549-210A

MEMORANDUM

To: Joseph Stubitz

From: Joseph-Peter Cetrulo

Date: 5/23/2022

Re: Boulder City RV Park Sewer Modeling

PURPOSE

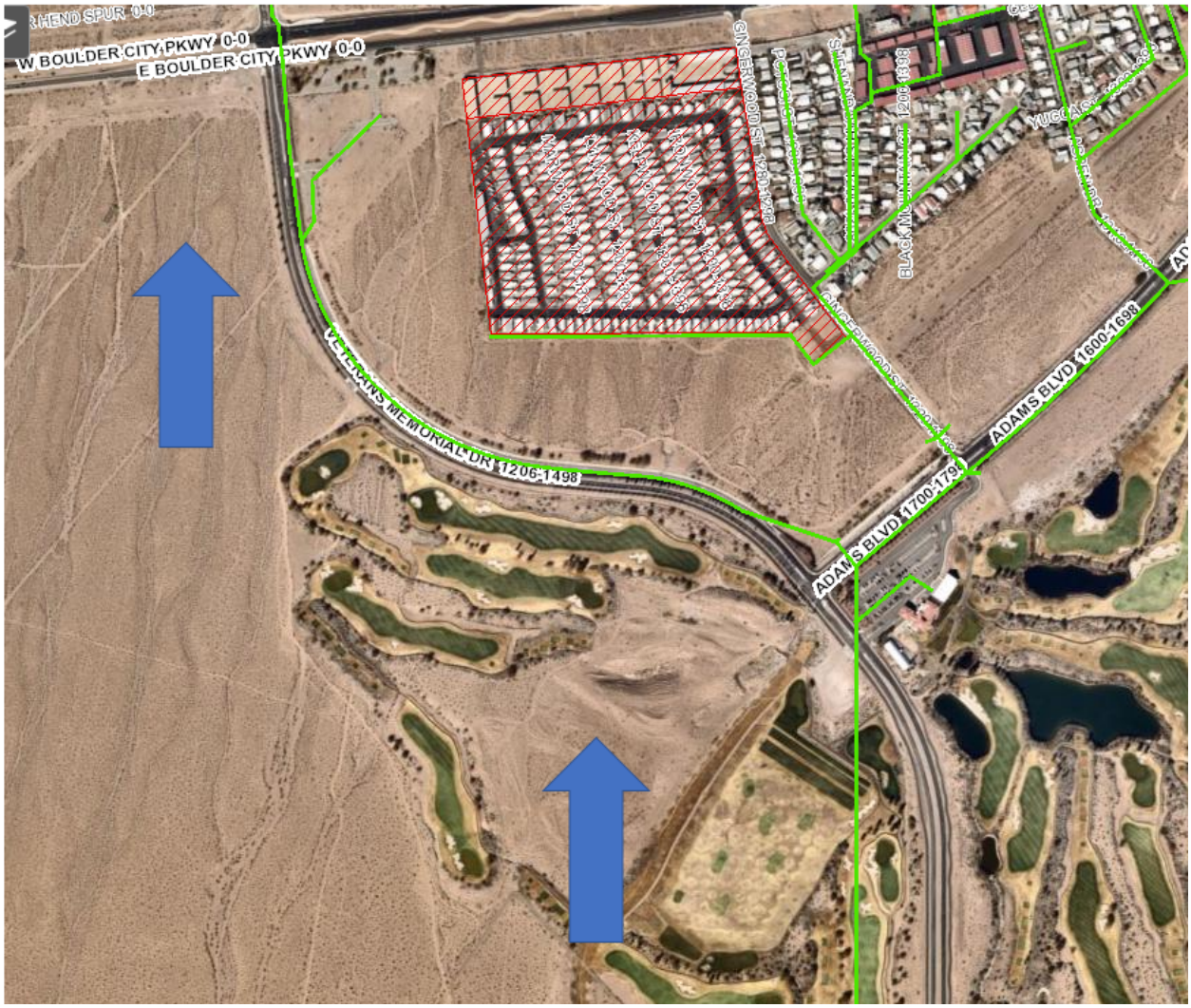
This memo incorporates the development of the proposed RV Park (consisting of 293 RV spots and 8,000 Square Feet (SF) of commercial space), to the existing Boulder City City-Wide Gravity Sewer Model. The goal of this memo is to use the existing GCW model to verify the capacity and velocity constraints with the additional flows proposed by the RV Park. This memo will also provide recommendations needed on the existing system based on the additional flows.

ASSUMPTIONS

The sewer model guidelines and criteria used for this memo are from Section 3 of the City-Wide Gravity Sewer Model Final Report, dated February 17, 2022.

Wastewater contribution rates and ERU values for RV Park and Commercial land use are located in Appendix. The ERU value for each land use was multiplied by the City-equivalent average flow of 165 gallons per day per ERU, which results in the wastewater contribution rates.

The City has provided updates to the proposed improvements by the developer and all existing sewerline locations, diameters and connections. The image below was provided by the City to show the location of the proposed sites:



Updates to the model are within the constraints of the previously studied areas. Additional flow from the RV Park will be loaded onto Manhole 6-81 in the model, located at the intersection of Adams Boulevard and Veterans Memorial Drive.

RESULTS

Illustrated in Table 1 are the ERU factors, equivalent flow and demand added to the existing model. To be conservative, the commercial area of the RV Park has been rounded up to one acre.

Table 1 – Summary Table of Flows

Description	ERU Factor	Equivalent Flow and Units	Acres	Units	Average Flow (MGD)	Peak Flow (MGD)
RV Park	0.6	99 gpd/unit	-	293	0.0290	0.1066
Commercial	8	1320 gpd/acre	1.00	-	0.0013	0.0065
TOTAL	**-**	**-**	**1.00**	**293**	**0.0303**	**0.1131**

The west interceptor in the existing model, under peak dry weather flow conditions, had the worst d/D of 0.357 between MH 8-117 and 8-106 (P-140). The d/D increased to 0.379 at P-140, due to the increased demand from the proposed RV Park.

The total sewer demands are provided in the Appendix, with the RV Park and Commercial demands highlighted in yellow. Refer to Figures 6 and 7 for the velocity and d/D of each pipe segment during the average flow and peak dry weather scenarios, respectively. SewerCAD data sheets are included for both average flows and peak dry weather flows.

CONCLUSION

Based on the model, the additional demand from the proposed RV Park will not have an effect on the operating conditions within the sewer distribution system. The flows did not significantly increase the capacity and velocity constraints of the system during average or peak dry weather flow conditions.

GCW does not recommend any sewer distribution system upgrades at this time. The model should be reevaluated if flows were to increase significantly.