92' - 3"
		-315,276		
TOTAL		-315,276		

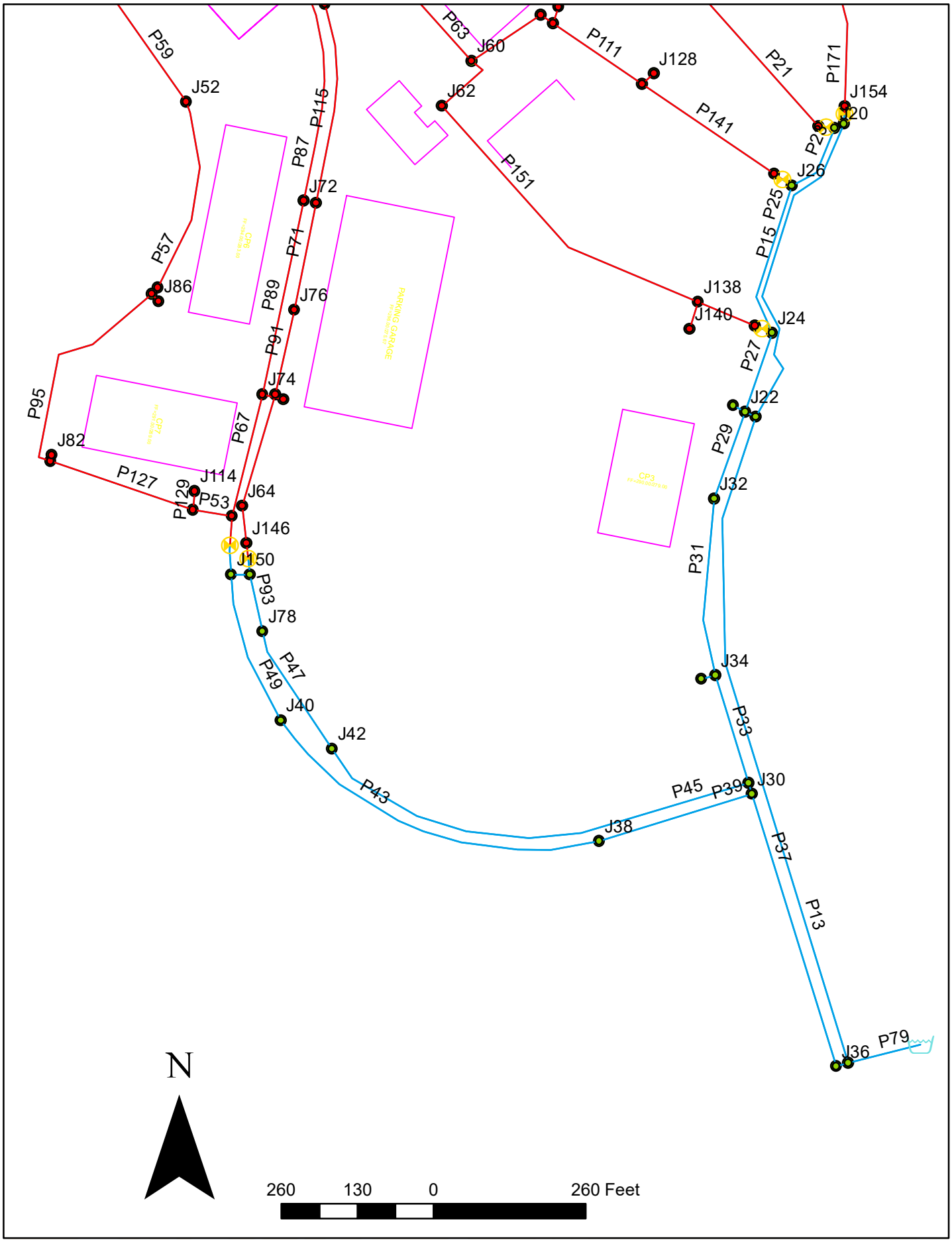
TOTAL DEVELOPMENT AT FULL ENTITLEMENT
1,029,974 + 245,607 + 626,032 = 1,901,613 GFA

APPENDIX B – WATER MODEL LAYOUT

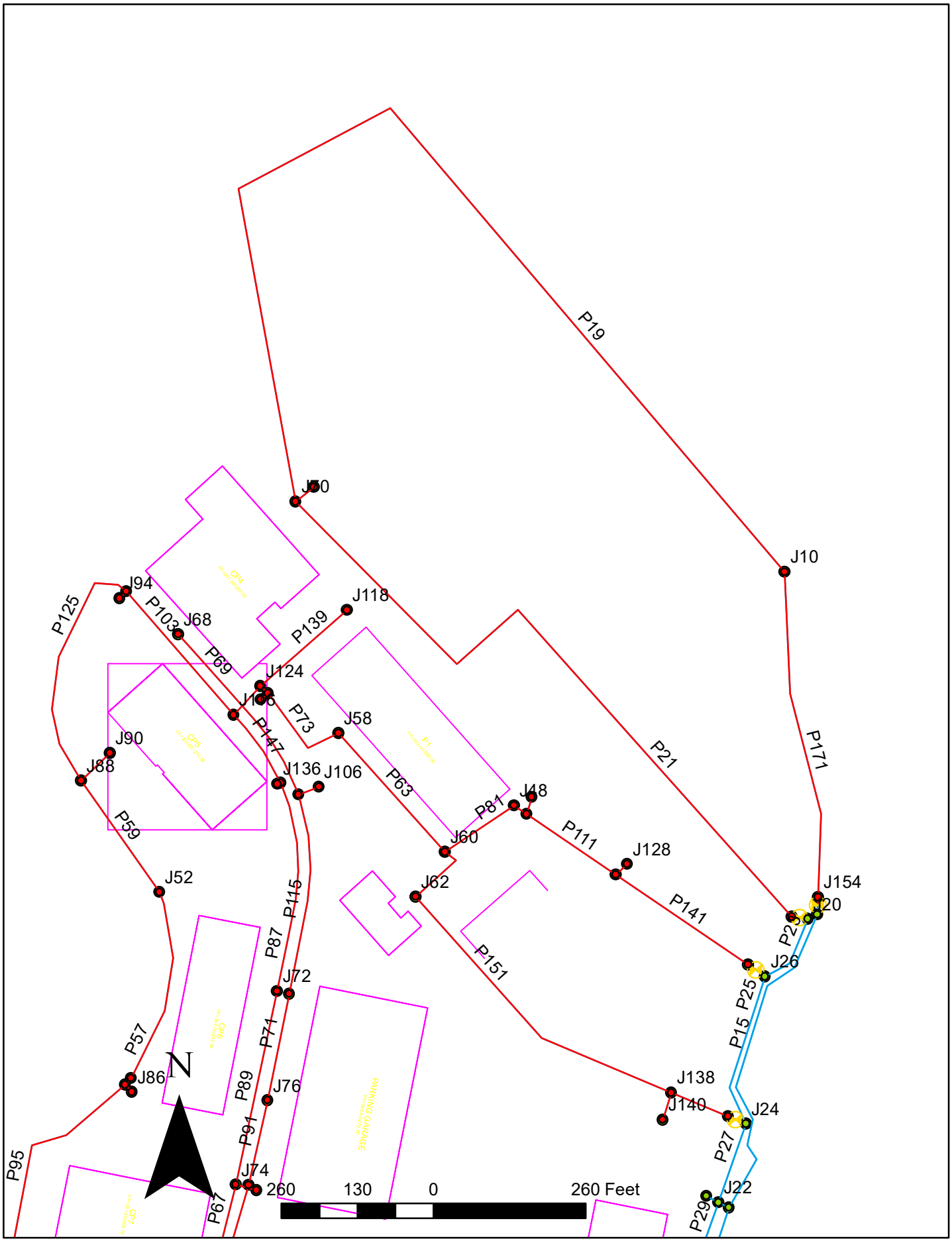
PIPES AND NODES OVERALL VIEW



PIPES AND NODES PLATE 1



PIPES AND NODES PLATE 2



JUNCTION REPORT

		ID	Demand (gpm)	Elevation (ft)
1	☐	J10	54.60	310.00
2	☐	J100	0.00	297.95
3	☐	J102	0.00	298.00
4	☐	J104	0.00	291.47
5	☐	J106	0.00	291.47
6	☐	J108	33.80	290.80
7	☐	J110	0.00	290.80
8	☐	J112	0.00	291.71
9	☐	J114	0.00	291.71
10	☐	J116	0.00	296.44
11	☐	J118	0.00	296.44
12	☐	J12	0.00	296.00
13	☐	J120	0.00	306.00
14	☐	J122	0.00	306.00
15	☐	J124	0.00	296.44
16	☐	J126	0.00	297.60
17	☐	J128	0.00	297.60
18	☐	J132	0.00	298.00
19	☐	J134	0.00	295.67
20	☐	J136	0.00	295.67
21	☐	J138	0.00	298.00
22	☐	J14	0.00	298.00
23	☐	J140	0.00	298.00
24	☐	J142	0.00	298.00
25	☐	J144	0.00	288.00
26	☐	J146	0.00	292.85
27	☐	J148	0.00	293.57
28	☐	J150	0.00	292.82
29	☐	J152	0.00	296.04
30	☐	J154	0.00	296.71
31	☐	J156	0.00	298.00
32	☐	J158	0.00	297.07
33	☐	J16	0.00	299.00
34	☐	J20	0.00	296.00
35	☐	J22	16.50	298.00
36	☐	J24	0.00	298.00
37	☐	J26	100.00	297.00
38	☐	J28	0.00	285.00
39	☐	J30	0.00	285.00
40	☐	J32	0.00	290.00
41	☐	J34	10.40	288.00
42	☐	J36	0.00	290.00
43	☐	J38	0.00	290.00
44	☐	J40	0.00	295.00
45	☐	J42	21.50	298.00
46	☐	J44	0.00	292.00
47	☐	J46	0.00	288.00
48	☐	J48	0.00	298.00
49	☐	J52	0.00	290.00
50	☐	J58	0.00	306.00
51	☐	J60	0.00	298.00

JUNCTION REPORT

		ID	Demand (gpm)	Elevation (ft)
52	☐	J62	0.00	298.00
53	☐	J64	0.00	292.00
54	☐	J66	21.80	288.00
55	☐	J68	60.00	295.00
56	☐	J70	0.00	298.00
57	☐	J72	0.00	293.70
58	☐	J74	0.00	292.60
59	☐	J76	0.00	289.36
60	☐	J78	15.60	294.88
61	☐	J80	0.00	290.38
62	☐	J82	0.00	290.38
63	☐	J84	0.00	288.00
64	☐	J86	0.00	288.00
65	☐	J88	0.00	290.00
66	☐	J90	0.00	290.00
67	☐	J92	0.00	294.53
68	☐	J94	0.00	294.53

PIPE REPORT

		ID	From Node	To Node	Length (ft)	Diameter (in)	Roughness
1	☐	P101	J88	J90	67.98	6.00	130.00
2	☐	P103	J92	J116	279.05	10.00	130.00
3	☐	P105	J94	J92	16.58	6.00	130.00
4	☐	P111	J100	J126	183.90	8.00	130.00
5	☐	P113	J100	J102	29.95	6.00	130.00
6	☐	P115	J66	J104	345.73	8.00	130.00
7	☐	P117	J104	J106	37.15	6.00	130.00
8	☐	P119	J64	J108	198.15	8.00	130.00
9	☐	P121	J74	J110	36.74	6.00	130.00
10	☐	P123	J84	J46	14.84	10.00	130.00
11	☐	P125	J88	J92	423.14	10.00	130.00
12	☐	P127	J112	J80	257.26	10.00	130.00
13	☐	P129	J112	J114	32.58	6.00	130.00
14	☐	P13	J16	J14	1,143.69	12.00	120.00
15	☐	P133	J116	J124	66.98	10.00	130.00
16	☐	P135	J120	J124	18.11	8.00	130.00
17	☐	P137	J120	J122	16.68	6.00	130.00
18	☐	P139	J124	J118	196.68	10.00	130.00
19	☐	P141	J126	J158	273.33	8.00	130.00
20	☐	P143	J126	J128	26.61	6.00	130.00
21	☐	P145	J70	J132	38.95	6.00	130.00
22	☐	P147	J134	J116	141.19	10.00	130.00
23	☐	P149	J134	J136	5.50	6.00	130.00
24	☐	P15	J14	J12	567.06	12.00	120.00
25	☐	P151	J138	J62	564.29	8.00	130.00
26	☐	P153	J138	J140	49.00	6.00	130.00
27	☐	P155	J22	J142	22.72	6.00	130.00
28	☐	P157	J34	J144	24.15	6.00	130.00
29	☐	P159	J146	J64	64.05	8.00	130.00
30	☐	P161	J148	V8010	28.12	8.00	130.00
31	☐	P163	J150	V8000	50.48	10.00	130.00
32	☐	P165	J148	J150	32.02	10.00	130.00
33	☐	P167	V8000	J44	49.66	10.00	130.00
34	☐	P169	J152	V8002	12.81	10.00	130.00
35	☐	P17	J12	V8004	16.51	10.00	130.00
36	☐	P171	J154	J10	562.54	10.00	130.00
37	☐	P173	V8002	J20	14.86	10.00	130.00
38	☐	P175	V8004	J154	13.48	10.00	130.00
39	☐	P177	J156	J138	104.77	8.00	130.00
40	☐	P179	J158	V8006	16.04	8.00	130.00
41	☐	P181	V8006	J26	19.72	8.00	130.00
42	☐	P183	V8008	J156	13.42	10.00	130.00
43	☐	P185	V8010	J146	26.26	8.00	130.00
44	☐	P19	J10	J70	1,876.16	10.00	130.00
45	☐	P21	J70	J152	1,233.91	10.00	130.00
46	☐	P23	J20	J26	129.46	12.00	120.00
47	☐	P25	J26	J24	267.52	12.00	120.00
48	☐	P27	J24	J22	142.20	12.00	120.00
49	☐	P29	J22	J32	157.81	12.00	120.00
50	☐	P31	J32	J34	304.57	12.00	120.00
51	☐	P33	J34	J28	192.29	12.00	120.00
52	☐	P35	J28	J30	19.96	12.00	120.00
53	☐	P37	J30	J36	486.81	12.00	120.00
54	☐	P39	J30	J38	273.25	10.00	130.00
55	☐	P43	J38	J40	618.33	10.00	130.00

PIPE REPORT

		ID	From Node	To Node	Length (ft)	Diameter (in)	Roughness
56	☐	P45	J28	J42	772.75	10.00	130.00
57	☐	P47	J42	J78	235.39	10.00	130.00
58	☐	P49	J40	J150	266.48	10.00	130.00
59	☐	P51	J14	J22	20.00	12.00	130.00
60	☐	P53	J44	J112	67.38	10.00	130.00
61	☐	P57	J46	J52	334.97	10.00	130.00
62	☐	P59	J52	J88	232.93	10.00	130.00
63	☐	P63	J58	J60	271.98	10.00	130.00
64	☐	P65	J62	J60	116.80	8.00	130.00
65	☐	P67	J44	J74	214.45	10.00	130.00
66	☐	P69	J104	J68	344.82	8.00	130.00
67	☐	P71	J76	J66	186.04	8.00	130.00
68	☐	P73	J58	J120	173.10	8.00	130.00
69	☐	P77	J16	J36	21.30	16.00	90.00
70	☐	P79	RES9000	J16	6,300.00	16.00	90.00
71	☐	P81	J60	J48	142.06	8.00	130.00
72	☐	P83	J48	J100	25.86	8.00	130.00
73	☐	P85	J24	V8008	19.44	8.00	130.00
74	☐	P87	J72	J134	364.07	10.00	130.00
75	☐	P89	J74	J72	338.13	10.00	130.00
76	☐	P91	J108	J76	148.49	8.00	130.00
77	☐	P93	J78	J148	98.98	10.00	130.00
78	☐	P95	J80	J84	392.89	10.00	130.00
79	☐	P97	J80	J82	10.49	6.00	130.00
80	☐	P99	J84	J86	17.19	6.00	130.00

APPENDIX C – HYDRANT TEST DATA

City of San Diego
Development Services
Attention: **Hydrant Flow Request**
1222 First Ave., MS-401
San Diego, CA 92101
(619) 446-5000

Hydrant Flow Request

FORM
DS-160
October 2016

Fill out the information below completely for all sprinkler system flow requests, including NFPA 13, 13D and 13R systems. E-mail form to: DSDHydrantFlow@sandiego.gov, or mail request to the above address.

Please print or type legibly.

Company Requesting Hydrant Flow:
Michael Baker International

Telephone No: 858-810-1434
Fax No:
E-mail Address: aharon.weintraub@mbakerintl.com

Project Number for the Building Permits:

Location of Hydrants:
Campus Pt Dr just north of Bldg @ 10290 Campus Pt Dr

Cross Street: North of Campus Pt. Ct.
City: San Diego
State: CA
ZIP Code: 92121

FOR CITY USE ONLY

Facility Sequence Number: (FSN): 5708269

Static: 128.67 PSI
Elevation: 299 FEET

Pitot: - PSI
Residual: 114.4643 PSI

Date: 6/9/2020
Flow: 1644.7756 GPM

Researched in database by: Adrian Silva

The information provided above is based upon a water model. It is the contractor's responsibility to confirm the available static pressure at the system point of connection. If a discrepancy is noticed at that time, notify DSDHydrantFlow@sandiego.gov as soon as possible.