Appendix P –
Preliminary Water Reports, Option 1 and Option 2
Prepared by KWC Engineers dated June 2013

PRELIMINARY WATER REPORT

for the ESPERANZA HILLS PROJECT STONEHAVEN OPTION 1

in the Unincorporated Area of
County of Orange, California

PREPARED FOR :

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June 20, 2013

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Section

1
INTRODUCTION

1.1 PURPOSE OF STUDY

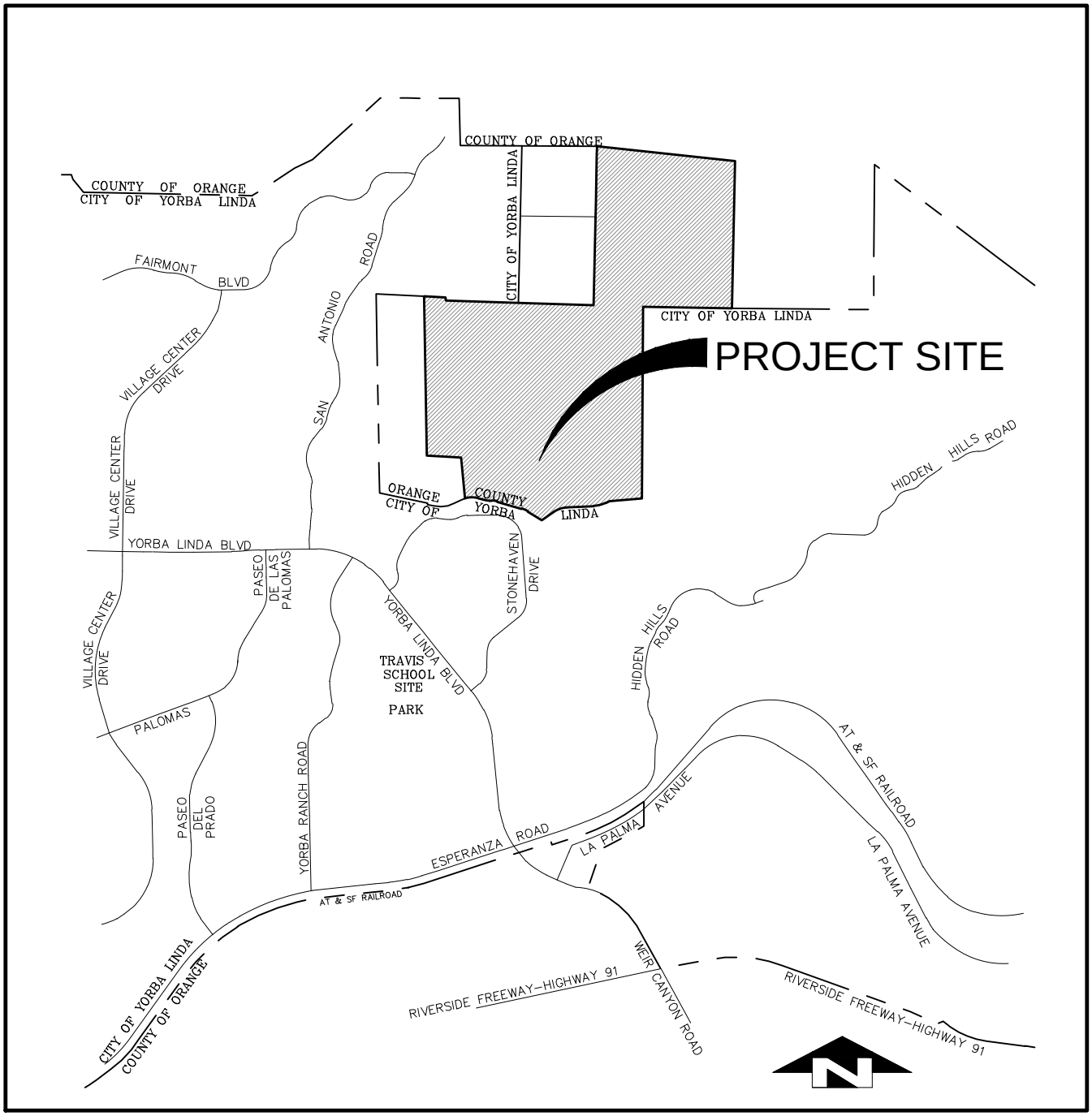
The purpose of this report is to discuss the water facility needs of the Esperanza Hills project as it relates to the Yorba Linda Water District (YLWD) plans for the domestic water system. More specifically, this report will address: the existing water system, the estimated project water demands, projected reservoir storage, proposed transmission and pumping facilities needed to support the proposed project and adjacent developments. It will also identify the approximate water distribution and transmission line alignments and pipe sizes, as well as proposed reservoir and pump station locations and sizes. The project water demands are based on the proposed land use and sizing criteria identified in the YLWD 2005 Water Master Plan and the YLWD 2013 Northeast Area Planning Study (NEAPS). The analysis presented in this report is based on the Esperanza Hills VTTM 17522 Stonehaven Option 1 Site Plan/Grading Study as shown in **Appendix B**.

1.2 PROJECT DESCRIPTION

The Esperanza Hills project is located in the unincorporated area in the County of Orange, in the City of Yorba Linda's sphere of influence. **Figure 1-1** shows a location map of the general area. The site is located north of Yorba Linda Boulevard and east of San Antonio Road and is within the Yorba Linda Water District's Improvement District 1 water service area. As proposed by the Esperanza Hills Specific Plan, the project site consists of 332 single family residential lots and two (2) single family residential Estate lots. The Esperanza Hills site is comprised of approximately 469 acres of undeveloped vacant land. However, of the 469 acres, approximately 323 acres will be graded based on the conceptual grading plan. **Figure 1-2** shows a vicinity map of the area illustrating the location of the project and the developments in the area. Other adjacent undeveloped properties include the: Sage property (VTTM 17341), the Bridal Hills (Friend) property, and Yorba Linda Land (Texaco) property. These properties are at various stages in the planning and entitlement process and have been excluded from the analysis presented in this report. The Esperanza Hills project is planned for a multi-faceted community consisting of open space, parks, trail system, and low density residential lots. Stonehaven Drive is the main north-south thoroughfares into the community connecting to Yorba Linda Boulevard and State Route 91 Freeway. The development of Esperanza Hills and adjacent communities will further enhance the northeastern portion of the City of Yorba Linda.

1.3 RELATED STUDIES

The Yorba Linda Water District Domestic Water System Master Plan, prepared by Carollo Engineers in May 2005, provides a regional study identifying existing and future proposed water



LOCATION MAP

NOT TO SCALE

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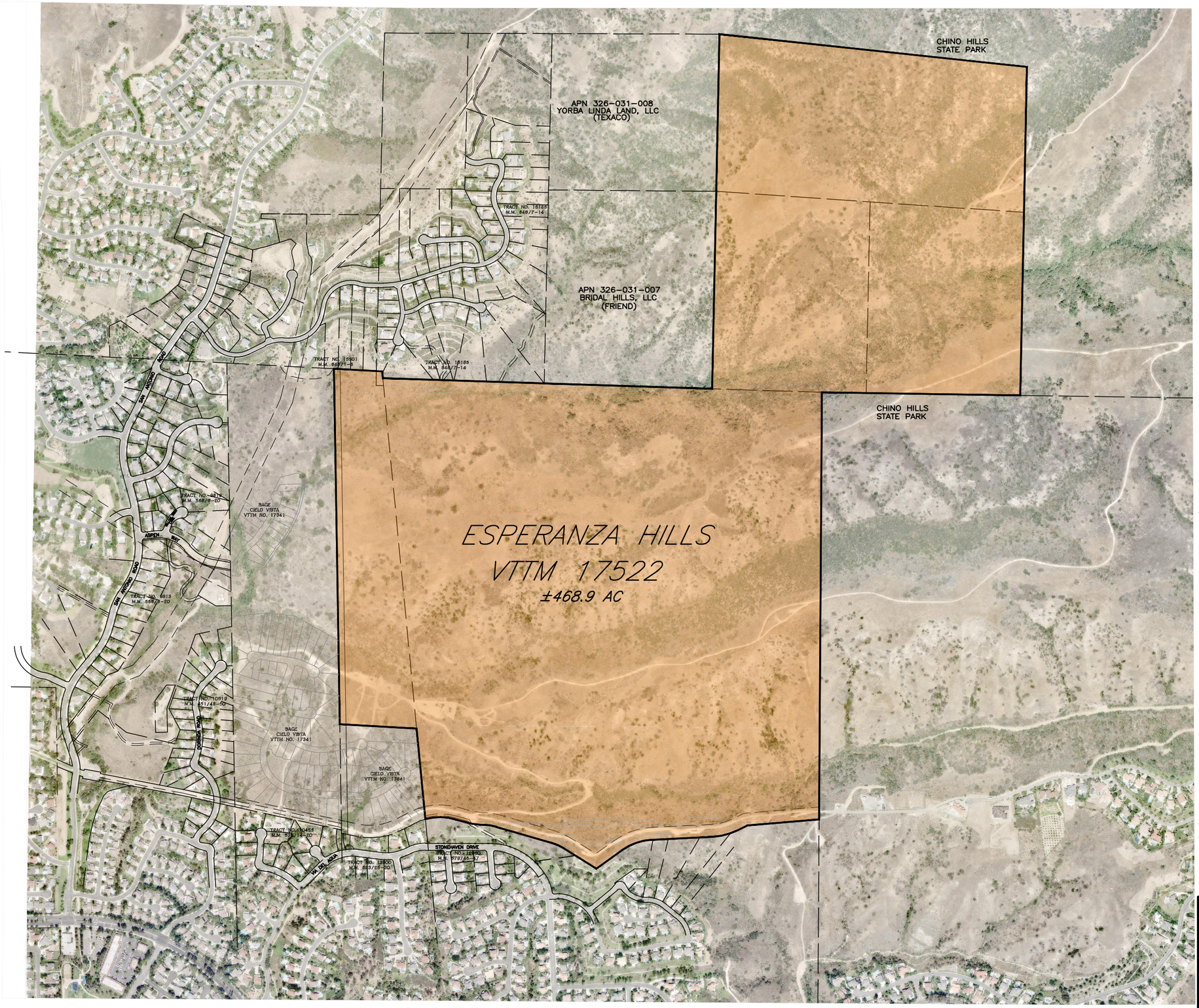
FIGURE 1-1



800' 0 800'

SCALE: 1"=800'

FIGURE 1-2

VICINITY MAP

KWC ENGINEERS

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supply, storage, and transmission facilities within the District's ultimate service area. The study also presents design criteria to be utilized in water supply, system pressures, pipeline velocities, fire flow criteria, storage volumes, operational storage, fire protection storage, emergency storage, and pump capacities. The report also provides information on the District's planning and evaluation criteria that can be applied to determine projected water demands.

In anticipation of the proposed Esperanza Hills and future adjacent developments, YLWD completed the Northeast Area Planning Study (NEAPS) dated March 2013 by Carollo Engineers. It should be noted that Yorba Linda Estates has contributed $20,000 to fund the cost of the water system review and the preparation of the NEAPS. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends, in addition to the proposed project water infrastructure facilities, that the following minimum offsite system improvements be made to support the supply needs of the proposed future projects:

1) Increase firm pumping capacity of the existing Fairmont Pump Station;
2) Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
3) Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
4) Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

As stated in the NEAPS, the combination of these proposed offsite District water system improvements and the proposed Esperanza Hills water infrastructure improvements will not only meet the demands of the future developments in the area but also improve the water service reliability and fire protection for the surrounding area.

Section

2

DESIGN CRITERIA

This section presents the design criteria used to evaluate recommended water system improvements required for the Esperanza Hills project. The criteria utilized in this study are in accordance with the YLWD 2005 Domestic Water System Master Plan, the 2010 YLWD Standard Specifications, and the 2013 NEAPS.

2.1 WATER DUTY FACTORS

The water duty factor (WDF) used in projecting average day water demands for the project is based on a 1.20 ac-ft/yr factor for similar Yorba Linda Water District (YLWD) developments as per discussions with YLWD staff engineers. Assuming a density of one (1) dwelling unit per acre, the WDF is equivalent to 1,070 gpd/du.

To convert Average Day Demand flows (ADD) to Maximum Day Demand flows (MDD) a factor of 1.48 was used. Similarly for Peak Hour Demand flows (PHD) a factor of 2.55 was used as described in the 2005 Water Master plan.

2.1 PLANNING CRITERIA

The planning criteria are used to evaluate the proposed water system hydraulic models. They are utilized as a check to confirm that the values being developed are reasonable. A list of planning criteria used in the evaluation of this project is shown in **Table 2-1.**

TABLE 2-1

PLANNING CRITERIA		
Description	**Value**	**Unit**
Maximum Pressure	125	psi
Minimum Pressure		
Static Condition	60	psi
Peak Hour	40	psi
MDD + Adjacent to a Fire	20	psi
Maximum Pipeline Velocity		
Average Day Analysis	5	fps
Maximum Day and Peak Hour Analysis	7	fps
Fire Flow Analysis	15	fps
Fire Fighting Capabilities		
Single Family Residential – 2 hour duration	1,500	gpm
Emergency Reservoir Storage Volume	1 MDD	-
Operational Reservoir Storage Volume	0.3 MDD	-

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

TEXACO
1390 ZONE

FRIEND
1200 ZONE

1300 ZONE
(6B)

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

1000 ZONE
(5B)

1000 ZONE
ESPERANZA HILLS
VTTM 17522

1000 ZONE
(5B)

1390 ZONE (6C)

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

908 ZONE (5BR1)

LEGEND

- 1390 PRESSURE ZONE
- 1200 PRESSURE ZONE
- 1000 PRESSURE ZONE
- ZONE BOUNDARIES

800' 0 800'
SCALE IN FEET

STONEHAVEN - OPTION 1

FIGURE 2-1

PROPOSED WATER SYSTEM
PRESSURE ZONE MAP

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2.2 SYSTEM PRESSURES

The water distribution system has been designed to maintain static pressures between 60 psi and 125 psi. This criteria is used to initially divide a project between water service zones. **Appendix C** presents a Pressure Zone Boundaries Map, which illustrates the general pressure zone boundaries within the YLWD service area. **Figure 2-1** presents a Proposed Water System Pressure Zone Map, which identifies the proposed pressure zone boundaries for the Esperanza Hills project. Computer modeling will be performed during final design and submitted to YLWD to ensure that adequate residual pressures are obtained under all demand conditions. The system shall be designed to yield minimum static pressures of 60 psi at reservoirs high water level, residual pressures of 40 psi during non-fire demands and 20 psi during maximum day demand plus fire flow conditions. Where the maximum pressure at the service connection exceeds 80 psi, individual pressure regulators shall be equipped at the service connection in accordance with the Uniform Plumbing Code (UPC). Headloss in water lines is calculated using the Hazen-Williams equation with a "C" value of 120. Only locations where customers are served need to meet such pressure requirements.

2.3 PIPELINE VELOCITIES

Transmission and distribution pipelines were designed to have a maximum velocity of 5 fps with a maximum headloss of 5 ft/1000 ft (0.005 ft/ft) for the ADD non-fire scenarios. The maximum velocity can increase to 7 fps with a maximum headloss of 7 ft/1000 ft (0.007 ft/ft) for Maximum Day and Peak Hour non-fire scenarios. For fire flow scenarios, the pipe can have a maximum velocity of 15 fps with a maximum headloss of 15 ft/1000 ft (0.015 ft/ft).

2.4 STORAGE VOLUMES

The total required volume of storage in a water system consists of water for operational storage, emergency storage and fire flow storage. As discussed and directed by YLWD, the Esperanza Hills project's operational storage and emergency storage is required to be equivalent to 30 percent of the maximum day demand and 100 percent of the maximum day demand, respectively. Fire flow and duration requirements were assumed to be 1500 gpm for 2 hour duration for single family residential developments which equals 018 MG**.** However, in other cases if a school or public facility is proposed within the zone, the fire flow demand could increase to 3500 gpm for 3 hours which equals a required storage of 0.63 MG. Water reservoir storage requirements are evaluated on a zone-by-zone basis.

2.5 PUMP CAPACITY

Booster Pump Stations should be able to fill reservoirs such that levels at the end of the day are the same or higher than those at the beginning of the day, based on MDD. Pump station capacity and the ability to transfer water to higher zones from lower zones, are evaluated on a zone-by-zone basis. Maximum day demands are compared with pump station capacities, with the largest unit out of service.

2.6 FIRE FLOW REQUIREMENTS

The Orange County Fire Authority (OCFA) is the agency responsible for establishing the fire flow requirements for the YLWD's service area. These flows are based on the current California Fire Code (CFC). **Table 2-1** summarizes the minimum fire flow requirements for each land use category.

TABLE 2-1

Fire Flow Requirements			
Land Use category	**Minimum Fire Flow Required (gpm)**	**Minimum No. of Hydrants**	**Duration (hr)**
Single Family Residential	1,500	1	2
Multi-Family Residential	2,500	3	2
Public Facilities/Schools	3,500	4	3
Commercial	2,500	3	3
Industrial	5,000	5	4
Hospital	5,000	5	4

The Esperanza Hills project is proposing to provide the minimum fire flow storage of 1,500 gpm for a 2 hour duration with a minimum residual pressure of 20 psi to meet OCFA's and YLWD's fire flow requirements for single family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinklers systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a Very High Fire Hazard Severity Zone (VHFSZ).

Section

3

EXISTING AND PROPOSED MASTER PLAN FACILITIES

This section discusses the existing and proposed master plan water facilities as identified in YLWD 2005 Domestic Water System Master Plan report in the vicinity of the project. The 469-acre Esperanza Hills project development (portion of the Murdock/Pacific Holding development as previously identified in the YLWD Master Plan) was included in the 2005 Water Master Plan and this section further validates the details of the proposed water facilities reflecting current development conditions. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends several offsite water system improvements to be made to the support the supply needs of the proposed future project, in addition to the proposed project water infrastructure facilities.

3.1 EXISTING FACILITIES

The Esperanza Hills project is located north of Stonehaven Drive and east of San Antonio Road in the unincorporated areas of the County of Orange and lying within the YLWD's Improvement District 1 water service area. The existing water facilities in the vicinity of the project are located within the following water service zones, see **Table 3-1**.

TABLE 3-1

Existing Water Facilities		
Zone	**Street**	**Pipe Size**
1000 (5B)	San Antonio Road	10"
780-3 (4C)	MWD easement	33"
1000 (5B)	Stonehaven Drive	12"
Santiago Reservoir - 1000 (5B)	Green Crest Drive	12"
Hidden Hills Reservoir - 1390 (6C)	Wire Spring Trail	12"

Figure 3-1 presents the YLWD Water Distribution System Map, which illustrates the YLWD's existing water system facilities within their water service area.

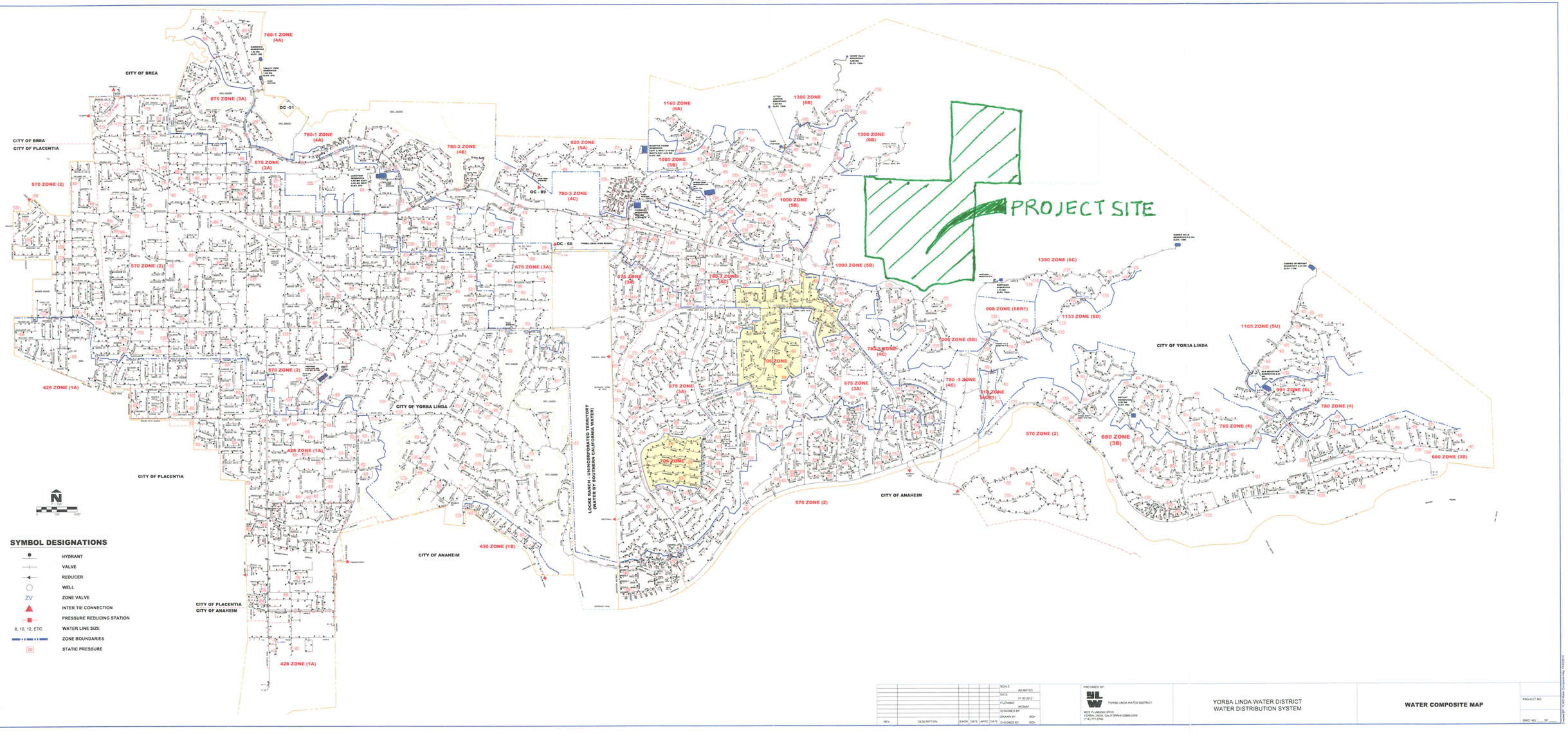
780-1 ZONE (4A)
CITY OF BREA
675 ZONE (3A)
OC -51
CITY OF BREA
CITY OF PLACENTIA
780-1 ZONE (4A)
780-2 ZONE (4B)
675 ZONE (3A)
570 ZONE (2)
OC - 89
780-3 ZONE (4C)
920 ZONE (5A)
1160 ZONE (6A)
1300 ZONE (6B)
1000 ZONE (5B)
1300 ZONE (6B)
1000 ZONE (5B)
PROJECT SITE
OC - 66
YORBA LINDA WATER BOWL
570 ZONE (2)
675 ZONE (3A)
670 ZONE (3B)
780-3 ZONE (4C)
1000 ZONE (5B)
1390 ZONE (6C)
908 ZONE (5BR1)
1133 ZONE (6D)
1165 ZONE (5U)
CITY OF YORBA LINDA
706 ZONE
675 ZONE (3A)
780-3 ZONE (4C)
675 ZONE (3A)
780-3 ZONE (4C)
908 ZONE (5BR1)
991 ZONE (5L)
780 ZONE (4)
570 ZONE (2)
680 ZONE (3B)
780 ZONE (4)
680 ZONE (3B)
428 ZONE (1A)
570 ZONE (2)
CITY OF YORBA LINDA
706 ZONE
570 ZONE (2)
CITY OF ANAHEIM
428 ZONE (1A)
CITY OF PLACENTIA
LOCKE RANCH - UNINCORPORATED TERRITORY (WATER BY SOUTHERN CALIFORNIA WATER)
430 ZONE (1B)
CITY OF ANAHEIM
CITY OF PLACENTIA
CITY OF ANAHEIM
428 ZONE (1A)
SYMBOL DESIGNATIONS
HYDRANT
VALVE
REDUCER
WELL
ZV
ZONE VALVE
INTER TIE CONNECTION
PRESSURE REDUCING STATION
8, 10, 12, ETC.
WATER LINE SIZE
ZONE BOUNDARIES
00
STATIC PRESSURE
SCALE
AS-NOTED
DATE
01-30-2012
FILENAME
WCMAP
DESIGNED BY
DRAWN BY
ROH
CHECKED BY
ROH
REV
DESCRIPTION
ENGR
DATE
APPD
DATE
PREPARED BY:
YORBA LINDA WATER DISTRICT
4622 PLUMOSA DRIVE
YORBA LINDA, CALIFORNIA 92885-0309
(714) 777-3746
YORBA LINDA WATER DISTRICT
WATER DISTRIBUTION SYSTEM
WATER COMPOSITE MAP
PROJECT NO.
DWG. NO. ____ OF ____

FIGURE 3-1

3.1.1 1000 ZONE

An existing 10-inch 1000 zone (5B) line is located in San Antonio Road and an 8-inch line is located in Aspen Way which connects to the 36-inch transmission line along the Metropolitan Water District (MWD) pipeline. This zone is supplied by the Little Canyon Reservoir having a capacity of 0.88 million gallons, and by the Santiago Reservoir having a capacity of 1.10 million gallons, both with a high water elevation of 1000 feet. Three booster stations supply the 1000 zone with pressure. These booster stations are identified as the Fairmont Booster Pump Station (BPS), the Springview BPS, and the Hidden Hills BPS.

An existing 12-inch 1000 Zone (5B) water line is also located in the MWD easement and in Stonehaven Drive at Davenport Circle south of the project site. This line is supplied by the Hidden Hills Booster Station and 1000 Zone Santiago Reservoir.

3.1.2 780 ZONE

An existing 36-inch/33-inch 780 Zone (4C) transmission water line is located along the existing MWD easement southwest of the project site. According to the 2005 Water Master Plan, Zones 780 (4A), 780 (4B), and 780 (4C) had a storage deficit of approximately 9.0 MG which is now addressed through interconnecting these zones with new pipelines and therefore reducing the storage requirement for the 780 Zone to 10.0 MG. This zone is supplied by the existing 8.00 MG Springview Reservoir and 1.98 MG Gardenia Reservoir.

3.1.3 1390 ZONE

An existing 12-inch 1390 Zone (6C) water line is located in Hidden Hills Road and in Wire Spring Trail east of the project site. This line is supplied by the Hidden Hills Reservoir having a capacity of 2.0 MG. The Santiago Booster Pump Station supplies the pressure to the 1390 pressure zone.

3.2 PROPOSED FACILITIES

There are no existing master planned water facilities currently available to service the upper pressures zones of the Esperanza Hills project and adjacent developments. However, YLWD is obligated by an existing development agreement to provide the necessary backbone facilities to supply and service the project as identified in the 2005 Water Master Plan. In anticipation of the proposed Esperanza Hills and future adjacent developments, YLWD completed the Northeast Area Planning Study (NEAPS) dated March 2013 by Carollo Engineers. It should be noted that Yorba Linda Estates has contributed $20,000 to fund the cost of the water system review and the preparation of the NEAPS. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends, in addition to the proposed project water

infrastructure facilities, that the following minimum offsite system improvements be made to support the supply needs of the proposed future projects:

1) Increase firm pumping capacity of the existing Fairmont Pump Station;
2) Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
3) Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
4) Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

As stated in the NEAPS, the combination of these proposed offsite District water system improvements and the proposed Esperanza Hills water infrastructure improvements will not only meet the demands of the future developments in the area but also improve the water service reliability and fire protection for the surrounding area. The Esperanza Hills development will be contributing their fair share of the recommended offsite improvements necessary to support the project and adjacent developments based on the NEAPS.

Figure 3-2 presents a Master Water Facilities Plan, which illustrates the boundaries of the project and the proposed regional water system facilities for the Esperanza Hills project and adjacent developments.

3.2.1 780 ZONE

A new 16-inch transmission pipeline will be constructed along existing Metropolitan Water District 100' wide easement located southwest of the project from Dorinda Road easterly and northerly along an existing roadway and public utility easement into the project site. This line will be connected to the existing 33-inch transmission line at Dorinda Road continue to a proposed 1200 Zone BPS located at the southwest corner of the Esperanza Hills project. This line will serve as the primary point of connection for the project site. The source of supply is fed from the Fairmont BPS.

3.2.2 1000 ZONE

A new 8-inch distribution pipeline will be constructed from the proposed 1200 Zone BPS to service the proposed 1000 Zone areas within the Esperanza Hills project. Located at the discharge line of the 1200 Zone BPS will be a pressure reducing station which will decrease the pressures to be able adequately serve the lots within the proposed 1000 Zone.

3.2.3 1200 ZONE

The new 12-inch transmission line will continue northeasterly from the proposed 1200 Zone Booster Pump Station to the proposed 1200 Zone underground Reservoir to serve the homes in the proposed 1200 Zone within the Esperanza Hills project. The 1200 Zone Booster Pump Station is sized to include one (1) fire flow and emergency natural gas pump at 1,500 gpm

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

PROPOSED WATER
TRANSMISSION LINE

TEXACO

1390 ZONE

FRIEND

PROPOSED PRESSURE
REDUCING STATION

1200 ZONE

1300 ZONE
(6B)

PROPOSED WATER
TRANSMISSION LINE

PROPOSED ZONE 1390
BOOSTER STATION
FIRM CAPACITY =290 GPM

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

PROPOSED PRESSURE
REDUCING STATION

1000 ZONE

PROPOSED WATER
OFFSITE 16
TRANSMISSION LINE

PROPOSED OFFSITE
CONNECTION TO
EXIST. WATER SYSTEM
(ZONE 780 SYSTEM)

PROPOSED ZONE 1200
BOOSTER STATION
FIRM CAPACITY =835 GPM

ESPERANZA HILLS
VTTM 17522

1390 ZONE (6C)

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

908 ZONE (5BR1)

LEGEND

- PROPOSED TRANSMISSION LINE
- FUTURE WATER BY OTHERS
- 12" EXISTING 12" WATER
- ZONE BOUNDARIES

800' 0 800'

SCALE IN FEET

STONEHAVEN - OPTION 1

FIGURE 3-2

ESPERANZA HILLS
PROPOSED WATER FACILITIES PLAN

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JN 09.1200.4.10 R:\09\1200\PRELIM\REPORTS\WAT Option 1\FIGURE 3-2.dwg 06/21/2013 08:41

(approx. 460-ft TDH), two (2) supply pumps at 835 gpm each, and one (1) pump at 200 gpm (approx. 460-ft TDH). The 1200 Zone Reservoir is sized for a total storage capacity of 0.7 MG. A pressure reducing station is also required to reduce the operating pressures from the 1390 Zone water system. This will provide redundancy to the water system in case the 1200 Zone Reservoir is non-operational for some unforeseen condition. A network of 8-inch distribution lines will also be proposed to serve the project development. The sizing of these facilities are preliminary and shall be verified during final design.

3.2.3 1390 ZONE

A 1390 Zone Booster Pump Station located at the proposed 1200 Zone Reservoir site is proposed to boost the water via a proposed onsite 12-inch transmission line to the proposed 1390 Zone underground Reservoir located at the northeast corner of the project site. The proposed 1390 Zone Booster Pump Station is sized to include one (1) fire flow and emergency natural gas pump at 1,500 gpm (approx. 230-ft TDH), two (2) supply pumps at 290 gpm each, and one (1) pump at 100 gpm (approx. 230-ft TDH). The reservoir is sized for a total storage capacity of 0.4 MG. A network of 8-inch distribution lines will also be proposed to serve the project development. The sizing of these facilities are preliminary and shall be verified during final design.

Section

4

WATER DEMANDS AND SIZING OF FACILITIES

This section provides the projected water demand for the Esperanza Hills project. As well as determine the relative mainline pipe sizes, reservoir storage requirements and booster pump station capacities.

4.1 PROJECTED WATER DEMANDS

The projected water demand factor of 1,070 gpd/du was used to determine the Average Day and Maximum Day Demands for the project. The 1000 zone has 40 proposed lots, the 1200 zone has 206 proposed lots, and the 1390 zone has 88 proposed residential lots (includes 2 estate residential lots) within the Esperanza Hills project. The adjacent Sage VTTM 17341 and Friend property developments are not included as part of the analysis. **Table 4-1** summarizes the projected Average Day, Maximum Day, and Peak Hour Demands for each water service zone within the project. As shown below the total estimated water demand generated by the Esperanza Hills project is approximately 0.36 MGD Average Day, 0.53 MGD Maximum Day, and 0.91 MGD Peak Hour.

TABLE 4-1

Water Demand Summary				
Watershed ID	**Tributary Lots (DU)**	**Average Day Demand (MGD)**	**Maximum Day Demand (MGD)**	**Peak Hour Demand (MGD)**
Esperanza Hills				
1000 Zone	40	0.04	0.06	0.11
1200 Zone	206	0.22	0.33	0.56
1390 Zone	88	0.09	0.14	0.24
Total	334	0.36	0.53	0.91

Note: Demands based on unit count within each zone assuming an approximate density of 1DU/ac.

4.2 RESERVOIR STORAGE

Based upon the estimated water demands, **Table 4-2** summarizes the required reservoir storage for each water service zone based upon the design criteria outlined in Section 2. The reservoir sizing presented in **Table 4-2**. The 1200 Zone and 1390 Reservoirs are sized to include storage for the Esperanza Hills project only unless agreements are reached with adjoining property owners and development agreements between adjoining property owners and YLWD are entered into as set forth above. Per the NEAPS, Esperanza Hills and Sage Development total storage

requirements for all pressure zones is approximately 1.30 MG. Please note that storage requirements discussed herein are estimates only. Per the YLWD 2005 Water Master Plan, the storage requirements do not include any allocation for fighting brush and wild fires, since the volume of water required to fight fires of this type is significantly beyond the capacity of the District to provide.

TABLE 4-2

RESERVOIR STORAGE REQUIREMENTS					
Watershed ID	**Average Day Demand (mgd)**	**Required Operational Storage (MG)**	**Required Emergency Storage (MG)**	**Required Fire Flow Storage (MG)**	**Total Required Storage (MG)**
Esperanza Hills					
1000 Zone	0.05	0.07	0.15	0.18	0.40
1200 Zone	0.22	0.33	0.66	0.18	1.17
1390 Zone	0.09	0.13	0.18	0.18	0.49

Note: Operational Storage is based on 1.48xADD. Emergency Storage is based on 3xADD. Fire Flow Demand is based on (1500 GPM for 2 hours).

The Esperanza Hills project is proposing to construct two underground reservoirs to supply the necessary storage and pressures needed to service the proposed 1200 Zone and 1390 Zone. The proposed 1200 Zone Reservoir capacity is 0.70 MG. The capacity of the 1390 Zone Reservoir is 0.40 MG. The water storage required for the homes within the proposed 1000 Zone will be supplied by the proposed 1200 Zone Reservoir.

4.3 WATER SYSTEM MODEL

A model of the proposed project water system shall be prepared and analyzed during final design to ensure that the project's water infrastructure system is designed to meet YLWD's design minimum and maximum requirements for system pressures, pipe velocity, reservoir storage, and fire flow capacities. **Figure 4-1** presents the Proposed Water Facilities Plan, which illustrates the proposed water facility improvements and their relative sizes based on preliminary estimates.

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

PROPOSED WATER
TRANSMISSION LINE

TEXACO

1390 ZONE

FRIEND

PROPOSED PRESSURE
REDUCING STATION

1200 ZONE

1300 ZONE
(6B)

PROPOSED WATER
TRANSMISSION LINE

PROPOSED ZONE 1390
BOOSTER STATION
FIRM CAPACITY =290 GPM

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

PROPOSED PRESSURE
REDUCING STATION

1000 ZONE

PROPOSED WATER
OFFSITE 16
TRANSMISSION LINE

PROPOSED OFFSITE
CONNECTION TO
EXIST. WATER SYSTEM
(ZONE 780 SYSTEM)

PROPOSED ZONE 1200
BOOSTER STATION
FIRM CAPACITY =835 GPM

1390 ZONE (6C)

ESPERANZA HILLS
VTTM 17522

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

908 ZONE (5BR1)

LEGEND

- PROPOSED TRANSMISSION LINE
- PROPOSED DISTRIBUTION LINE
- FUTURE WATER BY OTHERS
- 12" EXISTING 12" WATER
- ZONE BOUNDARIES

N

800' 0 800'

SCALE IN FEET

STONEHAVEN - OPTION 1

FIGURE 4-1

ESPERANZA HILLS
PROPOSED WATER FACILITIES PLAN

KWC ENGINEERS
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1880 COMPTON AVENUE, SUITE 100 • CORONA, CA. 92881-3370 • 951-734-2130

JN 09.1200.4.10 R:\09\1200\PRELIM\REPORTS\WAT Option 1\FIGURE 4-1.dwg 06/24/2013 09:58

Section

5
PHASING & CONCLUSIONS

This section discusses the anticipated construction phasing of the proposed water infrastructure needed to support the Esperanza Hills project. It also identifies and summarizes the master planned water infrastructure required.

5.1 PROJECT PHASING

The Esperanza Hills project will be developed in two main water infrastructure construction phases. The first phase consist of construction the necessary water infrastructure to support the homes within the 1000 Zone and 1200 Zone which includes the construction of the 1200 Zone Booster Pump Station and Reservoir. The second phase consists of construction the necessary water infrastructure to support the homes within the 1390 Zone which includes the construction of the 1390 Reservoir.

5.2 CONCLUSIONS

The Esperanza Hills project will require the following Water Infrastructure to be constructed for the build-out condition:

YLWD Capital Improvements

- Increase firm pumping capacity of the existing Fairmont Pump Station;
- Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
- Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
- Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

Esperanza Hills Infrastructure Improvements

- 16-inch 780 Zone offsite transmission waterline along existing 100’ MWD Easement and 50’ Roadway/PUE from existing 33-inch transmission pipeline (780 Zone) at Dorinda Road to proposed 1200 Zone Booster Pump Station;

- 12-inch 1200 Zone onsite waterline within the project from the proposed 1200 Zone Booster Pump Station to proposed 1200 Zone Reservoir and 1390 Zone Booster Pump Station;
- 12-inch 1390 Zone onsite waterline within the project from the proposed 1390 Zone Booster Pump Station to proposed 1390 Zone Reservoir;
- Proposed 1200 Booster Pump Station completed to its ultimate firm capacity of 835 gpm;
- Proposed 1390 Booster Pump Station completed to its ultimate firm capacity of 290 gpm;
- Proposed 1390/1200 and 1200/1000 Pressure Reducing Station;
- 0.7 MG 1200 Zone Reservoir within project site;
- 0.4 MG 1390 Zone Reservoir within project site; and
- 8-inch onsite water distribution lines.

These proposed water infrastructure facilities with respect to their proximate locations, alignments, and sizes are consistent with the YLWD 2005 Domestic Water System Master Plan, 2013 NEAPS, and related water system studies in the YLWD service area. The proposed Esperanza Hills project onsite water facilities presented in this report are preliminary estimates of the anticipated water facilities necessary to service the project needs. Further detailed studies may be required by YLWD during the development phase of the project.

The proposed YLWD capital improvements identified in this report are preliminary and will be verified by the YLWD during final design. The Esperanza Hills project in discussions with YLWD will be contributing the project's fair share cost of these proposed offsite water improvements.

Appendix

A
REFERENCES

City of Yorba Linda General Plan – Land Use and Zoning Map, City of Yorba Linda, adopted in December 6, 1993, maps updated in June 2010.

Yorba Linda Water District 2005 Domestic Water System Master Plan, Carollo Engineers, May 10, 2005.

Yorba Linda Water District 2010 Urban Water Management Plan, Malcolm Pirnie, Inc., May 2011.

Yorba Linda Water District Standard Specifications and Drawings for Construction of Domestic Water and Sewer Facilities, Design Criteria for Water Facilities, November 2010.

Yorba Linda Water District 2013 Northeast Area Planning Study, Carollo Engineers, March, 2013.

Esperanza Hills Specific Plan, CAA Planning, October 2012.

Appendix

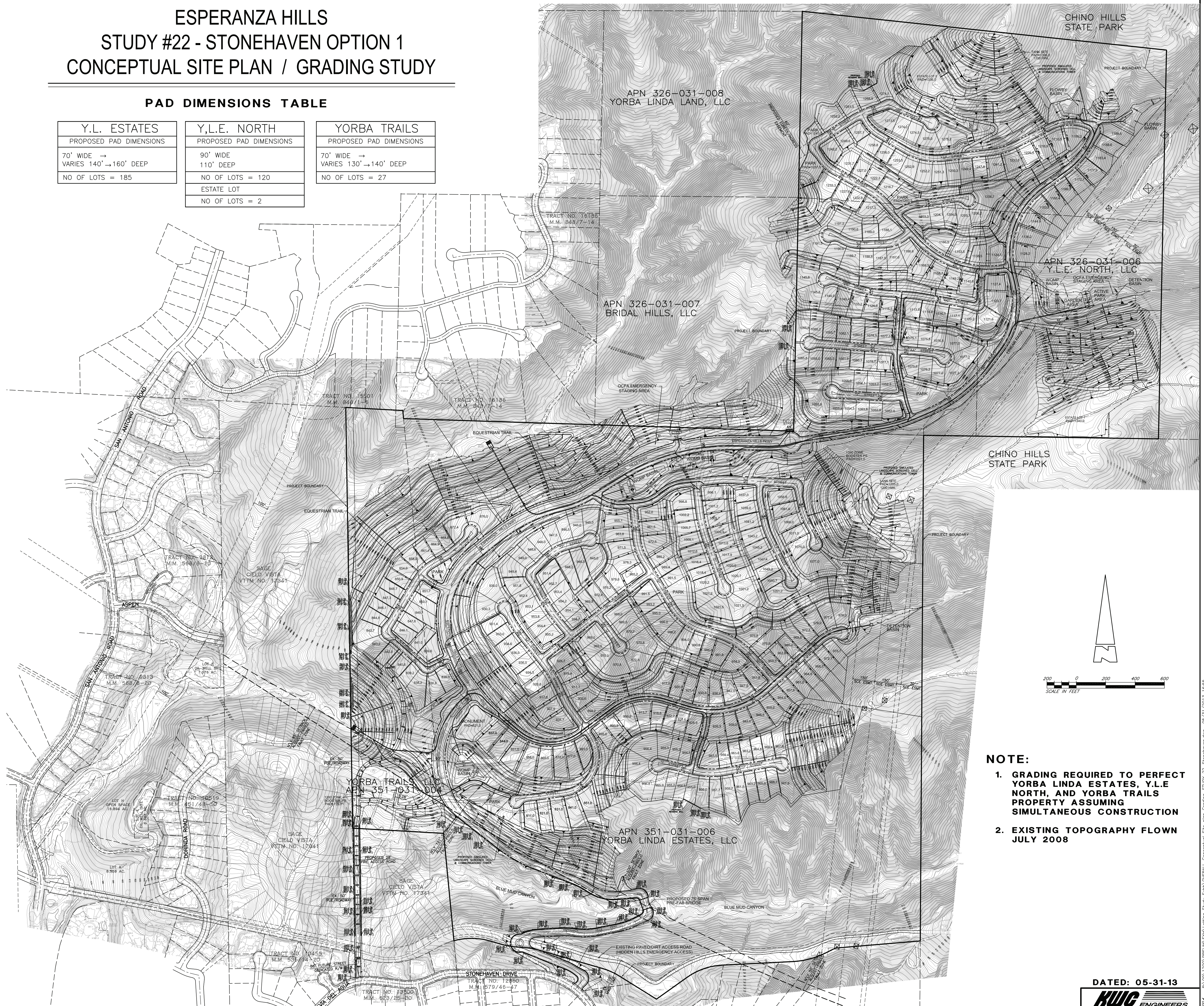
B

ESPERANZA HILLS CONCEPTUAL SITE PLAN /GRADING STUDY

ESPERANZA HILLS
STUDY #22 - STONEHAVEN OPTION 1
CONCEPTUAL SITE PLAN / GRADING STUDY

PAD DIMENSIONS TABLE

Y.L. ESTATES	Y.L.E. NORTH	YORBA TRAILS
PROPOSED PAD DIMENSIONS	PROPOSED PAD DIMENSIONS	PROPOSED PAD DIMENSIONS
70' WIDE → VARIES 140'→160' DEEP	90' WIDE 110' DEEP	70' WIDE → VARIES 130'→140' DEEP
NO OF LOTS = 185	NO OF LOTS = 120	NO OF LOTS = 27
	ESTATE LOT	
	NO OF LOTS = 2	



NOTE:

1. GRADING REQUIRED TO PERFECT YORBA LINDA ESTATES, Y.L.E NORTH, AND YORBA TRAILS PROPERTY ASSUMING SIMULTANEOUS CONSTRUCTION
2. EXISTING TOPOGRAPHY FLOWN JULY 2008

DATED: 05-31-13

KWC ENGINEERS

R:\09\1200\PRELIM\EXH\Lotting Study Exhb\OVERALL Conceptual Site plan Grading-STUDY 22-Stonehaven.dwg 05/31/2013 16:55

Appendix

C

YORBA LINDA WATER DISTRICT WATER SYSTEM ATLAS AND PRESSURE ZONE MAP

YLWD - WATER ATLAS COMPOSITE MAP
UPDATED: JANUARY 2012

1000 ZONE (5B)

1000 ZONE (5B)

1390 ZONE (6C)

908 ZONE (5BR1)

1000 ZONE (5B)

780-3 ZONE (4C)

780 -3 ZONE

706 ZONE

SANTIAGO BOOSTER STA.

SANTIAGO RESERVOIR 1.10 MG ELEV. 1000

HIDDEN HILLS BOOSTER STA.

PRS ZONE 706

12 ZONE-706

14 ZONE-706

12 ZONE-675

12 ZONE-675

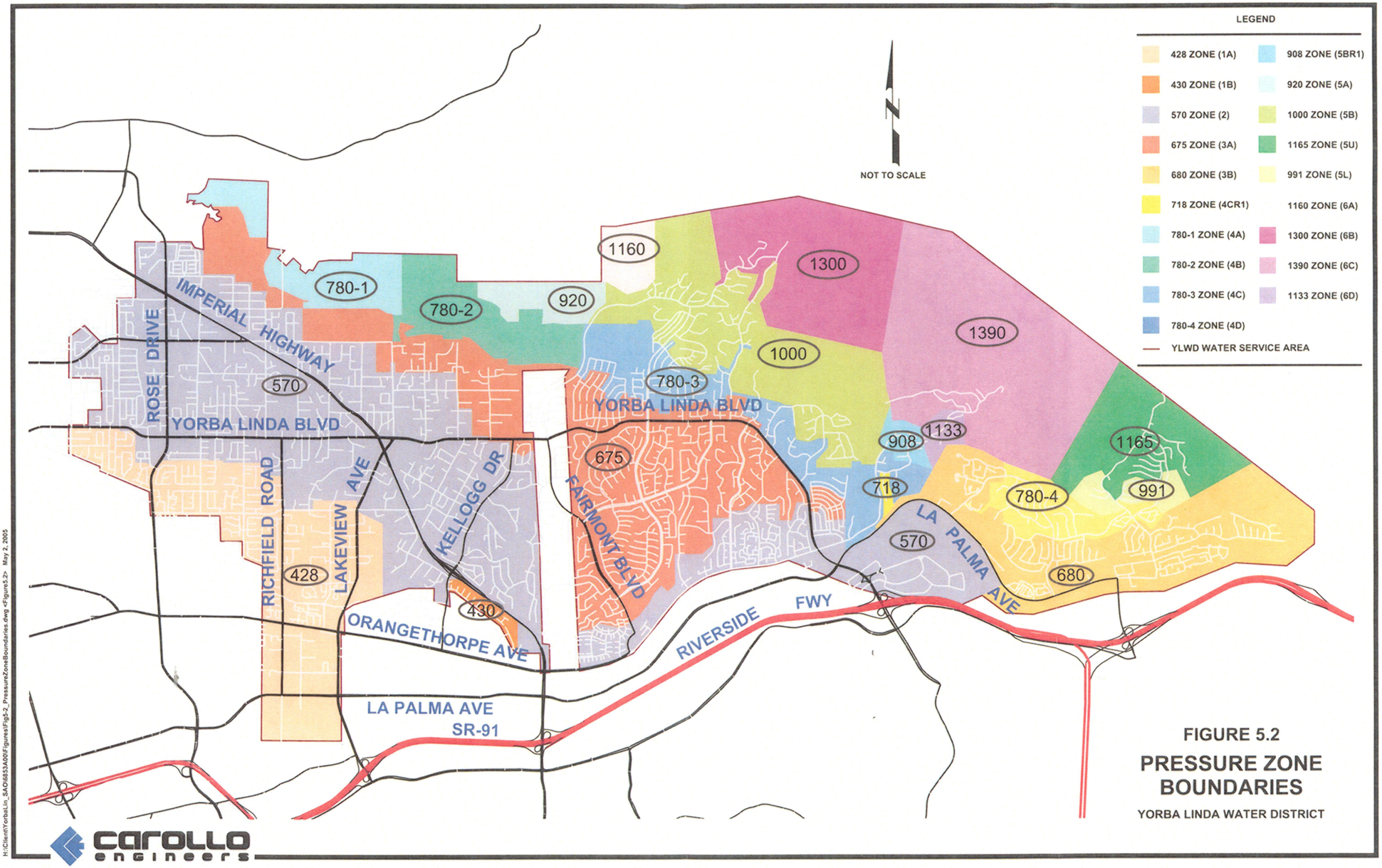


FIGURE 5.2

PRESSURE ZONE BOUNDARIES

YORBA LINDA WATER DISTRICT

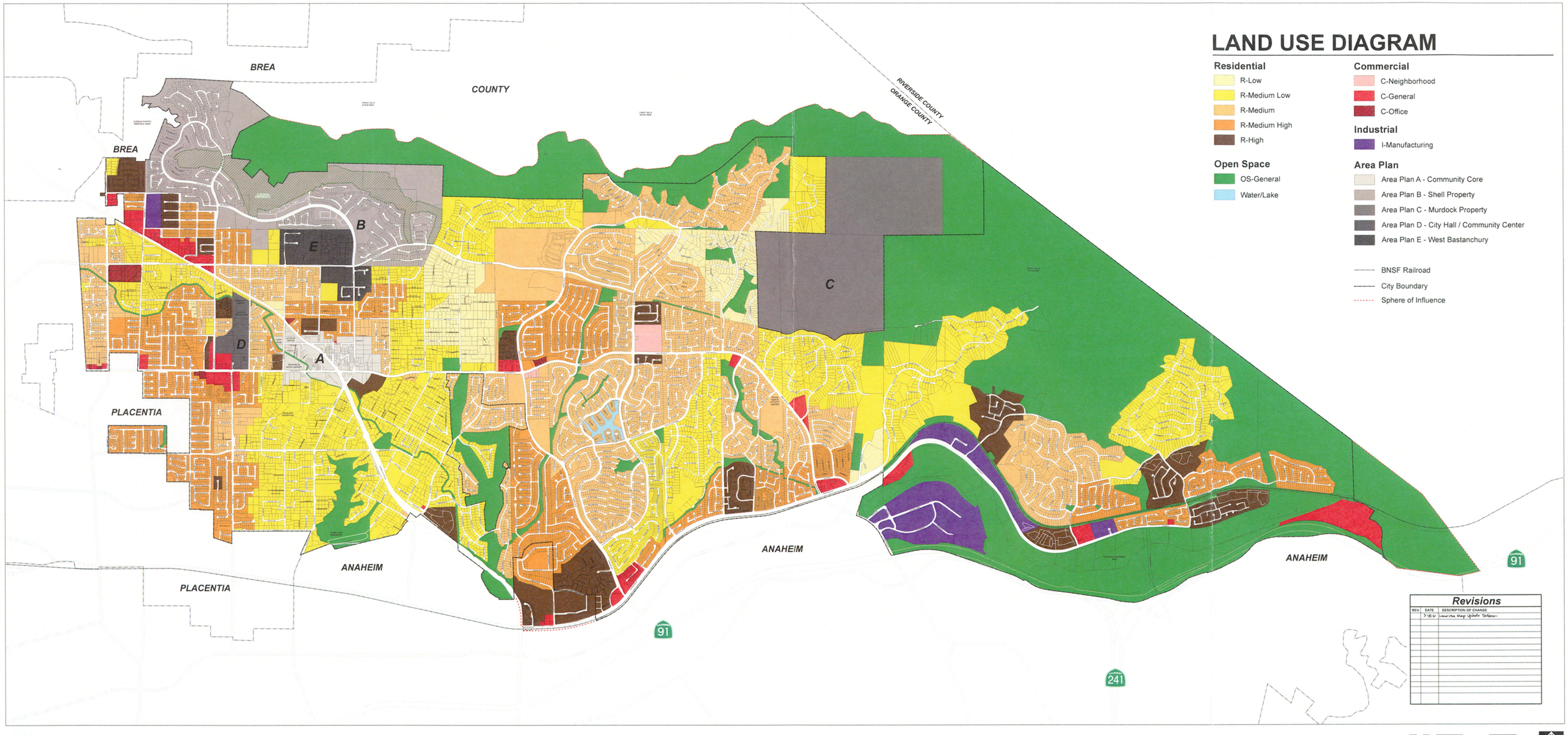
carollo engineers

H:\Client\YorbaLin_SAO\6853A00F\Figures\Fig5-2_PressureZoneBoundaries.dwg <Figure5.2> May 2, 2005

Appendix

D

CITY OF YORBA LINDA GENERAL PLAN LAND USE AND ZONING MAP



CITY OF YORBA LINDA LAND USE MAP

Zoning Legend

Residential
- RA - Residential Agriculture
- RLD - Residential Low Density
- RE - Residential Estate
- RS - Residential Suburban
- RU - Residential Urban
- RM - Residential Multiple
- MHP - Mobile Home Park

Commercial
- CN - Commercial Neighborhood
- CG - Commercial General
- CO - Commercial Office

Industrial
- M-1 - Light Manufacturing

Open / Public Space
- OSR - Open Space Ranchette
- OS - Open Space
- PS - Public and Semi-Public

Planned Development
- PD - Planned Development

Unincorporated
- UNC - Unincorporated Area

- Combining (O) (SH) (FP-2)
- Special Studies Zone
- Faults
- BNSF Railroad
- City Boundary
- Sphere of Influence

DISCLAIMER

This map is a public resource of general information. The feature data provided on this map represents the most accurate zoning and parcel information available at the most recent date of revision. In the event of a conflict between zoning information on this map and an adopted City Resolution or Ordinance, the City Resolution or Ordinance shall govern. The City of Yorba Linda makes no warranty, representation or guaranty as to the content, accuracy, or completeness of any information provided herein. The City of Yorba Linda shall assume no liability for any errors, omissions, or an inaccuracy in the information provided and is not responsible for any claims, losses or damages resulting from the use of this map.

Parks
- HURLESS BARTON PARK
- VETERANS SPORTS PARK
- SARATOGA PARK
- BROOKMONT
- PHILLIP S. PAXTON EQUESTRIAN CENTER
- JESSAMYN WEST PARK
- ROLAND E BIGONGER PARK
- KINGSBRIAR PARK
- FAIRMONT KNOLLS PARK
- RIO DEL ORO PARK
- VISTA DEL RANCHO PARK
- LUCIA KUST PARK
- NATHAN SHAPELL PARK
- LAS PALOMAS TENNIS PARK
- SAN ANTONIO PARK
- ARROYO PARK
- TRAVIS RANCH YOUTH PARK
- EASTSIDE SPORTS PARK
- BRYANT RANCH PARK
- BRUSH CANYON PARK
- BOX CANYON PARK
- JEAN WOODWARD PARK
- VISTA DEL VERDE PARK
- BLACK GOLD GOLF CLUB

Schools
- ROSE DRIVE ELEMENTARY SCHOOL
- YORBA LINDA MIDDLE SCHOOL
- MABEL PAINE ELEMENTARY SCHOOL
- LINDA VISTA ELEMENTARY SCHOOL
- FAIRMONT ELEMENTARY SCHOOL
- BERNARDO YORBA MIDDLE SCHOOL
- TRAVIS RANCH ELEMENTARY SCHOOL
- YORBA LINDA HIGH SCHOOL
- BRYANT RANCH ELEMENTARY SCHOOL
- TRAVIS RANCH
- HERITAGE OAKS ELEMENTARY SCHOOL
- LAKEVIEW ELEMENTARY SCHOOL

Planned Developments

(PD-1) - MONINO DEVELOPMENT	(PD-16) - BOX CANYON
(PD-2) - LYON	(PD-17) - SAVI RANCH
(PD-3) - YORBA RIDGE	(PD-18) - THE VILLAGES
(PD-4) - CERRO VERDE	(PD-19) - AN ASSOCIATES
(PD-5) - SAND DOLLAR	(PD-20) - VISTA DEL RIO
(PD-6) - TERRA LINDA	(PD-21) - RIVERBEND APARTMENTS
(PD-7) - PARKSIDE ESTATES	(PD-22) - COAL CANYON
(PD-8) - FAIRMONT HILLS	(PD-23) - LA TERRAZZA
(PD-9) - LUSH	(PD-24) - HISTORIC BRYANT RANCH
(PD-10) - EAST LAKE VILLAGE	(PD-25) - LEGACY AT BRYANT RANCH
(PD-11) - YORBA LINDA HILLS	(PD-26) - WEST BASTANCHURY
(PD-12) - DOMINGUEZ RANCH	(PD-27) - VISTA DEL VERDE
(PD-13) - TRAVIS RANCH	(PD-28) - PRESIDENTIAL WALK
(PD-14) - GREEN HILLS	(PD-29) - NORTH YORBA LINDA ESTATES
(PD-15) - GREEN HILLS MANUFACTURED	(PD-30) - HGT HOMES

CITY OF YORBA LINDA
OFFICIAL ZONING MAP

CERTIFIED BY: Steven K Ham DATE: 3-18-10

Revisions

REV.	DATE	DESCRIPTION OF CHANGE
A	FEB. 1994	Annex 93-02, 93-03
B	MAY 2000	Kellog, West End, & Shell Annexations: Zoning Map Update
C	JUNE 2009	Zoning Map Update

CITY OF YORBA LINDA ZONING MAP

0 500 1,000 2,000 3,000 4,000 Feet

PRELIMINARY WATER REPORT

for the ESPERANZA HILLS PROJECT
ASPEN WAY OPTION 2
in the Unincorporated Area of
County of Orange, California

PREPARED FOR :

Yorba Linda Estates, LLC
7114 East Stetson Drive, Suite 350
Scottsdale, AZ 85251

June 20, 2013

PREPARED BY:

KWC ENGINEERS
CIVIL ENGINEERS • PLANNERS • SURVEYORS

KWC Engineers
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REGISTERED PROFESSIONAL ENGINEER
MIKE C. TAING
No. 64263
Exp. 06-30-15
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STATE OF CALIFORNIA

Mike C. Taing, RCE 64263

TABLE OF CONTENTS

Section Name **Page Number**

Section

1
INTRODUCTION

1.1 PURPOSE OF STUDY

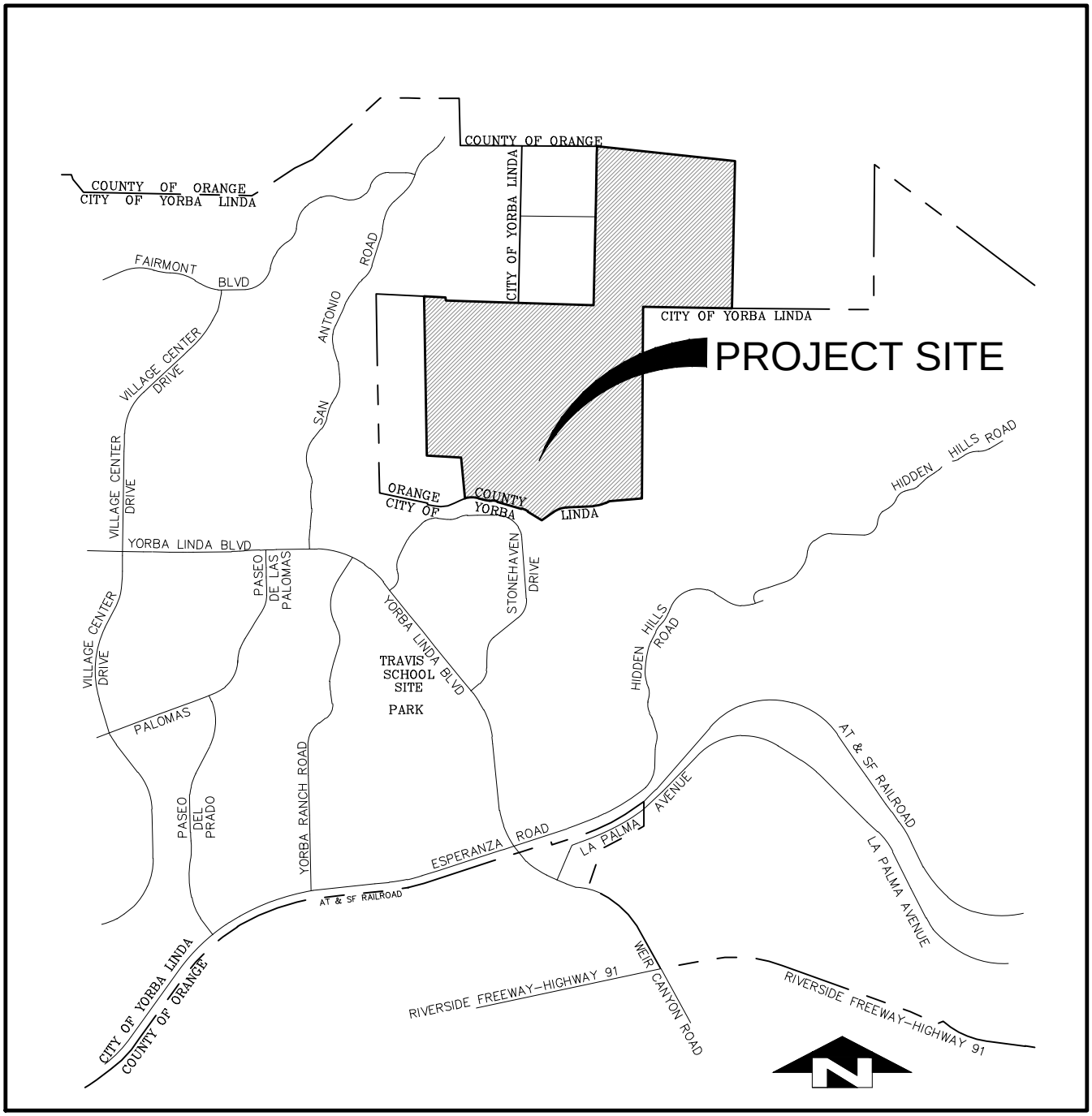
The purpose of this report is to discuss the water facility needs of the Esperanza Hills project as it relates to the Yorba Linda Water District (YLWD) plans for the domestic water system. More specifically, this report will address: the existing water system, the estimated project water demands, projected reservoir storage, proposed transmission and pumping facilities needed to support the proposed project and adjacent developments. It will also identify the approximate water distribution and transmission line alignments and pipe sizes, as well as proposed reservoir and pump station locations and sizes. The project water demands are based on the proposed land use and sizing criteria identified in the YLWD 2005 Water Master Plan and the YLWD 2013 Northeast Area Planning Study (NEAPS). The analysis presented in this report is based on the Esperanza Hills VTTM 17522 Aspen Way Option 2 Site Plan/Grading Study as shown in **Appendix B**.

1.2 PROJECT DESCRIPTION

The Esperanza Hills project is located in the unincorporated area in the County of Orange, in the City of Yorba Linda's sphere of influence. **Figure 1-1** shows a location map of the general area. The site is located north of Yorba Linda Boulevard and east of San Antonio Road and is within the Yorba Linda Water District's Improvement District 1 water service area. As proposed by the Esperanza Hills Specific Plan, the project site consists of 338 single family residential lots and two (2) single family residential Estate lots. The Esperanza Hills site is comprised of approximately 469 acres of undeveloped vacant land. However, of the 469 acres, approximately 310 acres will be graded based on the conceptual grading plan. **Figure 1-2** shows a vicinity map of the area illustrating the location of the project and the developments in the area. Other adjacent undeveloped properties include the: Sage property (VTTM 17341), the Bridal Hills (Friend) property, and Yorba Linda Land (Texaco) property. These properties are at various stages in the planning and entitlement process and have been excluded from the analysis presented in this report. The Esperanza Hills project is planned for a multi-faceted community consisting of open space, parks, trail system, and low density residential lots. San Antonio Road is the main north-south thoroughfares into the community connecting to Yorba Linda Boulevard and State Route 91 Freeway. The development of Esperanza Hills and adjacent communities will further enhance the northeastern portion of the City of Yorba Linda.

1.3 RELATED STUDIES

The Yorba Linda Water District Domestic Water System Master Plan, prepared by Carollo Engineers in May 2005, provides a regional study identifying existing and future proposed water

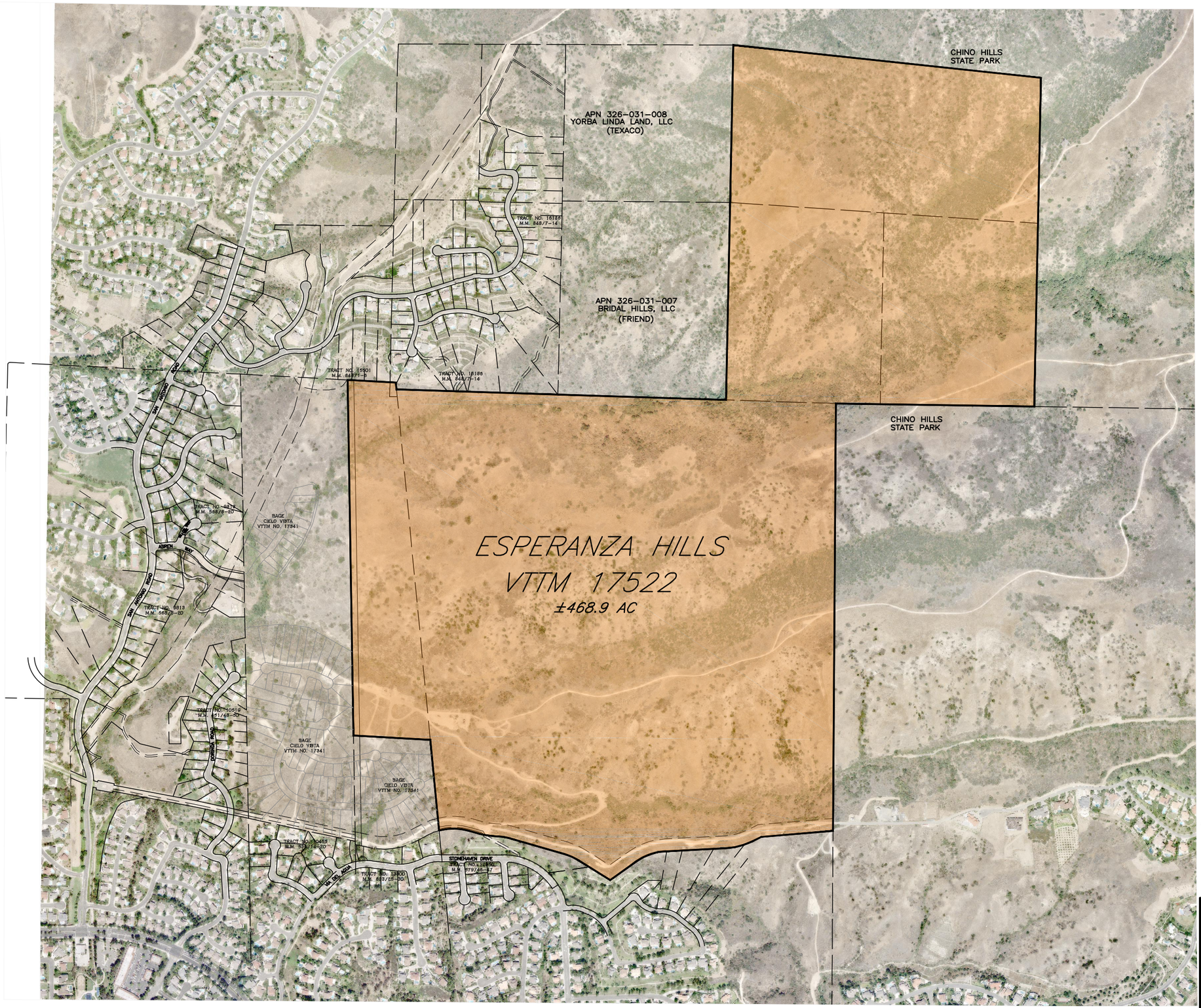


LOCATION MAP

NOT TO SCALE

KWC ENGINEERS
CIVIL ENGINEERS ● PLANNERS ● SURVEYORS
1880 COMPTON AVENUE, SUITE 100 ● CORONA, CA. 92881-3370 ● 951-734-2130

FIGURE 1-1



800' 0 800'

SCALE: 1"=800'

FIGURE 1-2

VICINITY MAP

KWC ENGINEERS

CIVIL ENGINEERS ● PLANNERS ● SURVEYORS
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supply, storage, and transmission facilities within the District's ultimate service area. The study also presents design criteria to be utilized in water supply, system pressures, pipeline velocities, fire flow criteria, storage volumes, operational storage, fire protection storage, emergency storage, and pump capacities. The report also provides information on the District's planning and evaluation criteria that can be applied to determine projected water demands.

In anticipation of the proposed Esperanza Hills and future adjacent developments, YLWD completed the Northeast Area Planning Study (NEAPS) dated March 2013 by Carollo Engineers. It should be noted that Yorba Linda Estates has contributed $20,000 to fund the cost of the water system review and the preparation of the NEAPS. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends, in addition to the proposed project water infrastructure facilities, that the following minimum offsite system improvements be made to support the supply needs of the proposed future projects:

1) Increase firm pumping capacity of the existing Fairmont Pump Station;
2) Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
3) Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
4) Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

As stated in the NEAPS, the combination of these proposed offsite District water system improvements and the proposed Esperanza Hills water infrastructure improvements will not only meet the demands of the future developments in the area but also improve the water service reliability and fire protection for the surrounding area.

Section

2
DESIGN CRITERIA

This section presents the design criteria used to evaluate recommended water system improvements required for the Esperanza Hills project. The criteria utilized in this study are in accordance with the YLWD 2005 Domestic Water System Master Plan, the 2010 YLWD Standard Specifications, and the 2013 NEAPS.

2.1 WATER DUTY FACTORS

The water duty factor (WDF) used in projecting average day water demands for the project is based on a 1.20 ac-ft/yr factor for similar Yorba Linda Water District (YLWD) developments as per discussions with YLWD staff engineers. Assuming a density of one (1) dwelling unit per acre, the WDF is equivalent to 1,070 gpd/du.

To convert Average Day Demand flows (ADD) to Maximum Day Demand flows (MDD) a factor of 1.48 was used. Similarly for Peak Hour Demand flows (PHD) a factor of 2.55 was used as described in the 2005 Water Master plan.

2.1 PLANNING CRITERIA

The planning criteria are used to evaluate the proposed water system hydraulic models. They are utilized as a check to confirm that the values being developed are reasonable. A list of planning criteria used in the evaluation of this project is shown in **Table 2-1.**

TABLE 2-1

PLANNING CRITERIA		
Description	**Value**	**Unit**
Maximum Pressure	125	psi
Minimum Pressure		
Static Condition	60	psi
Peak Hour	40	psi
MDD + Adjacent to a Fire	20	psi
Maximum Pipeline Velocity		
Average Day Analysis	5	fps
Maximum Day and Peak Hour Analysis	7	fps
Fire Flow Analysis	15	fps
Fire Fighting Capabilities		
Single Family Residential – 2 hour duration	1,500	gpm
Emergency Reservoir Storage Volume	1 MDD	-
Operational Reservoir Storage Volume	0.3 MDD	-

2.2 SYSTEM PRESSURES

The water distribution system has been designed to maintain static pressures between 60 psi and 125 psi. This criteria is used to initially divide a project between water service zones. **Appendix C** presents a Pressure Zone Boundaries Map, which illustrates the general pressure zone boundaries within the YLWD service area. **Figure 2-1** presents a Proposed Water System Pressure Zone Map, which identifies the proposed pressure zone boundaries for the Esperanza Hills project. Computer modeling will be performed during final design and submitted to YLWD to ensure that adequate residual pressures are obtained under all demand conditions. The system shall be designed to yield minimum static pressures of 60 psi at reservoirs high water level, residual pressures of 40 psi during non-fire demands and 20 psi during maximum day demand plus fire flow conditions. Where the maximum pressure at the service connection exceeds 80 psi, individual pressure regulators shall be equipped at the service connection in accordance with the Uniform Plumbing Code (UPC). Headloss in water lines is calculated using the Hazen-Williams equation with a "C" value of 120. Only locations where customers are served need to meet such pressure requirements.

2.3 PIPELINE VELOCITIES

Transmission and distribution pipelines were designed to have a maximum velocity of 5 fps with a maximum headloss of 5 ft/1000 ft (0.005 ft/ft) for the ADD non-fire scenarios. The maximum velocity can increase to 7 fps with a maximum headloss of 7 ft/1000 ft (0.007 ft/ft) for Maximum Day and Peak Hour non-fire scenarios. For fire flow scenarios, the pipe can have a maximum velocity of 15 fps with a maximum headloss of 15 ft/1000 ft (0.015 ft/ft).

2.4 STORAGE VOLUMES

The total required volume of storage in a water system consists of water for operational storage, emergency storage and fire flow storage. As discussed and directed by YLWD, the Esperanza Hills project's operational storage and emergency storage is required to be equivalent to 30 percent of the maximum day demand and 100 percent of the maximum day demand, respectively. Fire flow and duration requirements were assumed to be 1500 gpm for 2 hour duration for single family residential developments which equals 018 MG**.** However, in other cases if a school or public facility is proposed within the zone, the fire flow demand could increase to 3500 gpm for 3 hours which equals a required storage of 0.63 MG. Water reservoir storage requirements are evaluated on a zone-by-zone basis.

2.5 PUMP CAPACITY

Booster Pump Stations should be able to fill reservoirs such that levels at the end of the day are the same or higher than those at the beginning of the day, based on MDD. Pump station capacity and the ability to transfer water to higher zones from lower zones, are evaluated on a zone-by-zone basis. Maximum day demands are compared with pump station capacities, with the largest unit out of service.

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

TEXACO
1390 ZONE

FRIEND
1200 ZONE

1300 ZONE
(6B)

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

1000 ZONE
(5B)

1390 ZONE (6C)

1000 ZONE
ESPERANZA HILLS
VTTM 17522

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

1000 ZONE
(5B)

908 ZONE (5BR1)

LEGEND

- 1390 PRESSURE ZONE
- 1200 PRESSURE ZONE
- 1000 PRESSURE ZONE
- ZONE BOUNDARIES

N

800' 0 800'

SCALE IN FEET

ASPEN WAY - OPTION 2

FIGURE 2-1

PROPOSED WATER SYSTEM
PRESSURE ZONE MAP

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2.6 FIRE FLOW REQUIREMENTS

The Orange County Fire Authority (OCFA) is the agency responsible for establishing the fire flow requirements for the YLWD's service area. These flows are based on the current California Fire Code (CFC). **Table 2-1** summarizes the minimum fire flow requirements for each land use category.

TABLE 2-1

Fire Flow Requirements			
Land Use category	**Minimum Fire Flow Required (gpm)**	**Minimum No. of Hydrants**	**Duration (hr)**
Single Family Residential	1,500	1	2
Multi-Family Residential	2,500	3	2
Public Facilities/Schools	3,500	4	3
Commercial	2,500	3	3
Industrial	5,000	5	4
Hospital	5,000	5	4

The Esperanza Hills project is proposing to provide the minimum fire flow storage of based 1,500 gpm for a 2 hour duration with a minimum residual pressure of 20 psi to meet OCFA's and YLWD's fire flow requirements for single family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinklers systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a Very High Fire Hazard Severity Zone (VHFSZ).

Section

3

EXISTING AND PROPOSED MASTER PLAN FACILITIES

This section discusses the existing and proposed master plan water facilities as identified in YLWD 2005 Domestic Water System Master Plan report in the vicinity of the project. The 469-acre Esperanza Hills project development (portion of the Murdock/Pacific Holding development as previously identified in the YLWD Master Plan) was included in the 2005 Water Master Plan and this section further validates the details of the proposed water facilities reflecting current development conditions. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends several offsite water system improvements to be made to the support the supply needs of the proposed future project, in addition to the proposed project water infrastructure facilities.

3.1 EXISTING FACILITIES

The Esperanza Hills project is located north of Stonehaven Drive and east of San Antonio Road in the unincorporated areas of the County of Orange and lying within the YLWD's Improvement District 1 water service area. The existing water facilities in the vicinity of the project are located within the following water service zones, see **Table 3-1**.

TABLE 3-1

Existing Water Facilities		
Zone	**Street**	**Pipe Size**
1000 (5B)	San Antonio Road	10"
780-3 (4C)	MWD easement	33"
1000 (5B)	Stonehaven Drive	12"
Santiago Reservoir - 1000 (5B)	Green Crest Drive	12"
Hidden Hills Reservoir - 1390 (6C)	Wire Spring Trail	12"

Figure 3-1 presents the YLWD Water Distribution System Map, which illustrates the YLWD's existing water system facilities within their water service area.

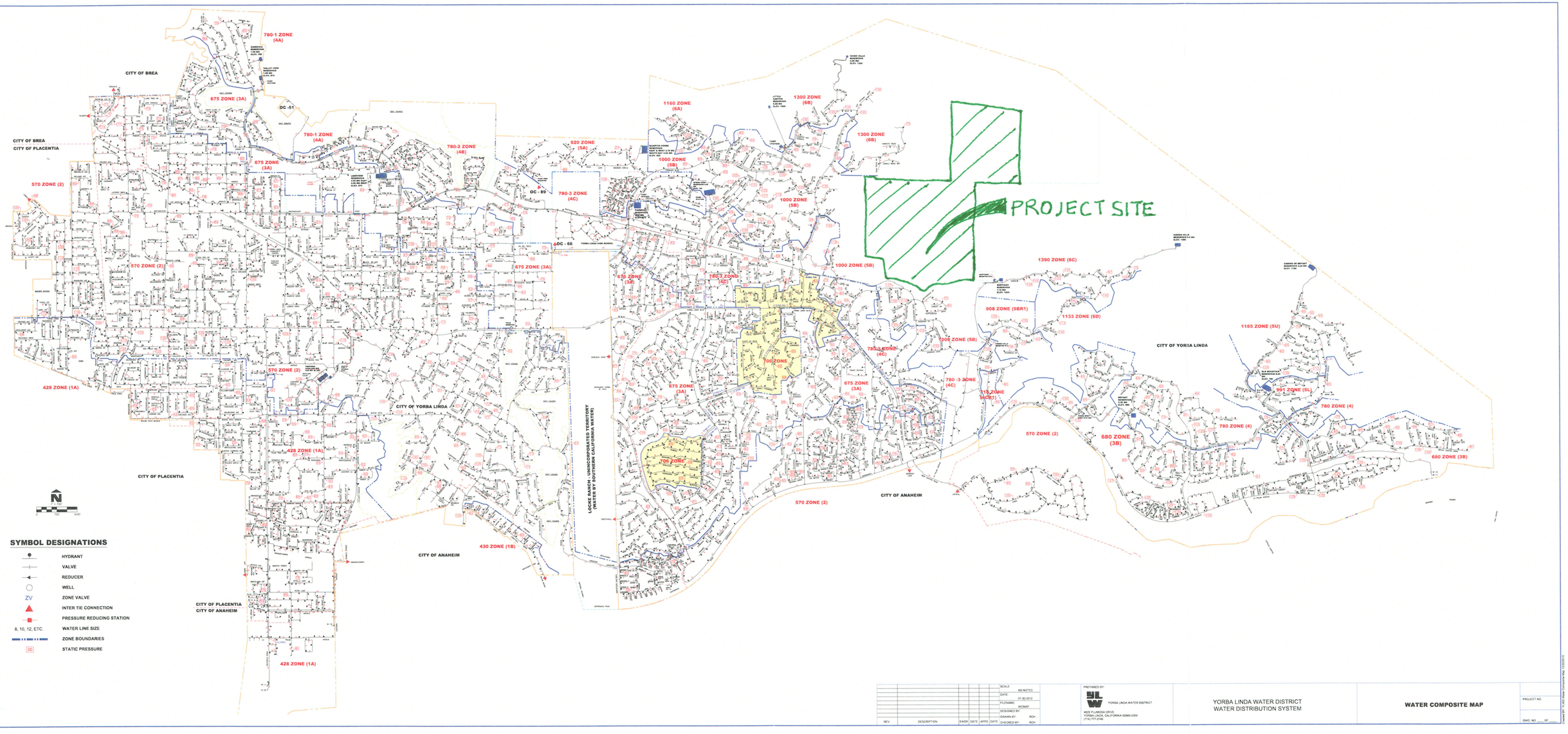
780-1 ZONE (4A)
CITY OF BREA
675 ZONE (3A)
OC -51
CITY OF BREA
CITY OF PLACENTIA
780-1 ZONE (4A)
780-2 ZONE (4B)
675 ZONE (3A)
570 ZONE (2)
OC - 89
780-3 ZONE (4C)
920 ZONE (5A)
1160 ZONE (6A)
1300 ZONE (6B)
1000 ZONE (5B)
1300 ZONE (6B)
1000 ZONE (5B)
PROJECT SITE
OC - 66
YORBA LINDA WATER BOWL
570 ZONE (2)
675 ZONE (3A)
670 ZONE (3B)
780-3 ZONE (4C)
1000 ZONE (5B)
1390 ZONE (6C)
908 ZONE (5BR1)
1133 ZONE (6D)
1165 ZONE (5U)
CITY OF YORBA LINDA
706 ZONE
675 ZONE (3A)
780-3 ZONE (4C)
675 ZONE (3A)
780-3 ZONE (4C)
908 ZONE (5BR1)
991 ZONE (5L)
780 ZONE (4)
570 ZONE (2)
680 ZONE (3B)
780 ZONE (4)
680 ZONE (3B)
428 ZONE (1A)
570 ZONE (2)
CITY OF YORBA LINDA
706 ZONE
570 ZONE (2)
CITY OF ANAHEIM
428 ZONE (1A)
CITY OF PLACENTIA
LOCKE RANCH - UNINCORPORATED TERRITORY (WATER BY SOUTHERN CALIFORNIA WATER)
430 ZONE (1B)
CITY OF ANAHEIM
CITY OF PLACENTIA
CITY OF ANAHEIM
428 ZONE (1A)
SYMBOL DESIGNATIONS
HYDRANT
VALVE
REDUCER
WELL
ZV
ZONE VALVE
INTER TIE CONNECTION
PRESSURE REDUCING STATION
8, 10, 12, ETC.
WATER LINE SIZE
ZONE BOUNDARIES
00
STATIC PRESSURE
SCALE
AS-NOTED
DATE
01-30-2012
FILENAME
WCMAP
DESIGNED BY
DRAWN BY
ROH
CHECKED BY
ROH
REV
DESCRIPTION
ENGR
DATE
APPD
DATE
PREPARED BY:
YORBA LINDA WATER DISTRICT
4622 PLUMOSA DRIVE
YORBA LINDA, CALIFORNIA 92885-0309
(714) 777-3746
YORBA LINDA WATER DISTRICT
WATER DISTRIBUTION SYSTEM
WATER COMPOSITE MAP
PROJECT NO.
DWG. NO. ____ OF ____

FIGURE 3-1

3.1.1 1000 ZONE

An existing 10-inch 1000-1 zone (5B) line is located in San Antonio Road and an 8-inch line is located in Aspen Way which connects to the 36-inch transmission line along the Metropolitan Water District (MWD) pipeline. This zone is supplied by the Little Canyon Reservoir having a capacity of 0.88 million gallons, and by the Santiago Reservoir having a capacity of 1.10 million gallons, both with a high water elevation of 1000 feet. Three booster stations supply the 1000 zone with pressure. These booster stations are identified as the Fairmont Booster Pump Station (BPS), the Springview BPS, and the Hidden Hills BPS.

An existing 12-inch 1000-2 Zone (5B) water line is also located in the MWD easement and in Stonehaven Drive at Davenport Circle south of the project site. This line is supplied by the Hidden Hills Booster Station and 1000 Zone Santiago Reservoir.

3.1.2 780 ZONE

An existing 36-inch/33-inch 780 Zone (4C) transmission water line is located along the existing MWD easement southwest of the project site. According to the 2005 Water Master Plan, Zones 780 (4A), 780 (4B), and 780 (4C) had a storage deficit of approximately 9.0 MG which is now addressed through interconnecting these zones with new pipelines and therefore reducing the storage requirement for the 780 Zone to 10.0 MG. This zone is supplied by the existing 8.00 MG Springview Reservoir and 1.98 MG Gardenia Reservoir.

3.1.3 1390 ZONE

An existing 12-inch 1390 Zone (6C) water line is located in Hidden Hills Road and in Wire Spring Trail east of the project site. This line is supplied by the Hidden Hills Reservoir having a capacity of 2.0 MG. The Santiago Booster Pump Station supplies the pressure to the 1390 pressure zone.

3.2 PROPOSED FACILITIES

There are no existing master planned water facilities currently available to service the upper pressures zones of the Esperanza Hills project and adjacent developments. However, YLWD is obligated by an existing development agreement to provide the necessary backbone facilities to supply and service the project as identified in the 2005 Water Master Plan. In anticipation of the proposed Esperanza Hills and future adjacent developments, YLWD completed the Northeast Area Planning Study (NEAPS) dated March 2013 by Carollo Engineers. It should be noted that Yorba Linda Estates has contributed $20,000 to fund the cost of the water system review and the preparation of the NEAPS. The NEAPS analyzes the District's existing water system and recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two separate reservoirs to be built on site at the 1200 and 1390 foot elevations. The NEAPS also recommends, in addition to the proposed project water

infrastructure facilities, that the following minimum offsite system improvements be made to support the supply needs of the proposed future projects:

1) Increase firm pumping capacity of the existing Fairmont Pump Station;
2) Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
3) Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
4) Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

As stated in the NEAPS, the combination of these proposed offsite District water system improvements and the proposed Esperanza Hills water infrastructure improvements will not only meet the demands of the future developments in the area but also improve the water service reliability and fire protection for the surrounding area. The Esperanza Hills development will be contributing their fair share of the recommended offsite improvements necessary to support the project and adjacent developments based on the NEAPS.

Figure 3-2 presents a Master Water Facilities Plan, which illustrates the boundaries of the project and the proposed regional water system facilities for the Esperanza Hills project and adjacent developments.

3.2.1 780 ZONE

A new 16-inch transmission pipeline will be constructed along existing Metropolitan Water District 100' wide easement located southwest of the project from Dorinda Road easterly and northerly along an existing roadway and public utility easement into the project site. This line will be connected to the existing 33-inch transmission line at Dorinda Road and continue to a proposed 1200 Zone BPS located at the southwest corner of the Esperanza Hills project. This line will serve as the primary point of connection for the project site. The source of supply is fed from the Fairmont BPS.

3.2.2 1000 ZONE

A new 8-inch distribution pipeline will be constructed from the proposed 1200 Zone BPS to service the proposed 1000 Zone areas within the Esperanza Hills project. Located at the discharge line of the 1200 Zone BPS will be a pressure reducing station which will decrease the pressures to be able adequately serve the lots within the proposed 1000 Zone.

3.2.3 1200 ZONE

The new 12-inch transmission line will continue northeasterly from the proposed 1200 Zone Booster Pump Station to the proposed 1200 Zone underground Reservoir to serve the homes in the proposed 1200 Zone within the Esperanza Hills project. The 1200 Zone Booster Pump Station is sized to include one (1) fire flow and emergency natural gas pump at 1,500 gpm

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

PROPOSED WATER
TRANSMISSION LINE

TEXACO

1390 ZONE

FRIEND

PROPOSED PRESSURE
REDUCING STATION

1200 ZONE

1300 ZONE
(6B)

PROPOSED WATER
TRANSMISSION LINE

PROPOSED ZONE 1390
BOOSTER STATION
FIRM CAPACITY =290 GPM

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

1000 ZONE
PROPOSED PRESSURE
REDUCING STATION

1000 ZONE
(5B)

PROPOSED ZONE 1200
BOOSTER STATION
FIRM CAPACITY =835 GPM

ESPERANZA HILLS
VTTM 17522

PROPOSED OFFSITE
CONNECTION TO
EXIST. WATER SYSTEM
(ZONE 780 SYSTEM)

PROPOSED WATER
OFFSITE 16"
TRANSMISSION LINE

1000 ZONE
(5B)

1390 ZONE (6C)

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

908 ZONE (5BR1)

LEGEND

- PROPOSED TRANSMISSION LINE
- FUTURE WATER BY OTHERS
- 12" EXISTING 12" WATER
- ZONE BOUNDARIES

N

800' 0 800'

SCALE IN FEET

ASPEN WAY - OPTION 2

FIGURE 3-2

ESPERANZA HILLS
PROPOSED WATER FACILITIES PLAN

KWC ENGINEERS
CIVIL ENGINEERS • PLANNERS • SURVEYORS
1880 COMPTON AVENUE, SUITE 100 • CORONA, CA. 92881-3370 • 951-734-2130

JN 09.1200.4.10 R:\09\1200\PRELIM\REPORTS\WAT\FIGURE 3-2.dwg 06/21/2013 08:19

(approx. 460-ft TDH), two (2) supply pumps at 835 gpm each, and one (1) pump at 200 gpm (approx. 460-ft TDH). The 1200 Zone Reservoir is sized for a total storage capacity of 0.7 MG. A pressure reducing station is also required to reduce the operating pressures from the 1390 Zone water system. This will provide redundancy to the water system in case the 1200 Zone Reservoir is non-operational for some unforeseen condition. A network of 8-inch distribution lines will also be proposed to serve the project development. The sizing of these facilities are preliminary and shall be verified during final design.

3.2.4 1390 ZONE

A 1390 Zone Booster Pump Station located at the proposed 1200 Zone Reservoir site is proposed to boost the water via a proposed onsite 12-inch transmission line to the proposed 1390 Zone underground Reservoir located at the northeast corner of the project site. The proposed 1390 Zone Booster Pump Station is sized to include one (1) fire flow and emergency natural gas pump at 1,500 gpm (approx. 230-ft TDH), two (2) supply pumps at 290 gpm each, and one (1) pump at 100 gpm (approx. 230-ft TDH). The reservoir is sized for a total storage capacity of 0.4 MG. A network of 8-inch distribution lines will also be proposed to serve the project development. The sizing of these facilities are preliminary and shall be verified during final design.

Section

4

WATER DEMANDS AND SIZING OF FACILITIES

This section provides the projected water demand for the Esperanza Hills project. As well as determine the relative mainline pipe sizes, reservoir storage requirements and booster pump station capacities.

4.1 PROJECTED WATER DEMANDS

The projected water demand factor of 1,070 gpd/du was used to determine the Average Day and Maximum Day Demands for the project. The 1000 zone has 46 proposed lots, the 1200 zone has 206 proposed lots, and the 1390 zone has 88 proposed residential lots (includes 2 estate residential lots) within the Esperanza Hills project. The adjacent Sage VTTM 17341 and Friend property developments are not included as part of the analysis. **Table 4-1** summarizes the projected Average Day, Maximum Day, and Peak Hour Demands for each water service zone within the project. As shown below the total estimated water demand generated by the Esperanza Hills project is approximately 0.36 MGD Average Day, 0.54 MGD Maximum Day, and 0.93 MGD Peak Hour.

TABLE 4-1

Water Demand Summary				
Watershed ID	**Tributary Lots (DU)**	**Average Day Demand (MGD)**	**Maximum Day Demand (MGD)**	**Peak Hour Demand (MGD)**
Esperanza Hills				
1000 Zone	46	0.05	0.07	0.13
1200 Zone	206	0.22	0.33	0.56
1390 Zone	88	0.09	0.14	0.24
Total	340	0.36	0.54	0.93

Note: Demands based on unit count within each zone assuming an approximate density of 1DU/ac.

4.2 RESERVOIR STORAGE

Based upon the estimated water demands, **Table 4-2** summarizes the required reservoir storage for each water service zone based upon the design criteria outlined in Section 2. The reservoir sizing presented in **Table 4-2**. The 1200 Zone and 1390 Reservoirs are sized to include storage for the Esperanza Hills project only unless agreements are reached with adjoining property owners and development agreements between adjoining property owners and YLWD are entered into as set forth above. Per the NEAPS, Esperanza Hills and Sage Development total storage

requirements for all pressure zones is approximately 1.30 MG. Please note that storage requirements discussed herein are estimates only. Per the YLWD 2005 Water Master Plan, the storage requirements do not include any allocation for fighting brush and wild fires, since the volume of water required to fight fires of this type is significantly beyond the capacity of the District to provide.

TABLE 4-2

RESERVOIR STORAGE REQUIREMENTS					
Watershed ID	**Average Day Demand (mgd)**	**Required Operational Storage (MG)**	**Required Emergency Storage (MG)**	**Required Fire Flow Storage (MG)**	**Total Required Storage (MG)**
Esperanza Hills					
1000 Zone	0.05	0.07	0.15	0.18	0.40
1200 Zone	0.22	0.33	0.66	0.18	1.17
1390 Zone	0.09	0.13	0.18	0.18	0.49

Note: Operational Storage is based on 1.48xADD. Emergency Storage is based on 3xADD. Fire Flow Demand is based on (1500 GPM for 2 hours).

The Esperanza Hills project is proposing to construct two underground reservoirs to supply the necessary storage and pressures needed to service the proposed 1200 Zone and 1390 Zone. The proposed 1200 Zone Reservoir capacity is 0.70 MG. The capacity of the 1390 Zone Reservoir is 0.40 MG. The water storage required for the homes within the proposed 1000 Zone will be supplied by the proposed 1200 Zone Reservoir.

4.3 WATER SYSTEM MODEL

A model of the proposed project water system shall be prepared and analyzed during final design to ensure that the project's water infrastructure system is designed to meet YLWD's design minimum and maximum requirements for system pressures, pipe velocity, reservoir storage, and fire flow capacities. **Figure 4-1** presents the Proposed Water Facilities Plan, which illustrates the proposed water facility improvements and their relative sizes based on preliminary estimates.

LITTLE CANYON RESERVOIR
0.88 MG ELEV. 1000

LITTLE CANYON
BOOSTER STATION

FAIRMONT RESERVOIR
7.50 MG
ELEV. 675

PROPOSED 0.40 MG
UNDERGROUND RESERVOIR
ELEV. 1390

PROPOSED WATER
TRANSMISSION LINE

TEXACO

1390 ZONE

FRIEND

PROPOSED PRESSURE
REDUCING STATION

1200 ZONE

1300 ZONE
(6B)

PROPOSED WATER
TRANSMISSION LINE

PROPOSED ZONE 1390
BOOSTER STATION
FIRM CAPACITY =290 GPM

PROPOSED 0.70 MG
UNDERGROUND RESERVOIR
ELEV. 1200

1000 ZONE
(5B)

780-3 ZONE
(4C)

SAGE
VTTM
17341

1000 ZONE
PROPOSED PRESSURE
REDUCING STATION

1000 ZONE
(5B)

PROPOSED ZONE 1200
BOOSTER STATION
FIRM CAPACITY =835 GPM

ESPERANZA HILLS
VTTM 17522

PROPOSED OFFSITE
CONNECTION TO
EXIST. WATER SYSTEM
(ZONE 780 SYSTEM)

PROPOSED WATER
OFFSITE 16"
TRANSMISSION LINE

1000 ZONE
(5B)

1390 ZONE (6C)

SANTIAGO
BOOSTER
STATION

SANTIAGO RESERVOIR
1.10 MG ELEV. 1000

HIDDEN HILLS
RESERVOIR 2.0 MG
ELEV. 1390

908 ZONE (5BR1)

LEGEND

- PROPOSED TRANSMISSION LINE
- PROPOSED DISTRIBUTION LINE
- FUTURE WATER BY OTHERS
- 12" EXISTING 12" WATER
- ZONE BOUNDARIES

N

800' 0 800'

SCALE IN FEET

ASPEN WAY - OPTION 2

FIGURE 4-1

ESPERANZA HILLS
PROPOSED WATER FACILITIES PLAN

KWC ENGINEERS
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1880 COMPTON AVENUE, SUITE 100 • CORONA, CA. 92881-3370 • 951-734-2130

JN 09.1200.4.10 R:\09\1200\PRELIM\REPORTS\WAT\FIGURE 4-1.dwg 06/24/2013 09:55

Section

5
PHASING & CONCLUSIONS

This section discusses the anticipated construction phasing of the proposed water infrastructure needed to support the Esperanza Hills project. It also identifies and summarizes the master planned water infrastructure required.

5.1 PROJECT PHASING

The Esperanza Hills project will be developed in two main water infrastructure construction phases. The first phase consist of construction the necessary water infrastructure to support the homes within the 1000 Zone and 1200 Zone which includes the construction of the 1200 Zone Booster Pump Station and Reservoir. The second phase consists of construction the necessary water infrastructure to support the homes within the 1390 Zone which includes the construction of the 1390 Reservoir.

5.2 CONCLUSIONS

The Esperanza Hills project will require the following Water Infrastructure to be constructed for the build-out condition:

YLWD Capital Improvements

- Increase firm pumping capacity of the existing Fairmont Pump Station;
- Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
- Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
- Additional offsite well capacity and pipeline upgrades (including zone reconfiguration improvements), to be determined by the District staff.

Esperanza Hills Infrastructure Improvements

- 16-inch 780 Zone offsite transmission waterline along existing 100’ MWD Easement and 50’ Roadway/PUE from existing 33-inch transmission pipeline (780 Zone) at Dorinda Road to proposed 1200 Zone Booster Pump Station;

- 12-inch 1200 Zone onsite waterline within the project from the proposed 1200 Zone Booster Pump Station to proposed 1200 Zone Reservoir and 1390 Zone Booster Pump Station;
- 12-inch 1390 Zone onsite waterline within the project from the proposed 1390 Zone Booster Pump Station to proposed 1390 Zone Reservoir;
- Proposed 1200 Booster Pump Station completed to its ultimate firm capacity of 835 gpm;
- Proposed 1390 Booster Pump Station completed to its ultimate firm capacity of 290 gpm;
- Proposed 1390/1200 and 1200/1000 Pressure Reducing Station;
- 0.7 MG 1200 Zone Reservoir within project site;
- 0.4 MG 1390 Zone Reservoir within project site; and
- 8-inch onsite water distribution lines.

These proposed water infrastructure facilities with respect to their proximate locations, alignments, and sizes are consistent with the YLWD 2005 Domestic Water System Master Plan, 2013 NEAPS, and related water system studies in the YLWD service area. The proposed Esperanza Hills project onsite water facilities presented in this report are preliminary estimates of the anticipated water facilities necessary to service the project needs. Further detailed studies may be required by YLWD during the development phase of the project.

The proposed YLWD capital improvements identified in this report are preliminary and will be verified by the YLWD during final design. The Esperanza Hills project in discussions with YLWD will be contributing the project's fair share cost of these proposed offsite water improvements.

Appendix

A
REFERENCES

City of Yorba Linda General Plan – Land Use and Zoning Map, City of Yorba Linda, adopted in December 6, 1993, maps updated in June 2010.

Yorba Linda Water District 2005 Domestic Water System Master Plan, Carollo Engineers, May 10, 2005.

Yorba Linda Water District 2010 Urban Water Management Plan, Malcolm Pirnie, Inc., May 2011.

Yorba Linda Water District Standard Specifications and Drawings for Construction of Domestic Water and Sewer Facilities, Design Criteria for Water Facilities, November 2010.

Yorba Linda Water District 2013 Northeast Area Planning Study, Carollo Engineers, March, 2013.

Esperanza Hills Specific Plan, CAA Planning, October 2012.

Appendix

B

ESPERANZA HILLS CONCEPTUAL SITE PLAN /GRADING STUDY

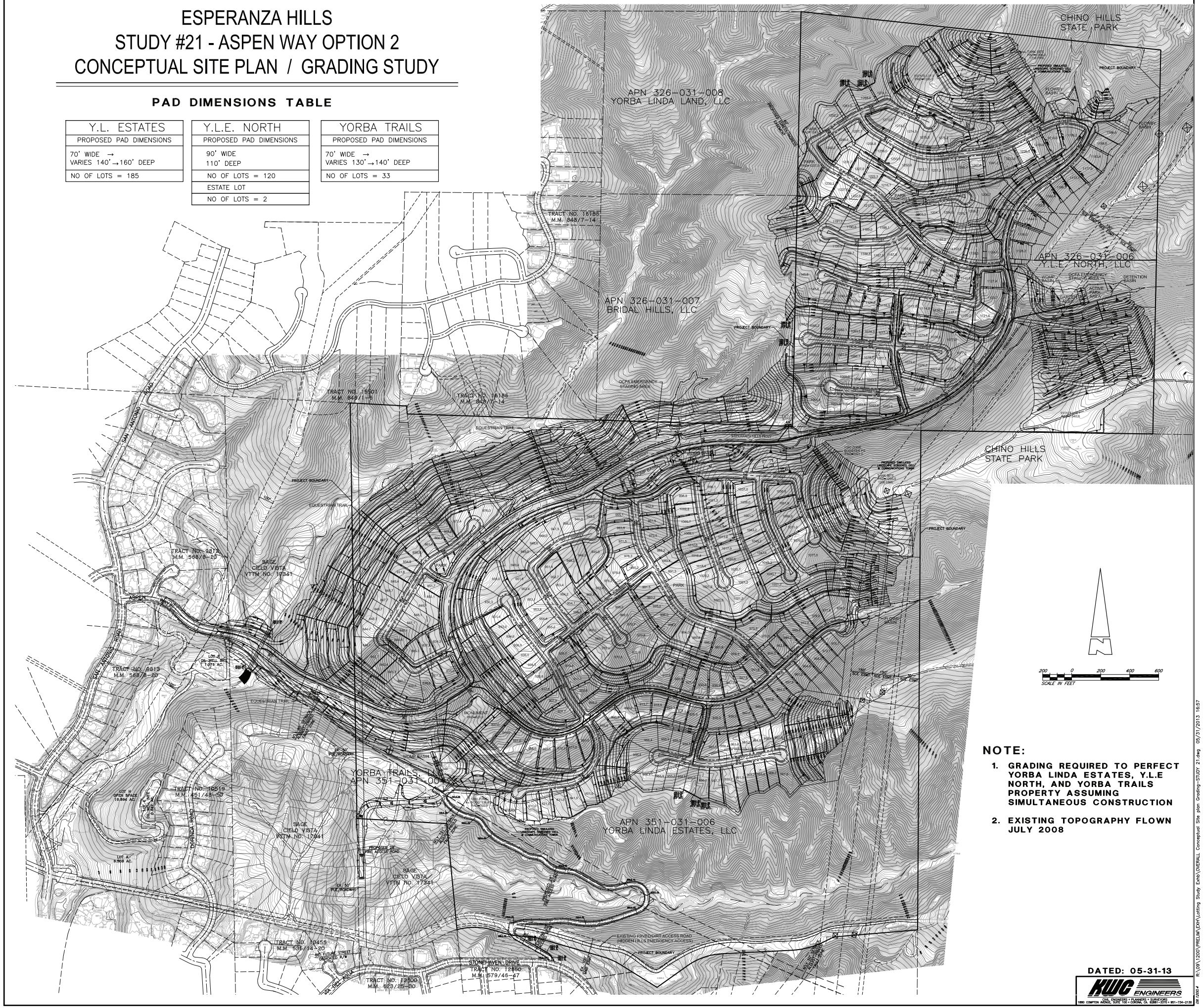
ESPERANZA HILLS
STUDY #21 - ASPEN WAY OPTION 2
CONCEPTUAL SITE PLAN / GRADING STUDY

PAD DIMENSIONS TABLE

Y.L. ESTATES
PROPOSED PAD DIMENSIONS
70' WIDE → VARIES 140'→160' DEEP
NO OF LOTS = 185

Y.L.E. NORTH
PROPOSED PAD DIMENSIONS
90' WIDE 110' DEEP
NO OF LOTS = 120
ESTATE LOT
NO OF LOTS = 2

YORBA TRAILS
PROPOSED PAD DIMENSIONS
70' WIDE → VARIES 130'→140' DEEP
NO OF LOTS = 33



NOTE:

1. GRADING REQUIRED TO PERFECT YORBA LINDA ESTATES, Y.L.E NORTH, AND YORBA TRAILS PROPERTY ASSUMING SIMULTANEOUS CONSTRUCTION
2. EXISTING TOPOGRAPHY FLOWN JULY 2008

DATED: 05-31-13

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09.1200.4 R:\09\1200\PRELIM\EXH\Lotting Study Exhb\OVERALL Conceptual Site plan Grading-STUDY 21.dwg 05/31/2013 16:57

Appendix

C

YORBA LINDA WATER DISTRICT WATER SYSTEM ATLAS AND PRESSURE ZONE MAP

YLWD - WATER ATLAS COMPOSITE MAP
UPDATED: JANUARY 2012

1000 ZONE (5B)

1000 ZONE (5B)

1390 ZONE (6C)

908 ZONE (5BR1)

1000 ZONE (5B)

780-3 ZONE (4C)

780 -3 ZONE

706 ZONE

SANTIAGO BOOSTER STA.

SANTIAGO RESERVOIR 1.10 MG ELEV. 1000

HIDDEN HILLS BOOSTER STA.

PRS ZONE 706

12 ZONE-706

14 ZONE-706

12 ZONE-675

12 ZONE-675

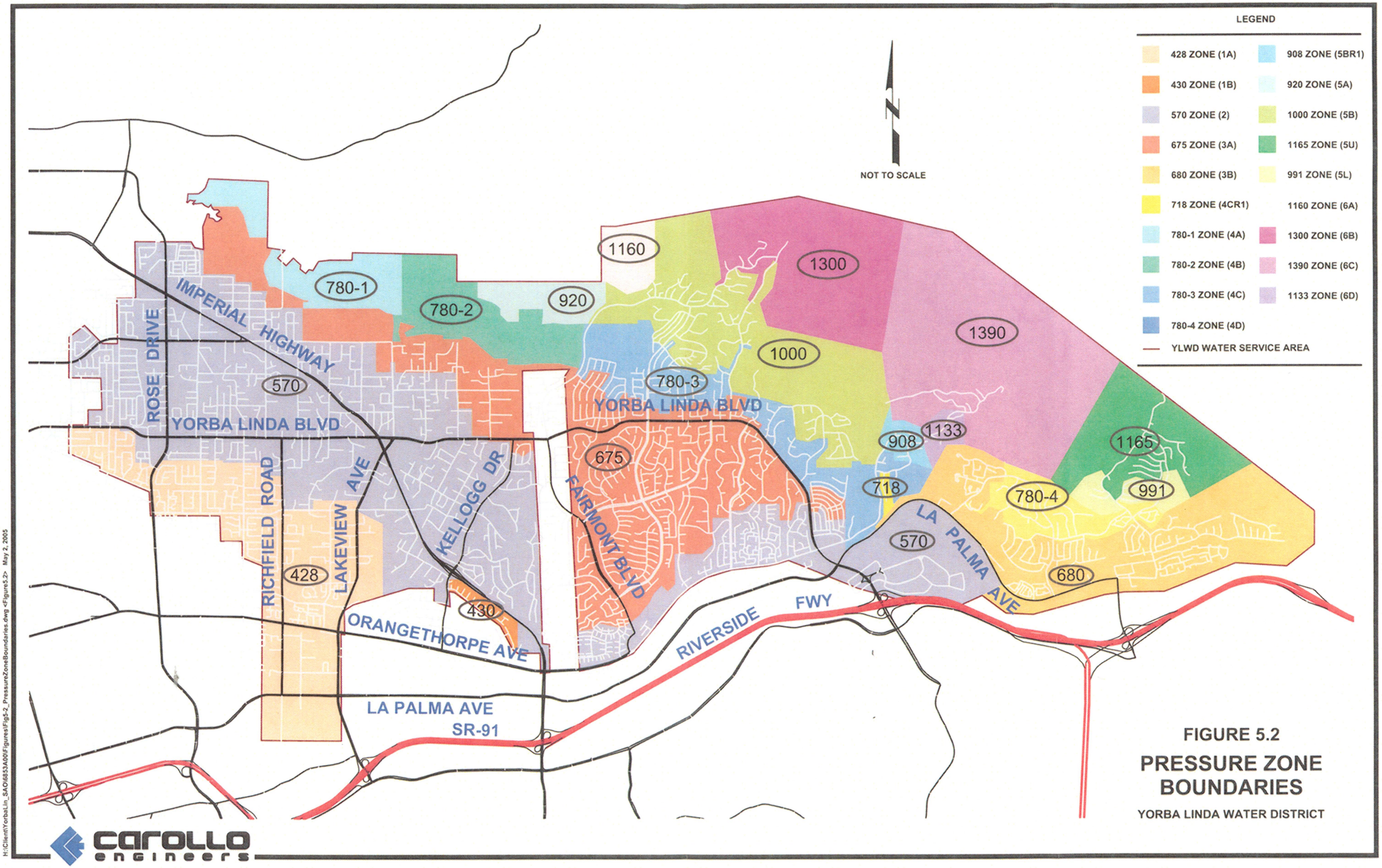


FIGURE 5.2

PRESSURE ZONE BOUNDARIES

YORBA LINDA WATER DISTRICT

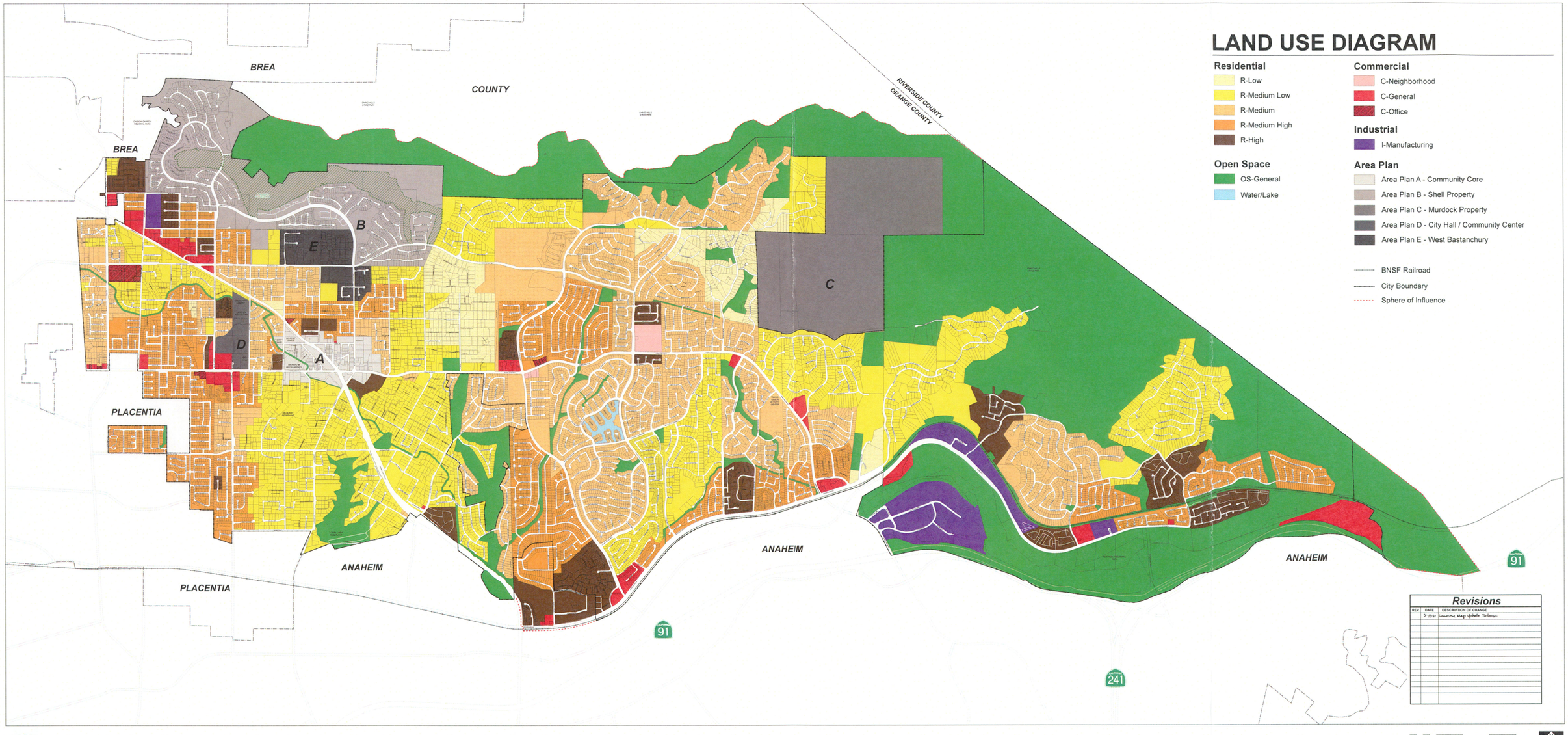
carollo engineers

H:\Client\YorbaLin_SAO\6853A00F\Figures\Fig5-2_PressureZoneBoundaries.dwg <Figure5.2> May 2, 2005

Appendix

D

CITY OF YORBA LINDA GENERAL PLAN LAND USE AND ZONING MAP



CITY OF YORBA LINDA LAND USE MAP

Zoning Legend

Residential
- RA - Residential Agriculture
- RLD - Residential Low Density
- RE - Residential Estate
- RS - Residential Suburban
- RU - Residential Urban
- RM - Residential Multiple
- MHP - Mobile Home Park

Commercial
- CN - Commercial Neighborhood
- CG - Commercial General
- CO - Commercial Office

Industrial
- M-1 - Light Manufacturing

Open / Public Space
- OSR - Open Space Ranchette
- OS - Open Space
- PS - Public and Semi-Public

Planned Development
- PD - Planned Development

Unincorporated
- UNC - Unincorporated Area

- Combining (O) (SH) (FP-2)
- Special Studies Zone
- Faults
- BNSF Railroad
- City Boundary
- Sphere of Influence

DISCLAIMER

This map is a public resource of general information. The feature data provided on this map represents the most accurate zoning and parcel information available at the most recent date of revision. In the event of a conflict between zoning information on this map and an adopted City Resolution or Ordinance, the City Resolution or Ordinance shall govern. The City of Yorba Linda makes no warranty, representation or guaranty as to the content, accuracy, or completeness of any information provided herein. The City of Yorba Linda shall assume no liability for any errors, omissions, or an inaccuracy in the information provided and is not responsible for any claims, losses or damages resulting from the use of this map.

Parks
- HURLESS BARTON PARK
- VETERANS SPORTS PARK
- SARATOGA PARK
- BROOKMONT
- PHILLIP S. PAXTON EQUESTRIAN CENTER
- JESSAMYN WEST PARK
- ROLAND E BIGONGER PARK
- KINGSBRIAR PARK
- FAIRMONT KNOLLS PARK
- RIO DEL ORO PARK
- VISTA DEL RANCHO PARK
- LUCIA KUST PARK
- NATHAN SHAPELL PARK
- LAS PALOMAS TENNIS PARK
- SAN ANTONIO PARK
- ARROYO PARK
- TRAVIS RANCH YOUTH PARK
- EASTSIDE SPORTS PARK
- BRYANT RANCH PARK
- BRUSH CANYON PARK
- BOX CANYON PARK
- JEAN WOODWARD PARK
- VISTA DEL VERDE PARK
- BLACK GOLD GOLF CLUB

Schools
- ROSE DRIVE ELEMENTARY SCHOOL
- YORBA LINDA MIDDLE SCHOOL
- MABEL PAINE ELEMENTARY SCHOOL
- LINDA VISTA ELEMENTARY SCHOOL
- FAIRMONT ELEMENTARY SCHOOL
- BERNARDO YORBA MIDDLE SCHOOL
- TRAVIS RANCH ELEMENTARY SCHOOL
- YORBA LINDA HIGH SCHOOL
- BRYANT RANCH ELEMENTARY SCHOOL
- TRAVIS RANCH
- HERITAGE OAKS ELEMENTARY SCHOOL
- LAKEVIEW ELEMENTARY SCHOOL

Planned Developments

(PD-1) - MONINO DEVELOPMENT	(PD-16) - BOX CANYON
(PD-2) - LYON	(PD-17) - SAVI RANCH
(PD-3) - YORBA RIDGE	(PD-18) - THE VILLAGES
(PD-4) - CERRO VERDE	(PD-19) - AN ASSOCIATES
(PD-5) - SAND DOLLAR	(PD-20) - VISTA DEL RIO
(PD-6) - TERRA LINDA	(PD-21) - RIVERBEND APARTMENTS
(PD-7) - PARKSIDE ESTATES	(PD-22) - COAL CANYON
(PD-8) - FAIRMONT HILLS	(PD-23) - LA TERRAZZA
(PD-9) - LUSH	(PD-24) - HISTORIC BRYANT RANCH
(PD-10) - EAST LAKE VILLAGE	(PD-25) - LEGACY AT BRYANT RANCH
(PD-11) - YORBA LINDA HILLS	(PD-26) - WEST BASTANCHURY
(PD-12) - DOMINGUEZ RANCH	(PD-27) - VISTA DEL VERDE
(PD-13) - TRAVIS RANCH	(PD-28) - PRESIDENTIAL WALK
(PD-14) - GREEN HILLS	(PD-29) - NORTH YORBA LINDA ESTATES
(PD-15) - GREEN HILLS MANUFACTURED	(PD-30) - HGT HOMES

CITY OF YORBA LINDA
OFFICIAL ZONING MAP

CERTIFIED BY: Steven K Ham DATE: 3-18-10

Revisions

REV.	DATE	DESCRIPTION OF CHANGE
A	FEB. 1994	Annex 93-02, 93-03
B	MAY 2000	Kellog, West End, & Shell Annexations: Zoning Map Update
C	JUNE 2009	Zoning Map Update

CITY OF YORBA LINDA ZONING MAP

0 500 1,000 2,000 3,000 4,000 Feet