APPENDIX J.2

Level 1 Sewer Study

THE RANCH
LEVEL 1 SEWER STUDY

1st Submittal: September 2018

Prepared Under The Direction Of:

DRAFT

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EXECUTIVE SUMMARY

The purpose of this Level 1 Sewer Study is to identify trunk main sewer facilities for proposed The Ranch Special Planning Area project. This study will demonstrate the ability of the proposed gravity sewers to serve The Ranch and offsite areas from the east.

The Ranch SPA encompasses 530.06 acres in the City of Rancho Cordova. The project is situated at eastern terminus of Chrysanthy Boulevard on the easterly side of Rancho Cordova Parkway, and approximately one half mile to the south of Douglas Boulevard. The proposed SPA development consists of mixed land uses and densities. There are proposed lots of low and medium density residential, private and public parks, private recreation center, private and public landscape lots, open spaces, public protected areas, commercial, and water quality/detention basins. Protected areas and a portion of roadway adjacent to protected areas, not subject to future development, account for 227.21 acres of the gross project area. The net developable area is 302.85 acres. The project is planned to be constructed in several phases.

Proposed sewer system improvements will serve The Ranch project needs, as well as the proposed Arista Del Sol to the east. Development of The Ranch will result in 1817 ESDs resulting in PWWF of 1.35 mgd. The upstream project to the east, Arista Del Sol, is 243.7 acres. ADS will result in 1462 ESD's and 1.14 mgd. Therefore, the total ESD's and PWWF are 3279 ESD's and 2.49 mgd exiting the site at Ranch Cordova Parkway.

The proposed trunk main will exit into existing 24" sewer line stubbed at the intersection of Rancho Cordova Parkway and Chrysanthy Boulevard. The existing 24" sewer line discharges into Aerojet Interceptor 1B (36" trunk main) flowing westerly into SASD facility S-132 lift station. The SASD system capacity plan shows The Ranch will sewer to the west.

Interim facilities or pump station are not expected to be required for The Ranch SPA.

INTRODUCTION

Level of Study - The Ranch sewer study is a Level 1 report which focuses on the design of Major Trunk and sewer facilities serving The Ranch SPA and potential upstream sewer sheds.

Location - The Ranch is located in Rancho Cordova, east of Rancho Cordova Parkway, between Douglas Blvd, Kiefer Road, and Grant Line Road. See the Vicinity Map, Figure 1.

Topography – Lower Morrison Creek South traverses The Ranch, generally along a southwesterly flow path, joined by lesser tributary channels entering the site on the northern and eastern boundaries. Existing site topography is undulating, ranging from approximately 168.5 feet to 200 feet in elevation (NGVD 1929). Adjacent property to north and west are developed residential while the properties to the south and east are similar rolling agricultural land uses. Adjacent offsite area may drain into the natural channel network.

Project Description - The Ranch is a residential subdivision consisting of 1374 single family lots, neighborhood park sites, and open space lots. Proposed site grading enables gravity sewer service throughout the project. The proposed in-tract collection system will discharge at a single point into off-site sewer in Rancho Cordova Parkway at the location shown on the Sewer Study Map.

Land Use and Zoning – The current land use is vacant, agricultural grazing land. The existing zoning is AG-80. Proposed zoning is Special Planning Area Current zoning consisting of General Plan uses (LDR, MDR, RMU, CMU, P/QP, P/OS, NR). The gross project area is 530.06 acres; protected areas/adjacent roadway comprises of 227.21 acres.

DESIGN

Assumptions – The Ranch sewer study is premised upon the following assumptions:

- There will be no future connections into the proposed on-site sewer system. Property east of the project will sewer to the west through future Chrysanthy. Property south of the project will swer to the south. Adjacent parcels north and west of The Ranch are already sewered or will remain as open space.
- There is adequate capacity in existing, downstream sewer facilities. (Please see attached email from SASD regarding downstream Aerojet 2 Interceptor has capacity without surcharge conditions as verified by SASD and SCRSD. (This section is being verified by SASD at time of draft report)
- Groundwater will be confirmed through future Geotechnical studies for the project. Recent information from monitoring wells in the area suggests groundwater is 140 below ground surface.

Approach – Design of the proposed The Ranch sewer system followed the sequence described as follows.

- Sewer sheds reflect project layout shown on the accompanying Sewer Shed Map.
- Design flows, summarized in Table A-1, Appendix A, adhere to SASD Design Standards, dated July 24, 2013.
- Pipe sizes and slopes meet applicable design criteria.

Design Criteria - Design of the proposed The Ranch sewer system is based on the following criteria.

- Sewer flow is calculated on the basis of 6 ESD (Equivalent Single-Family Dwelling) per acre, or the actual count within a shed, whichever is greater.
- Park areas use a design flow of 6 ESD per acre.
- Design flows are computed using formulas from Section 201.2.2 of SASD standards and specifications:
    - PWWF (mgd) = ADWF *PF +I/I
    - ADWF (mgd) = (310 GPD/ESD)*(ESD/ac)*(ac)/1,000,000
    - PF = 3.5 - 1.8*Q^0.05, where Q=ADWF, PF= 1.2 minimum
    - I/I = 1,400 gpd/ac (new pipeline)
- Design of gravity sewers adheres to the following, from Section 203 of SASD standards and specifications:
    - The minimum pipe size (diameter) is 8 inches.
    - The minimum velocity is 2 fps when the pipe is ½ full or full.
    - The 'n' value is 0.013.
    - The minimum slope for a collector serving fewer than 6 ESDs is 0.007.
    - The minimum slope for an 8" sewer is 0.0035.

SEWER FLOW INFORMATION

On-site flow from The Ranch SPA totals 1817 ESDs, resulting in PWWF of 1.35 mgd. There would be off-site contribution from proposed Arista Del Sol project of approximately 1462 ESD's and 1.14mgd.

SEWER ALIGNMENT & FACILITIES

- No interim facilities are required for The Ranch project. All pipes are sized for ultimate PWWF.
- Ultimate facilities consist of the following:
    - 8-inch in-tract gravity sewer pipe
    - 15-inch to 21-inch truck main sewer pipe in Chrysanthy Blvd
    - 24-inch offsite gravity sewer located in Rancho Cordova Parkway, west from the project entry to the existing manhole in Rancho Cordova Parkway as shown.

CONCLUSIONS

The Level 1 Sewer Study for The Ranch demonstrates the ability of the proposed gravity system to serve the project. System components are sized for ultimate conditions. According to SASD staff, there is adequate capacity in existing downstream sewer facilities to serve project needs.

APPENDIX A

TABLE A-1 SEWER DESIGN SUMMARY SPREADSHEET

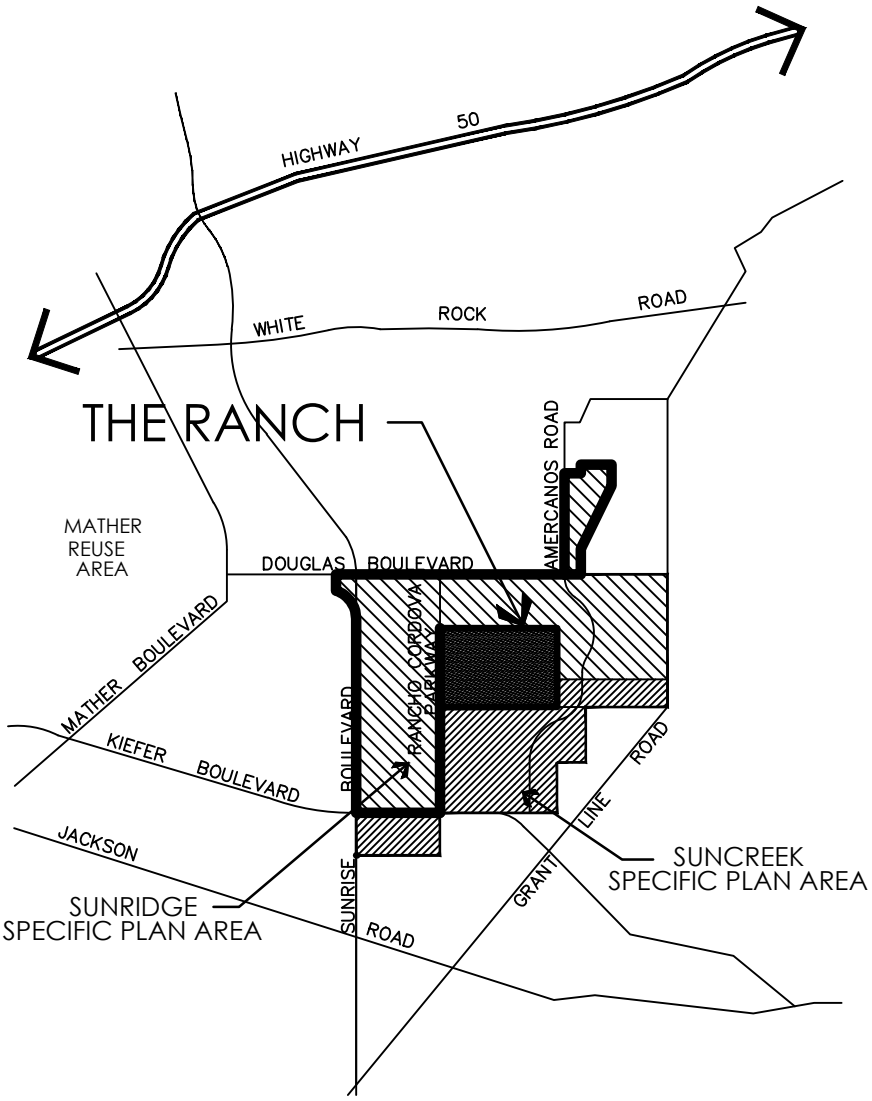
TABLE A-1

THE RANCH SEWER DESIGN SUMMARY																							
START NODE	STOP NODE	LAND USE					TOTALS		I/I[1/] (mgd)	ADWF[2/] (mgd)	PF[3/]	PDWF[4/] (mgd)	PWWF[5/] (mgd)	PWWF[5/] (cfs)	PIPE DATA				US MAN HOLE DEPTH (FT)					
		LAND USE	AREA (AC)	ESDs @ 6 ESD/AC	ACTUAL ESDs	MAX ESDs	AREA (AC)	CUM ESDs							DIA (in)	S (ft/ft)	Capacity @ S (cfs)	Capacity @ S (mgd)		V @ PWWF[6/] (fps)				
ADS1	A	R	243.7	1462	1462	1462	243.7	1462	0.3412	0.4532	1.77	0.8021	1.1433	1.7690	15	0.0018	2.74	1.77	29	2.38				
A	B	R	44	264	215	264	287.7	1726	0.4028	0.5351	1.76	0.9393	1.3420	2.0764	15	0.0018	2.74	1.77	29	2.46				
B	C	R	100.18	601	473	601	387.88	2327	0.5430	0.7214	1.73	1.2474	1.7904	2.7701	18	0.0014	3.93	2.54	32	2.41				
C	D	R	39.72	238	205	238	427.6	2565	0.5986	0.7952	1.72	1.3681	1.9667	3.0429	18	0.0014	3.93	2.54	40	2.46				
D	E	R	43.94	264	134	264	471.54	2829	0.6602	0.8770	1.71	1.5012	2.1614	3.3441	18	0.0014	3.93	2.54	38	2.49				
E	F	R	72.79	437	347	437	544.33	3266	0.7621	1.0125	1.70	1.7201	2.4821	3.8404	21	0.0012	5.49	3.55	33.5	2.47				
F	POC	R	2.22	13	0	13	546.55	3279	0.7652	1.0165	1.70	1.7265	2.4917	3.8552	24									
			546.55	3279	2836	3266	546.55		0.7652															
	[1/] 1400 gpd/ac																							
	[2/] 310 gpd/ESD * ESD/ac * A																							
	[3/] 3.5-1.8*(Q^0.05) where Q is ADWF																							
	[4/] ADWF * PF																							
	[5/] ADWF * PF + I/I																							
	[6/] see Flowmaster computations																							

ATTACHMENTS

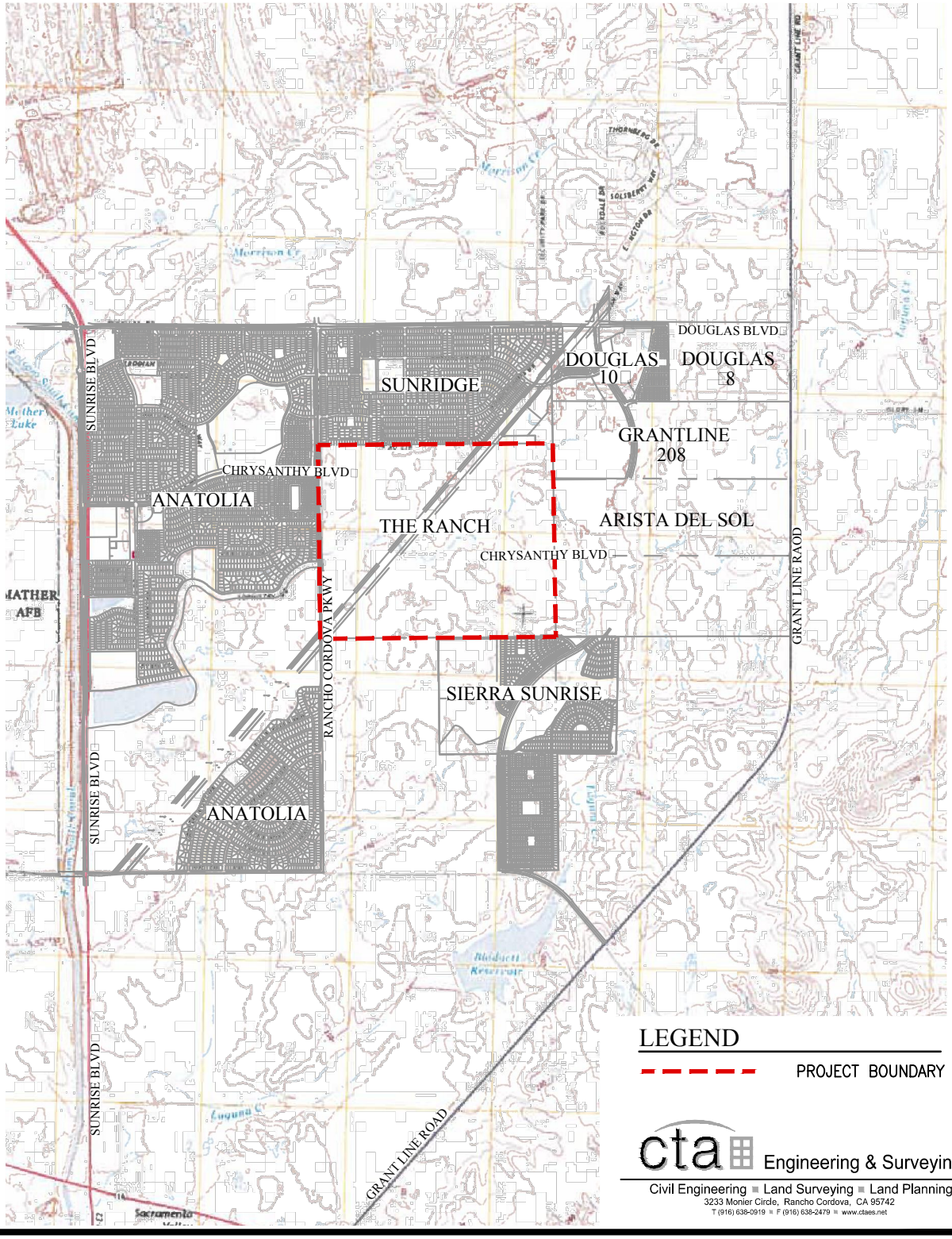
LOCATION MAP
LOCATION MAP WITH TOPOGRAPHY
SITE PLAN – THE RANCH
SMALL LOT TENTATIVE MAP – THE RANCH
PRELIMINARY GRADING AND DRAINAGE PLAN – THE RANCH
SEWER SHED MAP –THE RANCH
SRCSD SERVICE AREA
SASD SERVICE AREA
AJ SUNRISE DOUGLAS TRUNK SHED
FIGURE 6-1 - TRUNK SHEDS MAP - 2010 SASD SYSTEM CAPACITY PLAN
BR EAST RANCH TRUNK SHED – 2015 AMENDMENT

LOCATION MAP



THE RANCH
LOCATION MAP

RANCHO CORDOVA, CALIFORNIA
NOT TO SCALE AUGUST, 2018



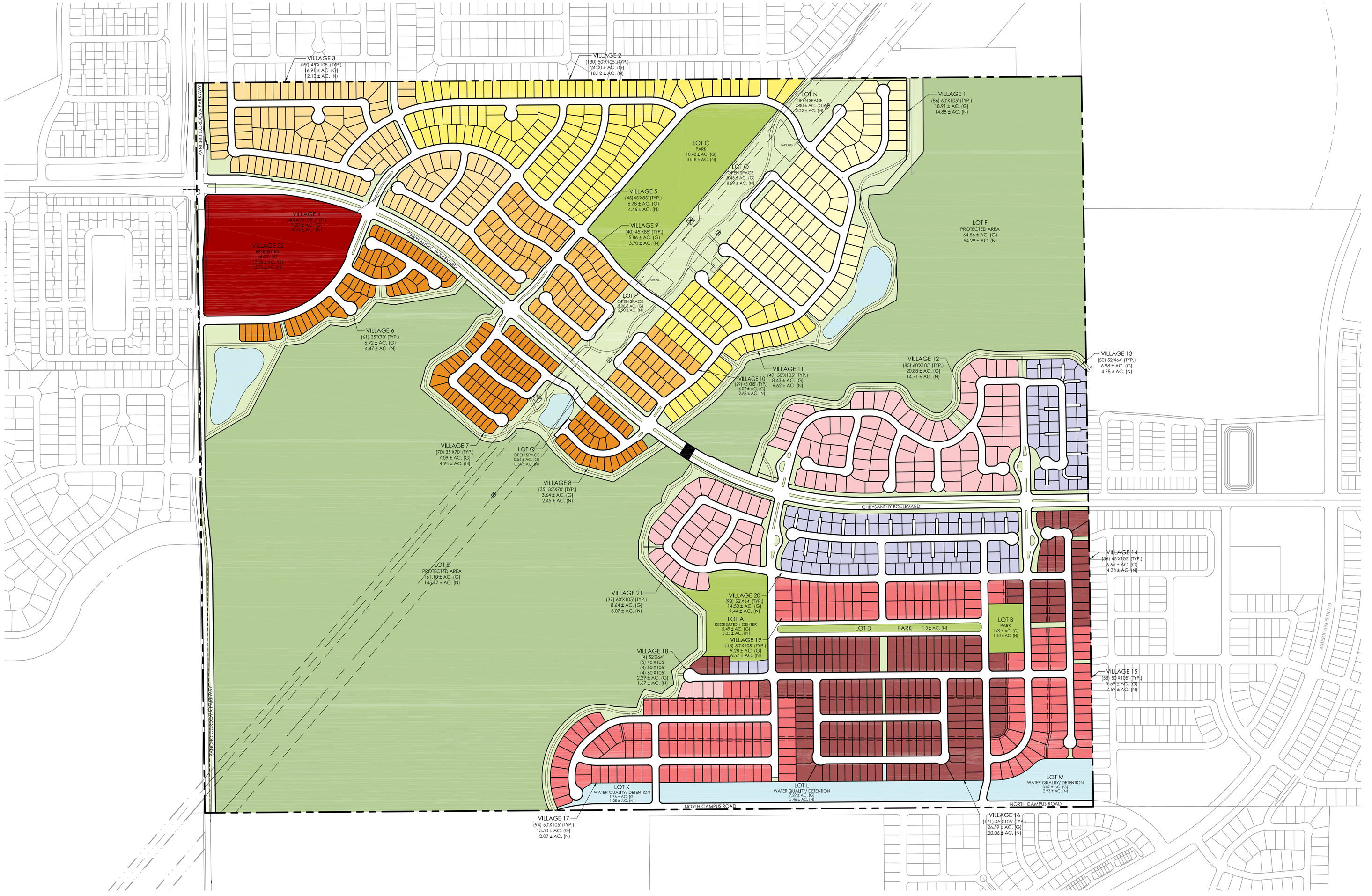
cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

SITE PLAN

THE RANCH

CITY OF RANCHO CORDOVA, CALIFORNIA

JULY 24, 2018



LAND USE SUMMARY

LAND USE	DWELLING UNITS
MARKET RATE	
60' x 105' (TYP.)	86
50' x 105' (TYP.)	179
45' x 105' (TYP.)	137
45' x 85' (TYP.)	114
36' x 70' (TYP.)	166
SUBTOTAL	682
ACTIVE ADULT	
60' x 105' (TYP.)	127
50' x 105' (TYP.)	203
45' x 105' (TYP.)	212
WINTER (4-PACK)	152
SUBTOTAL	694
TOTAL	1,376

NORTH

0 600

300 1200

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

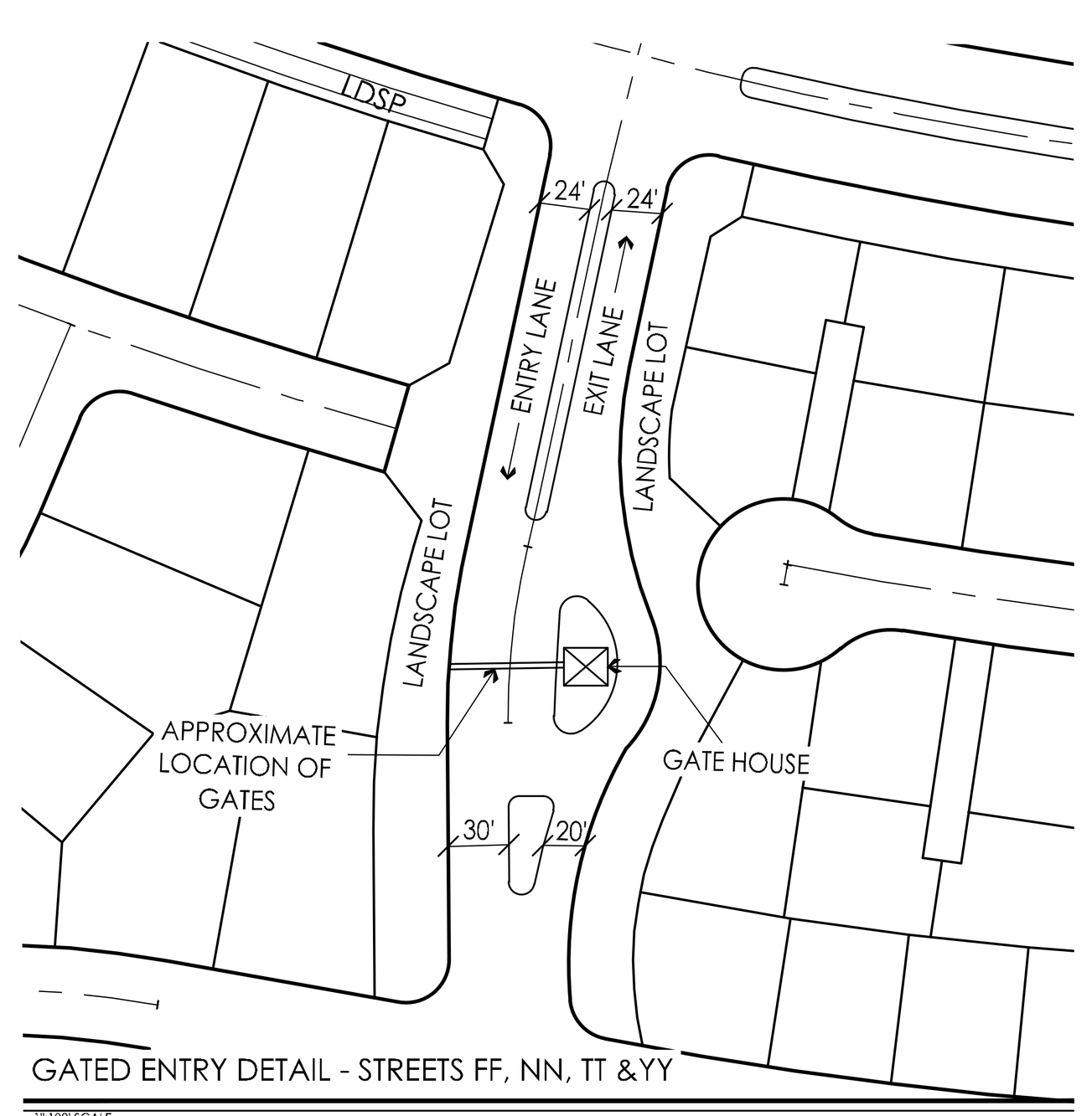
J:\1000-s\1277_TheRanch\TheRanch-DA\Planning\Exhibits\Tentative Map - PD\SitePlan-TheRanch.dwg 7/24/2018 9:27 AM Katie Caradec

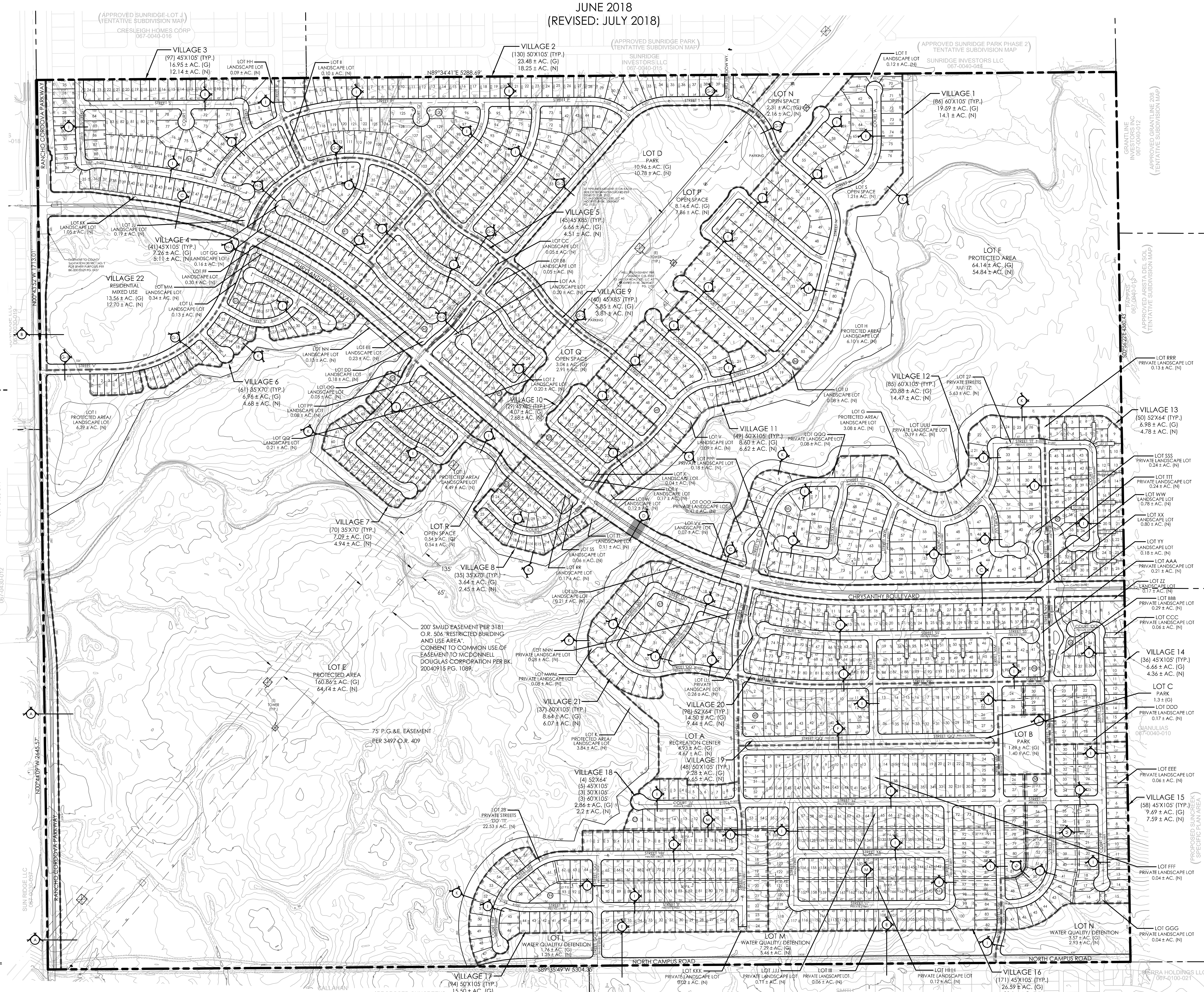
SMALL LOT TENTATIVE SUBDIVISION MAP

THE RANCH

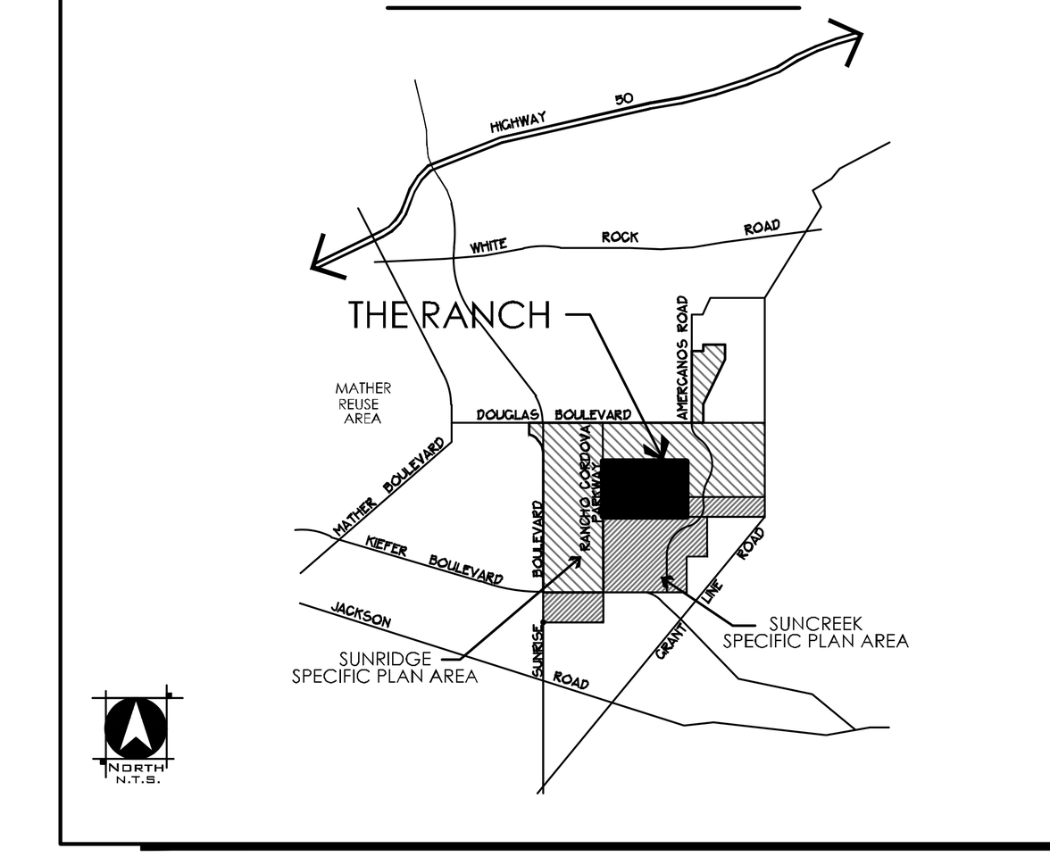
CITY OF RANCHO CORDOVA, CALIFORNIA

JUNE 2018
(REVISED: JULY 2018)





LOCATION MAP



PROJECT NOTES

OWNER/APPLICANT
K. HOVNANIAN HOMES, NORTHERN INC.
3721 DOUGLAS BOULEVARD, SUITE 150
ROSEVILLE, CA 95661
CONTACT: OLGA SCIORELLI
PHONE: (916) 945-5362

PLANNER
WOOD RODGERS INC.
3301 "C" STREET, BLDG. 100-B
SACRAMENTO, CA. 98516
CONTACT: PAUL MEUSER
PHONE: (916) 341-7760

ENGINEER/SURVEYOR
CTA ENGINEERING AND SURVEYING
3233 MONIER CIRCLE
RANCHO CORDOVA, CA 95742
CONTACT: TOM CASSERA
PHONE: (916) 638-0919

ASSESSORS PARCEL NUMBERS
067-0040-008

AREA
530.1± ACRES GROSS

NUMBER OF LOTS/PARCELS

1,377	SINGLE FAMILY LOTS
1	RESIDENTIAL MIXED USE LOT
1	RECREATION CENTER LOT
3	PARK LOTS
2	PROTECTED AREA LOTS
5	PROTECTED AREA/ LANDSCAPE LOTS
3	WATER QUALITY/ DETENTION BASIN LOTS
5	OPEN SPACE LOTS
33	PUBLIC LANDSCAPE LOTS
21	PRIVATE LANDSCAPE LOTS
26	PRIVATE DRIVE LOTS

EXISTING USE
VACANT

EXISTING GENERAL PLAN
URBAN DEVELOPMENT AREA

PROPOSED GENERAL PLAN
LDR, MDR, RMU, CMU, P/QP, P/OS, NR

EXISTING ZONING
AG-80

PROPOSED ZONING
SPECIAL PLANNING AREA

PUBLIC SERVICES & FACILITY PROVIDERS

IMPROVEMENTS:	CITY OF RANCHO CORDOVA
WATER:	SACRAMENTO COUNTY WATER
SEWER:	SACRAMENTO AREA SEWER DISTRICT
DRAINAGE:	CITY OF RANCHO CORDOVA
ELECTRICITY:	S.M.U.D.
GAS:	PACIFIC GAS & ELECTRIC
TELEPHONE:	AT&T
SCHOOL DISTRICT:	ELK GROVE UNIFIED SCHOOL DISTRICT
FIRE DISTRICT:	SACRAMENTO METRO FIRE DISTRICT
PARK DISTRICT:	CORDOVA RECREATION & PARK DISTRICT

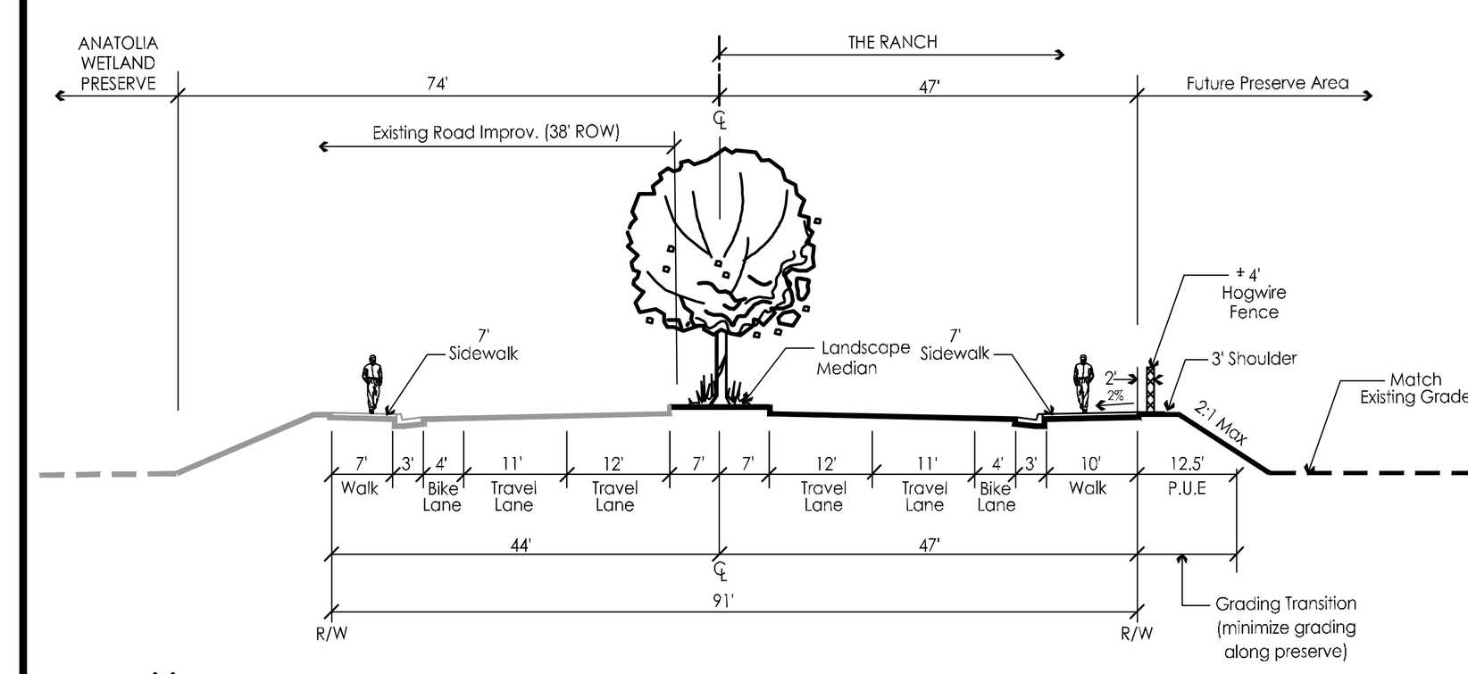
NOTES:

1. SUBDIVIDER(S) RESERVES THE RIGHT TO FILE MULTIPLE MAPS PURSUANT TO SECTION 66456.1 OF THE SUBDIVISION MAP ACT.
2. THIS IS AN APPLICATION FOR A DEVELOPMENT PERMIT.
3. A 12.5 FOOT PUBLIC UTILITY EASEMENT WILL BE LOCATED ADJACENT TO ALL RIGHTS OF WAY EXCEPT AS APPROVED BY THE CITY ENGINEER. THIS APPLICATION REQUESTS A 5' P.U.E./SETBACK FOR 'I' COURT PRODUCT (PARCEL T).
4. PARCEL (LARGE LOT) NUMBERING IS FOR IDENTIFICATION PURPOSES ONLY AND DOES NOT INDICATE PHASING ORDER OF DEVELOPMENT. ULTIMATE DEVELOPMENT PHASING SHALL BE ORDERLY AND WILL BE DETERMINED AT FINAL MAP AND/OR IMPROVEMENT PLAN STAGE.
5. THIS APPLICATION ALSO SEEKS A GENERAL PLAN AMENDMENT, REZONE, AND SPECIAL DEVELOPMENT PERMIT.
6. ALL EXISTING STRUCTURES TO BE REMOVED AND ALL EXISTING WELLS TO BE ABANDONED, ADJUSTED(BY OTHERS) AND/OR RELOCATED.
7. THE AERIAL TOPOGRAPHY SHOWN HEREON WAS FLOWN IN NOVEMBER 2003.
8. THIS EXHIBIT IS FOR TENTATIVE MAP PURPOSES ONLY. ALL SITE AREAS TO BE VERIFIED PRIOR TO FINAL MAP.
9. PARK FEES FOR ALL RMU LOTS WILL BE DEFERRED UNTIL ACTUAL SITE DEVELOPMENT PERMIT.
10. NON-STANDARD ELBOW, NO ON-STREET PARKING ALLOWED ON KNUCKLE.

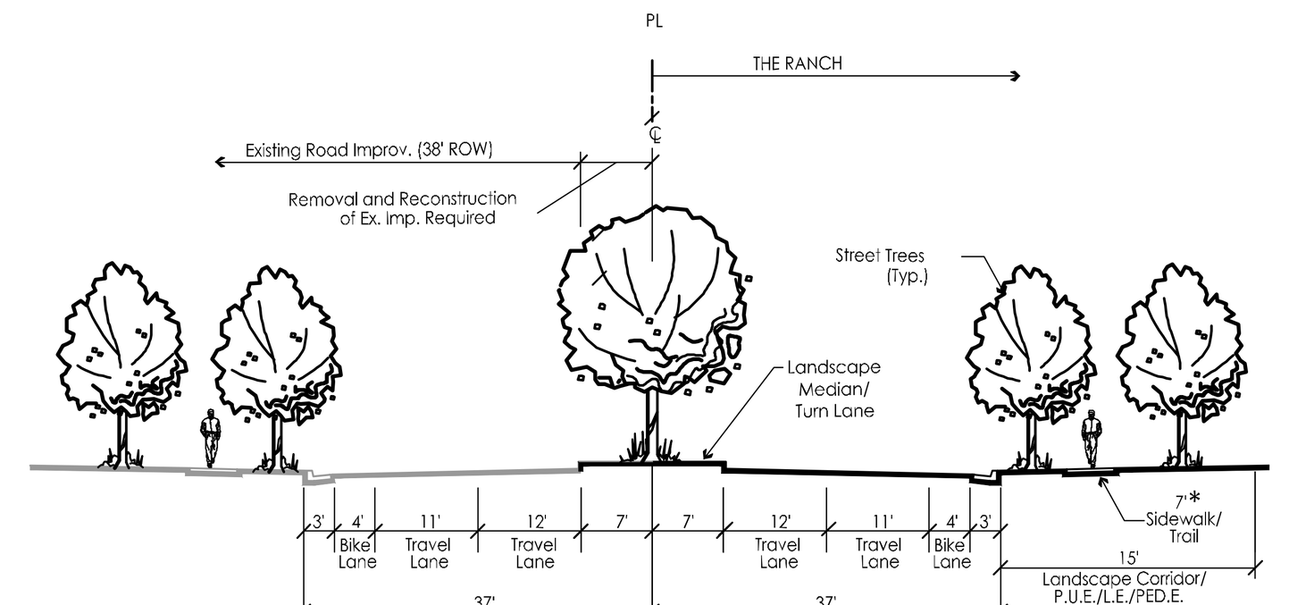
LAND USE SUMMARY

PARCEL/ LOT NUMBER	GENERAL PLAN DESIGNATION	LAND USE (LOT SIZE)	GROSS ACRES	NET ACRES	DWELLING UNITS	GROSS DENSITY
TRADITIONAL SINGLE-FAMILY RESIDENTIAL						
VILLAGE 1	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (60X105)	**19.59**	**14.1**	86	4.4
VILLAGE 2	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (50X105)	**23.48**	**18.25**	130	5.5
VILLAGE 3	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X105)	**16.95**	**12.14**	97	5.7
VILLAGE 4	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X105)	**7.26**	**5.11**	41	5.6
VILLAGE 5	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	**6.66**	**4.51**	45	6.8
VILLAGE 6	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	**6.96**	**4.68**	61	8.8
VILLAGE 7	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	**7.09**	**4.94**	70	9.9
VILLAGE 8	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (35X70)	**3.64**	**2.45**	35	9.6
VILLAGE 9	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	**5.85**	**3.81**	40	6.8
VILLAGE 10	MDR (6.1-18.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (45X85)	**4.07**	**2.68**	29	7.1
VILLAGE 11	LDR (2.1-6.0 DU/AC)	TRADITIONAL S.F. RESIDENTIAL (50X105)	**8.60**	**6.62**	49	5.7
SUB-TOTAL			110.15	79.29	683	
ACTIVE ADULT SINGLE-FAMILY RESIDENTIAL						
VILLAGE 12	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (60X105)	**20.88**	**14.47**	85	4.1
VILLAGE 13	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (52X64)	**6.98**	**4.78**	50	7.2
VILLAGE 14	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	**6.66**	**4.36**	36	5.4
VILLAGE 15	LDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	**9.69**	**7.59**	58	6.0
VILLAGE 16	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (45X105)	**26.59**	**20.1**	171	6.4
VILLAGE 17	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (50X105)	**15.50**	**12.07**	94	6.1
VILLAGE 18	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (VARY)	**2.86**	**2.2**	17	5.9
VILLAGE 19	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (50X105)	**9.28**	**6.65**	48	5.2
VILLAGE 20	MDR (6.1-18.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (52X64)	**14.50**	**9.44**	98	6.8
VILLAGE 21	LDR (2.1-6.0 DU/AC)	ACTIVE ADULT S.F. RESIDENTIAL (60X105)	**8.64**	**6.07**	37	4.3
SUB-TOTAL			121.58	87.73	694	
VILLAGE 22	RMU	RESIDENTIAL MIXED USE	**13.77**	**12.90**	-	-
SUB-TOTAL			13.77	12.90	-	-
LOT A	P/OS	RECREATION CENTER (PRIVATE)	**4.93**	**4.67**	-	-
LOT B	P/OS	PARK (PRIVATE)	**1.69**	**1.40**	-	-
LOT C	P/OS	PARK (PRIVATE)	**10.96**	**10.78**	-	-
LOT D	P/OS	PARK (PUBLIC)	**1.30**	**-**		
LOT E	NR	PROTECTED AREA (PUBLIC)	**160.86**	**145.47**	-	-
LOT F	NR	PROTECTED AREA (PUBLIC)	**64.14**	**54.84**	-	-
LOT G-K	NR	PROTECTED AREA/ LANDSCAPE LOT	-	**23.90**	-	-
LOT L-N	P/OS	WATER QUALITY/DETENTION	**12.62**	**9.64**	-	-
LOT O-R	P/OS	OPEN SPACE	**14.02**	**13.45**		
S	LDR	OPEN SPACE	-	**1.21**		
LOT T-ZZ	LDR/MDR	PUBLIC LANDSCAPE LOT	-	**6.91**		
LOT AAA-UUU	LDR/MDR	PRIVATE LANDSCAPE LOT	-	**3.46**	-	-
LOT 1-26	MDR	PRIVATE DRIVE	-	**1.01**		
LOT 27 & 28	LDR/MDR & P/OS	PRIVATE RIGHT-OF-WAY	-	**30.70**		
MINOR RIGHT-OF-WAY	LDR/MDR & P/OS	PUBLIC RIGHT-OF-WAY	-	**27.36**	-	-
MAJOR RIGHT-OF-WAY	-	-	**14.04**	**15.34**	-	-
SUB-TOTAL			284.56	350.14	-	-
TOTAL			530.06	530.06	1,377	-

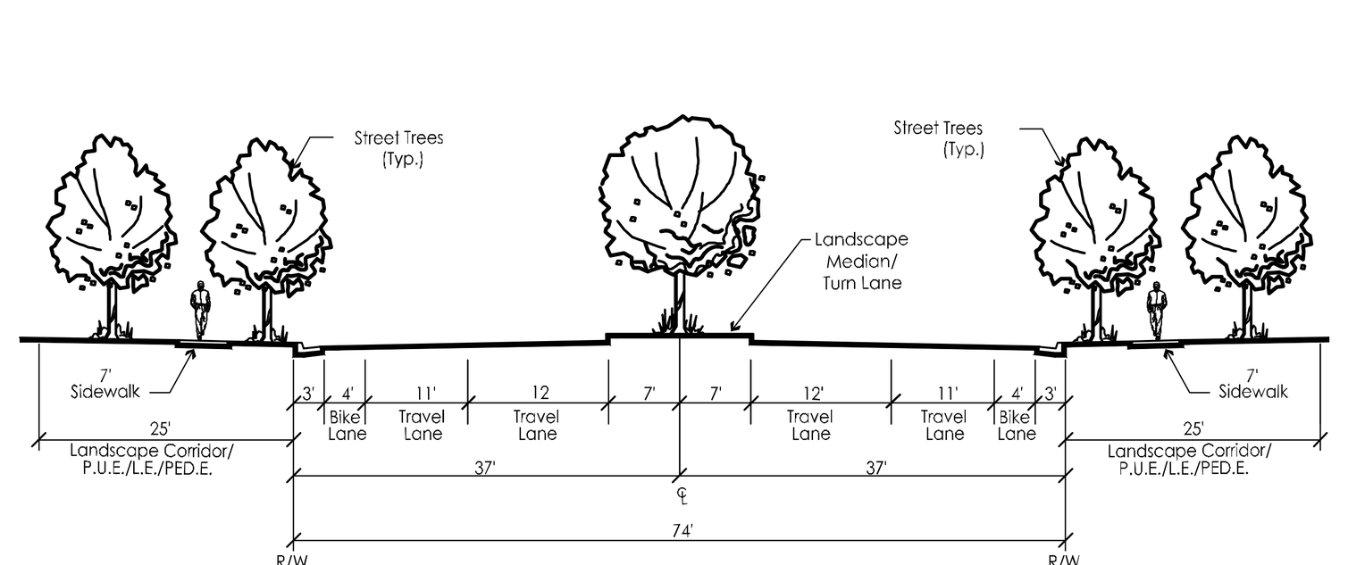
NOTE:
GROSS ACREAGE EXCLUDES RANCHO CORDOVA PARKWAY & CHRYSANTHY BOULEVARD ONLY.
VILLAGE NET ACREAGE EXCLUDES PROTECTED AREA/ LANDSCAPE LOTS, PRIVATE & PUBLIC LANDSCAPE LOTS, PRIVATE DRIVES AND PRIVATE & PUBLIC RIGHT-OF-WAYS.



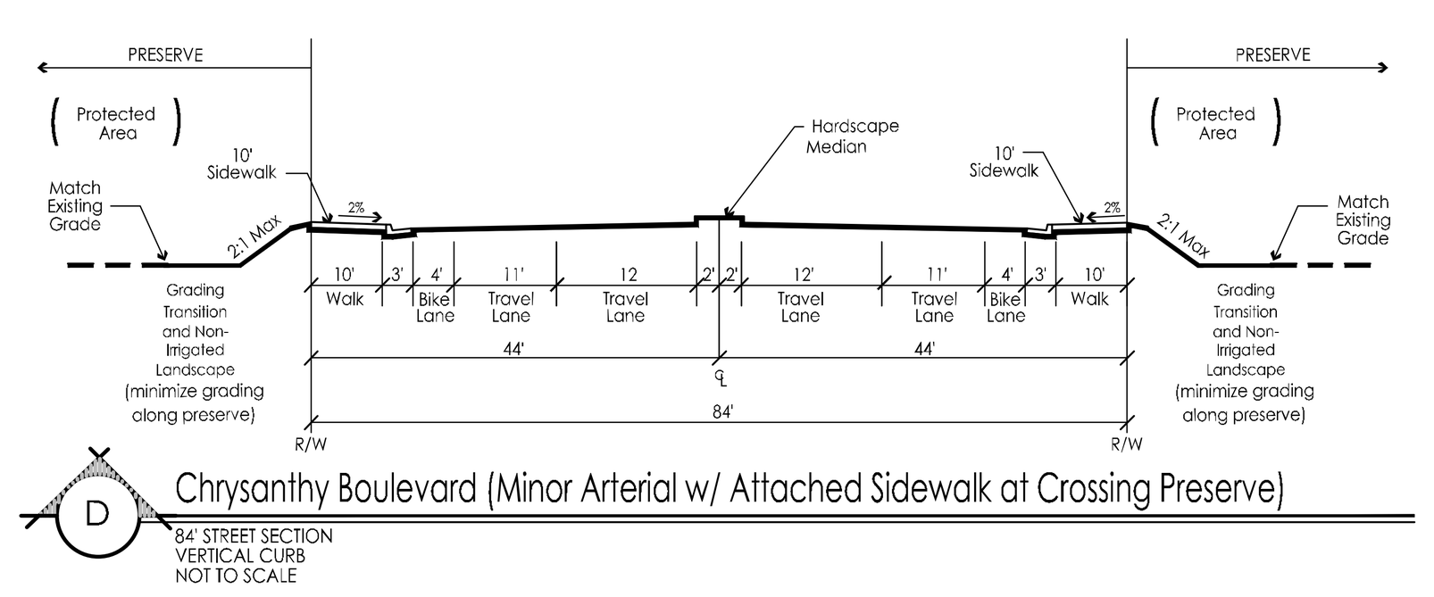
A — Rancho Cordova Parkway (Modified Minor Arterial)
91' STREET SECTION
NOT TO SCALE
VERTICAL CURB



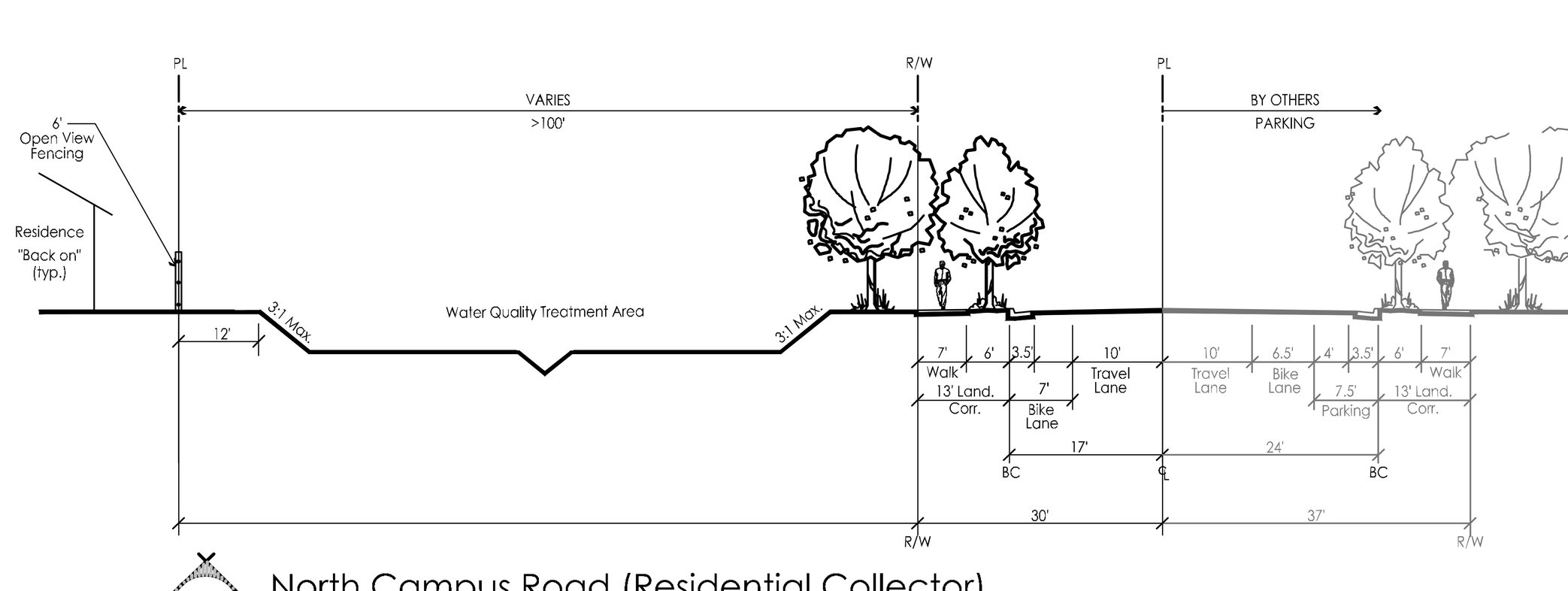
B — Rancho Cordova Parkway (Minor Arterial)
* Transition to 10' at Protected Area
74' STREET SECTION / 104' STREET SECTION INCLUDING LANDSCAPE CORRIDORS
VERTICAL CURB
NOT TO SCALE



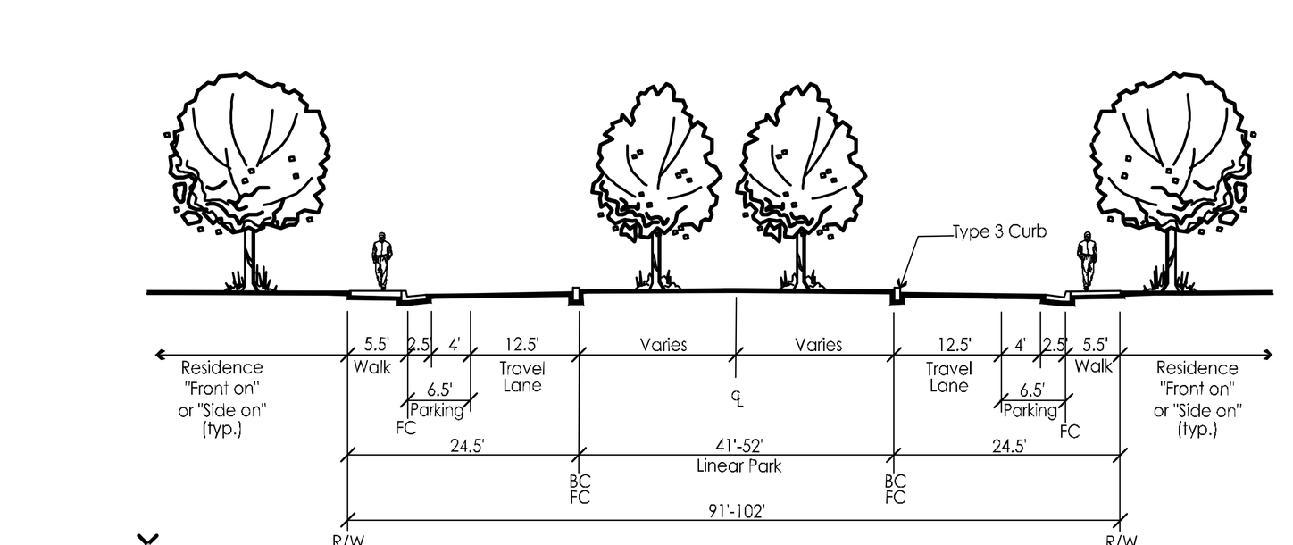
C — Chrysanthy Boulevard (Minor Arterial)
74' STREET SECTION / 104' STREET SECTION INCLUDING LANDSCAPE CORRIDORS
VERTICAL CURB
NOT TO SCALE



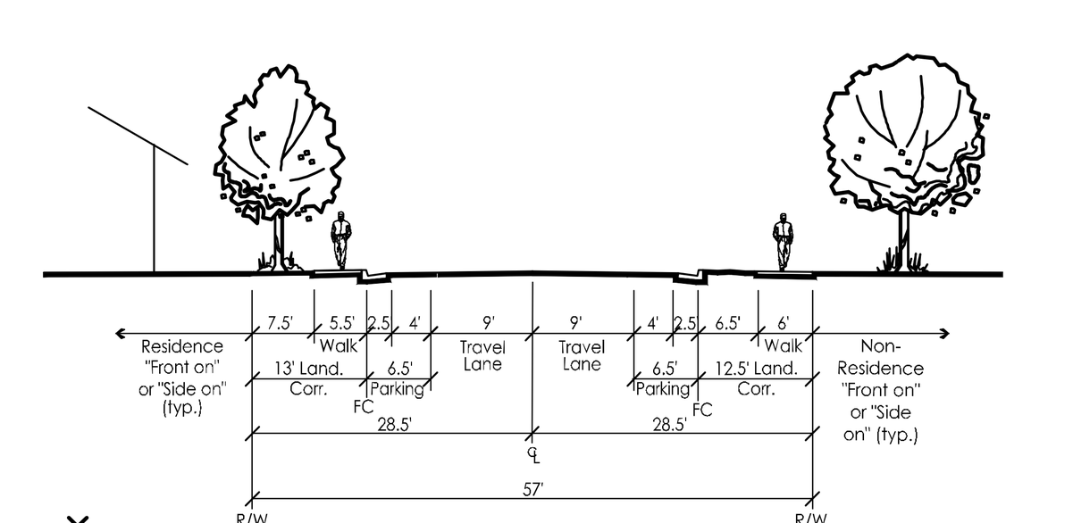
D — Chrysanthy Boulevard (Minor Arterial w/ Attached Sidewalk at Crossing Preserve)
84' STREET SECTION
VERTICAL CURB
NOT TO SCALE



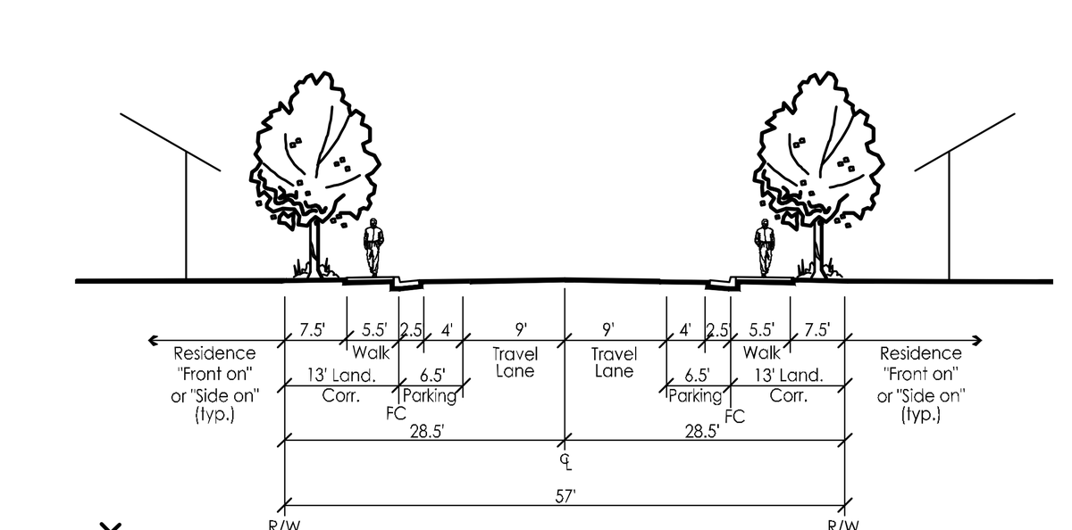
E — North Campus Road (Residential Collector)
30' HALF STREET SECTION
VERTICAL CURB
NOT TO SCALE



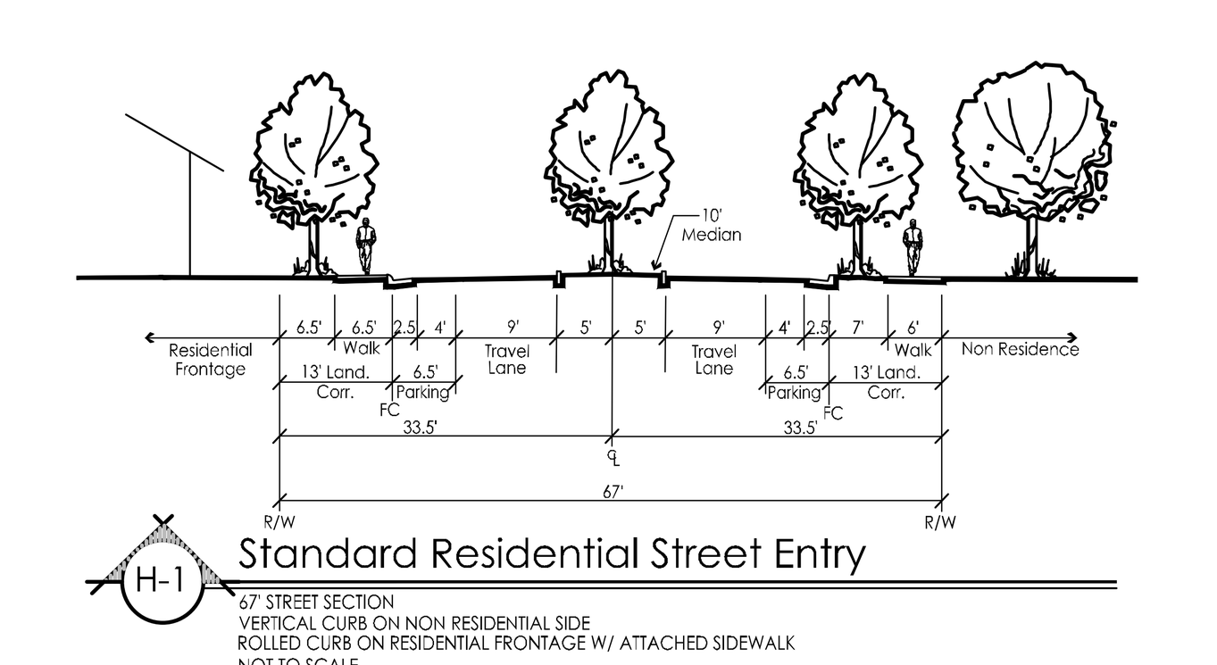
F — Minor Residential Street with Median (Private)
91'-102' STREET SECTION - Active Adult Only
VERTICAL CURB
NOT TO SCALE



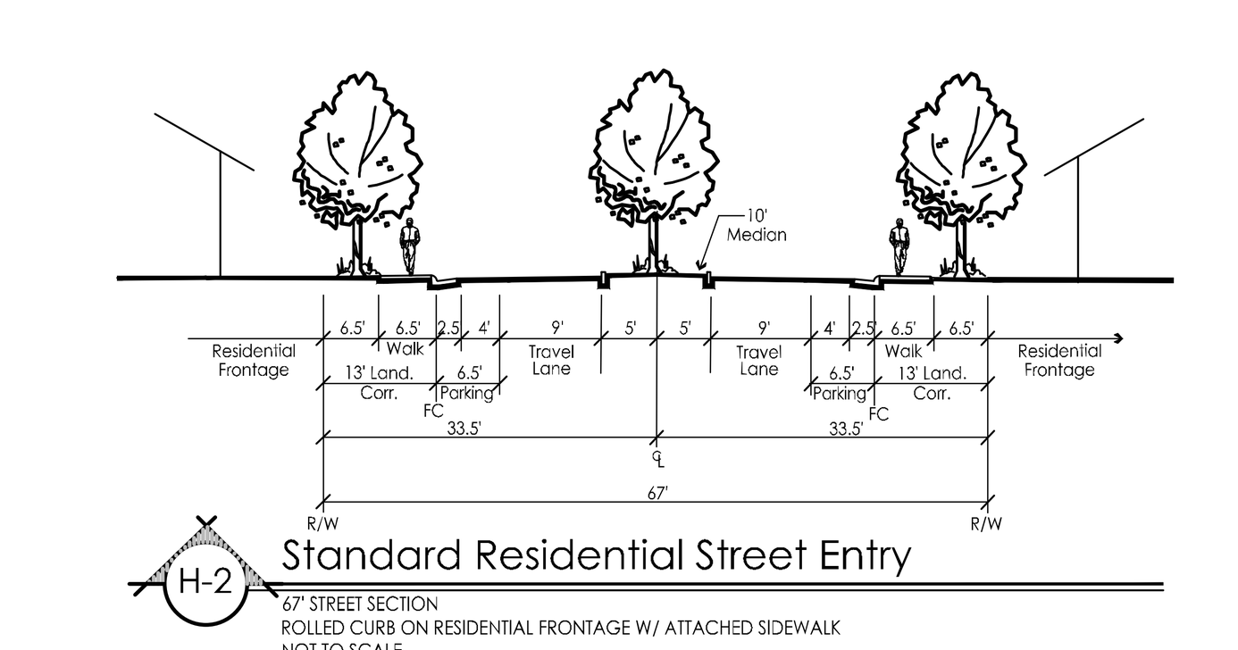
G-1 — Standard Residential Street
57' STREET SECTION - PER CITY STANDARD CS-2
VERTICAL CURB & ROLLED CURBS ALLOWED
5' ATTACHED SIDEWALK IS ALLOWED
NOT TO SCALE
<7000 ADT



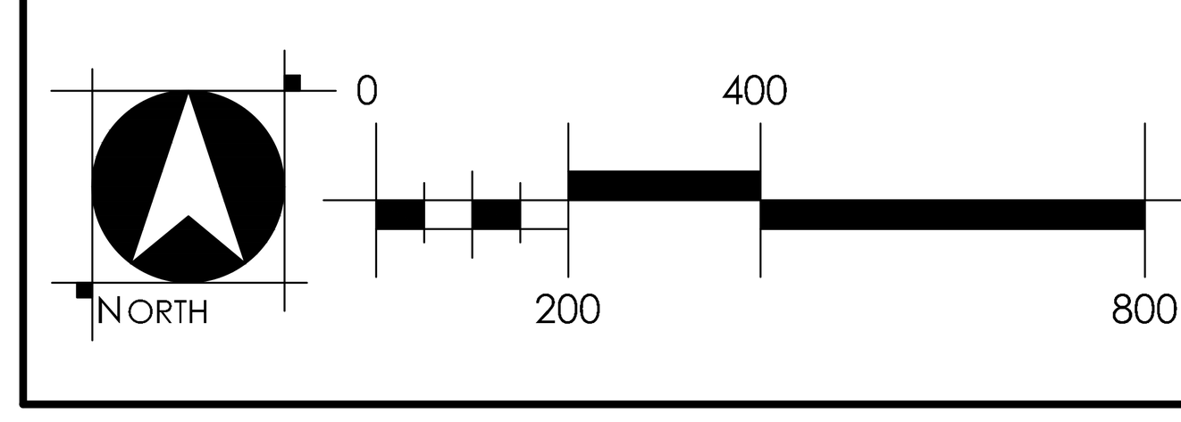
G-2 — Standard Residential Street
57' STREET SECTION - PER CITY STANDARD CS-2
VERTICAL CURB & ROLLED CURBS ALLOWED
5' ATTACHED SIDEWALK IS ALLOWED
NOT TO SCALE
<7000 ADT

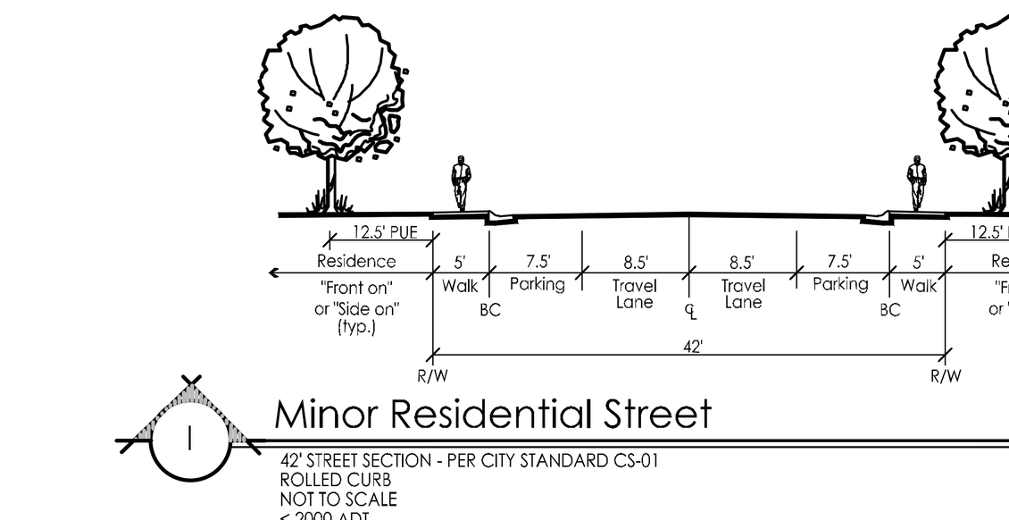


H-1 — Standard Residential Street Entry
67' STREET SECTION
VERTICAL CURB ON NON RESIDENTIAL SIDE
ROLLED CURB ON RESIDENTIAL FRONTAGE W/ ATTACHED SIDEWALK
NOT TO SCALE

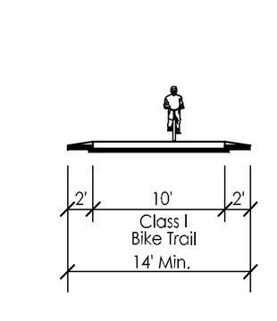


H-2 — Standard Residential Street Entry
67' STREET SECTION
ROLLED CURB ON RESIDENTIAL FRONTAGE W/ ATTACHED SIDEWALK
NOT TO SCALE

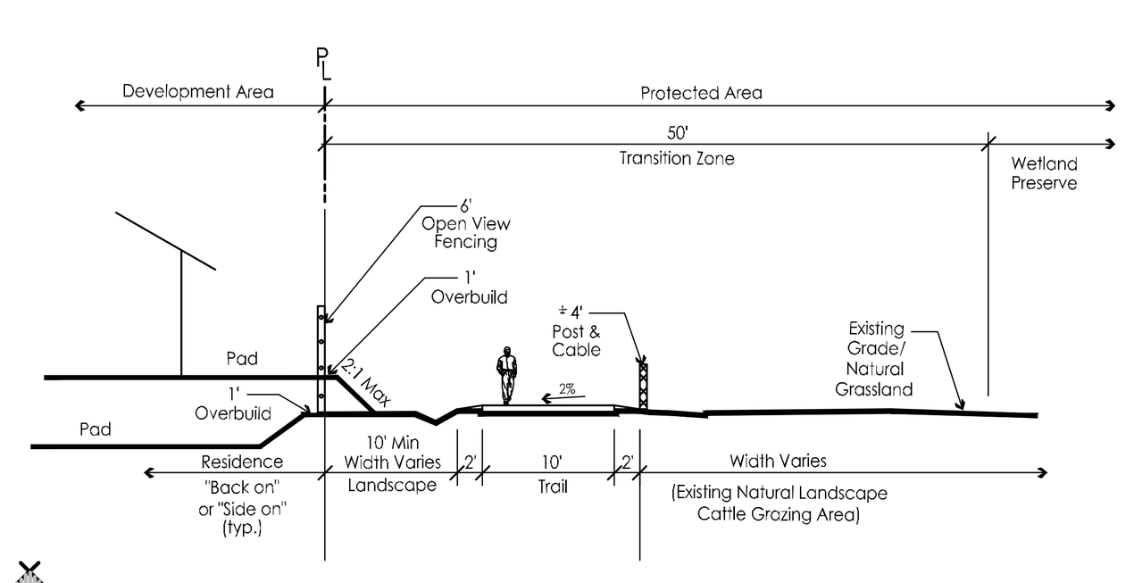




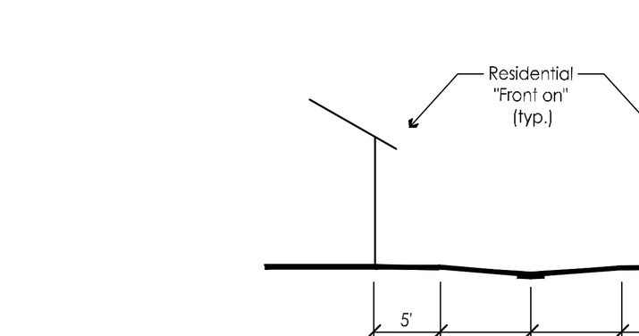
I — Minor Residential Street
42' STREET SECTION - PER CITY STANDARD CS-01
ROLLED CURB
NOT TO SCALE
< 2000 ADT



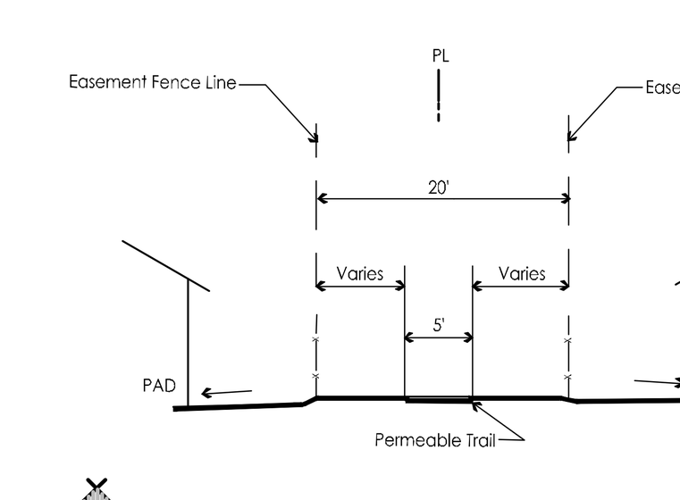
J — CLASS I BIKE TRAIL
14' SECTION
TO BE LOCATED IN POWER LINE CORRIDOR
NOT TO SCALE



K — Regional Trail (Along Protected Area Frontage)
50' TRAIL SECTION/TRANSITION ZONE
NOT TO SCALE



L — "I" Court Drives
18' SECTION
NOT TO SCALE



M — Ped Easement
20' SECTION
NOT TO SCALE

K Hovnanian

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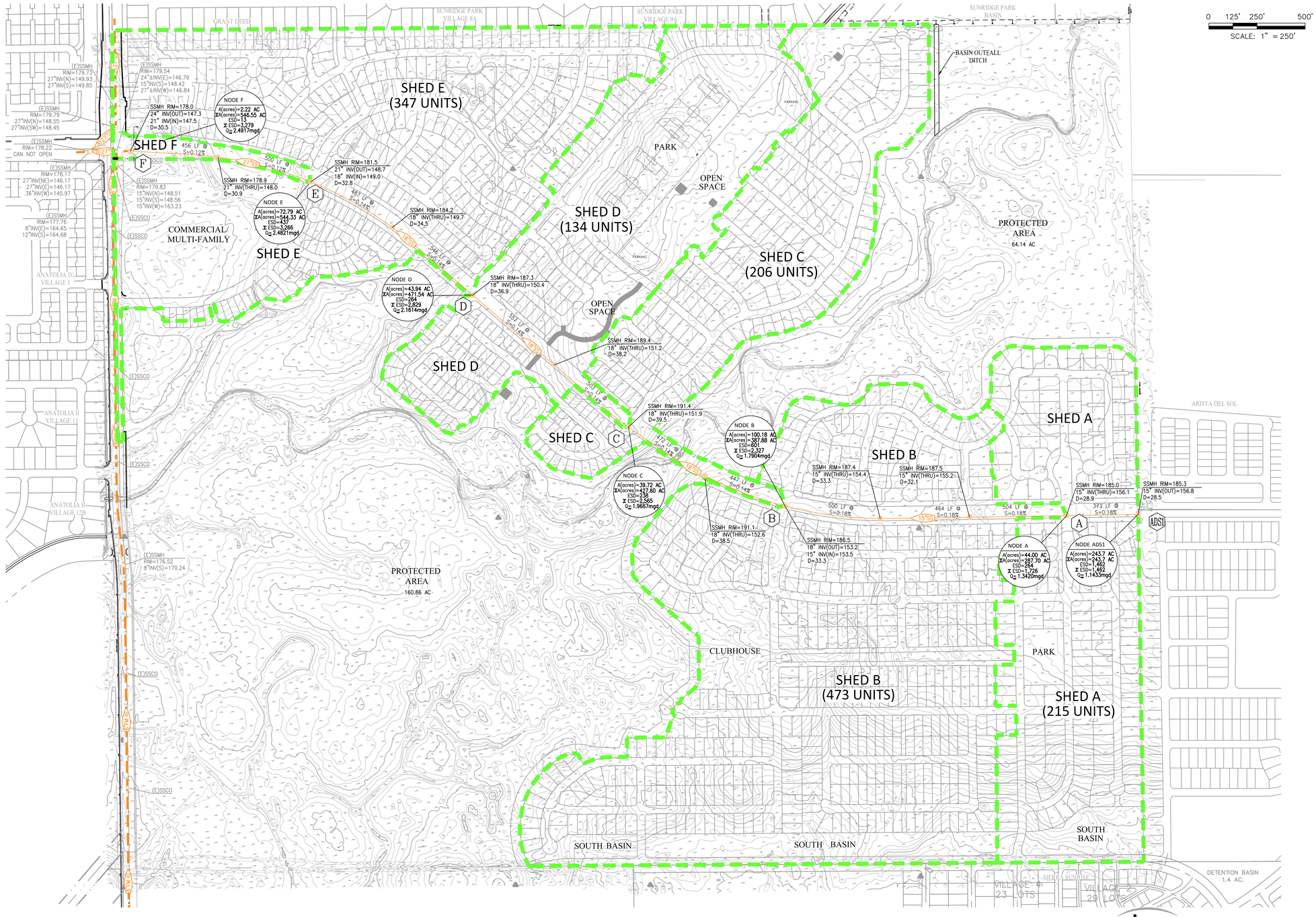
Sacramento, CA 95816 Fax 916.341.7767

J:\1000s\1277_TheRanch\TheRanch-OA\Planning\Exhibits\Tentative Map - PD\TSM-TheRanch.dwg 8/2/2018 2:03 PM Shaurya Mall

THE RANCH
SEWER SHED MAP
CITY OF RANCHO CORDOVA, CALIFORNIA

SCALE 1" = 250' AUGUST, 2018



0 125' 250' 500'
SCALE: 1" = 250'

LEGEND

- EXISTING SEWER (10.27"SS)
- PROPOSED SEWER (24"SS)
- SEWER SHED BOUNDARY
- NODE POINT (X)
- BOUNDARY LINE
- PROPERTY LINE

SHED TABLE		
NODE	ACREAGE	UNITS
ADS1	243.70	1,462
A	100.18	215
B	100.18	473
C	39.72	206
D	43.94	134
E	72.79	347
F	2.22	0
TOTAL	243.70	2,837

cta Engineering & Surveying
Civil Engineering ■ Land Surveying ■ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0919 ■ F (916) 638-2479 ■ www.ctaes.net

PRELIMINARY GRADING AND DRAINAGE PLAN

THE RANCH

CITY OF RANCHO CORDOVA | SEPTEMBER, 2018 | STATE OF CALIFORNIA

cta Engineering & Surveying
Civil Engineering ≈ Land Surveying ≈ Land Planning
3233 Monier Circle, Rancho Cordova, CA 95742
T (916) 638-0150 ≈ F (916) 638-2479 ≈ www.ctaeng.net

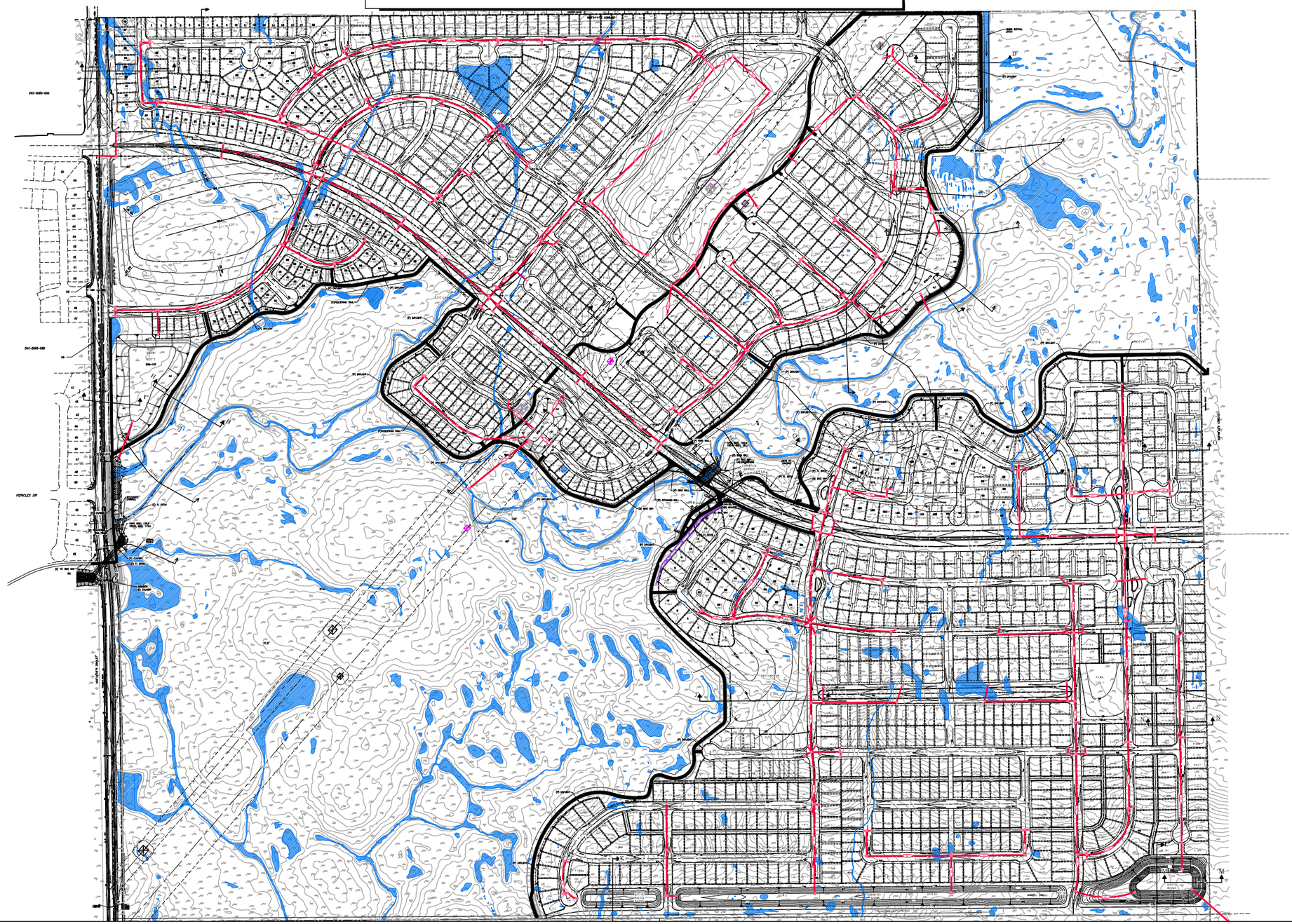
EARTHWORK

CUT	956,378 CY
FILL	825,899 CY
TOTAL	130,479 CY

LEGEND

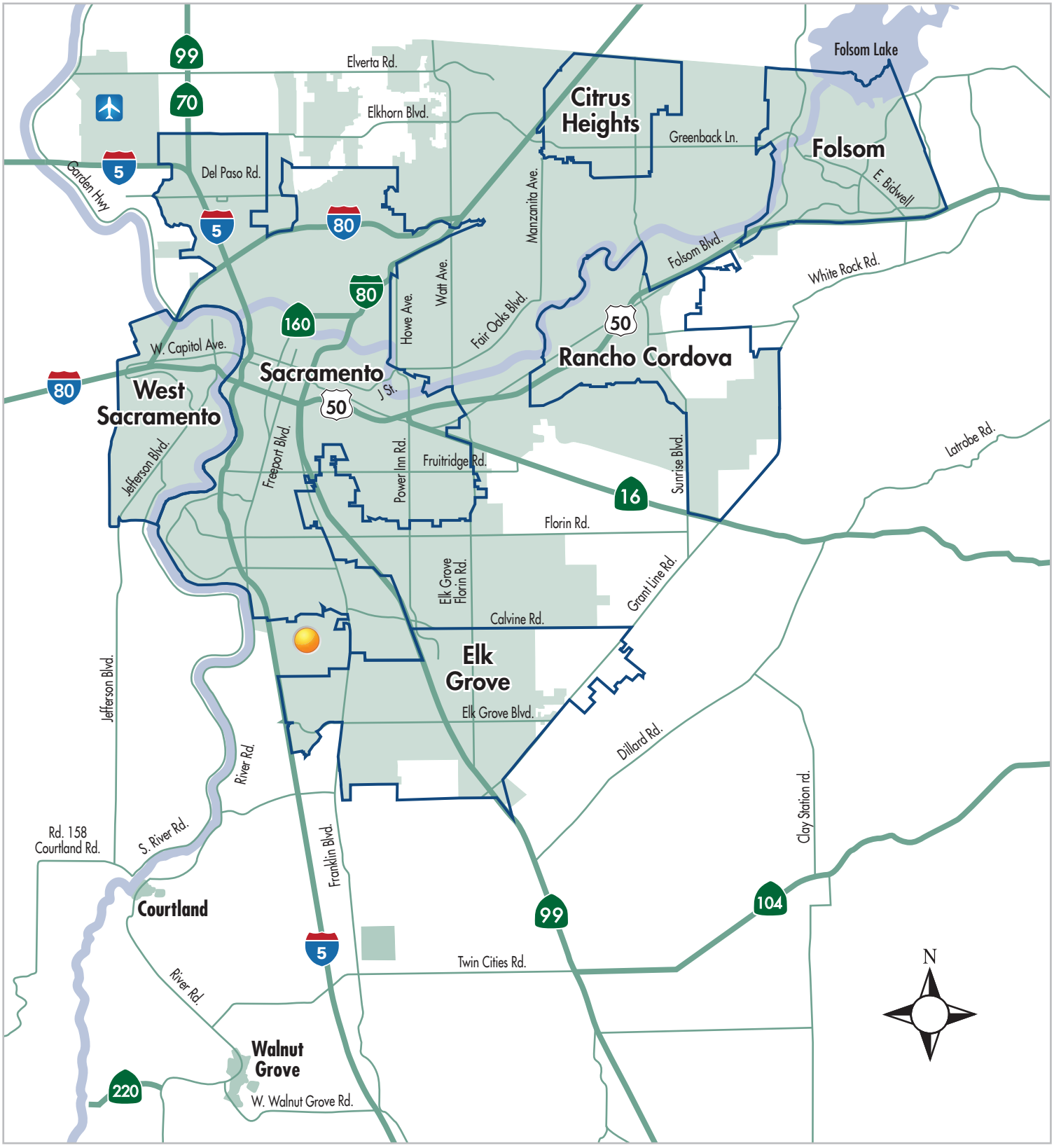
- PROPOSED CONTOUR
- EXISTING CONTOUR
- P=1022.0 PROPOSED PAD ELEVATION
- PROPOSED RETAINING WALL (H=12', MAX WALL HEIGHT)
- PROPOSED SLOPE BANK (2:1 UNLESS OTHERWISE NOTED; TOE; TOP)
- PROPOSED DAYLIGHT LINE
- PROPOSED DRAINAGE SYSTEM (OUTFALL; RSP)
- PROPOSED PEDESTRIAN TRAIL
- WETLAND
- 100 YR. WATER SURFACE ELEVATION

0 75' 150' 300'
SCALE: 1" = 150'



GRADING PLAN TENTATIVE SUBDIVISION MAP

SRCSD SERVICE AREA



LEGEND

- SRCSD Service Area
- City Boundaries
- Rivers
- Sacramento Regional Wastewater Treatment Plant
- Highways
- Main Roads

Exhibit G

SASD SERVICE AREA

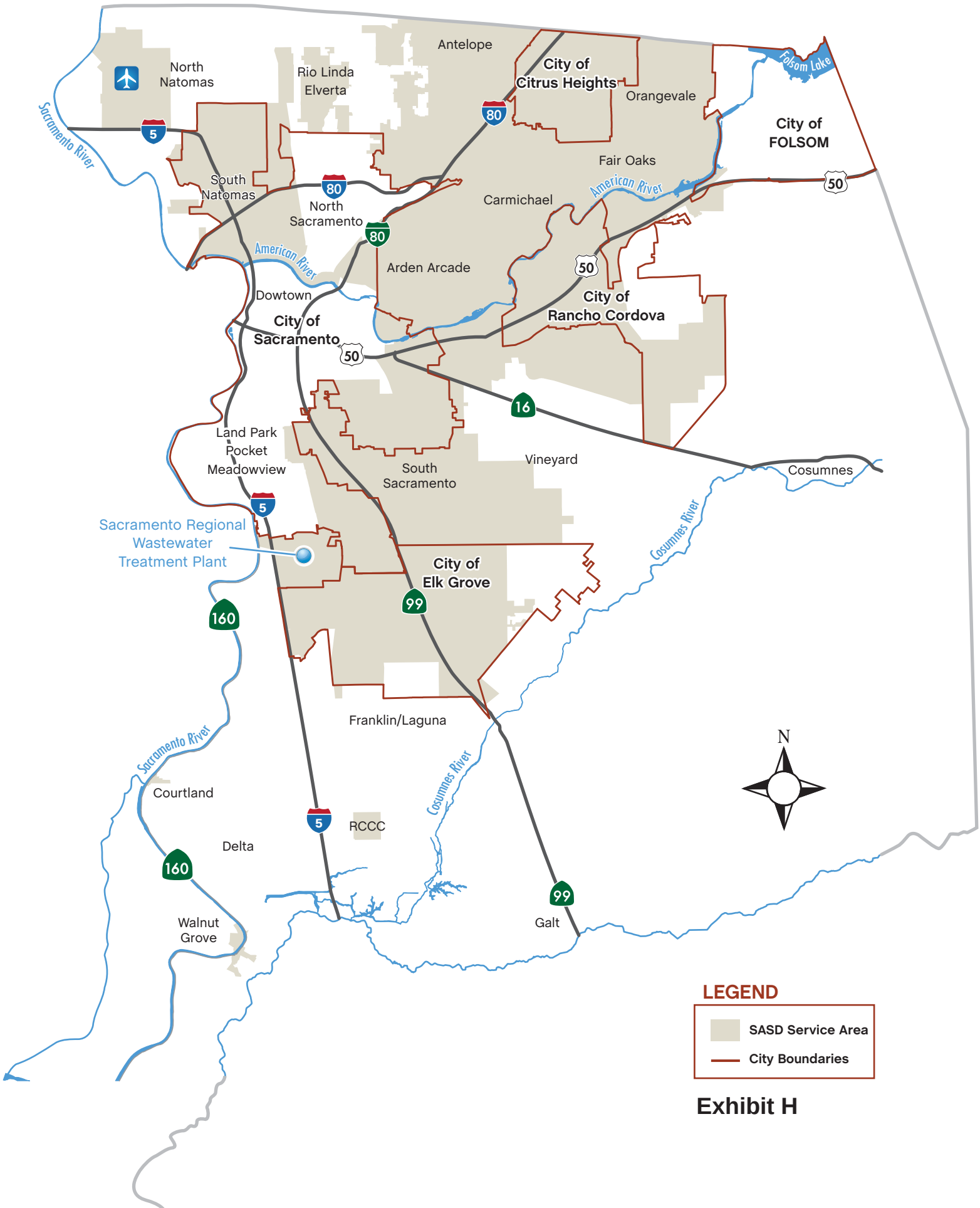
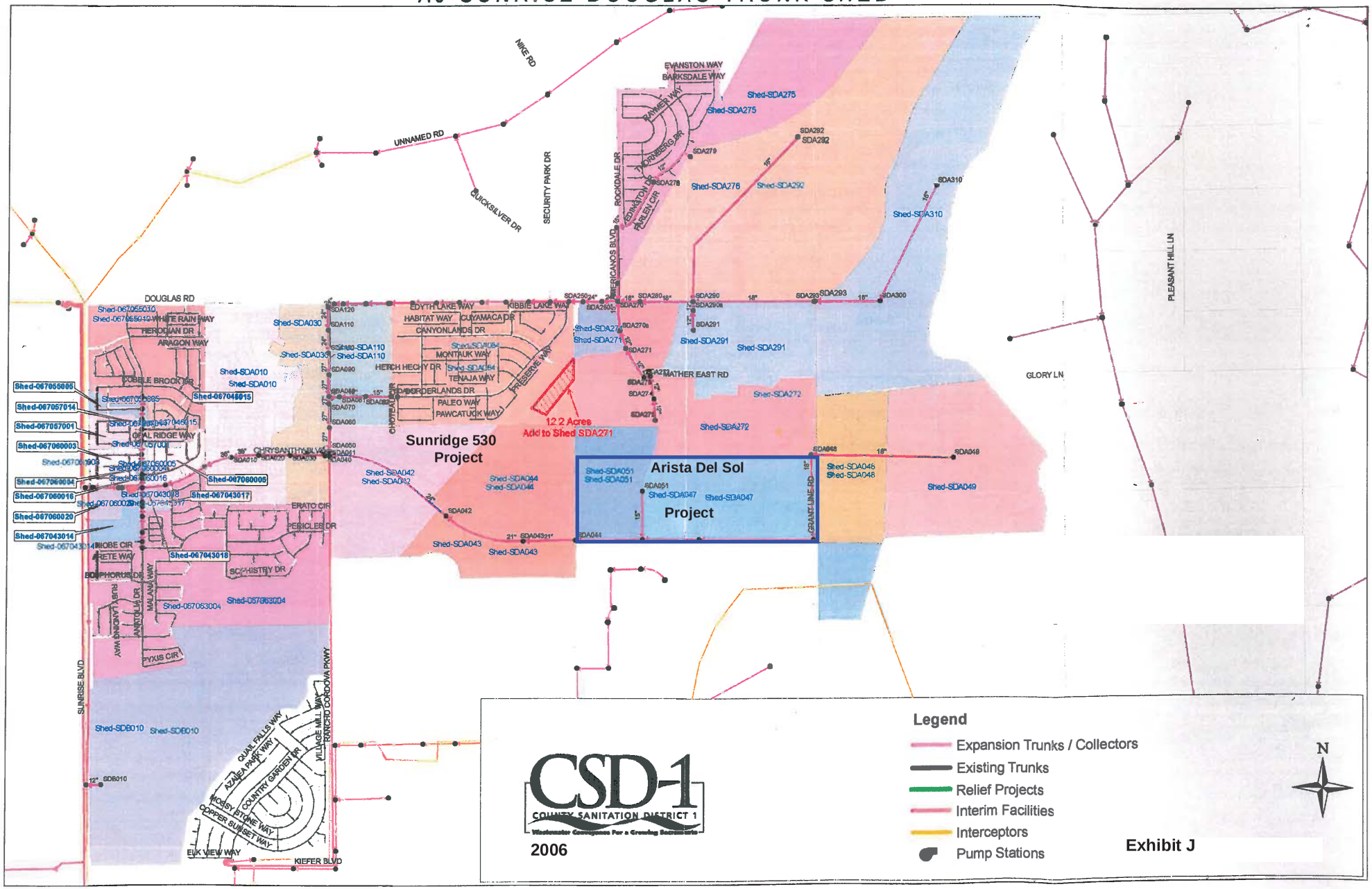
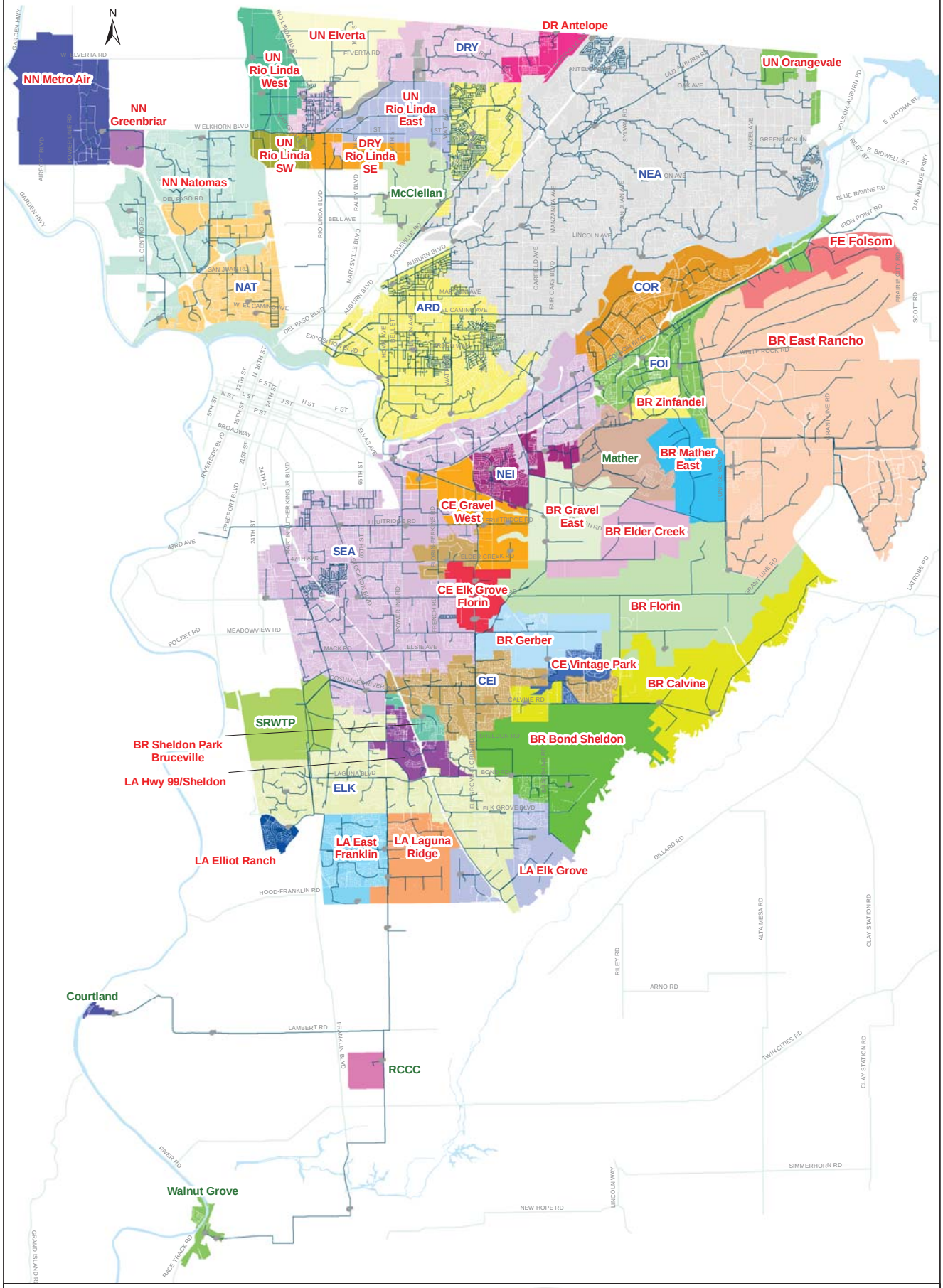


Exhibit H

AJ SUNRISE DOUGLAS TRUNK SHED





Legend

Blue Label: Relief Area Shed
Red Label: Expansion Area Shed
Green Label: To be Determined

SACRAMENTO AREA SEWER DISTRICT

2010 SASD SYSTEM CAPACITY PLAN

Trunk Sheds Map

FIGURE 6-1

Date last revised: 9/6/2011

SASD 2010 SYSTEM CAPACITY PLAN EXPANSION TRUNK SHEDS

BR EAST RANCHO TRUNK SHED – *2015 AMENDMENT*

Introduction

This amendment summarizes the new BR East Rancho near-term and buildout expansion trunk shed plans. Due to recent development activity, SASD has proceeded with an update to the BR East Rancho Expansion Trunk Shed Plan, ahead of the scheduled 2020 System Capacity Plan (SCP) update.

The information in the 2010 SCP BR East Rancho Expansion Trunk Shed Plan was used as a starting reference for this 2015 update. The latest approved sewer study information was included in the update, along with the most recent land use information from the City of Rancho Cordova and Sacramento County. Significant changes to the 2010 SCP were made in areas that were previously planned to be served by future interceptors.

Area Description

The BR East Rancho Trunk Shed encompasses a large area located in the eastern part of Sacramento County, south of Folsom Boulevard. The western half of the shed lies in the City of Rancho Cordova, east of Sunrise Boulevard. The shed extends east to the Urban Services Boundary. The southern boundary includes Grant Line Road and the Urban Services Boundary.

Trunk System Facilities

The BR East Rancho **buildout** expansion trunks are planned to drain to either of two locations which are referred to as Location #1 Outfall and Location #2 Outfall. Location #1 Outfall is located at the S132 Chrysanthy Pump Station (PS), and it will serve the developments in the southern portion of the BR East Rancho shed. Location #2 Outfall is located adjacent to White Rock Road, approximately one-half mile east of Sunrise Boulevard, and it will serve the developments in the northern portion of the BR East Rancho shed. Flows at the two outfall locations are planned to be conveyed by future Regional interceptor facilities.

For the **near-term** conditions, initial flows from the developments in the northern portion of BR East Rancho (Rio Del Oro and Westborough) will drain to the S070 Sunrise White Rock PS system on the interim basis. Ultimately these developments will discharge to Location #2 Outfall. Flows from the developments in the southern portion of BR East Rancho (Anatolia, Arista Del Sol, Cordova Hills, Montelena, North Douglas, Sunridge Lot J, Sunridge Park, and SunCreek) will be conveyed to the S132 Chrysanthy PS.

The BR East Rancho Trunk Shed near-term expansion trunk facilities will be presented first, followed by the buildout summary. The planning trunk facilities are summarized for each of the development areas. The development areas are defined by the sewer studies names, and the areas without sewer studies have been given a name in most cases.

Please refer to the **BR East Rancho Planned Development Areas** map (**Figure A.3-1)** when reviewing the trunk shed plan descriptions below.

A. BR East Rancho Near-Term Expansion Trunk Facilities (Figure A.3-2)

Anatolia, Montelena, Sunridge Lot J, Sunridge Park, and North Douglas – These sheds discharge to the existing trunk system. Their flows are conveyed to S132 PS.

Arista Del Sol – The shed is served by an interim PS. The interim force main will convey flow northward and connect to the existing Douglas Trunk.

Cordova Hills – Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Douglas Trunk on an interim basis. The upstream portion of the force main between the PS wet well and Chrysanthy Boulevard will be permanent. The downstream portion of the force main from Chrysanthy Boulevard to the existing Douglas Trunk will be interim until the permanent force main is extended west along Chrysanthy Boulevard and discharges to the Location #1 Outfall.

SunCreek – The Phase 1 development will be served by a new permanent PS. Its force main will convey flow northward and connect to the existing Aerojet Interceptor 1 on Chrysanthy Boulevard.

Rio Del Oro – The Phase 1 development will discharge to existing collectors on White Rock Road, and its flow will be conveyed to S070.

Westborough – The Phase 1 development will be served by an interim pump station. The interim force main will convey flow west along White Rock Road and discharge into the existing 10-inch S070 force main.

B. BR East Rancho Buildout Expansion Trunk Facilities (Figure A.3-3)

Aerojet Lands – This area currently does not have an approved sewer study. The proposed sewer system of the northern portion of this area has been redirected to drain to the Folsom East Interceptor; therefore, it is no longer a part of the BR East Rancho Trunk Shed. The southern portion of the Aerojet Lands area is planned to be served by a trunk that discharges to the Location #2 Outfall.

Anatolia – The trunk system that serves this area has been constructed, and no new trunks are required.

Arboretum – This area is planned to be served by a pump station and two trunk branches. The pump station will be located near the intersection of Jackson Highway and Sunrise Boulevard. The force main will convey flow to the north along Sunrise Boulevard and discharge to the Location #1 Outfall.

Arista Del Sol – Arista Del Sol is planned to be served by a trunk that will be constructed across The Ranch development. The connection point to this future trunk is located in the southwest corner of the development, near the shared boundary with The Ranch development.

Cordova Hills – Cordova Hills will be served by two trunk pump stations situated near each other in the southwest portion of the development. The north pump station will have two contributing trunks while the south pump station will have one contributing trunk. The south pump station will also serve significant areas that lie outside of the Cordova Hills development, known as South Cordova Hills. The pump station force mains convey flow northward to Chrysanthy Boulevard where they follow the right of way west and discharge to the Location #1 Outfall.

Douglas 98 – This area will drain to a future trunk extension of the existing Douglas Trunk.

Douglas 103 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Grantline 208 – This area requires no additional trunk facilities. Local collectors will discharge to the existing Douglas Trunk.

Montelena – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

North Cordova Hills – North Cordova Hills and the area located to the west currently have no sewer studies. The North Cordova Hills area is proposed to be served by two trunk pump stations located on Glory Lane. Both pump stations' force mains convey flow west along Glory Lane and Douglas Road to the Location #1 Outfall. Each pump station is served by a primary trunk and its minor trunk branches. The area to the immediate west of North Cordova Hills will be served by a trunk that discharges to the extension of the existing Douglas Trunk. The area to the northwest of North Cordova Hills and east of Rio Del Oro will be served by a trunk system that conveys flow to the west along White Rock Road and drains to the Location #2 Outfall.

North Douglas – The sewer system that serves this area has been constructed, and no new trunks are required.

Rio Del Oro – Rio Del Oro will be served by several trunks and a pump station. The proposed pump station located in the southwest corner of the development will serve the southern portion of the development. The pump station force main conveys flow south, adjacent to Sunrise Boulevard, to the Location #1 Outfall. The trunks serving the northern portion of Rio Del Oro will drain to the Location #2 Outfall.

South Cordova Hills – This area is located south of the Cordova Hills development, and it does not have a sewer study. This area is planned to be served by one of the Cordova Hills pump stations.

SunCreek – SunCreek will be served by two trunk pump stations. One proposed pump station is located approximately in the center of the development and will capture flow from the northern portions of the shed area via two trunks. Its force main will convey flow to the north along Rancho Cordova Parkway and discharge to the existing Aerojet Interceptor 1B located in Chrysanthy Boulevard. The second proposed pump station is located in the southwest corner of the development, and it serves the remainder of the shed. This pump station will also provide service to the Anatolia 3 development, which currently is draining to an interim pump station. The ultimate buildout force main of the second proposed pump station will convey flow to the north, along Sunrise Boulevard, and discharge to the Location #1 Outfall.

Sunridge Lot J – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

Sunridge Park – The trunk system that serves this development has been constructed. No additional trunk facilities are required.

The Ranch – The Ranch development is planned to be served by a future trunk that connects to the Aerojet Interceptor 1B located in Chrysanthy Boulevard.

Westborough – The Westborough development will be served by a trunk that discharges to the Location #2 Outfall.

Attribute data and model results for the BR East Rancho **buildout** expansion trunks are presented in the table below. The BR East Rancho Trunk Shed is subdivided into five smaller sub areas as shown in **Figure A.3-4**. **Figures A.3-5** through **A.3-9** display the details of each sub area which include the proposed trunk sewers, modeled manholes, and the contributing area to each manhole.

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2879-EN02	2879-EN01	Pump									6.7		
2207-EN03	2207-EN02	Gravity Main	15	475	139.0	117.4	138.0	108.9	1.800	5.6	0.9	16	0.8
2123-EN01	2207-EN02	Gravity Main	21	1965	140.5	111.7	138.0	108.9	0.140	3.9	1.0	25	0.5
2207-EN01	2291-EN01	Gravity Main	24	1285	139.0	107.9	134.5	106.1	0.140	5.5	2.6	47	0.5
2207-EN02	2207-EN01	Gravity Main	24	805	138.0	108.9	139.0	107.9	0.120	5.1	2.2	44	0.5
2291-EN01	2375-EN01	Gravity Main	27	2380	134.5	106.1	139.5	103.2	0.120	7.0	3.0	43	0.5
2375-EN01	2376-EN05	Gravity Main	27	740	139.5	103.2	136.5	102.3	0.120	7.0	3.7	53	0.5
2376-EN05	2376-EN03	Gravity Main	27	585	136.5	102.3	134.0	101.4	0.160	8.1	3.9	48	0.6
2376-EN01	2460-EN01	Gravity Main	30	935	130.5	99.9	128.5	98.7	0.120	9.2	4.9	53	0.5
2376-EN02	2376-EN01	Gravity Main	30	795	132.5	100.8	130.5	99.9	0.120	9.2	4.7	51	0.5
2376-EN03	2376-EN02	Gravity Main	30	455	134.0	101.4	132.5	100.8	0.120	9.2	4.6	50	0.5
2460-EN01	2460-EN02	Gravity Main	30	185	128.5	98.7	124.0	98.5	0.120	9.4	5.1	54	0.5
2460-EN02	2460-INT01	Gravity Main	30	311	124.0	98.5	124.7	98.2	0.100	8.4	5.1	60	0.5
2285-EN02	2285-EN01	Gravity Main	10	2269	275.6	261.0	258.0	240.0	0.920	1.4	1.3	93	0.8
2288-EN01	2373-EN01	Gravity Main	15	3313	194.7	173.1	191.1	167.1	0.180	1.8	1.1	62	0.6
2285-EN01	2286-EN01	Gravity Main	15	2961	258.0	233.2	229.7	212.0	0.720	3.5	2.3	64	0.8
2286-EN01	2287-EN01	Gravity Main	15	2884	229.7	212.0	201.7	186.3	0.890	4.0	3.5	89	0.7
2375-EN03	2375-EN02	Gravity Main	18	687	170.6	151.3	138.0	125.6	3.740	13.2	8.5	64	0.6
2287-EN01	2372-EN01	Gravity Main	27	2704	201.7	185.3	193.4	182.6	0.100	6.3	4.7	74	0.6
2372-EN01	2373-EN01	Gravity Main	27	2661	193.4	172.2	191.1	169.6	0.100	6.3	5.3	83	0.7
2375-EN02	2460-INT01	Gravity Main	27	2935	138.0	124.8	124.7	118.0	0.230	9.7	8.7	90	0.8
2373-EN01	2374-EN01	Gravity Main	30	2653	191.1	157.2	180.9	154.5	0.100	8.4	7.4	88	0.8
2374-EN01	2375-EN03	Gravity Main	30	3264	180.9	154.5	170.6	151.3	0.100	8.4	8.1	97	0.8
2452-EN01	2453-EN02	Gravity Main	10	1334	280.0	267.9	273.1	256.8	0.830	1.3	1.0	79	0.7
2453-EN01	2454-EN02	Gravity Main	12	2208	267.1	253.8	232.0	217.8	1.630	2.9	2.1	72	0.7
2537-EN01	2454-EN02	Gravity Main	12	2398	259.9	241.1	232.0	225.0	0.670	1.9	1.7	89	0.7
2453-EN02	2453-EN01	Gravity Main	15	1476	273.1	256.4	267.1	253.8	0.180	1.8	1.5	86	0.7
2537-EN02	2537-EN01	Gravity Main	15	1439	266.0	245.3	259.9	241.1	0.300	2.3	1.4	61	0.6
2454-EN01	2455-EN01	Gravity Main	18	2610	253.3	210.0	204.1	191.9	0.690	5.7	5.0	89	0.7
2454-EN02	2454-EN01	Gravity Main	18	1590	232.0	217.0	253.3	210.0	0.440	4.5	4.5	99	0.9
2623-EN01	2539-EN01	Gravity Main	10	2308	218.0	212.0	192.0	187.4	1.070	1.5	1.0	70	0.6
2539-EN01	2455-EN01	Gravity Main	15	2336	192.0	187.0	204.1	182.8	0.180	1.8	1.4	81	0.7
2374-EN02	2459-EN01	Gravity Main	21	2964	180.9	162.4	142.6	129.9	1.100	10.7	7.3	68	0.6
2459-EN01	2460-INT01	Gravity Main	24	3146	142.6	129.7	124.7	115.0	0.470	10.0	7.3	73	0.6
2371-EN01	2371-EN02	Gravity Main	30	638	240.0	179.8	191.4	179.2	0.100	8.4	7.4	88	0.7
2372-EN02	2373-EN02	Gravity Main	30	2751	190.1	168.0	180.2	165.3	0.100	8.4	7.4	88	0.7
2373-EN02	2374-EN02	Gravity Main	30	2825	180.2	165.3	180.9	162.4	0.100	8.4	7.3	87	0.7
2371-EN02	2372-EN02	Gravity Main	30	2683	191.4	179.2	190.1	176.5	0.100	8.4	7.4	88	0.7
2455-EN01	2371-EN01	Gravity Main	30	1719	204.1	181.5	240.0	179.8	0.100	8.4	6.9	83	0.8
2618-EN02	2618-EN01	Gravity Main	12	1316	222.1	204.5	202.0	193.0	0.870	2.2	1.2	54	0.5
2618-EN03	2618-EN02	Gravity Main	12	476	227.7	208.6	222.1	204.5	0.870	2.2	1.2	54	0.5
2618-EN01	2702-EN01	Gravity Main	18	1362	202.0	187.0	198.0	183.5	0.260	3.5	3.1	88	0.8
2786-EN01	2870-EN01	Gravity Main	18	2264	208.9	178.5	180.4	169.9	0.380	4.2	3.7	87	0.7
2702-EN01	2786-EN01	Gravity Main	18	1303	198.0	183.5	208.9	178.5	0.380	4.2	3.7	87	0.7
2870-EN01	2954-EN02	Gravity Main	21	2418	180.4	160.0	192.3	152.0	0.330	5.9	4.6	78	0.7
2954-EN02	2954-EN03	Gravity Main	24	535	192.3	152.0	158.0	150.4	0.310	8.1	5.4	66	0.6
2618-EN05	2618-EN04	Gravity Main	12	1437	224.3	213.0	206.0	193.0	1.390	2.7	1.0	36	0.4
2619-EN01	2618-EN05	Gravity Main	12	2104	254.4	240.8	224.3	213.0	1.320	2.7	1.0	37	0.4
2618-EN04	2618-EN01	Gravity Main	15	1300	206.0	192.6	202.0	187.2	0.410	2.7	1.7	62	0.7
3460-EN05	3460-EN06	Pump									6.8		

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

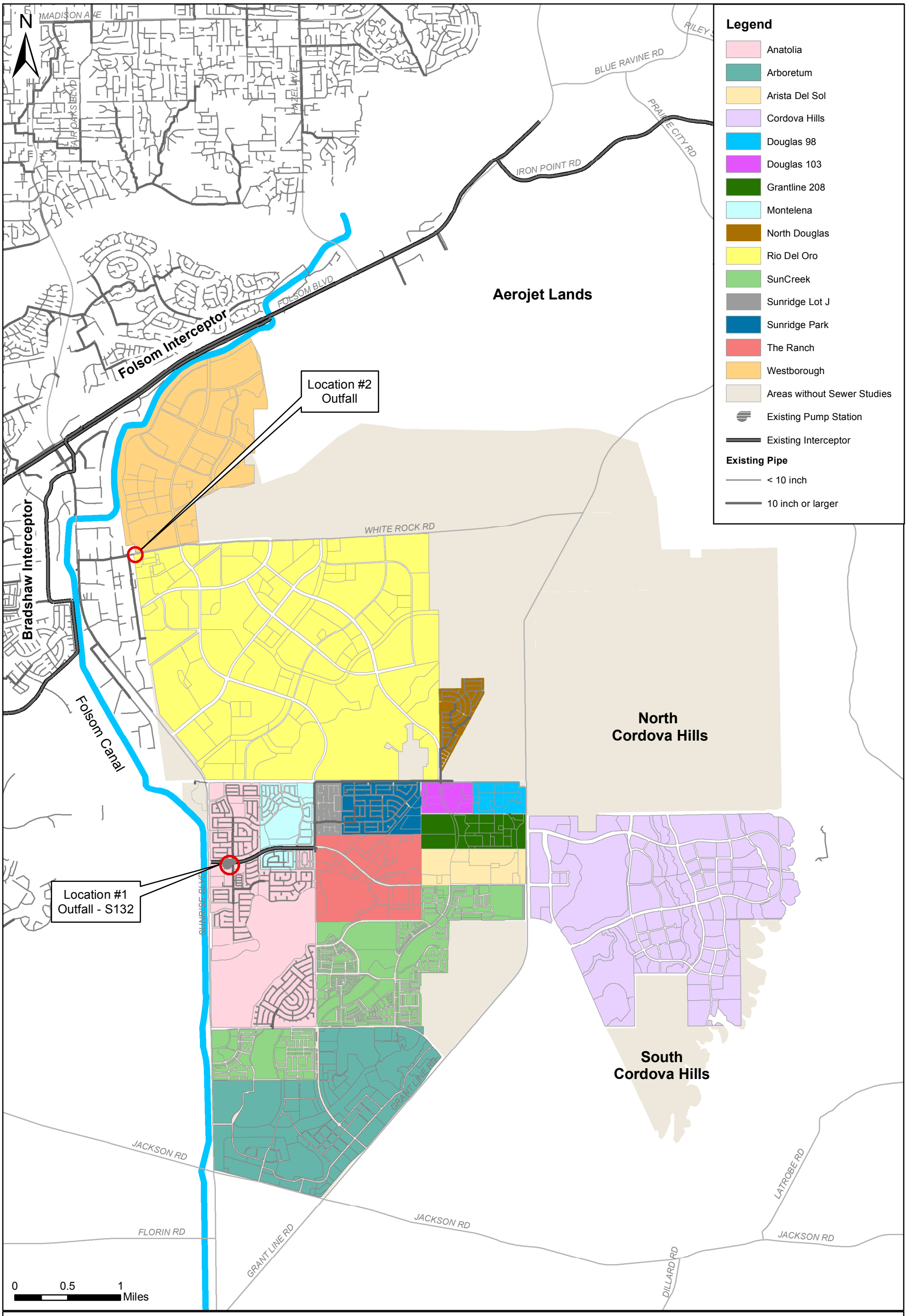
US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2787-EN02	2787-EN01	Gravity Main	12	1391	224.3	207.0	211.8	200.0	0.500	1.6	1.3	80	0.7
2787-EN01	2872-EN02	Gravity Main	15	1142	211.8	200.0	203.3	190.0	0.880	3.9	1.7	44	0.7
2872-EN02	2872-EN01	Gravity Main	15	1347	203.3	190.0	193.9	180.7	0.690	3.5	2.4	68	0.6
2872-EN01	2956-EN01	Gravity Main	18	687	193.9	180.5	188.1	177.0	0.500	4.8	3.5	73	0.6
2956-EN01	2955-EN02	Gravity Main	27	1171	188.1	171.2	184.0	170.0	0.100	6.3	4.5	72	0.6
2789-EN01	2873-EN02	Gravity Main	15	1479	257.3	231.9	256.0	229.3	0.180	1.8	1.3	76	0.8
2873-EN02	2873-EN01	Gravity Main	15	1263	256.0	229.3	248.0	227.0	0.180	1.8	1.6	90	0.7
2874-EN01	2874-EN02	Gravity Main	18	3042	247.8	220.2	215.4	191.0	0.960	6.7	2.4	37	0.6
2874-EN02	2875-EN02	Gravity Main	18	339	215.4	191.0	210.7	189.2	0.510	4.9	3.1	63	0.6
2875-EN01	326-227-1011	Gravity Main	18	349	208.6	187.5	206.3	185.3	0.630	5.4	3.1	57	0.7
2875-EN02	2875-EN01	Gravity Main	18	311	210.7	189.2	208.6	187.6	0.520	4.9	3.1	62	0.6
2873-EN01	2874-EN01	Gravity Main	21	202	248.0	220.5	247.8	220.2	0.120	3.6	2.4	69	0.6
2708-EN01	2709-EN02	Gravity Main	12	1480	198.3	171.4	172.0	162.0	0.630	1.8	1.2	64	0.6
2709-EN01	2710-EN01	Gravity Main	18	1402	173.7	150.0	164.1	147.4	0.190	2.9	2.2	75	0.9
2709-EN02	2709-EN01	Gravity Main	18	2589	172.0	156.5	173.7	150.3	0.240	3.3	1.8	53	0.5
2710-EN01	2794-EN01	Gravity Main	18	1820	164.1	147.7	150.0	142.3	0.300	3.7	2.9	79	0.7
2794-EN01	2795-EN03	Gravity Main	21	1945	150.0	142.0	152.0	139.7	0.120	3.6	3.2	90	0.7
2795-EN03	2879-EN03	Gravity Main	24	2195	152.0	136.1	146.0	133.7	0.110	4.9	3.8	78	0.7
2879-EN03	2879-EN02	Gravity Main	30	59	146.0	118.5	146.0	118.5	0.100	8.4	6.7	80	0.5
3460-EN03	3460-EN01	Pump									4.2		
2795-EN02	2795-EN01	Gravity Main	12	1788	164.8	128.4	148.0	122.7	0.320	1.3	1.1	86	0.7
2795-EN01	2879-EN03	Gravity Main	18	1904	148.0	122.2	146.0	119.5	0.140	2.5	1.8	70	0.6
2954-EN03	2954-EN01	Pump									5.4		
3205-EN01	3205-EN04	Gravity Main	15	625	155.0	125.9	147.0	124.5	0.230	2.0	1.4	70	0.7
3205-EN02	3205-EN01	Gravity Main	15	757	158.0	133.0	155.0	130.7	0.300	2.3	1.4	61	0.6
3290-EN01	3374-EN01	Gravity Main	15	1398	141.7	120.3	141.0	117.7	0.180	1.8	1.7	97	0.8
3290-EN02	3290-EN01	Gravity Main	15	566	151.6	121.3	141.7	120.3	0.180	1.8	1.7	93	0.8
3205-EN04	3206-EN02	Gravity Main	15	894	147.0	124.5	145.2	122.9	0.180	1.8	1.5	83	0.8
3206-EN02	3290-EN02	Gravity Main	15	892	145.2	122.9	151.6	121.3	0.180	1.8	1.7	93	0.8
3374-EN01	3458-EN01	Gravity Main	18	1743	141.0	117.5	142.1	114.8	0.150	2.7	1.8	68	0.7
3458-EN01	3459-EN03	Gravity Main	18	1743	142.1	114.8	136.0	112.4	0.140	2.5	1.9	74	0.6
3459-EN02	3543-EN01	Gravity Main	21	2126	138.0	110.9	142.7	108.3	0.120	3.6	2.9	81	0.8
3459-EN03	3459-EN02	Gravity Main	21	1051	136.0	112.1	138.0	110.9	0.120	3.6	2.6	72	0.7
3543-EN01	3627-EN01	Gravity Main	21	1861	142.7	108.3	132.1	106.1	0.120	3.6	3.2	90	0.7
3460-EN02	3460-EN03	Gravity Main	24	22	124.0	100.8	124.0	100.7	0.110	4.9	4.2	87	0.5
3627-EN01	3628-EN01	Gravity Main	24	1326	132.1	105.8	135.6	104.4	0.110	4.9	3.8	77	0.7
3628-EN01	3460-EN02	Gravity Main	24	3280	135.6	104.4	124.0	100.8	0.110	4.9	3.9	81	0.7
3123-EN04	3123-EN03	Gravity Main	12	735	185.0	177.6	187.0	175.2	0.330	1.3	0.9	70	0.6
3123-EN03	3207-EN07	Gravity Main	15	650	187.0	175.2	181.0	172.9	0.350	2.5	1.1	44	0.6
3207-EN06	3207-EN05	Gravity Main	15	784	182.0	170.0	177.0	167.5	0.320	2.4	1.5	62	0.6
3207-EN07	3207-EN06	Gravity Main	15	878	181.0	172.9	182.0	170.0	0.330	2.4	1.4	56	0.6
3291-EN05	3291-EN03	Gravity Main	18	567	164.4	154.4	166.5	153.6	0.140	2.6	2.1	81	0.8
3291-EN06	3291-EN07	Gravity Main	18	486	169.0	160.9	165.0	154.8	1.260	7.6	2.0	26	0.7
3291-EN07	3291-EN05	Gravity Main	18	291	165.0	154.8	164.4	154.4	0.140	2.5	2.0	80	0.7
3291-EN09	3291-EN06	Gravity Main	18	1182	172.0	165.0	169.0	160.9	0.350	4.0	1.9	48	0.5
3207-EN05	3291-EN09	Gravity Main	18	633	177.0	167.5	172.0	165.0	0.400	4.3	1.6	37	0.5
2955-EN02	2955-EN01	Pump									4.5		
3207-EN03	3207-EN02	Gravity Main	12	362	176.0	166.4	166.0	163.7	0.750	2.0	1.0	49	0.5
3207-EN01	3291-En04	Gravity Main	15	1385	170.1	159.6	173.8	156.2	0.250	2.1	1.1	53	0.6
3207-EN02	3207-EN01	Gravity Main	15	547	166.0	163.4	170.1	159.6	0.700	3.5	1.1	31	0.5

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
3291-EN04	3291-EN03	Gravity Main	18	936	173.8	156.2	166.5	153.6	0.280	3.6	1.7	48	0.8
3291-EN01	3376-EN03	Gravity Main	24	2503	161.8	148.0	148.0	134.0	0.560	11.0	4.1	37	0.4
3291-EN02	3291-EN01	Gravity Main	24	590	170.0	153.0	161.8	148.1	0.830	13.3	4.0	30	0.4
3376-EN01	3460-EN04	Gravity Main	24	180	142.0	124.2	132.0	120.9	1.840	19.8	4.5	23	0.6
3376-EN02	3376-EN01	Gravity Main	24	1123	138.0	129.0	142.0	124.3	0.420	9.5	4.5	48	0.5
3376-EN03	3376-EN02	Gravity Main	24	918	148.0	133.9	138.0	129.1	0.520	10.6	4.5	42	0.5
3291-EN03	3291-EN02	Gravity Main	24	386	166.5	153.6	170.0	153.0	0.160	5.8	3.9	67	0.6
3460-EN04	3460-EN05	Gravity Main	27	43	132.0	120.9	132.0	120.9	0.100	6.3	6.8	107	0.6
3293-EN01	3460-EN04	Gravity Main	10	4219	237.0	200.0	132.0	122.3	1.840	1.9	1.7	86	0.7
3209-EN01	3293-EN01	Gravity Main	12	899	237.0	206.9	237.0	200.0	0.770	2.0	1.4	69	0.6
3209-EN02	3209-EN01	Gravity Main	12	796	236.0	212.6	237.0	207.0	0.700	1.9	1.3	65	0.6
3209-EN03	3209-EN02	Gravity Main	12	957	238.0	217.4	236.0	212.7	0.490	1.6	0.9	55	0.5
3719-EN03	3719-EN02	Pump									3.7		
3213-EN01	3296-EN01	Gravity Main	15	859	169.0	154.5	162.5	153.0	0.180	1.8	1.0	58	0.6
3296-EN01	3296-EN02	Gravity Main	15	491	162.5	146.2	161.8	145.6	0.130	1.5	1.3	89	0.7
3211-EN01	3211-EN02	Gravity Main	15	373	181.0	168.6	180.0	168.0	0.160	1.7	0.9	54	0.5
3211-EN02	3212-EN03	Gravity Main	15	1287	180.0	168.0	173.4	165.7	0.180	1.8	0.9	50	0.5
3212-EN01	3213-EN01	Gravity Main	15	1694	172.0	161.7	169.0	158.6	0.180	1.8	1.0	55	0.5
3212-EN02	3212-EN01	Gravity Main	15	1024	170.8	163.6	172.0	161.7	0.180	1.8	1.0	53	0.5
3212-EN03	3212-EN02	Gravity Main	15	1142	173.4	165.7	170.8	163.6	0.180	1.8	0.9	52	0.5
3296-EN02	3296-EN10	Gravity Main	18	727	161.8	143.9	158.0	142.9	0.140	2.6	1.6	64	0.6
3296-EN10	3296-EN03	Gravity Main	24	62	158.0	142.4	158.0	142.3	0.110	4.9	4.4	91	0.5
3295-EN01	3296-EN07	Gravity Main	18	1591	172.0	155.9	162.1	153.7	0.140	2.5	2.0	78	0.7
3296-EN05	3296-EN10	Gravity Main	18	582	159.0	145.7	158.0	144.5	0.190	3.0	2.8	93	0.8
3296-EN06	3296-EN05	Gravity Main	18	719	164.0	148.0	159.0	147.0	0.140	2.5	2.0	78	0.7
3296-EN07	3296-EN06	Gravity Main	18	461	162.1	153.7	164.0	153.0	0.140	2.5	2.0	78	0.7
3551-EN02	3551-EN01	Pump									2.1		
3296-EN03	3296-EN04	Pump									4.4		
3466-EN01	3550-EN02	Gravity Main	18	2852	141.0	116.7	137.0	112.6	0.140	2.6	1.4	53	0.5
312-218-1016	3466-EN01	Gravity Main	18	809	132.0	117.8	141.0	116.7	0.140	2.5	1.4	54	0.5
3550-EN02	3551-EN02	Gravity Main	21	1998	137.0	110.6	131.0	107.7	0.140	3.9	2.1	53	0.5
3549-EN01	3550-EN01	Gravity Main	15	734	151.9	124.9	133.0	116.9	1.090	4.4	1.0	24	0.6
3550-EN01	3634-EN01	Gravity Main	15	724	133.0	116.9	142.2	115.6	0.180	1.8	1.1	63	0.6
3634-EN01	3718-EN04	Gravity Main	15	1967	142.2	115.6	128.1	112.1	0.180	1.8	1.2	67	0.6
3718-EN04	3718_EN03	Gravity Main	15	645	128.1	112.1	127.0	96.9	2.350	6.4	1.3	20	0.6
3718_EN03	3718-EN02	Gravity Main	18	341	127.0	96.6	127.0	96.2	0.140	2.5	1.9	76	0.6
3632-EN01	3717-EN04	Gravity Main	15	436	143.0	122.0	143.0	121.1	0.200	1.9	1.1	56	0.5
3717-EN04	3717-EN03	Gravity Main	15	1197	143.0	121.1	142.0	115.1	0.500	3.0	1.1	37	0.6
3717-EN02	3717-EN01	Gravity Main	18	1006	145.0	113.1	140.0	111.7	0.140	2.6	1.5	59	0.6
3717-EN03	3717-EN02	Gravity Main	18	1049	142.0	115.1	145.0	113.3	0.170	2.8	1.4	52	0.5
3717-EN01	3718-EN06	Gravity Main	18	669	140.0	111.7	140.0	110.5	0.170	2.8	1.6	55	0.6
3718-EN05	3718-EN02	Gravity Main	18	826	138.0	109.6	127.0	96.2	1.620	8.7	1.7	20	0.6
3718-EN06	3718-EN05	Gravity Main	18	865	140.0	110.5	138.0	109.6	0.110	2.3	1.6	69	0.6
3718-EN01	3719-EN01	Gravity Main	24	2006	129.9	94.9	118.0	93.1	0.090	4.4	3.7	86	0.7
3718-EN02	3718-EN01	Gravity Main	24	694	127.0	95.7	129.9	94.9	0.120	5.0	3.7	74	0.7
3719-EN01	3719-EN03	Gravity Main	24	35	118.0	93.1	122.0	92.8	0.780	12.9	3.7	29	0.4
3128-EN01	3045-EN01	Gravity Main	15	1136	189.2	154.8	184.0	152.8	0.180	1.8	1.5	82	0.7
3128-EN02	3128-EN01	Gravity Main	15	1303	193.4	157.2	189.2	154.8	0.180	1.8	1.5	82	0.7
3045-EN01	322-221-1009	Gravity Main	18	1715	184.0	152.5	179.7	150.1	0.140	2.5	1.8	70	0.6
2540-EN01	2541-EN02	Gravity Main	15	2147	175.2	159.4	172.0	155.6	0.180	1.8	1.2	69	0.6

BR East Rancho
Trunk Sewer Data and Model Results
Buildout 10-Year Design Storm

US Manhole	DS Manhole	Link Type	Diameter (in)	Length (ft)	US Rim Elev. (ft)	US Invert Elev. (ft)	DS Rim Elev. (ft)	DS Invert Elev. (ft)	Slope (%)	Full Capacity (mgd)	Peak Flow (mgd)	% Full Capacity	d/D
2458-EN01	2543-EN01	Gravity Main	18	1431	179.6	148.0	164.6	139.3	0.610	5.3	4.0	76	0.7
2544-EN02	2544-EN01	Gravity Main	18	813	158.2	135.4	136.0	130.0	0.660	5.5	5.4	97	0.8
2541-EN01	2542-EN01	Gravity Main	21	1682	173.8	152.7	173.4	150.7	0.120	3.5	3.3	94	0.9
2541-EN02	2541-EN01	Gravity Main	21	1330	172.0	155.1	173.8	153.5	0.120	3.6	2.7	76	0.7
2542-EN01	2458-EN01	Gravity Main	21	2211	173.4	150.5	179.6	147.9	0.120	3.6	3.7	105	1.0
2460-EN03	2460-INT01	Gravity Main	27	299	124.0	110.1	124.7	109.8	0.100	6.3	5.7	90	0.6
2543-EN01	2544-EN02	Gravity Main	27	3236	164.6	138.6	158.2	135.4	0.100	6.3	5.0	79	0.7
2544-EN01	2460-EN03	Gravity Main	27	2373	136.0	112.4	124.0	110.1	0.100	6.3	5.7	90	0.7
2954-EN03	3131-EN01	Force Main	15	31664	158.0	151.0	168.0	160.0			5.4		1.0
2955-EN02	3131-EN01	Force Main	15	26476	182.4	169.0	168.0	160.0			4.5		1.0
3460-EN03	3131-EN01	Force Main	12	25920	124.0	98.4	168.0	160.0			4.2		1.0
3460-EN05	3131-EN01	Force Main	15	24480	138.0	120.9	168.0	160.0			6.8		1.0
3296-EN03	N47-MH0108A	Force Main	12	8567	158.0	142.6	177.4	167.0			4.4		1.0
2879-EN02	3131-EN01	Force Main	14	6004	146.0	118.0	168.0	160.0			6.7		1.0
3719-EN03	3131-EN01	Force Main	12	16654	116.2	92.8	168.0	160.0			3.7		1.0
3551-EN02	3131-EN01	Force Main	12	11852	131.0	107.7	168.0	160.0			2.1		1.0



SACRAMENTO AREA SEWER DISTRICT

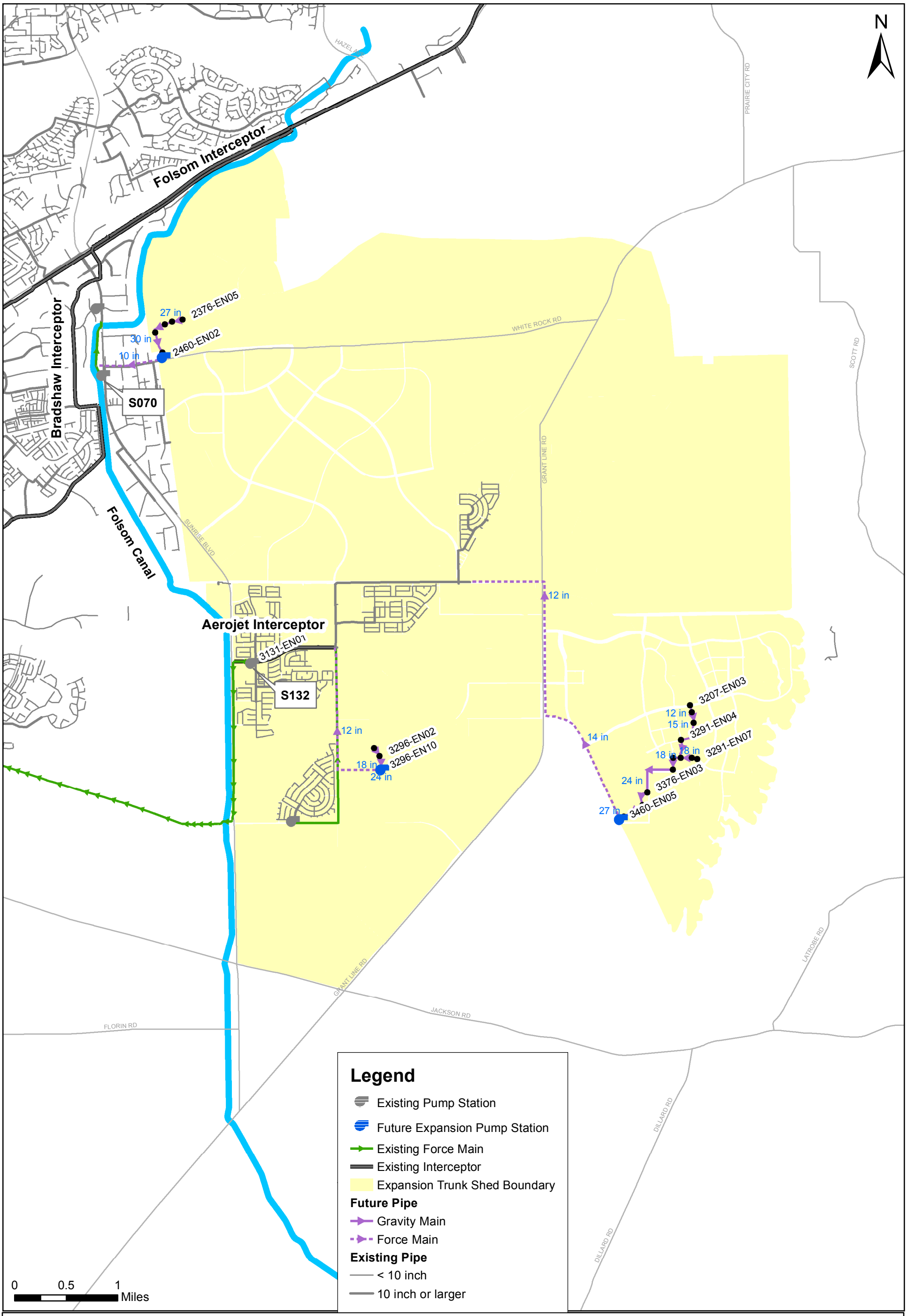
SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Planned Development Areas

Figure A.3-1

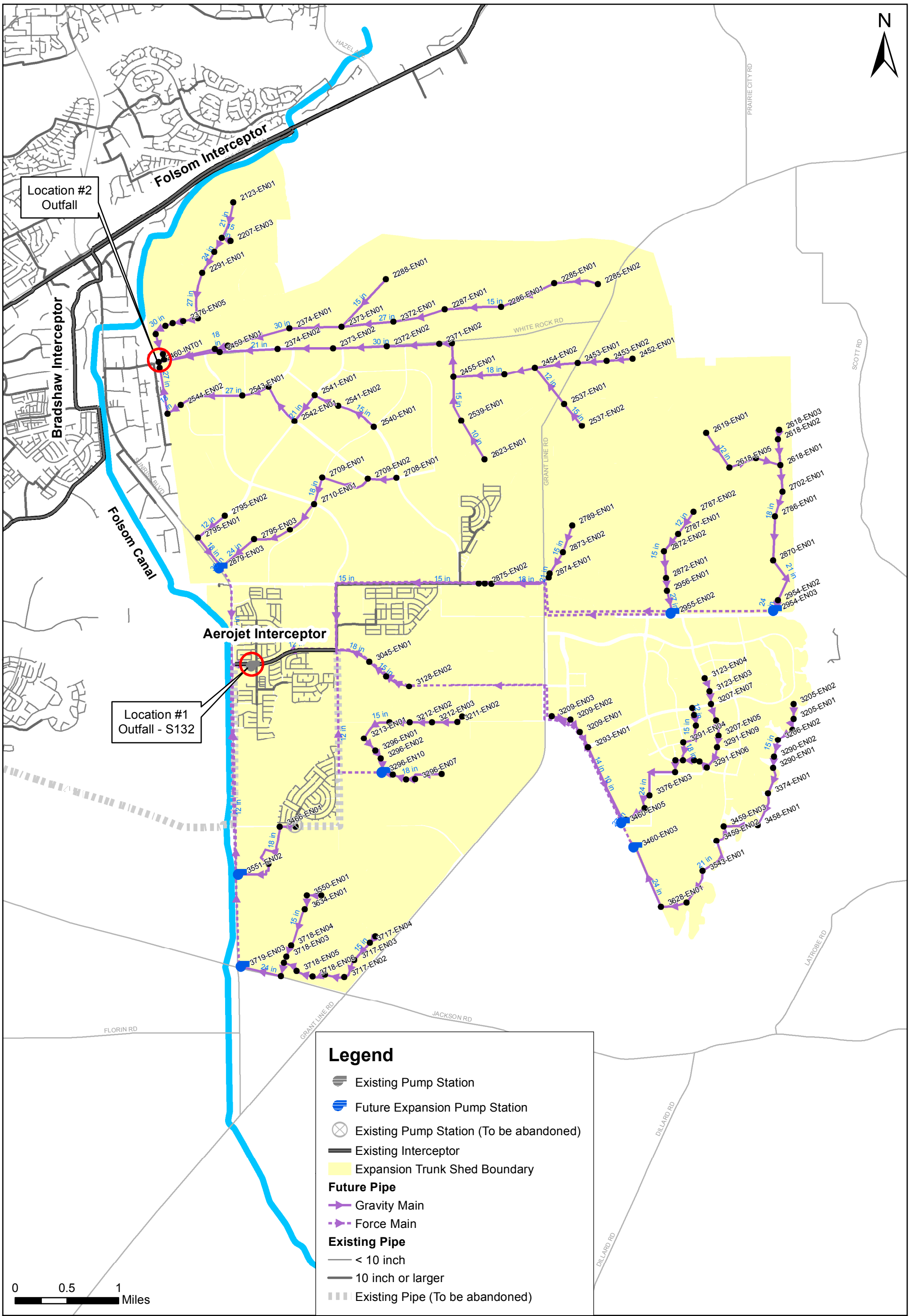
Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Near-Term Expansion Plan
Figure A.3-2

Updated: 8/24/2016



SACRAMENTO AREA SEWER DISTRICT

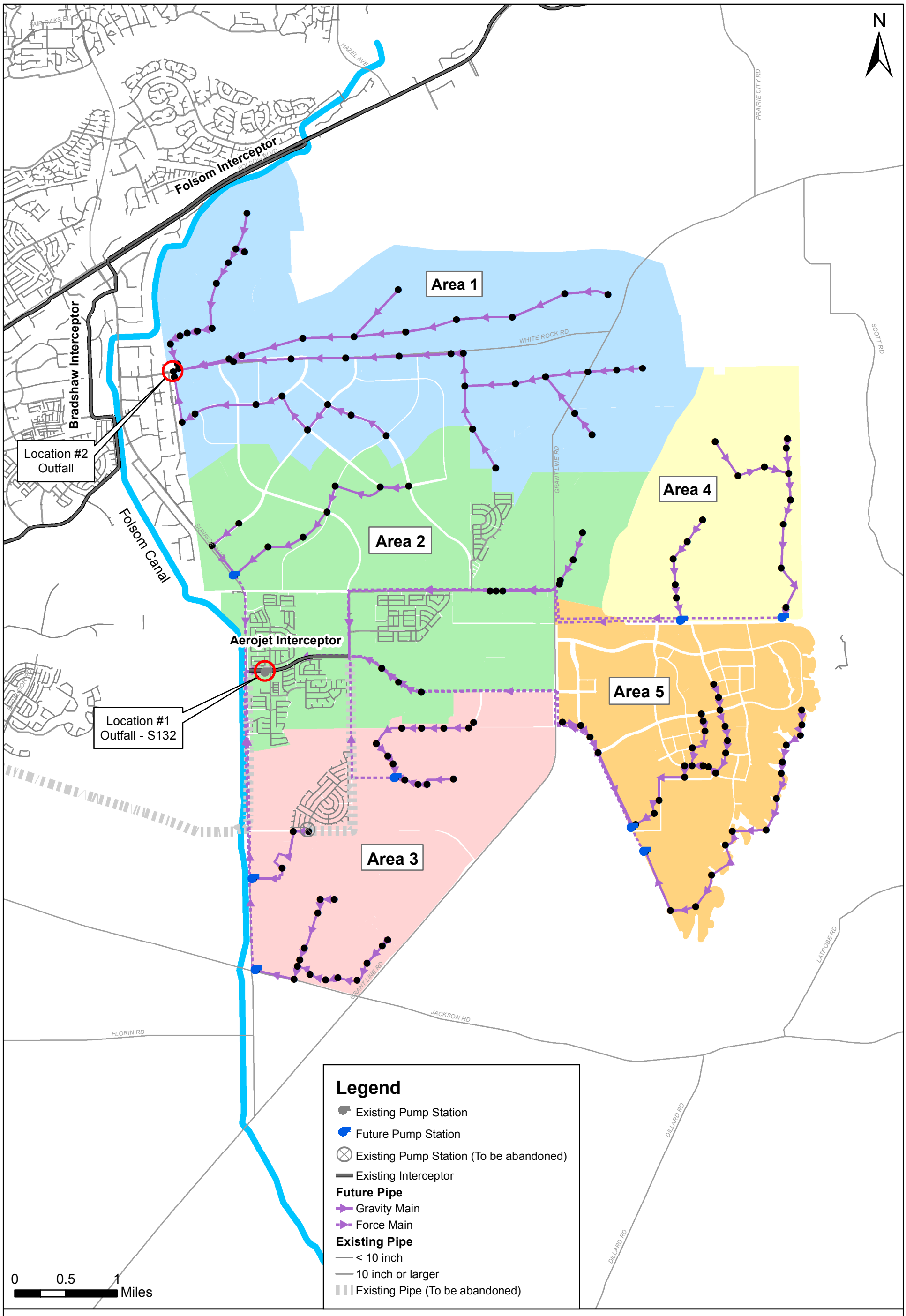
SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Buildout Expansion Plan

Figure A.3-3

Updated: 3/18/2016



SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map (Area 1 - Area 5)

Buildout Expansion Plan

FIGURE A.3-4

Updated: 3/18/2016

Legend

- Existing Pump Station
- Future Expansion Pump Station
- Existing Pump Station (To be abandoned)
- Existing Interceptor

Future Pipe
- Gravity Main
- Force Main

Existing Pipe
- < 10 inch
- 10 inch or larger
- Existing Pipe (To be abandoned)

Labeling
Black Label: Manhole ID
Red Label: Shed Label (corresponds to loading manhole)

Folsom Interceptor

Bradshaw Interceptor

Folsom Canal

Location #2 Outfall

2123-EN01
2207-EN02
2207-EN01
2207-EN03
2376-EN03
2291-EN01
2376-EN05
2375-EN01
2375-EN02
2375-EN03
2460-EN01
2460-INT01
2544-EN02
2544-EN01
2543-EN01
2458-EN01
2541-EN01
2541-EN02
2542-EN01
2540-EN01
2544-EN01
2288-EN01
2373-EN01
2374-EN01
2372-EN01
2287-EN01
2286-EN01
2285-EN01
2285-EN02
2371-EN01
2454-EN02
2454-EN01
2455-EN01
2453-EN01
2453-EN02
2452-EN01
2539-EN01
2537-EN01
2537-EN02
2623-EN01

0 0.5 1 Miles

N

SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map - Area 1

Buildout Expansion Plan

FIGURE A.3-5

Updated: 3/18/2016

Legend

- Future Expansion Pump Station
- Existing Pump Station
- Existing Pump Station (To be abandoned)
- Existing Interceptor
- Shed to Existing Trunk

Future Pipe
- Gravity Main
- Force Main

Existing Pipe
- < 10 inch
- 10 inch or larger
- Existing Pipe (To be abandoned)

Labeling
Black Label: Manhole ID
Red Label: Shed Label (corresponds to loading manhole)

N

2795-EN01
2795-EN02
2795-EN03
2709-EN01
2709-EN02
2710-EN01
2708-EN01
2794-EN01
2879-EN03
2789-EN01
2873-EN02
2873-EN01
2874-EN02
3045-EN01
3128-EN01
3128-EN02

Aerojet Interceptor

Location #1
Outfall - S132

Folsom Canal

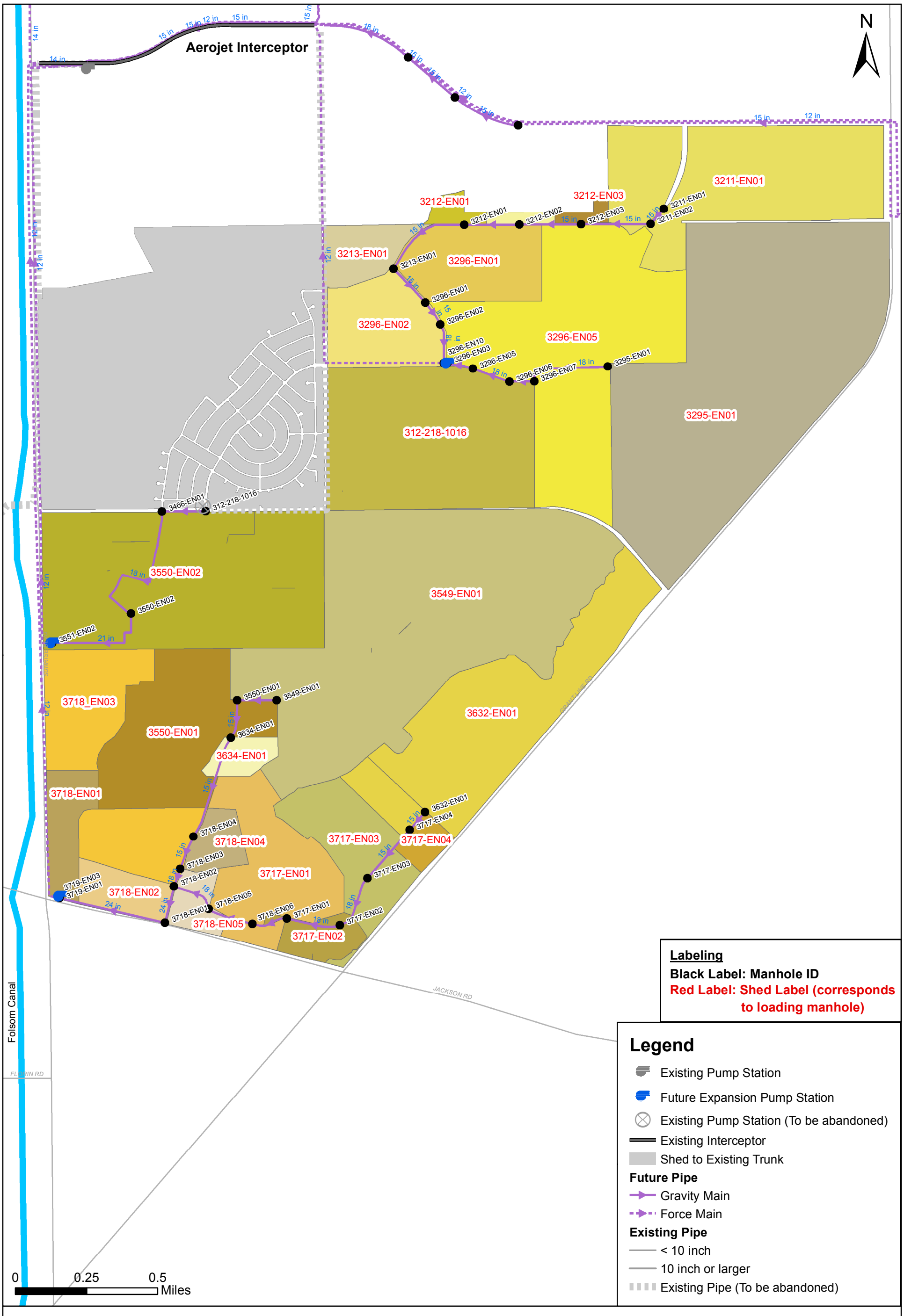
GRANT LINE RD
KIEFER BLVD

0 0.5 1 Miles

SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE
BR East Rancho
Sewer Shed Map - Area 2
Buildout Expansion Plan
FIGURE A.3-6

Updated: 3/18/2016



Labeling

Black Label: Manhole ID

Red Label: Shed Label (corresponds to loading manhole)

Legend

- Existing Pump Station
- Future Expansion Pump Station
- Existing Pump Station (To be abandoned)
- Existing Interceptor
- Shed to Existing Trunk

Future Pipe

- Gravity Main
- Force Main

Existing Pipe

- < 10 inch
- 10 inch or larger
- Existing Pipe (To be abandoned)

SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map - Area 3

Buildout Expansion Plan

FIGURE A.3-7

Updated: 3/18/2016

Legend

- Existing Pump Station
- Future Expansion Pump Station
- Existing Pump Station (To be abandoned)
- Existing Interceptor

Future Pipe

- Gravity Main
- Force Main

Existing Pipe

- < 10 inch
- 10 inch or larger
- Existing Pipe (To be abandoned)

Labeling

Black Label: Manhole ID

Red Label: Shed Label (corresponds to loading manhole)

N

UNNAMED

2618-EN03
2618-EN02
2618-EN01
2618-EN04
2619-EN01
2787-EN02
2787-EN01
2872-EN02
2702-EN01
2786-EN01
2870-EN01
2872-EN01
2956-EN01
2954-EN02
2955-EN02
2954-EN03
2618-EN05
2618-EN04
2619-EN01
2872-EN01
2956-EN01
2955-EN02
2787-EN02
2787-EN01
2872-EN02
2618-EN03
2618-EN02
2618-EN01
2618-EN04
2618-EN05
2618-EN01
2702-EN01
2786-EN01
2870-EN01
2954-EN02
2954-EN03

12 in
15 in
10 in
16 in
18 in
21 in
24 in
27 in

GRANT LINE
PLEASANT HILL
GLORY

0 0.25 0.5 Miles

SACRAMENTO AREA SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

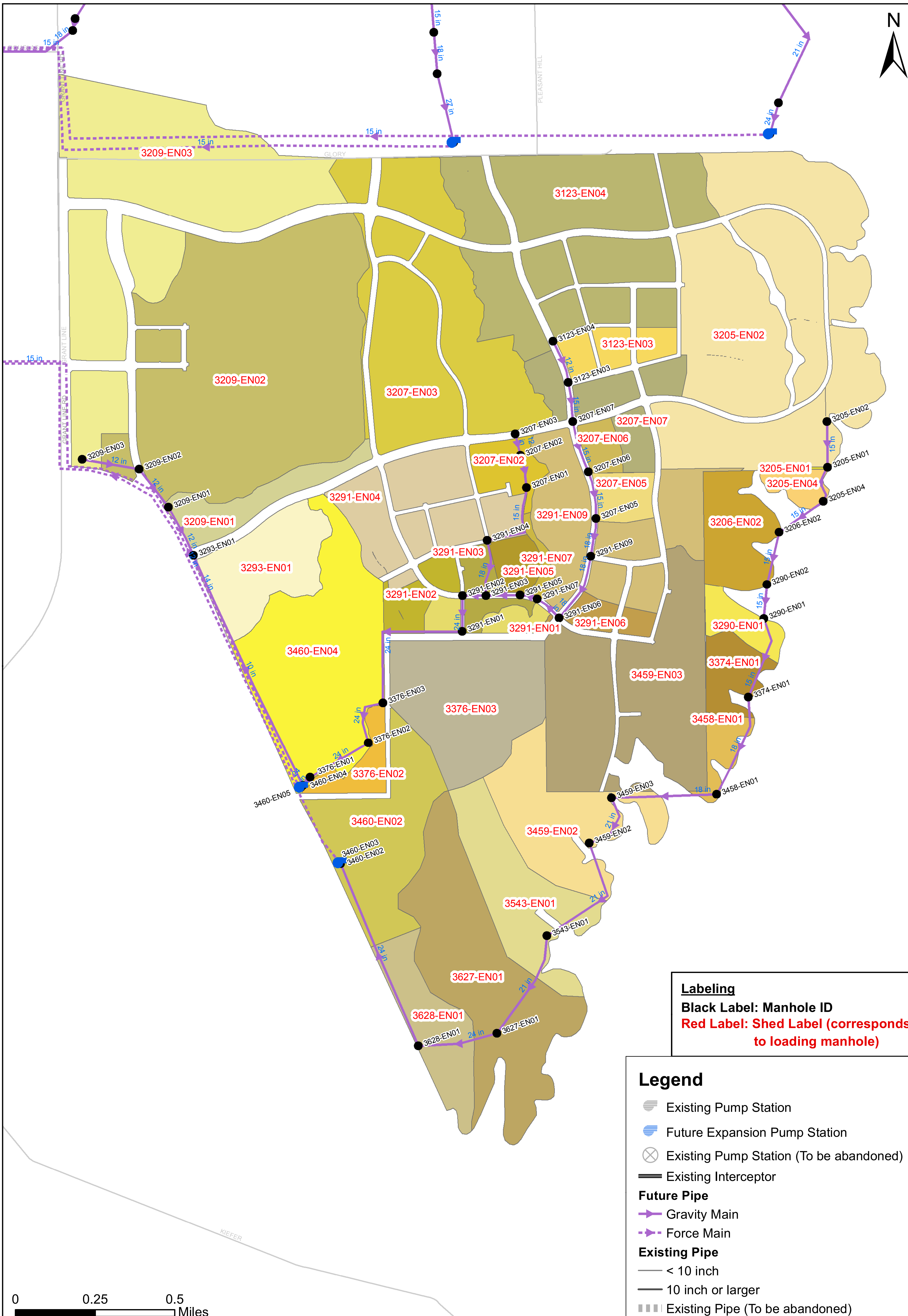
BR East Rancho

Sewer Shed Map - Area 4

Buildout Expansion Plan

FIGURE A.3-8

Updated: 3/18/2016



SACRAMENTO AREA
SEWER DISTRICT

SASD SYSTEM CAPACITY PLAN - 2015 UPDATE

BR East Rancho

Sewer Shed Map - Area 5

Buildout Expansion Plan

FIGURE A.3-9

Updated: 3/18/2016