
TECHNICAL MEMORANDUM

Date: October 22, 2014 **BKF No.:** 20136004

To: Clarke Miller **Copies To:**
Strada Investment Group

From: Jacob Nguyen, P.E.

Subject: Golden State Warriors, Mission Bay Blocks 29-32
On-site Alternate Water Sources

The purpose of this memorandum is to discuss the potential for the Golden State Warriors Arena project at Mission Bay Blocks 29-32 using onsite alternate water sources (e.g., rainwater, greywater, stormwater) for non-potable water uses (e.g., irrigation, toilet-flushing). This technical memorandum will assist San Francisco Public Utilities Commission (SFPUC) in completing their review of the Administrative Draft Initial Study and Notice of Preparation for the project.

Outdoor Non-Potable Water Supply

The project is located in a separate sewer area and must comply with the City's Stormwater Design Guidelines, specifically LEED Sustainable Site Credit 6.2 Stormwater Design: Quality Control. The project is not required to meet LEED Sustainable Site Credit 6.2 Stormwater Design: Quantity Control. Based on these requirements, the project proposes to meet the stormwater requirements with green roofs and flow-through planters (Credit 6.1), not with cisterns for rainwater harvesting (Credit 6.2). Therefore, rainwater and stormwater will not be used for non-potable water uses.

Indoor Non-Potable Water Supply

On-site alternate water sources were considered for non-potable water uses in line with the SFPUC Non-Potable Water Calculator (see attached Exhibit A). Based on this calculation, the use of greywater from indoor non-potable water supplies was considered infeasible based on the project constraints.

Conclusion

Based on the City's stormwater requirements and the Non-Potable Water Calculation, the project proposes the use of recycled water for select non-potable water uses. Alternate water sources such as rainwater, greywater, and stormwater will not be used.

Attachments

- Exhibit A – SFPUC Non-Potable Water Calculator

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Exhibit A - SFPUC Non-Potable Water Calculator

NON-POTABLE WATER CALCULATOR

Project Summary Sheet

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1. Demands and Supplies Summary

Grant Criteria Status: Does not meet grant criteria

Demands Met by Non-Potable Supply for Project (gpy): 634,755

Does not meet grant criteria of offsetting 1,000,000 gal/yr of potable water use

Demands Met by Non-Potable Supply for Project*: 5%

Project Total Annual Water Demand (gpy)*: 13,621,954

Selected non-potable demands exceed potential non-potable demands calculated in Tab 6 - Building Potential Summary

Project Total Annual Toilet Water Demand (gpy)*: 5,909,454

Toilet Demands Met by Non-Potable Supply*: 11%

*Note: Estimates for Demands Met by Non-Potable Supply for Project and Project Total Annual Water Demand based on Tab 6 - Building Potential Summary total water demand values. Manually entered non-potable demands that exceed auto-calculated non-potable demands from Tab 6 may result in Total Annual Water demands greater than the value used in this analysis.
Project Total Annual Toilet Water Demand and Toilet Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary toilet demands.

2. Building Information Summary

Project / Building Name: Golden State Warriors
Project Address: Blocks 29-32
Assessor's Block & Lot No. / APN: 8722001
Year Online: 2018

Building Type: Retail/Ent
(gross square footage or GSF): 1,350,000
Total Lot Size (ft²): 478,131
Number of Residential Units: 0
Impervious Surface Above Grade (ft²): 322,500
Impervious Surface Below Grade (ft²): 84,631
Landscaped Area (ft²): 71,000
Site Location (Zone): Eastern SF

3. Summary of Non-Potable Demands and Supplies for the Project

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies	Water Quantity (gpy)
Rainwater:	0
Stormwater:	0
Graywater:	497,055
Blackwater:	0
Foundation Drainage	0
Cooling & Other Supplies	137,700
TOTAL:	634,755

Non-Potable Water Demand Estimates

Project Specific Non-Potable Application Demands	Quantity (gpy)
Toilets/Urinals:	27,222,731
Irrigation:	195,688
Cooling Tower:	918,000
Commercial Laundry & Other	5,885,200
Total:	34,221,619

4. Project Summary

Demands Met by Non-Potable Supply for Projects (gpy): 634,755
Total Water Demand (gpy): 13,621,954
Total Water Demand Offset: 5%
Toilet Water Demand (gpy): 5,909,454
Toilet Water Demand Offset: 11%
Selected Toilet Water Demand (gpy): 27,222,731
Selected Toilet Water Demand: 2%

Based on Tab 6 - Building Potential Summary tab

Based on Tab 6 - Building Potential Summary tab

Based on Tab 6 - Building Potential Summary tab

Based on selections on Tab 7 - Project Definition

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This offset analysis assumes the full year of supplies is available to offset non-potable demands. Some scenarios may require storage to store excess supplies from one month in order to use those supplies in another month with unmet demands.

Monthly Summary of Selected On-Site Supply vs. Selected Non-Potable Demand

