

Appendix M

Technical Memorandum

City of Santa Clara Sanitary Sewer Hydraulic Modeling

Subject: Results of Sanitary Sewer Hydraulic Modeling: 49ers Stadium

Prepared For: Falguni Amin

Prepared by: Tammy Qualls

Reviewed by: Gisa Ju

Date: March 1, 2009

Reference: 149-002, Development Group #4

1 Introduction

At the City's request, RMC has evaluated the impact of the proposed 49ers Stadium on the east and west sides of San Tomas Creek using the Sanitary Sewer Hydraulic Model. This technical memorandum (TM) outlines the approach, assumptions, and results of the hydraulic analysis.

This TM is organized in the following manner:

- Approach
- Development Information
- Results

2 Approach

The Sanitary Sewer Hydraulic Model (model) was used to evaluate the impact of the developments on the sanitary sewer system. The model was first developed for the 2007 Sanitary Sewer Capacity Assessment. It was calibrated based on existing development information, water use data, and flow monitoring data collected in 2006. The "Future Scenario" model was used for this additional analysis so that all currently planned major developments and redevelopments, as well as potential increased densities in mixed use and transit-oriented mixed use and commercial/office areas consistent with the City's 2010 General Plan and General Plan Update, were included. The Future Scenario model includes the proposed capacity improvement projects as recommended in the 2007 Capacity Assessment with the West-to-East Project (Walsh Project) option.

Flows were simulated in the hydraulic model after the development flows outlined in this TM were added. Only sanitary flows were added to the model (i.e., no increase in infiltration/inflow flows was assumed to result from the new developments). The modeled pipelines were then evaluated under peak wet weather flow conditions for a 10-year design storm to see if surcharging occurred, using the same procedures as used in the 2007 Capacity Assessment.

RMC did not analyze proposed new sewer lines on the stadium site. On the east side, analysis was limited to existing sewer mains in the City's right-of-way on Lafayette St starting with manhole S95-16 and farther downstream to the end of the sewer hydraulic model just upstream of the Rabello Pump Station. On the west side, analysis was limited to existing sewer mains in the City's right-of-way on Great America Parkway starting with manhole S93-28 and farther downstream to the end of the sewer hydraulic model just upstream of the Rabello Pump Station. Note that these two rounds of analysis were run separately in the model as separate scenarios.

3 Development Information and Modeling Results

This section of the TM documents the background information provided by the 49ers.

Development Group	4
Name	49ers Stadium
APN	Not provided
Address	Area surrounded by Tasman Drive, San Tomas Creek, and Lafayette St.
Type of Development	Stadium and stadium facilities
Area	Stadium design = 1,820,000 square feet. Design seating capacity = 68,500 seats. Expansion seating capacity (Superbowl events) = 75,000 seats.
Development Average Flow	Total flow = 1,500 gpm for peak Superbowl conditions (Fire flow was not included as it does not drain through the sanitary sewer system.)
Status	Future/Planned
Trunk System Modeling Results	RMC evaluated the impact of a Superbowl event on the existing City trunk sewers for two different loading points (east and west). The first round (east) started on Lafayette Street at the proposed loading point at manhole S95-16, all the way to the limits of the hydraulic model just upstream of the Rabello Pump Station. The second round (west) started at the corner of Tasman Drive and Great America Parkway at the proposed loading point at manhole S93-28. The Superbowl event was loaded into the model the same "model day" as the modeled 10-year storm event (peak wet weather flow), with the storm occurring in the a.m. and the Superbowl occurring in the p.m. The Superbowl event did not cause any adverse impact to the existing modeled City sewers. No surcharging or overflowing occurred due to the Superbowl event.