

April 5, 2019

Brian Grove  
Kimley-Horn  
1615 S. Congress Avenue, Suite 201  
Delray Beach, Florida 33445

Subject: **WATER AND WASTEWATER CAPACITY AVAILABILITY LETTER**  
**Las Olas Marina – DRC Case No. R18018**  
**240 E. Las Olas Circle, Fort Lauderdale, Florida 33316**

Dear Mr. Grove,

According to the information submitted, the project consists of redevelopment of the existing Las Olas Marina site by dredging a significant portion of the existing parking lot for additional boat slips, relocating an existing pump station, and constructing a restaurant, office spaces, and various ancillary buildings. There are existing City of Fort Lauderdale utilities located on and adjacent to the project site. The existing water services that currently serve the existing marina are comprised of 2-inch, 4-inch, and 6-inch water mains. There is also a 4-inch main and 16-inch main that run adjacent to the east of the site along South Birch Road. The existing sanitary services on the site range from 8-inch, 10-inch, 12-inch, and 15-inch gravity mains that convey flow to the City's D-31 pump station. The project will require relocation of both Pump Station (PS) D-31 and a portion of the existing water and sanitary services. It is estimated that the project will increase water and sewer demand by 0.024 million gallons per day (MGD).

A review of the utility services impacted by the development indicate that improvements to the sanitary services would be necessary to adequately serve the development to the City's standards. On the east side of the project site along South Birch Road, approximately 750 linear feet (LF) of 10-inch gravity sewer shall be upsized to a 12-inch pipe and 120 LF of 12-inch gravity sewer should be replaced with PVC. These improvements will allow the gravity mains to sufficiently handle the proposed and existing flows in the contributing area. In addition to the gravity main improvements, PS D-31 shall be reconstructed to the City's expectations and operational standards. The location and conceptual design of PS D-31 shall be finalized prior to permitting.

If Public Works (PW) staff issue comments on the proposed flow calculations after the issuance of this capacity availability letter, the consultant shall request a revised letter with the correct approved flow calculations. The determination of capacity availability is based upon tools and data analysis as of the date of this letter. Availability of capacities, as calculated in the attached analysis, is not guaranteed and no existing system capacity shall be considered "committed" for this project until a permit has been issued and all fees have been paid. The City reserves the right to re-evaluate the availability of capacities at the time of permit application. If sufficient capacities are not available, the City may deny the permit application or ask the Owner/Developer to submit an alternate design prior to approval. Information contained in this letter will expire one year from the date issued.

Should you have any questions or require any additional information, please contact me at (954) 828-6126.

Sincerely,



Thomas Lawrence, P.E.  
Project Manager II

Enclosures: Water and Wastewater Capacity Analysis

cc: Joe Kenney, P.E., Assistant Public Works Director  
Talal Abi-Karam, P.E., Assistant Public Works Director  
Omar Castellon, P.E., Chief Engineer

Dennis Girisgen, P.E., City Engineer  
File: Water and Sewer Capacity Letters

City of Fort Lauderdale  
Public Works Department  
Water and Wastewater Capacity Analysis

**Las Olas Marina – DRC Case No. R18018**  
**240 E. Las Olas Circle, Fort Lauderdale, Florida 33316**

**PROJECT AND DESCRIPTION**

Redevelopment of the existing Las Olas Marina site by dredging a significant portion of the existing parking lot for additional boat slips, relocating an existing pump station, and constructing a restaurant, office spaces, and various ancillary buildings.

**DESCRIPTION OF EXISTING UTILITIES**

**Water:** The site currently has a 4-inch main and a 16-inch main on the east side of the site along South Birch Road and existing services for the Las Olas Marina. The existing services for the marina are comprised of 2-inch, 4-inch, and 6-inch mains. See Figure 1.

**Wastewater:** The site is currently served by 8-inch, 10-inch, 12-inch, and 15-inch gravity sewer mains on the site and along South Birch Road. See Figure 2.

**Pumping Station:** The site is served by PS D-31 which is located on the project site near the intersection of South Birch Road and Las Olas Circle.

**SUMMARY OF ANALYSIS AND REQUIRED ACTION**

The existing water infrastructure has capacity to serve the development. The existing sewer infrastructure will require upgrades to service the proposed development.

On the east side of the project site along South Birch Road, approximately 750 linear feet (LF) of 10-inch vitrified clay pipe (VCP) sewer shall be upsized to a 12-inch polyvinyl chloride (PVC) pipe and 120 LF of 12-inch VCP sewer should be replaced with PVC. See Figure 3.



Figure 2 – City Sewer Atlas



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## **WATER CAPACITY ANALYSIS**

**Requested Demand:** Based on the applicant's site plan and building use information, the estimated potable water demand will increase approximately 24,044 gallons per day (GPD) which equates to 0.024 million gallons per day (MGD). Water use demands are calculated based on the City's "*Guidelines for the Calculations of Sanitary Sewer Connection Fees*".

**Evaluation of impact on existing distribution pipe (flow & capacity):** According to the site plan, the applicant is proposing to utilize the existing water mains along South Birch Road and throughout the site. The InfoWater hydraulic model was analyzed to determine the impact of this project on the local distribution network and the results showed that the existing network could sufficiently supply the proposed flow.

**Evaluation of impact of Permitted Water Plant Capacity:** The Fiveash and the Peele Dixie Water Treatment Plants are designed to treat 70 MGD and 12 MGD of raw water respectively (82 MGD total). The total permitted Biscayne aquifer water withdrawals for these plants is limited to 52.55 MGD per the South Florida Water Management District (SFWMD) permit number 06-00123-W.

The current twelve-month rolling average production at the two plants is 39.57 MGD. The previously committed demand from the development projects in the permitting or the construction stage is 4.422 MGD. Combining these figures with the demand from the proposed project of 0.024 MGD, the required production would be 44.02 MGD. This is less than the allowable withdrawal limit of 52.55 MGD. Therefore, the water plants have sufficient capacity to serve this project. See Figure 4 on the next page.

**Recommended Water Infrastructure Improvements:** No improvements are necessary to the water infrastructure.

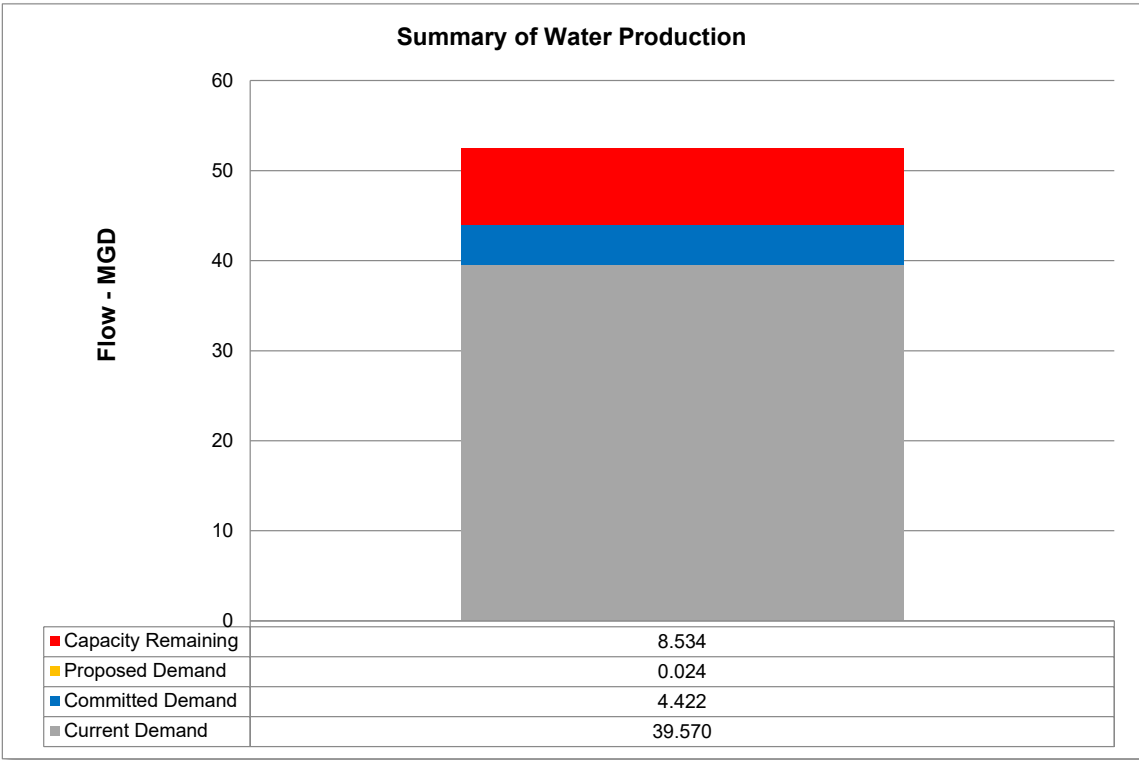


Figure 4



## **WASTEWATER CAPACITY ANALYSIS**

**Requested Demand:** Based on the applicant's site plan and building use information, the estimated additional potable water demand will increase 24,044 GPD which equates to 0.024 MGD (although wastewater is usually 80% of the potable water, a higher, conservative figure has been used for calculations). Sewer use demands are calculated based on the City's "*Guidelines for the Calculations of Sanitary Sewer Connection Fees*".

**Evaluation of impact on existing collection pipe (gravity system capacity):** The existing sanitary services on the site range from 8-inch, 10-inch, 12-inch, and 15-inch gravity mains that convey flow to the City's D-31 pump station.

Manual of Practice (MOP) 60, published by American Society of Civil Engineers (ASCE) for the gravity sewer design and used by the City staff, recommends that pipe diameters 15-inch or less be designed to flow half full during peak flows. The City uses a peak hourly flow factor of 3.0. Accounting for existing flows and based on the tools and information available to the City staff, it was determined that the 10-inch VCP sewer and 12-inch VCP sewer along South Birch Road would flow at approximately 73% and 55% full, higher than the ASCE-recommended 50%.

**Evaluation of impact on pumping station:** PS D-31 has three pumps with varying operating capacities of 600 gallons per minute (GPM), 1000 GPM, and 1400 GPM for a total capacity of 3000 GPM. It currently has a Nominal Average Pumping Operating Time (NAPOT) of approximately 4.4 hours per day. Committed flows from previously issued capacity letters within the D-31 basin sum to 0.284 MGD. Combining the previously committed flows with the projected sewage flows from this development, the total increase in flow would be roughly 0.308 MGD. Based on the projected flows and the operating range of the pump station, it can be concluded that the pump run times would increase between approximately 103 minutes per day (1.7 hours) and approximately 514 minutes per day (8.6 hours) for a total projected NAPOT ranging from 6.1 hours and 13.0 hours. See Figure 5 on the next page.

While the projected NAPOT at the minimum operating point exceeds the NAPOT standard of 10 hours per day, it is reasonable to expect the pump station to operate at a higher capacity as increased volume at the pump station will trigger the additional pumps to turn on. Therefore, PS D-31 has capacity to handle the projected flows.

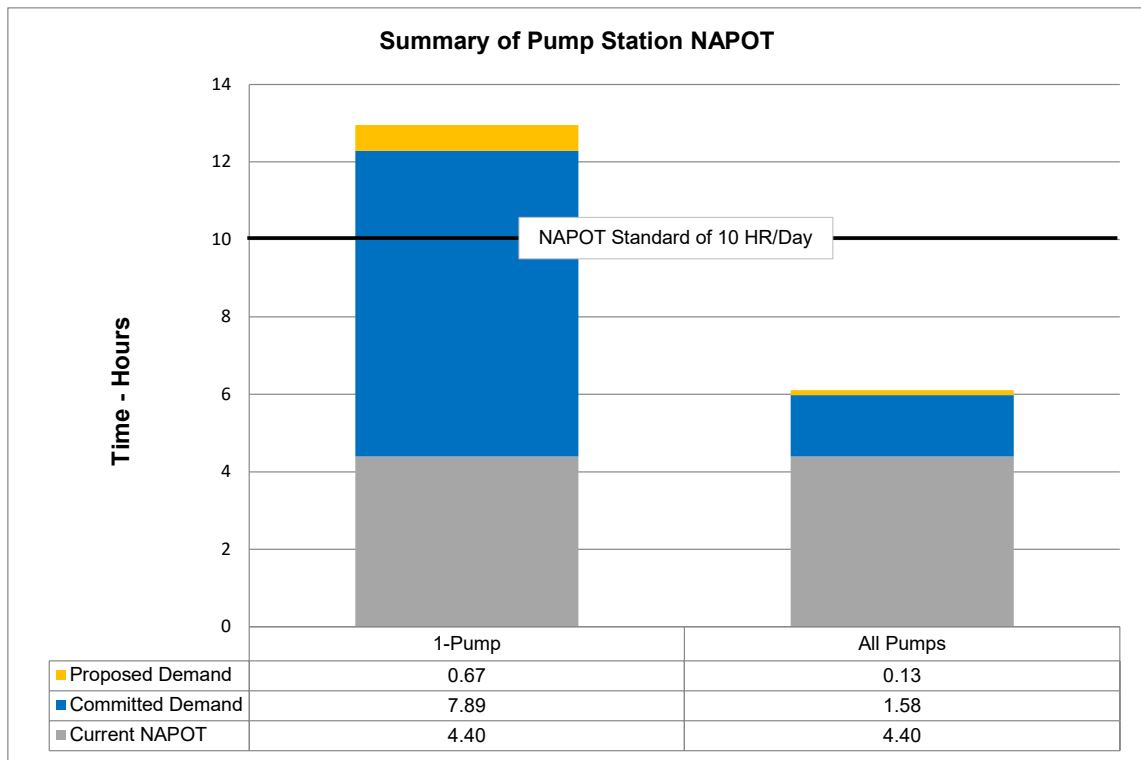


Figure 5

**Evaluation of impact of Permitted Wastewater Plant Capacity:** The City of Fort Lauderdale owns and operates the George T. Lohmeyer Regional Wastewater Treatment Plant (GTL), which provides wastewater treatment for the City of Fort Lauderdale. The Broward County's Environmental Protection and Growth Management Department's (EPGMD) Environmental Licensing & Building Permitting Division's licensed capacity for GTL is 48 MGD-AADF (Million Gallons per Day – Annual Average Daily Flow). The annual average daily flow (AADF) to the plant is 37.317 MGD. Combining the committed flows for previously approved projects of 4.422 MGD plus the 0.024 MGD net contribution from the project results in a total projected flow of 41.76 MGD. This is less than the permitted treatment plant capacity of 48 MGD. Therefore, the treatment plant has sufficient capacity to serve this project. See Figure 6 on the next page.

**Recommended Wastewater Infrastructure Improvements:** The existing sewer infrastructure will require upgrades to service the proposed development. On the east side of the project site along South Birch Road, approximately 750 linear feet (LF) of 10-inch vitrified clay pipe (VCP) sewer shall be upsized to a 12-inch polyvinyl chloride (PVC) pipe and 120 LF of 12-inch VCP sewer should be replaced with PVC. See Figure 3.

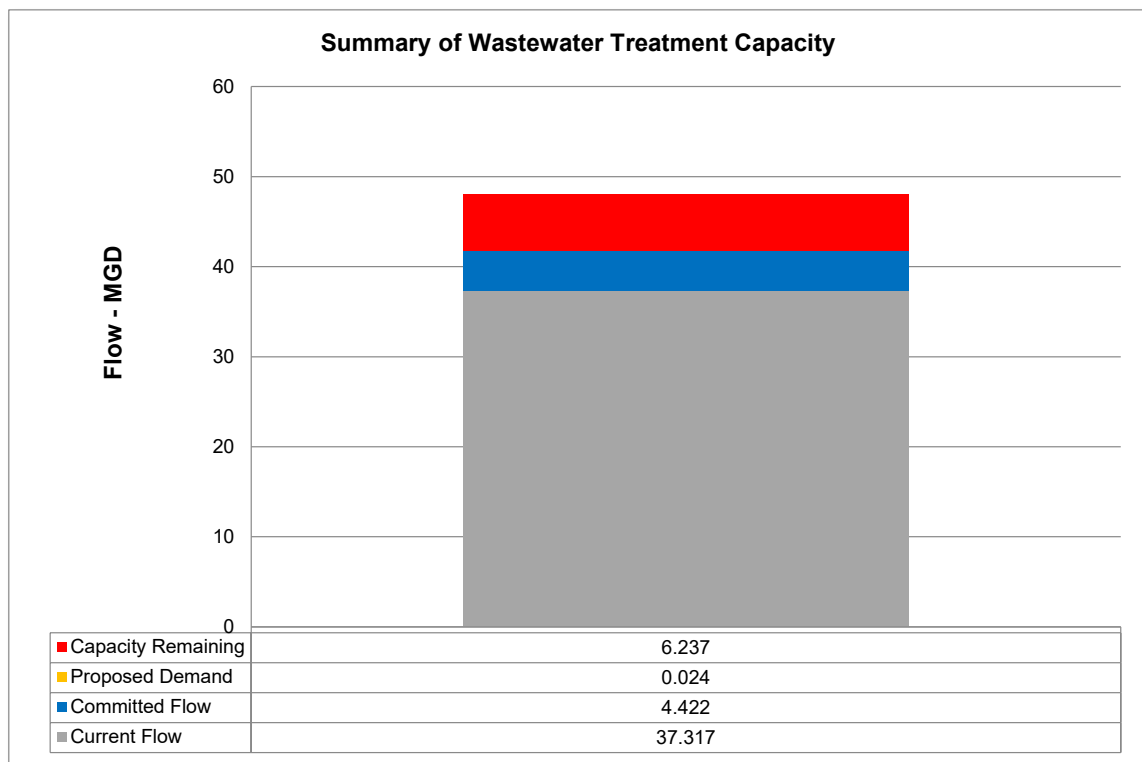


Figure 6