Appendix K

Water Demand Memorandum

PROJECT DESIGN CONSULTANTS

DATE: May 12, 2017 **FILE:** 4242.00

TO: Ryan Herrell, Zypher Partners

FROM: Raul Rodriguez, PDC

SUBJECT: Solana 101 Project water demand

Per your request, I am providing this memo for the Solana 101 Project to identify the methodology of obtaining the proposed water demand for the project.

PDC checked with our Water Consultant regarding standards from the Santa Fe Irrigation District to calculated water demands for a project. PDC was informed that the Santa Fe Irrigation District doesn't not have a Master Plans or Water Facility Planning Guidelines that have a water duty factor like other Agencies and it was recommended to use the Water Agency Standards (WAS) to estimate the water demand for the project.

Per the attached reference, WAS recommends a residential water demand factor of 6,7500 gpd/gross acre for residential in the 9 to 14 du/ac category and a factor of 5,000 gpd/net acre for no-residential unit water demand (Commercial, Retail, F&B).

1) Residential Gross Acreage = 0.77 ac
2) Commercial/ Retail/F&B Net Acreage – 1.31 ac

1) 0.77 ac X 6,750 gdp/ac – 5,1975.5
2) 1.31 net ac X 5,000 gpd/ac – 6,550 gpd

Total = 11,747.50 gpd

4.1.4 LAND USE

The Engineer of Work collects and organizes existing and ultimate land use data for the geographic area to define land use categories such as: residential, commercial, institutional, parks, hospitals, hotels, industrial, office, and schools. The local cities or county can provide the information regarding zoning and dwelling unit density.

4.1.5 DWELLING UNIT DENSITY AND RESIDENTIAL UNIT WATER DEMAND

The Engineer of Work shall estimate the residential population in the service area based on existing and ultimate allowable land use. Unless otherwise provided by the AGENCY, unit water demands shall be estimated based on dwelling unit density in Table 4-1-1.

Table 4-1-1
Dwelling Unit Density and Unit Water Demands

Dwelling Unit Density (dwelling units/gross acre)	Unit Density (persons/dwelling unit)	Population Density (persons/gross acre)	Unit Water Demand (gallons/gross acre-day)
0.1	6.0	0.6	90
0.2	6.0	1.2	180
1	6.0	6.0	900
2	3.5	7.0	1050
3	3.5	10.5	1575
4	3.5	14	2100
8	3.5	28	4200
9	3.5	32	4800
14	3.2	45	6750
29	3.0	87	13050
43	2.6	112	16800
73	2.2	161	24150
109	1.8	196	29400
218	1.5	327	49050

4.1.6 NON-RESIDENTIAL UNIT WATER DEMAND

A. Unless more accurate unit water demand estimates are available from the AGENCY, the non-residential unit water demands in the service area shall be estimated based on the land use categories in Table 4-1-2.

Table 4-1-2
Non-Residential Unit Water Demands

Land Use Category	Unit Water Demand
Commercial and Institutional	5000 gallons/net acre-day
Landscaped Park*	3000 gallons/net acre-day
Hospital**	8000 gallons/net acre-day/floor
Hotel**	7000 gallons/net acre-day/floor
Industrial	4000 gallons/net acre-day
Office	5000 gallons/net acre-day
School	4500 gallons/net acre-day