

From: [Jeff Wooten](#)
To: [Harmon Rita T.](#)
Subject: 98th Street Plaza (CPN 676284); Comprehensive Email Summary of Findings for Existing 36" Storm Drain
Date: Tuesday, November 24, 2015 6:46:49 AM
Attachments: [98th St Plaza - Basin Map for 36inch HGL Analysis Signed.pdf](#)
[Sheet 8 - 98th St Plaza - SD Plan.pdf](#)

Rita,

Per our discussion at DRC yesterday, I am following up with a comprehensive email regarding the capacity of the existing 36" Storm Drain in 98th Street NW adjacent to the 98th Street Plaza project. We have analyzed this pipe for both the 100-Yr and 10-Year storms; both HGLs are reflected on the attached Sheet 8 of the 98th St Plaza plans.

The attached Basin Map reflects the current 'existing' 100-Year flows per the THE Group (The Hensley Engineering Group) Drainage Report for the Paradise RV Park – Phase 1 project (Drainage File K08/D003, dated 9/8/2015). The Basin Map also reflects the additional flows from the 98th Street Plaza Inlet Study prepared by Wooten Engineering on 2/13/2015 since these roadway flows were not accounted for in the Hensley report. The attached Basin Map exhibit reflects the combination of these flows. Keep in mind that the flows added in from 98th St Plaza Inlet Study are based on a 10-minute time of concentration and not on the time of concentration from the Hensley report; therefore, the flows shown are somewhat conservative.

100-Year Storm

Per the profile on the attached Sheet 8 of the 98th Street Plaza plans, the existing 36" pipe is undersized and will not completely convey the 100-Year flows. It has been determined that the maximum gutter flow in the south bound lanes of 98th St is approximately 77.71 cfs and occurs between STA 14+13.79 and STA 14+28.07. The depth of flows at this point are approximately 0.75' and is contained within the Right-of-Way. These flows are apparently captured downstream in the two existing drop inlets located at the northwest corner of 98th and Volcano. The developer of the property at this corner will need to ensure adequate systems are in place to capture these excess flows where the storm drain system is enlarged to a 66" RCP so that they are directed into Pond 3 as identified in the Amole Hubbell Drainage Master Plan.

10-Year Storm

The Q10 flow data as shown on the profile of the attached Sheet 8 were obtained by multiplying the Q100 flows by 0.667 per the DPM (Table A-3). The profile on the attached Sheet 8 of the 98th Street Plaza plans show that the 36" pipe will capture the 10-Year flows and will be under a pressure condition throughout the section of pipe adjacent to the 98th Street Plaza project. The 10-Year HGL is approximately 2' below the top of curb in the worst case scenario and the inlets will capture flows as identified in the Wooten Engineering Inlet Study. Per the Inlet Study, the maximum spread of flows occurred at Inlet 'C' and encroached into the inside lane by 3.5'; however, the geometry of the roadway at this point (STA 10+96.11) was revised during the DRC review to allow for a future bike lane transition thereby removing the pinch point initially shown. This increased the available spread at this point by +/-8. Further analysis based on the new geometry through this section shows that the spread at this point is 21.5' which will leave 14.4' clear for through traffic on the inside lane.

As described above, the current systems can adequately convey both the 10-Year and 100-Year storms in the 'Existing' condition. The flows as identified in the 'Proposed Conditions' section of the Hensley report cannot be implemented as the existing 36" RCP and the roadway do not have the capacity to carry these additional flows. I suggest that future development within proposed basins 205.12, 205.2, 206, and 209.3 be restricted to the existing/interim discharges as reflected in the Hensley Report in order to prevent any future burden to this system. As an alternative, the Engineer for future development within these basins can provide an updated Drainage Study to determine whether or not additional flows can be discharged into the system.

Thank you for your time and assistance on this project. If you have any questions feel free to contact me.

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