Appendix J
Utility Infrastructure Technical Report
3RD AND PACIFIC
UTILITY INFRASTRUCTURE TECHNICAL REPORT: WATER, WASTEWATER, AND ENERGY

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# Table of Contents

INTRODUCTION ...................................................................................................................... 4  
1.1. PROJECT DESCRIPTION ............................................................................................... 4  
1.2. SCOPE OF WORK ......................................................................................................... 4  
2. REGULATORY FRAMEWORK .......................................................................................... 4  
2.1. WATER .......................................................................................................................... 4  
2.2. WASTEWATER .............................................................................................................. 5  
2.3. ENERGY ........................................................................................................................... 6  
3. ENVIRONMENTAL SETTING ............................................................................................ 8  
3.1. WATER .......................................................................................................................... 8  
3.2. WASTEWATER .............................................................................................................. 9  
3.3. ENERGY ........................................................................................................................... 9  
4. SIGNIFICANCE THRESHOLDS .......................................................................................... 11  
4.1. WATER ........................................................................................................................... 11  
4.2. WASTEWATER .............................................................................................................. 11  
4.3. ENERGY ........................................................................................................................... 12  
5. METHODOLOGY ................................................................................................................ 13  
5.1. WATER ........................................................................................................................... 13  
5.2. WASTEWATER .............................................................................................................. 13  
5.3. ENERGY ........................................................................................................................... 13  
6. PROJECT IMPACTS .......................................................................................................... 13  
6.1. CONSTRUCTION ........................................................................................................... 14  
6.1.1. WATER ......................................................................................................................... 14  
6.1.2. WASTEWATER ............................................................................................................ 14  
6.1.3. ENERGY ....................................................................................................................... 15  
6.2. OPERATION ................................................................................................................... 15  
6.2.1. WATER ......................................................................................................................... 15  
6.2.2. WASTEWATER ............................................................................................................ 18  
6.2.3. ENERGY ....................................................................................................................... 20  
6.3. CUMULATIVE IMPACTS ............................................................................................... 20  
6.3.1 WATER ......................................................................................................................... 20  
6.3.2 WASTEWATER ............................................................................................................. 21  
6.3.3 ENERGY ....................................................................................................................... 21  
7. LEVEL OF SIGNIFICANCE ............................................................................................... 23
Appendices
Exhibit 1- Existing Utility Infrastructure
Exhibit 2- Long Beach Water Department Water and Sewer “Will Serve” Letter
Exhibit 3- Fire Flow Test Results
Exhibit 4- Fire Flow Test Calculation
Exhibit 5- Southern California Edison Power “Will Serve” Letter
Exhibit 6- Long Beach Gas and Oil “Will Serve” Letter
INTRODUCTION

1.1. PROJECT DESCRIPTION

The 3rd and Pacific project is a mixed-use development consisting of 345 residential units and 14,437 square feet of retail commercial space (Project). The development proposes two buildings, a 23-story high rise building at the south end of the site, and an 8-story building at the north end of the property (Project Site). Both buildings offer ground floor retail, with apartments rising above. A proposed pedestrian-focused paseo reenvisions the existing alley and energizes the space between the two buildings. Parking for the site will be provided via two levels of underground parking for each building. The north building also has one level of parking at grade, and a second-floor parking level. The high rise building features four additional parking levels above the ground floor, extending from the second through fifth floors.

1.2. SCOPE OF WORK

As a part of the Environmental Impact Report for the Project, the purpose of this report is to analyze the potential impact of the Project to the existing water, wastewater, and energy infrastructure system.

2. REGULATORY FRAMEWORK

2.1. WATER

The Long Beach Water Department (LBWD) is responsible for providing water supply to the City while complying with Local, State, and Federal regulations.

Below are the State and Regional water supply regulations:

- California Code of Regulations, Title 20, Chapter 4, Article 4, Section 1605 establishes water efficiency standards for all new plumbing fixtures and Section 1608 prohibits the sale of fixtures that do not comply with the regulations.
- 2013 California Green Building Standards Code, CCR, Title 24, Part 11, adopted on January 1, 2014, requires a water use reduction of 20% above the baseline cited in the CALGreen code book. The code applies to family homes, state buildings, health facilities, and commercial buildings.
Senate Bill 610 and Senate Bill 221, approved on October 9, 2001, require land use agencies to perform a detailed analysis of available water supply when approving large developments. Historically, public water suppliers (PWS) simply provided a “will serve” letter to developers. SB 610, Public Resources Code (PRC) and Section 10910-10915 of the State Water Code requires lead agencies to request a Water Supply Assessment (WSA) from the local water purveyor prior to project approval. If the projected water demand associated with a proposed development is included in the most recent UWMP, the development is considered to have sufficient water supply per California Water Code Section 10910, and a WSA is not required. All projects that meet any of the following criteria require a WSA:

1) A proposed residential development of more than 500 dwelling units.
2) A proposed shopping center or business establishment of more than 500,000 square feet of floor space or employing more than 1,000 persons
3) A proposed commercial office building of more than 250,000 square feet of floor space or employing more than 1,000 persons
4) A proposed hotel or motel of more than 500 rooms
5) A proposed industrial, manufacturing, or processing plant or industrial park of more than 40 acres of land, more than 650,000 square feet of floor area, or employing more than 1,000 persons
6) A mixed use project that falls in one or more of the above-identified categories
7) A project not falling in one of the above-identified categories but that would demand water equal or greater than the amount required by a 500-dwelling unit project.

2.2. WASTEWATER

The City of Long Beach operates and maintain nearly 712 miles of gravity sanitary sewer lines, 26 pump stations, and 7.6 miles of force main through the Long Beach Water Department (LBWD). The system generates approximately 45 million gallons per day.

Most of the City of Long Beach sewer gravity lines discharge to the Los Angeles County Sanitation Districts’ (LACSD) Joint Water Pollution Control Plant (JWPCP) located at 24501 South Figueroa Street in Carson, California. The JWPCP is the largest of the LACSD’s wastewater treatment plants. It provides advanced primary and partial secondary treatment for 260 million gallons of wastewater per day (mgd) and has a total permitted capacity of 400 mgd. The plant serves a population of approximately 3.5 million people, including most of the 460,000 residents of the City of Long Beach. A small portion of the City of Long Beach sewer gravity lines discharge to the LACSD’s Long Beach Reclamation Plant located at 7400 East Willow Street in Long Beach, California. LACSD is responsible for operation, management, and maintenance for both treatment plants and for the interceptor sewers traversing the Long Beach service area. To comply with Waste Discharge Requirements (WDRs), LBWD prepared a Sewer
System Management Plan (SSMP) pursuant to the State Water Resources Control Board’s (SWRCB) May 2, 2006 Statewide General Waste Discharge Requirements (WDRs).\(^\text{1}\)

Under Order No. 2006-0003-DWQ, the LBWD must prepare and implement a hydraulic capacity of key sanitary sewer system for dry weather peak flow conditions and appropriate design storm or wet weather event. To comply with the Order requirement, LBWD developed that System Evaluation and Capacity Analysis Plan (SECAP). As part of LBWD’s Sewer Master Plan, a dynamic hydraulic model of the sewer collection system was developed. To further calibrate the model, flow data from flow meters were used, so that the hydraulic model can account for existing and future capacity conditions.

Per the LBWD Design Criteria for Sanitary Sewer Facilities, for new commercial developments, the Developer is required to request sewer modeling performed by LBWD to determine the existing condition using raw flow monitoring data to identify existing deficiencies in the system and existing conditions with proposed development to identify any potential additional deficiencies created by the proposed development. If the proposed development intensifies the land use from the existing development on site, an additional flow monitoring and sewer capacity study may be required by LBWD. If the current sewer system does not have adequate capacity for the new development, the Developer may need to improve the current system.

LBWD requires the payment of fees for new connections to the sewer system to assure the sufficiency of sewer infrastructure. New connections to the sewer system are typically assessed a Sewerage Facilities Charge. The rate structure for the Sewerage Facilities Charge is based upon wastewater flow strength, as well as volume. The determination of wastewater strength for each applicable project is based on City guidelines for the average wastewater concentrations of two parameters, biological oxygen demand and suspended solids, for each type of land use. Fees paid to the Sewerage Facilities Charge are deposited in the City’s Sewer Construction and Maintenance Fund for sewer and sewage-related purposes, including but not limited to industrial waste control and water reclamation purposes.

2.3. ENERGY

2.3.1. ELECTRIC POWER

Electric power within the City of Long Beach is supplied by Southern California Edison. The 2018 Power Integrated Resource Plan (IRP)\(^\text{2}\) document serves as a comprehensive roadmap that guides Southern California Edison's (SoCal Edison) Power System in its efforts to supply reliable electricity in an environmentally responsible and cost effective manner. The 2018 IRP re-examines and expands its analysis with updates in the latest regulatory framework, in order to successfully support California’s economy-wide climate goals in 2030 and beyond.

The 2018 IRP provides detailed analysis and results of several new IRP resource cases which investigated the economic and environmental impact of increased local solar and various levels of transportation electrification. In analyzing the IRP cases and recommending a strategy to best meet the future electric needs of California, the IRP uses system modeling tools to analyze and

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\(^\text{1}\) City of Long Beach, Long Beach Water Department, Long Beach Sewer System Management Plan, April 2014.

determine the long-term economic, environmental, and operational impact of alternative resource portfolios by simulating the integration of new resource alternatives within our existing mix of assets and providing the analytic results to inform the selection of a recommended case.  

2.3.2. NATURAL GAS

The 2018 California Gas Report\(^5\) presents a comprehensive outlook for natural gas requirements and supplies for California through the year 2035. This report is prepared in even-numbered years, followed by a supplemental report in odd-numbered years, in compliance with California Public Utilities Commission Decision D.95-01-039. The projections in the California Gas Report are for long-term planning and do not necessarily reflect the day-to-day operational plans of the utilities.

California natural gas demand, including volumes not served by utility systems, is expected to decrease at a rate of 0.5 percent per year from 2018 to 2035. The forecast decline is a combination of moderate growth in the Natural Gas Vehicle (NGV) market and across-the-board declines in all other market segments: residential, commercial, electric generation, and industrial markets.

Residential gas demand is expected to decrease at an annual average rate of 1.4 percent. Demand in the commercial and industrial markets are expected to decline at an annual rate of 0.2 percent. Aggressive energy efficiency programs make a significant impact in managing growth in the residential, commercial, and industrial markets. For the purpose of load-following as well as backstopping intermittent renewable resource generation, gas-fired generation will continue to be the primary technology to meet the ever-growing demand for electric power. However, overall gas demand for electric generation is expected to decline at 1.4 percent per year for the next 17 years due to more efficient power plants, statewide efforts to minimize greenhouse gas (GHG) emissions through aggressive programs pursuing demand-side reductions, and the acquisition of preferred power generation resources that produce little or no carbon emissions.

In 2015, the state enacted legislation intended to improve air quality, provide aggressive reductions in energy dependency and boost the employment of renewable power. The first legislation, the 2015 Clean Energy and Pollution Reduction Act, also known as Senate Bill (SB) 350, requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030. SB 350 establishes annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses by January 1, 2030. Second, the Energy Efficiency Act (AB 802) provides aggressive state directives to increase the energy efficiency of existing buildings, requires that access to building performance data for nonresidential buildings be provided by energy utilities and encourages pay-for-performance incentive-based programs. This paradigm shift will allow California building owners a better and more effective way to access whole-building information.

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and at the same time will help to address climate change, and deliver cost-effective savings for ratepayers.\(^6\)

3. ENVIRONMENTAL SETTING

3.1. WATER

Long Beach Water Department is responsible for providing water supply to the City while complying with Local, State, and Federal regulations.

3.1.1. REGIONAL

Primary sources of water for the Long Beach Water Department service area are from groundwater and imported water. About 60 percent of the City’s water supply is produced from groundwater wells located within the City in which the City has ownership of the pumping rights. To provide the remaining 40 percent water demands, the City’s water supply is treated surface water purchased from the Metropolitan Water District of Southern California (MWD). Water from MWD originates from the Colorado River by the 242 mile Colorado River Aqueduct and the Northern California’s Bay-Delta Region by the 441 mile California Aqueduct. Furthermore, LBWD provides reclaimed water, which originates from the Long Beach Water Reclamation Plant that is treated to a quality standard suitable for irrigating parks, golf courses and other outdoor landscapes.

3.1.2. LOCAL

LBWD maintains the water infrastructure around the Project Site. Based on available record data and a water service map provided by LBWD,

- **Pacific Avenue**: There is an existing 16-inch cast iron (CI) cement mortar lined (CML) water main 30-feet of the east centerline (CL) between 3\(^{rd}\) Street and Roble Way. The main is upsized to a 20-inch CI-CML and change alignment from Roble Way to 4\(^{th}\) Street to 12-feet east of the CL.

- **3\(^{rd}\) Street**: There is an existing 12-inch ductile iron water line 12-feet north of the CL between Pacific Avenue and Solana Court.

- **Solana Court**: There is an existing 8-inch CI water main 3-feet east of the CL between 3\(^{rd}\) Street and 4\(^{th}\) Street.

- **Roble Way**: There is an existing 14-inch CI water main 3.5-feet north of the CL between Pacific Avenue and Solana Court.

Additionally, there are 3 existing public hydrants in the vicinity of the Project Site. One fire hydrant is located on the southwest corner of the Pacific Avenue and Roble Way intersection and the second fire hydrant is located on the southeast corner of the 3\(^{rd}\) Street and Solana Court.

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intersection and a third hydrant northeast corner of the 4th Street and Solana Court intersection. See Exhibit 1 for approximate hydrant locations.

3.1.3. **ON SITE**

As described above, the Project Site is currently composed of a surface parking lot. Based on water as-built drawings received from LBWD there are no existing active domestic or fire water service services from the water mains located in either 3rd Street, 4th Street, Pacific Avenue or Solana Court.

3.2. **WASTEWATER**

3.2.1. **REGIONAL**

The LBWD operates and maintains the wastewater collection system serving the City of Long Beach. As stated above, the collection infrastructure consists of nearly 712 miles of gravity sanitary sewer lines, 26 pump stations, and 7.6 miles of force main. The wastewater generated by the Project ultimately flows to the LACSD JWPCP. The JWPCP provides advanced primary and partial secondary treatment for 260 million gallons of wastewater per day (mgd) and has a total permitted capacity of 400 mgd.

**LOCAL**

Sanitary sewer service to the Project Site from the surrounding streets is maintained by the Long Beach Water Department. There are multiple sanitary sewer mains surrounding the project site with estimated capacities from as built information.

- **3rd Street:** There is an existing 15-inch vitrified clay pipe (VCP) Sanitary Sewer Line at the CL between Pacific Avenue and Solana Court.
- **4th Street:** There is an existing 8-inch VCP Sanitary Sewer Line at the CL between Pacific Avenue and Solana Court.
- **Solana Court:** There is an existing 12-inch VCP Sanitary Sewer Line at the CL between 3rd Street and 4th Street.

These City sewer mains connect to a network of sewer lines which ultimately convey wastewater to the JWPCP.

3.2.2. **ON SITE**

As described above, the Project Site is currently composed of a surface parking lot, with no apparent existing active sewer services based on as-built drawings received from LBWD.

3.3. **ENERGY**

3.3.1. **ELECTRIC POWER**
Southern California Edison is responsible for providing electric power supply to the City of Long Beach while complying with Local, State, and Federal regulations.

3.3.1.1. REGIONAL

Southern California Edison (or SCE Corp), the largest subsidiary of Edison International, is the primary electricity supply company for much of Southern California, USA. SCE service territory includes 430 cities and communities with a total customer base of about 5 million residential and business accounts. It provides 14 million people with electricity across a service territory of approximately 50,000 square miles. SCE maintains more than 105,773 miles of distribution lines and approximately 1.4 million electric poles.

3.3.1.2. LOCAL

Based on available record drawings, there is existing Southern California Edison infrastructure around the Project.

- **3rd Street:** There is an existing underground duct bank that consists of three 6.5-inch conduits 16-feet south of the CL on 3rd Street between Pacific Avenue and Solana Court.

- **4th Street:** There is an existing duct bank that consists of six 4-inch conduits 17.5-feet north of the CL on 4th Street between Pacific Avenue and Solana Court.

3.3.1.3. ON-SITE

As described above, the Project Site is currently composed of a surface parking lot. The Site currently have existing lighting that will be demolished to make way for the Project. There is also an existing power pole located just inside the property line on the northwest corner of the Roble Way and Solano Court intersection. To make way for the proposed Project the power pole including overhead wires will most likely have to be relocated. The relocation of the power pole and overhead wires will be coordinated with Southern California Edison during the design and permitting phase.

3.3.2. NATURAL GAS

City of Long Beach Gas and Oil is responsible for providing natural gas supply to the City and is regulated by the California Public Utilities Commission and other state and federal agencies.

3.3.2.1. REGIONAL

City of Long Beach Gas and Oil was established in 1924, the natural gas utility under the Energy Resources Department provides service to approximately 500,000 residents and businesses in the cities of Long Beach and Signal Hill. Delivered through over 1,800 miles of gas pipelines and serving an area of 53.66 square miles. Long Beach Gas and Oil, with a total annual budget exceeding $500 million, consists of three business units: the 5th largest municipal gas utility in
the U.S., oversight of the Wilmington oil operations including the offshore oil islands, and SERRF, the largest trash-to-energy power plant west of the Mississippi.

3.3.2.2. LOCAL

Based on substructure maps provided by the City of Long Beach Gas and Oil Department, there are several gas lines surrounding the Project Site.

- **3rd Street:** There is an existing 12-inch high pressure (HP) Gas Line 25.5-feet north of the CL and an existing 4-inch HP Gas line 4-feet north of the CL on 3rd Street between Pacific Avenue and Solana Court.

- **4th Street:** There is an existing 2-inch HP Gas Line 12-feet south of the CL between Pacific Avenue and Solana Court.

3.3.2.3. ON-SITE

As described above, the Project Site is currently composed of one surface parking lot with no apparent existing gas services.

4. SIGNIFICANCE THRESHOLDS

4.1. WATER

Appendix G of the CEQA Guidelines provides a set of sample questions that address impacts with regard to water. These questions are as follows:

Would the project:

- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

These thresholds are applicable to the Project and as such are used to determine if the Project would have significant water infrastructure impacts.

4.2. WASTEWATER

Appendix G of the CEQA Guidelines provides a set of sample questions that address impacts with regard to wastewater. These questions are as follows:

Would the project:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
• Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

• Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?

These thresholds are applicable to the Project and as such are used to determine if the Project would have significant wastewater infrastructure impacts.

4.3. ENERGY

Appendix F of the CEQA Guidelines states that the potentially significant energy implications of a project, as well as its measures to reduce inefficient, wasteful, and unnecessary consumption of energy as noted in Public Resources Code (PRC) 21100(b)(3), should be considered in an EIR. Environmental impacts, as noted in Appendix F, may include:

• The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed;

• The effects of the project on local and regional energy supplies and on requirements for additional capacity;

• The effects of the project on peak and base period demands for electricity and other forms of energy;

• The degree to which the project complies with existing energy standards;

• The effects of the project on energy resources; and

• The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Mitigation measures, as noted in PRC 21100(b)(3), may include:

• Potential measures to reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, maintenance and/or removal;

• The potential of siting, orientation, and design to minimize energy consumption, including transportation energy, increase water conservation and reduce solid waste;

• The potential for reducing peak energy demand;

• Alternate fuels (particularly renewable ones) or energy systems; and

• Energy conservation which could result from recycling efforts.
Based on these factors, the Project would have a significant impact on energy resources if the Project would result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities, or the design of the Project fails to incorporate energy conservation measures that go beyond existing requirements.

5. METHODOLOGY

5.1. WATER

This report analyzes the potential impacts of the Project on the existing public water infrastructure by comparing the estimated Project demand with the calculated available capacity of the existing facilities.

The proposed water consumption was prepared by dividing the LACSD District No. 3 user categories and mean loading rates by 0.90, which assumed water will have a return-to-sewer ratio of 90%. It is anticipated that the north building and south building will each require a domestic service meter and a fire service meter. Estimated domestic and fire flow demand from the Plumbing Engineer to be updated as needed.

To determine if adequate fire flow is available from the fire hydrants surrounding the Project Site, LBWD will need to perform a hydraulic analysis of their water system. LBWD’s approach consists of analyzing their water system model in the vicinity of the Project Site. Based on the results, LBWD determines whether they can meet the Project fire hydrant flow needs based on existing infrastructure. In addition, LBWD performed a flow test to determine if sufficient water conveyance is available for the proposed Project. LBWD’s approach provides data ranging from available static pressure (meaning how much pressure is available at the source before applying the project's demand), to the available pressure at the maximum demand needed for the project. Based on the results, LBWD determines whether they can meet the project needs based on existing infrastructure.

5.2. WASTEWATER

This report analyzes the potential impacts of the Project on the existing public sewer infrastructure by comparing the estimated Project demand with the calculated available capacity of the existing facilities.

The LBWD makes a preliminary analysis of the local and regional sewer conditions to determine if available wastewater conveyance and treatment capacity exists for future development. A combination of flow gauging data and computed results from the City’s dynamic hydraulic model were used to project current and future impacts due to additional sewer discharge. Through coordination with LBWD, LBWD indicated that additional field flow monitoring or capacity studies might be required to provide a more accurate capacity analysis.

5.3. ENERGY

This report analyzes the potential impacts of the Project on existing energy infrastructure by comparing the estimated Project energy demand with the available capacity.

6. PROJECT IMPACTS
6.1. CONSTRUCTION

6.1.1. WATER

Water demand for the construction of the Project would be required for dust control, cleaning of equipment, excavation/export, removal and re-compaction, etc. Based on a review of construction projects of similar size and duration, a conservative estimate of construction water use ranges from 1,000 to 2,000 gallons per day (gpd). Based on the will serve letter from LBWD (Exhibit 2) and the existing infrastructure surrounding the Project Site, it is anticipated that the existing water infrastructure would meet the limited and temporary water demand associated with construction of the Project. Impacts on the water infrastructure due to construction activity would be less than significant.

The Project seeks to relocate or demolish the existing 14-inch water main along Roble Way due to the proposed north building underground parking conflicting with this pipe. Temporary construction related impacts in association with trenching for the relocated pipe will occur.

Installation of new water laterals serving the two new buildings infrastructure will be limited to minor off-site work associated with connections to the public main. Construction impacts associated with the demolition and installation of water distribution lines would primarily involve trenching in order to remove the water line and to place the new lines below surface. Prior to ground disturbance, project contractors would coordinate with LBWD to identify the locations and depth of all lines. Further, LBWD would be notified in advance of proposed ground disturbance activities to avoid water lines and disruption of water service. Therefore, Project impacts on water associated with construction activities would be less than significant.

6.1.2. WASTEWATER

Construction activities for the Project would result in a temporary increase in wastewater generation as a result of construction workers on-site. Wastewater generation would occur incrementally throughout construction of the Project. However, such use would be temporary and nominal when compared with the Project Site wastewater generation in the existing condition. In addition, construction workers would typically utilize portable restrooms, which would not contribute to wastewater flows to the City’s wastewater system. In the event there is an increase in wastewater flow during construction, this increase would be limited. It is anticipated that the existing wastewater infrastructure would meet the limited and temporary wastewater demand associated with construction of the Project. Therefore, the Project construction impacts to the wastewater system would be less than significant.

The Project will require construction of new sewer laterals to serve the two new buildings. Construction impacts associated with wastewater infrastructure would primarily be confined to trenching for miscellaneous utility lines and connections to public infrastructure. Installation of wastewater infrastructure will be limited to minor off-site work associated with connections to the public main. Although no upgrades to the public main are anticipated, minor off-site work is required in order to connect to the public main. Therefore, a Construction Management Plan would be implemented to reduce any temporary pedestrian and traffic impacts. The contractor would implement the Construction Management Plan, which would ensure safe pedestrian access and vehicle travel in general, and emergency vehicle access, in particular, throughout the construction period. Overall, when considering impacts resulting from the installation of any
required wastewater infrastructure, all impacts are of a relatively short-term duration (i.e., months) and would cease to occur once the installation is complete. Therefore, Project impacts on wastewater associated with construction activities would be less than significant.

6.1.3. ENERGY

Electric power would be consumed to construct the new building and facilities of the proposed Project. Typical uses include temporary power for lighting, equipment, construction trailers, etc. The demand would be supplied from existing electrical services within the Project Site, a new temporary service, or temporary mobile generators, which would not affect services to surrounding areas. The use of renewable energy sources during construction is not anticipated. Overall, demolition and construction activities would require minimal electrical consumption and would not be expected to have any adverse impact on available electricity supplies and infrastructure. Therefore, impacts on electricity supply associated with short-term construction activities would be less than significant.

No natural gas usage is expected to occur during construction. Therefore, impacts on natural gas supply associated with short-term construction activities would be less than significant.

Construction impacts associated with the Project’s electrical and gas infrastructure upgrades would primarily be confined to trenching. Infrastructure improvements will comply with all applicable Long Beach Gas and Oil, SCE, and City of Long Beach requirements, which are expected to and would in fact mitigate impact to existing energy systems and adjacent properties. As stated above, to reduce any temporary pedestrian access and traffic impacts during any necessary off-site energy infrastructure improvements, a construction management plan would be implemented to ensure safe pedestrian and vehicular travel. Therefore, Project impacts on energy infrastructure associated with construction activities would be less than significant.

6.2. OPERATION

6.2.1. WATER

6.2.1.1. INFRASTRUCTURE CAPACITY

When analyzing the Project for infrastructure capacity, the estimated operational demands for both fire suppression and domestic water are considered. Although domestic water demand is the Project’s main contributor to water consumption in the long term, fire flow demands have a much greater instantaneous impact on infrastructure, and therefore are the primary means for analyzing infrastructure capacity.

6.2.1.2. FIRE WATER DEMAND

Based on Long Beach Municipal Code and the California Fire Code (CFC), Appendix B for Fire Flow Requirements for Buildings, the 240,767 square-feet gross area north building falls within Type IIIA with 166,501 square-feet or greater, and the 418,904 square-feet south building falls within Type IA with 295,901 or greater. Both the north and south building require fire flow of 6,000 gallons per minute (gpm) from hydrants flowing simultaneously with a residual pressure of
20 pounds per square inch per CFC Appendix B, Table B105.1(2). This demand translates to a required flow of approximately 1,000 gpm each from 6 hydrants.

The Project will incorporate a fire sprinkler suppression system to reduce or eliminate the public hydrant demands, which will be subject to City of Long Beach Fire Department review and approval during the design and permitting of the Project. Fire service flows to serve sprinkler systems in the new building has been estimated as the maximum allowable fire flow through a new LBWD 6-inch fire service. The estimated fire flow demand from Plumbing Engineer to be updated as needed. Based on the Long Beach Municipal Code, amended CFC, Appendix B, Table B105.2, the minimum fire flow can be reduced to 50% of the value in Table B105.1(2), which is 3,000 gpm. Therefore, after the fire flow reduction due to the installation of a sprinkler system the Project would only require three fire hydrants per CFC, Appendix C, Table C102.1, with each fire hydrant flowing at 1,000 gpm. Currently, as seen in figure 1 there are three existing fire hydrant within the Project vicinity that are anticipated to meet the Long Beach Municipal Code and the CFC requirements.

In addition, a LBWD Fire Flow Test Request was submitted in order to determine if the existing public infrastructure could meet the private water demands of the Project. The results from LBWD’s Fire Flow Test (Exhibit 3) shows that the flow hydrant located at 115 W 4th Street had a pitot pressure of 28 psi and a 4 inch outlet reading of 2,280 GPM, the read fire hydrant located at 328 Pacific Avenue had a static pressure of 70 psi and residual pressure of 64 psi. By using Hazen-Williams’s equation and extrapolating we found that at 20 psi the tested fire hydrant have a flow of 7,164 GPM. The results of the flow calculation can be found in Exhibit 4. Therefore it is expected that the adjacent existing fire hydrants have adequate fire flow to comply with the Fire Code requirements. The anticipated fire connection will be from the existing 16-inch public water main along Pacific Avenue. With compliance to CFC requirements impacts on water infrastructure associated with construction activities would be less than significant.

### 6.2.1.3. Domestic Water Demand

A will serve letter request from Long Beach Water Department (see Exhibit 2), shows that the surrounding public facilities are available to serve the Project.

The water consumption estimates for the Project have been prepared by dividing the LACSD District No. 3 user categories and mean loading rates by 0.90, which assumed water will have a return-to-sewer ratio of 90% and are summarized in Table 1A and 1B below.

<table>
<thead>
<tr>
<th>Building Use</th>
<th>User Category</th>
<th>Proposed Area¹ (SF or DU)</th>
<th>Unit of Measure</th>
<th>Unit Flow Wastewater (GPD)</th>
<th>Unit Flow Water³ (GPD)</th>
<th>Average Daily Water Flow² Q (GPD)</th>
<th>Average Daily Water Flow Q (CFS)</th>
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</thead>
<tbody>
<tr>
<td>Residential Apartments</td>
<td>Multi-Unit Residential</td>
<td>142</td>
<td>Dwelling Unit</td>
<td>156</td>
<td>173.33</td>
<td>24,613</td>
<td>0.038</td>
</tr>
<tr>
<td>Retail Area/ Amentity Space</td>
<td>Retail Store</td>
<td>3,750</td>
<td>1000 SF</td>
<td>100</td>
<td>111.11</td>
<td>417</td>
<td>0.001</td>
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</tbody>
</table>

---

3rd and Pacific
Utility Technical Report
January 11, 2019

Utility Infrastructure Technical Report Page 16
<table>
<thead>
<tr>
<th>Building Use</th>
<th>User Category</th>
<th>Proposed Area¹ (SF or DU)</th>
<th>Unit of Measure</th>
<th>Unit Flow Wastewater (GPD)</th>
<th>Unit Flow Water³ (GPD)</th>
<th>Average Daily Water Flow² Q (GPD)</th>
<th>Average Daily Water Flow Q (CFS)</th>
</tr>
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<tbody>
<tr>
<td>Residential Apartments</td>
<td>Multi-Unit Residential</td>
<td>203</td>
<td>Dwelling Unit</td>
<td>156</td>
<td>173.33</td>
<td>35,187</td>
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<tr>
<td>Retail Area/</td>
<td>Retail Store</td>
<td>4,090</td>
<td>1000 SF</td>
<td>100</td>
<td>111.11</td>
<td>454</td>
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<td>Lobby/Office</td>
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<td>200</td>
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<td>566</td>
<td>0.001</td>
</tr>
<tr>
<td>Gym/Fitness</td>
<td>Health Spa/Gym</td>
<td>670</td>
<td>1000 SF</td>
<td>600</td>
<td>667.67</td>
<td>447</td>
<td>0.001</td>
</tr>
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<td>with shower</td>
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</tr>
<tr>
<td>Total</td>
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<td></td>
<td>36,653</td>
<td>0.057</td>
</tr>
<tr>
<td>Increase Domestic Water demands with new development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36,653</td>
<td>0.057</td>
</tr>
<tr>
<td>Total Domestic Water demands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36,653</td>
<td>0.057</td>
</tr>
</tbody>
</table>

¹ Building proposed square footage are based on Architectural Conceptual Plans
² Average daily flow are based on "An Ordinance Prescribing the Connection Fee Rate and Mean Loading per Unit of Usage for County Sanitation District No. 3 of Los Angeles County."
³ Unit Flow for Water is calculated by dividing each Wastewater Unit Flow by 0.9, which assumed water will have a return-to-sewer ratio of 90%.

Based on the results from the Fire Flow Test (Exhibit 3) and the water flow calculations at 20 psi (Exhibit 4) the existing water infrastructure have sufficient capacity for the Project. The Project proposes to connect to the existing 16-inch water main in Pacific Avenue or to the 8-inch water main in Solana Court with a domestic water lateral and a fire water lateral for each the north and the south building that will be adequately sized to simultaneously accommodate fire demand and domestic demand. In addition, the services will include backflow prevention devices and separate meters per City requirements. Therefore, impacts on water supply would be less than significant.
6.2.2. WASTEWATER

6.2.2.1. SEWER GENERATION

A will serve letter request from Long Beach Water Department (see Exhibit 2), shows that the surrounding public facilities are available to serve the Project.

The base estimated sewer flows were based on the LACSD District No. 3 user categories and mean loading rates, which are summarized in Table 2A and 2B below.

<table>
<thead>
<tr>
<th>Building Use</th>
<th>Use Category</th>
<th>Proposed Area¹ (SF or DU)</th>
<th>Unit of Measure</th>
<th>Unit Flow (GPD)</th>
<th>Average Dry Weather Flow² Q (GPD)</th>
<th>Peak Dry Weather Flow³ Qpeak (GPD)</th>
<th>Average Dry Weather Flow Q (CFS)</th>
<th>Peak Dry Weather Flow Qpeak (CFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Apartments</td>
<td>Multi-Unit Residential</td>
<td>142</td>
<td>Dwelling Unit</td>
<td>156</td>
<td>22,152</td>
<td>80,573</td>
<td>0.0343</td>
<td>0.1247</td>
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<td>Retail Area/ Amentiy Space</td>
<td>Store</td>
<td>3,750</td>
<td>1000 SF</td>
<td>100</td>
<td>375</td>
<td>2,010</td>
<td>0.0006</td>
<td>0.0031</td>
</tr>
<tr>
<td>Lobby/Offer</td>
<td>Office</td>
<td>1,705</td>
<td>1000 SF</td>
<td>200</td>
<td>341</td>
<td>1,844</td>
<td>0.0005</td>
<td>0.0029</td>
</tr>
<tr>
<td>Gym/Fitness</td>
<td>Health Spa/Gym with shower</td>
<td>3,665</td>
<td>1000 SF</td>
<td>600</td>
<td>2,199</td>
<td>9,961</td>
<td>0.0034</td>
<td>0.0154</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25,067</td>
<td>94,388</td>
<td>0.039</td>
<td>0.146</td>
</tr>
</tbody>
</table>

Increase Sewer Loads with new development

| Total Sewer Loads new development | 25,067 | 94,388 | 0.039 | 0.146 |

¹ Building proposed square footage are based on Architectural Conceptual Plans

² Average daily flow are based on "An Ordinance Prescribing the Connection Fee Rate and Mean Loading per Unit of Usage for County Sanitation District No. 3 of Los Angeles County.

³ Peak dry weather flow is calculated as 2.64 x ADWF⁰.⁹⁰⁵ per Section F235 of the City of Los Angeles, Bureau of Engineering Sewer Design Manual – Part F, where ADWF is in cfs.
**Table 2B - South Building Wastewater Loads**

<table>
<thead>
<tr>
<th>Building Use</th>
<th>User Category</th>
<th>Proposed Area (SF or DU)</th>
<th>Unit of Measure</th>
<th>Unit Flow (GPD)</th>
<th>Average Dry Weather Flow^2 Q (GPD)</th>
<th>Peak Dry Weather Flow Qpeak (GPD)</th>
<th>Average Dry Weather Flow Q (CFS)</th>
<th>Peak Dry Weather Flow Qpeak (CFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Apartments</td>
<td>Multi-Unit Residential</td>
<td>203</td>
<td>Dwelling Unit</td>
<td>156</td>
<td>31,668</td>
<td>111,341</td>
<td>0.0490</td>
<td>0.1723</td>
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<tr>
<td>Retail Area/ Amenity Space</td>
<td>Store</td>
<td>4,090</td>
<td>1000 SF</td>
<td>100</td>
<td>409</td>
<td>2,174</td>
<td>0.0006</td>
<td>0.0034</td>
</tr>
<tr>
<td>Lobby/Office</td>
<td>Office</td>
<td>2,545</td>
<td>1000 SF</td>
<td>200</td>
<td>509</td>
<td>2,650</td>
<td>0.0008</td>
<td>0.0041</td>
</tr>
<tr>
<td>Gym/Fitness</td>
<td>Health Spa/Gym with shower</td>
<td>670</td>
<td>1000 SF</td>
<td>600</td>
<td>402</td>
<td>2,140</td>
<td>0.0006</td>
<td>0.0033</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>32,988</td>
<td>118,304</td>
<td>0.051</td>
<td>0.183</td>
<td></td>
</tr>
<tr>
<td>Increase Sewer Loads with new development</td>
<td></td>
<td></td>
<td></td>
<td>32,988</td>
<td>118,304</td>
<td>0.051</td>
<td>0.183</td>
<td></td>
</tr>
<tr>
<td><strong>Total Sewer Loads new development</strong></td>
<td></td>
<td></td>
<td></td>
<td>32,988</td>
<td>118,304</td>
<td>0.051</td>
<td>0.183</td>
<td></td>
</tr>
</tbody>
</table>

^1 Building proposed square footage are based on Architectural Conceptual Plans.

^2 Average daily flow are based on "An Ordinance Prescribing the Connection Fee Rate and Mean Loading per Unit of Usage for County Sanitation District No. 3 of Los Angeles County.

^3 Peak dry weather flow is calculated as 2.64 x ADWF^0.965 per Section F235 of the City of Los Angeles, Bureau of Engineering Sewer Design Manual – Part F, where ADWF is in cfs.

The JWPCP is the largest of the LACSD’s wastewater treatment plants. It provides advanced primary and partial secondary treatment for 260 million gallons of wastewater per day (mgd) and has a total permitted capacity of 400 mgd.\(^7\)

The Project’s proposed increase in wastewater generation is approximately 0.094 MGD for the north building and 0.118 MGD for the south building for a total increase of 0.21 MGD, which is about half a percent of the JWPCP’s capacity. Consequently, impacts on wastewater treatment capacity are less than significant.

### 6.2.2.2. INFRASTRUCTURE CAPACITY

The existing capacity of the 12-inch sewer line along Solana Court is 1.14 cfs (737,184 gpd) flowing half full. Per LBWD’s Design Criteria for Sanitary Sewer Facilities, the sewer main is designed to be flowing half full based on the Peak Average Daily Flow for pipelines 8-inch to 12-inch. The Project’s net increase in average sewage generation is approximately 0.33 cfs (213,206 gpd). This represents about 29% of the Solana Court 12-inch sewer line’s capacity. Further sewer capacity studies and flow monitoring will be coordinated with LBWD during the design and permitting phase to determine the existing sewage flows and the best connection points to confirm adequate capacity and flow. Therefore, any impacts would be less than significant.
6.2.3. **ENERGY**

6.2.3.1. **ELECTRICITY**

A will serve letter request was sent to SCE to determine if there is sufficient capacity to serve the Project. Based on the response from SCE (see Exhibit 5), SCE can serve the Project. SCE indicated that further studies may be required to assess whether additions or modifications to the existing electric infrastructure are required to serve the Project. Thus, as stated in the will serve letter, SCE can serve the Project even if further studies by SCE may be required to confirm that impacts on electrical infrastructure would be less than significant.

6.2.3.2. **NATURAL GAS**

A will serve letter request was sent to the gas company to determine if there is sufficient capacity to serve the Project. Based on the response from Long Beach Gas & Oil (see Exhibit 6), Long Beach Gas and Oil indicated that they can serve the Project, therefore impacts related to gas services would be less than significant.

6.3. **CUMULATIVE IMPACTS**

6.3.1 **WATER**

The geographic context for the cumulative impact analysis on water supply is the Long Beach Water Department (LBWD) service area (i.e., the City). As discussed above, LBWD, as a public water service provider, is required to prepare and periodically update an Urban Water Management Plan to plan and provide for water supplies to serve existing and projected demands. The 2015 Urban Water Management Plan prepared by LBWD accounts for existing development within the City, as well as projected growth through the year 2040.

Additionally, under the provisions of Senate Bill 610, LBWD is required to prepare a comprehensive water supply assessment for every new development "project" (as defined by Section 10912 of the Water Code) within its service area that reaches certain thresholds. As described in the Regulatory Framework section above, the types of projects that are subject to the requirements of Senate Bill 610 tend to be larger projects that may or may not have been included within the growth projections of the 2015 Urban Water Management Plan. The water supply assessment for projects would evaluate the quality and reliability of existing and projected water supplies, as well as alternative sources of water supply and measures to secure alternative sources if needed.

Furthermore, as discussed above, through LBWD’s Urban Water Management Plan process, the City will meet all new demands for water due to projected population growth through a combination of water conservation and water recycling. These plans outline the creation of sustainable sources of water for the City of Long Beach to reduce dependence on imported supplies. LBWD is planning to achieve these goals by expanding its water conservation program.
To increase recycled water use, LBWD is expanding the recycled water distribution system to provide water for irrigation, industrial use, and groundwater recharge.\footnote{Long Beach Recycled Water System Expansion, \url{http://www.lbwater.org/node/815}, accessed January 10, 2019.}

Based on the above, it is anticipated that LBWD would be able to supply the demands of the Project and future growth through the estimated Project Buildout Date and beyond. Therefore, cumulative impacts on water supply would be less than significant.

### 6.3.2 Wastewater

The Proposed Project will result in the additional generation of wastewater flow. If required, further sewer capacity and flow monitoring should be performed to confirm that existing wastewater infrastructure have the proper capacity to accommodate the new development. If system upgrades are required as a result of a given Project’s additional flow, arrangements would be made between the related Project and the LBWD to construct the necessary improvements.

The construction impacts associated with wastewater infrastructure would primarily be confined to trenching for miscellaneous utility lines and connections to public infrastructure. Installation of wastewater infrastructure is anticipated to be limited to on-site wastewater distribution, and minor off-site work associated with connections to the public main. Therefore, a Construction Management Plan would be implemented to reduce any temporary pedestrian and traffic impacts. The contractor would implement the Construction Management Plan, which would ensure safe pedestrian access and vehicle travel in general, and emergency vehicle access, in particular, throughout the construction period. Overall, when considering impacts resulting from the installation of any required wastewater infrastructure, all impacts are of a relatively short-term duration (i.e., months) and would cease to occur once the installation is complete.

Wastewater generated by the Proposed Project would be conveyed via the existing wastewater conveyance systems for treatment at the JWPCP. As previously stated, based on information from the LACSD, the existing design capacity of the JWPCP is approximately 400 million gallons per day (mgd) and the existing average daily flow for the system is approximately 260 mgd.\footnote{Joint Water Pollution Control Plant (JWPCP), \url{https://www.lacsd.org/wastewater/wwfacilities/jwpcp/default.asp}, accessed December 10, 2018.} In comparison, the estimated increase in wastewater generation from the Proposed Project is only 213,205 gpd (0.21 MGD) as summarized in Table 2A and 2B. Based on these forecasts, the Project’s wastewater generation would be adequately accommodated by the JWPCP Service Area. Therefore, cumulative impacts on wastewater would be less than significant

### 6.3.3 Energy

The geographic context for the cumulative analysis of electricity is SCE power service area, and the geographic context for the cumulative analysis of natural gas is Long Beach Gas and Oil service area. The geographic context for transportation energy use is the City of Long Beach. Growth within these areas is anticipated to increase the demand for electricity, natural gas, and transportation energy, as well as the need for energy infrastructure and facilities.
Buildout of the Project and additional growth forecasted to occur in the City would increase electricity consumption during Project construction and operation and, thus, cumulatively increase the need for energy supplies and infrastructure capacity. SCE estimates that it will have 10,625 MW of contract capacity in 2019.\(^9\) If required the Project’s estimated daily electrical consumption shall be updated by the Electrical Engineer as needed to be compared with SCE’s capacity. Although future development would result in the irreversible use of renewable and non-renewable electricity resources during Project construction and operation, the use of such resources would be on a relatively small scale and would be consistent with growth expectations for SCE service area. Additionally, SCE reports that renewable sources made up approximately 30% of power that SCE delivered to customers in 2017 came from renewable sources\(^{10}\). Furthermore, the proposed Project, along with other future development projects, would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards under Title 24, and incorporate mitigation measures, as required. Accordingly, the Project’s contribution to cumulative impacts related to electricity consumption would not be cumulatively considerable and, thus, would be less than significant.

Electrical infrastructure and facilities are typically expanded in response to increasing demand, and system expansion and improvements by SCE are ongoing. As described in SCE 2018 Power Integrated Resource Plan, SCE would continue to expand delivery capacity as needed to meet demand increases within its service area at the lowest cost and risk consistent with SCE’s environmental priorities and reliability standards. SCE has indicated that the Power Integrated Resource Plan incorporates the estimated electricity requirement for the Project. The Power Integrated Resource Plan takes into account future energy demand, advances in renewable energy resources and technology, energy efficiency, conservation, and forecast changes in regulatory requirements. SCE reports that Development projects within the SCE service area would also be anticipated to incorporate site-specific infrastructure improvements, as necessary. Each of the related projects would be reviewed by SCE to identify necessary power facilities and service connections to meet the needs of their respective projects. Project applicants would be required to provide for the needs of their individual projects, thereby contributing to the electrical infrastructure in the Project area. As such, the Project’s contribution to cumulative impacts with respect to electricity infrastructure would not be cumulatively considerable and, thus, would be less than significant.

Buildout of the Project and related projects in Long Beach Gas and Oil’s service area is expected to increase natural gas consumption during Project construction and operation and, thus, cumulatively increase the need for natural gas supplies and infrastructure capacity. Based on the 2018 California Gas Report, the California Energy Commission estimates natural gas consumption within Long Beach Gas and Oil’s planning area will be approximately 23.9 million cubic feet/day in 2022.\(^{11}\) If required, The Project’s estimated daily natural gas consumption shall be updated by the Plumbing Engineer as needed to be compared with the Long Beach Gas and Oil’s capacity. However, Long Beach Gas and Oil’s forecasts take into account projected population growth and development based on local and regional plans. Although future development projects would result in the irreversible use of natural gas resources, the use of such resources would be on a relatively small scale and would be consistent with growth expectations for SCE service area.

\(^{10}\) Edison International and Southern California Edison 2017 Annual Report, p. 120
\(^{11}\) California Gas and Electric Utilities, 2018 California Gas Report, p. 112.
resources would be on a relatively small scale and would be consistent with regional and local growth expectations for in Long Beach Gas and Oil service area. Furthermore, the proposed project, along with other future development projects, would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards under Title 24, and incorporate mitigation measures, as necessary. Accordingly, the Project’s contribution to cumulative impacts related to natural gas consumption would not be cumulatively considerable and, thus, would be less than significant.

Natural gas infrastructure is typically expanded in response to increasing demand, and system expansion and improvements by Long Beach Gas and Oil occur as needed. It is expected that Long Beach Gas and Oil would continue to expand delivery capacity if necessary to meet demand increases within its service area. Development projects within its service area would also be anticipated to incorporate site-specific infrastructure improvements, as appropriate. As such, cumulative impacts with respect to natural gas infrastructure would not be cumulatively considerable and, thus, would be less than significant.

7. LEVEL OF SIGNIFICANCE

Based on the will-serve letters that can be found in the appendices, the Project can be served by the surrounding water, wastewater, and energy infrastructure. Further coordination with the utility purveyors will be conducted during the design and permitting phase to determine the preferred connection points to each utility system. No significant impacts have been identified for water, wastewater, or energy for this Project.
EXHIBIT 1
EXHIBIT 2
December 7, 2018

Mr. Rickard Severinsson  
**KPFF Consulting Engineers**  
700 South Flower Street, Suite 2100  
Los Angeles, CA 90017  
rickard.severinsson@kpff.com

Dear Mr. Severinsson:

Subject: **“Will Serve” Letter for 125 W. 3rd Street**

The Long Beach Water Department is transmitting this “Will Serve” letter in response to your request for the proposed project located at the 125 W. 3rd Street.

According to our current records, there is an existing 8-inch Cast Iron (CI) potable water line in Solana Court, east of the project site. There is an existing 12-inch Ductile Iron (DI) potable water line in W. 3rd Street, south of the project site. There is also an existing 14-inch Cast Iron (CI) potable water line on W. Roble Way. Additionally, there is an existing 12-inch Vitrified Clay Pipe (VCP) sanitary sewer line located in Solana Court, east of the project site and an existing 15-inch VCP sanitary sewer line located in W. 3rd Street, south of the project site.

All of these public facilities are available to serve the proposed site. Potable water and sewer services will be made available for the proposed development in accordance with our Rules and Regulations for Potable Water, Reclaimed Water, and Sanitary Sewer.

If you have any questions, please call Marvie Baconawa at (562) 570-2419.

Sincerely,

Patrizia Hall, P.E.  
Manager of Engineering

cc: Dennis Santos, Sr. Civil Engineer  
Eric Buehler, Civil Engineering Associate  
Marvie Baconawa, Civil Engineering Intern
January 8, 2019

Rickard Severinsson  
KPFF Consulting Engineers  
700 S. Flower Street, Suite 2100  
Los Angeles, CA 90017  
Rickard.Severinsson@kpff.com

Dear Mr. Severinsson:

In response to your request to perform a fire flow test for 125 W. 3rd Street, the following data was furnished:

Flow Test No. 2164  Date of Test: 01/07/19
Flow Location:  Fire Hydrant in front of 115 W. 4th Street
Pitot Pressure:  28 psi
4" Outlet Chart Reading:  2280 gpm

Pressure Reading:  Fire Hydrant in front of 328 Pacific Avenue
Static Pressure:  70 psi
Residual Pressure:  64 psi
Size of Water Main:  8-inch cast iron in Solana Court

The flow test represents data taken on the above date. Flows and pressures are subject to seasonal and time of day demand variations and fluctuations in reservoir levels and these variations may be significant. The data represent hydraulic capacity in the vicinity of the test site only and care should be taken in extrapolating data to other areas.

If you have any questions, please call Eric Buehler at (562) 570-2328.

Sincerely,

Dennis A. Santos, P.E.  
Senior Civil Engineer

Att.

cc: Eric Buehler, Civil Engineering Associate
## System Hydraulic Information

**Date:** 1-7-19  
**By:** S. Kashani

<table>
<thead>
<tr>
<th>High Water Reservoir Level</th>
<th>MWD Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alamitos:</strong> 28.94 Feet</td>
<td><strong>LB-8:</strong></td>
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<tr>
<td></td>
<td>Flow:</td>
</tr>
<tr>
<td></td>
<td>Pressure: 62</td>
</tr>
<tr>
<td><strong>J. Will Johnson:</strong> 28.44 Feet</td>
<td><strong>LB-4:</strong></td>
</tr>
<tr>
<td></td>
<td>Flow:</td>
</tr>
<tr>
<td></td>
<td>Pressure: Unknown</td>
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</table>

<table>
<thead>
<tr>
<th>Citizen Pump Station</th>
<th>42-Inch Water Main</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow: 29.43 MGD</td>
<td>Pressure: 72 psi</td>
</tr>
<tr>
<td></td>
<td>□ Open, ☑ Closed</td>
</tr>
</tbody>
</table>

**Reference Fire Flow Test Number:** 2164

The Alamitos Reservoir Tank Bottom Elevation is 170-Feet.

The J. Will Johnson Reservoir Tank Bottom Elevation is 170-Feet.
Long Beach Water
Exceptional Water • Exceptional Service
1800 E Wardlow Rd., Long Beach, CA 90807
Fire Flow Test No. 2164
Water Atlas No. H09
125 W 3rd Street
EXHIBIT 4
FIRE FLOW CALCULATIONS

<table>
<thead>
<tr>
<th>HYDRANT # &amp; LOCATION:</th>
<th>Solana CT &amp; W 4th St</th>
<th>DATE:</th>
<th>1/7/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST BY:</td>
<td>LBWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER SUPPLIED BY:</td>
<td>Municipal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PURPOSE OF TEST:</td>
<td>Fire Flow Requirement</td>
<td></td>
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**DATA**

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</tr>
</thead>
<tbody>
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<td>SIZE OPENING:</td>
<td>4</td>
</tr>
<tr>
<td>COEFFICIENT:</td>
<td>0.9</td>
</tr>
<tr>
<td>PITOT READING:</td>
<td>28</td>
</tr>
<tr>
<td>GPM:</td>
<td>2280</td>
</tr>
</tbody>
</table>

TOTAL FLOW DURING TEST: **2280** GPM

<table>
<thead>
<tr>
<th>STATIC READING:</th>
<th>70 PSI</th>
<th>RESIDUAL:</th>
<th>64 PSI</th>
</tr>
</thead>
</table>

RESULTS: AT 20 PSI RESIDUAL **7164** GPM AT 0 PSI **8591** GPM

ESTIMATED CONSUMPTION: **2280** GAL.

REMARKS:

![Graph showing pressure vs. flow]
EXHIBIT 5
DATE: 12/11/18  

COMPANY: KPFF  

SUBJECT: 125 W 3RD ST, LONG BEACH, 90802  

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project’s electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project. Where applicable, SCE has attached Appendix (B) which not only describes the study, and permitting, but includes a Project Information Sheet that will need to be completed by you and submitted to SCE if your project is at a point where SCE has to determine the required electrical utility work. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Design Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (562) 981-8238.

Sincerely,

SCE Design Representative

Enclosure: Appendix B, where applicable
Dear Edith,

In response to your request for the utility information on W 3rd St & Pacific Ave and “Will-Serve” letter, on behalf of Sean Crumby, the following map grids are attached for your review (G09, H09). These map grids will show all the size(s) and location(s) of Long Beach Gas and Oil facilities in/near the proposed excavation area within the project limits.

Since the City of Long Beach is the provider of natural gas within the city limits of Long Beach, gas service to this parcel is available, subject to the utility and development regulations in the City of Long Beach Municipal Code. Please refer to the City of Long Beach website, Gas & Oil Department for information regarding the gas specifications and standards and current gas rates and fee schedule. The links are listed below:

http://www.longbeach.gov/lbgo/information/engineering-specs-and-standards/
http://www.longbeach.gov/lbgo/information/gas-rates/

For further questions and concerns below is my contact information. We'll be happy to help you.

Thank you.

Sincerely,

Sandra Cristobal
Engineering Department
Sandra.Cristobal@longbeach.gov
562-570-2039