

## TECHNICAL MEMORANDUM

TO: Paul Manzer, P.E.  
Navix Engineering

DATE: May 2, 2017

FROM: Emily D. Straley, P.E.  
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JOB #: PACL.01.16

SUBJECT: Memo –Cilker Property Connection to Oakmead Stormwater Pump Station Data Review

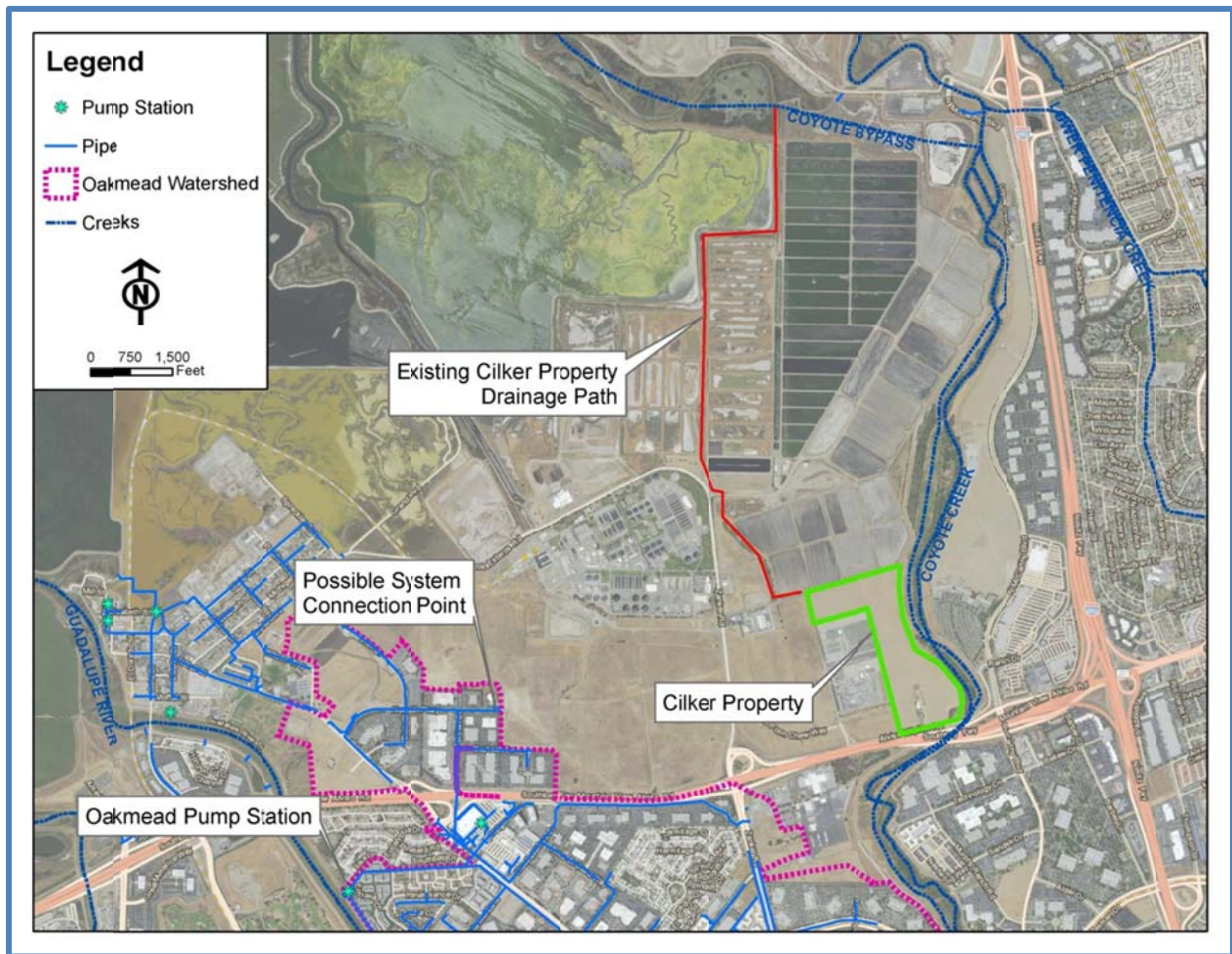
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This memo summarizes the data reviewed to determine whether the Oakmead Stormwater Pump Station has adequate capacity to accommodate the Cilker Property project's post-development stormwater runoff. The site is currently not connected to the City of San Jose's storm drain system. It drains via sheet flow to a channel at the northwest corner of the property which passes through the San Jose Water Pollution Control Plant site and confluences with Coyote Creek. The developer originally proposed draining the site to Coyote Creek through a new outfall, but the City and Santa Clara Valley Water District have expressed concerns about the construction of a new outfall and altering the discharge location of the site. The City has asked the developer to review available data and determine whether directing flows to the Oakmead Pump Station by connecting site piping to the City's storm drain system at Nortech Parkway is feasible.

Data sources reviewed consist of:

- *Oakmead Pump Station Stormwater Drainage Study* by A-N West, Inc. dated July 25, 2010
- *North San Jose Storm Drain Master Plan* by Schaaf & Wheeler dated June, 2014
- Emails from Navix Engineering dated April 17, 2017 and May 2, 2017 that summarize Cilker Property pre- and post-development flows
- Envision San Jose 2040 General Plan

The Oakmead Pump Station consists of six 1,000 HP pumps that produce 61,500 gpm each according to a recent flow test. The maximum capacity of the pump station is 369,000 gpm or 823 cfs. Flows enter the pump station through a 108" RCP from the north and an 84" RCP from the south. The pump station discharges to the Guadalupe River through a concrete discharge box.



**Figure 1 - Cilker Property and Oakmead Pump Station Drainage**

The 10-year peak inflow to the pump station was calculated in both the *Oakmead Pump Station Stormwater Drainage Study* by A-N West (A-N West Report) and the *North San Jose Storm Drain Master Plan* (NSJ SDMP) for both existing and improved system conditions. The rational method was used in the A-N West Report analysis to calculate the peak flow at both pump station inflow locations. Pipe capacity restrictions throughout the system were not taken into account so it's likely that the peak flow is overestimated. The NSJ SDMP analysis consisted of modeling the hydrologic and hydraulic system using the unit hydrograph method resulting in more accurate estimates of pump station inflow. Both existing condition and improved system with 2040 Envision San Jose land use condition were modeled. It should be noted that the watershed area for existing and 2040 land uses is the same. The 10-year peak flow estimates of both studies were similar which validates the results. Both studies conclude that the Oakmead Pump Station has sufficient capacity for existing and improved condition but no appreciable reserve capacity for additional watershed area.

Table 1 compares the peak 10-year flows from both studies, and also the NSJ SDMP peak flow with the addition of 54 cfs which is the post-development runoff from the Cilker Project Area which includes the Cilker property and surrounding roadway improvements.

**Table 1 - Oakmead 10-year Peak Flow Estimates**

| <b>Pump Station<br/>Inflow<br/>Location</b> | <b>A-N West Report</b>    |                           | <b>NSJ SDMP</b>           |                           | <b>NSJ SDMP w/ Cilker Site</b> |                           |
|---|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------|---------------------------|
|   | <b>Existing<br/>(cfs)</b> | <b>Improved<br/>(cfs)</b> | <b>Existing<br/>(cfs)</b> | <b>Improved<br/>(cfs)</b> | <b>Existing<br/>(cfs)</b>      | <b>Improved<br/>(cfs)</b> |
| <b>108" RCP</b>                             | 459                       | 443                       | 433                       | 474                       | 479                            | 528                       |
| <b>84" RCP</b>                              | 376                       | 352                       | 311                       | 288                       | 311                            | 288                       |
| <b>Total</b>                                | 835                       | 795                       | 744                       | 762                       | 790                            | 816                       |

The Oakmead Pump Station does have adequate capacity for the addition of flows from the Cilker Project Area, but will then be functionally at capacity. If the site is connected to the City's system at Nortech Parkway then the City should ensure that any development that occurs between the site and the connection point in Nortech Parkway drains to a different pump station or outfall. An analysis should be completed to ensure that the storm drainage system between Nortech Parkway and the Oakmead Pump Station has sufficient capacity.