Kent Monter

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RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

06/16/2020

Memorandum

To: Kent Monter, PE (City of Lee's Summit)

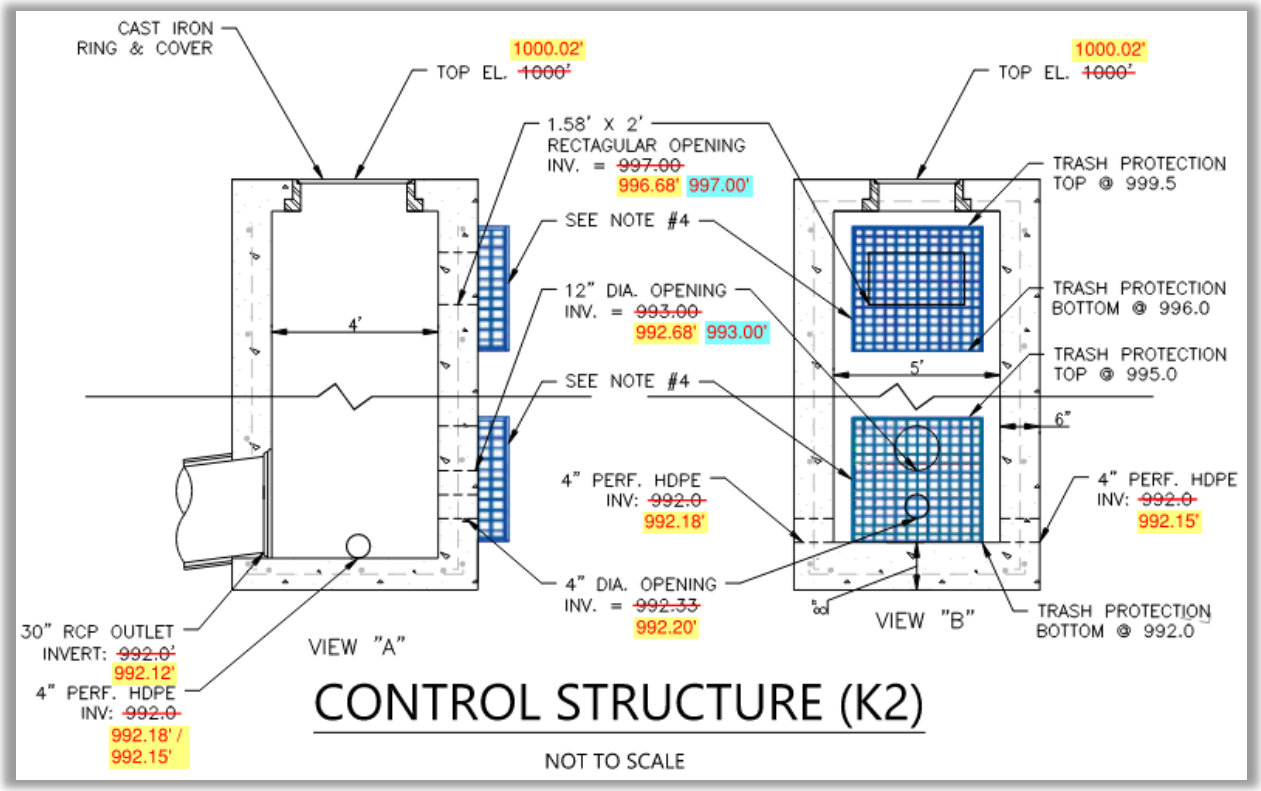
From: George Huddleston, PE

Cc: Turner Construction & File

Date: June 15, 2020

Subject: Lee's Summit MOB: As-Built Pond Performance

Please accept this memo as a summary of the as-built condition of the detention pond for the Lee's Summit MOB project, based on an as-built survey received from Phoenix Engineering & Surveying, LLC, and dated June 5, 2020. An overview of the deviations from the design elevations are provided in yellow below (XXX.XX'), along with proposed corrections in blue (XXX.XX'). Based on this information, the pond model has been revised to assess the pond's performance for the Pre- vs. Post-Development Peak runoff rate, as well as the Flat Release Rate, in accordance with the City of Lee's Summit Design & Construction Manual Section 5600.



From a hydraulic performance standpoint, the notable deviations are as follows. The invert of the 30" RCP discharge pipe is 0.12' above the design elevation, and the lowest orifice (4") is 0.13' below the design elevation. The upper two openings of the control structure (a 12" circular and 1.58'x2' rectangular opening) are each 0.32' below the design elevation.

As installed, the pond will meet the Pre- vs. Post-Development Peak runoff rate, but the Flat Release Rates are slightly high for the 2-year and 100-year design storms. As such, it is proposed that the upper two openings of the control structure (the 12" circular and 1.58'x2' rectangular openings) be raised to their design elevations. Following these two (2) modifications, the pond model results are summarized as follows:

	Pre-/Post-Development Peak Flow (cfs)		
	02-Yr/ 24-Hr	10-Yr/ 24-Hr	100-Yr/ 24-Hr
Pre Outflow	13.28	21.56	32.03
Post Outflow	7.08	13.90	31.83
Delta	**(6.20)**	**(7.66)**	**(0.20)**

	Post-Development Flat Release Rate (cfs)		
	02-Yr/ 24-Hr	10-Yr/ 24-Hr	100-Yr/ 24-Hr
Discharge Allowed (cfs)	0.50	2.00	3.00
Discharged Rate (cfs)	0.35	0.91	2.67
Delta	**(0.15)**	**(1.09)**	**(0.33)**

As you can see, the post-development outflow rates will be less than the pre-development condition, and the Flat Release Rate will also be less than the maximum allowable discharge. As such, the proposed modifications to the outlet structure will result in the pond performing appropriately and as required by the City of Lee's Summit.