Appendix N – Sanitary Sewer Demand Memorandum

MEMORANDUM

Date: June 3, 2022 BKF No.: 202100283-10

To: Martin Quan, City of Burlingame

From: Tim Heffernan, BKF

Cc: Jeremy Liu, One Vassar
Karen Kuklin, DGA

Subject: 620 Airport Blvd – Sanitary Sewer Demand

Purpose

The purpose of this memorandum is to provide information regarding impacts to the sewer system for the proposed redevelopment project at 620 Airport Boulevard in Burlingame, CA.

Background

The site is currently occupied by a surface parking lot, with public access provided along Anza Lagoon and Airport Boulevard. The site is bounded by Airport Blvd to the south, State Lands to the west and north, and a hotel to the east.

The site is served by a 12-inch Sanitary Sewer main in Airport Boulevard that drains by gravity to a pump station located to the west of the site. City record maps show a private sewer lateral serves the site. Attachment A includes the City base maps showing the existing facilities in the project vicinity.

Sewer Demand

The City of Burlingame does not have a standard for sanitary sewer demand calculations based on square footages. The existing demands are calculated based on the following assumptions:

- Commercial/Retail development unit flow factor of 0.1 gallons per day (gpd) per square foot based on Non-Residential Base Wastewater Flow Unit Flow factors table presented in the Redwood City Sanitary Sewer Master Plan, Chapter 4, dated August 2008 (Attachment B)

Existing Demands

The existing site consists of a surface parking with two shelters. The parking lot is automated and is not equipped with a full time attendant. Therefore, we do not anticipate any sewer flows from the existing site.

Proposed Demands

The proposed program consists of approximately 476,000 sq. ft. occupied space (non-residential area) and approximately 314,400 sq. ft. garage. For the purposes of this memo we assume the garage does not generate any sewer flows. Based on the square footage and sewer generation unit factors the proposed condition will generate an average daily flow of 47,600 gpd. Using a peaking factor of 2.0, the Peak Day Flow is anticipated to be 66 gpm. Calculations for the proposed sewer demand are included in Attachment C.

Conclusion

The proposed condition is estimated to have a total discharge of 47,600 gpd with a total peak flow of 66 gpm. Because the existing site is not anticipated to generate any sewer flows the proposed demands represent the increase in flows to the city's system from the existing condition. The proposed site will continue to drain to the existing 12-inch municipal sewer in Airport Boulevard through a new sewer lateral.

ATTACHMENTS:

Attachment A – City of Burlingame Sewer System Facilities Map

Attachment B – Excerpt from Redwood City Sanitary Sewer Master Plan

Attachment C –Water and Sanitary Sewer Demand Summary

Attachment A: City of Burlingame Sewer System Facilities Map

PROJECT LOCATION

C7-21015

8" PVC
175'

C7-21016

BAYVIEW PL

8" PVC 1964
294'

C7-21004

620

600

500

12" PVC

C7-21037

C6-21014

12" PVC
291'

C7-21035

AIRPORT BLVD

12" PVC
290'

C7-21032

12" PVC
300'

C7-21031

12" PVC
143'

C7-21039

12" PVC
308'

701

615

10" PVC
143'

577
MULTIPL UNITS

DATE PRINTED:
March 15, 2021

CITY OF BURLINGAME
SEWER SYSTEM FACILITIES

GRAPHIC SCALE
0 50 100 150 200
FEET

C6-2		
C6-4	C7-3	C7-4
D6-2	D7-1	D7-2

C7-3

CREATED BY CALIFORNIA CAD SOLUTIONS, INC. www.calcad.com (209) 578-5580

4.2.1 Base Wastewater Loads

Existing BWF entering the modeled system were estimated based on population and water use data. A per-capita unit flow rate was applied to the population within each sewershed (described in Chapter 2) to define the average BWF from residential sources, while average winter water consumption was used to define the load from non-residential sources.

Residential Loads

Both existing and future residential loads were determined by applying a per-capita flow rate to the existing and future sewershed populations (discussed in Chapter 2). The following per capita loads were applied to the model:

Weekday per-capita flow. 70 gallons per capita per day (gpcd)

Weekend per-capita flow. 75 gpcd

These per capita loads are similar to loads observed in other Bay Area cities, and were confirmed to be appropriate for the City through comparisons of model flows to flow meter data, as discussed in Section 4.4, Model Calibration.

Non-Residential Loads

Existing non-residential loads were based on winter water usage for non-residential customers. Winter water use is considered a reasonable approximation of wastewater flow because outdoor water use during the winter is generally minimal. Water consumption from the City's water billing database was averaged for each non-residential customer for winter (December through April) 2004/2005 and 2005/2006 to determine the existing wastewater load. To determine the location of water usage/sewer loads, non-residential water customers were linked to parcels based on the geobase code where possible, and the remaining water customer locations were geocoded based on the City's street GIS layer. Non-residential water usage was then aggregated to sewersheds.

Future non-residential loads were based on a combination of percentage growth in employment, as projected by ABAG at the census tract level, and a unit load per parcel acre or building square footage for currently vacant parcels and the Downtown Precise Plan area. The unit loads used for the Downtown Precise Plan developments and development of existing vacant parcels according to the City's General Plan are listed in **Table 4-1**. As shown in the table, the unit flow factors for future development outside of the Downtown Precise Plan area are based on assumed floor area ratios (FARs) for the various types of land uses in the City's General Plan, multiplied by a typical unit flow rate per square foot of building space, based on experience from other communities.

Table 4-1 Future Non-Residential Base Wastewater Flow Unit Flow Factors

Type of Development	Unit Flow Factor	Assumptions
Downtown Precise Plan		
Commercial/Retail	0.1 gpd/sq. ft.	
Lodging	100 gpd/room	
General Plan (Existing Vacant Land)		
Heavy Commercial	8,700 gpd/acre	2 FAR at 0.1 gpd/sq. ft.
Intermediate Commercial	4,400 gpd/acre	1 FAR at 0.1 gpd/sq. ft.
Mixed Commercial	2,200 gpd/acre	0.5 FAR at 0.1 gpd/sq. ft.
Neighborhood Commercial	2,200 gpd/acre	0.5 FAR at 0.1 gpd/sq. ft.
Heavy Industrial	2,900 gpd/acre	0.45 FAR at 0.15 gpd/sq. ft.
Light Industrial	2,900 gpd/acre	0.45 FAR at 0.15 gpd/sq. ft.

Attachment C - Water and Sewer Demand Summary

620 AIRPORT BOULEVARD REDVELOPMENT
PROPOSED SEWER & WATER DEMANDS

LAND USE	AREA	Domestic Water Demand				Sanitary Sewer Demand		
		Unit Demand[1]	Total Average Daily Water Demand	Max Daily Water Demand[4]	Peak Water Demand[2]	Total Average Daily Sewer Demand[1]	Peak Sewer Demand[2]	
	(sf)	(gpd/sf)	(gpd)	(gpd)	(gpm)	(gpd)	(gpd)	(gpm)
Flex Space	10,000	0.105	1,053	2,105	1	1,000	2,000	1
Business Space	15,000	0.105	1,579	3,158	2	1,500	3,000	2
Lab/Office	451,000	0.105	47,474	94,947	66	45,100	90,200	63
Garage	314,400	0.000	0	0	0	0	0	0
SUBTOTAL	790,400		50,105	100,211	70	47,600	95,200	**66**
Irrigation[3]	61,500	0.05	3,075	6,150	9	0	0	0
TOTAL			53,180	106,361	78	47,600	95,200	**66**

Peaking Factor: 2.0 Domestic
2.0 Irrigation

NOTES:

[1] Sewer demand for non-redidential uses based on Redwood City Chapter 4.2.1 - 0.1 gpd/sf resulting in 0.105 gpd/sf water demand assuming 95% return of potable water to sanitary sewer.

[2] Peak Flow = Peaking Factor x Total Average Daily Flow.

[3] Assume landscape areas for irrigation includes bay trail along property frontage, landscaping on podium and landscapign on grade. Irrigation unit demand of 2000 gal/day/acre (0.05 gpd/sf) was assumed.

[4] Assume Max Day Water Deman = Total Average Daily Water Demand x 2