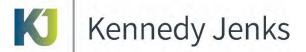
Appendix B: SCV Water Seismic Analysis

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2775 North Ventura Road, 202 Oxnard, CA 93036 805-973-5700

Seismic Risk Evaluation and Mitigation Report

22 June 2021

Prepared for

Santa Clarita Valley Water

Agency 27234 Bouget Canyon Road Santa Clarita, CA 91350

KJ Project No. 2044228*00

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Section 1: Draft Seismic Risk Analysis

1.1 Overview

The Urban Water Management Planning Act requires urban water suppliers to evaluate potential seismic risk to the facilities in their system and produce a mitigation plan. This section describes the review of the existing documentation and preliminary evaluation of seismic risk to SCV Water's existing facilities. This section also provides recommendations for mitigation of the existing risks. Current structural design practice is to design structures for ground motion with a 2.5% probability of exceedance in any 50-year period. This design earthquake is highly dependent on conditions at any given location. Earthquake magnitude is an estimate of the total energy released by a given earthquake and cannot be directly translated into the design earthquake used for structural design. However, The U.S Geological Survey estimates that there is a 99% chance that California will experience a 6.7 magnitude earthquake within 30 years. The current design earthquake has a lower probability of occurring than an earthquake of similar magnitude to the 1994 Northridge Earthquake, 6.7.

The facilities review as part of this assessment include approximately 45 well sites, 44 booster pump station, and 92 steel water storage tanks, the Earl Schmidt Filtration Plant (ESFP), and the Rio Vista Treatment Plant (RVTP). SCV Water was formed by the merger of CLWA, NCWD, SCWD and VWC. The facilities described in this report were constructed between 1961 and 2020. There are significant gaps in the construction documentation of many of these facilities. Final seismic risk mitigation planning will require site visits by a Structural or Civil Engineer experienced in design of water treatment facilities to evaluate the existing conditions. Where possible an initial determination of the seismic loads at the facilities has been determined in accordance with the 2010 Edition Minimum Design Loads Associate for Buildings and Other Structures (ASCE 7-10) using the web based Hazard Maps by the Applied Technology Council (ATC). The 2010 edition was used in this stage because ASCE 7-16 as referenced in the current California Building Code (CBC) requires site specific geotechnical investigations for most conditions and structures. When implementing the final mitigation recommendations, a geotechnical investigation will be required for most of SCV Water's facilities.

1.2 Water Storage Tank Evaluation Summary

The seismic evaluation of SCV Water was conducted by applying the seismic design provision of the 2011 edition of Welded Carbon Steel Tanks for Water Storage by the American Water Works Association (AWWA D100-11). SCV Water currently operates over 90 steel water storage tanks. For our analysis we were provided the diameter, height to the overflow and maximum capacity of the storage tank. Using this information, ASCE 7-10 seismic parameters, and the seismic provision of AWWA D100-11, we determined the seismic loads, sloshing wave height, and anchorage requirements of SCV Water's storage tanks. We were provided with the overflow height rather than the maximum. Final design of welded and bolted steel water storage tanks is typically conducted by specialty contractors and submitted during construction. The construction drawings rarely indicate the final plate thicknesses, location and size of columns, size and location of anchors or other significant aspects of design beyond size and design criteria. Further field investigations will be required quantify further risk.



Storage tanks built prior to 1984 are unlikely to be compliant with current building standards and are unlikely to have been designed for lateral loads due to seismic events. Storage tanks built between 1984 and 2011 were probably designed with seismic loads however they may not be designed to withstand seismic loads determined in accordance with the current building code. Storage tanks designed after 2011 are likely designed to meet current building code requirements.

Use Group	*Importance Factor, Ie	Description
I	1	Tanks that provide services to facilities deemed essential for post-earthquake recovery and essential to the life, health and safety of the public, including post-earthquake recovery.
II	1.25	Tanks that provide service to facilities that are deemed important to the welfare of the public
III	1.5	All Other

AWWA D100-11 Design use Group and Seismic Importance Factor

Note: *Importance Factor is used to amplify loads from earthquakes.

74 of the existing storage tanks require anchors and foundations. The remaining storage tanks will experience uplift due to seismic loads but do not require anchors at the foundation. It is our understanding that very few of the existing tanks are anchored or provided with concrete anchors. The sloshing wave height and required freeboard varies between seven and nine feet in height. We have not been provided the height of the roof framing, however, it is probable that in all cases, the required free board exceeds the distance from the bottom of the roof framing to the maximum operating water level.

Table 1-2 Anchorage, Freeboard, and Capacity Reduction

			Tank	Geometry		Results of the Analysis in accordance with AWWA D100-11											
						Seismic	;			Allowable Water		² Minimum					
				Volume	Overflow	Use	Importance	¹ Overturning		Height to Prevent	Sloshing	Required	³ Actual				
Tank Site	Address	Date Built	Dia	(gallons)	Height	Group	Factor, I _e	Ratio, J	Anchors	Uplift	Height, d (ft)	Freeboard (ft)	Freeboard				
N Tank 1	21575 Deputy Jakes Way	1962	64	745,578	31	iii	1.5	2.79	Unstable	23	9.87	9.87					
N Tank 1A	21575 Deputy Jakes Way	1995	132	3,069,307	30	iii	1.5	1.47	Stable	30	9.87	9.87					
N Tank 1B	23780 N. Pine Street	1995	60	634,154	30	iii	1.5	3.25	Unstable	20	9.87	9.87					
N Tank 2*	23554 Dockweiler Drive	1989	80	1,428,022	38	iii	1.5	4.36	Unstable	23	9.87	9.87	2				
N Tank 3	23252 1/2 Haskell Vista Lane	1995	60	634,154	30	iii	1.5	3.19	Unstable	20	9.87	9.87					
N Tank 4	24548-1/2 Peachland Avenue	1994	60	634,154	30	iii	1.5	3.01	Unstable	21.5	9.87	9.87					
N Tank 4A	24548-1/2 Peachland Avenue	1975	90	1,450,628	30.5	iii	1.5	2.09	Unstable	26	9.87	9.87	2				
N Tank 5	24001-1/2 Briardale Way	1983	60	465,047	22	iii	1.5	1.80	Unstable	19	9.87	9.87	5				
N Tank 6	23500 The Old Road	1994	20	46,035	20	iii	1.5	7.55	Unstable	6.5	9.87	9.87					
N Tank 7	23071 1/2 Pine St.	2019	79	1,099,377	30	iii	1.5	2.24	Unstable	25	9.87	9.87					
C Tank 1A	33030 Ridge Route Rd	1999	130	3,076,236	31	iii	1.5	1.22	Stable	31	9.87	9.87					
C Tank 1D	32601 N. Ridge Top Lane	1998	92	1,490,967	30	iii	1.5	1.34	Stable	30	9.87	9.87	2				
C Tank 2	28768-1/2 Greenwood Place	1988	60	613,016	29	iii	1.5	1.83	Unstable	26	9.87	9.87	3				
C Tank 3	31527U Valley Creek Rd	2016	66	767,327	30	iii	1.5	2.55	Unstable	23	9.87	9.87					
P Tank 1	29515 Poppy Meadow Street	2005	81	1,463,945	38	iii	1.5	2.49	Unstable	29.5	9.87	9.87					
P Tank 1A	29515 Poppy Meadow Street	1999	80	1,428,022	38	iii	1.5	2.51	Unstable	29.5	9.87	9.87					
P Tank 2	14751 Hydrangea Way	2004	92	1,490,967	30	iii	1.5	2.53	Unstable	2	9.87	9.87	2				
P Tank 3	29251 Mammoth Lane	1993	80	1,127,386	30	iii	1.5	1.48	Stable	30	9.87	9.87					
P Tank 4	15644 Nahin Ln	2007	46	410,016	33	iii	1.5	2.91	Unstable	20	9.87	9.87					
P Tank 4A	15644 Nahin Ln	2006	62	744,850	33	iii	1.5	2.27	Unstable	26	9.87	9.87					
T Tank 1	29505 Avenida Rancho Tesoro	2002	81	1,155,746	30	iii	1.5	1.17	Stable	30	9.87	9.87	2				
T Tank 1A	29505 Avenida Rancho Tesoro	2002	81	1,155,746	30	iii	1.5	1.40	Stable	30	9.87	9.87	2				
T Tank 2	29505 Avenida Rancho Tesoro	2003	68	814,536	30	iii	1.5	1.53	Stable	30	9.87	9.87	2				
T Tank 2A	29505 Avenida Rancho Tesoro	2003	68	814,536	30	iii	1.5	1.53	Stable	30	9.87	9.87	2				
Noto:																	

Note:

Overturning Ratio is determined in accordance with AWWA D100-11 Equation 13-36, J Greater than or Equal to 1.54 requires anchors to the foundation.
 The minimum required freeboard is equal to the sloshing wave height for Use Group III and may be reduced for Use Group I and II.
 Freeboard was only determined in cases were available documentation indicated the roof height.



			Tank	Geometry				Results	of the Analysis ir	accordance wi	th AWWA D100-	11	
TankName	Address	Date Built	Dia	Volume (gallons)	Overflow Height	Seismic Use Group	I _E	¹ Overturning Ratio, J	Anchors	Allowable Water Height to Prevent Uplift	Sloshing Height, d (ft)	² Minimum Required Freeboard (ft)	³ Actual Freeboard
Bouquet	Through RVTP west gate, past solar panels, through park gate, overlooking park	1984	105	2,006,834	31	iii	1.5	1.91	Provide Anchors	27.5	9.87	9.87	
No Longer in Service	22200 Pamplico Dr.	1971	60	0		iii	1.5	-	-	-	-	-	
No Longer in Service	22200 Pamplico Dr.	1971	60	0		iii	1.5	-	-	-	-	-	
Catala 3	22200 Pamplico Dr.	1978	104	1,397,207	22	iii	1.5	0.81	Uplift but Stable	22	9.87	9.87	
Catala 4	22200 Pamplico Dr.	1989	104	1,397,207	22	iii	1.5	0.81	Uplift but Stable	22	9.87	9.87	
Benz	On Copper Hill xs is Benz Rd.	1999	104	1,968,791	31	iii	1.5	1.93	Provide Anchors	27	9.87	9.87	
Copper Hill 1	22000 Beldove Ct.	1988	105	1,942,098	30	iii	1.5	1.44	Uplift but Stable	30	9.87	9.87	
Copper Hill 2	22000 Beldove Ct.	1988	105	2,006,834	31	iii	1.5	1.54	Uplift but Stable	31	9.87	9.87	
Mesa	27238 Bouquet Canyon (next to Rio Vista)	2013	170	3,733,290	22	iii	1.5	0.53	Tank Is Stable	22	9.87	9.87	
Seco 1	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	1999	73	970,015	31	iii	1.5	1.92	Provide Anchors	27	9.87	9.87	
Seco 2	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	1999	105	2,006,834	31	iii	1.5	1.48	Uplift but Stable	31	9.87	9.87	
Sky Blue 1	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	1988	73	970,015	31	iii	1.5	2.19	Provide Anchors	25	9.87	9.87	
Sky Blue 2	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	1999	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue 3	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	2003	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue 4	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	2007	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue East	28452 Hawks Ridge	1999	73	970,015	31	iii	1.5	2.13	Provide Anchors	26	9.87	9.87	
Sky Blue North	28558 Santa Catarina	1990	105	2,006,834	31	iii	1.5	1.51	Uplift but Stable	31	9.87	9.87	
Honby 1	20251 Keaton St.	1981	132	3,990,099	39	iii	1.5	2.38	Provide Anchors	31	9.87	9.87	
Honby 2	20251 Keaton St.	1995	114	2,976,087	39	iii	1.5	2.68	Provide Anchors	29.5	9.87	9.87	
Nonby South	20225 Jennifer Ct.	1987	114	2,976,087	39	iii	1.5	3.06	Provide Anchors	28	9.87	9.87	
North Oaks 1	18501 Olympian Ct. follow signs to Helispot 107C	1974	73	719,689	23	iii	1.5	1.31	Uplift but Stable	23	9.87	9.87	
North Oaks 2	18501 Olympian Ct. follow signs to Helispot 107C	1980	146	3,880,062	31	iii	1.5	1.32	Uplift but Stable	31	9.87	9.87	
North Oaks 3	18501 Olympian Ct. follow signs to Helispot 107C	1995	130	3,076,236	31	iii	1.5	1.50	Uplift but Stable	31	9.87	9.87	



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			Tank	Geometry		Results of the Analysis in accordance with AWWA D100-11											
Tank Site	Address	Date Built	Dia	Volume (gallons)	Overflow Height	Seismic Use Group	IE	¹ Overturning Ratio, J	Anchors	Allowable Water Height to Prevent Uplift	Sloshing Height, d (ft)	² Minimum Required Freeboard (ft)	³ Actual Freeboard				
North Oaks 4	18501 Olympian Ct. follow signs to Helispot 107C	2000	73	970,015	31	iii	1.5	2.38	Provide Anchors	25	9.87	9.87					
Lower Fair Oaks 1	17705 Heron Ln	1999	134	2,424,983	23	iii	1.5	0.84	Uplift but Stable	23	9.87	9.87					
Lower Fair Oaks 2	17705 Heron Ln	1999	134	2,424,983	23	iii	1.5	0.84	Uplift but Stable	23	9.87	9.87					
Sand Canyon	27200 Sand Canyon Rd. (Between 27230 and 27166 Sand Canyon Rd)	1979	28	142,708	31	iii	1.5	7.08	Provide Anchors	10	9.87	9.87					
Fairway	27201 Appaloosa Rd.	1999	104	1,460,716	23	iii	1.5	0.95	Uplift but Stable	23	9.87	9.87					
Dean 1	28613 Winterdale Dr.	1977	73	970,015	31	iii	1.5	2.14	Provide Anchors	26	9.87	9.87					
Dean 2	28613 Winterdale Dr.	1985	73	970,015	31	iii	1.5	2.14	Provide Anchors	26	9.87	9.87					
Placerita 1	16742 Placerita Canyon Rd.	1980	73	970,015	31	iii	1.5	2.71	Provide Anchors	23.5	9.87	9.87					
Placerita 2	16742 Placerita Canyon Rd.	1995	73	970,015	31	iii	1.5	2.71	Provide Anchors	23.5	9.87	9.87					
Golden Valley	Golden Valley Road before Robert C Lee Pkwy	2003	104	1,968,791	31	iii	1.5	2.18	Provide Anchors	26	9.87	9.87					
Live Oak	15126 Live Oak Springs Cyn Rd	1999	73	970,015	31	iii	1.5	2.34	Provide Anchors	25	9.87	9.87					
Friendly Valley 2	20092 Avenue of the Oaks (inside gated community)	1973	80	1,240,124	33	iii	1.5	3.04	Provide Anchors	23.5	9.87	9.87					
Friendly Valley 4	20092 Avenue of the Oaks (inside gated community)	1985	80	1,240,124	33	iii	1.5	3.04	Provide Anchors	23.5	9.87	9.87					
Friendly Valley 5	18623 Cedar Valley Way (inside private gate next to house overlooking 14fwy)	1979	60	486,185	23	iii	1.5	1.75	Provide Anchors	21	9.87	9.87					
Princess 1	25529 Mountain Pass Rd.	1980	73	970,015	31	iii	1.5	2.83	Provide Anchors	23	9.87	9.87					
Princess 2	25529 Mountain Pass Rd.	1987	73	970,015	31	iii	1.5	2.83	Provide Anchors	23	9.87	9.87					
Golden Valley	Oak Crest Dr.	2005	90	1,474,409	31	iii	1.5		5			9.87					
Ranch 1 Golden Valley	Oak Crest Dr.	2005	90	1,474,409	31		1.5	2.43	Provide Anchors	24.5	9.87	9.87					
Ranch 2		2000	00	1,474,400	01		1.0	2.43	Provide Anchors	24.5	9.87						
Plum 1	Benison Dr. (West cul-de-sac)	2007	73	970,015	31	iii	1.5	1.96	Provide Anchors	24.5	9.87	9.87					
Plum 2	Benison Dr. (West cul-de-sac)	2007	73	970,015	31	iii	1.5	1.96	Provide Anchors	27	9.87	9.87					
Cherry Willow 1	26833 Cherry Willow Dr.	2006	60	486,185	23	iii	1.5	1.66	Provide Anchors	21.5	9.87	9.87					
Cherry Willow 2	26833 Cherry Willow Dr.	2006	60	486,185	23	iii	1.5	1.66	Provide Anchors	21.5	9.87	9.87					
Upper Fair Oaks 1	17705 Heron Ln above Lower Fair Oaks Tanks (continue on access road)	1998	73	970,015	31	iii	1.5	2.70	Provide Anchors	23.5	9.87	9.87					



Upper Fair	17705 Heron Ln above Lower Fair Oaks	1998	73	970,015	31	iii	15					9.87
Oaks 2	Tanks (continue on access road)	1990	75	370,013	51	111	1.5	2.70	Provide Anchors	23.5	9.87	
Circle J 1	25198 Karie Ln	1981	73	970,015	31	iii	1.5	2.81	Provide Anchors	23	9.87	9.87
Circle J 2	25198 Karie Ln	1987	73	970,015	31	iii	1.5	2.81	Provide Anchors	23	9.87	9.87



Tank Geometry

Tank Site	Address	Date Built	Dia	Volume (gallons)	Overflow Height	Seismic Use Group	I _E	¹ Overturning Ratio, J	Anchors	Allowable Water Height to Prevent Uplift	Sloshing Height, d (ft)	² Minimum Required Freeboard (ft)	³ Actual Freeboard
Hasley Canyon	Firebrand, between 27840 & 27902, Castaic	1988	114	2,473,202	39		1.5	2.34	Provide Anchors	32.5	9.87	9.87	<u> </u>
Round Mountain	Access end of Anza Drive, Valencia	1989	120	2,451,341	31	iii	1.5	1.77	Provide Anchors	29	9.87	9.87	
Post Office	Franklin Pkwy., west of Post Office, Valencia	1992	108	1,918,317	36	iii	1.5	2.82	Provide Anchors	28	9.87	9.87	
Magic Mountain 5	26975 Westridge Pkwy., Valencia	2001	135	3,095,237	38	iii	1.5	3.13	Provide Anchors	29	9.87	9.87	
Northbridge	Harwick Place, between 27659 & 27663, Valencia	1989	140	3,864,378	39	iii	1.5	2.18	Provide Anchors	33.5	9.87	9.87	
Rye Canyon	25112 Rye Canyon Loop, Valencia	2003	116	2,441,622	37.25	iii	1.5	2.37	Provide Anchors	31	9.87	9.87	3
Cal Arts	25841 Tournament Rd., Valencia	1996	109	1,538,141	22	iii	1.5	1.05	Uplift but Stable	22	9.87	9.87	
Villa	Yucca Place, between 30563 & 30568, Castaic	1990	66	673,261	31.2	iii	1.5	2.22	Provide Anchors	26	9.87	9.87	
Presley	30016 Hamlet Wy., Castaic (changed 1/06)	1989	66	673,261	31.2	iii	1.5	2.12	Provide Anchors	26.5	9.87	9.87	
Commerce Center 1	28636 Livingston Ave., Valencia	1999	89	1,155,236	30.33	iii	1.5	2.42	Provide Anchors	25	9.87	9.87	
Commerce Center 2	28636 Livingston Ave., Valencia	1999	89	1,155,236	30.33	iii	1.5	2.42	Provide Anchors	25	9.87	9.87	
Seco I	28400 Copper Hill, Saugus	1996	108	2,115,513	34.5	iii	1.5	1.94	Provide Anchors	31	9.87	9.87	
Seco II	28400 Copper Hill, Saugus	1998	116	2,336,119	34.5	iii	1.5	1.85	Provide Anchors	32	9.87	9.87	2
Benz	28820 Bellows Ct., Valencia	2008	104	1,888,670	33	iii	1.5	1.90	Provide Anchors	30	9.87	9.87	
4 Million	Access road end of Oakview Estates Drive, Valencia	2006	128	2,693,888	29.5	iii	1.5	1.74	Provide Anchors	28	9.87	9.87	3
Westridge	25774 Oak Meadow Drive., Valencia	2001	142	2,619,577	29.5	iii	1.5	1.76	Provide Anchors	28	9.87	9.87	3
Hillcrest 1	30400 Vineyard Ln., Castaic	1996	72	859,632	30.5	iii	1.5	1.77	Provide Anchors	28.5	9.87	9.87	
Hillcrest 2	30400 Vineyard Ln., Castaic	1999	71	845,539	30	iii	1.5	1.72	Provide Anchors	28.5	9.87	9.87	
Mtn. View 1	29238 Black Pine Wy., Saugus	2001	80	831,447	29.5	iii	1.5	1.74	Provide Anchors	26.5	9.87	9.87	3
Mtn. View 2	29238 Black Pine Wy., Saugus	2001	80	831,447	29.5	iii	1.5	1.74	Provide Anchors	26.5	9.87	9.87	3
Poe	26024 Kavenaugh Ln., Stevenson Ranch	1989	90	1,130,517	31	iii	1.5	2.79	Provide Anchors	24	9.87	9.87	
Sunset Pointe	25101 Sagecrest Cir., Stevenson Ranch	1995	98	1,397,438	30.5	iii	1.5	2.53	Provide Anchors	25	9.87	9.87	
West Hills 1	28834 Bellows Ct., Valencia	2008	56	290,020	21	iii	1.5	1.64	Provide Anchors	20	9.87	9.87	2
West Hills 2	28834 Bellows Ct., Valencia	2008	56	290,020	21	iii	1.5	1.64	Provide Anchors	20	9.87	9.87	2
Stevenson Ranch	26748 Sandburn, Stevenson Ranch	1999	111	1,923,390	30.33	iii	1.5	2.12	Provide Anchors	26.5	9.87	9.87	

Note:

1. Overturning Ratio is determined in accordance with AWWA D100-11 Equation 13-36, J Greater than or Equal to 1.54 requires anchors to the foundation.

2. The minimum required freeboard is equal to the sloshing wave height for Use Group III and may be reduced for Use Group I and II.

3. Freeboard was only determined in cases were available documentation indicated the roof height.



Results of the Analysis in accordance with AWWA D100-11



To determine if the storage tank walls and roof systems are adequate to resist potential seismic loads, field visits will be required to determine the existing plate thicknesses and structural sections used in construction. Further analysis will then be performed to determine the capacity of the storage tank structural system. For those storage tanks that required anchors, greater freeboard, or do not have the structural capacity to meet demand we recommend reducing the operating capacity and overflow height in order to reduce the seismic demands on the structures. Water storage tanks designed in accordance with AWWA D100 and D103 can be classified in one of three seismic use groups as described in Table 1. The initial analysis has been conducted assuming all of the storage tanks are in Use Group III, essential for postearthquake recovery and essential to the life, health and safety of the public, including postearthquake fire suppression. For those facilities that are not required for post-earthquake recovery, the use group may be designated as Use Group II, tanks that provide direct service to facilities that are teemed important to the welfare of the public. In rare cases they may be assigned to Use Group I, those that are not essential to the health and safety of the public. This will reduce the design seismic load by twenty-five percent and fifty percent. The final report will assess the impacts of this reduction on SCV Water's facilities and include tables summarizing our findings.

Field investigation are necessary to determine the structural capacity of the existing storage tanks. Thickness of the tank shells and roofs will be determined using an ultrasonic thickness gauge, the size number and location of columns will be determined. In our experience the most common mode of failure for steel storage tanks is buckling of the lowest shell plate.

1.3 Water Treatment Facilities

SCV Water's treatment facilities consist of the ESFP, RVTP, perchlorate treatment facility, and multiple PFAS treatment facilities under construction and design currently. We have recently found copies of several as-built drawing for the ESFP and RVTP facilities in Kennedy Jenks archives and are currently undergoing a more detailed analysis than was available previously. Analysis of the seismic loads will be in accordance with the ASCE 7-10 due to the current requirements of the California Building Code for site specific geotechnical investigations. Prior to the final mitigation planning, we recommend that a qualified civil or structural engineer visit the sites to verify existing conditions and that a geotechnical engineering firm be consulted to determine the current seismic design criteria. The results of that analysis will be included in the final report. The PFAS facilities are designed and constructed to current building standards and do not represent substantial risk to SCV Water or their customers.

ACI 350.3, Seismic Design of Liquid Containing Structures was not adopted until 2001, therefore, structures designed and built prior to 2001 are likely at risk to cracking due to earthquake forces. Liquid containing structure have generally been designed with long term durability and to limit cracking. This results in structures that tend to be resistant to earthquake loads. Structures at ESFP and RVTP also withstood the 1994 Northridge Earthquake. Those structures that were damaged were later repaired and strengthened. Lateral forces in concrete water retaining structures result in stress concentrations at corners. Review of the as-built drawings indicates that there may be insufficient reinforcing by current standards of practice. There is potential for cracking to occur as a result of earthquake loads. Tables 3 and 4 summarize the findings from the initial analysis of the treatment plants. It should be noted that where no specific risks were noted, field investigations and/or geotechnical investigations could reveal risks that were not observed in the available documentation.

Table 1-3 Rio Vista Treatment Plant Structures and Risks

Rio Vista Water Treatment Plant

	Structure	Date Built	Structural System	Lateral Load Path	
			Two Story Steel Braced Frame		Chevron braced frame
1	Administration Building	1991		Complete	to
2	Chemical Building	1991	Steel Framed Roof over Concrete Shear Walls	Complete	
			Steel Framed Roof over Concrete Walls with Chevron	·	Chevron braced frame
3	Ozone Building	1991	Braced Frames	Complete	to
	-	1991	Concrete Shear Walls	·	
4	Clarifier Filter Structures (2)	2008		Complete	
5	Control Room Building	2008	Steel Framed Roof over Cantilever Columns	Complete	
6	Maintenance - Equipment Building	1991	Metal Framed Roof over Concrete Shear Walls	Complete	
7	Chlorine Building	2008	Steel Framed Roof Over Concrete Shear Walls	Complete	
	<u> </u>	1991	Circular Steel Tank with Concrete Floor	·	
8	Sludge Thickness (2)	2008		Complete	
9	Water Level Control Structure	1991	Circular Concrete Tank	Complete	
10	Wash Water Recovery Basins (3)	2008	Concrete Slab-on-Grade with Sloped Walls	Complete	
11	Clearwells (2)	1991	Cantilever Retaining Walls	Complete	
12	Pre-Ozone Contractor	1991	CIP Concrete Shear Walls, Steel Cantilver Columns	Complete	
			Steel Framed Roof over CMU Shear Walls and Steel		
13	Ozone Injection Station	2008	Framing	Complete	
14	· · ·	2008	CIP Sub Grade Concrete Shear Wall	Complete	
15	Ammonia Injection Vault	1991			
16	Treated Water Vault	1991	Concrete Shear Walls	Complete	
17	Plant Water Pump Station	2008		•	
18	Sludge Pump Station	2008	CIP Concrete Shear Walls	Complete	
19	Intake Pump Station	1992	Subgrade CIP Concrete Vault	Complete	
20	Intake Pump Station Building	1992	CIP Concrete Roof over Steel Brace Frame	•	



Notable Risks mes exhibit poor seismic performance relative to other lateral systems. None Noted mes exhibit poor seismic performance relative to other lateral systems. None Noted None Noted

Table 1-4 Earl Schmidt Filtration Plant Structures and Risks

Earl Schmidt Filtration Plant

	Structure	Date Built	Structural System	Lateral Load Path	Risks
1	Chemical Building	1979	Wood truss roof over CMU shear walls	Complete	None noted
2	Operations Building	1979	Wood truss roof over CMU shear walls	Complete	None noted
5	Flocclation Basins	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
6	Sedimentation Basin	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
7	Clarifier	1979			
8	Filters	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
9	Washwater Recovery Basins (2)	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
10	Central Pumping Plant	1979	Pre-engineered Metal Building	Appears Complete	None Noted
11	Sludge Drying Bed (2)	1979	Concrete Slab-on-Grade with Sand Bedding	Complete	None Noted
12	Sludge Drying Bed Sump	1979	Sub Grade CIP Concrete Shear Walls	Complete	None Noted
13	Sludge Effluent Vault	1979	Sub Grade CIP Concrete Shear Walls	Complete	None Noted
14	Sludge Thickener	1979	Circular Steel Tank with Concrete Floor	Complete	None Noted

Kennedy Jenks



1.4 Source Water Supply

SCV Water's source water mainly consists of imported water that is stored in Castaic Lake Reservoir and more than 45 well sites. The Castaic Lake Reservoir is administered by the California Department of Water Resources and under the jurisdiction of the California Division of Safety of Dams. The Division of Safety of Dams inspects the Castaic Lake Dam on an annual basis and periodically reviews the stability of dams in light of improved design approaches. Review and analysis of the Castaic Lake Reservoir is out of scope of this project, however, it represents minimal risk to SCV Water due to the inspection and review by the Division of Dam Safety.

Due to lack of documentation, we have not conducted a systematic analysis of the well sites. Site visits by a qualified civil or structural engineer should be conducted in verify the existing conditions at each site. The typical well site consists of vertical turbine pumps embedded directly into the soil and represent minimal risk of failure during or after an earthquake. Above ground piping is generally rigid and also represents minimal risk of failure during an earthquake. It is typical for the piping systems at older well sites to lack support for lateral loads due to earthquakes. The inspections should take note of any pipe supports that are not anchored into concrete foundation.

1.5 Booster Pump Stations

Lack of available documentation of the Booster Pump Stations makes a detailed analysis of the risks impossible without site visits to verify the existing conditions. Pump stations may consist of above grade or below grade structures with multiple pumps wet wells, and additional equipment. Like steel water storage tanks older facilities are less likely to be designed for Those designed and built later than 2000 are unlikely to pose a substantial risk in the event of an earthquake. Site visits should verify that existing equipment is anchored to the foundations and walls, and that there is an adequate load path to transfer lateral loads from the roof and walls to the foundations.

1.6 Mitigation Planning

SCV Water should identify which facilities are required to operate immediately following an earthquake, are required for the health and safety of the public, and those that are not either. The highest priority should be given to those facilities that supply fire suppression systems. The first step in mitigating the risks identified in this report will be to arrange for a civil or structural engineer experienced in design of water treatment and distribution systems to inspect SCV Water's facilities. Once SCV Water and Kennedy Jenks has identified the most critical and at risk facilities, SCV Water should consult with a geotechnical engineer to perform site investigations of the most crucial facilities to allow a qualified engineer to perform a more accurate and detailed analysis and provide the most appropriate mitigation efforts.

For those storage tanks that require anchorage and or have insufficient freeboard height to accommodate wave action the district may take immediate action to reduce the risk. As shown in Table 2, SCV Water may choose to reduce the operational capacity in order to prevent instability, increase freeboard, and reduce the sloshing wave height. SCV Water may determine



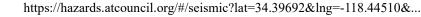
that some of the storage tanks are not required for immediate post-earthquake recovery and do not pose a substantial risk to human life. In those cases the Seismic Use Group will be reduced to reduce the required freeboard and demands do to seismic loads. This may result in no further action being required. Kennedy Jenks recommends providing anchors for all steel water storage tanks.



			1	1	1						-								AWWA D100-11 W			nic Design	l la 1999	In		In						
				Coordinates		Tank De	Details	Table 2	8 Section 13.2.1 Table Seismic Use Group	24 ATC ¹ E	qn 13-9 1, Éc	n 13-22 Eqn 13-12/13			13-27	13-25/26 Eqn 13-28/29 I	Estimate Estin	nate Estimate	Eqn 13-16	Eqn 13-		13-30 ntroid	Eqn 13-26	Eqn 13-31 Eqn 13-2	3 Eqn 13-37	Eqn 13-41 Eqn 13-3 Weight of	36	Eqn 13-53	8/54 Eqn 13-52	Table 29	Eqn 13-57	
								Assumed lo to be 3 Ri	III, Tanks that assur	ne Sd1, per	C ()	6-1 A			Total	Impulsive Centroid of	weight of the		Implusive In	Mom	nent la	f the teral Convective	Convective Moment du	e Design Desig Lateral Overtur		the Tank			Sloshing	Minimum	Allowable Actual Lateral Load, Tota	cal
District	Tank Site	Zone	Address	Latitude Longitude	Date Built Di	ia Size B	Bottom of Top of W he Knuckle Knuckle	feet unless 3 if ancho	red service to essential tanks	are Seismic Ba	ased on 5ds	oshing od, Tc(S)	D/H 3.67*L	$Volume ft^3$ $Vol = \pi^*(Din^2)$	Weight, lbf	Weight, Moves with Tank, (Wi) the lateral Force due to Sloshing (Xi),		eight of Weight e Shell the Flor	r Design	Lateral Impul	Isive Weight (Wc),	to Acceleration	Lateral Force (Vc).	Force at the Moment top of the ft-ki	(Ms), Weight of the Tar	nk Roof Overtur		Convective E Accelaratio		Required	Freeboard V _{allow} (kip) = Later (Roof tan(30)* Seism	amic Check Thickness,
							Heigt	ht drawings 2.5 if unand indicate	Earthquake Use		m ASCE 7-10	from ASCE 7-1	2	voi - 10 (010 1/)	Vol*62.4pcf	Tank, (Wi) Sloshing (Xi), ft	(Wr), lbf (W	/s), lbf (Wf), lb	f (Ai)	kip Force(#	Mi), ft-	vectiv (Ai) mass	kip Force(Mc), f	for a destroy	= Contents (WL), Ibi	Overturning		-	(d), ft	(D), ft	Height- Overflow) C)* Load, (Ws+Wi+Wr+W Kip	d, Vt in
NIMD	N Tank 1	1	21575 Deputy Jakes Way	24 27904 119 515	47 1062 6	A 745 579	Helmoure 21	otherwise	recovery Group	0.077	1.950	4.75 0.21	2.055 1.77	9 00737	6222047	2201075 12	24620	66610 24	20 0 202	2714 kip		ic), ft	kip	(VI), KP V(MI H	22555 2085 2	(wt), lbf/ft	2 20 Drouido Anthon	0.21 0.52	0.21 0.9	27 0.97	(14*.14*Sds)	158 OF 0.35
NWD	N Tank 1A	1	21575 Deputy Jakes Way	34.37804 -118.5154	47 1995 13	32 3,069,307	Unknown 30	3 2.5	iii 1.5	0.977	1.859	8.02 0.18	4.400 0.83	4 410543	25617904	6716566 11	104774	129885 104	74 0.797	5622 0	63243 17698347	16 0.130	2305 3644	6 6076	72993 2052 5	069 440	1.73 Provide Anchors	s 0.18 0.18	0.18 12.0	3 12.03	3 12762 6075	.736 OK 0.25
NWD NWD	N Tank 1B N Tank 2*	1 2	23780 N. Pine Street 23554 Dockweiler Drive		49 1989 8	0 1,428,022	Unknown 30 40 Unknown 38	3 2.5 3 2.5	iii 1.5 iii 1.5	0.987	2.068	4.59 0.32 5.32 0.28	2.000 1.83 2.105 1.74	13 191009	5292955 11918951		21648 38485	60613 21 101150 38	48 0.882 85 0.886	2622 2 5657 8	29499 2313783 80617 5428481	18 0.231 23 0.199	534 969 1079 2448	5 2676 D 5759 1	31051 2052 2 34252 2310 3	304 379 891 479	3.64 Provide Anchors 4.86 Provide Anchors	s 0.32 0.56 s 0.28 0.42	0.32 9.7 0.28 11.1	70 9.70 13 11.13	3 2693 2675. 3 6016 5759. 3 2696 2648 6	972 OK 0.25 J.294 OK 0.25
NWD NWD	N Tank 3 N Tank 4	3 4	23252 1/2 Haskell Vista Lane 24548-1/2 Peachland Avenue		06 1995 6 35 1994 6		Unknown 30 Unknown 30	3 2.5 3 2.5	iii 1.5 iii 1.5			4.59 0.32 4.59 0.03	2.000 1.83 2.000 1.83	15 84823 15 84823	5292955	2870456 11 2870456 11	21648 21648	60613 21 60613 21	48 0.873 48 0.876	2597 2604 2	29212 2313783 29298 2313783	18 0.226 18 0.023	522 948 52 94	7 2605	2052 2052 2 29313 2052 2	304 379 304 379	3.60 Provide Anchors 3.44 Provide Anchors	s 0.32 0.55 s 0.03 0.06	0.32 9.4	48 9.48 95 0.95	3 2696 2648.0 3 2695 2604.3	
NWD	N Tank 4A N Tank 5	4	24548-1/2 Peachland Avenue 24001-1/2 Briardale Way	34.36908 -118.5473 34.35801 -118.5422		0 1,450,628 0 465.047	32 32 30.5 24 27 22	5 2 2.5		0.977		5.95 0.25 4.78 0.31	2.951 1.24		12107635 3881501	4681232 11	21648 48707 21648	90968 48 44450 21	07 0.797 48 0.888	3880 4 1511 1	44374 6956069 12465 2125610	17 0.176 12 0.223	1224 2075 474 587	3 4068 4 8 1583 3	18987 2070 3 13781 1758 1	514 408 .690 293	2.50 Provide Anchors 1.98 Provide Anchors	s 0.25 0.33 s 0.31 0.52	0.25 11.0	09 11.09 36 9.36	2 6097 4068. 5 1944 1583.4	B.236 OK 0.25
NWD NWD	N Tank 6 N Tank 7	6	23500 The Old Road	34.35243 -118.5385 34.36867 -118.5465			Unknown 20 Unknown 30	3 2.5 3 2.5		1.012		2.58 0.59	1.000 3.67 2.633 1.39	0 6283 14 147050			2405	14752 2	05 0.893	291	2365 90059	15 0.420	38 56	0 294	2431 1676	512 254	8.40 Provide Anchors	s 0.59 1.82 s 0.27 0.39		38 5.88	3 211 293.7 3 4644 3395.0	7524 Needs And 0.25
NWD	C Tank 1A	1	33030 Ridge Route Rd	34.51362 -118.630	64 1999 13	30 3,076,236	35 43 31	12 2.5	iii 1.5	0.881	1.543	7.84 0.17	4.194 0.87	5 411470	25675734	7060160 12	3/528 101623	78893 37 132226 101	28 0.797	4891 5	36698 4912743 56854 17433905	17 0.192 16 0.120	943 1606 2100 3447	1 3396 4 7 5322 0	10059 2052 3 56491 2086 5	158 448	2.69 Provide Anchors 1.59 Provide Anchors	s 0.27 0.39 s 0.17 0.17	0.27 10.6	51 10.61 96 10.96	12 13055 5322.3	2.362 OK 0.25
NWD NWD	C Tank 1D C Tank 2	1 2	32601 N. Ridge Top Lane 28768-1/2 Greenwood Place	34.51084 -118.6410 34.48329 -118.6396	52 1988 6	0 613,016	32 30 32 32 29	2 2.5 3 2.5			1.514	6.06 0.20 4.60 0.30	3.067 1.19 2.069 1.77	17 199428 14 81996	12444326 5116523		50896 21648	91401 50 58593 21	96 0.618 48 0.649	2987 3 1819 1	33601 7308564 19780 2298481	17 0.146 17 0.216	1068 1769 496 863	3 3172 2 2 1885 2	37975 2052 3 21581 2018 2	227 368	1.86 Provide Anchors 2.56 Provide Anchors	s 0.20 0.27 s 0.30 0.53	0.20 9.4	41 9.41 07 9.07	2 6423 3172.0 3 2687 1885.3	
NWD NWD	C Tank 3 P Tank 1	3	29515 Poppy Meadow Street	34.49079 -118.8597 34.44275 -118.3983	74 2016 6 35 2005 8		Unknown 30 Unknown 38	3 2.5 3 2.5	iii 1.5 iii 1.5	0.977		4.86 0.30 5.36 0.23	2.200 1.66	8 102636 2 195814	6404476		26194 39453	66386 26 102369 39	94 0.797 53 0.652	2657 2 4226 6	29889 3018066 60219 5619439	18 0.215 23 0.168	650 1152 942 2131	7 2735 3 4330	32035 2052 2 53879 2310 3	534 383 940 480	3.09 Provide Anchors 3.56 Provide Anchors	s 0.30 0.50 s 0.23 0.35	0.30 9.9	96 9.96 51 9.51	3 3275 2735. 3 6375 4329.0	5.274 OK 0.25
NWD NWD	P Tank 1A P Tank 2	1 2	29515 Poppy Meadow Street 14751 Hydrangea Way	34.44275 -118.398 34.45456 -118.396			Unknown 38 30 32 30	3 2.5	iii 1.5 iii 1.5	0.839		5.32 0.24	2.105 1.74	13 191009 17 199428	11918951	6205113 14 4639815 11	38485	101150 38 91401 50	85 0.652 96 0.939	4164 5	59333 5428481 51055 7308564	23 0.169 17 0.145	917 2080 1056 1750	9 4263 0	52876 2310 3 53971 2052 3	891 479 533 404	3.60 Provide Anchors	s 0.24 0.36	0.24 9.4	46 9.46 31 9.31	3 6224 4263	3.47 OK 0.25
NWD NWD	P Tank 3 P Tank 4	3	29251 Mammoth Lane 15644 Nahin Ln		85 1993 8	0 1,127,386	Unknown 30 Unknown 33	3 2.5	ii 1.5		1.456 1.531	5.50 0.22 3.93 0.32	2.667 1.37	76 150796 13 54843	9409698	3995024 11	38485	79855 38	85 0.624	2591	29146 5079356	17 0.159	806 1370	1 2713	32206 2052 3	072 394	2.10 Provide Anchors	s 0.22 0.32	0.22 8.8	89 8.89	3 4879 2713.	.343 OK 0.25
NWD	P Tank 4A	4	15644 Nahin Ln	34.44483 -118.4068	89 2006 6	2 744,850	Unknown 33	3 2.5	iii 1.5	0.842	1.531	4.64 0.27	1.879 1.95	3 99629	6216870	3536854 12	23115	68791 23	15 0.656	2396	29652 2580547	20 0.195	502 1019	4 2448	31356 2153 2	619 413	3.24 Provide Anchors	s 0.27 0.47	0.32 7.3	45 8.45	3 3281 244 2 5051 2420.4	448.2 OK 0.25
NWD NWD	T Tank 1 T Tank 1A	1 1	29505 Avenida Rancho Tesoro 29505 Avenida Rancho Tesoro	34.47829 -118.5598 34.47829 -118.5598	80 2002 8	1 1,155,746	32 30 32 30	2 2.5	iii 1.5	0.977	1.286	5.55 0.26		i9 154590	9646411	4049442 11	39453 39453	80817 39 80817 39	53 0.551	2320 2	26098 5248934 26098 5248934	17 0.132	690 1170 991 1679	0 2522	28602 2052 3 31033 2052 3	110 395 110 395	1.81 Provide Anchors 1.97 Provide Anchors	s 0.18 0.27 s 0.26 0.38		46 7.46 70 10.70	2 5051 2522	22.48 OK 0.25
NWD NWD	T Tank 2 T Tank 2A	2 2	29505 Avenida Rancho Tesoro 29505 Avenida Rancho Tesoro	34.48022 -118.5604 34.48022 -118.5604			32 30 32 30	2 2.5	iii 1.5	0.977	1.286	4.95 0.30	2.267 1.61 2.267 1.61	9 108950 9 108950	6798507 6798507	3329453 11 3329453 11	27805 27805	68310 27 68310 27	05 0.551	1903 1 1903 2	21412 3276681 21412 3276681	18 0.212 18 0.212	693 1219 693 1219	B 2026 2026	24643 2052 2 24643 2052 2	611 385 611 385	2.22 Provide Anchors 2.22 Provide Anchors	s 0.30 0.48 s 0.30 0.48	0.30 10.0	07 10.07 07 10.07	2 3594 2025. 2 3594 2025.	5.581 OK 0.25
SCWD	Tank 1	-	Through RVTP west gate, past solar panels,		1984 10	05 2,006,834	Unknown 31	3 2.5	iii 1.5		1.859	0.22	3.387 1.08																			
			through park gate, overlooking park	34.44958 -118.5251							1.659 #	6.63	#DIV/01 0	10 0	16749998	5678173 12 #DIV/0! #DIV/0!	66296	107372 66	96 0.797	4715	54813 10367291	17 0.158	1637 2758	9 4991 (51364 2086 4	166 426	2.27 Provide Anchors	s 0.22 0.27	0.22 11.6	50 11.60	3 8397 4991.	.023 OK 0.25
SCWD SCWD	Tank 2 Tank 3	-	22200 Pamplico Dr. 3 22200 Pamplico Dr. 3	34.44958 -118.5251	16 1971 6	i0 0	Unknown Unknown	3 2.5 3 2.5		0.905	1.659	DIV/0! #DIV/0!	#DIV/0! 0.00 #DIV/0! 0.00		0	#DIV/0! #DIV/0!	21648 21648	0 21									-			-		- 0.25
SCWD SCWD	Tank 4 Tank 5	-	22200 Pamplico Dr. 22200 Pamplico Dr.	34.44958 -118.5251 34.44958 -118.5251	16 1989 10	04 1,397,207	Unknown 22 Unknown 22	3 2.5 3 2.5	iii 1.5 iii 1.5	0.905	1.659 1.659	7.29 0.19 7.29 0.19	4.727 0.77 4.727 0.77	76 186887 76 186887	11661753 11661753	2847041 8 2847041 8	65039 65039	75494 65 75494 65	39 0.711 39 0.711	2170 1 2170 1	17906 8249343 17906 8249343	12 0.133 12 0.133	1097 1264 1097 1264	D 2432	21918 1758 2 21918 1758 2	929 331 929 331	0.99 Uplift but Stable 0.99 Uplift but Stable	e 0.19 0.20 e 0.19 0.20	0.19 9.6	58 9.68 58 9.68	3 5890 2431. 3 5890 2431	.939 OK 0.25
SCWD SCWD	Tank 6 Tank 7	-	On Copper Hill xs is Benz Rd. 22000 Beldove Ct.	34.45818 -118.5235	1999 10	04 1,968,791	Unknown 31 Unknown 30	3 2.5 3 2.5				6.58 0.22		14 263341 19 259770	16432470	5622265 12 5323102 11	65039 66296	106378 65 103908 66	39 0.797 96 0.695	4668 5	54262 10122208 43478 10194371	17 0.159 16 0.143	1609 2716 1454 2360	8 4937 0 7 4129	50684 2086 4 19473 2052 4	127 425 032 415	2.29 Provide Anchors	s 0.22 0.27 s 0.70 0.74	0.22 11.5	58 11.58 10.49	3 8240 4937. 3 8242 4129.	.396 OK 0.25
SCWD SCWD	Tank 8 Tank 9	-	22000 Beldove Ct.	34.45818 -118.5235	58 1988 10	05 2,006,834 70 3,733,290	Unknown 31	3 2.5	iii 1.5	0.89	1.622	6.63 0.20	3.387 1.08	4 268429	16749998	5678173 12 4656392 °	66296	107372 66	96 0.695	4114 4	47825 10367291	17 0.144	1491 2513	2 4376	54026 2086 4 88189 1758 4	166 426	1.99 Provide Anchors	s 0.20 0.24	0.20 10.5	57 10.57	3 8521 4375	.761 OK 0.25
SCWD	Tank 9 Tank 10		28801 Garnet Canyon Dr. (access road	34.46892 -118.5183			Unknown 22 Unknown 31	3 2.5			1.859	5.15 0.26	2.355 1.55		31159824	4656392 8 3837911 12	1/3/82	1/3	0./9/	4004 3	2448/8/8	11 0.066	1005 1/9/	4388	1/58 4		2.03 Fairk IS Stable	0.13 0.09	0.05 7.8	~ /.60	3 15242 43873	0.25
SCWD	Tank 11		marked as Edison Rd. on map) 28801 Garnet Canyon Dr. (access road	34.46892 -118.5183			Unknown 31	3 2.5	ii 1.5		1.573	3.13	3.387 1.08	14 268429	8096212	3837911 12	32044	75558 32	44 0.674	2681 3	31172 4013059	18 0.186	748 1347	5 2784 :	33960 2086 2	897 399	2.62 Provide Anchors	s 0.26 0.40	0.26 9.5	52 9.52	3 4194 2783.	.711 OK 0.25
	Tank 11	-	marked as Edison Rd. on map) West side of Whites Canyon before it turns	s 34.43882 -118.4797		3 970,015		3 2.5				6.63	2.355 1.55		16749998	5678173 12	66296	107372 66	96 0.674	3990 4	46380 10367291	17 0.145	1501 2530	2 4263	52832 2086 4	166 426	1.95 Provide Anchors	s 0.20 0.24	0.20 10.6	54 10.64	3 8547 4262.0	.655 OK 0.25
SCWD		-	into Plum Canyon (top of hill) West side of Whites Canyon before it turns				Unknown 31					5.15			8096212	3837911 12	32044	75558 32	44 0.733	2917	33906 4013059	18 0.190	764 1377	7 3015	36599 2086 2	897 399	2.83 Provide Anchors	s 0.27 0.41	0.27 9.7	73 9.73	3 4158 3015.3	.162 OK 0.25
SCWD	Tank 13	-	into Plum Canyon (top of hill) West side of Whites Canyon before it turns	34.43882 -118.479	74 1999 10	04 1,968,791	Unknown 31	3 2.5	iii 1.5	0.916	1.711	6.58 0.21	3.355 1.09	263341	16432470	5622265 12	65039	106378 65	39 0.733	4296	49942 10122208	17 0.149	1509 2547	2 4553 !	56063 2086 4	127 425	2.11 Provide Anchors	s 0.21 0.25	0.21 10.8	85 10.85	3 8316 4553.4	.403 OK 0.25
SCWD		-	into Plum Canyon (top of hill)	34.43882 -118.4797	74 2003 10	04 1,968,791	Unknown 31	3 2.5	ii 1.5	0.916	1.711	6.58 0.21	3.355 1.09	4 263341	16432470	5622265 12	65039	106378 65	39 0.733	4296	49942 10122208	17 0.149	1509 2547	2 4553 5	56063 2086 4	425	2.11 Provide Anchors	s 0.21 0.25	0.21 10.8	85 10.85	3 8316 4553.	.403 OK 0.25
SCWD	Tank 15	-	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	s 34.43882 -118.4797		04 1,968,791	Unknown 31	3 2.5	ii 1.5		1.711	6.58 0.21	3.355 1.09		16432470	5622265 12	65039	106378 65	39 0.733	4296	49942 10122208	17 0.149	1509 2547	2 4553 !	56063 2086 4	127 425	2.11 Provide Anchors	s 0.21 0.25	0.21 10.8	35 10.85	3 8316 4553	J.403 OK 0.25
SCWD SCWD	Tank 16 Tank 17	1	28452 Hawks Ridge 28558 Santa Catarina	34.44116 -118.4671 34.45510 -118.4802	29 1990 10	05 2,006,834	Unknown 31 Unknown 31	3 2.5	iii 1.5 iii 1.5			5.15 0.26 6.63 0.20 7.43 0.19	2.355 1.55 3.387 1.08	4 268429	8096212	3837911 12 5678173 12	32044 66296 104774	75558 32 107372 66	44 0.721 96 0.688	2869 3 4071 4	33352 4013059 47323 10367291	18 0.188 17 0.141	753 1358 1462 2465	1 2966 2 4326 !	36011 2086 2 53359 2086 4	897 399 166 426	2.78 Provide Anchors 1.97 Provide Anchors	s 0.26 0.41 s 0.20 0.24	0.26 9.5	59 9.59 37 10.37	3 4166 2966. 3 8530 4325.5	241 OK 0.25 537 OK 0.25
SCWD SCWD	Tank 18 Tank 19	-	20251 Keaton St. 20251 Keaton St.	34.43109 -118.492 34.43109 -118.492			Unknown 39 Unknown 39	3 2.5	iii 1.5 iii 1.5	0.9417	1.781	7.43 0.19 6.68 0.21	3.385 1.08 2.923 1.25	14 533706 16 398074	33303275 24839839	11297660 15 9689339 15		168851 104 146337 78	74 0.763 48 0.763	8912 13 7627 11	30340 20605312 11541 14192108	21 0.136 22 0.151	2797 5932 2143 4653	0 9341 14 5 7922 1	13204 2340 6 20859 2340 5	589 534 691 518	2.94 Provide Anchors 3.34 Provide Anchors	s 0.19 0.20 s 0.21 0.25	0.19 12.5	54 12.54 05 12.05	3 16740 9340. 3 12541 7922.	.714 OK 0.25 2.122 OK 0.25
SCWD	Tank 20	-	20225 Jennifer Ct. 18501 Olympian Ct. follow signs to Helispol	34.41239 -118.4898			Unknown 39	3 2.5	iii 1.5	1.005	1.917	6.68 0.23	2.923 1.25	i6 398074	24839839		78148			8209 12	20058 14192108	22 0.161	2287 4966	3 8522 1	29924 2340 5		3.60 Provide Anchors	s 0.23 0.27	0.23 12.8	36 12.86	3 12435 8521.3	
SCWD	Tank 21	-	1070	34.42394 -118.4571	15 1974 7	3 719,689	Unknown 23	3 2.5	iii 1.5	0.948	1.791	5.44 0.26	3.174 1.15	6 96264	6006867	2167582 9	32044	56059 32	44 0.768	1756 1	15145 3594969	13 0.187	671 847	3 1880 :	17354 1797 2	149 314	1.58 Provide Anchors	s 0.26 0.38	0.26 9.5	54 9.54	3 3042 1875	79.77 ОК 0.25
SCWD	Tank 22	-	18501 Olympian Ct. follow signs to Helispot 107C	34.42394 -118.4571	15 1980 14	46 3,880,062	Unknown 31	3 2.5	iii 1.5	0.948	1.791	8.63 0.15	4.710 0.77	9 518988	32384849	7935674 12	128177	148133 128	77 0.768	6402	74419 22881842	16 0.109	2498 4056	5 6872 1	84757 2086 5	793 463	1.60 Provide Anchors	s 0.16 0.15	0.15 11.1	16 11.16	3 16166 6871.	764 OK 0.25
SCWD	Tank 23	-	18501 Olympian Ct. follow signs to Helispot 107C	t 34.42394 -118.4571	15 1995 13	30 3,076,236	Unknown 31	3 2.5	iii 1.5	0.948	1.791	7.84 0.18	4.194 0.87	5 411470	25675734	7060160 12	101623	132226 101	23 0.768	5677 6	65991 17433905	16 0.130	2260 3709	9 6110	75705 2086 5	158 448	1.81 Provide Anchors	s 0.18 0.19	0.18 11.7	79 11.79	3 12857 6109	J.838 OK 0.25
SCWD	Tank 24	-	18501 Olympian Ct. follow signs to Helispot 107C	4 34.42394 -118.4571	15 2000 7	3 970,015	Unknown 31	3 2.5	iii 1.5			5.15 0.28	2.355 1.55		8096212	3837911 12	32044	75558 32	44 0.768	3053	35492 4013059	18 0.197	791 1425	8 3154 3	38249 2086 2	897 399	2.96 Provide Anchors	s 0.28 0.43	0.28 10.0	07 10.07	3 4138 3153	3.862 OK 0.25
SCWD SCWD	Tank 25 Tank 26		17705 Heron Ln 17705 Heron Ln	34.39691 -118.4450 34.39691 -118.4450			Unknown 23 Unknown 23	3 2.5	iii 1.5 iii 1.5			8.94 0.15 8.94 0.15	5.826 0.63 5.826 0.63		20240065	4011262 9	107973	101054 107 101054 107		3563	30734 15133924 30734 15133924	12 0.108 12 0.108	1631 1935 1631 1935	5 3919 5 3919	36322 1797 3 36322 1797 3	945 368	0.96 Uplift but Stable 0.96 Uplift but Stable		0.15 10.1	11 10.11	3 9981 3919.0 3 9981 3919.0	
SCWD	Tank 20	-	27200 Sand Canyon Rd. (Between 27230 and 27166 Sand Canyon Rd)	34.40309 -118.4168	87 1979 2	142,708	Unknown 31	3 2.5	iii 1.5		1.809	0.47	0.903 4.06			956577 13	10/5/5	20020			0045 247207		1051 1555		1757 5				0.13		3 500 550	2225 Nords for 0.25
SCWD	Tank 28	-	27201 Appaloosa Rd.	34.40957 -118.4085			Unknown 23	3 2.5				7.18 0.19	4.522 0.81		12191832	3111006 9		78925 65			21427 8501495	12 0.138	1174 1420	1 2748	25706 1797 3 36066 2086 2	062 341	1.14 Uplift but Stable			06 10.06	3 6130 2747.5	
SCWD SCWD	Tank 29 Tank 30		28613 Winterdale Dr. 28613 Winterdale Dr.	34.43161 -118.4333 34.43161 -118.4333	27 1985 7	3 970,015	Unknown 31 Unknown 31	3 2.5 3 2.5	iii 1.5	0.903	1.686	5.15 0.26	2.355 1.55 2.355 1.55	i8 129747	8096212 8096212	3837911 12	32044 32044	75558 32	44 0.723 44 0.723	2874 2874 2	33411 4013059 33411 4013059	18 0.188 18 0.188	753 1358 753 1358	1 2971 1 1 2971 1	36066 2086 2 36066 2086 2	897 399 897 399	2.78 Provide Anchors 2.78 Provide Anchors	s 0.26 0.41 s 0.26 0.41	0.26 9.5	59 9.59 59 9.59	3 4165 2971.: 3 4165 2971.:	1.188 OK 0.25
SCWD SCWD	Tank 31 Tank 32	-	16742 Placerita Canyon Rd. 16742 Placerita Canyon Rd.	34.37487 -118.4256 34.37487 -118.4256			Unknown 31 Unknown 31	3 2.5 3 2.5	iii 1.5 iii 1.5	1.009	1.928	5.15 0.29 5.15 0.29	2.355 1.55 2.355 1.55	8 129747 8 129747	8096212 8096212	3837911 12	32044 32044	75558 32 75558 32	44 0.826 44 0.826	3287 3 3287 3	38207 4013059 38207 4013059	18 0.210 18 0.210	842 1517 842 1517	5 3393 4 5 3393 4	1110 2086 2 1110 2086 2	897 399 897 399	3.18 Provide Anchors 3.18 Provide Anchors	s 0.29 0.46 s 0.29 0.46	0.29 10.7	72 10.72 72 10.72	3 4103 3392. 3 4103 3392.	.715 OK 0.25 2.715 OK 0.25
SCWD	Tank 33	-	Golden Valley Road before Robert C Lee Pkwy	34.39537 -118.4929		04 1,968,791	Unknown 31	3 2.5	ii 1.5	1.055	1.994	6.58 0.24	3.355 1.09		16432470	5622265 12	65039	106378 65	39 0.855	5007	58203 10122208	17 0 172	1738 2933	7 5300	55178 2086 4	127 425	2 47 Provide Anchors	0.24 0.29	0.24 12.5	50 12 50	3 8171 5299	1745 OK 0.25
SCWD	Tank 34	-	15126 Live Oak Springs Cyn Rd 20092 Avenue of the Oaks (inside gated	34.40035 -118.3991	16 1999 7	3 970,015	Unknown 31	3 2.5	ii 1.5	0.9632	1.769	5.15 0.28	2.355 1.55	i8 129747	8096212	3837911 12	32044	75558 32	44 0.758	3016	35056 4013059	18 0.200	804 1448	7 3121	37931 2086 2	897 399	2.93 Provide Anchors	s 0.28 0.44	0.28 10.2	23 10.23	3 4144 3120.8	.814 OK 0.25
SCWD	Tank 35	-	community)	34.40261 -118.4895	59 1973 8	1,240,124	Unknown 33	3 2.5	iii 1.5	1.035	1.986	5.42 0.29	2.424 1.51	4 165876	10350668	4784457 12	38485	87841 38	85 0.851	4213 5	52130 5238155	19 0.205	1072 2044	4 4347 !	55996 2153 3	379 426	3.48 Provide Anchors	s 0.29 0.42	0.29 11.4	16 11.46	3 5213 434	46.88 OK 0.25
SCWD	Tank 36	-	20092 Avenue of the Oaks (inside gated community)	34.40261 -118.4895	59 1985 8	1,240,124	Unknown 33	3 2.5	ii 1.5	1.035	1.986	5.42 0.29	2.424 1.51	4 165876	10350668	4784457 12	38485	87841 38	85 0.851	4213 5	52130 5238155	19 0.205	1072 2044	4 4347 :	55996 2153 3	379 426	3.48 Provide Anchors	s 0.29 0.42	0.29 11.4	46 11.46	3 5213 434	46.88 OK 0.25
SCWD	Tank 37	-	18623 Cedar Valley Way (inside private gate next to house overlooking 14fwy)	34.40154 -118.4592	23 1979 6	0 486,185	Unknown 23	3 2.5	ii 1.5	1.012	1.938	4.75 0.32	2.609 1.40	65031	4057932	1757473 9	21648	46470 21	48 0.831	1534 1	13233 2159193	13 0.228	493 645	5 1612 :	14723 1797 1	766 304	2.02 Provide Anchors	s 0.32 0.54	0.32 9.6	50 9.60	3 2053 161	1.63 OK 0.25
SCWD SCWD	Tank 38 Tank 39	1	25529 Mountain Pass Rd. 25529 Mountain Pass Rd.	34.38984 -118.4823 34.38984 -118.4823			Unknown 31 Unknown 31	3 2.5 3 2.5	iii 1.5 iii 1.5	1.056	210.00	5.15 0.31 5.15 0.31	2.355 1.55	8 129747 8 129747		3837911 12 3837911 12	32044 32044	75558 32 75558 32	44 0.844 44 0.844	3356 3 3356	39019 4013059 39019 4013059	18 0.220 18 0.270	881 1588 881 1588	2 3470 4 2 3470 4	42128 2086 2 42128 2086 7	897 399 897 399	3.26 Provide Anchors 3.26 Provide Anchors	s 0.31 0.48 s 0.31 0.48	0.31 11.2	22 11.22 22 11.27	3 4092 3470.2 3 4092 3470.2	0.213 OK 0.25
SCWD SCWD	Tank 40 Tank 41	-	Oak Crest Dr. Oak Crest Dr.	34.38585 -118.4584 34.38585 -118.4584	45 2005 9	0 1,474,409	Unknown 31 Unknown 31	3 2.5	iii 1.5	1.035	1.982	5.93 0.26 5.93 0.26	2.903 1.26	i4 197213 i4 197213	12306121	4830963 12	48707 48707	92459 48 92459 48	07 0.849	4265 4	49579 7002741 49579 7002741	17 0.187	1310 2263 1310 2263	5 4461	54501 2086 3 54501 2086 3	571 413 571 413	2.76 Provide Anchors	s 0.26 0.35 s 0.26 0.25	0.26 11.7	78 11.78	3 6152 4461.4 3 6152 4461.4	.463 OK 0.25
SCWD	Tank 42	-	Benison Dr. (West cul-de-sac) Benison Dr. (West cul-de-sac)	34.35355 -118.455 34.45475 -118.4752 34.45475 -118.4752	22 2007 7	3 970,015	Unknown 31 Unknown 31 Unknown 31	3 2.5	iii 1.5	0.872	1.604	5.15 0.25	2.355 1.55	i8 129747 i8 129747	8096212	3837911 12	32044	75558 32	44 0.687	2734	31786 4013059	18 0.181	728 1311	5 2829	34385 2086 2	897 399	2.65 Provide Anchors	s 0.25 0.39	0.25 9.2	26 9.26	3 4186 2829	434 OK 0.25
SCWD SCWD	Tank 43 Tank 44		26833 Cherry Willow Dr.	34.40100 -118.4350	00 2006 6	0 486,185	Unknown 31 Unknown 23	3 2.5	iii 1.5	0.872	1.604	5.15 0.25 4.75 0.31	2.355 1.55	129/4/	4057932	12 1757473 9	32044 21648	46470 21	48 0.804	1486	12816 2159193	10 0.181	728 1311 479 627	0 1561	2086 2 14268 1797 1	766 304	1.96 Provide Anchors	s 0.25 0.39	0.25 9.2	9.26 9.32 9.32	3 4186 2829.4 3 2061 1561	
SCWD SCWD	Tank 45 Tank 46	1	26833 Cherry Willow Dr. 17705 Heron Ln above Lower Fair Oaks	34.40100 -118.4350 34.39692 -118.4451			Unknown 23 Unknown 31	3 2.5	ii 1.5 ii 1.5	0.983	1.877	4.75 0.31 0.29	2.609 1.40	07 65031 i8 129747	4057932	1/5/473 9	21648	464/0 21	48 0.804	1486 1	12616 2159193	15 0.222	479 627	1561	14268 1797 1	/00 304	1.96 Provide Anchors	0.31 0.52	0.31 9.3	9.32	3 2061 1561.3	329 UK 0.25
		-	Tanks (continue on access road) 17705 Heron Ln above Lower Fair Oaks									5.15			8096212	3837911 12	32044	75558 32		3278	38108 4013059	18 0.209	838 1510	3383 4	40990 2086 2	897 399	3.17 Provide Anchors	s 0.29 0.45	0.29 10.6	57 10.67	3 4104 3383.4	.424 OK 0.25
SCWD SCWD		-	Tanks (continue on access road) 25198 Karie Ln	34.39692 -118.4451 34.39044 -118.5125			Unknown 31 Unknown 31			0.985	1 974	5.15 0.29 5.15 0.29	2.355 1.55	i8 129747	8096212	3837911 12	32044 32044	75558 32 75558 32	44 0.824 44 0.846	3278 3 3365 3	38108 4013059 39118 4013059	18 0.209 18 0.205	838 1510 822 1481	0 3383 4 5 3464 4	10990 2086 2 11830 2086 2	897 399 897 399	3.17 Provide Anchors 3.24 Provide Anchors	s 0.29 0.45 s 0.29 0.45	0.29 10.6		3 4104 3383.4 3 4091 3463.9	.424 OK 0.25
SCWD VWD	Tank 48 Tank 49 Hasley Canyon	<u> </u>	25198 Karie Ln	34.39044 -118.5125	54 1987 7	3 970,015	Unknown 31	3 2.5	iii 1.5	0.985	1.974	5.15 0.29	2.355 1.55 2.664 1.37	8 129747	8096212	3837911 12	32044 32044 64905	133696 64	44 0.846 44 0.846 05 0.669	6042	39118 4013059 39118 4013059 88358 11129044	18 0.205 22 0.156	922 1491	5 3464 4 5 3464 4 6 6286 9	1830 2086 2 1830 2086 2 1830 2086 2 96316 2340 5	897 399	3.24 Provide Anchors 3.20 Provide Anchors	s 0.29 0.45 s 0.29 0.45 s 0.22 0.28	0.29 10.4	10.47	2 4001 2462 0	.926 OK 0.25
VWD	ound Mountai		Firebrand, between 27840 & 27902, Casta Access end of Anza Drive, Valencia	34.42930 -118.5806	57 1989 11	16 2,451,341	Unknown 39 Unknown 31	3 2.5		0.024	1 963	7 16 0 21	2 742 0 09	1 227609	20448337	6200151 12	64905 80933 54539	118322 80	05 0.669 33 0.798 39 0.795	5243 6	60951 13259642	17 0.147	822 1461 1735 38333 1953 3248 1507 3077 2484 5202 2647 5627 1770 3690 1351 1550 521 991	5 6286 9 7 5595 0 7 5819 1	59069 2086 4	1603 436	2.09 Provide Anchors	s 0.22 0.28 s 0.21 0.23 s 0.25 0.33	0.22 11.3 0.21 11.9	96 11.96	3 4051 5453. 3 10597 6285. 3 10223 5595. 3 8080 5818.9	.109 OK 0.25
	Post Office agic Mountain	II A- North	Franklin Pkwy., west of Post Office, Valenci 26975 Westridge Pkwy., Valencia	34.40646 -118.5963	33 2001 11	18 3,095,237	Unknown 36 Unknown 38	3 2.5	iii 1.5 iii 1.5	0.981	1.856 2.035	5.99 0.25 6.88 0.23 7.34 0.19 6.39 0.22 7.59 0.21 4.60 0.30 4.60 0.30	2.645 1.38 3.099 1.18	256443 4 413774	16002014 25819521	6843363 14 9532636 14	54539 83367 101415	113416 54 147150 83 166182 101	39 0.795 67 0.872	5620 3 8588 12	3833 11123044 60951 13259642 75875 8593111 22373 15251333 20286 19781978 85157 11426700 23158 9207468	20 0.175 21 0.163	1507 3077 2484 5202	7 5819 1 8 8940 1	32974 2310 5	388 470 727 510	3.41 Provide Anchors 3.50 Provide Anchors	s 0.25 0.33 s 0.23 0.27	0.25 11.6	59 11.69 12 13.42		
VWD	Northbridge Rye Canyon	II A- North	rwick Place, between 27659 & 27663, Valer 25112 Rye Canyon Loop, Valencia	34.45933 -118.5815	56 2003 10	06 2,441,622	Unknown 39 40 37.2	5 3 2.5	iii 1.5 iii 1.5	0.917	1.672	7.34 0.19 6.39 0.22	3.330 1.10 2.836 1.29	12 516594 14 326398	32235460	11108780 15 8172953 14	101415 67087	166182 101 129766 67 79084 71	15 0.717 87 0.723 58 0.875	8225 12 6096 8	20286 19781978 85157 11426700	21 0.134 21 0.155	2647 5627 1770 3690	2 6348 9 7 3115	32796 2340 6 92809 2287 5 27871 1758 3	483 532 036 492	2.81 Provide Anchors 3.07 Provide Anchors	s 0.19 0.20 s 0.22 0.27	0.19 12.1 0.22 11.4	16 12.16 45 11.45	3 16320 8640.0 3 10360 6347.9 3 6319 3115.3	.022 OK 0.25 /.913 OK 0.25
VWD	Cal Arts	II A-South	25841 Tournament Rd., Valencia /ucca Place, between 30563 & 30568, Casta	34.38944 -118.5624	44 1996 10	09 1,538,141	Unknown 22 Unknown 31.2	3 2.5	iii 1.5 iii 1.5	1.04	2.041	7.59 0.21 4.60 0.30	4.959 0.74 1.942 1.98	0 205620	12830702 5616138	2986873 8 3115427 17	33000	62642 22	86 0.676	2178	25488 2396973	11 0.147 19 0.217	1351 1550 521 991	7 3115 2	27871 1758 3 27349 2093 2	072 335 420 392	1.15 Uplift but Stable 3.06 Provide Anchors	e 0.21 0.22 s 0.30 0.53	0.21 11.2	21 11.21 23 9.23	3 6319 3115. 3 2949 2239	.336 OK 0.25 39.96 OK 0.25
VWD VWD	Presley mmerce Cente	II C	30016 Hamlet Wy., Castaic (changed 1/06) 28636 Livingston Ave., Valencia		82 1989 6	673,261	Unknown 31.2 Unknown 30.3	2 3 2.5	iii 1.5	0.915	1.536	4.60 0.30	1.942 1.88 2.655 1.38	9 90002	5616138	3115427 12 4108103 11	22086 22086 38984	63642 22 81237 38	86 0.658 84 0.828	2122	24825 2396973 40208 5186700	19 0.213	511 972 1030 1771	5 2183 3 3682 4	26662 2093 2 13935 2064 3			s 0.30 0.52 s 0.28 0.40		05 9.05 19 11 19	3 2957 2182 3 4852 3682.1	
VWD	mmerce Cente	II D	28636 Livingston Ave., Valencia	34.44301 -118.6408	83 1999 8	1,155,236	Unknown 30.3	3 3 2.5	iii 1.5	1.022	1.933	5.51 0.28	2.655 1.38	154433	9636626	4108103 11	38984	81237 38	84 0.828	3535 4	40208 5186700	17 0.199	1030 1771	D 3682 4	13935 2064 3	126 398	2.82 Provide Anchors	s 0.28 0.40	0.28 11.1	19 11.19	3 4852 3682.	2.162 OK 0.25
VWD VWD	Seco I Seco II	III A III A	28400 Copper Hill, Saugus 28400 Copper Hill, Saugus	34.46276 -118.5401 34.46276 -118.5401	11 1998 10	07 2,336,119	Unknown 34.5 36 34.5	5 2 2.5	ii 1.5 ii 1.5	0.8692	1.615	6.34 0.21 6.57 0.20	2.961 1.23 3.112 1.17	282804 9 312295	1/646963 19487191	6800452 13 7165698 13	62760 69305 58577	116354 62 122102 69 107630 58	60 0.692 05 0.692	48/4 6 5140 6	63061 10159298 66501 11537915 54832 9122346	19 0.151 19 0.142 18 0.156	1531 2934 1635 3107 1427 2611	0 5109 (7 5394	59553 2201 4 73404 2201 4		2.56 Provide Anchors 2.44 Provide Anchors	s 0.21 0.27 s 0.20 0.24	0.20 10.6	78 10.78 55 10.65 81 10.81	3 9009 5109.0 2 9932 5393.9	3.948 OK 0.25
VWD VWD	Benz 4 Million	III A III B	28820 Bellows Ct., Valencia Access road end of Oakview Estates Drive,	34.46251 -118.5712	2005 43	9 1,888,670 25 2,693,888	Unknown 33 32 29.5		iii 1.5	0.912	1.657	6.25 0.22	2.991 1.22	252479	15754708	6014615 12						18 0.156	1427 2611		50733 2153 4		2.46 Provide Anchors	s 0.22 0.28	0.22 10.8	31 10.81		4.979 OK 0.25
VWD	Westridge	III B	Valencia 25774 Oak Meadow Drive., Valencia	34.39490 -118.5826 34.39760 -118.5855	55 2001 12	23 2,619,577	32 29.5 32 29.5		iii 1.5	1.034	2.045	0.20 7.61 0.21 5.00 0.27 5.01 0.27 5.02 0.46 5.02 0.46	4.167 0.88	350122	22471590 21851711	6131884 11 6045862 11	93464 90886 28847	120788 93 119149 90	64 0.876 86 0.877 47 0.636	5638 6 5565 6	62374 15302189 61565 14802746 26457 3460907 25259 3446044 13905 3430444	16 0.144 16 0.147	2204 3440 2175 3400	2 6054 2 5975 8 2405	71232 2035 4 70331 2035 4 28948 2070 2 27728 2052 2 23768 2035 2	708 428 642 426	1.92 Provide Anchors 1.95 Provide Anchors	s 0.20 0.21 s 0.21 0.22	0.20 12.5	57 12.57 54 12.64	3 11079 6053. 3 10775 5975. 3 3744 2404. 3 3680 233 3 3754 1685.	.621 OK 0.25 3.053 OK 0.25
VWD	Hillcrest 1	III C	30400 Vineyard Ln., Castaic 30400 Vineyard Ln., Castaic	34.46812 -118.635 34.46812 -118.635	78 1996 6	9 859,632	Unknown 30.5 Unknown 30	5 3 2.5	iii 1.5	0.885	1.485	5.00 0.27	2.271 1.61	6 114916 0 113032	7170787	3506246 11 3400670 11	28847 28847	69524 28	47 0.636	2313 2245	26457 3460907 25259 3446044	16 0.147 18 0.190 18 0.189	2175 3400. 657 1174 653 1143 1123 1927	8 2405 7 2338	70331 2035 4 28948 2070 2 27728 2052 2	704 391 660 386	2.50 Provide Anchors	s 0.27 0.43 s 0.77 0.42	0.21 12.6 0.27 9.2 0.27 9.1		3 3744 2404. 3 3680 23	.652 OK 0.25 338.2 OK 0.25
VWD	Mtn. View 1	IV A	29238 Black Pine Wy., Saugus 29238 Black Pine Wy., Saugus	34.48081 -118.5321 34.48081 -118.5321 34.48081 -118.5321	13 2001 6	i9 831,447	32 29.5 32 29.5	5 3 2.5	iii 1.5 iii 1.5	1.533	0.857	5.01 0.27 5.02 0.46 5.02 0.46 5.41 0.28	2.309 1.59 2.348 1.56 2.348 1.56	3 111149	6935677	3296175 11	28847 28847 28847	68366 28	47 0.636 47 0.367 47 0.367	1257 1	13905 3430444	18 0.189 17 0.327						s 0.27 0.42 s 0.46 0.73		18 9.18 87 15.87 87 15.87	3 3754 1685	519 OK 0.25
	Mtn. View 2 Poe		26024 Kavenaugh Ln., Stevenson Ranch	34.39184 -118.5919	97 1989 7	9 1,130,517	Unknown 31	3 2.5				5.02 0.46 5.41 0.28 5.87 0.25					37325	81310 37	25 0.870	3775	13905 3430444 43885 4930940	17 0.327 18 0.199	980 1736	B 3900 4	23768 2035 2 47197 2086 3			s 0.46 0.73 s 0.28 0.41	0.28 10.9	96 10.96	3 4728 3900.0	0.069 OK 0.25
VWD	Sunset Pointe West Hills 1	IV D	25101 Sagecrest Cir., Stevenson Ranch 28834 Bellows Ct., Valencia	34.46299 -118.5743	31 2008 4	8 290,020	Unknown 30.5 23 21	2 2.5	iii 1.5 iii 1.5	0.991	2.07 1.66	5.8/ 0.25 4.19 0.33	2.895 1.26 2.309 1.59	8 186811 0 38770	11657001 2419258	4587710 11 1166430 8					48408 6622702 6888 1181994	17 0.181 12 0.234			52523 2070 3 7675 1717 1	448 406 303 274	2.80 Provide Anchors 2.12 Provide Anchors	s 0.25 0.35 s 0.33 0.62	0.33 7.9	18 11.18 93 7.93	3 5797 4398.0 2 1257 917.14	1428 OK 0.25
VWD VWD	West Hills 2 tevenson Rand	IV D V	28834 Bellows Ct., Valencia 26748 Sandburn, Stevenson Ranch	34.46299 -118.5743 34.38734 -118.6067	71 1999 10	04 1,923,390	23 21 Unknown 30.3	2 2.5 3 3 2.5	iii 1.5 iii 1.5	0.913	1.66 2.041	4.19 0.33 4.19 0.33 6.61 0.22	2.309 1.59 3.425 1.07	0 38770 1 257121	2419258 16044332	1166430 8 5380049 11	14135 64905	34673 14 103975 64	35 0.711 05 0.875	875 4911	6888 1181994 55851 9985842	12 0.234 16 0.158	276 338 276 338 1579 2599	6 917 5 5158 0	7675 1717 1 51604 2064 4	303 274 033 418	2.12 Provide Anchors 2.36 Provide Anchors	s 0.33 0.62 s 0.22 0.27	0.33 7.9	93 7.93 50 11.50	2 1257 917.14 3 7951 5158	1428 OK 0.25 58.02 OK 0.25
1. Design	pectral respons	se acceleration	parameters, S _{D1} and S _{D5} , have been determin ponents, Sai and the Design Spectrum for co	ned using the Applied Techr	nology Council's ((ATC) web based haz	zard maps in accordance with	h the American Society of Civ	il Engineers Standard 7, Minimum Des	ign Loads for Buildin	ngs and Other Struc	tures (ASCE 7-10)																				

Decay special reports excension panietas, s₂₀ and s₂₀ more vertice even intervining in exponent econology contra s (int) year and intervinity more intervinity even intervinity more intervinity even intervinity more intervinity even intervinity more intervinity even intervinity

Site Class:





Search Information

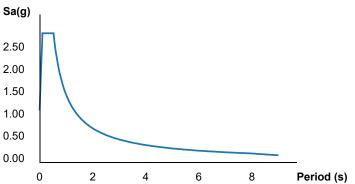
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Coordinates:	34.39692, -118.4451
Elevation:	1752 ft
Timestamp:	2021-03-05T04:52:01.694Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III

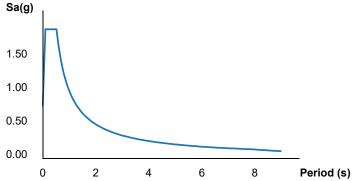
D

MCER Horizontal Response Spectrum

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Design Horizontal Response Spectrum





Basic Parameters

Name	Value	Description
SS	2.884	MCE _R ground motion (period=0.2s)
S ₁	1.004	MCE _R ground motion (period=1.0s)
S _{MS}	2.884	Site-modified spectral acceleration value
S _{M1}	1.507	Site-modified spectral acceleration value
S _{DS}	1.923	Numeric seismic design value at 0.2s SA
S _{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

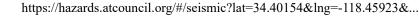
Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	0.947	Coefficient of risk (0.2s)

[92]

CR ₁	0.965	Coefficient of risk (1.0s)
PGA	1.065	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.065	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.884	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.047	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.023	Factored deterministic acceleration value (0.2s)
S1RT	1.004	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.041	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.218	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

Disclaimer

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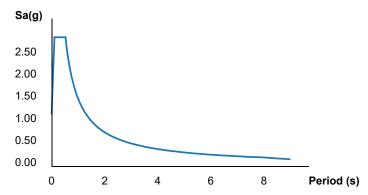




Address:	18623 Cedar Valey Way
Coordinates:	34.40154, -118.45923
Elevation:	1668 ft
Timestamp:	2021-03-05T04:45:26.113Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III

Site Class: D

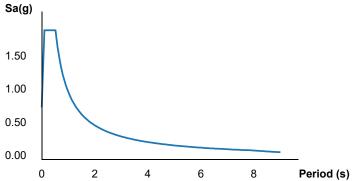
MCER Horizontal Response Spectrum



1668 ft

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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.907	MCE _R ground motion (period=0.2s)
S ₁	1.012	MCE _R ground motion (period=1.0s)
S _{MS}	2.907	Site-modified spectral acceleration value
S _{M1}	1.517	Site-modified spectral acceleration value
S _{DS}	1.938	Numeric seismic design value at 0.2s SA
S _{D1}	1.012	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	0.947	Coefficient of risk (0.2s)

CR ₁	0.965	Coefficient of risk (1.0s)
PGA	1.073	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.073	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.907	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.071	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	1.012	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.048	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.224	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

Disclaimer

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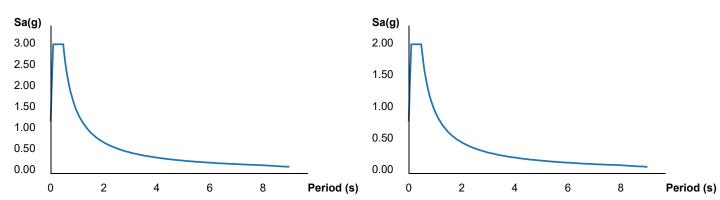
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.36479, -118.53706
Elevation:	1552 ft
Timestamp:	2021-03-05T03:59:58.630Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	3.055	MCE _R ground motion (period=0.2s)
S ₁	0.966	MCE _R ground motion (period=1.0s)
S _{MS}	3.055	Site-modified spectral acceleration value
S _{M1}	1.449	Site-modified spectral acceleration value
S _{DS}	2.037	Numeric seismic design value at 0.2s SA
S _{D1}	0.966	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.925	Coefficient of risk (0.2s)

CR ₁	0.947	Coefficient of risk (1.0s)
PGA	1.147	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.147	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.17	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.426	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.055	Factored deterministic acceleration value (0.2s)
S1RT	1.099	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.161	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.966	Factored deterministic acceleration value (1.0s)
PGAd	1.147	Factored deterministic acceleration value (PGA)

Disclaimer

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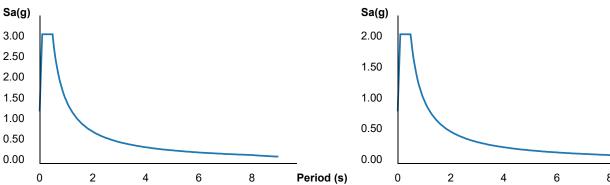


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.35243, -118.5387
Elevation:	1634 ft
Timestamp:	2021-03-05T04:04:18.366Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



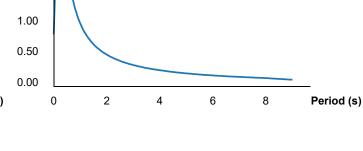
Basic Parameters

Name	Value	Description
SS	3.126	MCE _R ground motion (period=0.2s)
S ₁	1.012	MCE _R ground motion (period=1.0s)
S _{MS}	3.126	Site-modified spectral acceleration value
S _{M1}	1.519	Site-modified spectral acceleration value
S _{DS}	2.084	Numeric seismic design value at 0.2s SA
S _{D1}	1.012	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.919	Coefficient of risk (0.2s)

Design Horizontal Response Spectrum



CR ₁	0.941	Coefficient of risk (1.0s)
PGA	1.187	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.187	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.229	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.513	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.126	Factored deterministic acceleration value (0.2s)
S1RT	1.122	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.192	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.012	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

Disclaimer

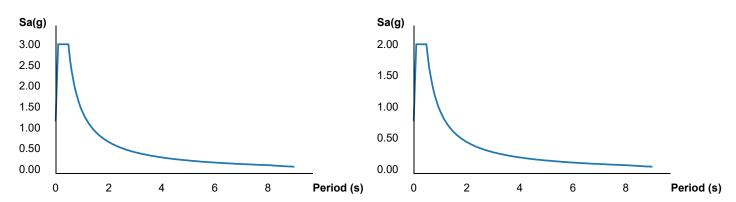
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.



Address:	N Pine St, Orange, CA, USA	
Coordinates:	34.36752, -118.52048	
Elevation:	1460 ft	
Timestamp:	2021-03-05T03:55:58.049Z	
Hazard Type:	Seismic	
Reference Document:	ASCE7-10	
Risk Category:	III	
Site Class:	D	
MCER Horizontal Response Spectrum		



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	3.086	MCE _R ground motion (period=0.2s)
S ₁	0.988	MCE _R ground motion (period=1.0s)
S _{MS}	3.086	Site-modified spectral acceleration value
S _{M1}	1.481	Site-modified spectral acceleration value
S _{DS}	2.057	Numeric seismic design value at 0.2s SA
S _{D1}	0.988	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.926	Coefficient of risk (0.2s)

[100]

CR ₁	0.946	Coefficient of risk (1.0s)
PGA	1.166	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.166	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.174	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.426	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.086	Factored deterministic acceleration value (0.2s)
S1RT	1.108	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.171	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.988	Factored deterministic acceleration value (1.0s)
PGAd	1.166	Factored deterministic acceleration value (PGA)

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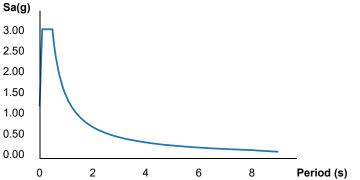


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.35801, -118.54226
Elevation:	1713 ft
Timestamp:	2021-03-05T04:02:39.962Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

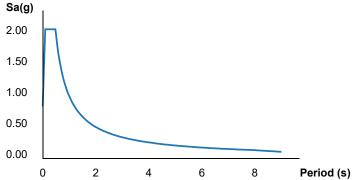


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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	3.106	MCE _R ground motion (period=0.2s)
S ₁	0.995	MCE _R ground motion (period=1.0s)
S _{MS}	3.106	Site-modified spectral acceleration value
S _{M1}	1.492	Site-modified spectral acceleration value
S _{DS}	2.071	Numeric seismic design value at 0.2s SA
S _{D1}	0.995	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.922	Coefficient of risk (0.2s)

CR ₁	0.944	Coefficient of risk (1.0s)
PGA	1.174	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.174	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.198	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.469	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.106	Factored deterministic acceleration value (0.2s)
S1RT	1.108	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.173	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.995	Factored deterministic acceleration value (1.0s)
PGAd	1.174	Factored deterministic acceleration value (PGA)

Disclaimer

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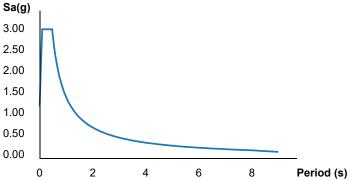


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Elevation:	1555 ft
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Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

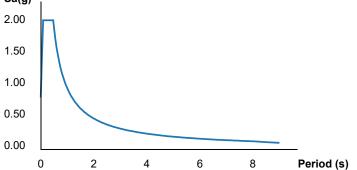


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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	3.065	MCE _R ground motion (period=0.2s)
S ₁	0.965	MCE _R ground motion (period=1.0s)
S _{MS}	3.065	Site-modified spectral acceleration value
S _{M1}	1.447	Site-modified spectral acceleration value
S _{DS}	2.043	Numeric seismic design value at 0.2s SA
S _{D1}	0.965	Numeric seismic design value at 1.0s SA

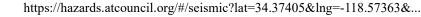
Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.928	Coefficient of risk (0.2s)

CR ₁	0.951	Coefficient of risk (1.0s)
PGA	1.148	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.148	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.138	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.383	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.065	Factored deterministic acceleration value (0.2s)
S1RT	1.082	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.138	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.965	Factored deterministic acceleration value (1.0s)
PGAd	1.148	Factored deterministic acceleration value (PGA)

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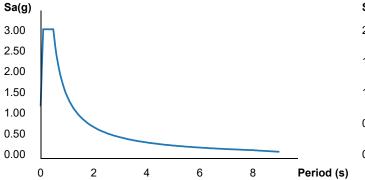


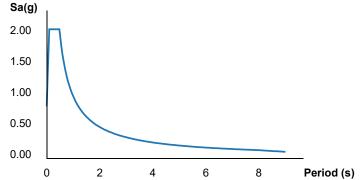
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Coordinates:	34.37405, -118.57363
Elevation:	1693 ft
Timestamp:	2021-03-05T05:21:48.982Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	3.105	MCE _R ground motion (period=0.2s)
S ₁	0.991	MCE _R ground motion (period=1.0s)
S _{MS}	3.105	Site-modified spectral acceleration value
S _{M1}	1.487	Site-modified spectral acceleration value
S _{DS}	2.07	Numeric seismic design value at 0.2s SA
S _{D1}	0.991	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.929	Coefficient of risk (0.2s)

CR ₁	0.951	Coefficient of risk (1.0s)
PGA	1.172	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.172	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.153	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.395	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.105	Factored deterministic acceleration value (0.2s)
S1RT	1.089	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.145	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.991	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

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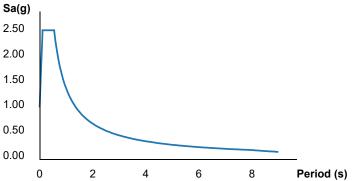


Address:	25112 Rye Canyon Loop
Coordinates:	34.45933, -118.58156
Elevation:	1402 ft
Timestamp:	2021-03-05T05:01:58.635Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 Period (s) 0 2 4 6 8

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
S _S	2.53	MCE _R ground motion (period=0.2s)
S ₁	0.924	MCE _R ground motion (period=1.0s)
S _{MS}	2.53	Site-modified spectral acceleration value
S _{M1}	1.386	Site-modified spectral acceleration value
S _{DS}	1.686	Numeric seismic design value at 0.2s SA
S _{D1}	0.924	Numeric seismic design value at 1.0s SA

Additional Information

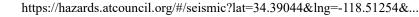
Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.998	Coefficient of risk (0.2s)

[108]

CR ₁	0.997	Coefficient of risk (1.0s)
PGA	0.887	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.887	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.536	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.96	Factored deterministic acceleration value (0.2s)
S1RT	0.924	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.926	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.261	Factored deterministic acceleration value (1.0s)
PGAd	1.151	Factored deterministic acceleration value (PGA)

Disclaimer

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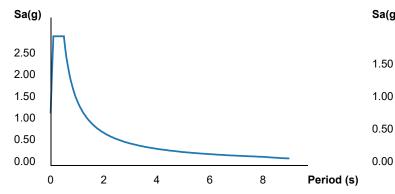


Address:	25198 Karie Lane
Coordinates:	34.39044, -118.51254
Elevation:	1452 ft
Timestamp:	2021-03-05T04:53:29.726Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00

6

8

Period (s)

4

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.961	MCE _R ground motion (period=0.2s)
S ₁	0.985	MCE _R ground motion (period=1.0s)
S _{MS}	2.961	Site-modified spectral acceleration value
S _{M1}	1.477	Site-modified spectral acceleration value
S _{DS}	1.974	Numeric seismic design value at 0.2s SA
S _{D1}	0.985	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
F _v	1.5	Site amplification factor at 1.0s
CR _S	0.935	Coefficient of risk (0.2s)

[110]

0

2

CR ₁	0.956	Coefficient of risk (1.0s)
PGA	1.094	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.094	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.069	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.281	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.961	Factored deterministic acceleration value (0.2s)
S1RT	1.065	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.114	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.985	Factored deterministic acceleration value (1.0s)
PGAd	1.094	Factored deterministic acceleration value (PGA)

Disclaimer

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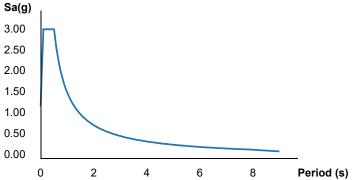


Address:	25774 Oak Meadow Drive
Coordinates:	34.3976, -118.58555
Elevation:	1531 ft
Timestamp:	2021-03-05T05:13:50.309Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 2.00 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	3.07	MCE _R ground motion (period=0.2s)
S ₁	1.043	MCE _R ground motion (period=1.0s)
S _{MS}	3.07	Site-modified spectral acceleration value
S _{M1}	1.564	Site-modified spectral acceleration value
S _{DS}	2.046	Numeric seismic design value at 0.2s SA
S _{D1}	1.043	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.939	Coefficient of risk (0.2s)

[112]

CR ₁	0.964	Coefficient of risk (1.0s)
PGA	1.149	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.149	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.089	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.291	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.07	Factored deterministic acceleration value (0.2s)
S1RT	1.055	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.094	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.043	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

Disclaimer

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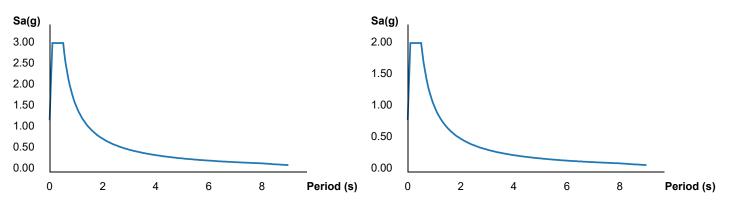
Coordinates:	34.389446676720965, -118.56244267672118
Elevation:	1276 ft
Timestamp:	2021-03-05T05:04:00.419Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	3.062	MCE _R ground motion (period=0.2s)
S ₁	1.04	MCE _R ground motion (period=1.0s)
S _{MS}	3.062	Site-modified spectral acceleration value
S _{M1}	1.561	Site-modified spectral acceleration value
S _{DS}	2.041	Numeric seismic design value at 0.2s SA
S _{D1}	1.04	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.937	Coefficient of risk (0.2s)
CR ₁	0.961	Coefficient of risk (1.0s)

PGA	1.146	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.146	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.062	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.267	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.071	Factored deterministic acceleration value (0.2s)
S1RT	1.051	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.094	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.04	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

Disclaimer

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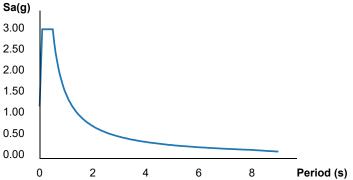


Address:	26024 Kavenaugh Lane
Coordinates:	34.39184, -118.59197
Elevation:	1694 ft
Timestamp:	2021-03-05T05:20:23.018Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 2.00 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	3.047	MCE _R ground motion (period=0.2s)
S ₁	1.004	MCE _R ground motion (period=1.0s)
S _{MS}	3.047	Site-modified spectral acceleration value
S _{M1}	1.506	Site-modified spectral acceleration value
S _{DS}	2.031	Numeric seismic design value at 0.2s SA
S _{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

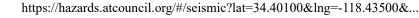
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.935	Coefficient of risk (0.2s)

[116]

CR ₁	0.96	Coefficient of risk (1.0s)
PGA	1.169	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.169	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.127	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.343	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.047	Factored deterministic acceleration value (0.2s)
S1RT	1.071	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.115	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.004	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

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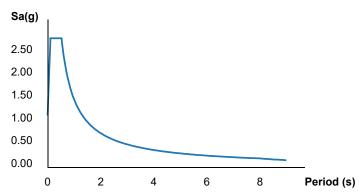


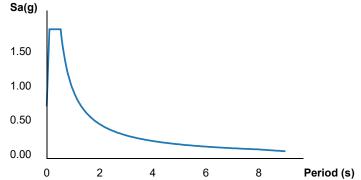
Address:	26833 Cherry Willow Dr
Coordinates:	34.401, -118.435
Elevation:	1822 ft
Timestamp:	2021-03-05T04:50:28.656Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Basic Parameters

Name	Value	Description
SS	2.816	MCE _R ground motion (period=0.2s)
S ₁	0.983	MCE _R ground motion (period=1.0s)
S _{MS}	2.816	Site-modified spectral acceleration value
S _{M1}	1.475	Site-modified spectral acceleration value
S _{DS}	1.877	Numeric seismic design value at 0.2s SA
S _{D1}	0.983	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.95	Coefficient of risk (0.2s)

Design Horizontal Response Spectrum

CR ₁	0.969	Coefficient of risk (1.0s)
PGA	1.037	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.037	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.816	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.965	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.013	Factored deterministic acceleration value (0.2s)
S1RT	0.983	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.015	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.18	Factored deterministic acceleration value (1.0s)
PGAd	1.171	Factored deterministic acceleration value (PGA)

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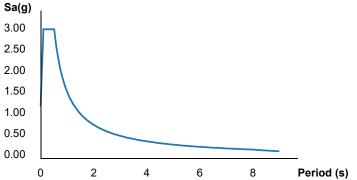


Address:	26975 Westridge Pkwy Valencia
Coordinates:	34.40646, -118.59633
Elevation:	1403 ft
Timestamp:	2021-03-05T04:59:29.113Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 2.00 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	3.053	MCE _R ground motion (period=0.2s)
S ₁	1.045	MCE _R ground motion (period=1.0s)
S _{MS}	3.053	Site-modified spectral acceleration value
S _{M1}	1.567	Site-modified spectral acceleration value
S _{DS}	2.035	Numeric seismic design value at 0.2s SA
S _{D1}	1.045	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.945	Coefficient of risk (0.2s)

[120]

CR ₁	0.968	Coefficient of risk (1.0s)
PGA	1.125	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.125	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.053	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.23	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.078	Factored deterministic acceleration value (0.2s)
S1RT	1.045	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.079	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.069	Factored deterministic acceleration value (1.0s)
PGAd	1.193	Factored deterministic acceleration value (PGA)

Disclaimer

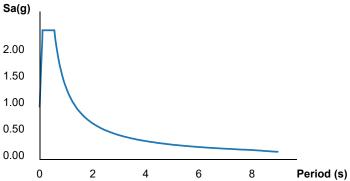
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.



Address:	28400 Copper Hill Saugus
Coordinates:	34.46276, -118.54011
Elevation:	1508 ft
Timestamp:	2021-03-05T05:09:59.697Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.423	MCE _R ground motion (period=0.2s)
S ₁	0.892	MCE _R ground motion (period=1.0s)
S _{MS}	2.423	Site-modified spectral acceleration value
S _{M1}	1.338	Site-modified spectral acceleration value
S _{DS}	1.615	Numeric seismic design value at 0.2s SA
S _{D1}	0.892	Numeric seismic design value at 1.0s SA

Additional Information

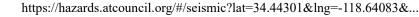
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.002	Coefficient of risk (0.2s)

[122]

CR ₁	1.004	Coefficient of risk (1.0s)
PGA	0.855	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.855	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.423	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.419	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.005	Factored deterministic acceleration value (0.2s)
S1RT	0.892	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.888	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.15	Factored deterministic acceleration value (1.0s)
PGAd	1.166	Factored deterministic acceleration value (PGA)

Disclaimer

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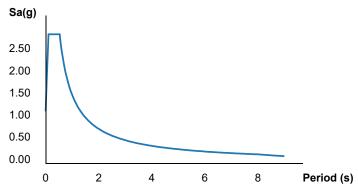


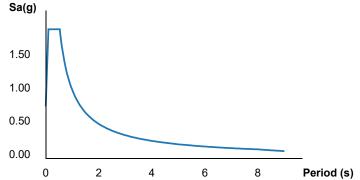
Address:	28636 Livingston Ave
Coordinates:	34.44301, -118.64083
Elevation:	1409 ft
Timestamp:	2021-03-05T05:08:35.378Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
S _S	2.899	MCE _R ground motion (period=0.2s)
S ₁	1.022	MCE _R ground motion (period=1.0s)
S _{MS}	2.899	Site-modified spectral acceleration value
S _{M1}	1.533	Site-modified spectral acceleration value
S _{DS}	1.933	Numeric seismic design value at 0.2s SA
S _{D1}	1.022	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.975	Coefficient of risk (0.2s)

[124]

CR ₁	0.987	Coefficient of risk (1.0s)
PGA	1.031	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.031	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.899	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.973	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	1.022	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.035	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.141	Factored deterministic acceleration value (1.0s)
PGAd	1.17	Factored deterministic acceleration value (PGA)

Disclaimer

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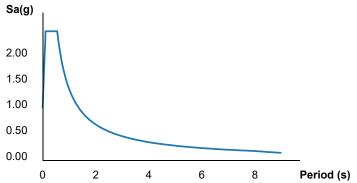


Address:	28820 Bellows CT
Coordinates:	34.46251, -118.57125
Elevation:	1523 ft
Timestamp:	2021-03-05T05:11:45.366Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

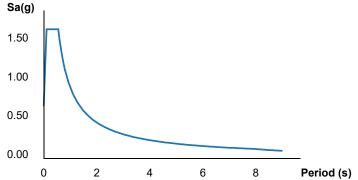
1523 ft

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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.485	MCE _R ground motion (period=0.2s)
S ₁	0.912	MCE _R ground motion (period=1.0s)
S _{MS}	2.485	Site-modified spectral acceleration value
S _{M1}	1.368	Site-modified spectral acceleration value
S _{DS}	1.657	Numeric seismic design value at 0.2s SA
S _{D1}	0.912	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	1	Coefficient of risk (0.2s)

CR ₁	1	Coefficient of risk (1.0s)
PGA	0.873	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.873	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.485	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.484	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.013	Factored deterministic acceleration value (0.2s)
S1RT	0.912	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.912	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.251	Factored deterministic acceleration value (1.0s)
PGAd	1.174	Factored deterministic acceleration value (PGA)

Disclaimer

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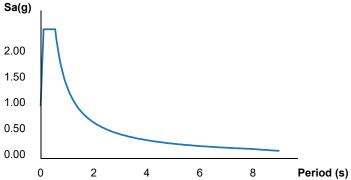


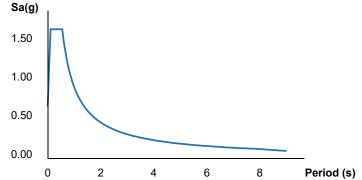
Address:	28834 Bellows Ct
Coordinates:	34.46299, -118.57431
Elevation:	1620 ft
Timestamp:	2021-03-05T05:22:43.199Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.489	MCE _R ground motion (period=0.2s)
S ₁	0.913	MCE _R ground motion (period=1.0s)
S _{MS}	2.489	Site-modified spectral acceleration value
S _{M1}	1.37	Site-modified spectral acceleration value
S _{DS}	1.66	Numeric seismic design value at 0.2s SA
S _{D1}	0.913	Numeric seismic design value at 1.0s SA

Additional Information

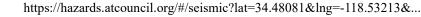
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.001	Coefficient of risk (0.2s)

[128]

CR ₁	1	Coefficient of risk (1.0s)
PGA	0.874	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.874	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.489	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.488	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.01	Factored deterministic acceleration value (0.2s)
S1RT	0.913	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.913	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.257	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

Disclaimer

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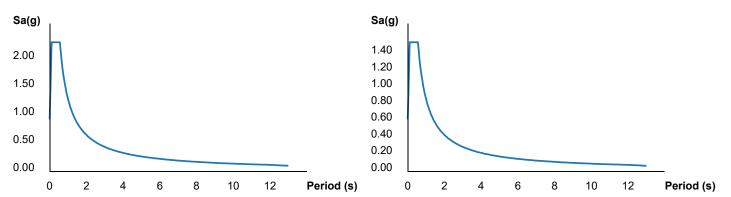
Address:	209238 Black Pine Way
Coordinates:	34.48081, -118.53213
Elevation:	1685 ft
Timestamp:	2021-03-05T05:18:49.049Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.299	MCE _R ground motion (period=0.2s)
S ₁	0.857	MCE _R ground motion (period=1.0s)
S _{MS}	2.299	Site-modified spectral acceleration value
S _{M1}	1.285	Site-modified spectral acceleration value
S _{DS}	1.533	Numeric seismic design value at 0.2s SA
S _{D1}	0.857	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.019	Coefficient of risk (0.2s)

[130]

CR ₁	1.016	Coefficient of risk (1.0s)
PGA	0.807	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.807	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.299	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.256	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.948	Factored deterministic acceleration value (0.2s)
S1RT	0.857	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.843	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.061	Factored deterministic acceleration value (1.0s)
PGAd	1.131	Factored deterministic acceleration value (PGA)

Disclaimer

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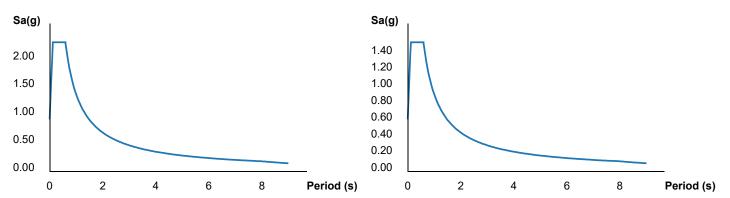
Address:	30016 Hamlet Way, Castaic, CA 91384, USA
Coordinates:	34.46341, -118.62582
Elevation:	1408 ft
Timestamp:	2021-03-05T05:07:32.495Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Basic Parameters

Name	Value	Description
SS	2.304	MCE _R ground motion (period=0.2s)
S ₁	0.915	MCE _R ground motion (period=1.0s)
S _{MS}	2.304	Site-modified spectral acceleration value
S _{M1}	1.373	Site-modified spectral acceleration value
S _{DS}	1.536	Numeric seismic design value at 0.2s SA
S _{D1}	0.915	Numeric seismic design value at 1.0s SA

Additional Information

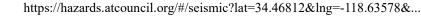
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.996	Coefficient of risk (0.2s)

[132]

CR ₁	0.998	Coefficient of risk (1.0s)
PGA	0.879	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.879	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.649	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.66	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.304	Factored deterministic acceleration value (0.2s)
S1RT	0.958	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.959	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.915	Factored deterministic acceleration value (1.0s)
PGAd	0.879	Factored deterministic acceleration value (PGA)

Disclaimer

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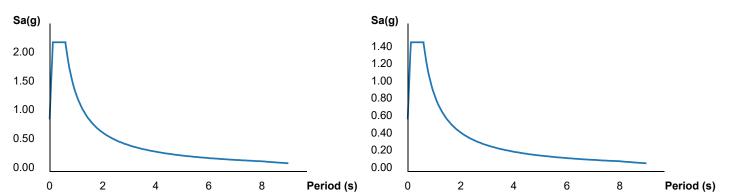
Address:	30400 Vineyard LAne
Coordinates:	34.46812, -118.63578
Elevation:	1630 ft
Timestamp:	2021-03-05T05:17:07.165Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	Ш
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S _S	2.228	MCE _R ground motion (period=0.2s)
S ₁	0.885	MCE _R ground motion (period=1.0s)
S _{MS}	2.228	Site-modified spectral acceleration value
S _{M1}	1.327	Site-modified spectral acceleration value
S _{DS}	1.485	Numeric seismic design value at 0.2s SA
S _{D1}	0.885	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.999	Coefficient of risk (0.2s)

[134]

CR ₁	1.001	Coefficient of risk (1.0s)
PGA	0.849	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.849	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.646	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.65	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.228	Factored deterministic acceleration value (0.2s)
S1RT	0.958	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.957	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.885	Factored deterministic acceleration value (1.0s)
PGAd	0.849	Factored deterministic acceleration value (PGA)

Disclaimer

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Sa(g)

2.00

1.50

1.00

0.50

0.00

0



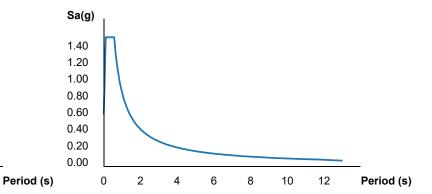
Search Information

Address:	N Pine St, Orange, CA, USA
Coordinates:	34.51362, -118.63064
Elevation:	1631 ft
Timestamp:	2021-03-05T04:06:03.046Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	Ш
Site Class:	D
MCER Horizontal Response Spectru	



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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum

Basic Parameters

2

4

6

8

10

12

Name	Value	Description
SS	2.314	MCE _R ground motion (period=0.2s)
S ₁	0.881	MCE _R ground motion (period=1.0s)
S _{MS}	2.314	Site-modified spectral acceleration value
S _{M1}	1.321	Site-modified spectral acceleration value
S _{DS}	1.543	Numeric seismic design value at 0.2s SA
S _{D1}	0.881	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.029	Coefficient of risk (0.2s)

CR ₁	1.017	Coefficient of risk (1.0s)
PGA	0.805	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.805	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.314	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.248	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.007	Factored deterministic acceleration value (0.2s)
S1RT	0.881	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.866	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.263	Factored deterministic acceleration value (1.0s)
PGAd	1.171	Factored deterministic acceleration value (PGA)

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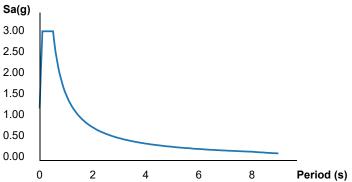


Address:	Access Road at Oakview Estates Drive
Coordinates:	34.3949, -118.58269
Elevation:	1533 ft
Timestamp:	2021-03-05T05:12:47.247Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 2.00 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	3.065	MCE _R ground motion (period=0.2s)
S ₁	1.034	MCE _R ground motion (period=1.0s)
S _{MS}	3.065	Site-modified spectral acceleration value
S _{M1}	1.551	Site-modified spectral acceleration value
S _{DS}	2.043	Numeric seismic design value at 0.2s SA
S _{D1}	1.034	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.938	Coefficient of risk (0.2s)

[138]

CR ₁	0.962	Coefficient of risk (1.0s)
PGA	1.153	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.153	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	3.091	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.296	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.065	Factored deterministic acceleration value (0.2s)
S1RT	1.057	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.099	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.034	Factored deterministic acceleration value (1.0s)
PGAd	1.184	Factored deterministic acceleration value (PGA)

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1276 ft

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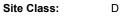
USDA Farm Service Agency

Period (s)

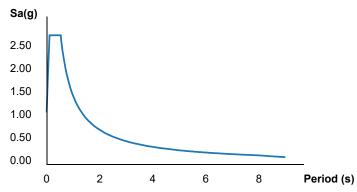


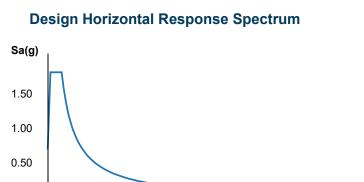
Search Information

Address:	Anza Drive, Valencia, CA
Coordinates:	34.4293, -118.58067
Elevation:	1276 ft
Timestamp:	2021-03-05T04:57:13.901Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	Ш



MCER Horizontal Response Spectrum





6

8

Basic Parameters

Name	Value	Description
SS	2.793	MCE _R ground motion (period=0.2s)
S ₁	0.984	MCE _R ground motion (period=1.0s)
S _{MS}	2.793	Site-modified spectral acceleration value
S _{M1}	1.475	Site-modified spectral acceleration value
S _{DS}	1.862	Numeric seismic design value at 0.2s SA
S _{D1}	0.984	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.97	Coefficient of risk (0.2s)

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0

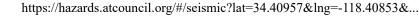
2

4

CR ₁	0.981	Coefficient of risk (1.0s)
PGA	1.003	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.003	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.793	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.88	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.918	Factored deterministic acceleration value (0.2s)
S1RT	0.984	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.002	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.12	Factored deterministic acceleration value (1.0s)
PGAd	1.128	Factored deterministic acceleration value (PGA)

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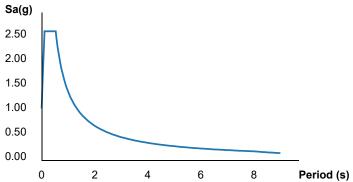


Address:	Appaloosa Rd
Coordinates:	34.40957, -118.40853
Elevation:	1753 ft
Timestamp:	2021-03-05T04:38:20.109Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

1753 ft 1753 ft Description of the second se

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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.62	MCE _R ground motion (period=0.2s)
S ₁	0.926	MCE _R ground motion (period=1.0s)
S _{MS}	2.62	Site-modified spectral acceleration value
S _{M1}	1.389	Site-modified spectral acceleration value
S _{DS}	1.746	Numeric seismic design value at 0.2s SA
S _{D1}	0.926	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.963	Coefficient of risk (0.2s)

[142]

CR ₁	0.982	Coefficient of risk (1.0s)
PGA	0.956	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.956	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.62	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.721	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.968	Factored deterministic acceleration value (0.2s)
S1RT	0.926	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.942	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.086	Factored deterministic acceleration value (1.0s)
PGAd	1.143	Factored deterministic acceleration value (PGA)

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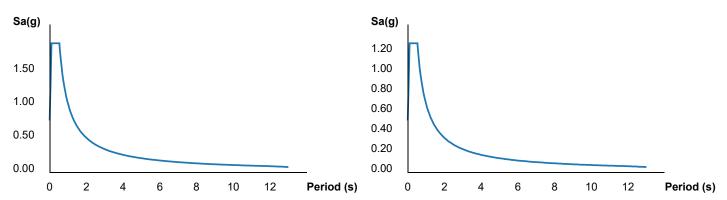
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Coordinates:	34.47829, -118.40689
Elevation:	2087 ft
Timestamp:	2021-03-05T04:21:27.552Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	1.928	MCE _R ground motion (period=0.2s)
S ₁	0.681	MCE _R ground motion (period=1.0s)
S _{MS}	1.928	Site-modified spectral acceleration value
S _{M1}	1.021	Site-modified spectral acceleration value
S _{DS}	1.286	Numeric seismic design value at 0.2s SA
S _{D1}	0.681	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.037	Coefficient of risk (0.2s)

[144]

CR ₁	1.023	Coefficient of risk (1.0s)
PGA	0.718	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.718	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.118	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.043	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.928	Factored deterministic acceleration value (0.2s)
S1RT	0.81	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.792	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.681	Factored deterministic acceleration value (1.0s)
PGAd	0.718	Factored deterministic acceleration value (PGA)

Disclaimer

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Site Class:



Search Information

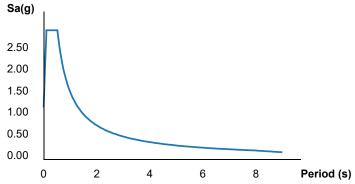
Address:	Avenue of The Oaks
Coordinates:	34.40261, -118.48959
Elevation:	1670 ft
Timestamp:	2021-03-05T04:44:12.292Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	Ш

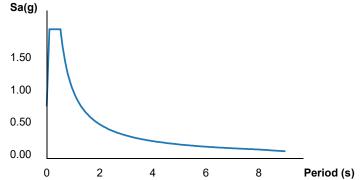
D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.979	MCE _R ground motion (period=0.2s)
S ₁	1.035	MCE _R ground motion (period=1.0s)
S _{MS}	2.979	Site-modified spectral acceleration value
S _{M1}	1.552	Site-modified spectral acceleration value
S _{DS}	1.986	Numeric seismic design value at 0.2s SA
S _{D1}	1.035	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.942	Coefficient of risk (0.2s)

[146]

CR ₁	0.962	Coefficient of risk (1.0s)
PGA	1.105	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.105	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.979	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.162	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.005	Factored deterministic acceleration value (0.2s)
S1RT	1.035	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.075	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.269	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

Disclaimer

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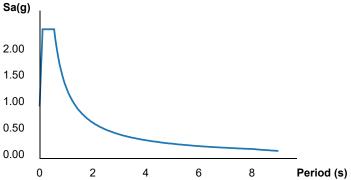


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.45818, -118.52358
Elevation:	1610 ft
Timestamp:	2021-03-05T04:25:30.403Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
S _S	2.433	MCE _R ground motion (period=0.2s)
S ₁	0.89	MCE _R ground motion (period=1.0s)
S _{MS}	2.433	Site-modified spectral acceleration value
S _{M1}	1.334	Site-modified spectral acceleration value
S _{DS}	1.622	Numeric seismic design value at 0.2s SA
S _{D1}	0.89	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.998	Coefficient of risk (0.2s)

[148]

CR ₁	1.004	Coefficient of risk (1.0s)
PGA	0.858	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.858	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.433	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.437	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.993	Factored deterministic acceleration value (0.2s)
S1RT	0.89	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.886	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.122	Factored deterministic acceleration value (1.0s)
PGAd	1.157	Factored deterministic acceleration value (PGA)

Disclaimer

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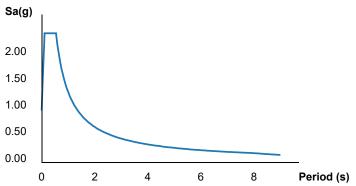


Address:	Benison Dr
Coordinates:	34.45475, -118.47522
Elevation:	2019 ft
Timestamp:	2021-03-05T04:49:23.613Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D
MCEP Harizantal Pasnanas Speatr	

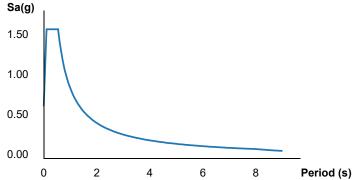


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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.406	MCE _R ground motion (period=0.2s)
S ₁	0.872	MCE _R ground motion (period=1.0s)
S _{MS}	2.406	Site-modified spectral acceleration value
S _{M1}	1.307	Site-modified spectral acceleration value
S _{DS}	1.604	Numeric seismic design value at 0.2s SA
S _{D1}	0.872	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.996	Coefficient of risk (0.2s)

CR ₁	1.006	Coefficient of risk (1.0s)
PGA	0.845	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.845	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.406	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.417	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.905	Factored deterministic acceleration value (0.2s)
S1RT	0.872	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.866	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.022	Factored deterministic acceleration value (1.0s)
PGAd	1.107	Factored deterministic acceleration value (PGA)

Disclaimer

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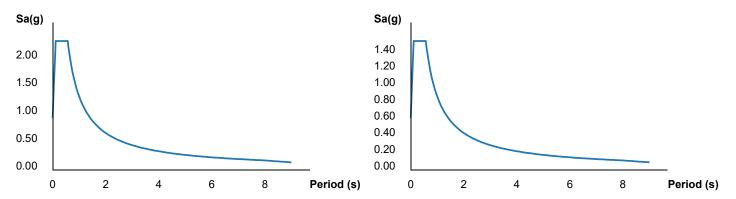
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Elevation:	1441 ft
Timestamp:	2021-03-29T18:23:23.628Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.311	MCE _R ground motion (period=0.2s)
S ₁	0.876	MCE _R ground motion (period=1.0s)
S _{MS}	2.311	Site-modified spectral acceleration value
S _{M1}	1.315	Site-modified spectral acceleration value
S _{DS}	1.541	Numeric seismic design value at 0.2s SA
S _{D1}	0.876	Numeric seismic design value at 1.0s SA

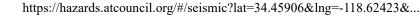
Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.024	Coefficient of risk (0.2s)
CR ₁	1.014	Coefficient of risk (1.0s)

PGA	0.812	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.812	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.311	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.257	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	0.876	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.864	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.23	Factored deterministic acceleration value (1.0s)
PGAd	1.176	Factored deterministic acceleration value (PGA)

Disclaimer

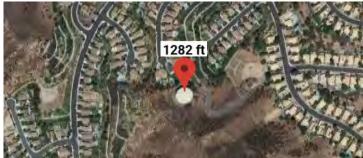
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.





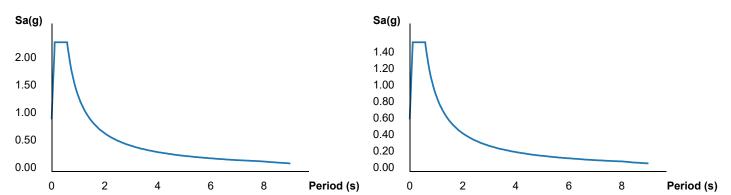
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Coordinates:	34.45906, -118.62423
Elevation:	1282 ft
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Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.341	MCE _R ground motion (period=0.2s)
S ₁	0.912	MCE _R ground motion (period=1.0s)
S _{MS}	2.341	Site-modified spectral acceleration value
S _{M1}	1.368	Site-modified spectral acceleration value
S _{DS}	1.561	Numeric seismic design value at 0.2s SA
S _{D1}	0.912	Numeric seismic design value at 1.0s SA

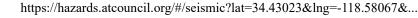
Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.993	Coefficient of risk (0.2s)

CR ₁	0.996	Coefficient of risk (1.0s)
PGA	0.891	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.891	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.679	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.699	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.341	Factored deterministic acceleration value (0.2s)
S1RT	0.965	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.969	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.912	Factored deterministic acceleration value (1.0s)
PGAd	0.891	Factored deterministic acceleration value (PGA)

Disclaimer

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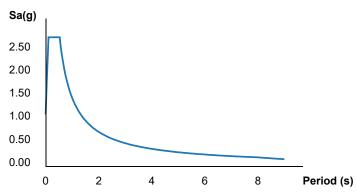


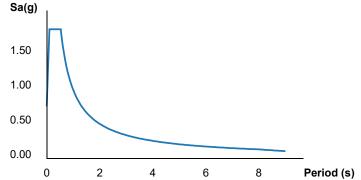
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Coordinates:	34.43023, -118.58067
Elevation:	1230 ft
Timestamp:	2021-03-05T04:58:17.886Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D
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MCER Horizontal Response Spectrum





Basic Parameters

Name	Value	Description
SS	2.784	MCE _R ground motion (period=0.2s)
S ₁	0.981	MCE _R ground motion (period=1.0s)
S _{MS}	2.784	Site-modified spectral acceleration value
S _{M1}	1.472	Site-modified spectral acceleration value
S _{DS}	1.856	Numeric seismic design value at 0.2s SA
S _{D1}	0.981	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.971	Coefficient of risk (0.2s)

Design Horizontal Response Spectrum

CR ₁	0.982	Coefficient of risk (1.0s)
PGA	0.999	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.999	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.784	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.868	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.897	Factored deterministic acceleration value (0.2s)
S1RT	0.981	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.116	Factored deterministic acceleration value (1.0s)
PGAd	1.12	Factored deterministic acceleration value (PGA)

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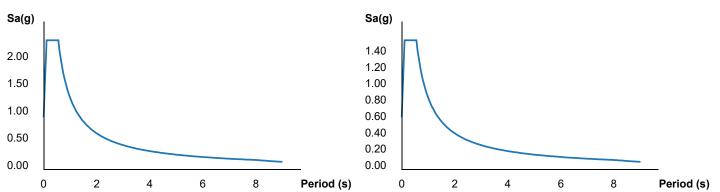


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.46892, -118.51875
Elevation:	1827 ft
Timestamp:	2021-03-05T04:26:43.552Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.36	MCE _R ground motion (period=0.2s)
S ₁	0.869	MCE _R ground motion (period=1.0s)
S _{MS}	2.36	Site-modified spectral acceleration value
S _{M1}	1.304	Site-modified spectral acceleration value
S _{DS}	1.573	Numeric seismic design value at 0.2s SA
S _{D1}	0.869	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	1.009	Coefficient of risk (0.2s)

Design Horizontal Response Spectrum

CR ₁	1.011	Coefficient of risk (1.0s)
PGA	0.829	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.829	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.36	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.339	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.952	Factored deterministic acceleration value (0.2s)
S1RT	0.869	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.86	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.064	Factored deterministic acceleration value (1.0s)
PGAd	1.133	Factored deterministic acceleration value (PGA)

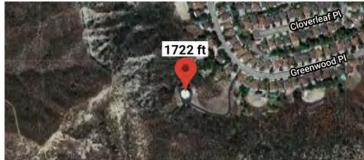
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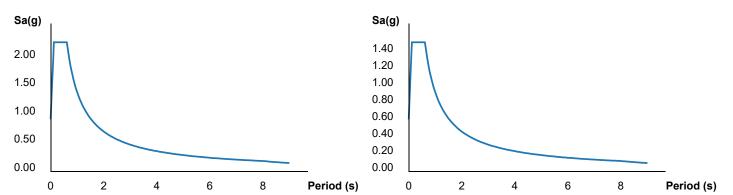
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Coordinates:	34.48329, -118.63962
Elevation:	1722 ft
Timestamp:	2021-03-05T04:13:11.309Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.271	MCE _R ground motion (period=0.2s)
S ₁	0.927	MCE _R ground motion (period=1.0s)
S _{MS}	2.271	Site-modified spectral acceleration value
S _{M1}	1.39	Site-modified spectral acceleration value
S _{DS}	1.514	Numeric seismic design value at 0.2s SA
S _{D1}	0.927	Numeric seismic design value at 1.0s SA

Additional Information

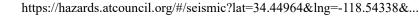
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.012	Coefficient of risk (0.2s)

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CR ₁	1.01	Coefficient of risk (1.0s)
PGA	0.872	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.872	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.515	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.485	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.271	Factored deterministic acceleration value (0.2s)
S1RT	0.927	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.917	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.948	Factored deterministic acceleration value (1.0s)
PGAd	0.872	Factored deterministic acceleration value (PGA)

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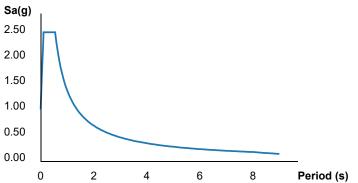


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Elevation:	1402 ft
Timestamp:	2021-03-05T05:00:37.308Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

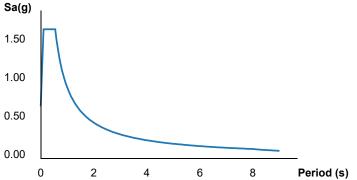


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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.508	MCE _R ground motion (period=0.2s)
S ₁	0.917	MCE _R ground motion (period=1.0s)
S _{MS}	2.508	Site-modified spectral acceleration value
S _{M1}	1.375	Site-modified spectral acceleration value
S _{DS}	1.672	Numeric seismic design value at 0.2s SA
S _{D1}	0.917	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	0.99	Coefficient of risk (0.2s)

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CR ₁	0.996	Coefficient of risk (1.0s)
PGA	0.889	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.889	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.508	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.534	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.018	Factored deterministic acceleration value (0.2s)
S1RT	0.917	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.92	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.213	Factored deterministic acceleration value (1.0s)
PGAd	1.176	Factored deterministic acceleration value (PGA)

Disclaimer

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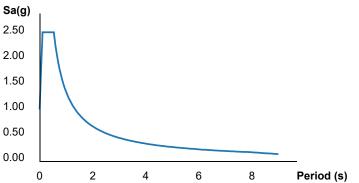


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Coordinates:	34.44116, -118.46717
Elevation:	1824 ft
Timestamp:	2021-03-05T04:29:21.407Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

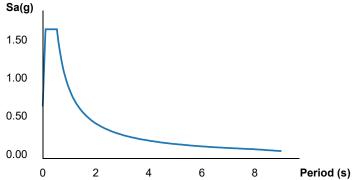


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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.525	MCE _R ground motion (period=0.2s)
S ₁	0.903	MCE _R ground motion (period=1.0s)
S _{MS}	2.525	Site-modified spectral acceleration value
S _{M1}	1.354	Site-modified spectral acceleration value
S _{DS}	1.683	Numeric seismic design value at 0.2s SA
S _{D1}	0.903	Numeric seismic design value at 1.0s SA

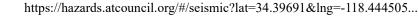
Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.982	Coefficient of risk (0.2s)

CR ₁	0.997	Coefficient of risk (1.0s)
PGA	0.896	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.896	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.525	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.572	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.944	Factored deterministic acceleration value (0.2s)
S1RT	0.903	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.906	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.056	Factored deterministic acceleration value (1.0s)
PGAd	1.128	Factored deterministic acceleration value (PGA)

Disclaimer

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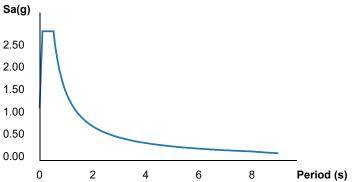


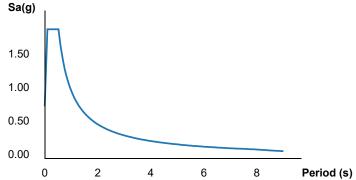
Address:	17705 Heron Lane
Coordinates:	34.39691, -118.444505
Elevation:	1770 ft
Timestamp:	2021-03-05T04:35:15.866Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum Design Horizontal Response Spectrum





Basic Parameters

Name	Value	Description
S _S	2.881	MCE _R ground motion (period=0.2s)
S ₁	1.004	MCE _R ground motion (period=1.0s)
S _{MS}	2.881	Site-modified spectral acceleration value
S _{M1}	1.505	Site-modified spectral acceleration value
S _{DS}	1.921	Numeric seismic design value at 0.2s SA
S _{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.947	Coefficient of risk (0.2s)

[166]

CR ₁	0.965	Coefficient of risk (1.0s)
PGA	1.064	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.064	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.881	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.044	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.024	Factored deterministic acceleration value (0.2s)
S1RT	1.004	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.04	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.217	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

Disclaimer

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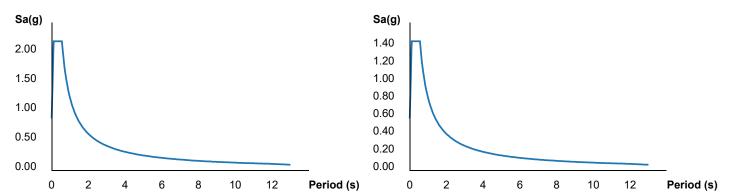
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.45456, -118.39626
Elevation:	2103 ft
Timestamp:	2021-03-05T04:18:31.170Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.191	MCE _R ground motion (period=0.2s)
S ₁	0.818	MCE _R ground motion (period=1.0s)
S _{MS}	2.191	Site-modified spectral acceleration value
S _{M1}	1.227	Site-modified spectral acceleration value
S _{DS}	1.461	Numeric seismic design value at 0.2s SA
S _{D1}	0.818	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.019	Coefficient of risk (0.2s)

[168]

CR ₁	1.022	Coefficient of risk (1.0s)
PGA	0.767	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.767	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.191	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.151	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.366	Factored deterministic acceleration value (0.2s)
S1RT	0.818	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.801	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.819	Factored deterministic acceleration value (1.0s)
PGAd	0.879	Factored deterministic acceleration value (PGA)

Disclaimer

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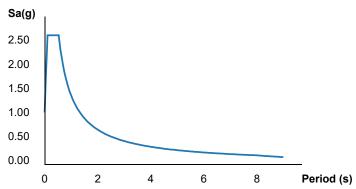


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Coordinates:	34.43109, -118.49236
Elevation:	1512 ft
Timestamp:	2021-03-05T04:31:17.511Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.672	MCE _R ground motion (period=0.2s)
S ₁	0.947	MCE _R ground motion (period=1.0s)
S _{MS}	2.672	Site-modified spectral acceleration value
S _{M1}	1.421	Site-modified spectral acceleration value
S _{DS}	1.781	Numeric seismic design value at 0.2s SA
S _{D1}	0.947	Numeric seismic design value at 1.0s SA

Additional Information

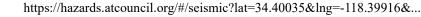
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
F _v	1.5	Site amplification factor at 1.0s
CR _S	0.971	Coefficient of risk (0.2s)

[170]

CR ₁	0.986	Coefficient of risk (1.0s)
PGA	0.961	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.961	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.672	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.752	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.01	Factored deterministic acceleration value (0.2s)
S1RT	0.947	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.96	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.163	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.



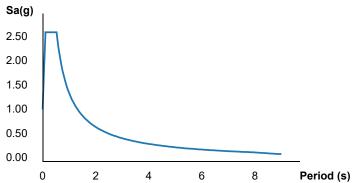


Address:	Live Oak Springs Cyn Rd
Coordinates:	34.40035, -118.39916
Elevation:	1949 ft
Timestamp:	2021-03-05T04:43:11.961Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

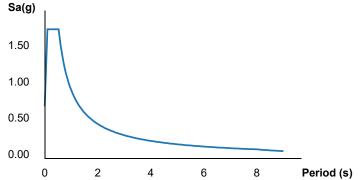
1949 ft

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MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.653	MCE _R ground motion (period=0.2s)
S ₁	0.932	MCE _R ground motion (period=1.0s)
S _{MS}	2.653	Site-modified spectral acceleration value
S _{M1}	1.399	Site-modified spectral acceleration value
S _{DS}	1.769	Numeric seismic design value at 0.2s SA
S _{D1}	0.932	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.954	Coefficient of risk (0.2s)

CR ₁	0.976	Coefficient of risk (1.0s)
PGA	0.977	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.977	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.653	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.782	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.986	Factored deterministic acceleration value (0.2s)
S1RT	0.932	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.955	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.115	Factored deterministic acceleration value (1.0s)
PGAd	1.154	Factored deterministic acceleration value (PGA)

Disclaimer

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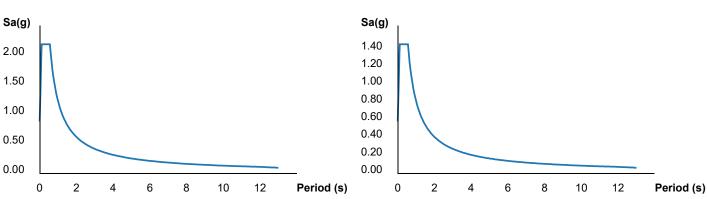
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.44763, -118.38085
Elevation:	2254 ft
Timestamp:	2021-03-05T04:19:35.515Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

2.00

1.50

1.00

0.50

0.00

Name	Value	Description
SS	2.184	MCE _R ground motion (period=0.2s)
S ₁	0.815	MCE _R ground motion (period=1.0s)
S _{MS}	2.184	Site-modified spectral acceleration value
S _{M1}	1.222	Site-modified spectral acceleration value
S _{DS}	1.456	Numeric seismic design value at 0.2s SA
S _{D1}	0.815	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.021	Coefficient of risk (0.2s)

[174]

CR ₁	1.022	Coefficient of risk (1.0s)
PGA	0.763	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.763	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.184	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.14	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.384	Factored deterministic acceleration value (0.2s)
S1RT	0.815	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.798	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.825	Factored deterministic acceleration value (1.0s)
PGAd	0.885	Factored deterministic acceleration value (PGA)

Disclaimer

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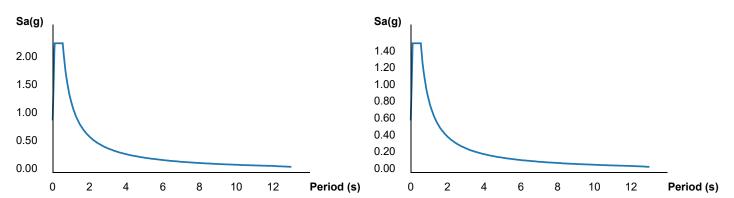
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.44483, -118.40689
Elevation:	2051 ft
Timestamp:	2021-03-05T04:20:38.580Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum

Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.297	MCE _R ground motion (period=0.2s)
S ₁	0.842	MCE _R ground motion (period=1.0s)
S _{MS}	2.297	Site-modified spectral acceleration value
S _{M1}	1.263	Site-modified spectral acceleration value
S _{DS}	1.531	Numeric seismic design value at 0.2s SA
S _{D1}	0.842	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.004	Coefficient of risk (0.2s)

CR ₁	1.014	Coefficient of risk (1.0s)
PGA	0.81	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.81	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.297	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.288	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.705	Factored deterministic acceleration value (0.2s)
S1RT	0.842	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.831	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.925	Factored deterministic acceleration value (1.0s)
PGAd	1.015	Factored deterministic acceleration value (PGA)

Disclaimer

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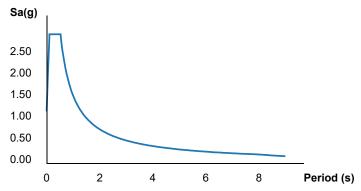


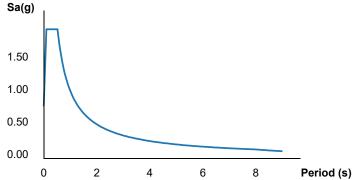
Address:	Oakl Crest Dr
Coordinates:	34.38585, -118.45845
Elevation:	1960 ft
Timestamp:	2021-03-05T04:47:45.298Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.973	MCE _R ground motion (period=0.2s)
S ₁	1.035	MCE _R ground motion (period=1.0s)
S _{MS}	2.973	Site-modified spectral acceleration value
S _{M1}	1.553	Site-modified spectral acceleration value
S _{DS}	1.982	Numeric seismic design value at 0.2s SA
S _{D1}	1.035	Numeric seismic design value at 1.0s SA

Additional Information

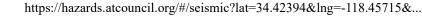
Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.941	Coefficient of risk (0.2s)

[178]

CR ₁	0.96	Coefficient of risk (1.0s)
PGA	1.105	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.105	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.973	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.159	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.997	Factored deterministic acceleration value (0.2s)
S1RT	1.035	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.078	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.244	Factored deterministic acceleration value (1.0s)
PGAd	1.14	Factored deterministic acceleration value (PGA)

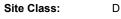
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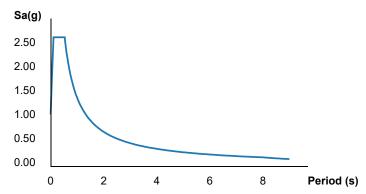




Address:	18501 Olympian Ct
Coordinates:	34.42394, -118.45715
Elevation:	1749 ft
Timestamp:	2021-03-05T04:33:12.331Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III



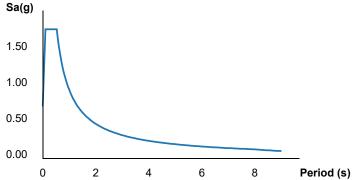
MCER Horizontal Response Spectrum



1749 ft

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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.686	MCE _R ground motion (period=0.2s)
S ₁	0.948	MCE _R ground motion (period=1.0s)
S _{MS}	2.686	Site-modified spectral acceleration value
S _{M1}	1.422	Site-modified spectral acceleration value
S _{DS}	1.791	Numeric seismic design value at 0.2s SA
S _{D1}	0.948	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.967	Coefficient of risk (0.2s)

CR ₁	0.984	Coefficient of risk (1.0s)
PGA	0.969	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.969	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.686	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.779	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.983	Factored deterministic acceleration value (0.2s)
S1RT	0.948	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.964	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.109	Factored deterministic acceleration value (1.0s)
PGAd	1.152	Factored deterministic acceleration value (PGA)

Disclaimer

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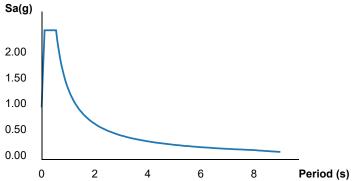


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.44958, -118.52516
Elevation:	1616 ft
Timestamp:	2021-03-05T04:23:39.915Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.489	MCE _R ground motion (period=0.2s)
S ₁	0.905	MCE _R ground motion (period=1.0s)
S _{MS}	2.489	Site-modified spectral acceleration value
S _{M1}	1.357	Site-modified spectral acceleration value
S _{DS}	1.659	Numeric seismic design value at 0.2s SA
S _{D1}	0.905	Numeric seismic design value at 1.0s SA

Additional Information

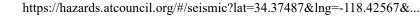
Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.99	Coefficient of risk (0.2s)

[182]

CR ₁	0.998	Coefficient of risk (1.0s)
PGA	0.88	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.88	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.489	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.514	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.011	Factored deterministic acceleration value (0.2s)
S1RT	0.905	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.906	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.165	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

Disclaimer

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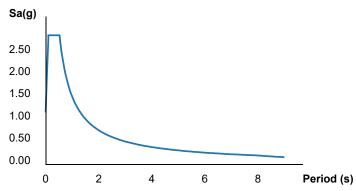


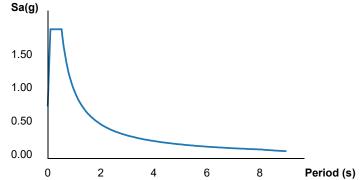
Address:	Pacerita Canyon Rd
Coordinates:	34.37487, -118.42567
Elevation:	2046 ft
Timestamp:	2021-03-05T04:40:52.877Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

2046 ft

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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
S _S	2.892	MCE _R ground motion (period=0.2s)
S ₁	1.009	MCE _R ground motion (period=1.0s)
S _{MS}	2.892	Site-modified spectral acceleration value
S _{M1}	1.513	Site-modified spectral acceleration value
S _{DS}	1.928	Numeric seismic design value at 0.2s SA
S _{D1}	1.009	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CRS	0.94	Coefficient of risk (0.2s)

[184]

CR ₁	0.961	Coefficient of risk (1.0s)
PGA	1.081	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.081	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.892	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.075	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.251	Factored deterministic acceleration value (0.2s)
S1RT	1.009	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.05	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.261	Factored deterministic acceleration value (1.0s)
PGAd	1.189	Factored deterministic acceleration value (PGA)

Disclaimer

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Sa(g)

2.00

1.50

1.00

0.50

0.00



Search Information

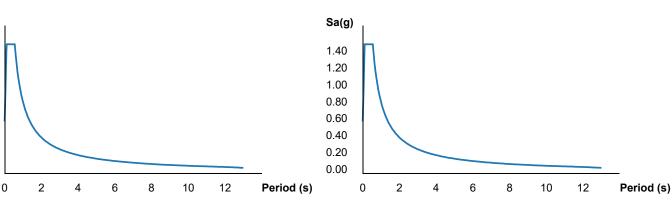
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.44275, -118.39835
Elevation:	1873 ft
Timestamp:	2021-03-05T04:16:40.927Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	111
Site Class:	D



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Design Horizontal Response Spectrum

MCER Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.283	MCE _R ground motion (period=0.2s)
S ₁	0.839	MCE _R ground motion (period=1.0s)
S _{MS}	2.283	Site-modified spectral acceleration value
S _{M1}	1.258	Site-modified spectral acceleration value
S _{DS}	1.522	Numeric seismic design value at 0.2s SA
S _{D1}	0.839	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.005	Coefficient of risk (0.2s)

[186]

CR ₁	1.015	Coefficient of risk (1.0s)
PGA	0.806	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.806	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.283	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.272	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.694	Factored deterministic acceleration value (0.2s)
S1RT	0.839	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.827	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.92	Factored deterministic acceleration value (1.0s)
PGAd	1.01	Factored deterministic acceleration value (PGA)

Disclaimer

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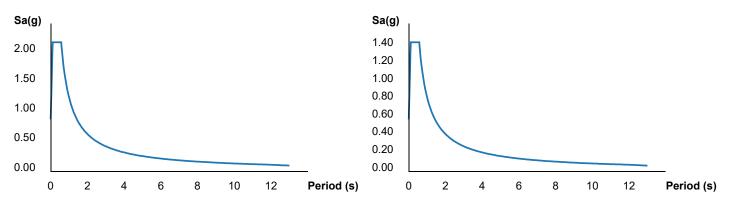
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.51084, -118.5387
Elevation:	1484 ft
Timestamp:	2021-03-05T04:11:44.365Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S _S	2.164	MCE _R ground motion (period=0.2s)
S ₁	0.827	MCE _R ground motion (period=1.0s)
S _{MS}	2.164	Site-modified spectral acceleration value
S _{M1}	1.24	Site-modified spectral acceleration value
S _{DS}	1.442	Numeric seismic design value at 0.2s SA
S _{D1}	0.827	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.039	Coefficient of risk (0.2s)

[188]

CR ₁	1.024	Coefficient of risk (1.0s)
PGA	0.758	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.758	Site modified peak ground acceleration
TL	12	Long-period transition period (s)
SsRT	2.164	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.082	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.86	Factored deterministic acceleration value (0.2s)
S1RT	0.827	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.807	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.988	Factored deterministic acceleration value (1.0s)
PGAd	1.084	Factored deterministic acceleration value (PGA)

Disclaimer

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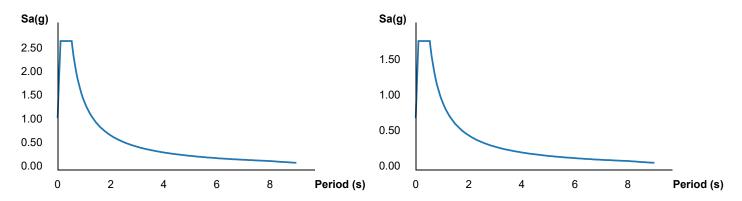
Coordinates:	34.428466, -118.515572
Elevation:	1431 ft
Timestamp:	2021-03-29T18:31:04.138Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D
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MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.716	MCE _R ground motion (period=0.2s)
S ₁	0.961	MCE _R ground motion (period=1.0s)
S _{MS}	2.716	Site-modified spectral acceleration value
S _{M1}	1.442	Site-modified spectral acceleration value
S _{DS}	1.811	Numeric seismic design value at 0.2s SA
S _{D1}	0.961	Numeric seismic design value at 1.0s SA

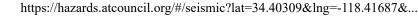
Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.969	Coefficient of risk (0.2s)
CR ₁	0.983	Coefficient of risk (1.0s)

PGA	0.981	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.981	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.716	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.805	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	0.961	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.978	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.232	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

Disclaimer

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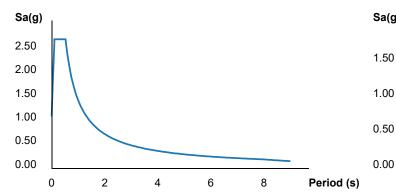


Address:	27200 Sand Canyon Rd
Coordinates:	34.40309, -118.41687
Elevation:	1752 ft
Timestamp:	2021-03-05T04:36:33.700Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00

4

6

8

Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.713	MCE _R ground motion (period=0.2s)
S ₁	0.952	MCE _R ground motion (period=1.0s)
S _{MS}	2.713	Site-modified spectral acceleration value
S _{M1}	1.428	Site-modified spectral acceleration value
S _{DS}	1.809	Numeric seismic design value at 0.2s SA
S _{D1}	0.952	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.954	Coefficient of risk (0.2s)

[192]

0

2

CR ₁	0.975	Coefficient of risk (1.0s)
PGA	0.997	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.997	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.713	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.843	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.996	Factored deterministic acceleration value (0.2s)
S1RT	0.952	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.977	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.133	Factored deterministic acceleration value (1.0s)
PGAd	1.16	Factored deterministic acceleration value (PGA)

Disclaimer

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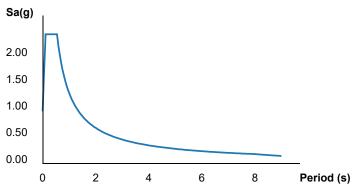


Address:	N Pine St, Orange, CA, USA
Coordinates:	34.4551, -118.48029
Elevation:	1823 ft
Timestamp:	2021-03-05T04:30:20.539Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 0 2 4 6 8 Period (s)

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.408	MCE _R ground motion (period=0.2s)
S ₁	0.873	MCE _R ground motion (period=1.0s)
S _{MS}	2.408	Site-modified spectral acceleration value
S _{M1}	1.309	Site-modified spectral acceleration value
S _{DS}	1.605	Numeric seismic design value at 0.2s SA
S _{D1}	0.873	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F _a	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.996	Coefficient of risk (0.2s)

[194]

CR ₁	1.006	Coefficient of risk (1.0s)
PGA	0.846	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.846	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.408	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.418	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.917	Factored deterministic acceleration value (0.2s)
S1RT	0.873	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.867	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.031	Factored deterministic acceleration value (1.0s)
PGAd	1.114	Factored deterministic acceleration value (PGA)

Disclaimer

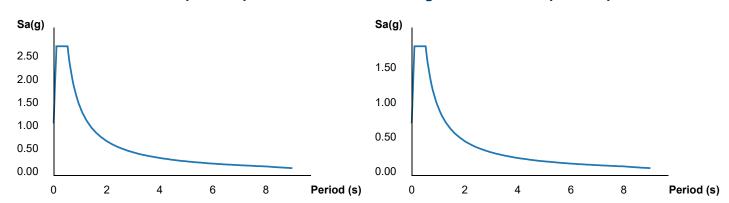
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.



Address:	21575 Deputy Jakes Way
Coordinates:	34.4115746, -118.4497603
Elevation:	1447 ft
Timestamp:	2021-03-04T20:28:23.975Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D
MCER Horizontal Response Spectrum	



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
SS	2.788	MCE _R ground motion (period=0.2s)
S ₁	0.977	MCE _R ground motion (period=1.0s)
S _{MS}	2.788	Site-modified spectral acceleration value
S _{M1}	1.465	Site-modified spectral acceleration value
S _{DS}	1.859	Numeric seismic design value at 0.2s SA
S _{D1}	0.977	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.957	Coefficient of risk (0.2s)

CR ₁	0.974	Coefficient of risk (1.0s)
PGA	1.017	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	1.017	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.788	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.914	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.006	Factored deterministic acceleration value (0.2s)
S1RT	0.977	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.002	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.156	Factored deterministic acceleration value (1.0s)
PGAd	1.167	Factored deterministic acceleration value (PGA)

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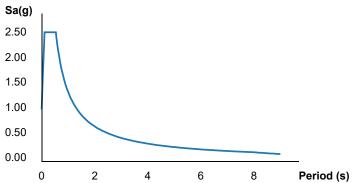


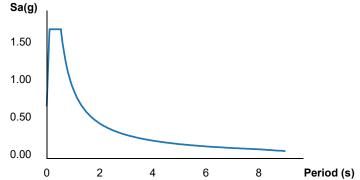
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.43882, -118.47974
Elevation:	1825 ft
Timestamp:	2021-03-05T04:27:56.668Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



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MCER Horizontal Response Spectrum





Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.566	MCE _R ground motion (period=0.2s)
S ₁	0.916	MCE _R ground motion (period=1.0s)
S _{MS}	2.566	Site-modified spectral acceleration value
S _{M1}	1.374	Site-modified spectral acceleration value
S _{DS}	1.711	Numeric seismic design value at 0.2s SA
S _{D1}	0.916	Numeric seismic design value at 1.0s SA

Additional Information

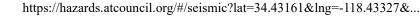
Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.979	Coefficient of risk (0.2s)

[198]

CR ₁	0.994	Coefficient of risk (1.0s)
PGA	0.914	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.914	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.566	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.621	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.978	Factored deterministic acceleration value (0.2s)
S1RT	0.916	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.921	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.096	Factored deterministic acceleration value (1.0s)
PGAd	1.148	Factored deterministic acceleration value (PGA)

Disclaimer

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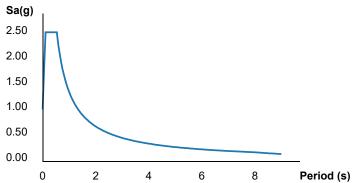
Address:	Winterdale dr
Coordinates:	34.43161, -118.43327
Elevation:	1963 ft
Timestamp:	2021-03-05T04:39:19.511Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III



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Site Class: D

MCER Horizontal Response Spectrum



Sa(g) 1.50 1.00 0.50 0.00 Period (s)

6

8

4

Design Horizontal Response Spectrum

Basic Parameters

Name	Value	Description
SS	2.53	MCE _R ground motion (period=0.2s)
S ₁	0.903	MCE _R ground motion (period=1.0s)
S _{MS}	2.53	Site-modified spectral acceleration value
S _{M1}	1.355	Site-modified spectral acceleration value
S _{DS}	1.686	Numeric seismic design value at 0.2s SA
S _{D1}	0.903	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	0.98	Coefficient of risk (0.2s)

[200]

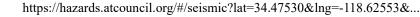
0

2

CR ₁	0.995	Coefficient of risk (1.0s)
PGA	0.904	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.904	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.582	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.915	Factored deterministic acceleration value (0.2s)
S1RT	0.903	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.908	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.031	Factored deterministic acceleration value (1.0s)
PGAd	1.113	Factored deterministic acceleration value (PGA)

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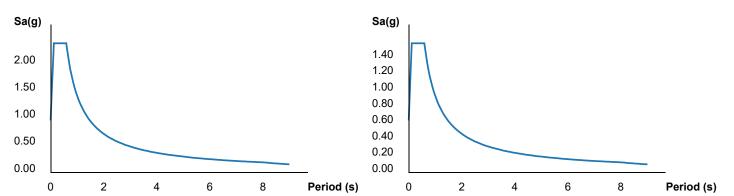
Address:	Yucca Place
Coordinates:	34.4753, -118.62553
Elevation:	1422 ft
Timestamp:	2021-03-05T05:06:07.895Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



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Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S _S	2.366	MCE _R ground motion (period=0.2s)
S ₁	0.933	MCE _R ground motion (period=1.0s)
S _{MS}	2.366	Site-modified spectral acceleration value
S _{M1}	1.4	Site-modified spectral acceleration value
S _{DS}	1.577	Numeric seismic design value at 0.2s SA
S _{D1}	0.933	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
Fa	1	Site amplification factor at 0.2s
Fv	1.5	Site amplification factor at 1.0s
CR _S	1.006	Coefficient of risk (0.2s)

[202]

CR ₁	1.005	Coefficient of risk (1.0s)
PGA	0.889	MCE _G peak ground acceleration
F _{PGA}	1	Site amplification factor at PGA
PGA _M	0.889	Site modified peak ground acceleration
TL	8	Long-period transition period (s)
SsRT	2.548	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.533	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.366	Factored deterministic acceleration value (0.2s)
S1RT	0.933	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.929	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.992	Factored deterministic acceleration value (1.0s)
PGAd	0.91	Factored deterministic acceleration value (PGA)

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