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MEMORANDUM

605-844

TO: Maria Miller, Baldwin & Sons

FROM:  Fernando Fregoso, P.E., Dexter Wilson Engineering, Inc.

DATE: May 28, 2024

SUBJECT: Otay Ranch Village 7 SPA Amendment Water Conservation Plan Evaluation

Background

Baldwin & Sons proposes revisions to the Village 7 land use plan. Village 7 comprises approximately 380 acres located east of Wolf Canyon and south of Birch Road in the City of Chula Vista, California. Village 7 is bound by State Route 125 to the east, Birch Road to the north, and La Media Road to the west. The Village 7 Sectional Planning Area (SPA), as approved in 2004, entitled the development of 1,501 residential dwelling units consisting of 1,053 single family dwelling units and 448 multi-family dwelling units; other land uses included an elementary school, a middle school, a high school, commercial mixed uses, a town square, a transit stop, and a neighborhood park. The current Otay Ranch General Development Plan (amended June 2021) shows a total of 1,456 residential dwelling units for Village 7 consisting of 1,008 single family dwelling units and 448 multi-family dwelling units. The current SPA Amendment for Village 7 proposes a total of 1,456 residential dwelling units consisting of 721 single family dwelling units and 735 multi-family dwelling units.

The majority of Village 7 has already undergone construction, except for Parcels R-3, R-4, and R-8. Parcels R-3, R-4, and R-8 are located in the southwest corner of Village 7.

The proposed land use changes will reduce the amount of single family dwelling units and increase the amount of multi-family dwelling units within Village 7; however, the proposed changes would result in no net change to the residential dwelling unit count of 1,456 presented in the Otay Ranch General Development Plan for Village 7. To implement the proposed land use changes, amendments to the Chula Vista General Plan, Otay Ranch General Development Plan, and the Village 7 SPA Plan are necessary.

The October 2004 Water Conservation Plan for Village 7 was prepared as a supporting document to the project's Environmental Impact Report dated October 12, 2004. The purpose of this memorandum is to evaluate the impact of the proposed land use changes for Village 7 on the findings from this previous study.

Village 7 SPA Amendment Summary

A summary of proposed changes to the Village 7 land use plan is provided as follows:

- Rename the western portion of Parcel R-3 into a separate Parcel R-8. Parcel R-8 will be located adjacent to La Media Road.
- Assign 43 units to Parcel R-3 and change the land use designation in Parcel R-3 from Single Family to Residential Multi-Family.
- Assign 121 units to Parcel R-4 and change the land use designation in Parcel R-4 from Single Family to Residential Multi-Family.
- Assign 123 units to Parcel R-8 and change the land use designation (based on Parcel R-3 land use designation) in Parcel R-8 from Single Family to Residential Multi-Family.

Proposed Land Use Plan

The project does not propose changes to the backbone street alignments for Village 7 but does involve adjustments to the land use and residential unit count of Parcels R-3 and R-4, and the addition of Parcel R-8. A land use plan and site utilization table for the proposed changes are included in Attachment 1 for reference.

Water Demand Projection – Approved Plan

Table 1 summarizes the projected average water demands for Village 7 based on the approved land use plan as presented in the March 2004 Conceptual Water and Recycled Water Study. Table 2 summarizes the projected average day water demands from the November 2004 Subarea Master Plan (SAMP) for Village 7. The difference in demand is based on lotting studies completed after the March 2004 Study.

TABLE 1 OTAY RANCH VILLAGE 7 PROJECTED WATER DEMAND (MARCH 2004 STUDY)			
Land Use	Proposed Units	Demand Factor	Average Demand, gallons per day (gpd)
SF Residential	1,053 units	500 gpd/unit	526,500
MF Residential	448 units	300 gpd/unit	134,400
Elementary School	11.1 acres	1,785 gpd/acre	19,814
Middle School	26.3 acres	1,785 gpd/acre	46,946
High School	55.8 acres	1,785 gpd/acre	99,603
Commercial	3.7 acres	1,785 gpd/acre	6,604
Town Square	1.9 acres	2,155 gpd/acre	4,094
Park	7.6 acres	2,155 gpd/acre	16,378
Community Purpose Facility	4.1 acres	893 gpd/acre	3,661
TOTAL			858,000

TABLE 2 OTAY RANCH VILLAGE 7 PROJECTED WATER DEMAND (NOVEMBER 2004 SAMP)			
Land Use	Proposed Units	Demand Factor	Average Demand, gallons per day (gpd)
SF Residential	1,011 units	500 gpd/unit	505,500
MF Residential	444 units	300 gpd/unit	133,200
Elementary School	11.1 acres	1,785 gpd/acre	19,814
Middle School	26.3 acres	1,785 gpd/acre	46,946
High School	55.8 acres	1,785 gpd/acre	99,603
Commercial	3.7 acres	1,785 gpd/acre	6,604
Town Square	1.9 acres	1,785 gpd/acre	3,391
Community Purpose Facility	2.3 acres	893 gpd/ace	2,054
TOTAL			817,112

Water Demand Projection – Proposed Plan (SPA Amendment)

Table 3 summarizes the projected average water demands for Village 7 based on the proposed SPA Amendment. This projection uses current water demand factors from the 2015 OWD Water Master Plan. The decrease in water demand factors compared to the 2004 studies is due to water conservation efforts in recent years.

TABLE 3 OTAY RANCH VILLAGE 7 PROJECTED WATER DEMAND (SPA AMENDMENT)			
Land Use¹	Proposed Units	Demand Factor	Average Demand, gallons per day (gpd)
SF Residential	721 units	435 gpd/unit	313,635
MF Residential	735 units	170 gpd/unit	124,950
Elementary School	11.5 acres	1,428 gpd/acre	16,422
High School	53.9 acres	1,428 gpd/acre	76,969
Commercial	3.7 acres	1,607 gpd/acre	5,946
Town Square	1.9 acres	1,607 gpd/acre	3,053
Park ²	7.6 acres	0 gpd/acre	2,160
Community Purpose Facility	4.1 acres	714 gpd/acre	2,927
TOTAL			546,062

1. The Middle School and CPF-4 sites that were included in the original SPA for Village 7 are excluded from Table 3 (SPA Amendment), as they are now part of Village 8 West.
2. Parks are irrigated with recycled water, but a nominal amount of potable use has been estimated.

In comparing the projections from Tables 1 and 2 to Table 3, the proposed SPA Amendment will reduce previous water demand projections for Village 7 by approximately 36.4 percent compared to the March 2004 Conceptual Water and Recycled Water Study and by approximately 33.2 percent compared to the November 2004 Subarea Master Plan.

Water Conservation Savings

A Water Conservation Plan (WCP) was prepared in 2004 with the initial SPA approval within Village 7 which included only a portion of the village (see Exhibit WC-2 from the 2004 WCP in Attachment 2). The portion of Village 7 analyzed in the 2004 WCP included 1,204 dwelling units consisting of 756 single family dwelling units and 448 multi-family dwelling units. The 2004 WCP estimated water conservation savings from the use of recycled water and the implementation of water conservation measures in single family and multi-family residences.

Table 4 summarizes the projected recycled water demands from the 2004 WCP. Table 5 summarizes the projected water conservation savings from the 2004 WCP.

TABLE 4 OTAY RANCH VILLAGE 7 PROJECTED RECYCLED WATER DEMANDS (OCTOBER 2004 WCP)				
Land Use	Area, acre	% Irrigated	Irrigated Area, acre	Average Demand, gallons per day¹
Irrigated Open Space	47.8	50	23.9	51,433
Park	7.6	100	7.6	16,355
Community Purpose Facility	2.8	20	0.6	1,291
MF Residential	37.9	15	5.7	12,234
Elementary School	11.1	20	2.2	4,777
High School	23.4	20	4.7	10,114
Streets	62.9	10	6.29	13,536
TOTAL				109,740

1. Based on a recycled water demand factor of 2,152 gpd/ac.

TABLE 5 OTAY RANCH VILLAGE 7 ESTIMATED WATER SAVINGS (OCTOBER 2004 WCP)			
Description	Units	Water Savings, gallons per day per unit	Total Water Savings, gallons per day
Recycled Water (Table 4)	---	---	109,740
Single Family Residential (McMillin) ¹	346	46.2	15,985
Single Family Residential (Otay Ranch Co.) ¹	410	90.0	36,900
Multi-Family Residential	448	16.6	7,437
TOTAL		1,204	170,062

1. In addition to the water conservation measures mandated by the City of Chula Vista, each property owner implemented one other non-mandatory water conservation measure: McMillin selected Water-Efficient Landscaping and Otay Ranch Co. selected Evapotranspiration Controllers.

Recycled Water Demand Projection – Proposed Plan (SPA Amendment). Based on the proposed SPA Amendment, the recycled water demands and water conservation savings presented in the 2004 WCP were updated to reflect the land use plan and site utilization table shown in Attachment 1. Table 6 presents the projected recycled water demands for Village 7 based on the proposed SPA Amendment.

TABLE 6 OTAY RANCH VILLAGE 7 PROJECTED RECYCLED WATER DEMANDS (SPA AMENDMENT)				
Land Use	Area, acre	% Irrigated	Irrigated Area, acre	Average Demand, gallons per day¹
Irrigated Open Space	45.6	50	22.8	43,320
Park	7.6	100	7.6	14,440
Community Purpose Facility (CPF)	4.1	20	0.8	1,520
MF Residential	48.5	15	7.3	13,870
Elementary School	11.5	20	2.3	4,370
High School	53.9	20	10.8	20,520
Streets ²	62.9	10	6.3	11,970
TOTAL				110,010

1. Based on the OWD's current recycled water demand factor of 1,900 gpd/ac.
2. Acreage is from the 2004 WCP. This is a conservative value, as the Middle School and CPF-4 sites that were included in the original SPA for Village 7 are now part of Village 8 West.

The water conservation savings for the multi-family units proposed within Parcels R-3, R-4, and R-8 were determined based on the mandatory and non-mandatory indoor water conservation measures the developer will implement in each unit. The mandatory indoor water conservation measures entail installing hot water pipe insulation, pressure reducing valves, and water efficient dishwashers. The non-mandatory indoor water conservation measure entails installing dual-flush toilets. Since Parcels R-3, R-4, and R-8 do not propose any single-family residences, all outdoor irrigation water use is proposed to be met with recycled water. Thus, there are no outdoor water measures that would result in a direct reduction in potable water use. Table 7 summarizes the estimated water savings for the multi-family units proposed within Parcels R-3, R-4, and R-8 based on the mandatory and non-mandatory water conservations measures that are to be implanted.

TABLE 7 OTAY RANCH VILLAGE 7 PARCELS R-3, R-4, AND R-8 WATER CONSERVATION MEASURES			
Water Conservation Measure	Location²	Yearly Water Savings, gallons per unit	Daily Water Savings, gallons per day per unit
Hot Water Pipe Insulation	Indoor	2,400	6.58
Pressure Reducing Valves	Indoor	1,800	4.93
Water-Efficient Dishwashers	Indoor	650	1.78
Dual-Flush Toilet	Indoor	4,000	10.96
TOTAL		8,850	24.25

1. One toilet per multi-family unit is assumed. It is estimated that a dual-flush toilet can save 4,000 gallons per year per toilet.
2. All outdoor irrigation water use for Parcels R-3, R-4, and R-8 is proposed to be met with recycled water; thus, there are no outdoor water measures that would result in a direct reduction in potable water use.

Based on the current proposed SPA Amendment, Table 8 summarizes the total estimated water conservation savings for Village 7.

TABLE 8 OTAY RANCH VILLAGE 7 ESTIMATED WATER SAVINGS (SPA AMENDMENT)			
Description	Units	Water Savings, gallons per day per unit	Total Water Savings, gallons per day
Recycled Water (Table 6)	---	---	110,010
Single Family Residential (McMillin)	346	46.2	15,985
Single Family Residential (Otay Ranch Co.)	375	90.0	33,750
Multi-Family Residential (2004 WCP)	448	16.6	7,437
Multi-Family Residential (Parcels R-3, R-4, and R-8)	287	24.25	6,960
TOTAL	1,456		174,142

Conclusion

The proposed SPA Amendment for Village 7 will result in an increase in recycled water demand and total water conservation savings as compared to the 2004 WCP. In comparing the recycled water demand projections from Table 4 to Table 6, the proposed SPA Amendment will increase previous recycled water demand projections by 270 gallons per day (gpd), from 109,740 gpd to 110,010 gpd, or approximately 0.2 percent compared to the 2004 WCP. In comparing the total water conservation savings from Table 5 to Table 8, the proposed SPA Amendment will increase the previous total water conservation savings by 4,080 gpd, from 170,062 gpd to 174,142 gpd, or approximately 2.4 percent compared to the 2004 WCP. The increase in recycled water demand and total water conservation savings in Village 7 is mainly due to the increase in the number of residential units analyzed: 1,204 units in the 2004 WCP versus 1,456 units in the proposed SPA Amendment.

ATTACHMENT 1

**SITE UTILIZATION PLAN
AND
LAND USE SUMMARY TABLE**

Village 7 Site Utilization Plan



Exhibit 1.6

Village 7 Land Use Districts



SF3	Single Family Three: District which permits single family housing located on lots >5,000 square feet
SF4	Single Family Four: District which permits single family housing located on lots <5,000 square feet
RM1	Residential Multi-Family One: District which permits housing ranging from 8 units/acre up to 14.9 units/acre including small lot single family, alley, duplex and stacked flats product types
RM2	Residential Multi-Family Two: District which permits housing at densities from 15+ units/acre
CPF	Community Purpose Family: District which permits uses established pursuant to the Community Purpose Facilities requirements of the P-C Planned Community Zone
OS/P1	Open Space/Park One: District which permits developed or usable open space and park uses, and may include naturalized open space

Exhibit PC-1

Village Seven Site Utilization Table

RESIDENTIAL USE					
<i>Neighborhood</i>	<i>Land Use</i>	<i>LU District</i>	<i>Acres</i>	<i>DU</i>	<i>du/ac</i>
R-1	Single-Family Detached	SF4	53.1	346	6.5
R-2	Single-Family Detached	SF4, RM1	51	375	7.4
<i>Sub-total single-family:</i>				<u>721</u>	
R-3	Multi-Family	RM1	2.4	43	17.9
R-4	Multi-Family	RM2	3.1	121	39
R-5	Multi-Family	RM1	14.5	132	9.1
R-6	Multi-Family	RM2	12.3	193	15.7
R-7	Multi-Family	RM2	7.9	123	15.6
R-8	Multi-Family	RM1	8.3	123	14.8
<i>Sub-total multi-family:</i>				<u>735</u>	
Total Residential			152.6 ac.	1,456	9.5

NON-RESIDENTIAL USE			
<i>Neighborhood</i>	<i>Land Use</i>	<i>LU District</i>	<i>Acres</i>
P-1	Public Park	P	7.6
CPF-1	Private Park	CPF	1.1
CPF-2a	Private Park	CPF	0.9
CPF-2b	CPF	CPF	1.0
S-1	High School	S	53.9
S-3	Elem. School	S	11.5
OS	Open Space	OS	42.6
Total Non-Residential			118.6 ac.

**Area included in R-3*

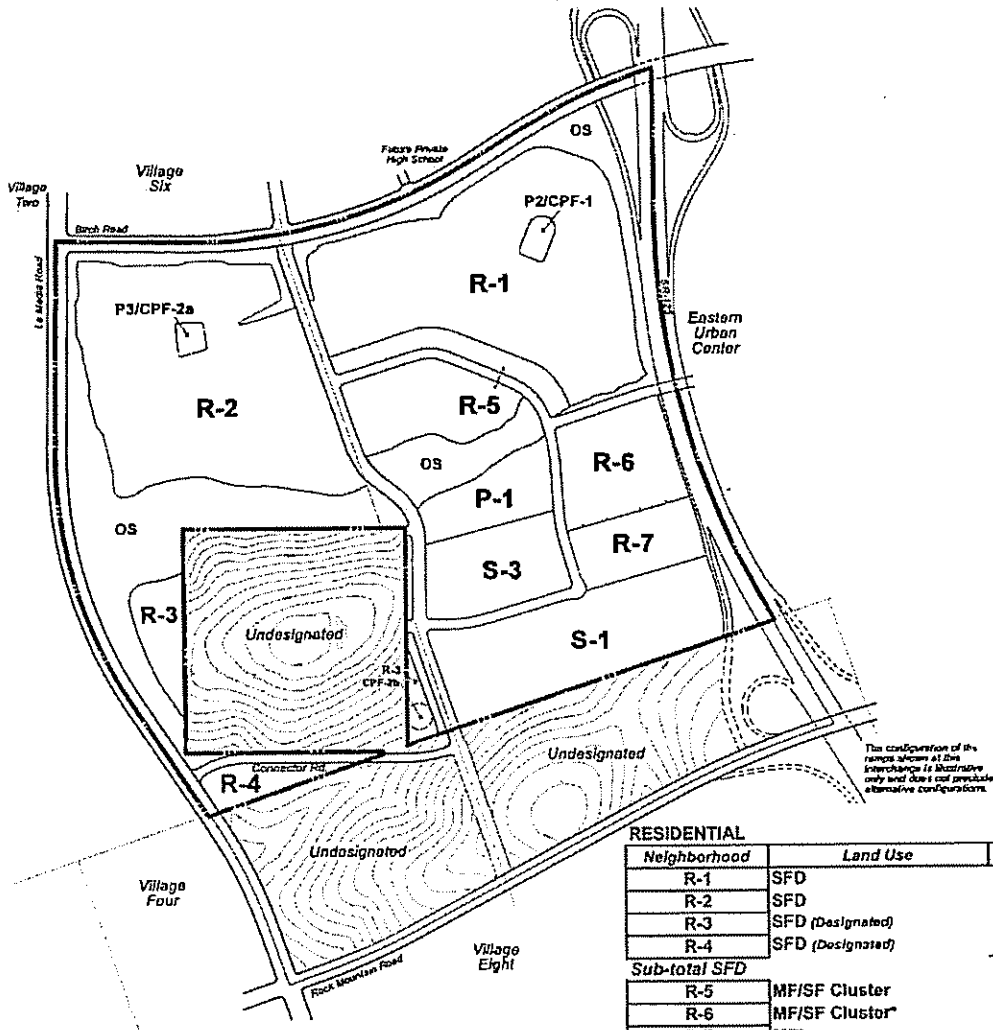
FUTURE DEVELOPMENT AREA - CONCEPTUAL USES (REQUIRES A SPA AMENDMENT TO OBTAIN DEVELOPMENT APPROVAL)			
<i>Neighborhood</i>	<i>Land Use</i>	<i>LU District</i>	<i>Acres</i>
R-9	Residential	Undesignated	42
MU	Mixed-Use	Undesignated	3.7
OS	Open Space	Undesignated	3
TS-1	Town Square	Undesignated	1.9
CPF-3	CPF	Undesignated	1.1
Total Future Development			51.7 ac.

VILLAGE TOTAL **321.9 ac.**

ATTACHMENT 2

**EXHIBIT WC-2 FROM
2004 WATER CONSERVATION PLAN**

Site Utilization Plan



This configuration of the ramps shown at the interchange is illustrative only and does not preclude alternative configurations.

RESIDENTIAL				
Neighborhood	Land Use	Acres	dulac	DU
R-1	SFD	50.7	6.8	346
R-2	SFD	50.5	7.4	375
R-3	SFD (Designated)	5.3	4.2	22
R-4	SFD (Designated)	3.1	4.2	13
Sub-total SFD		109.6	6.9	756
R-5	MF/SF Cluster	17.4	7.6	132
R-6	MF/SF Cluster*	12.5	15.4	193
R-7	MF*	8.0	15.4	123
Sub-total MF		37.9	11.8	448
Total Residential		147.5	8.2	1,204

NON-RESIDENTIAL		
Neighborhood	Land Use	Acres
P-1	Public Park	7.6 (7.0 ac net req'd)
P2/CPF-1	CPF (Common OS)	1.1
P3/CPF-2a	CPF (Common OS)	0.7
CPF-2b	CPF	1.0
S-1	High School (Designated)	23.4
S-3	Elem. School	11.1
OS	Open Space (Designated)	47.8
Undesignated	Undesignated Uses	121.3
Clr.	Circulation	62.9
Total Non-Residential		276.9
VILLAGE TOTAL		424.4

* Refer to SPA Text for provisions to blend these two parcels.



Vista Verde
Village Seven - Otay Ranch



Exhibit WC-2