

Response UT-2: Stormwater and Sewer

[Note to Reviewer: To be finalized between RTC-2 and RTC-Screencheck.]

The comments state that the draft SEIR does not address the increase in wastewater and stormwater caused by the project. The comments also express concern regarding the existing condition of and capacity of downstream combined sewer lines and how the proposed project would impact them.

Refer to Response AL-1, Range of Alternatives, on RTC p. **Error! Bookmark not defined.** for further information regarding consideration of 100 percent affordable housing.

Impacts UT-2 and UT-3 on draft SEIR Appendix B, pp. B-74 to B-76, and Impact HY-2 on draft SEIR Appendix B, pp. B-111 to B-112, analyze impacts associated with wastewater and stormwater generated by the project. The proposed project would be subject to several regulations that require onsite water re-use and decreasing the amount of stormwater runoff from the site. The proposed project could result in long-term changes in the volume of discharges to the City's combined sewer system in the sub-basin due to new residents, employees, and visitors who could increase the amount of wastewater generation (draft SEIR Appendix B, p. B-112). The draft SEIR Appendix B concludes on p. B-112 that all "wastewater discharges to the combined sewer system would be treated at the Oceanside Treatment Plant in compliance with the Oceanside NPDES permit ... because the stormwater and wastewater discharges from the project would not result in an increase in the frequency of combined sewer discharges, the project's impacts related to changes in combined sewer discharges would be less than significant."

Regarding concerns about the downstream overflow conditions, please refer to Impact UT-3, draft SEIR Appendix B, p. B-75, which acknowledges that the Ocean Avenue sewer main is designated as high risk and slated for replacement through SFPUC's Collections System Asset Management Program (CSAMP). A CASMP ranking of "high" indicated potential need for replacement. As further stated on page B-75, the "project team would be required to confirm with SFPUC and the San Francisco Department of Public Works' Engineering Hydraulics Division that adjacent sewer infrastructure has adequate capacity and integrity to serve the potential development program."

Sanitary sewage (wastewater) volumes flowing into the combined sewer system are considerably smaller than stormwater flows into the same system. For example, the City's wastewater treatment system treats approximately 575 million gallons per day (mgd) of combined sanitary sewage and stormwater during storm conditions, but one eighth that volume—70 mgd—during non-storm conditions.¹ ~~During storm conditions, however, the~~

The ratio of stormwater to sanitary sewage from the project site, is substantially greater than 8:1 during storm conditions. This is because stormwater runoff flow to the combined sewer system is highly irregular, whereas sanitary sewer flow is less so. That is, storm flow peaks during and

Commented [w1]: Jeanie: here are my comments to discuss Friday (not to transmit):

- 1) Yes, we need SFPUC to review (and attend Friday's meeting, along with BKF, if possible).
- 2) I want to understand if yellow highlighted sentence is in the DA or some other document that we can cite to.
- 3) I want to understand if my edits to the sentences following the yellow highlighted sentence are accurate. If they are, then I agree with the conclusion. If not, we need to discuss more in relation to the Appendix G checklist question(s).
- 4) I want them to quantify the green highlighted phrases, if possible.

Commented [WWE - CF2]: Most wouldn't consider it highly irregular (although that might explain droughts). It is episodic or variable.

¹ San Francisco Public Utilities Commission, *Sewer System Improvement Program Fact Sheet*, June 5, 2019, <https://sfwater.org/modules/showdocument.aspx?documentid=13986>, accessed March 15, 2020.

shortly after heavy rainfall, and diminishes considerably as time elapses; as a result, stormwater volume, for purposes of sizing stormwater and wastewater conveyance piping such as that along Ocean Avenue, is typically measured in cubic feet per second of peak flow, rather than gpd of total flow. Conversely, sanitary sewer flow may result in multiple peaks during the day, depending on land uses. For strictly residential areas, similar to the proposed project, flows are generally higher before and after the typical work day, although there is sewer flow throughout the day because not all working residents are on the same schedule, some residents may work at home, some residents do not work, some attend school, etc.

Moreover, under current conditions, according to the project engineer, stormwater flow from the project site (west basin) and the east including both the lower and upper basins drains to the combined sewer at a highly constrained rate due to the small capacity of the existing drain inlet and pipe at X location. That is, the project site acts to retain peak stormwater flow into the combined sewer.

The proposed project would make no changes to this storm drain system in order to not increase the project site's peak stormwater flow into the combined sewer during the 5-year, 3-hour, and 100-year, 3-hour storm conditions, as a requirement of the SFPUC for project implementation. These peak stormwater flow periods are what the SFPUC uses to size stormwater and wastewater conveyance piping, such as that along Ocean Avenue. Thus, while combined sewage overflows would continue to occur with the project, the project would not be resulting in or exacerbating that existing condition.

Accordingly, with project implementation, during the 5-year and 100-year storms, and assuming the worst-case condition in which peak sanitary sewage flow would occur simultaneously with peak stormwater flow, the project and the existing project site would contribute less than two percent of the total volume of combined stormwater and sanitary sewage that would flow from the site into the combined sewer, as shown in Table RTC-X.² This relatively small increase in total flow would not be considered to substantially affect the combined sewer system. Moreover, the proposed project's landscaping and open space features would serve to diminish stormwater flow, compared to existing conditions. While peak stormwater flow could, indeed, occasionally coincide with peak sanitary sewer flow, it is far more likely that the peak flows would not overlap, and therefore the project increase in total flow would be substantially less than the existing project site percent of total noted in Table RTC-X. Finally, for the smaller 2-year, 24-hour storm, the project would be required to reduce peak stormwater flow by 25 percent, which would result in a decrease in total combined stormwater and sanitary sewer flow from the project site to the combined sewer system during this storm condition.

The analysis in Impact UT-3, as supplemented by the above, determines that the proposed project impacts related to stormwater and wastewater would be less than significant through compliance with the Non-Potable Water Ordinance, the San Francisco Stormwater Ordinance, and SFPUC and public works infrastructure review.

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Commented [WWE - CF4]: I don't recall seeing flows in collection systems as having "multiple peaks" (typically residential flows have two peaks and commercial a single peak). Suggest: "Conversely, sanitary flows, though considerably smaller in volume, are more consistent and typically have one to two peaks during the day."

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Commented [WWE - CF6]: As discussed,

- It is "SFPUC and SFPW". SFPW has jurisdiction over flows in street surface.
- The 100-year, 3-hour storm is not conveyed in the pipe—it is conveyed in the street. You will see this in other sewer systems, including in Sacramento.
<https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Specs-Drawings/Section11.pdf>
- Suggest text: "These peak stormwater flow periods are what the SFPUC and SFPW use to size the stormwater and wastewater conveyance system (the sewer pipe and street surface below top of curb), such as...."

Commented [WWE - CF7]: As discussed on Friday, these are not overflows. Combined flows, which are typically 1% sanitary, are designed to travel in the pipe, and in larger storms, the street surface below top of curb. Sentence should be revised in conjunction with other text from Infrastructure Plan pointing project design requirement not to increase peak flows in Ocean during applicable design storms.

Commented [SY8]: Jeanie – we will update this and cross reference links when we prepare the screencheck draft.

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Commented [WWE - CF9]: Caps: San Francisco Public Works

² Brian Scott, BKF Engineers, e-mail to Karl Heisler, ESA, March 12, 2020.

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TABLE **RTC-X**: PROJECT ~~INCREASE IN SITE~~ COMBINED SEWER FLOW

Storm Condition	Existing Peak Stormwater Flow (cfs) ^a	Peak Sewer Flow (cfs) ^b	Total Site Flow to Combined Sewer (cfs) ^c	Percent of Total Flow
5-year, 3-hour	25.7	0.45	26.15	1.7%
100-year, 3-hour	38.2	0.45	38.65	1.2%
NOTES: ^a cfs – cubic feet per second ^b Assumes peaking factor of 3.0 (peak flow of three times average flow). ^c Does not assume any decrease in existing peak stormwater flow due to from the project, such as landscaping and open space, and, therefore, is conservative. SOURCE: BKF Engineers, March 2019.				

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Commented [WWE - CF10]: I would delete "Existing" and add a note: = existing and proposed.

Call on Friday indicated table would be deleted.

Commented [w11]: Why 3? Please cite.

Commented [WWE - CF12]: A factor of 3 is conservative and good for this purpose (top of range for area such as this one). SF Subdivision Regs use 1.8. 3 can be found in literature as Wastewater Engineering, Metcalf & Eddy 2014.

Call on Friday indicated table would be deleted.