



Appendix J

Master Water and Sewer Reports

Water System Analysis for: The Vineyard, Curci, Costco, & Candee Properties

The following is a water system analysis for four commercial projects located on the north side of Clinton Keith Road just east of I-215 in Murrieta California. Proposed water facilities for the four developments consist of a 12" public line located in Warm Springs Parkway. Warm Springs Parkway is a public road proposed as an offsite improvement conditioned for three of the projects listed in the title line above. Additional fire and domestic services are also taken from the existing 18" public water line in Clinton Keith Road and an existing 24" line running north and south parallel to and adjacent east of I-215. This analysis consists of water demand calculations and a hydraulics analysis of proposed public facilities. Water demand calculations were completed in accordance with Eastern Municipal Water District, 2015 WFMP. Figure 1- Water Systems Analysis for The Vineyards, Curci, Costco & Candee Projects, included with this analysis, show existing and proposed water facilities for the four developments. Fire flow simulations were conducted by Eastern Municipal Water District, (EMWD). For The Vineyard, Curci and Candee projects, EMWD model assumed simultaneous flows of 1500 GPM at two locations or a total fire flow of 3000 GPM. The model shows that the existing public water system can deliver 3000 GPM at a residual pressure of 61.56 GPM. For the Costco site, a separate fire flow simulation was conducted based on a required fire flow of 4000 GPM. Both simulation summaries are attached. From calculations below it is found that the greatest demand occurs when maximum daily demand and fire flows are combined. Four separate scenarios are examined. Each scenario is described below.

Scenario 1: Referring to Figure 1, this scenario assumes domestic use by The Vineyard, Curci, Costco and Candee and a fire in The Vineyard, requiring 3000 GPM fire flow plus domestic demand. A hydraulic analysis is performed at Point F on the new 12" pipe and the fire service at Point A. Fire flow is provided at 2 points, Point A and B for the west side and Points D and E on the east side

Scenario 2: Referring to Figure 1, this scenario assumes domestic use by The Vineyard, Curci, Costco, and Candee, and a fire in property Candee, requiring 3000 GPM fire flow plus domestic demand. The analysis is again performed at Points F and I.

Scenario 3: Referring to Figure 1, this scenario assumes domestic use by Curci, and a fire in Curci, requiring 3000 GPM fire flow. The improvements are the two 8" fire services connected to the existing 24" waterline, identified as Points G & H. Both the fire services and domestic services are fed from an existing 24" public line. Only the fire service is analyzed.

Scenario 4: Referring to Figure 1, this scenario assumes a fire at the Costco property. Two 10" fire services are proposed for the development. One fire service is proposed at the northwest corner of the project with the second service proposed on the east side at Warm Springs Parkway. The west side connection, identified as point J in Figure 1, ties an existing 24" waterline described above. The east side fire service, identified as point K in Figure 1, connects to a proposed 12 water line in Warm Springs Parkway. Scenario 4 assumes a fire flow of 2000 GPM at point J, 2000 GPM at point K, and domestic flows for all four developments.

Water Demand Calculations

Average Day Demand, ADD	Commercial: 2,200 GPD/ GR. AC.					
The Vineyard	11.75 AC	x	2,200	GPD/GR. AC.	=	25,850 GPD
Costco	16.42 AC	x	2,200	GPD/GR. AC.	=	36,124 GPD
Candee	9.58 AC	x	2,200	GPD/GR. AC.	=	21,076 GPD
TOTAL	37.75 AC	x	2,200	GPD/GR. AC.	=	83,050 GPD

Water Demand Calculations (Continued)

Average Day Demand, ADD Commercial: 2,200 GPD/ GR. AC.

Curci	6.65 AC	x	2,200	GPD/GR. AC.	=	14,630	GPD
The Vineyard West	4.40 AC	x	2,200	GPD/GR. AC.	=	9,680	GPD
The Vineyard East	7.25 AC	x	2,200	GPD/GR. AC.	=	15,950	GPD

Maximum Day Demand, MDD Commercial: 2.0 x ADD

The Vineyard	2.0	x	25,850	GPD	=	51,700	GPD
Costco	2.0	x	36,124	GPD	=	72,248	GPD
Candee	2.0	x	21,076	GPD	=	42,152	GPD
TOTAL	2.0	x	83,050	GPD	=	166,100	GPD

Curci	2.0	x	14,630	GPD	=	29,260	GPD
The Vineyard West	2.0	x	9,680	GPD	=	19,360	GPD
The Vineyard East	2.0	x	15,950	GPD	=	31,900	GPD

Peak Hour Demand, PHD Commercial: 2.0 x MDD

The Vineyard	2.0	x	51,700	GPD	=	103,400	GPD
Costco	2.0	x	72,248	GPD	=	144,496	GPD
Candee	2.0	x	42,152	GPD	=	84,304	GPD
TOTAL	2.0	x	166,100	GPD	=	332,200	GPD
					=	230.69	GPM

Curci	2.0	x	29,260	GPD	=	58,520	GPD
					=	40.64	GPM
The Vineyard West	2.0	x	19,360	GPD	=	38,720	GPD
					=	26.89	GPM
The Vineyard East	2.0	x	31,900	GPD	=	63,800	GPD
					=	44.31	GPM

Peak Hour Demand + Fire Flow Commercial: PHD + FF

The Vineyard	103,400	GPD	÷	1,440	Min/Day	=	72	
Costco	144,496	GPD	÷	1,440	Min/Day	=	100	
Candee	84,304	GPD	÷	1,440	Min/Day	=	59	GPM
TOTAL	332,200	GPD	÷	1,440	Min/Day	=	230.69	GPM
			+	3000	GPM		3,230.69	GPM

Hydraulic Calculations

Velocities and pressure loss in water pipes were calculated by Hazen-Williams Formula. The Hazen Williams formula is shown below. All three scenarios were analyzed and detailed below.

$$V = 1.318C(D/4)^{0.03} S^{0.54}, \text{ Where } S = h_f/L \text{ and } Q = V \pi^2 D^5/4$$

V=Flow Velocity (FPS)

C=Hazen Williams Coefficient, Use C=150

D=Diameter of Pipe

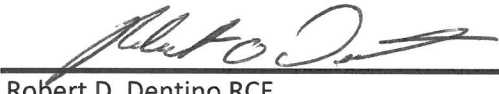
Q=Rate of Flow (GPM)

Maximum Flow	Pipe Diameter	Flow Velocity (FPS)	Unit Pressure Loss (psi)	Total Pressure Loss (psi)
Scenario 1:				
Points A & B or D & E Fire flow only, 3000 GPM fire flow is delivered to the site, distributed at two locations.				
3000/2 = 1500 GPM	8"	9.57	0.0128	0.77 (L=60')
At Point F: Total Demand = Fire flow of 1500 GPM plus domestic demand for The Vineyard, Costco, & Candee. Fire at the Vineyard.				
1500 GPM + 230.69 GPM = 1,730.69 GPM	12"	4.91	0.0025	2.96 (L=1,250')
Scenario 2:				
At Point F: Total Demand = Fire flow of 1500 GPM plus domestic demand for The Vineyard, Costco, & Candee. Fire at Candee.				
3000 GPM + 230.69 GPM = 3,230.69 GPM				
3,289.54 GPM	12"	9.16	0.0074	9.19 (L=1,250')
Scenario 3:				
Points G & H: Total demand = a fire flow of 3000 GPM divided by 2				
3000 / 2 = 1500 GPM	8"	9.57	0.0128	0.77 (L=60')
Scenario 4:				
Points J & K: Total demand = a fire flow of 4000 GPM divided by 2				
4000 / 2 = 2000 GPM	10"	8.17	0.0074	0.48 (L=66')
Point F: Total demand = a fire flow of 4000 GPM divided by 2 plus domestic for The Vineyard East & West, Candee and Costco				
2000 GPM + 230.69 GPM = 2,230.69 GPM	12"	6.33	0.0037	4.63(L=1250')

Summary

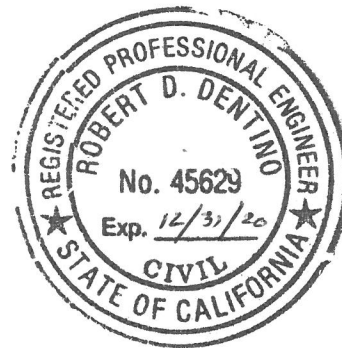
Calculations were performed under 4 scenarios assumed to be points where maximum flow would occur. Referring to Figure 1 and calculations on previous pages, Scenario 2, flow at Point F was found to be the greatest. With a fire flow of 3000 GPM and domestic demand of 230.69 gpm, or a total flow of 3,230.69 GPM, maximum velocities we found to be 9.33 FPS. Calculations indicate a pressure drop at point I to be 9.19 psi. From fire flow tests, assuming a residual pressure of 60 psi at point F and a pressure drop of 9.19 psi residual pressure at the very north end of the proposed 12" water line is calculated to be 50.8 psi. Scenarios 1, 3, & 4 examined fire flows only. With 8" laterals proposed, maximum flows of 1500 GPM yielded velocities of 9.57 FPS. While maximum velocities at relatively high, 9.57 FPS is well within acceptable levels for materials proposed. Scenario 4 analyzed flows in 10" laterals. Resulting calculations showed that with fire flows of 2000 GPM per service velocities of 8.17 FPS are anticipated. With a minimum requirement of 20 psi residual, the proposed 12" water main and 8" and 10" fire services will convey maximum day demand combined with fire flows.

Prepared Under My Supervision



Robert D. Dentino RCE

4/03/20
Date



I:\16\16063\Documents\EMWD Plan of Service\Sewer Study\Costco, Curci, Candee\Current Sewer Water Study-8-9-2019\16-063-Water-Study-Exhibit.dwg 9/4/2019 5:06 PM ORIGINAL PLOT SIZE: PDF 11X17

LEGEND

- PROJECT SITE BOUNDARY
- PROPOSED WATER LINES (PUBLIC)
- EXISTING WATER LINES
- PROPOSED FIRE LINES (PRIVATE)

SITE AREA TABLE	
SITE	AREA (AC.)
THE VINEYARD	11.65
COSTCO	26.05
CURCI	6.65
CANDEE	9.58

AREA TABLE		
SITE	AREA (AC.)	
	WEST	EAST
THE VINEYARD	4.40	7.25
THE VINEYARD (TOTAL)	11.73	
COSTCO	26.05	
CURCI	6.65	
CANDEE	9.58	

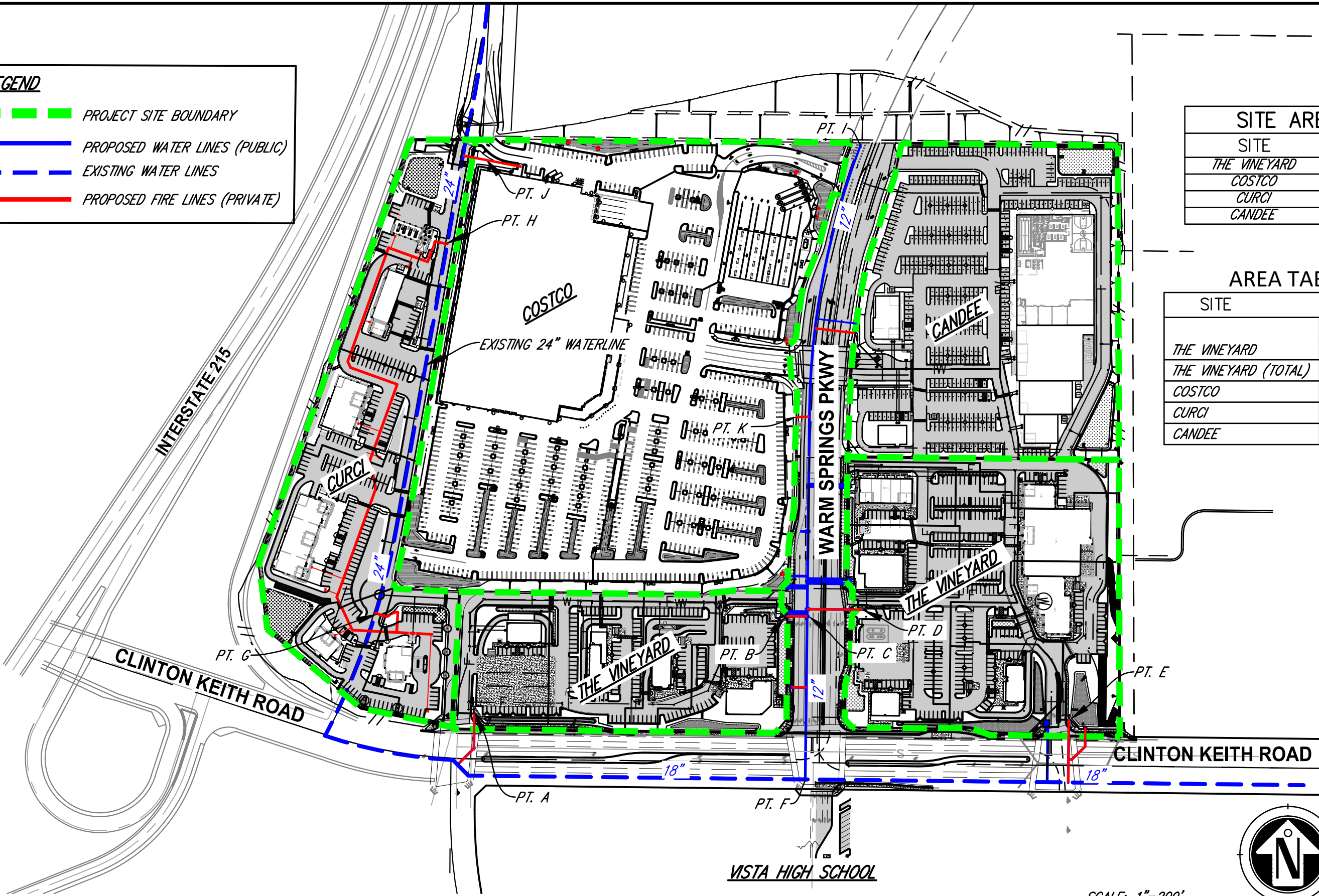
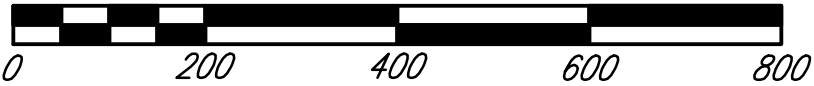


FIGURE 1 – WATER SYSTEMS ANALYSIS FOR THE VINEYARD, CURCI, COSTCO & CANDEE PROJECTS

SCALE: 1"=200'



COMPUTER MODEL TEST

Grid Number:	13A		Date:	12-6-2017	
Customer Name:	CK 17 The Vineyards		Address:	41623 Margarita Road # 100	
City, State Zip:	Temecula, CA 92591				
Contact Name:	Allan Davis				
Phone:	(951) 491-6309		Cell:	(760) 518-0660	
Fax:			Email:	ADAVIS@RETAILDEVELOPMENTADVISORS.COM	
Project Record Number:	WS20170001142		WO/CO:	WO 15777	
Project Name:	The Vineyards		APN:	392-290-051	
(Approximate) Test & Hydrant Location:	(1) 49 feet East of the intersection of Whitewood Rd. & Clinton Keith Rd. (2) 782 feet East of the intersection of Whitewood Rd. & Clinton Keith Rd.				
MODEL	NBD_EMWD_POTABLE_20170321_POS FF Diurnal_v1				
POC Test Location:	EMWD RESULTS			Requested	Flow Availability
	Fire Flow POC 1	Fire Flow POC 2		Requested	for Fire Department
Elevation (Ft):	1,520	1,516			
Steady State, Dynamic (psi):	72.50	74.29			
Residual Pressure (psi):	60	61.56			
Tested FF(gpm):	1,500	1,500			
Combined Total (gpm):	Fire Flow 3,000 / MDD 23 at POC 1 & 2			3,000	
Number of Hydrants:	Used 2 Test Nodes			2	
Duration Tested @:	3 Hour			3	
Demand Conditions:	Max Day				
Pressure Zone/Tank Name(s)/Level(s):	PZ 1698K Keller Tank I - Base Elevation 1660 Feet				
Pump Operating Status:	ON		Computer Model Setting	EPS	
Number of Points of connections (POC):	POC (Circle One)		Reason (Circle what Applies)		
	One	Two or More	Plan of Service	Limited Capacity (Existing Systems)	Supply Redundancy
			Conditions of Approval	Fire Sprinkler Connection(s)	
Comments:	The water system is capable of providing 3,023 GPM for 3 hours at a minimum of 20 psi, as shown in the attached map. These Fire Flow test results may need to be complemented by a Plan of Service and do not include all facility conditioning that may be required for this project. <u>Fire Flow Requirements or COA's were not provided, if any Fire Flow changes occur in the COA, you may need to resubmit another Fire Flow test at the requester's expense.</u>				

The above results are not a guarantee the District's system will supply water to the project at any specific flows or pressures. These results were determined from a computer simulation of the District's water system and/or from hydraulic calculations pertaining to distribution pipelines: The capacity of the service laterals, meters, backflow assemblies, on-site fire system, and other appurtenances were not considered in these results. The design and sizing of service laterals and downstream facilities shall be the responsibility of the Project Sponsor.

EMWD's Fire Flow test results are valid for 12 months from the date of testing.

RUDY ESPARZA

Completed By: _____

Should you have any questions or need additional information, please contact me at (951) 928-3777, ext. 4478.

Sincerely, RE

Rudy Esparza
 Sr. Engineering Technician
 New Business Development

Date: 12-6-2017

Date: 12/6/17

Reviewed By: EC

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results



Project Name: THE VINYARD WS2017-1142
Pressure Zone: 1698K
Model Version (12)POS 20170321 POS FF Diurnal v1

ADD (GPM): 11
FFD (GPM): 1,500
Duration (Hours): 3

POC Location: POC-1 Elevation (ft): 1,520.0 APN / TR: / WO 392-290-051 TR 36493 WO 15777 (See Attached Exhibit)			Project Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)		Existing system (With No Improvements)		Existing system (With Improvements) ⁽¹⁾	
Modeling Scenario (12)		Operational Conditions:	Project's Domestic Water Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)	Fire Flow Demand ⁽⁴⁾ (gpm)	HGL (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)
Operational Demand	EPS, MDD, Pumps On (8)	MDD	23		1,687	73		
	EPS, MDD, Pumps On (8)	PHD	45		1,659	60		
	EPS, ADD, Pumps On (8)	MHD						
Fire Flow Demand		FFD + MDD						
	EPS, MDD, Pumps On (8)	FFD + MDD	23	1,500	1,659	60		

Footnotes (see page 2 for additional footnotes):

(1) If improvements are required, please describe the improvements here:

Minimum Pressure Criteria:

50 PSI	...under PHD, MDD, and MHD
20 PSI	...under MDD + FFD

Minimum Criteria, Velocities in Pipelines:

Equal to or less than 5 fps: ...for MDD

Equal to or less than 10 fps: ...for PHD

Equal to or less than 15 fps: ...for FF + MDD

Adequate?

Comments:

Available Firm Pumping Capacity:	YES
Available Firm Pumping Capacity, w/ Electrical Outage :	YES
Available Storage Capacity:	YES

Additional Comments:

Prepared by: Rudy Esparza
Date: 12/6/2017

Reviewed by:
Date: 12/6/17

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results

Project Name: THE VINYARD WS2017-1142	ADD (GPM): 11	
Pressure Zone: 1698K	FFD (GPM): 1,500	
Model Version (12): POS 20170321 POS FF Diurnal v1	Duration (Hours): 3	

Acronyms:

ADD: Average Day Demand, in GPM	GPM: Gallons Per Minute	PHD: Peak-Hour Demand, in GPM
EPS: Extended Period Simulation	HGL: Hydraulic Grade-Line, in feet	POC: Point Of Connection
FFD⁽³⁾: Fire Flow Demand, in GPM	MDD: Maximum Day Demand, in GPM	PSI: Pounds Per Inch
FPS: Feet per second	MHD: Minimum Hour Demand, in GPM	SSS: Steady State Simulation

Footnotes (Ct'd):

(2) Project Demands include ADD of the proposed project, peaked for each test scenario, in accordance with the latest EMWD Water Master Plan Design Criteria

(3) Domestic water demands from existing services are already included in the Model

(4) This is NOT a Fire Flow Test Report: The customer shall verify with the Fire Marshall if a separate Fire Flow Test Report/Letter is required for Jurisdictional Project approval.

(5) All required storage and pumping shall be evaluated in a POS report, per the latest EMWD Master Plan Design Criteria

(6) Applicants, or their designees, shall design service laterals, commencing from the point of connection(s) in EMWD's main pipeline(s), including main extension(s), lateral(s), meter(s), and all post-meter appurtenances, taking into consideration resulting head losses, pad elevations, and building height, such that the pressure delivered to each floor level and service is adequate to meet jurisdictional requirements.

(7) In addition to design requirements, operational minimum and maximum pressures are used to identify and record Service Agreements for Low and High pressure conditions in Residential use. Commercial, Institutional, and Industrial uses do not require low and high pressure recordation.

(8) Storage tanks: Initial levels set at 75% full in EPS

(9) Storage tanks: Initial levels set at 50% full in SSS, Pumps Off

(10) Storage tanks: Initial levels set at 50% full in SSS, Pumps On

(11) Existing demands are based on COINS data, calendar-year 2013

(12) For EPS modeling, use file name: **NBD_EPS_EMWD_POTABLE_2308_WYA20151019.mxd**

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results



Project Name: THE VINYARD WS2017-1142
Pressure Zone: 1698K
Model Version (12)POS 20170321 POS FF Diurnal v1

ADD (GPM): 11
FFD (GPM): 1,500
Duration (Hours): 3

POC Location: POC-2 Elevation (ft): 1,516.0 APN / TR: / WO 392-290-051 TR 36493 WO 15777 (See Attached Exhibit)			Project Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)		Existing system (With No Improvements)		Existing system (With Improvements) ⁽¹⁾	
Modeling Scenario (12)		Operational Conditions:	Project's Domestic Water Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)	Fire Flow Demand ⁽⁴⁾ (gpm)	HGL (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)
Operational Demand	EPS, MDD, Pumps On (8)	MDD	23		1,687	74		
	EPS, MDD, Pumps On (8)	PHD	45		1,658	62		
	EPS, ADD, Pumps On (8)	MHD						
Fire Flow Demand		FFD + MDD						
	EPS, MDD, Pumps On (8)	FFD + MDD	23	1,500	1,658	61		

Footnotes (see page 2 for additional footnotes):

(1) If improvements are required, please describe the improvements here:

Minimum Pressure Criteria:

50 PSI ...under PHD, MDD, and MHD
 20 PSI ...under MDD + FFD

Minimum Criteria, Velocities in Pipelines:

Equal to or less than 5 fps: ...for MDD
 Equal to or less than 10 fps: ...for PHD
 Equal to or less than 15 fps: ...for FF + MDD

Adequate?

Comments:

Available Firm Pumping Capacity: YES
 Available Firm Pumping Capacity, w/ Electrical Outage : YES
 Available Storage Capacity: YES

Additional Comments:

Prepared by: Rudy Esparza
 Date: 12/6/2017

Reviewed by: EC
 Date: 12/16/17

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results

Project Name: THE VINYARD WS2017-1142
Pressure Zone: 1698K
Model Version (12): POS 20170321 POS FF Diurnal v1
ADD (GPM): 11
FFD (GPM): 1,500
Duration (Hours): 3



Acronyms:

ADD: Average Day Demand, in GPM	GPM: Gallons Per Minute	PHD: Peak-Hour Demand, in GPM
EPS: Extended Period Simulation	HGL: Hydraulic Grade-Line, in feet	POC: Point Of Connection
FFD⁽³⁾: Fire Flow Demand, in GPM	MDD: Maximum Day Demand, in GPM	PSI: Pounds Per Inch
FPS: Feet per second	MHD: Minimum Hour Demand, in GPM	SSS: Steady State Simulation

Footnotes (Ct'd):

(2) Project Demands include ADD of the proposed project, peaked for each test scenario, in accordance with the latest EMWD Water Master Plan Design Criteria

(3) Domestic water demands from existing services are already included in the Model

(4) This is NOT a Fire Flow Test Report: The customer shall verify with the Fire Marshall if a separate Fire Flow Test Report/Letter is required for Jurisdictional Project approval.

(5) All required storage and pumping shall be evaluated in a POS report, per the latest EMWD Master Plan Design Criteria

(6) Applicants, or their designees, shall design service laterals, commencing from the point of connection(s) in EMWD's main pipeline(s), including main extension(s), lateral(s), meter(s), and all post-meter appurtenances, taking into consideration resulting head losses, pad elevations, and building height, such that the pressure delivered to each floor level and service is adequate to meet jurisdictional requirements.

(7) In addition to design requirements, operational minimum and maximum pressures are used to identify and record Service Agreements for Low and High pressure conditions in Residential use. Commercial, Institutional, and Industrial uses do not require low and high pressure recordation.

(8) Storage tanks: Initial levels set at 75% full in EPS

(9) Storage tanks: Initial levels set at 50% full in SSS, Pumps Off

(10) Storage tanks: Initial levels set at 50% full in SSS, Pumps On

(11) Existing demands are based on COINS data, calendar-year 2013

(12) For EPS modeling, use file name: **NBD_EPS_EMWD_POTABLE_2308_WYA20151019.mxd**

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results



Project Name: THE VINYARD WS2017-1142
Pressure Zone: 1698K
Model Version (12)POS 20170321 POS FF Diurnal v1

ADD (GPM): 11
FFD (GPM): 1,500
Duration (Hours): 3

POC Location: POC-3 Elevation (ft): 1,507.0 APN / TR: / WO 392-290-051 TR 36493 WO 15777 (See Attached Exhibit)			Project Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)		Existing system (With No Improvements)		Existing system (With Improvements) ⁽¹⁾	
Modeling Scenario (12)		Operational Conditions:	Project's Domestic Water Demands ⁽²⁾⁽³⁾⁽¹¹⁾ (gpm)	Fire Flow Demand ⁽⁴⁾ (gpm)	HGL (ft)	Pressure (psi)	HGL (ft)	Pressure (psi)
Operational Demand	EPS, MDD, Pumps On (8)	MDD	23		1,683	76		
	EPS, MDD, Pumps On (8)	PHD	45		1,643	59		
	EPS, ADD, Pumps On (8)	MHD						
Fire Flow Demand		FFD + MDD						
	EPS, MDD, Pumps On (8)	FFD + MDD	No FF at this location					

Footnotes (see page 2 for additional footnotes):

(1) If improvements are required, please describe the improvements here:

Minimum Pressure Criteria:

50 PSI ...under PHD, MDD, and MHD
 20 PSI ...under MDD + FFD

Minimum Criteria, Velocities in Pipelines:

Equal to or less than 5 fps: ...for MDD
 Equal to or less than 10 fps: ...for PHD
 Equal to or less than 15 fps: ...for FF + MDD

Adequate?

Comments:

Available Firm Pumping Capacity: YES
 Available Firm Pumping Capacity, w/ Electrical Outage : YES
 Available Storage Capacity: YES

Additional Comments:

Prepared by: Rudy Esparza
 Date: 12/6/2017

Reviewed by: SL
 Date: 12/6/17

Hydraulic Boundary Conditions, In The Main Water Pipeline⁽⁶⁾⁽⁷⁾, Based on Hydraulic Model Results

Project Name: THE VINYARD WS2017-1142	ADD (GPM): 11	
Pressure Zone: 1698K	FFD (GPM): 1,500	
Model Version (12)POS 20170321 POS FF Diurnal v1	Duration (Hours): 3	

Acronyms:

ADD: Average Day Demand, in GPM	GPM: Gallons Per Minute	PHD: Peak-Hour Demand, in GPM
EPS: Extended Period Simulation	HGL: Hydraulic Grade-Line, in feet	POC: Point Of Connection
FFD⁽³⁾: Fire Flow Demand, in GPM	MDD: Maximum Day Demand, in GPM	PSI: Pounds Per Inch
FPS: Feet per second	MHD: Minimum Hour Demand, in GPM	SSS: Steady State Simulation

Footnotes (Ct'd):

(2) Project Demands include ADD of the proposed project, peaked for each test scenario, in accordance with the latest EMWD Water Master Plan Design Criteria

(3) Domestic water demands from existing services are already included in the Model

(4) This is NOT a Fire Flow Test Report: The customer shall verify with the Fire Marshall if a separate Fire Flow Test Report/Letter is required for Jurisdictional Project approval.

(5) All required storage and pumping shall be evaluated in a POS report, per the latest EMWD Master Plan Design Criteria

(6) Applicants, or their designees, shall design service laterals, commencing from the point of connection(s) in EMWD's main pipeline(s), including main extension(s), lateral(s), meter(s), and all post-meter appurtenances, taking into consideration resulting head losses, pad elevations, and building height, such that the pressure delivered to each floor level and service is adequate to meet jurisdictional requirements.

(7) In addition to design requirements, operational minimum and maximum pressures are used to identify and record Service Agreements for Low and High pressure conditions in Residential use. Commercial, Institutional, and Industrial uses do not require low and high pressure recordation.

(8) Storage tanks: Initial levels set at 75% full in EPS

(9) Storage tanks: Initial levels set at 50% full in SSS, Pumps Off

(10) Storage tanks: Initial levels set at 50% full in SSS, Pumps On

(11) Existing demands are based on COINS data, calendar-year 2013

(12) For EPS modeling, use file name: *NBD_EPS_EMWD_POTABLE_2308_WYA20151019.mxd*



COMPUTER MODEL TEST

Grid Number:	13A	Date:	June 19, 2019																																																																									
Customer Name:	Jim Madden	Address:	11770 Bernardo Plaza Ct; #116																																																																									
City, State Zip:	San Diego, CA 92128																																																																											
Contact Name:																																																																												
Phone:	619-488-9810	Cell:	858-735-1086																																																																									
Fax:		Email:	jimadden@jensenhughes.com																																																																									
Project Record Number:	WS 2019-625	WO/CO:	WO N/A																																																																									
Project Name:	Costco Wholesale	APN:	392-290-028																																																																									
(Approximate) Test & Hydrant Location:	POC1 - located at the northwest corner of PIQ POC2 - about 425 ft north of Clinton Keith and Antelope Road intersection Fire Hydrant - about 100 ft south of PIQ's south parcel line; PIQ: Murrieta, CA																																																																											
MODEL	NBD_EMWD_POTABLE_20170321_POS FF Diurnal_v2																																																																											
POC Test Location:	<table border="1"> <thead> <tr> <th colspan="3">EMWD RESULTS</th> <th>Requested</th> <th rowspan="6">Flow Availability for Fire Department</th> </tr> <tr> <th>POC1</th> <th>POC2</th> <th>Fire Hydrant</th> <th>Requested</th> </tr> </thead> <tbody> <tr> <td>Elevation*:</td> <td>1544.0</td> <td>1550.0</td> <td>1519.0</td> <td rowspan="4"></td> </tr> <tr> <td>Steady State, Dynamic (psi):</td> <td>64.9</td> <td>69.1</td> <td>75.7</td> </tr> <tr> <td>Residual Pressure (psi):</td> <td>54.3</td> <td>58.4</td> <td>63.7</td> </tr> <tr> <td>Tested FF (gpm):</td> <td>2000.0</td> <td>2000.0</td> <td>4000.0</td> </tr> <tr> <td>Combined Total (gpm):</td> <td colspan="3">MDD 12 gpm** plus 4000 gpm fire flow</td> <td>4012</td> </tr> <tr> <td>Number of Hydrants:</td> <td colspan="3">POC1 & POC2 tested simult., FH tested independently</td> <td>2 POC's, 1 FH</td> </tr> <tr> <td>Duration Tested @:</td> <td colspan="3">4 hours</td> <td>4</td> </tr> <tr> <td>Demand Conditions:</td> <td colspan="4">Max Day</td> </tr> <tr> <td>Pressure Zone/Tank Name(s)/Level(s):</td> <td colspan="4">1698K / Keller Tank I / Base Elevation 1660.0 ft</td> </tr> <tr> <td>Pump Operating Status:</td> <td colspan="4">ON Computer Model Setting: EPS</td> </tr> <tr> <td rowspan="2">Number of Points of connections (POC):</td> <td colspan="4">Reason (Circle what Applies)</td> </tr> <tr> <td>One</td> <td>Two or More</td> <td>Plan of Service</td> <td>Limited Capacity (Existing System)</td> <td>Supply Redundancy</td> <td>Conditions of Approval</td> <td>Fire Sprinkler Connection(s)</td> </tr> <tr> <td>Comments:</td> <td colspan="4">The water system is capable of providing 4012 GPM for 4 hours at a minimum of 20 psi, as shown in the attached map. These Fire Flow test results may need to be complemented by a Plan of Service and do not include all facility conditioning that may be required for this project. Fire Agency Conditions were provided (dated 05/24/19), if any Fire Flow changes occur in the Fire Agency Conditions, you may need to resubmit another Fire Flow test at the requester's expense.</td> </tr> </tbody></table>			EMWD RESULTS			Requested	Flow Availability for Fire Department	POC1	POC2	Fire Hydrant	Requested	Elevation*:	1544.0	1550.0	1519.0		Steady State, Dynamic (psi):	64.9	69.1	75.7	Residual Pressure (psi):	54.3	58.4	63.7	Tested FF (gpm):	2000.0	2000.0	4000.0	Combined Total (gpm):	MDD 12 gpm** plus 4000 gpm fire flow			4012	Number of Hydrants:	POC1 & POC2 tested simult., FH tested independently			2 POC's, 1 FH	Duration Tested @:	4 hours			4	Demand Conditions:	Max Day				Pressure Zone/Tank Name(s)/Level(s):	1698K / Keller Tank I / Base Elevation 1660.0 ft				Pump Operating Status:	ON Computer Model Setting: EPS				Number of Points of connections (POC):	Reason (Circle what Applies)				One	Two or More	Plan of Service	Limited Capacity (Existing System)	Supply Redundancy	Conditions of Approval	Fire Sprinkler Connection(s)	Comments:	The water system is capable of providing 4012 GPM for 4 hours at a minimum of 20 psi, as shown in the attached map. These Fire Flow test results may need to be complemented by a Plan of Service and do not include all facility conditioning that may be required for this project. Fire Agency Conditions were provided (dated 05/24/19), if any Fire Flow changes occur in the Fire Agency Conditions, you may need to resubmit another Fire Flow test at the requester's expense.			
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The above results are not a guarantee the District's system will supply water to the project at any specific flows or pressures. These results were determined from a computer simulation of the District's water system and/or from hydraulic calculations pertaining to distribution pipelines: The capacity of the service laterals, meters, backflow assemblies, on-site fire system, and other appurtenances were not considered in these results. The design and sizing of service laterals and downstream facilities shall be the responsibility of the Project Sponsor.

EMWD's Fire Flow test results are valid for twelve months from the date of testing.

Completed By: Kris Danielson

Should you have any questions or need additional information, please contact me at (951) 928-3777, ext. 4478.

Sincerely, Kristy Danielson

Date: 6/19/2019

Rudy Esparza
Sr. Engineering Technician
New Business Development

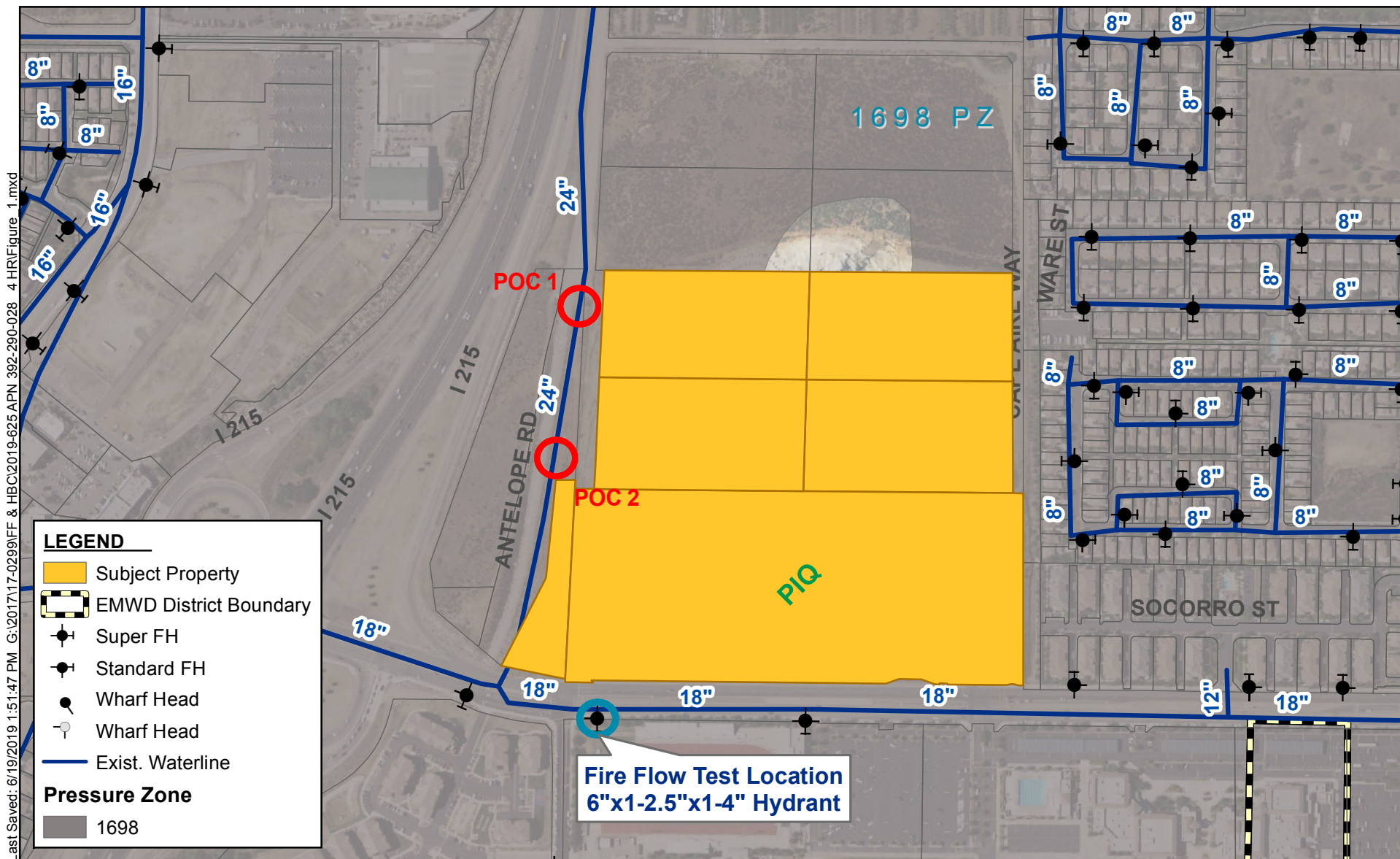
Reviewed By: RE

Date: 6-25-2019

* Elevation based on Riverside County Flood Control digital data.

** Assumed 3.8 ac (average day demand = 2200 gpd/ac, Max Day Demand (MDD) is 2 times average day).

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Sources: EMWD, 2017; Riverside Co. GIS, 2018; USDA NAIP, 2016.



0 500 1,000 Feet



FIGURE 1
COSTCO WHOLESALE
FIRE FLOW TEST

Technical Memorandum

Master Sewer Capacity Study for:

The Vineyard, Curci, Costco, and Candee Commercial
Developments

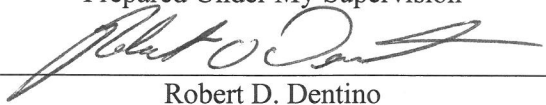
Prepared For

Randy Weisser
CK-17, LP, A California Limited Partnership
27890 Clinton Keith Road
Murrieta, CA 92562

Prepared By:
Excel Engineering
440 State Place
Escondido CA 92029

Date: 11/26/2018
Revised: 5/28/2019
Revised: 7/24/2019
Revised: 8/12/2019
Revised: 4/02/2020

Prepared Under My Supervision


Robert D. Dentino



Purpose of Study

The purpose of this study is to determine the effect the new commercial developments in Sewer Tributary Area B and south to Clinton Keith Road, on the existing sewer infrastructure in Clinton Keith Road, Murrieta California. Four new commercial developments identified as Costco, Candee, Curci, and The Vineyard, are proposed on the north side of Clinton Keith Road just east of Interstate I-215. The study calculates total sewage generation from existing developments in Sewer Tributary Area B and south to Clinton Keith Road. Total sewage generation is calculated to an existing 15-in sewer main in Whitewood Road south of Clinton Keith Road. This study builds on calculations performed by Albert A. Webb Associates, to analyze sewer generation, in Sewer Tributary Area B. This study will supersede a study of The Vineyard site prepared by Excel Engineer dated 10/24/2017. The proposed development areas addressed by this study are depicted in the Sewer Tributary Map, Area B and south to Clinton Keith Road included in this study.

This study also examines the effect these commercial developments will have on the existing sewer improvements in Clinton Keith Road. A hydraulic analysis of the existing sewer in Clinton Keith Road from Creighton Road to Whitewood is reported here.

Finally, these commercial developments are proposing the construction of Warm Springs Parkway from Clinton Keith Road to the north property line on Costco and Candee developments. The proposed improvements include public sewer to serve these developments. This study supports the design of the proposed public sewer facilities in Warm Springs Parkway.

Webb Study

On May 20, 2014, Albert A. Webb Associates, herein after referred to in this report as the Webb Study, prepared calculations to analyze sewer generation for current and future development in Sewer Tributary B. A map, prepared by the Webb Study, shows the tributary area, acreage, boundaries, and land use designations. All references, areas and land use designations used for this study are taken from the map in the Webb Study. The Webb Study is included as an attachment to this study.

The Webb Study assumes 3 phases of development and summarizes sewer generation in three separate tables. Table 1 shows sewer generation by the existing developments present at the time of study. Table 1 concludes the capacity of the existing 15-in sewer in Whitewood exceeds predicted sewer flows. Table 2 shows sewer generation from the existing development and some future developments. While Table 2 included some future developments, The Vineyard and the multi-family developments on the south side of Clinton Keith Road, west of the school property, are not included in the calculations. Table 2 concludes the capacity of the existing 15-in sewer in Whitewood exceeds sewer flows. Table 3 includes all the development shown in table 2, and adds the remaining properties, to build-out of the tributary area. Table 3 includes The Vineyards and the other commercially zoned properties in the area. Table 3 concludes that at, build-out, sewer capacity of the 15-in main is exceeded and a parallel main is required.

This study adds to Table 2. The Vineyard, Costco, the Curci development the Candee development and the multi-family residential development to the southwest of CK-17 identified as property number 25 are now included in calculations.

Methodology

This study follows similar methodology used for the Webb Study. Sewer generation is based on guidelines provided Eastern Municipal Water District 2006 Master Plan Update. Land use designations, areas, and boundaries are taken from the tributary map provided in the Webb Study. A foot note on tables 1, 2, and 3 establishes that the existing 15-in sewer main in Whitewood Road has a capacity, $D/d=0.75$ of 2.392 cfs.

The hydraulic analysis uses Manning's equation to determine normal depths based on flows generated in Table 2.1.

It should be noted that the invert for manhole number 1 at the intersection of Clinton Keith Road appears with differ from sub-table to the next in Table 2.1. The differing inverts reflects the difference a from as-builts and fielded topo performed by Excel Engineering. This difference will not affect the flow analysis results which is the purpose of Table 2.1.

Results and Conclusions

Data from Table 2 from the Webb Study, plus The Vineyards the additional commercial developments, and the multi-family development, are shown in Table 2.1. Total sewage generation at the connection point in Whitewood Road is calculated to be 2.212 cfs. With the capacity of the existing 15-in sewer in Whitewood Road known to be 2.392 cfs, the addition of four commercial developments to the tributary area will not require additional downstream sewer capacity.

The results of the hydraulic analysis of the sewer in Clinton Keith Road and the proposed sewer in Warm Springs Parkway, indicate that the existing and proposed improvements have enough capacity. Results from the analysis are shown in Table 2.2. The Sewer Capacity Exhibit, prepared for this study, is a graphic representation of the data analyzed in Table 2.2. The exhibit depicts sewer reaches, manholes and overall sewer layout for the sewer in Clinton Keith Road and proposed sewer in Warm Springs Parkway and can be found as an attachment to this report. The hydraulic analysis for the proposed sewer includes all future upstream development and confirms the proposed 8" pipe in Warm Springs Parkway is sufficient.

It should be noted that the system was analyzed assuming a worst-case condition. All effluent from area 22A-2 is assumed to drain to Warm Springs Parkway, when in fact some properties sewer through the east driveway, tying to a proposed 8" sewer main in Clinton Keith Road. This study also assumes that effluent for area 22B sewers to the east by a private system in the Vineyard development. Both developments are controlled by the same entity and property agreements will be in place prior to construction.

The proposed sewer in Warm Springs Parkway was analyzed to serve the entire commercial area draining to Clinton Keith Road, identified on the Sewer Tributary Map as areas 22A-1, 22A-2, 22B, 22C, and 22D. The high point or northerly limits of the tributary area was established by a master alignment and profile study, of Warm Springs Parkway, adopted by the City of Murrieta. The hydraulic analysis confirms that an 8" sewer main will provide sufficient capacity for this tributary area.

ATTACHMENTS

Sewer Tributary Map

Figure 1: Sewer System Analysis for The Vineyard, Curci, Costco, & Candee Project.

Table 2.1 Sewer Generation Along Whitewood Road

Table 2.2 Hydraulic Sewer Analysis, Warm Springs Parkway & Clinton Keith Road

Sewer Capacity Exhibit, Sheets 1 & 2

Webb Technical Memorandum

Sewer and Water Plans for The Vineyard

Murrieta Clinton Keith Road Sewer and Water Plans

Warm Springs Parkway Master Alignments and Profiles Study

LEGEND

PROJECT SITE BOUNDARY

PROPOSED WATER LINES

SITE AREA TABLE	
SITE	AREA (AC.)
THE VINEYARD	13.54
COSTCO	16.42
CURCI	6.65
CANDEE	9.58

AREA TABLE		
SITE	AREA (AC.)	
	WEST	EAST
THE VINEYARD	4.40	7.33
THE VINEYARD (TOTAL)	11.73	
COSTCO	16.42	
CURCI	6.65	
CANDEE	9.58	

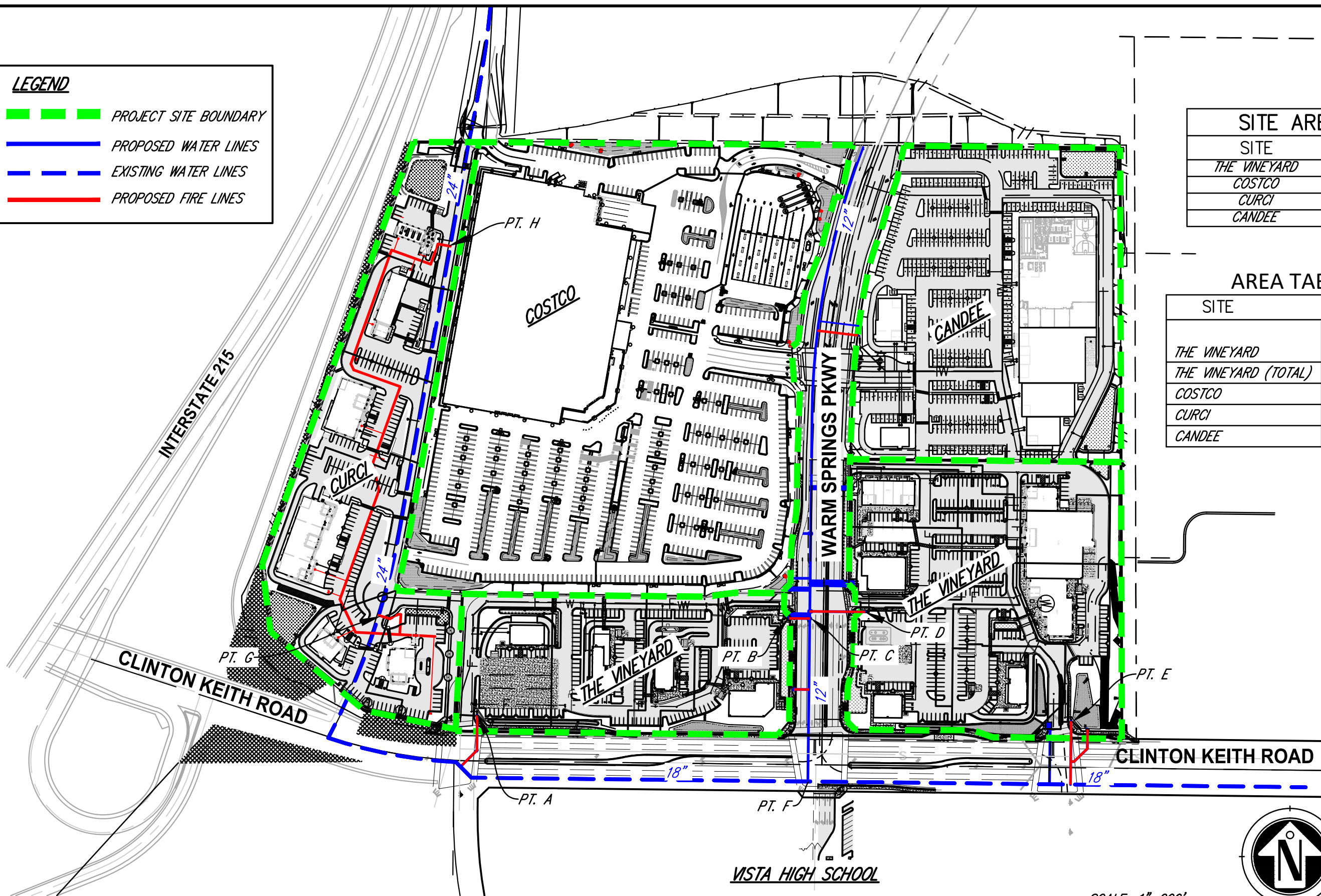
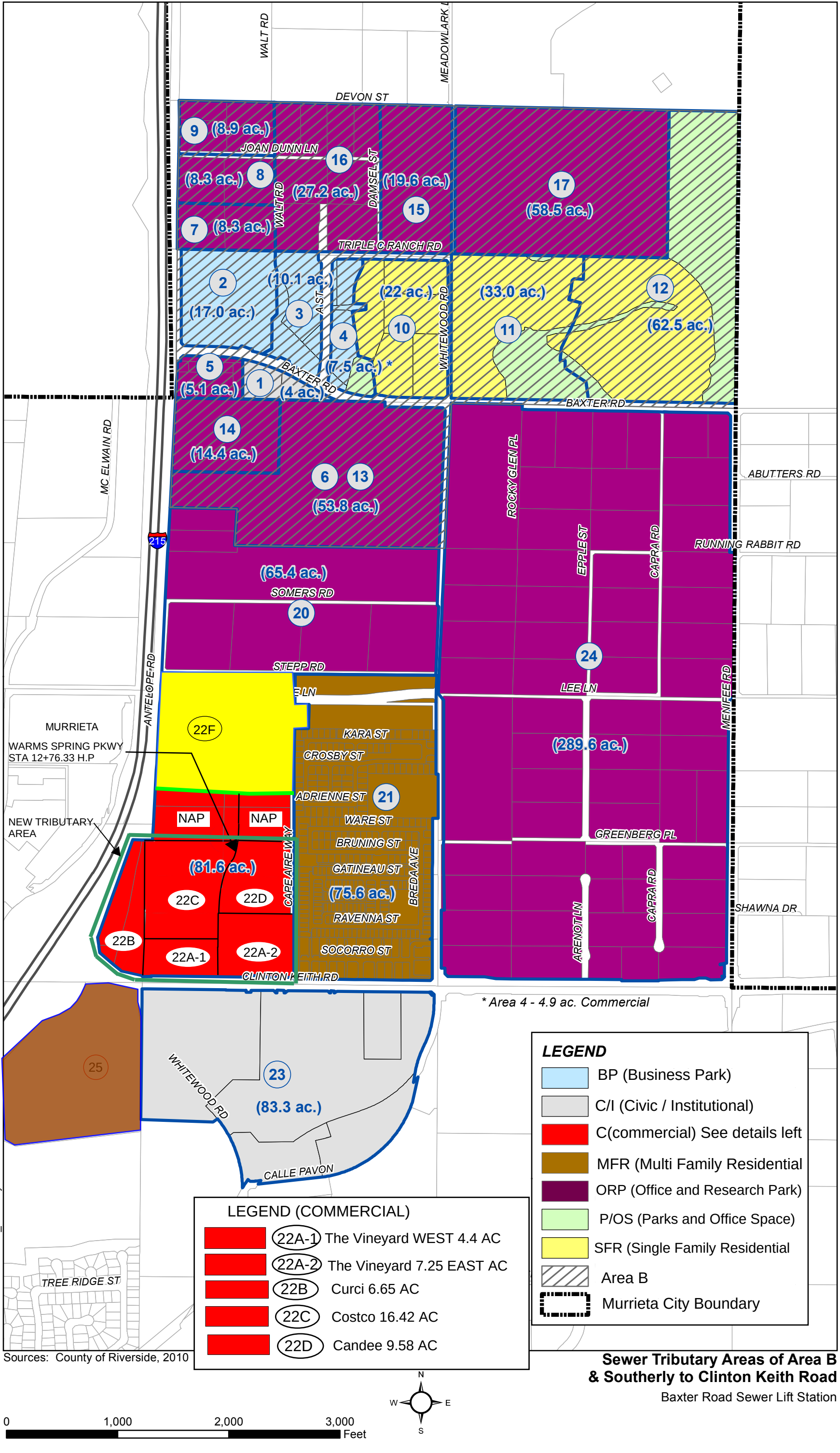


FIGURE 1 – WATER SYSTEMS ANALYSIS FOR THE VINEYARD, CURCI, COSTCO & CANDEE PROJECTS

SCALE: 1"=200'



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Sources: County of Riverside, 2010

Table 2.1 Sewer Generation Along Whitewood Road

	Land Use Designation	Area or Sizing Criteria	EDU	Average Day Unit Generation	Flow Rate Per EDU (gpd/EDU)	Average Day Generation (gpd)	Average Day Generation (mgpd)	Cumulative Average Day Generation (gpd)	Pop.	Culuative Population	Peak Factor	Peak Flow (gpd)	Peak Flow (gpm)	Peak Flow (cfs)
7	2nd MOB	160,000 Sq. Ft.	67	0.42 EDU /1,000 Sq. Ft.	265	17,755	0.018	17,755	235	235	2.8	49,714	34.524	0.077
8	3rd MOB	160,000 Sq. Ft.	67	0.42 EDU /1,000 Sq. Ft.	265	17,755	0.018	35,510	235	470	2.8	49,714	34.524	0.077
9	Two MOB	79,400 Sq. Ft.	33	0.42 EDU /1,000 Sq. Ft.	265	8,745	0.009	44,255	116	586	2.8	24,486	17.004	0.038
			167			44,255	0.044		586	586	2.8	123,914	86.051	0.192
	Upstream		167			44,255	0.044	44,255	586	586	2.8	123,914	86.051	0.192
1	Fire Station	10 employees	4	0.41 EDU /employee	265	1,060	0.001	45,315	14	600	2.8	2,968	2.061	0.005
2	Hospital	203 beds	145	250 gpd / bed	265	38,425	0.038	83,740	508	1108	2.8	107,590	74.715	0.166
3	1st MOB	160,000 Sq. Ft.	67	0.42 EDU /1,000 Sq. Ft.	265	17,755	0.018	101,495	235	1343	2.8	49,714	34.524	0.077
4	Commercial	4.9 AC	24	1700 gpd / AC	265			107,855	83	1426	2.8	17,808	12.367	0.028
(Sun-Cal-two sites east of New Antelope Road)						6,360	0.006							
10	Tract 28532-1	22 AC	82		265	21,730	0.022	129,585	287	1713	2.8	60,844	42.253	0.094
			489			129,585	0.130		1,713		2.75	356,359	247.471	0.551
11	Tract 28532-2	33 AC	90		265	23,850	0.024	23,850	378	378	2.8	66,780	46.375	0.103
12	Tract 28532-4	62.5 AC	126		265	33,390	0.033	57,240	529	907	2.8	93,492	64.925	0.145
Totals: Baxter Lift Station			216			57,240	0.057		907		2.8	160,272	111.300	0.248
	Upstream Gravity		489			129,585	0.130	129,585	1,713	1713	2.75	356,359	247.471	0.551
21	Mediun Density Residential		335		265	88,775	0.089	88,775	1,173	2886	2.8	248,570	172.618	0.385
21	High Density		144		265	38,160	0.038	126,935	360	3246	2.8	106,848	74.200	0.165
22A-1	Commerical/ The Vinyard (West)	4.4		1700 gpd / AC	265	7,480	0.007	134,415			2.8	20,944	14.544	0.032
22A-2	Commerical/ The Vinyard (East)	7.25		1700 gpd / AC	265	12,325	0.012	146,740			2.8	34,510	23.965	0.053
22B	Curci	6.652		1700 gpd / AC	265	11,308	0.011	145,723			2.8	31,664	21.989	0.049
22C	Costco	16.42		1700 gpd / AC	265	27,914	0.028	173,637			2.8	78,159	54.277	0.121
22D	Candee	9.584		1700 gpd / AC	265	16,293	0.016	189,930			2.8	45,620	31.680	0.071
23	Vista High School	3,323 students	190	20 gpd/student	265	66,460	0.066	200,875	665	665	2.8	186,088	129.228	0.288
25	High Density Residential	36.14	400	2400 gpd/AC	165	66,000	0.066	211,723			2.8	184,800	128.333	0.286
Totals: Clinton Keith Road Gravity			1558			464,300	0.464		3,911		2.7	1,253,611	870.563	1.940
Totals: Clinton Keith Road plus Baxter Lift Station			1774			521,540	0.522		4,818		2.63	1,371,651	952.535	2.122

Note: information used to produce this table was obtained from Technical Memorandum- Analysis of Whitewood Sewer Southerly of Clinton Keith Road. Prepared by Albert A. Webb Associates, May 20,2014; Eastern Municpal Water District 2006 Mater Plan Update; and calulations performed by Excel Engineering.

Existing 15-in sewer line at the intersection of Clinton Keith Road and Whitewood Road has a capacity of 2.392 cfs, based on a slope of 0.0022 ft./ft., n=0.015, d/D=0.75.

Table 2.2 Hydraulic Sewer Analysis-Warm Springs Road Clinton Keith Road

Sewer Generation for Proposed Sewer Main Warm Springs Road

GPD by Area No.

Area	Avg Day
22A-1	7480
22A-2	12325
22B	11308
22C	27914
22D	16293

- Data from Table 2.1

Warm Springs Parkway

Manhole No.	Sta (ft)	IE (ft)	Length (ft)	Slope (ft/ft)	Pipe dia. (D) (in)	n	Additional Contributing Areas	Total Flow Contributing (gpd)	Peak Factor	Peak Flow (gpd)	Peak Flow (cfs)	Q (full) (cfs)	Area (full) (sf)	V (full) (fps)	Normal flow Depth (d) (in)	V (fps)	d/D	d/D less than 0.5?	v(fps) > 2 fps?
6**	13+95.37	1514.12																	
5**	12+21.20	1512.60	159.66	0.0095	8	0.015	22C & 22D	44207	2.80	123780	0.19	1.02	0.349	2.91	0.15	2.01	0.019	TRUE	TRUE
4**	9+03.30	1509.66	309.66	0.0095	8	0.015	-	44207	2.80	123780	0.19	1.01	0.349	2.91	0.15	2.01	0.019	TRUE	TRUE
3**	7+30.00	1507.82	193.17	0.0095	8	0.015		44207	2.80	123780	0.19	1.02	0.349	2.91	0.15	2.01	0.019	TRUE	TRUE
2**	4+48.64	1505.71	281.36	0.0075	8	0.015	22B, 22C, 22D, 22A-1, & 22A-2	75320	2.80	210896	0.33	0.90	0.349	2.58	0.22	2.26	0.028	TRUE	TRUE
1**	1+24.54	1503.28***	325.64	0.0075	8	0.015	-	84133	2.80	235572	0.36	0.90	0.349	2.58	0.22	2.26	0.028	TRUE	TRUE

**Public Water & Sewer Plan For: The Vineyard, City of Murrieta

***Invert established by field topo

GPD by Area No.

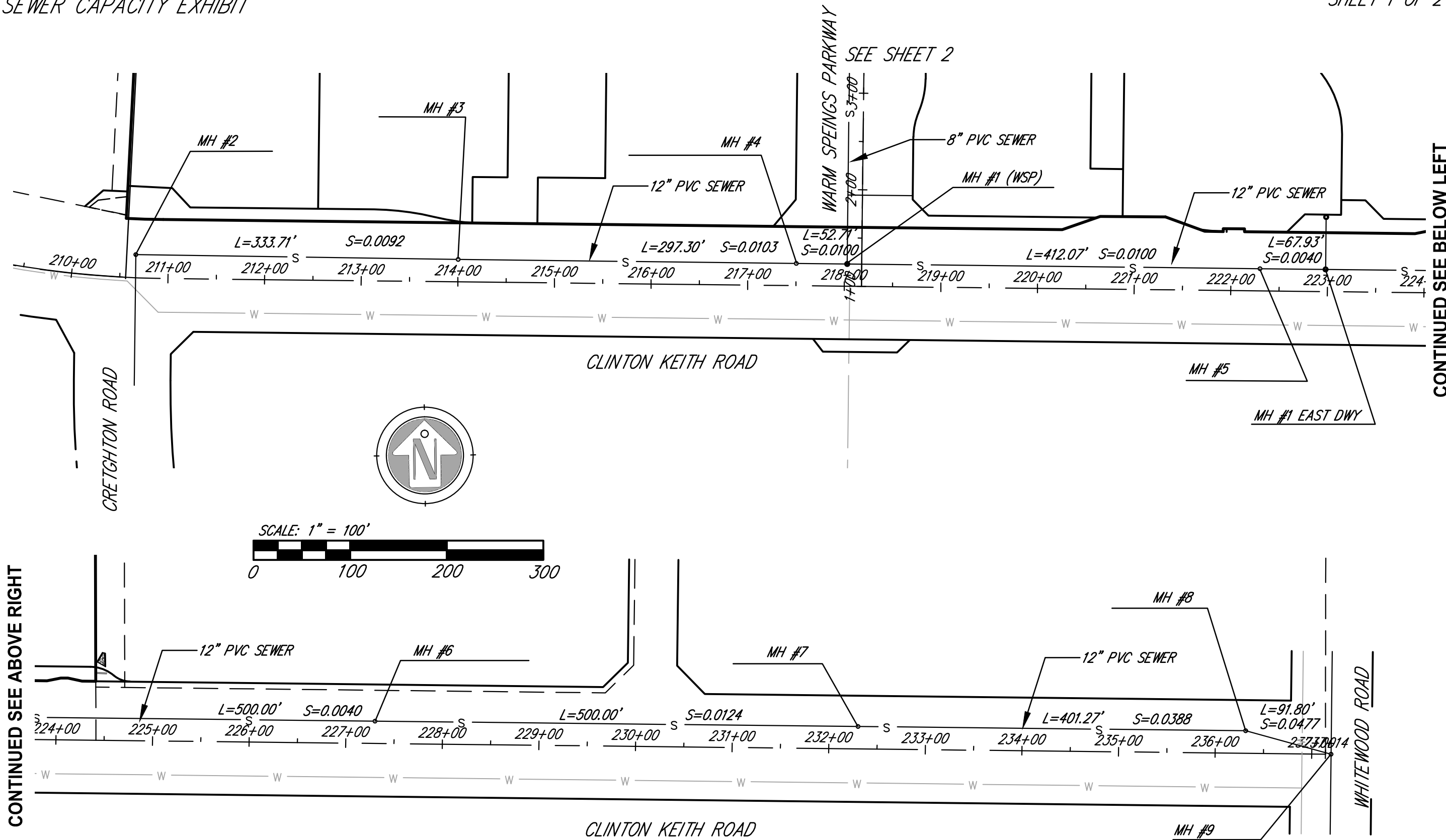
Area	Avg Day
21	88775
21	38160
22A-1, 22B, 22C, 22D	62995
22A-2	12325
23	66460
25	66000

- Data from Table 2.1

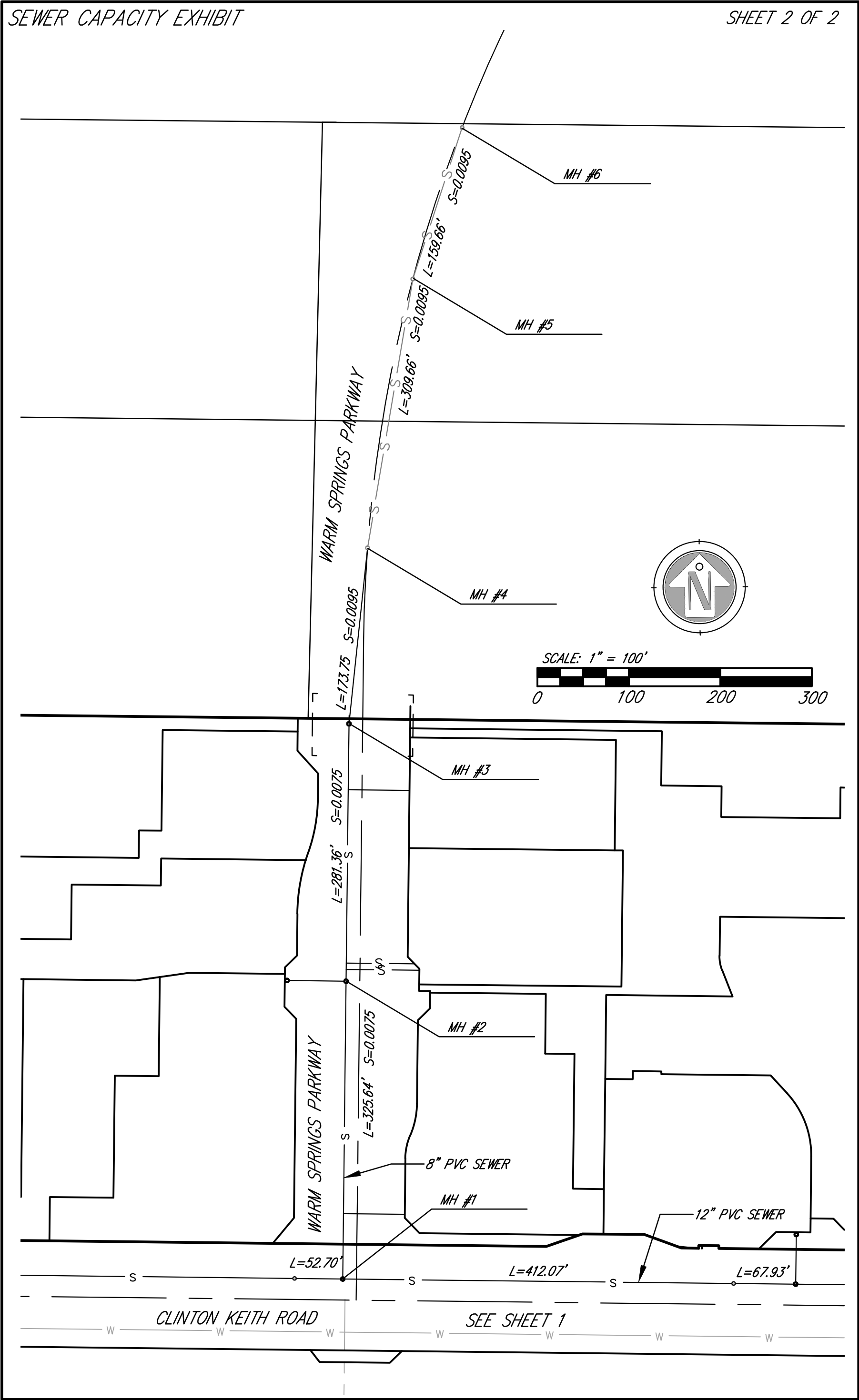
Clinton Keith Road, DWG: D-45890

Manhole No.	Sta (ft)	IE (ft)	Length (ft)	Slope (ft/ft)	Pipe dia. (D) (in)	n	Additional Contributing Areas	Total Flow Contributing (gpd)	Peak Factor	Peak Flow (gpd)	Peak Flow (cfs)	Q (full) (cfs)	Area (full) (sf)	V (full) (fps)	Normal flow Depth (d) (in)	V (fps)	d/D	d/D less than 0.5?	v(fps) > 2 fps?
2*	210+66.29	1510.57																	
3*	214+00.00	1507.49	333.71	0.0092	12	0.015	23 & 25	132460	2.76	365590	0.57	2.95	0.785	3.76	3.96	2.35	0.33	TRUE	TRUE
4*	217+50.00	1503.90	350	0.0103	12	0.015	23 & 25	132460	2.76	365590	0.57	3.11	0.785	3.96	4.32	2.50	0.36	TRUE	TRUE
1**(WSP)	218+02.80	1503.36	53.82	0.0100	12	0.015	22A-1, 22A-2, 22B, 22C, 22D	207780	2.72	565162	0.87	3.08	0.785	3.92	4.32	2.50	0.36	TRUE	TRUE
5*	222+30.00	1499.11	426.18	0.0100	12	0.015	-	207780	2.76	573473	0.89	3.07	0.785	3.91	4.08	2.70	0.34	TRUE	TRUE
1**(DWY)	222+97.93	1498.84	67.64	0.0040	12	0.015	-	207780	2.72	565162	0.87	1.94	0.785	2.47	4.08	2.70	0.34	TRUE	TRUE
6*	227+30.00	1497.11	432.36	0.0040	12	0.015	21	334715	2.68	897036	1.39	1.94	0.785	2.48	4.68	4.18	0.39	TRUE	TRUE
7*	232+30.00	1490.90	500	0.0124	12	0.015	-	334715	2.68	897036	1.39	3.43	0.785	4.36	5.28	3.48	0.44	TRUE	TRUE
8*	236+31.27	1475.35	401.27	0.0388	12	0.015	-	334715	2.68	897036	1.39	6.05	0.785	7.70	5.40	3.37	0.45	TRUE	TRUE
9*	237+19.88	1470.97	91.8	0.0477	12	0.015	-	334715	2.68	897036	1.39	6.71	0.785	8.55	3.84	5.52	0.32	TRUE	TRUE

*See Eastern Municipal Water District, City of Murrieta Pacific Landing Apartments Sewer and Water Improvements



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PLOT SIZE: ----



Technical Memorandum

Analysis of Whitewood Sewer Southerly of Clinton Keith Road

Prepared for Fred Azimie
Civil Engineering Associate II
New Business Development
Eastern Municipal Water District

May 20, 2014

1.0 INTRODUCTION

Webb Associates prepared a plan of service for Tract 28532-2, -3, -4 and -5. The plan of service contemplated a proposed 12-inch diameter sewer in Whitewood Road, south of Clinton Keith Road paralleling an existing 15-in diameter sewer for approximately 1,400 l.f. to convey the sewage generated by existing and proposed development. This was based on an analysis previously prepared by EMWD staff. Based on discussions regarding the proposed parallel sewer, capacity may be available in the existing 15-in sewer gravity main to serve Tracts 28532-2 and -4. Webb was asked to analyze the existing, interim and ultimate condition for this portion of sewer.

2.0 AREA OF BENEFIT

The attached map shows the tributary area for the existing 15-in sewer in Whitewood Road south of Clinton Keith Road.

Area 24 is generally down grade from Whitewood Road. Therefore, we assumed that all sewage flows from all of area 24 would be pumped by a future lift station. This is the most conservative assumption for downstream sewer capacity. Area 17 is assumed to have zero sewer generation based on open space and grades which make it difficult to sewer via gravity southerly to Whitewood Road.

3.0 SEWER GENERATION

Sewage generation from each planning area was determined. Based on our understanding of the development status and future land use of the tributary area, the following additional conditions were analyzed

- Existing Condition (Table 1)
- Interim Condition w/ future MOB's, Tract 28532-1 and Tracts 28532-2 and -4 (Table 2)
- Ultimate Condition (Table 3)

3.1 Existing Condition

The existing condition is based on EMWD's sewer atlas maps and aerial photographs of the existing development. The capacity of the existing 15-inch sewer is estimated at 2.392 cfs based on a slope= 0.0022, n=0.015 and a maximum allowable of d/D ratio = 0.75. The existing condition has a peak flow of 0.958 cfs, well within the capacity of the existing 15-inch sewer.

3.2 Interim Condition w/ future MOB's, Tract 28532-1 and Tracts 28532-2 and -4

This interim condition is based on the existing condition plus flows from future MOB's, approved Tract 28532-1 and proposed Tracts 28532-2 and -4 via the Baxter Road Lift Station. This condition has a peak flow of 1.57 cfs, well within the capacity of the existing 15-inch sewer.

3.3 Ultimate Condition

The ultimate condition is based on the all flows from the areas as shown in the tributary area. This condition has a peak flow of 4.945 cfs, well above the capacity of the 15-inch sewer. No analysis was done downstream of this point. The ultimate condition is based on the City of Murrieta's land use and is subject to change when specific projects are submitted.

4.0 CONCLUSION

The capacity of the existing 15-inch sewer gravity main can handle the additional peak sewage flows from Tract 28532-2 and 28532-4 pumped by the Baxter Road Lift Station. The condition of requiring a parallel or up-sized sewer gravity main in Whitewood Road south of Clinton Keith Road can be deferred to later development.

Sincerely,



Bradley Sackett, P.E.
Senior Engineer

Sewer Tributary Areas for Area B and Southerly to Clinton Keith Road

Table 1 – Existing Condition

Table 2 – Interim Condition w/ future MOB's, Tract 28532-1 and Tracts 28532-2 and -4

Table 3 – Ultimate Condition

TABLE 1 – Sewer Generation Along Whitewood Road
Tributary Area to the Clinton Keith Road and Whitewood Road under existing development

									Peaking Factor			Wastewater Generation		
Land Use Designation		Sizing Criteria	Density (Du/Acre)	EDU ⁽²⁾	Average Day Unit Generation	Flow Rate per EDU ⁽¹⁾ (gpd/EDU)	Average Day Generation (gpd)	Cumm. Avg. Day Generation (gpd)	Population (pop)	Cumm. Population	Peak Factor	Peak Flow (gpd)	Peak Flow (gpm)	Peak Flow (cfs)
1	Fire Station (Existing)	10 employees		4	0.41 EDU/employee	350	1,400	1,400	14	14	2.50	3,500	2.43	0.005
2	Hospital (Existing)	203 beds		145	250 gpd/bed	350	50,750	52,150	508	522	2.50	126,875	88.11	0.196
3	1st MOB (Existing)	160,000 Sq. Ft.		67	0.42 EDU /1,000 Sq.Ft.	350	23,450	75,600	235	756	2.50	58,625	40.71	0.091
Totals for BAXTER ROAD WEST				216			75,600		756		2.32	175,392	121.80	0.271
21	Upstream via gravity			216			75,600	75,600	756	756	2.32	175,392	121.80	0.271
21	Medium High Density Residential			335		350	117,250	192,850	1,173	1,929	2.50	293,125	203.56	0.454
21	High Density			144		200	28,800	221,650	360	2,289	2.50	72,000	50.00	0.111
23	Vista Murrieta High School	3,323 students		190	20 gpd/student	350	66,460	288,110	665	2,953	2.50	166,150	115.38	0.257
Totals for CLINTON KEITH ROAD via Gravity only				885			288,110		2,953		2.15	619,437	430.16	0.958

(1) Based on EMWD Sanitary Sewer System Planning & Design (Revised 09-01-06) as follows:
Medium Density Residential (3.5 Pop/EDU) = 100 gpd/capita
High Density Residential (2.5 Pop/EDU) = 80 gpd/capita

(2) Rounded to the Nearest Fraction
(3) Sewer Tributary Area (See Figure 1-1)

*: the sewer generation was provided by others and based on 195 fixture units

** Increased by 1.2 times for discharge rate per Lift Station design standard

Existing 15 in sewer line has a capacity of 2.392 cfs based on slope = 0.0022, n = 0.015 and d/D = 0.75.

TABLE 2 – Sewer Generation Along Whitewood Road

Tributary Area to the Clinton Keith Road and Whitewood Road under existing development, future MOB's and proposed Golden City Development

								Peaking Factor			Wastewater Generation			
Land Use Designation		Sizing Criteria	Density (Du/Acre)	EDU ⁽²⁾	Average Day Unit Generation	Flow Rate per EDU ⁽¹⁾ (gpd/EDU)	Average Day Generation (gpd)	Cumm. Avg. Day Generation (gpd)	Population (pop)	Cumm. Population	Peak Factor	Peak Flow (gpd)	Peak Flow (gpm)	Peak Flow (cfs)
(3)														
7	2nd MOB (Future)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	23,450	235	235	2.50	58,625	40.71	0.091
8	3rd MOB (Future)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	46,900	235	469	2.50	58,625	40.71	0.091
9	Two MOB's (future north of Joan Dunn Ln)*	79,400 Sq. Ft.		33	0.42 EDU/1,000 Sq.Ft.	350	11,550	58,450	116	585	2.50	28,875	20.05	0.045
Totals for TRIPLE "C" RANCH				167			58,450		585		2.50	146,125	101.48	0.226
Upstream				167			58,450	58,450	585	585	2.50	146,125	101.48	0.226
1	Fire Station (Existing)	10 employees		4	0.41 EDU/employee	350	1,400	59,850	14	599	2.50	3,500	2.43	0.005
2	Hospital (Existing)	203 beds		145	250 gpd/bed	350	50,750	110,600	508	1,106	2.50	126,875	88.11	0.196
3	1st MOB (Existing)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	134,050	235	1,341	2.50	58,625	40.71	0.091
4	Commercial (Sun-Cal - two sites east of New Antelope Rd)	4.9 acre		24	1700 gpd/acre	350	8,330	142,380	83	1,424	2.50	20,825	14.46	0.032
10	Tract 28532-1	22 acre		82		350	28,700	171,080	287	1,711	2.50	71,750	49.83	0.111
Totals for BAXTER RD/WHITEWOOD RD Gravity only				489			171,080		1,711		2.32	396,906	275.63	0.614
11	Tract 28532-2**	33 acre		90		350	37,800	37,800	378	378	2.50	94,500	65.63	0.146
12	Tract 28532-4**	62.5 acre		126		350	52,920	90,720	529	907	2.50	132,300	91.88	0.205
Totals for BAXTER ROAD SEWER LIFT STATION				216			90,720		907		2.50	226,800	157.50	0.351
Upstream via gravity				489			171,080	171,080	1,711	1,711	2.32	396,906	275.63	0.614
21	Medium High Density Residential			335		350	117,250	288,330	1,173	2,883	2.50	293,125	203.56	0.454
21	High Density			144		200	28,800	317,130	360	3,243	2.50	72,000	50.00	0.111
23	Vista Murrieta High School	3,323 students		190	20 gpd/student	350	66,460	383,590	665	3,908	2.50	166,150	115.38	0.257
Totals for CLINTON KEITH ROAD via Gravity only				1,158			383,590		3,908		2.06	790,195	548.75	1.223
Totals for CLINTON KEITH ROAD plus Lift Station				1,374			474,310		4,815			1,016,995	706.25	1.574

(1) Based on EMWD Sanitary Sewer System Planning & Design (Revised 09-01-06) as follows:

Medium Density Residential (3.5 Pop/EDU) = 100 gpd/capita

High Density Residential (2.5 Pop/EDU) = 80 gpd/capita

(2) Rounded to the Nearest Fraction

(3) Sewer Tributary Area (See Figure 1-1)

*: the sewer generation was provided by others and based on 195 fixture units

** Increased by 1.2 times for discharge rate per Lift Station design standard

Existing 15-in sewer line has a capacity of 2,392 cfs based on slope = 0.0022, n = 0.015 and d/D = 0.75.

TABLE 3 – Sewer Generation Along Whitewood Road
Tributary Area to the Clinton Keith Road and Whitewood Road under Ultimate Conditions

									Peaking Factor			Wastewater Generation		
Land Use Designation		Sizing Criteria	Density (Du/Acre)	EDU ⁽²⁾	Average Day Unit Generation	Flow Rate per EDU ⁽¹⁾ (gpd/EDU)	Average Day Generation (gpd)	Cumm. Avg. Day Generation (gpd)	Population (pop)	Cumm. Population	Peak Factor	Peak Flow (gpd)	Peak Flow (gpm)	Peak Flow (cfs)
⁽³⁾														
7	2nd MOB (Future)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	23,450	235	235	2.50	58,625	40.71	0.091
8	3rd MOB (Future)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	46,900	235	469	2.50	58,625	40.71	0.091
9	Two MOB's (future north of Joan Dunn Ln)*	79,400 Sq. Ft.		33	0.42 EDU/1,000 Sq.Ft.	350	11,550	58,450	116	585	2.50	28,875	20.05	0.045
15	Area 2 (70 Lot Parcel R-1)	19.6 acre	3.55	70	1700 gpd/acre	350	24,500	82,950	245	830	2.50	61,250	42.53	0.095
16	Area 3 (77 Lot Parcel R-1)	27.4 acre	2.80	77	1700 gpd/acre	350	26,950	109,900	270	1,099	2.50	67,375	46.79	0.104
17	Portion Section 26, Open Space	58.5 acre						0			2.50	0	0.00	0.000
Totals for TRIPLE "C" RANCH				314			109,900		1,099		2.48	272,552	189.27	0.422
Upstream				314			109,900	109,900	1,099	1,099	2.47	271,453	188.51	0.420
1	Fire Station (Existing)	10 employees		4	0.41 EDU/employee	350	1,400	111,300	14	1,113	2.50	3,500	2.43	0.005
2	Hospital (Existing)	203 beds		145	250 gpd/bed	350	50,750	162,050	508	1,621	2.50	126,875	88.11	0.196
3	1st MOB (Proposed)	160,000 Sq. Ft.		67	0.42 EDU/1,000 Sq.Ft.	350	23,450	185,500	235	1,855	2.50	58,625	40.71	0.091
4	Commercial (Sun-Cal - two sites east of New Antelope Rd)	4.9 acre		24	1700 gpd/acre	350	8,330	193,830	83	1,938	2.50	20,825	14.46	0.032
5	Business Park (The McGrath property and the City property south of Baxter)	5.1 acre		25	1700 gpd/acre	350	8,670	202,500	87	2,025	2.50	21,675	15.05	0.034
10	Tract 28532-1	22 acre		82		350	28,700	231,200	287	2,312	2.50	71,750	49.83	0.111
Totals for BAXTER RD/WHITEWOOD RD Gravity only				661			231,200		2,312		2.22	513,264	356.43	0.794
11	Tract 28532-2**	33 acre		90		350	37,800	37,800	378	378	2.50	94,500	65.63	0.146
12	Tract 28532-4**	62.5 acre		126		350	52,920	90,720	529	907	2.50	132,300	91.88	0.205
Totals for BAXTER ROAD SEWER LIFT STATION				216			90,720		907		2.50	226,800	157.50	0.351
Upstream				661			231,200	231,200	2,312	2,312	2.13	492,456	341.98	0.762
6, 13	Antelope Meadowlark 56	53.8 acre	3.00	168		350	58,800	261,300	588	2,900	2.50	147,000	102.08	0.227
14	Area 1 (Business Park)	14.4 acre		63	1700 gpd/acre	350	24,480	285,780	245	3,145	2.50	61,200	42.50	0.095
AREA B				892			314,480		3,145		2.05	644,684	447.70	0.998
Upstream				892			314,480	314,480	3,145	3,145	2.05	644,684	447.70	0.998
21	Medium High Density Residential			335		350	117,250	431,730	1,173	4,317	2.50	293,125	203.56	0.454
21	Medium High Density Residential (Not developed)	12.2 acre	6	73.2		350	25,620	457,350	256	4,574	2.50	64,050	44.48	0.099
21	High Density			144		200	28,800	486,150	360	4,934	2.50	72,000	50.00	0.111
22	Commercial	82.9 acre		403	1700 gpd/acre	350	140,930	627,080	1,409	6,343	2.50	352,325	244.67	0.545
20	Office and Research Park	69 acre		335	1700 gpd/acre	350	117,300	744,380	1,173	7,516	2.50	293,250	203.65	0.454
23	Vista Murrieta High School	3,323 students		190	20 gpd/student	350	66,460	810,840	665	8,180	2.50	166,150	115.38	0.257
Totals for CLINTON KEITH ROAD via Gravity only				2,371			810,840		7,516		1.84	1,491,946	1,036.07	2.309
CLINTON KEITH ROAD plus BAXTER RD SEWER LIFT STATION				2,587			901,560		8,423			1,718,746	1,193.57	2.659
24	Lift Station for Office and Research Park**	289.6 acre		1,688	1700 gpd/acre	350	590,784	590,784	5,908	5,908	2.50	1,476,960	1025.67	2.285
ULTIMATE AT CLINTON KEITH ROAD				4,275			1,492,344		14,331			3,195,706	2,219.24	4.945

(1) Based on EMWD Sanitary Sewer System Planning & Design (Revised 09-01-06) as follows:
Medium Density Residential (3.5 Pop/EDU) = 100 gpd/capita
High Density Residential (2.5 Pop/EDU) = 80 gpd/capita

(2) Rounded to the Nearest Fraction

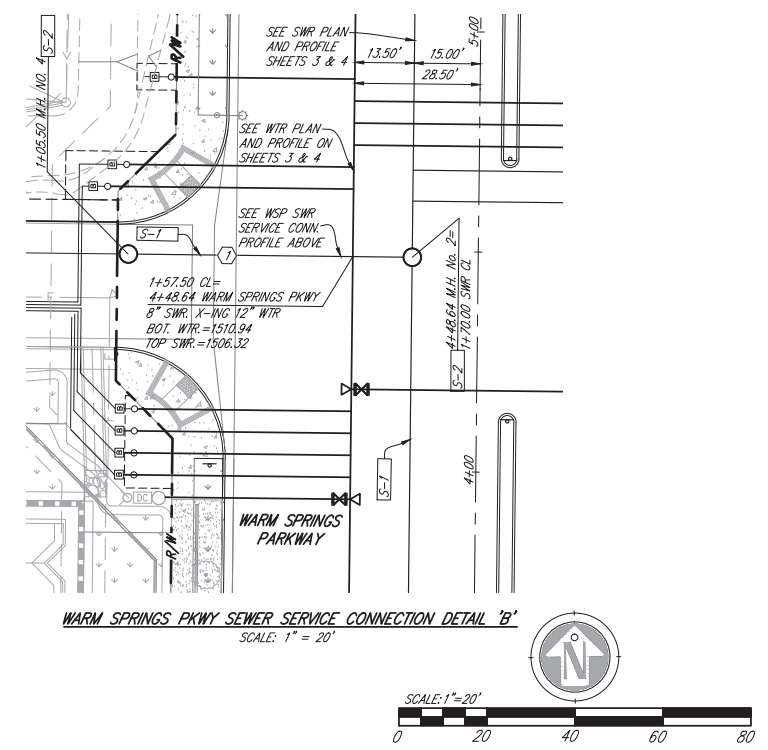
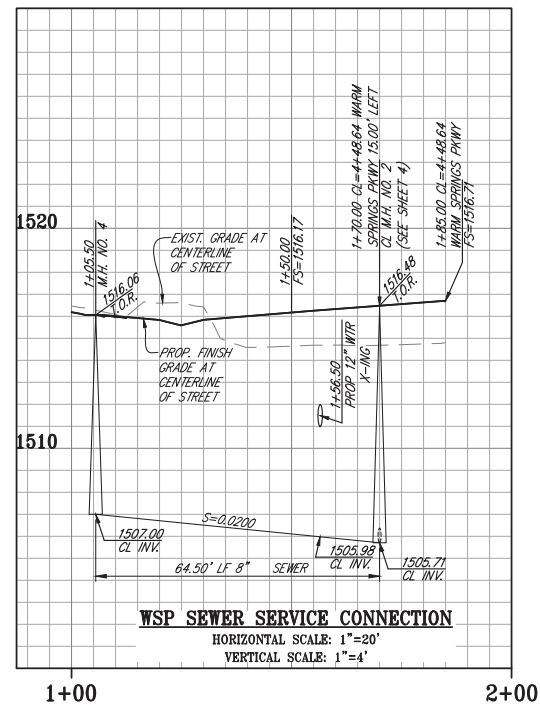
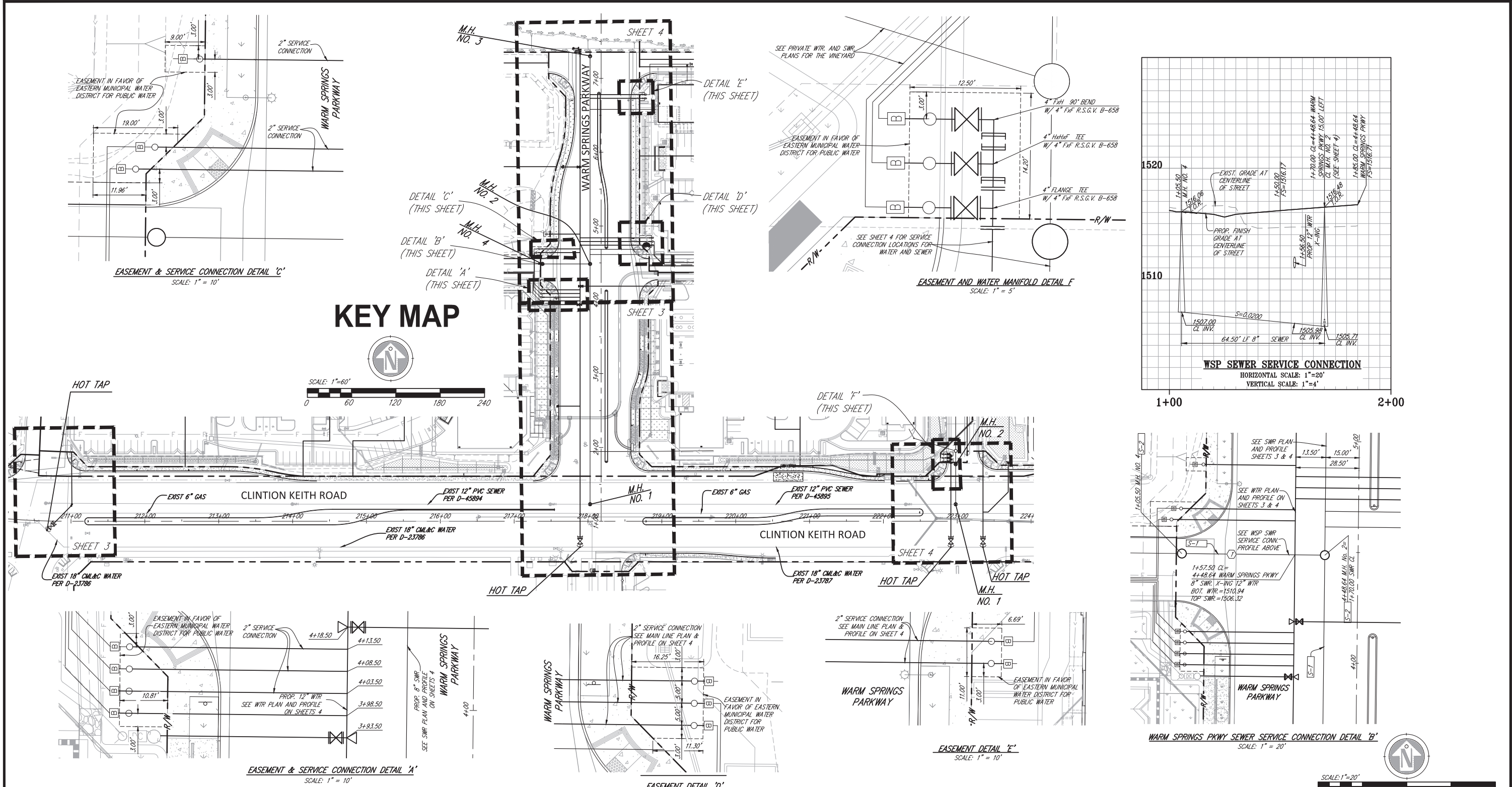
(3) Sewer Tributary Area (See Attached Figure)

*: the sewer generation was provided by others and based on 195 fixture units

**:: Increased by 1.2 times for discharge rate per Lift Station design standard

Existing 15-in sewer line has a capacity of 2.392 cfs based on slope = 0.0022, n = 0.015 and d/D = 0.75.

At 2.659 cfs, d/D = 0.84 in existing 15-in sewer.



Underground Service Alert

Call: TOLL FREE
1-800
422-4133

TWO WORKING DAYS BEFORE YOU DIG

SEWER IMPROVEMENTS (PUBLIC)

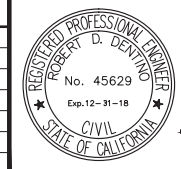
S-1	8" SEWER
S-2	48" MANHOLE PER EMWD STD. DWG. SB-53

SEWER DATA

NO	DELTA/BRG	RADIUS	LENGTH	REMARK
(1)	N89°21'15"E	--	70.00'	8" PVC-SDR 35

PRESSURE ZONE = 1698K

DATE	BY	REVISIONS	APP'D	BY



Designed By	Drawn By	Checked By
Plans Prepared Under Supervision Of		
Date	Mar 25, 2019	
R.C.E. No.	45629	
Expires	12-31-18	

EXCEL ENGINEERING

LAND PLANNING CIVIL ENGINEERING SURVEYING

440 STATE PLACE
ESCONDIDO, CA 92029
TEL (760) 745-8118
FAX (760) 745-1890

EASTERN MUNICIPAL WATER DISTRICT

EMWD 2770 TRIUMBE ROAD
PERRIS, CA 92570
(909) 928-3777
FAX (909) 928-6177

WATER / SEWER / RECYCLED WATER / APPROVED BY:			
EASTERN MUNICIPAL WATER DISTRICT			
CIVIL ENGINEER OF SUBDIVISIONS		DATE	
APPROVALS	PROJECT ENGINEER	INITIAL	DATE

CITY OF MURRIETA TPM 36493/DP2012-3260 SEWER & WATER PLAN AND PROFILE "THE VINEYARD" CLINTON KEITH ROAD	I.D. 23/22
	S.A. 43/34
	W.O. 19374
	C.O.
	COORD. SHT 2 OF 4
D -	

WATER DATA				
NO	DELTA/BRG	RADIUS	LENGTH	REMARK
1	N00°38'45"E	--	335.01'	12" PVC-DR18
2	N89°21'07"W	--	42.00'	8" PVC-DR18
3	N89°21'07"W	--	48.50'	2" SERVICE CONNECT
4	N45°20'03"E	--	48.12'	8" PVC-DR18
5	N00°20'03"E	--	73.87'	"

*PORTION SHOWN OF 672.67'

SEWER DATA				
NO	DELTA/BRG	RADIUS	LENGTH	REMARK
2	N00°38'45"E	--	277.00'	8"

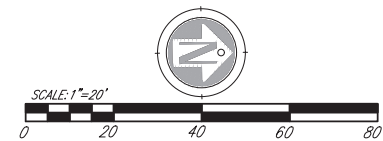
*PORTION SHOWN OF 325.64'

WATERLINE IMPROVEMENTS (PUBLIC)

W-1	12" PVC WATERLINE	C-900, DR 18
W-2	8" PVC WATERLINE	C-900, DR 18
W-3	FLANGED TEE	
W-4	FLANGED GATE VALVE	EMWD STD. DWG. B-255
W-5	2" WATER SERVICE W/O METER	EMWD STD. DWG. B-344A
	FUTURE 2" METER W/ BACKFLOW	EMWD STD. DWG. B-344 & B-597A
W-6	2"-B.O.	EMWD STD. DWG. B-357
W-7	INSTALL TEMP. 6" B.O., 1" A.V. & A.R., AND 12" H.H. RSGV	EMWD STD. DWG. B-568, & B-598
W-8	SUPER FIRE HYDRANT	EMWD STD. DWG. B-517
W-9	8" FIRE SERVICE W/ DOUBLE DETECTOR CHECK ASSEMBLY	EMWD STD. DWG. B-657
W-10	2" IRI SERVICE W/O METER	EMWD STD. DWG. B-344
	FUTURE 1 1/2" METER W/ BACKFLOW	& B-344A
W-11	TRENCH RESURFACING	
W-12	SADDLE OUTLET	EMWD STD. DWG. B-271

SEWER IMPROVEMENTS (PUBLIC)

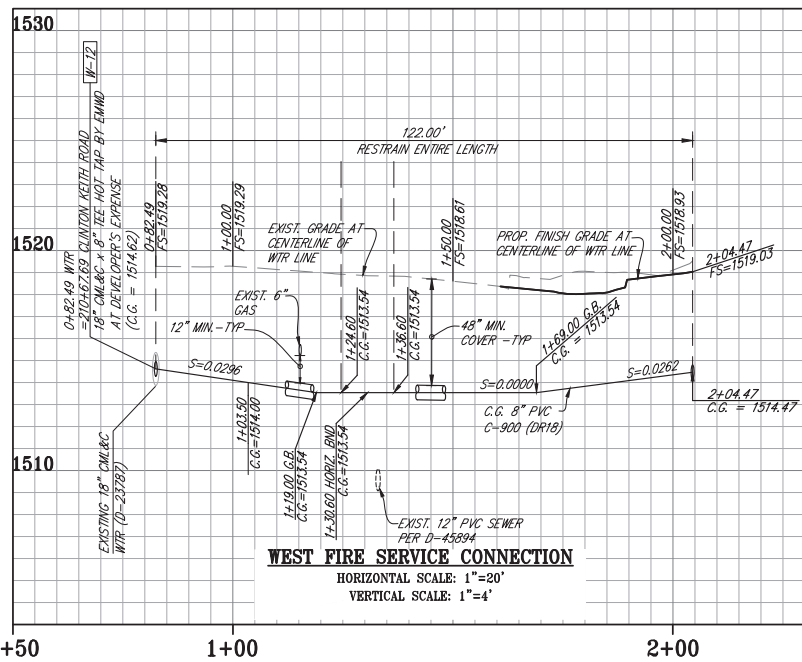
S-1	8" SEWER	
S-2	48" MANHOLE	EMWD STD. DWG. SB-53
S-3	4" PRIVATE SEWER LATERAL	EMWD SB-177
S-4	4" PRIVATE ON-SITE SEWER CLEANOUT	EMWD SB-52
S-5	8" PRIVATE MAIN LINE SEWER CLEANOUT	EMWD SB-52



Underground Service Alert

Call: TOLL FREE
1-800
422-4133

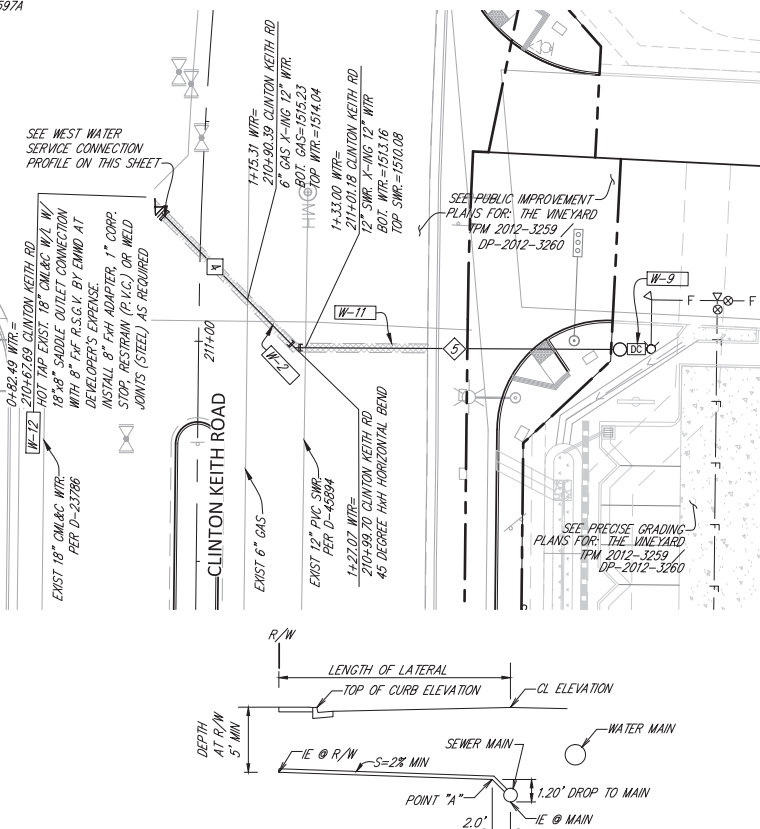
TWO WORKING DAYS BEFORE YOU DIG



0+50

1+00

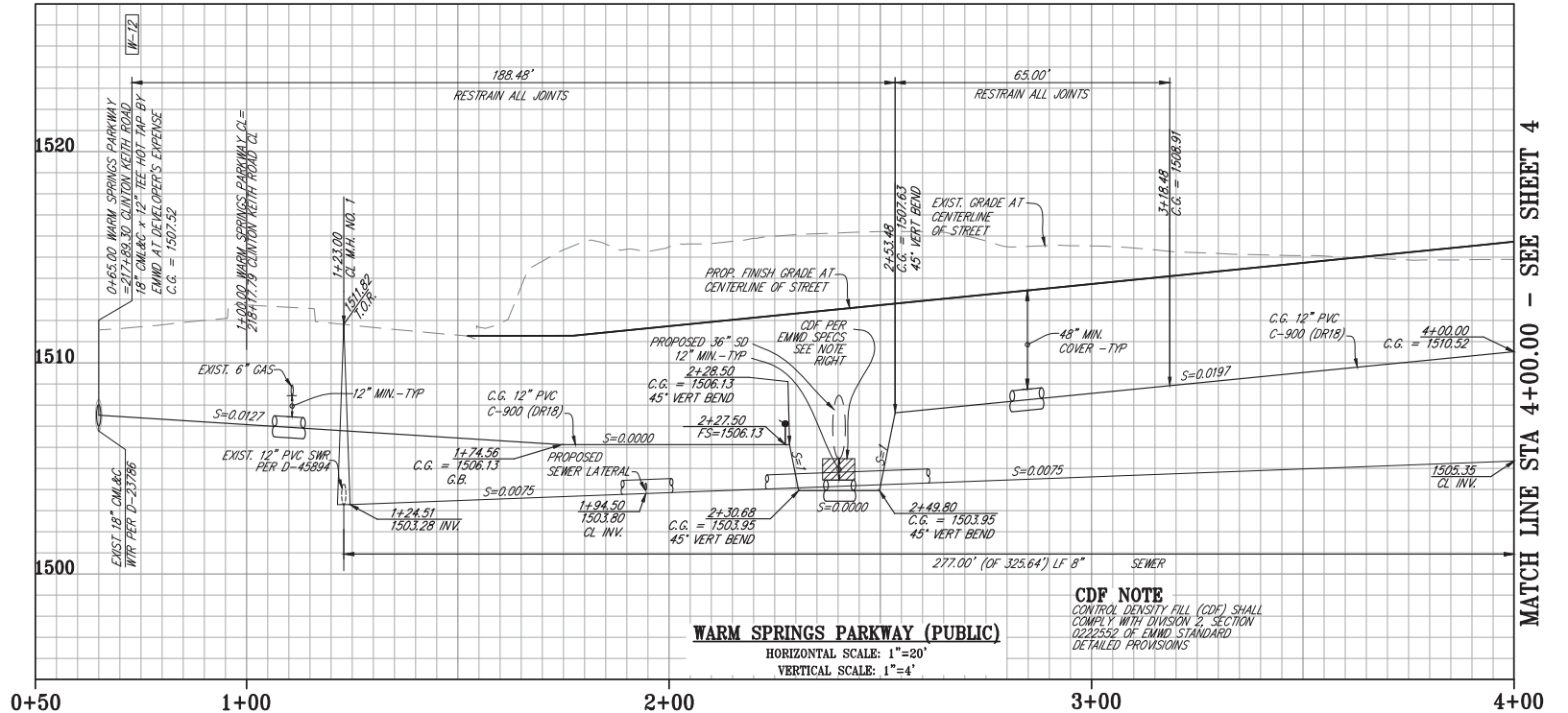
2+00



SEWER LATERAL DETAIL
NOT TO SCALE

SEWER LATERAL TABLE

LAT. NO.	DELTA/BEARING	LENGTH	REMARK	ELEV. @ R/W	IE @ R/W	STA @ WARM SPRINGS	IE @ MAIN	IE @ PT. A	SLOPE (%)
1	N89°21'15"W	67.00'	4" PVC	1511.44	1506.30	1+94.50	1503.80	1505.00	2.00



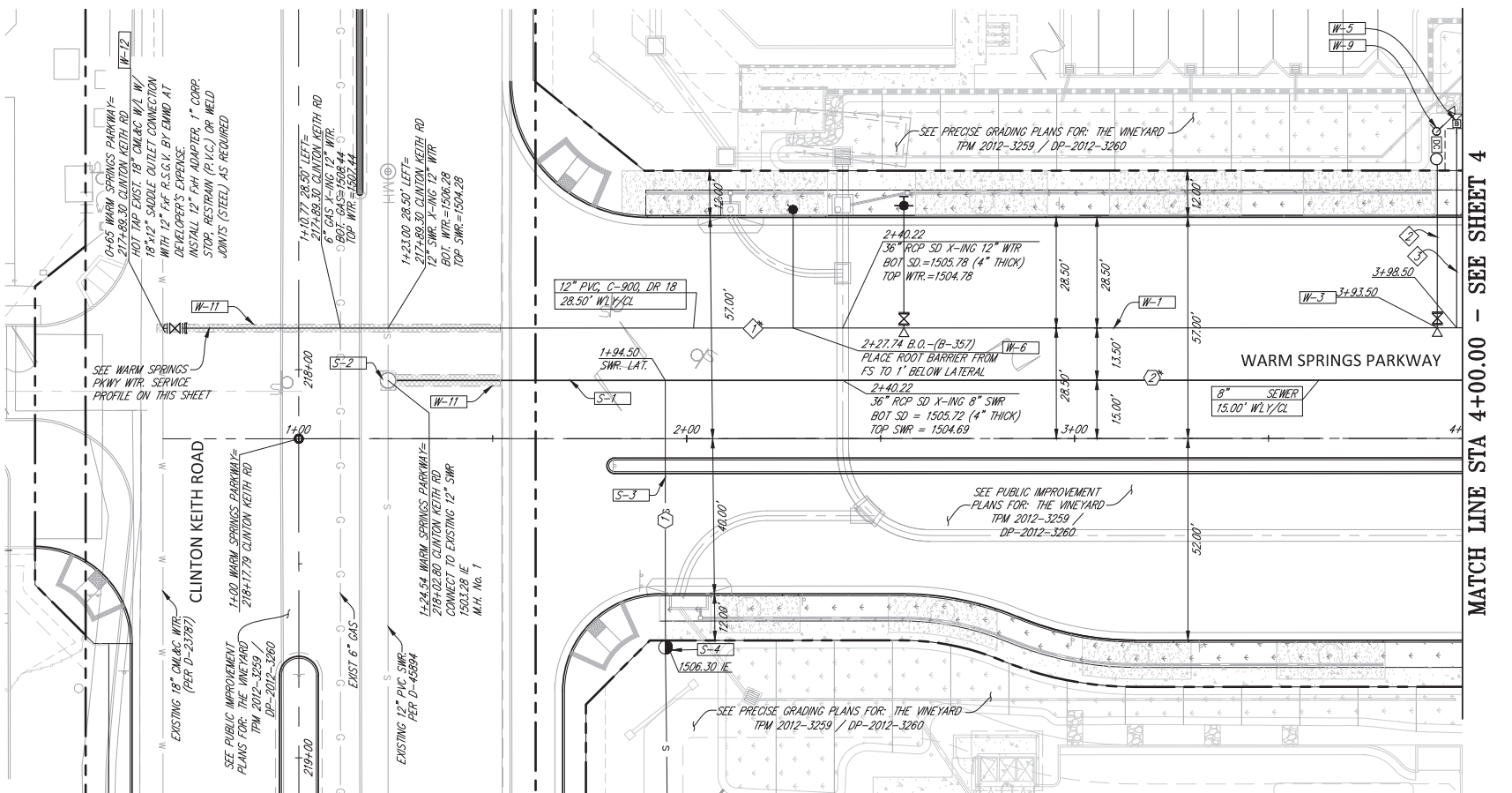
0+50

1+00

2+00

3+00

4+00



0+50

1+00

2+00

3+00

4+00

5+00

6+00

7+00

8+00

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

17+00

18+00

19+00

20+00

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159+00

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195+00

196+00

197+00

198+00

199+00

200+00

201+00

202+00

203+00

204+00

205+00

206+00

207+00

WATERLINE IMPROVEMENTS (PUBLIC)

W-1	12" PVC WATERLINE	C-900, DR 18
W-2	8" PVC WATERLINE	C-900, DR 18
W-3	FLANGED TEE	
W-4	FLANGED GATE VALVE	EMMD STD. DWG. B-255
W-5	2" WATER SERVICE W/O METER	EMMD STD. DWG. B-344A
W-6	2" B.O.	EMMD STD. DWG. B-357
W-7	INSTALL TEMP. 6" B.O., 1" A.V. & A.R., AND 12" HH RSGV	EMMD STD. DWG. B-568, & B-588
W-8	SUPER FIRE HYDRANT	EMMD STD. DWG. B-517
W-9	8" FIRE SERVICE W/ DOUBLE DETECTOR CHECK ASSEMBLY	EMMD STD. DWG. B-657
W-10	2" IRRIGATION SERVICE W/O METER	EMMD STD. DWG. B-344 & B-344A
W-11	TRENCH RESURFACING	
W-12	SADDLE OUTLET	EMMD STD. DWG. B-271

SEWER IMPROVEMENTS (PUBLIC)

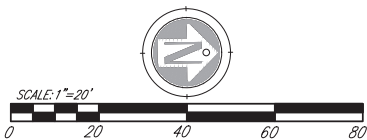
S-1	8" SEWER	
S-2	48" MANHOLE	EMMD STD. DWG. SB-53
S-3	4" PRIVATE SEWER LATERAL	EMMD SB-177
S-4	4" PRIVATE ON-SITE SEWER CLEANOUT	EMMD SB-52
S-5	8" PRIVATE MAIN LINE SEWER CLEANOUT	EMMD SB-52

NO	DELTA/BRG	LENGTH	REMARK
1	N00°38'45"E	* 338.75'	12" PVC-DR18
2	N89°21'07"W	48.50'	2" SERVICE CONNECT
3	N89°21'07"W	48.50'	2" SERVICE CONNECT
4	N89°21'07"W	48.50'	"
5	N89°21'07"W	55.20'	"
6	N89°21'07"W	50.90'	"
7	N89°21'07"W	115.00'	8" PVC-DR18
8	N89°21'15"W	94.00'	2" SERVICE CONNECT
9	N89°21'15"W	94.00'	"
10	N89°21'15"W	94.00'	"
11	N89°21'15"W	41.00'	"
12	N89°21'15"W	22.00'	6" PVC-DR18
13	N89°21'15"W	84.20'	2" SERVICE CONNECT
14	N89°21'15"W	84.20'	"
15	N00°39'20"E	131.00'	8" PVC-DR18

*PORTION SHOWN OF 673.75'

NO	DELTA/BRG	LENGTH	REMARK
1	N00°38'45"E	* 48.64'	8"
2	N00°38'45"E	289.09	"
3	N89°21'15"W	70.00'	"
4	N00°38'45"E	54.15'	"

*PORTION SHOWN OF 325.64'

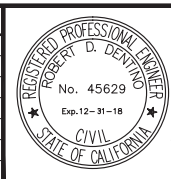


Underground Service Alert

Call: TOLL FREE
1-800
422-4133

TWO WORKING DAYS BEFORE YOU DIG

DATE	BY	REVISIONS	APP'D	BY



Designed By	Drawn By	Checked By
Plans Prepared Under Supervision Of		
Robert D. Dentino	Date	Jul 24, 2019
R.C.E. No. 45629	Expires	12-31-18

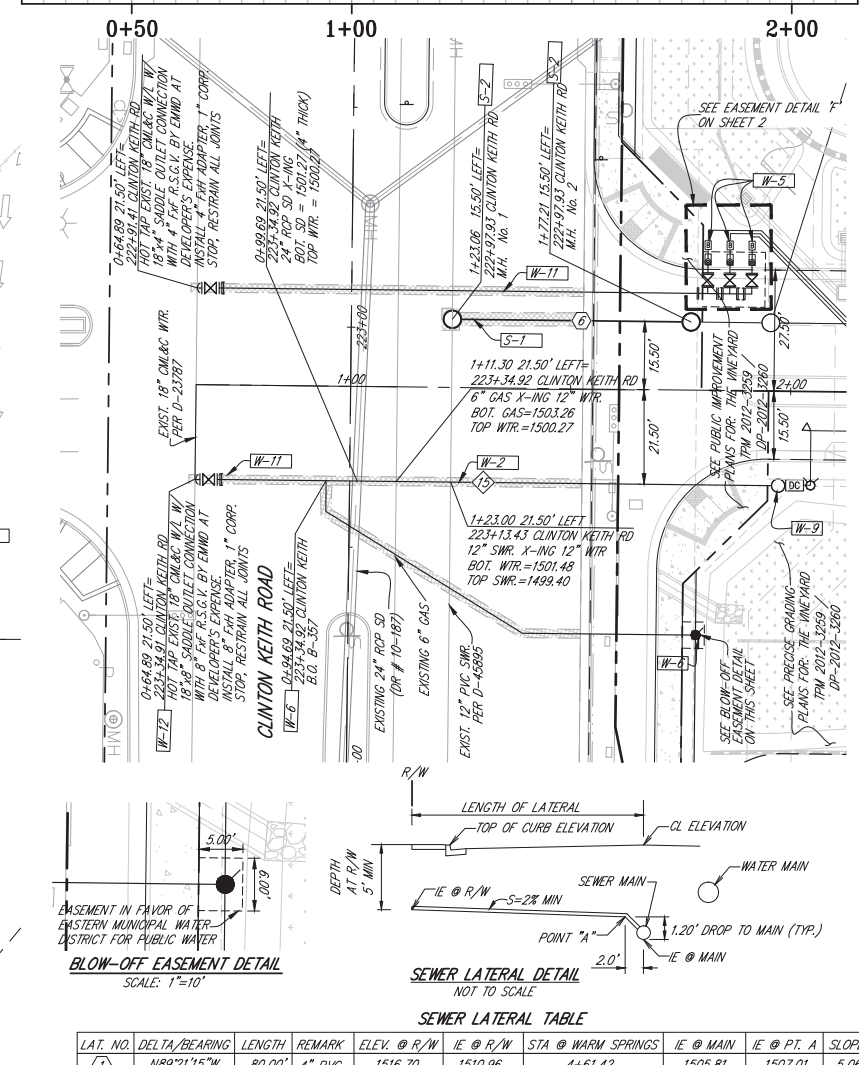
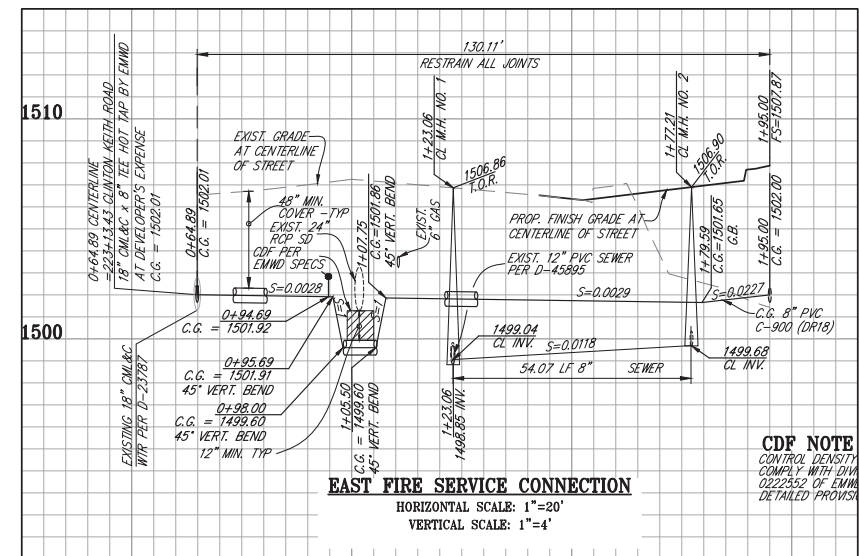
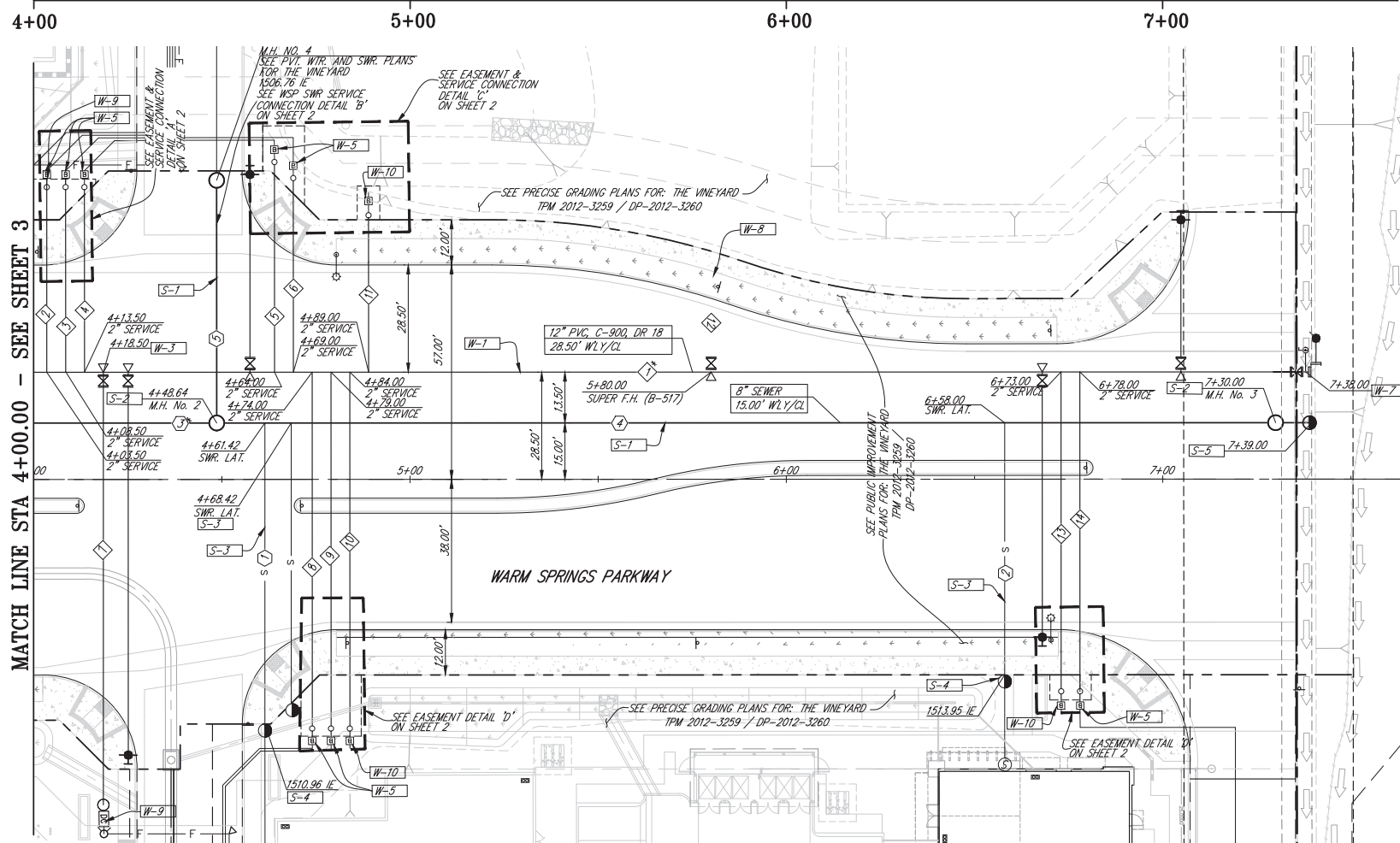
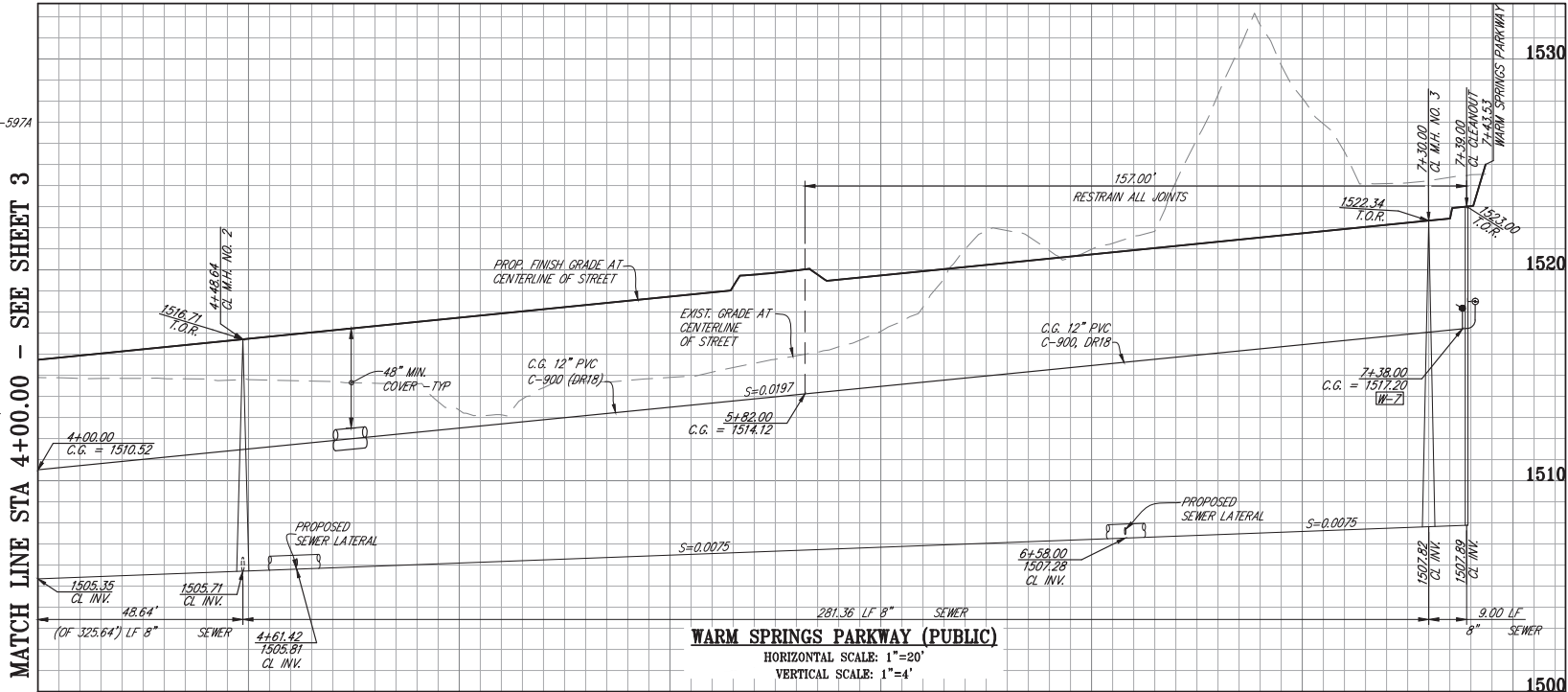
EXCEL
ENGINEERING
LAND PLANNING CIVIL ENGINEERING SURVEYING
440 STATE PLACE
ESCONDIDO, CA 92029
TEL (760) 745-8118
FAX (760) 745-1890

EASTERN MUNICIPAL
WATER DISTRICT
2270 TRIMBLE ROAD
PERRIS, CA 92570
(909) 928-3777
FAX (909) 928-6177

WATER / SEWER / RECYCLED WATER / APPROVED BY:			
EASTERN MUNICIPAL WATER DISTRICT			
CIVIL ENGINEER OF SUBDIVISIONS		DATE	
APPROVALS	PROJECT ENGINEER	INITIAL	DATE

CITY OF MURRIETA
TPM 36493/DP2012-3260
SEWER & WATER
PLAN AND PROFILE
"THE VINEYARD"
CLINTON KEITH ROAD

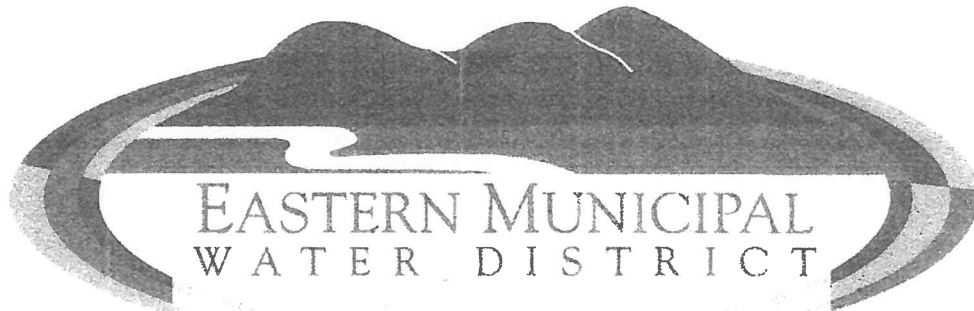
I.D.	23/22
S.A.	43/34
W.O.	19374
C.O.	
COORD.	
SHT	4 OF 4
D -	



LAT. NO.	DELTA/BEARING	LENGTH	REMARK	ELEV. @ R/W	IE @ R/W	STA @ WARM SPRINGS	IE @ MAIN	IE @ PT. A	SLOPE (%)
1	N89°21'15"W	80.00'	4" PVC	1516.70	1510.96	4+61.42	1505.81	1507.01	5.06
2	N89°21'15"W	67.00'	4" PVC	1520.51	1513.95	6+58.00	1507.28	1508.48	8.42

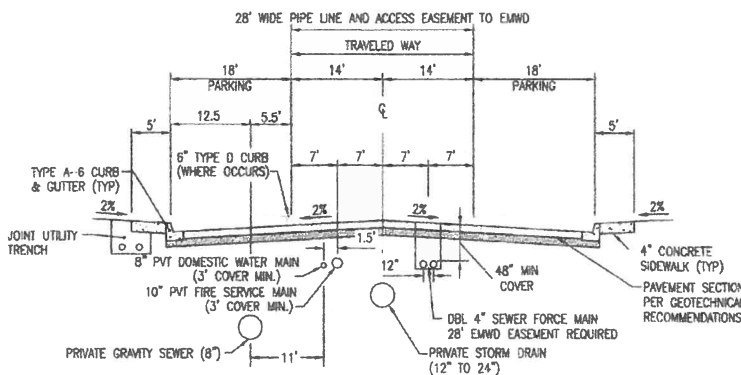
EASTERN MUNICIPAL WATER DISTRICT

CITY OF MURRIETA

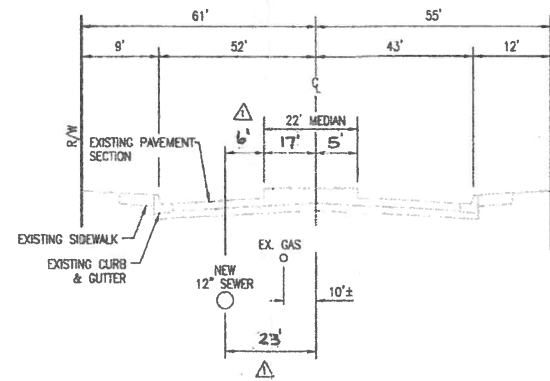


PACIFIC LANDING APARTMENTS SEWER AND WATER IMPROVEMENTS DRAWING INDEX

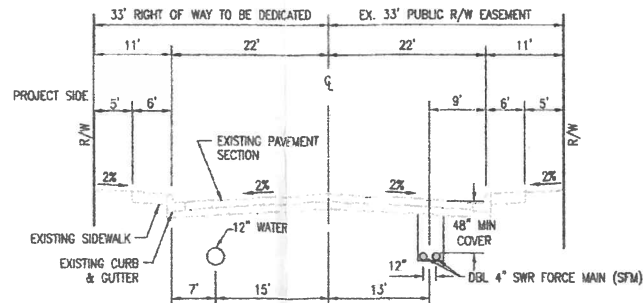
SHT NO.	SHEET TITLE
1	TITLE SHEET, VICINITY AND LOCATION MAP
2	NOTES AND DETAILS
3	SEWER FORCE MAIN PLAN AND PROFILE
4	CREIGHTON AVENUE WATER AND SEWER IMPROVEMENTS PLAN AND PROFILE
5	CLINTON KEITH ROAD WATER AND SEWER IMPROVEMENTS PLAN AND PROFILE
6	CLINTON KEITH ROAD SEWER IMPROVEMENTS PLAN AND PROFILE
7	CLINTON KEITH ROAD SEWER IMPROVEMENTS PLAN AND PROFILE



TYPICAL SECTION: PRIVATE ROAD
NO SCALE



TYPICAL SECTION: CLINTON KEITH ROAD (EXISTING)
NO SCALE



TYPICAL SECTION: CREIGHTON AVENUE (EXISTING)
NO SCALE

GENERAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEARING OF THE PROPOSED WORK AREA, AND RELOCATION OF ALL EXISTING UTILITIES. PERMITS MUST BE OBTAINED FROM THE CITY OF MURRIETA AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION. PHONE: (951)304-2489.
- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF MURRIETA PUBLIC WORKS DEPARTMENT IMPROVEMENT STANDARDS AND THE LATEST EDITION OF STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK).
- THE DEVELOPER WILL INSTALL STREET NAME SIGNS CONFORMING TO CITY STANDARD NO. 601.
- CURB DEPRESSIONS AND DRIVEWAY APPROACHES WILL BE INSTALLED AND CONSTRUCTED ACCORDING TO CITY STANDARD NO. 308, 309, OR 310, AS DIRECTED IN THE FIELD.
- BLUE RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED TO MARK FIRE HYDRANT AND/OR WATER SUPPLY LOCATIONS AT THE DIRECTION OF THE CITY INSPECTOR FOLLOWING FINAL SEALANT AND STROPPING.
- WORK MAY NOT START UNTIL PERMITS HAVE BEEN OBTAINED.
- THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS WITH UNDERGROUND SERVICE ALERT AT 1-800-422-4133 AT LEAST TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION.
- ALL PAVEMENT SECTIONS ARE AT MINIMUM REQUIREMENTS. ADDITIONAL SOIL TEST SHALL BE TAKEN AFTER ROUGH GRADING TO DETERMINE THE EXACT STRUCTURAL SECTION REQUIREMENTS. USE STANDARD NO. 320 IF EXPANSIVE SOIL ARE ENCOUNTERED.
- DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES BY WATER OR OTHER APPROVED METHODS.
- EQUIPMENT AND MATERIALS SHALL BE STORED IN A NEAT AND PROTECTED MANNER.
- THE CONTRACTOR WILL CONDUCT HIS OPERATIONS AS TO OFFER THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO PUBLIC TRAFFIC, AND HE SHALL HAVE UNDER CONSTRUCTION NO GREATER LENGTH OR AMOUNT OF WORK THAN HE CAN EXECUTE PROPERLY. ON EXISTING ROADS, TRAFFIC SHALL BE PERMITTED TO PASS THROUGH THE WORK AREA WITH AS LITTLE INCONVENIENCE AND DELAY AS POSSIBLE.
- EXISTING TRAFFIC SIGNALS AND LIGHTING SYSTEMS SHALL BE KEPT IN OPERATION FOR THE BENEFIT OF THE TRAVELING PUBLIC, AND TO MINIMIZE ANY INTERFERENCE WITH ROUTINE MAINTENANCE OF EXISTING SYSTEMS DURING WORK PROGRESS.
- WHENEVER THE CONTRACTOR'S OPERATION CREATES A HAZARDOUS CONDITION TO TRAFFIC OR TO THE PUBLIC, HE SHALL FURNISH AT HIS OWN EXPENSE, SUCH FLAGMEN AND GUARDS AS ARE NECESSARY TO GIVE ADEQUATE WARNING TO THE PUBLIC OF ANY DANGEROUS CONDITIONS. HE SHALL ALSO FURNISH, ERECT AND MAINTAIN SUCH FENCES, BARRICADES, LIGHTS, SIGNS, AND OTHER DEVICES NECESSARY TO PREVENT ACCIDENTS AND INJURY TO THE PUBLIC.
- WHERE SURVEY MONUMENTS EXIST, SUCH MONUMENTS WILL BE PROTECTED OR SHALL BE REFERENCED AND RESET, PURSUANT TO BUSINESS AND PROFESSIONS CODE, SECTION 8700 TO 8805 (LAND SURVEYOR'S ACT).
- WHERE NEW A.C. PAVEMENT JOIN EXISTING PAVEMENT, SAWCUT TO A NEAT EDGE. THE SAWCUTS MUST BE PERPENDICULAR, PARALLEL, OR RADIAL TO THE ROADWAY CENTERLINE. OVERLAY AND FEATHER NEW A.C. PAVEMENT TO PROVIDE SMOOTH TRANSITION.
- ALL EXISTING STREET SIGNS, ROADSIDE MARKERS ETC., SHALL BE PROTECTED AND/OR REPLACED IN KIND TO THE CURRENT CITY STANDARD PLANS AND CURRENT TRAFFIC MANUAL, AT NO COST TO THE CITY.
- ASPHALTIC EMULSION (FOG SEAL) SHALL BE APPLIED NOT LESS THAN FOURTEEN (14) DAYS FOLLOWING PLACEMENT OF THE ASPHALT SURFACING AND SHALL BE APPLIED AT A MIN. RATE OF 0.05 GALLON PER SQUARE YARD. ASPHALTIC EMULSION SHALL CONFORM TO SECTION 37, 39, AND 94 OF THE STATE STANDARD SPECIFICATIONS.
- ALL UNDERGROUND FACILITIES, WITH LATERALS SHALL BE IN PLACE PRIOR TO PAVING THE STREET SECTION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: WATER, SEWER, GAS, ELECTRIC, CABLE T.V., TELEPHONE, AND DRAINAGE.
- THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITY LINES, INCLUDING ANY OTHER LINES NOT SHOWN ON THESE PLANS OR NOT OF RECORD.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO APPLY TO THE CITY OF MURRIETA ENGINEERING DEPARTMENT, FOR AN ENCROACHMENT PERMIT FOR ALL WORK ON EXISTING CITY MAINTAINED ROADS, AND FOR UTILITY WORK WITHIN OFFERS OF DEDICATION FOR PUBLIC USE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER TO INSTALL STREET CENTERLINE MONUMENTS AS REQUIRED BY CITY STANDARD DRAWINGS NO. 816, 817, AND 818.
- STREET LIGHTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF MURRIETA STANDARD NO. 619 OR 620.
- APPROVAL OF THESE PLANS BY THE CITY OR ITS AGENTS DOES NOT RELIEVE THE APPLICANT AND HIS ENGINEER FROM THE RESPONSIBILITY FOR THE CORRECTION OF ERRORS OR OMISSIONS DISCOVERED DURING CONSTRUCTION. UPON REQUEST, THE APPROPRIATE PLAN REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.
- ALL G.T.E. SIZE AND SOG FACILITIES WILL BE RELOCATED OR MODIFIED BY THE RESPECTIVE UTILITIES OR THEIR APPOINTED REPRESENTATIVES.
- ALL WATER RELATED WORK SHALL BE DONE IN ACCORDANCE WITH THE SERVING WATER DISTRICT STANDARDS AND SPECIFICATIONS.
- ALL SEWER RELATED WORK SHALL BE DONE IN ACCORDANCE WITH THE SERVING WATER DISTRICT STANDARDS AND SPECIFICATIONS.
- ANY SERVICE SHUT DOWN SHALL BE DONE AT NIGHT, PRIOR TO ANY SHUT DOWN, THE CONTRACTOR SHALL NOTIFY THE DIRECTOR, ENGINEER, CUSTOMER, FIRE DEPARTMENT, SERVING WATER DISTRICT, AND ALL OTHERS AFFECTED BY THE SHUT DOWN A MINIMUM OF TWO (2) WEEKS IN ADVANCE.
- IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER OR CONTRACTOR TO APPLY TO CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) FOR AN ENCROACHMENT PERMIT FOR ALL WORK PERFORMED WITHIN THE STATE RIGHT-OF-WAY.
- 24 HOUR EMERGENCY CONTACT: ALEX LASTRA
CELL: 302-887-2245

EMWD SEWER NOTES

- SEWER SYSTEM CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH EMWD'S STANDARDS AND SPECIFICATIONS.
- GRAVITY SEWER PROFILE ELEVATIONS ARE TO FLOW LINE (CONDUIT INVERT).
- FOR GRAVITY SEWER CONTRACTOR HAS THE OPTION TO INSTALL PLASTIC OR VCP SEWERS EXCEPT WHERE SPECIFICALLY DESIGNATED ON PLANS PER EMWD STANDARDS AND SPECIFICATIONS. FORCE MAIN SHALL BE TYPE C-900, DR-18 EXCEPT WHERE NOTED, OTHERWISE PIPE SHALL CONFORM TO AWWA SPECIFICATIONS.
- MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWINGS SB-53, SB-58 AND SB-61, AS APPLICABLE. SEWER MAINS MAY BE LAD THROUGH THE MANHOLES AND USED AS A FORM FOR THE INVERT.
- PRIOR TO CONSTRUCTION OF SEWER, CONTRACTOR SHALL EXPOSE EXISTING SEWER AND VERIFY ITS EXISTING ELEVATION AND LOCATION, WHERE CONNECTING TO EXISTING MANHOLES AND INLET STUB OF PROPER SIZE EXISTS, NO ALTERATIONS SHALL BE MADE TO EXISTING MANHOLE BASE OR STUB EXCEPT AS SPECIFICALLY AUTHORIZED BY EMWD.
- ALL SEWER INLETS AT THE MANHOLE SHALL BE SUCH THAT ITS CROWN SHALL BE LEVEL WITH THE CROWN OF THE OUTLET PIPE, AT THEIR PROJECTIONS TO THE MANHOLE CENTERLINE.
- RECONSTRUCTION OF EXISTING MANHOLES SHALL BE SCHEDULED AT THE CONVENIENCE OF EMWD AND SHALL BE COMPLETED WITHIN FIVE WORKING DAYS FOLLOWING ITS COMMENCEMENT.
- THE CONTRACTOR IS ADVISED THAT THE WORK ON THIS PROJECT MAY INVOLVE WORKING IN A CONFINED AIR SPACE. CONTRACTOR SHALL BE RESPONSIBLE FOR "CONFINED AIR SPACE" ARTICLE 108, TITLE 8, CALIFORNIA ADMINISTRATIVE CODE.
- WHERE GROUNDWATER IS ENCOUNTERED, ALL VCP PIPE SHALL BE TREATED FOR ABSORPTION RESISTANCE PER EMWD'S SPECIFICATIONS.
- ALL PIPE ZONE BEDDING & TRENCH BACKFILL ARE TO BE PER STANDARD DRAWING SB-157, SB-158 AND SB-159.
- SEWER FORCE MAIN PROFILE ELEVATIONS ARE TO CENTERLINE (CENTER GRADE) OF PIPE.
- INSTALL LOCATOR WIRE OVER SEWER FORCE MAIN PER STANDARD B-856.
- JOINT RESTRAINTERS SHALL BE USED ON ALL MAINLINE (SEWER FORCE MAIN) PIPE JOINTS WITHIN SPECIFIED LIMITS PER EMWD STANDARD B-663.

EMWD WATER NOTES

- WATER PIPELINE AND APPURTENANCE CONSTRUCTION SHALL BE IN ACCORDANCE WITH EMWD STANDARDS AND SPECIFICATIONS.
- PRIOR TO CONSTRUCTION OF PIPELINE, CONTRACTOR SHALL EXPOSE EXISTING WATER SYSTEM AND VERIFY ITS EXISTING ELEVATION AND LOCATION.
- WHERE SEWERS HAVE BEEN CONSTRUCTED BY AGENCIES OTHER THAN EMWD, CONTRACTOR SHALL VERIFY SEWER LATERAL LOCATIONS PRIOR TO EXCAVATION FOR WATER PIPELINE. IN THE EVENT SEWER LATERALS ARE FOUND TO BE AT A DEPTH LESS THAN IN ACCORDANCE WITH EMWD SEWER STANDARDS, WATER PIPELINE CONTRACTOR SHALL ADJUST WATER PIPELINE DEPTH AS DIRECTED BY THE ENGINEER TO CROSS OVER THE SEWER LATERAL IF POSSIBLE, TO PROVIDE 36" MINIMUM COVER TO FINISH ROAD GRADE; OTHERWISE, CROSS UNDER THE LATERAL, WHICH REQUIRES SPECIAL CONSTRUCTION.
- AIR VALVE ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. B-598 TYPE "B".
- WATER SYSTEM PROFILE ELEVATIONS ARE TO CENTERLINE (CENTER GRADE) OF PIPE.
- APPROVED REDUCTION PRESSURE BACKFLOW PREVENTION DEVICE (B-597) REQUIRED FOR ALL INDUSTRIAL, COMMERCIAL, APARTMENT COMPLEXES AND LANDSCAPE SERVICES.
- INSTALL LOCATOR WIRE OVER WATER MAIN PER STD DWG. B-856.
- FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. B-362 WITH LIGHT BLUE COLOR COORDS.
- BLOW-OFF ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. B-357.
- ALL PVC PIPE THROUGH 12 INCH SHALL BE TYPE C-900, DR 18, EXCEPT WHERE NOTED OTHERWISE.
- FITTINGS FOR PVC PIPE SHALL BE DUCTILE OR GRAY IRON. FITTINGS SHALL BE FLANGED, BOLTED MECHANICAL JOINTS, OR PUSH-ON JOINTS, AND SHALL BE CEMENT MORTAR LINED AND TAR (SEAL) COATED PER EMWD STANDARDS AND SPECIFICATIONS.
- ALL DUCTILE OR GRAY IRON FITTINGS SHALL BE POLYETHYLENE ENCASED AT THE TIME OF INSTALLATION PER EMWD STANDARDS AND SPECIFICATIONS.
- A JOINT RESTRAINT DEVICE SHALL BE USED ON ALL MAIN LINE PIPE JOINTS WITHIN SPECIFIED LIMITS AND ALL JOINTS OR WATER APPURTENANCE LATERALS OFF MAIN LINE, PER EMWD STD. DWG. B-663.

NOTIFICATIONS

AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR SHALL NOTIFY:

- EASTERN MUNICIPAL WATER DISTRICT, FIELD ENGINEERING DEPARTMENT (951) 928-3777 EXT 4830
- CITY OF MURRIETA (951) 698-1940
- UNDERGROUND SERVICE ALERT 1-800-227-2600 OR 811
- ALL OTHER AFFECTED AGENCIES THAT ARE NOT MEMBERS OF UNDERGROUND SERVICE ALERT



DELTA 1 REVISION BY:
& DELTA 2

RICHARD VALDEZ
RICHARD VALDEZ
VSL ENGINEERING

REVISIONS

NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	6/24/14	RV	REV. SEWER LOCATION CLINTON KEITH ROAD PER COMMENTS	AGA 6/25/14
2	7/30/14	RV	REVISE SEWER & WATER PROFILES - SEE SHEET 4	AGA 9/15/15
3	8/1/16	PD	AS CONST. CO. 68774/75 (CR 5/10/2016)	MS 1/5/17

REFERENCES

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS
DATE: 2/25/14

APPROVALS

PROJECT ENG.	INITIALS	DATE
	AGA	2/25/14

DESIGNED:	BWE
DRAWN:	BWE
CHECKED:	BWE
SUBMITTED:	BWE
SCALE:	N/A

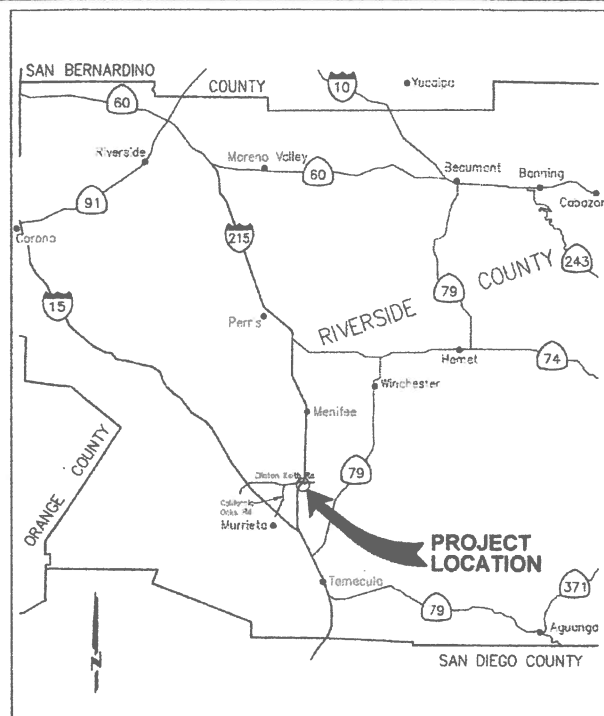
EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER, WATER, AND SEWER FORCE MAIN PLAN
TITLE SHEET

I.D.	23/22
S.A.	43/34
W.O.	13-267
C.O.	68774/75
COORD.	13A&C 18C
SHT	1 OF 7
D-45890	



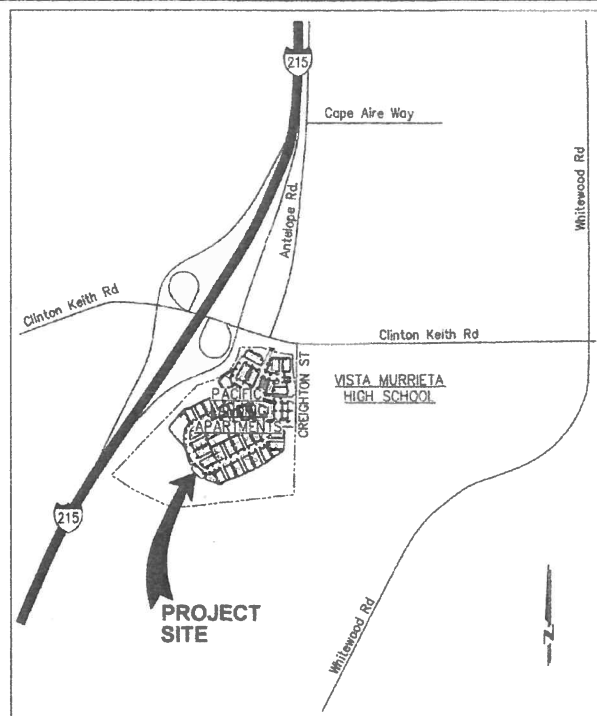
PLANS PREPARED BY:
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA
92103-5704 * (619) 299-5550
CARL M. FLORICA R.C.E. No. 64715
DATE: 2/24/14





VICINITY MAP

NOT TO SCALE



LOCATION MAP

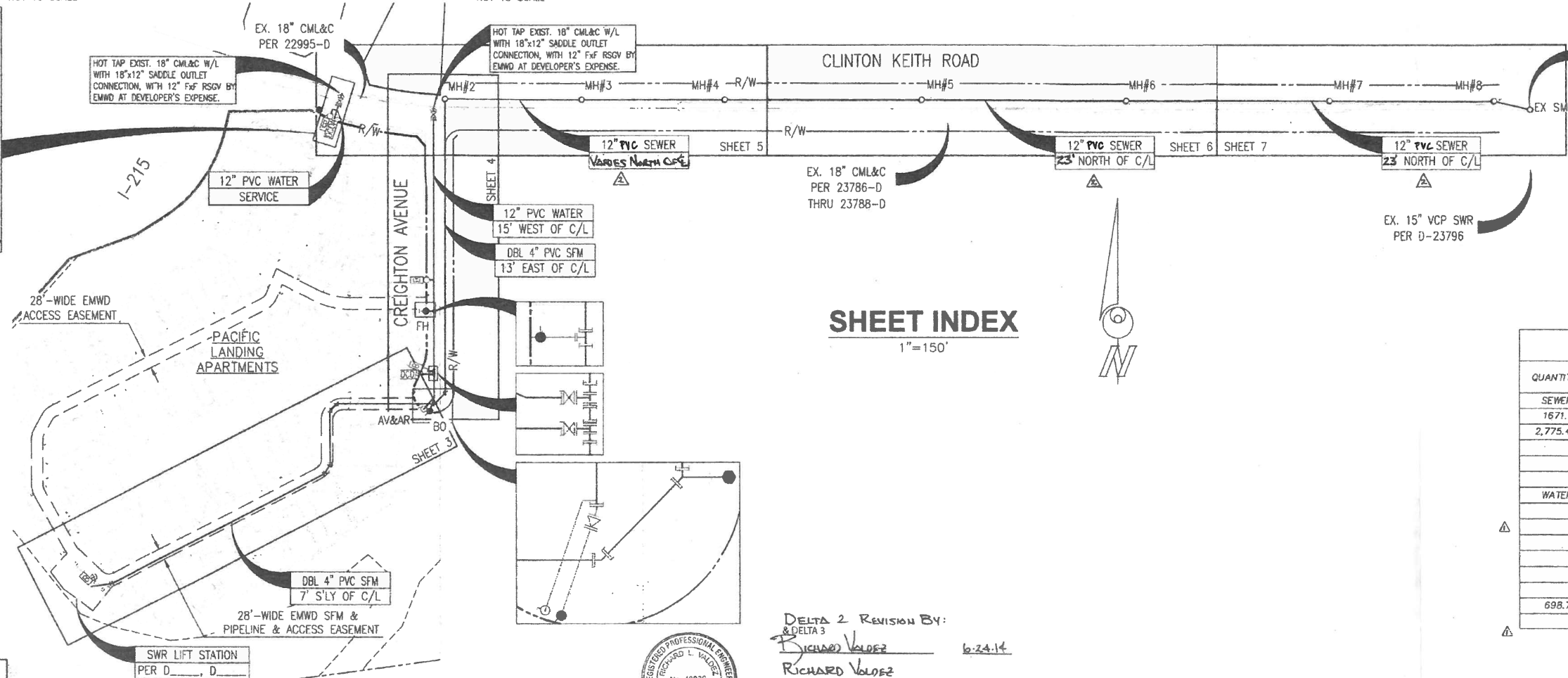
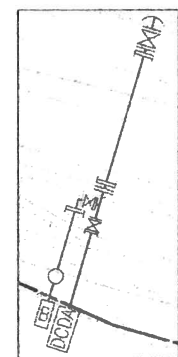
NOT TO SCALE

CITY OF MURRIETA NOTES

1. THE SUB-DIVIDER OR CONTRACTOR SHALL APPLY TO THE CITY ENGINEERING DEPARTMENT FOR AN ENCROACHMENT PERMIT FOR ALL WORK WITHIN THE RIGHT-OF-WAY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEARING OF THE PROPOSED WORK AREA, AND RELOCATION AND COST OF ALL EXISTING UTILITIES. THE CITY SHALL BE INFORMED 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION AT (951)304-2489. STREET LIGHTS SHALL BE INSTALLED AS SHOWN ON THE PLANS. UNDERGROUND CONDUIT RUNS, SERVICE POINTS AND HAND-HOLES SHALL BE SHOWN ON THE "AS-BUILT" PLANS.
3. ALL UNDERGROUND UTILITIES AND LATERALS SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF CURBS, CROSS GUTTERS OR SURFACING OF STREETS.
4. FIRE HYDRANT MARKERS SHALL BE PLACED IN THE STREET ADJACENT TO ALL NEW AND EXISTING FIRE HYDRANTS IN CONFORMANCE WITH CITY FIRE DEPARTMENT REQUIREMENTS.

LEGEND

- SEWER**
- SEWER MANHOLE
 - SEWER CLEANOUT
 - EXISTING SEWER LINE
 - EXISTING SEWER MANHOLE
 - GRAVITY SEWER LINE
 - SEWER FORCE MAIN
- WATER**
- EXISTING WATER LINE
 - WATER LINE
 - STANDARD FIRE HYDRANT
 - RESILIENT SEAT GATE VALVE (FXT)
 - BACKFLOW PREVENTOR (REDUCED PRESSURE)
 - BACKFLOW PREVENTOR (DOUBLE DETECTOR CHECK)
 - REDUCER FITTING
 - BLOW OFF
 - COMBINATION AIR VALVE AND RELEASE
 - WET TAP
 - SERVICE
 - SERVICE W/METER



SHEET INDEX

1"=150'



QUANTITY ESTIMATE		
QUANTITY	UNIT	ITEM
SEWER		
1671.21	LF	DUAL 4" PVC SEWER FORCE MAIN, C900 (DR-18)
2,775.42	LF	12" SEWER PVC SDR-35
8	EA	48" SEWER MANHOLE
1	EA	CONNECT TO EXISTING MANHOLE
WATER		
2	EA	6" GATE VALVES
4	EA	12" GATE VALVES
1	EA	FIRE HYDRANT ASSEMBLY
1	EA	BLOW OFF ASSEMBLY
1	EA	AIR VACUUM & AIR RELEASE ASSEMBLY
2	EA	HOT TAP CONNECTION
698.73	LF	12" PVC, C900 (DR-18) WATER
1	EA	2" WATER SERVICE
2	EA	6" WATER SERVICE
1	EA	1 1/2" WATER METER
2	EA	3" WATER METER

SEWER/WATER APPURTENANCES ARE SHOWN FOR REFERENCE ONLY SEE REFERENCED SHEET FOR CONSTRUCTION.



PLANS PREPARED BY
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA.
92103-5704 • (619) 299-5550

CARL M. FLORICA R.C.E. No. 64715

DATE 2/24/14



REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	3/4/14	ES	UPDATE QUANTITY ESTIMATE	AGA 3/4/14
2	6/24/14	R.V.	REV SEWER LOCATION CLINTON KEITH RD PER COMMENTS	AGA 6/24/14
3	7/30/14	RV	ELIMINATE MH #1 - SEE SHEET 4	AGA 7/30/14
4	8/1/14	PD	AS CONGE CO. 6/24/14 (C.R. 5/10/2014)	MA 8/1/14

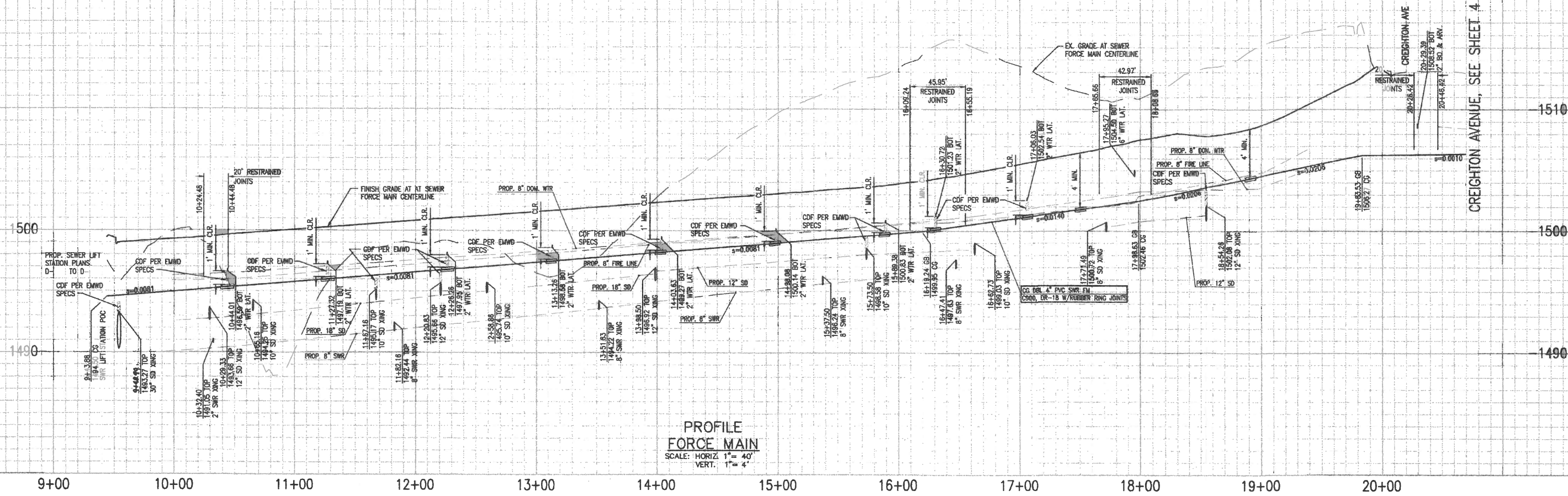
REFERENCES	

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:	
EASTERN MUNICIPAL WATER DISTRICT	
CIVIL ENGINEER OF SUBDIVISIONS	DATE 2/25/14
APPROVALS	PROJECT ENG. DATE 2/25/14

DESIGNED:	BWE	DATE
DRAWN:	BWE	
CHECKED:	BWE	
SUBMITTED:	BWE	
SCALE:	N/A	

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER, WATER, AND SEWER FORCE MAIN PLAN
INDEX SHEET

I.D.	23/22
S.A.	43/34
W.D.	13-267
C.O.	68774/25
COORD.	13ABC 18C
SHT	2 OF 7
D-45891	

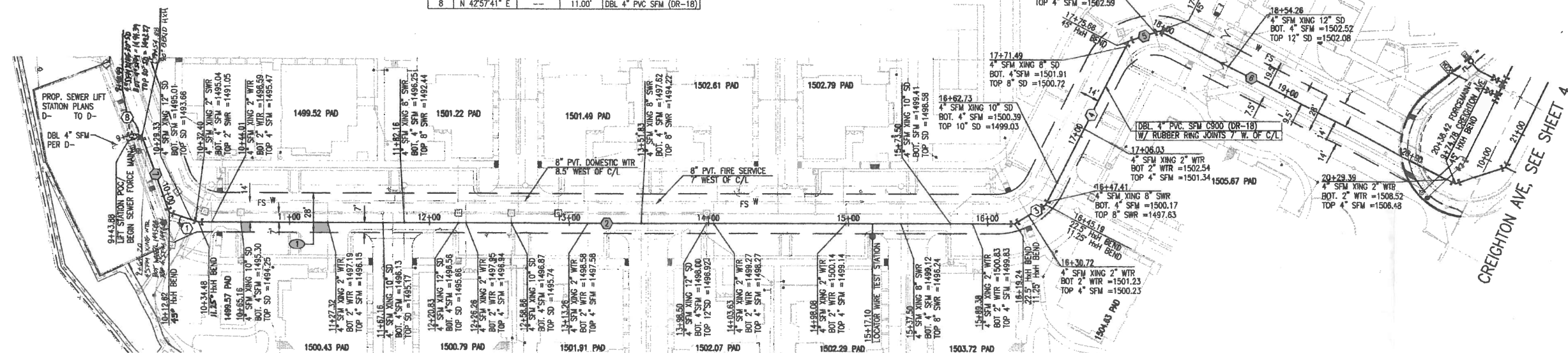


EASEMENT NOTES

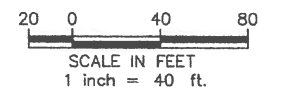
- 28' WIDE EASEMENT TO EASTERN MUNICIPAL WATER DISTRICT FOR ACCESS AND MAINTENANCE.

SEWER FORCE MAIN DATA				
NO	BEARING/Delta	RADIUS	LENGTH	SIZE/TYPE (CLASS)
1	N 80°31'48" E	34.48'	DBL 4" PVC SFM (DR-18)	
2	N 62°57'41" E	584.76'	DBL 4" PVC SFM (DR-18)	
3	N 31°27'41" E	25.95'	DBL 4" PVC SFM (DR-18)	
4	N 00°02'19" W	130.47'	DBL 4" PVC SFM (DR-18)	
5	N 44°57'41" E	22.97'	DBL 4" PVC SFM (DR-18)	
6	N 89°57'41" E	237.79'	DBL 4" PVC SFM (DR-18)	
7	N 47°02'19" W	57.73'	DBL 4" PVC SFM (DR-18)	
8	N 42°57'41" E	11.00'	DBL 4" PVC SFM (DR-18)	

NOTE:
ALL TRENCH CUTS IN EXISTING PAVEMENT TO COMPLY WITH
CITY OF MURRIETA TRENCH BACKFILL AND SURFACE
RESTORATION STANDARD DRAWING NO. 212g



FORCE MAIN PLAN
10+00 TO 20+36.42



PLANS PREPARED BY:
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA.
92103-5704 * (619) 299-5550
CARL M. FLORICA R.C.E. No. 64715
4/7/14 DATE



REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1			THIS PLAN SUPERCEDES THE PREVIOUSLY APPROVED PLAN DATED 2/25/14	MS 1/6/17
2	8/4/16	PD	AS CONST. CA. LB-T14/15 (C.R. 5/10/2016)	

REFERENCES				

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS
APPROVALS
PROJECT ENG. DATE 4/8/14

DESIGNED:		DATE
DESIGNED:	BWE	
CHECKED:	BWE	
SUBMITTED:	BWE	
SCALE:	1"=40'	

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER FORCE MAIN
PLAN AND PROFILE
SEWER FORCE MAIN
10+00 TO 20+36.42

I.D.	23/22
S.A.	43/34
W.O.	13-267
C.O.	60774/75
COORD.	13A&C 18C
SHT	3 OF 7
D-	45892

1520-

1510-

1500-

-1520

-1510

-1500

PROFILE CREIGHTON AVE

SCALE: HORIZ 1" = 40'
VERT. 1" = 4'

* INDICATES 20' NO JOINTS (WATER MAIN & FORCE MAIN)
WITH CDF PER EMWD SPECS.

NOTE:
CONTRACTOR TO VERIFY LOCATION AND
DEPTH OF ALL EXISTING UTILITIES PRIOR
TO THE START OF CONSTRUCTION.

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

17+00

SEE SHEET 3

CLINTON KEITH ROAD
SEE SHEET 5

PLAN CREIGHTON AVE

SEWER DATA					
NO.	BEARING/DELTA	RADIUS	LENGTH	SLOPE	SIZE/TYPER (CLASS)
1	N 44°58'01" E	---	37.56'	---	DBL 4" PVC (DR-18)
2	N 00°01'38" W	---	597.23'	---	DBL 4" PVC (DR-18)
3	N 00°07'30" E	---	177.23'	0.0050	12" SEWER

WATER DATA					
NO.	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPER (CLASS)	ANNA C900
1	N 00°01'38" W	---	688.73'	---	12" PVC (DR-18)

NOTE:
ALL TRENCH CUTS IN EXISTING PAVEMENT TO COMPLY WITH
CITY OF MURRIETA TRENCH BACKFILL AND SURFACE
RESTORATION STANDARD DRAWING NO. 212a

SCALE: 1" = 40'
SCALE IN FEET
1 inch = 40 ft.

DELTA 1 REVISION BY:
& DELTA 2

RICHARD VALDEZ
RICHARD VALDEZ
VSL ENGINEERING

6-24-14



PLANS PREPARED BY:
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA.
92103-5704 (619) 299-5560



CARL M. FIORICA R.C.E. No. 64715 DATE 2/29/14

REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	6-24-14	RV	REV SEWER LOCATION CLINTON KEITH ROAD	AGA 6/25/14
2	7/30/14	RV	REVISE SEWER & WATER PROFILES AT ELEC X-ING 16+40.06	AGA 9/15/14
3	8/4/16	PD	AG CONTR. C.O. 68714/15 (C.R. 5/18/2016)	MS 11/9/17

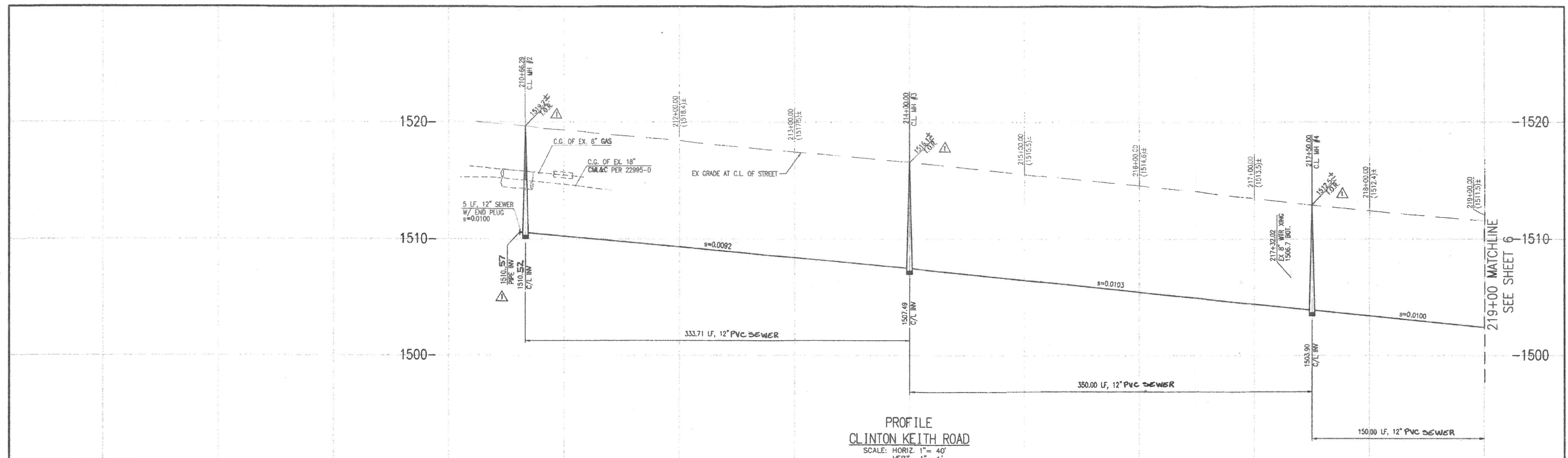
REFERENCES

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS
APPROVALS

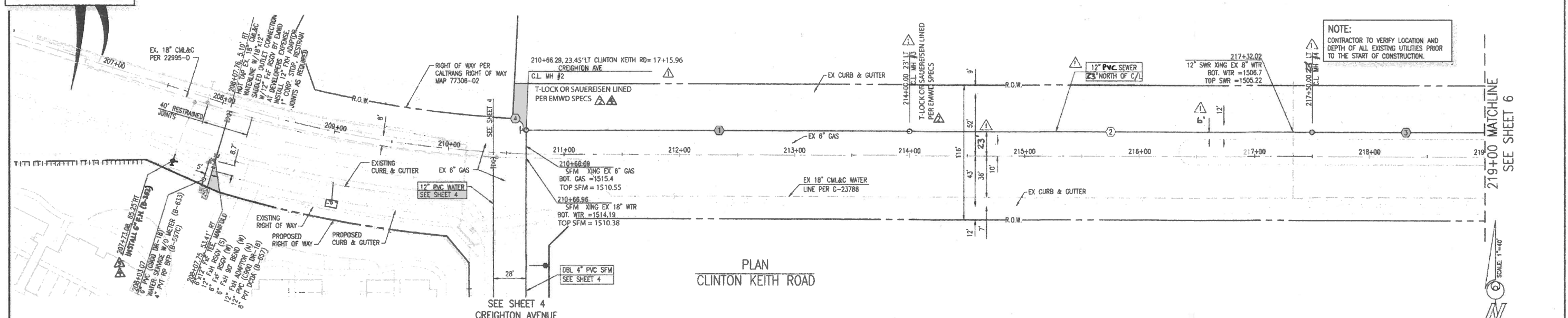
DESIGNED: BWE
DRAWN: BWE
CHECKED: BWE
SUBMITTED: BWE
SCALE: 1" = 40'

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER, WATER AND SEWER FORCE MAIN
PLAN AND PROFILE
CREIGHTON AVENUE
10+00 - 17+12.96

I.D. 23/22
S.A. 43/34
W.O. 13-267
C.O. 68714/15
COORD. 13AAS 18C
SHT 4 OF 7
D-45893



CAUTION!!!!
EXISTING 6" GAS LINE AND FIBER OPTIC LINE. CONTRACTOR TO VERIFY DEPTH AND LOCATION AND PROTECT IN PLACE.



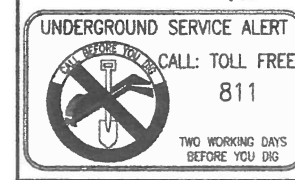
NOTE:
CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.

SEWER DATA				
NO.	BEARING/Delta	RADIUS	LENGTH	SLOPE
1	N 89°52'30" W	---	333.71	0.0092
2	N 89°52'30" W	---	350.00	0.0103
3	N 89°52'30" W	---	150.00	0.0100
4	N 89°52'30" W	---	5.00	0.0100

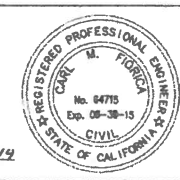
NOTE:
ALL TRENCH CUTS IN EXISTING PAVEMENT TO COMPLY WITH CITY OF MURRIETA TRENCH BACKFILL AND SURFACE RESTORATION STANDARD DRAWING NO. 2120



DELTA I REVISION BY:
RICHARD VALDEZ
RICHARD VALDEZ
VSL ENGINEERING
6-24-14



BURKETT & WONG
ENGINEERS
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA.
92103-5704 * (619) 299-5550
CARL M. FLORICA R.C.E. No. 64715
2/24/12



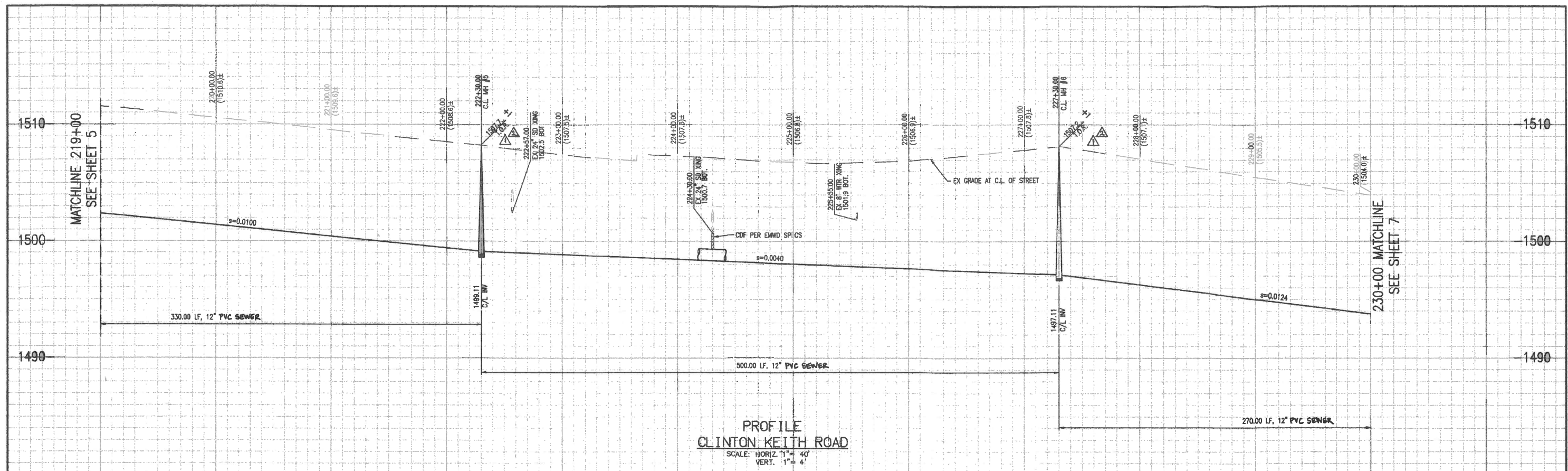
REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	6/24/14	RV	REV. SEWER LOCATION CLINTON KEITH RD. PER CONFLICTS	ASA 6/25/14
2	7/30/14	RV	ADD LINING MH 2 & MH3	ASA 7/31/14
3	8/15/16	BL	REPLACE EXISTING BLOWOFF WITH A FIRE HYDRANT	ASA 8/19/16
4	11/28/16	PD	AS CONST. C.D. 60114/15 (CR. 5/18/16)	MS 11/31/17

REFERENCES	

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS
APPROVALS
PROJECT ENG. DATE
2/25/14

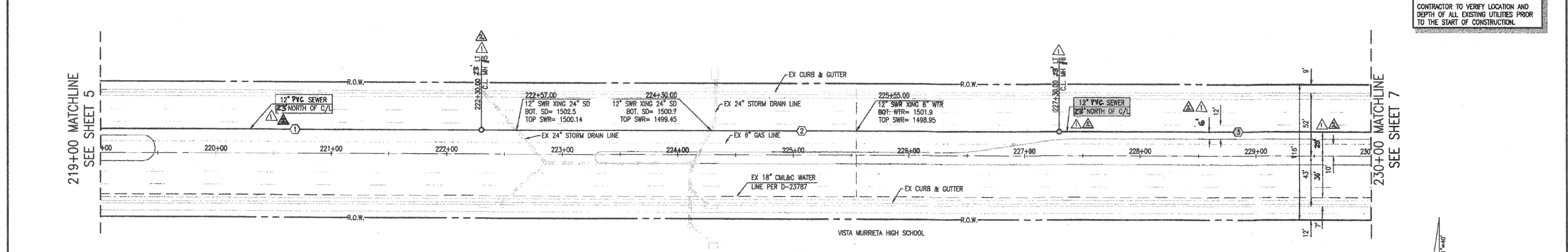
DESIGNED: EWE
DRAWN: EWE
CHECKED: EWE
SUBMITTED: EWE
SCALE: 1"=40'

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER AND WATER
PLAN AND PROFILE
CLINTON KEITH ROAD
208+00 - 219+00
I.D. 23/22
S.A. 43/34
W.O. 13-267
C.O. 60TH/75
COORD. 13&C 160
SHT 3 OF 7
D-45894



219+00 220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00

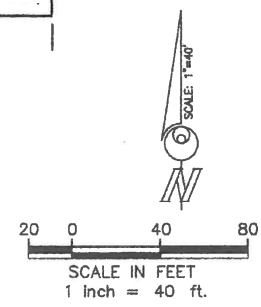
NOTE:
CONTRACTOR TO VERIFY LOCATION AND
DEPTH OF ALL EXISTING UTILITIES PRIOR
TO THE START OF CONSTRUCTION.



PLAN
CLINTON KEITH ROAD
SCALE: 1" = 40'

SEWER DATA					
NO.	BEARING/DELTA	RADIUS	LENGTH	SLOPE	SIZE
1	N 89°52'30" W	---	330.00	0.0100	12" SEWER
2	N 89°52'30" W	---	500.00	0.0040	12" SEWER
3	N 89°52'30" W	---	270.00	0.0124	12" SEWER

NOTE:
ALL TRENCH CUTS IN EXISTING PAVEMENT TO COMPLY WITH
CITY OF MURRIETA TRENCH BACKFILL AND SURFACE
RESTORATION STANDARD DRAWING NO. 212a



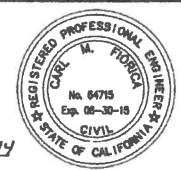
SEWER LOCATION MOVED FROM 21' NORTH
OF CL TO 23' NORTH OF CL



DELTA 1 REVISION BY:
RICHARD VALDEZ 6-24-14
RICHARD VALDEZ
VSL ENGINEERING



PLANS PREPARED BY:
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA
92103-5704 • (619) 299-5550
CARL M. FIORICA R.C.E. No. 64715 DATE: 2/24/14



REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	6-24-14	RV	REV. SEWER LOCATION CLINTON KEITH RD PER CONSULT	ASA 6/25/14
2	8/4/16	PD	AS CONST. C.D. 68774/15 (C.R. 5/10/2016)	MS 11/5/17

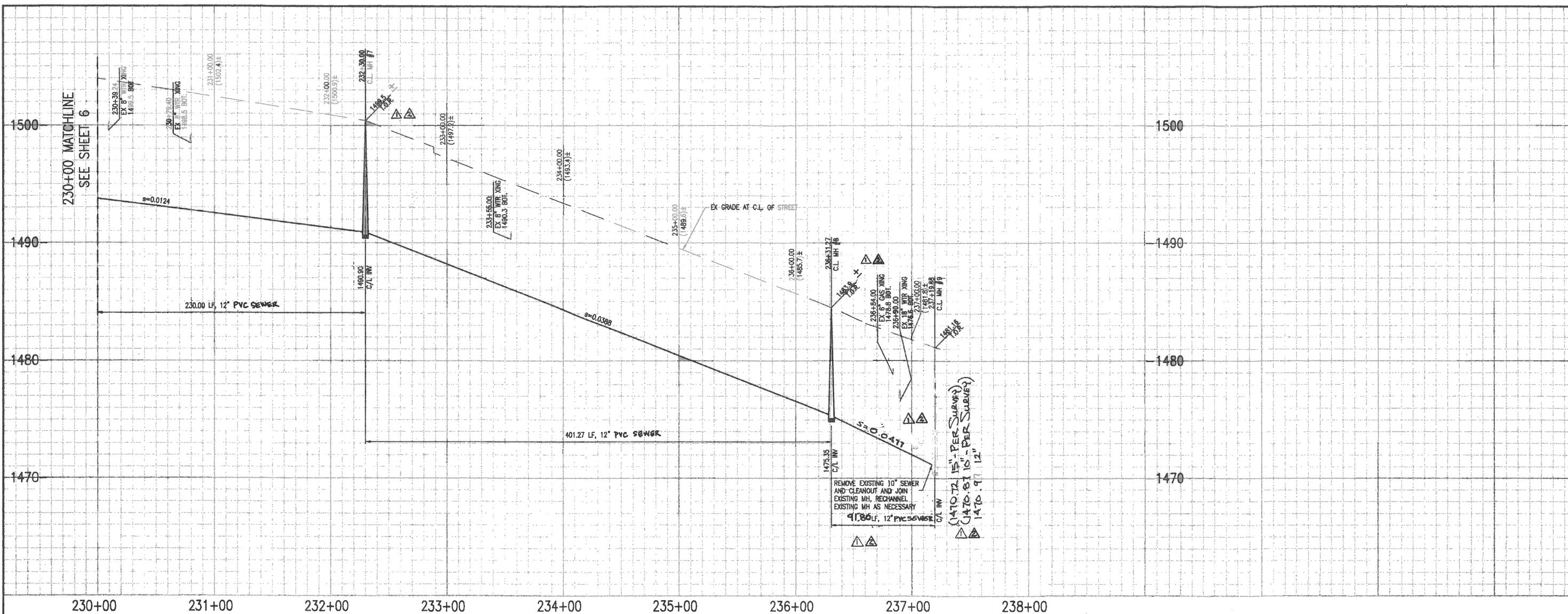
REFERENCES	

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS
APPROVALS

DESIGNED:	BWE
DRAWN:	BWE
CHECKED:	BWE
SUBMITTED:	BWE
SCALE:	1" = 40'

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER
PLAN AND PROFILE
CLINTON KEITH ROAD
219+00 - 230+00

LD.	23/22
S.A.	43/34
W.O.	13-267
C.O.	68774/15
COORD.	13A&C 18C
SHT	6 OF 7
D-45895	

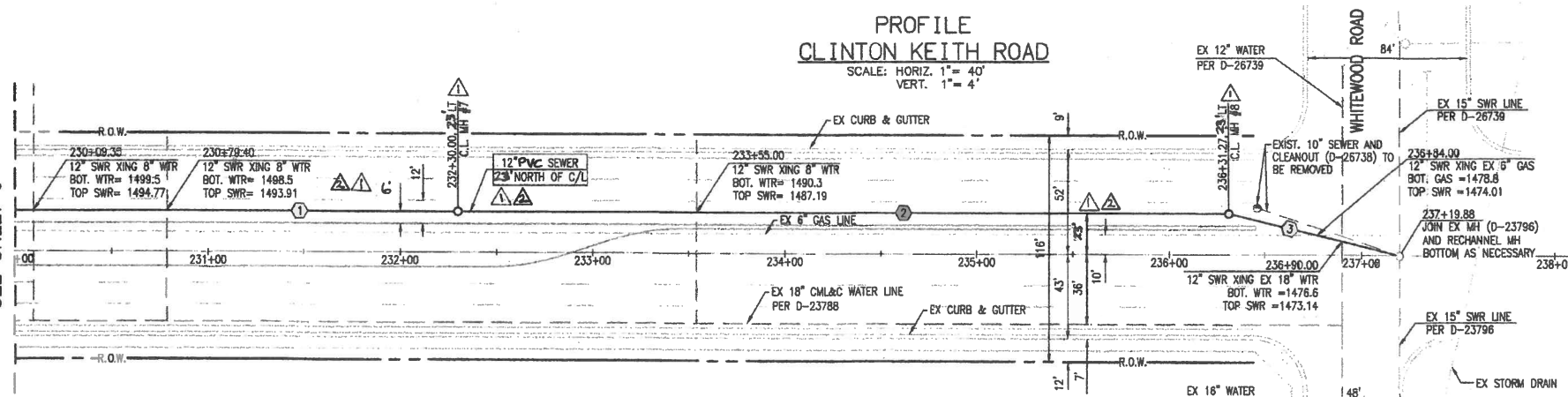


PROFILE
CLINTON KEITH ROAD
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'

SEWER DATA					
NO.	BEARING/DELTA	RADIUS	LENGTH	SLOPE	SIZE
1	N 89°52'30" W	---	230.00'	0.0124	12" SEWER
2	N 89°52'30" W	---	401.27'	0.0388	12" SEWER
3	N 74°43'28" E	---	91.86'	0.0411	12" SEWER

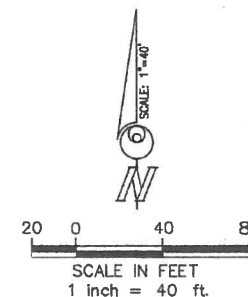
NOTE:
CONTRACTOR TO VERIFY LOCATION AND
DEPTH OF ALL EXISTING UTILITIES PRIOR
TO THE START OF CONSTRUCTION.

230+00 MATCHLINE
SEE SHEET 6



PLAN
CLINTON KEITH ROAD
SCALE: 1" = 40'

NOTE:
ALL TRENCH CUTS IN EXISTING PAVEMENT TO COMPLY WITH
CITY OF MURRIETA TRENCH BACKFILL AND SURFACE
RESTORATION STANDARD DRAWING NO. 212a



SEWER LOCATION MOVED FROM 21' NORTH
OF R TO 23' NORTH OF R



DELTA 1 REVISION BY:
RICHARD VALDEZ 6-24-14
RICHARD VALDEZ
VSL ENGINEERING



PLANS PREPARED BY:
BURKETT & WONG
ENGINEERS & SURVEYORS
3434 Fourth Ave. San Diego CA.
92103-5704 * (619) 299-5550



REVISIONS				
NO.	DATE	INITIALS	DESCRIPTION	APP'D/DATE
1	6-24-14	RV	REV. SEWER LOCATION CLINTON KEITH RD PER CONSULTANTS	MA 6/25/14
2	8/4/16	PD	AS CONST. C.O. 68714/15 (C.R. 5/10/2016)	MS 1/9/17

REFERENCES

WATER/SEWER/SEWER FORCE MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Richard A. [Signature] 2/25/14
CIVIL ENGINEER OF SUBDIVISIONS

APPROVALS

PROJECT ENG.	INCHES	DATE
<u>[Signature]</u>	1/2"	2/25/14

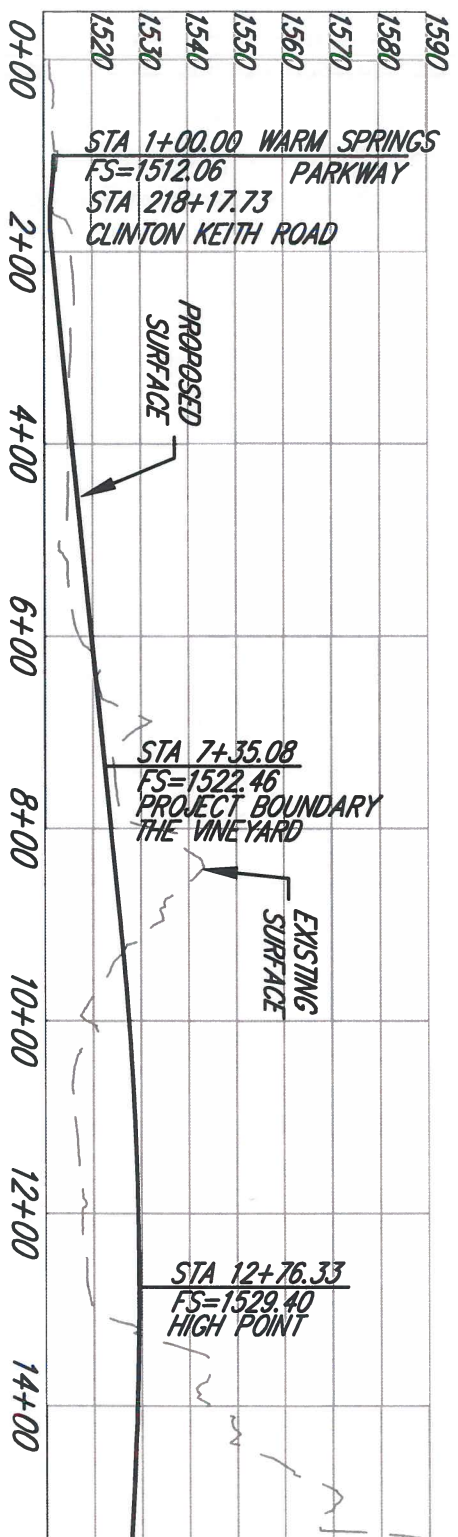
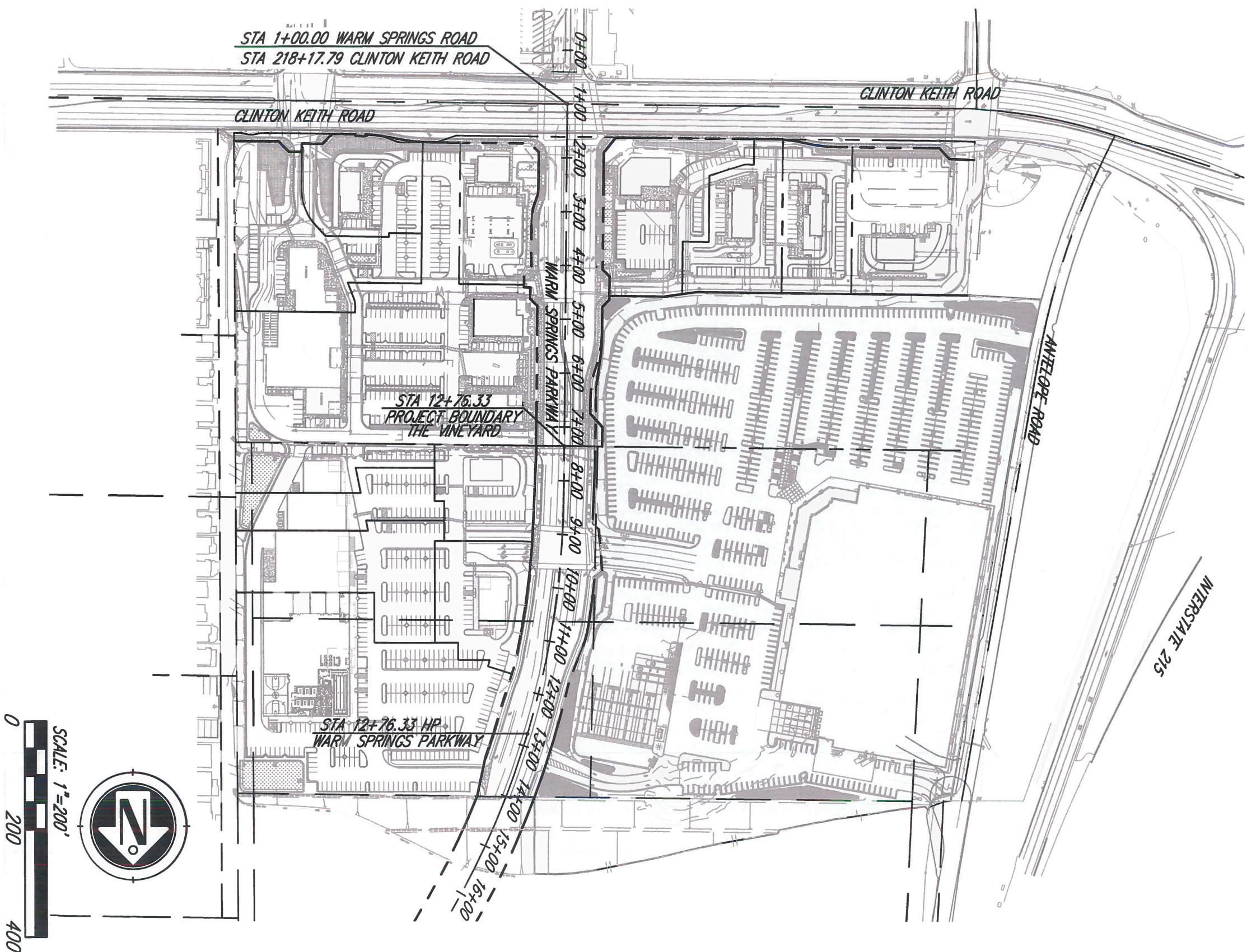
DESIGNED:		DATE
BWE		
DRAWN:		DATE
BWE		
CHECKED:		DATE
BWE		
SUBMITTED:		DATE
BWE		

SCALE: 1"=40'

EASTERN MUNICIPAL WATER DISTRICT
CITY OF MURRIETA
PACIFIC LANDING
SEWER
PLAN AND PROFILE
CLINTON KEITH ROAD
230+00 - 237+19.88

I.D.	23/22
S.A.	43/34
W.O.	13-267
C.O.	68714/15
CORR.	13A&C 18C
SHT	7 OF 7
D-45896	

WARM SPRINGS PARKWAY MASTER ALIGNMENT AND PROFILE STUDY



WARM SPRINGS PARKWAY CENTERLINE PROFILE
HORIZONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 4'

