Appendix E

Water Quality Results

CLINICAL LAB OF SAN BERNARDINO, INC
21881 BARTON ROAD
GRAND TERRACE, CA 92313
RADIOACTIVITY ANALYSIS (9/99)

EX

1 of 1

Date of Report: 06/11/22
Sample ID No.M65114R-1A
Laboratory
Name: CLINICAL LABORATORIES OF SAN BERNARDINO
Signature Lab Director:
Name of Sampler: JEREMY LOGUE
Employed By: L.A.C.S.D.
Date/Time Sample Collected: 06/11/09/1126
Date/Time Sample Received @ Lab: 06/11/10/1030
Date Analyses Completed: 06/11/17

System Name: LOS ALAMOS COMMUNITY SER DIST
System Number: 4210002
Name or Number of Sample Source: WELL 5

User ID: TAP
Station Number:
Date/Time of Sample: |06|11|09|1126| YY MM DD TTTT
Laboratory Code: 3761
Date Analysis completed: |06|11|17| YY MM DD
Submitted by: ______
Phone #: ______

MCL	REPORT UNITS	CHEMICAL	STORET CODE	ANALYSES RESULTS	DLR
15	pCi/L	Gross Alpha	01501	ND	3.0
	pCi/L	Gross Alpha Counting Error	01502	2.0	
	pCi/L	Gross Alpha MDA (95% Confidence)	A-072	2.0	
20	pCi/L	Uranium	28012	1.5	1.0
	pCi/L	Uranium Counting Error	A-028	0.58	
	pCi/L	Uranium MDA (95% Confidence)	A-073	0.87	
	pCi/L	Radium 226	09501		1.0
	pCi/L	Radium 226 Counting Error	09502		
	pCi/L	Radium 226 MDA (95% Confidence)	A-074		
	pCi/L	Radium 228	11501		1.0
	pCi/L	Radium 228 Counting Error	11502		
	pCi/L	Radium 228 MDA (95% Confidence)	A-075		
5	pCi/L	Ra 226 + Ra 228	11503		2.0
	pCi/L	Ra 226 + Ra 228 Counting Error	11504		
50	pCi/L	Gross Beta	03501		4.0
	pCi/L	Gross Beta Counting Error	03502		
	pCi/L	Gross Beta MDA (95% Confidence)	A-077		
8	pCi/L	Strontium 90	13501		2.0
	pCi/L	Strontium 90 Counting Error	13502		
	pCi/L	Strontium 90 MDA (95% Confidence)	A-078		
20000	pCi/L	Tritium	07000		1000
	pCi/L	Tritium Counting Error	07001		
	pCi/L	Tritium MDA (95% Confidence)	A-079		

CLINICAL LAB OF SAN BERNARDINO, INC
21881 BARTON ROAD
GRAND TERRACE, CA 92313

EX

GENERAL MINERAL & PHYSICAL & INORGANIC ANALYSIS (9/99) 1 of 2

Date of Report: 06/11/27
Sample ID No.M65114-1A
Laboratory
Name: CLINICAL LABORATORIES OF SAN BERNARDINO
Signature Lab Director: ____
Name of Sampler:JEREMY LOGUE
Employed By: L.A.C.S.D.
Date/Time Sample Collected:06/11/09/1126
Date/Time Sample Received @ Lab:06/11/10/1030
Date Analyses Completed:06/11/21

System Name:LOS ALAMOS COMMUNITY SER DIST
System Number: 4210002
Name or Number of Sample Source:WELL 5

User ID: TAP
Station Number:
Date/Time of Sample: |06|11|09|1126| (YY MM DD TTTT)
Laboratory Code: 3761
Date Analysis completed: |06|11|21| (YY MM DD)
Submitted by: ____
Phone #: ____

MCL	REPORTING UNITS	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3) (mg/L)	00900	350	5.0
	mg/L	Calcium (Ca) (mg/L)	00916	90	1.0
	mg/L	Magnesium (Mg) (mg/L)	00927	34	1.0
	mg/L	Sodium (Na) (mg/L)	00929	71	1.0
	mg/L	Potassium (K) (mg/L)	00937	3.8	1.0
Total Cations		Meq/L Value: 10.47			
	mg/L	Total Alkalinity (as CaCO3) (mg/L)	00410	210	5.0
	mg/L	Hydroxide (OH) (mg/L)	71830	ND	5.0
	mg/L	Carbonate (CO3) (mg/L)	00445	ND	5.0
	mg/L	Bicarbonate (HCO3) (mg/L)	00440	250	5.0
*	mg/L+	Sulfate (SO4) (mg/L)	00945	190	0.50
*	mg/L+	Chloride (Cl) (mg/L)	00940	73	1.0
45	mg/L	Nitrate (as NO3) (mg/L)	71850	7.4	2.0
2.0	mg/L	Fluoride (F) (Natural-Source)	00951	0.16	0.10
Total Anions		Meq/L Value: 10.24			
	Std.Units+	PH (Laboratory) (Std.Units)	00403	7.2	
***	umho/cm+	Specific Conductance (E.C.) (umhos/cm)	00095	930	2.0
****	mg/L+	Total Filterable Residue@180C(TDS)(mg/L)	70300	620	5.0
15	Units	Apparent Color (Unfiltered) (Units)	00081	ND	3
3	TON	Odor Threshold at 60 C (TON)	00086	1	1
5	NTU	Lab Turbidity (NTU)	82079	0.4	0.1
0.5	mg/L+	MBAS (mg/L)	38260	ND	0.10

* 250-500-600 ** 0.6-1.7 *** 900-1600-2200 **** 500-1000-1500

INORGANIC CHEMICALS

M65114-1A

MCL	REPORTING UNITS	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
1000	ug/L	Aluminum (Al) (ug/L)	01105	ND	50
6	ug/L	Antimony (ug/L)	01097	ND	6.0
10	ug/L	Arsenic (As) (ug/L)	01002	ND	2.0
1000	ug/L	Barium (Ba) (ug/L)	01007	ND	100
4	ug/L	Beryllium (ug/L)	01012	ND	1.0
5	ug/L	Cadmium (Cd) (ug/L)	01027	1.6	1.0
50	ug/L	Chromium (Total Cr) (ug/L)	01034	ND	10
1000	ug/L+	Copper (Cu) (ug/L)	01042	ND	50
300	ug/L+	Iron (Fe) (ug/L)	01045	ND	100
	ug/L	Lead (Pb) (ug/L)	01051	ND	5.0
50	ug/L+	Manganese (Mn) (ug/L)	01055	35	20
2	ug/L	Mercury (Hg) (ug/L)	71900	ND	1.0
100	ug/L	Nickel (ug/L)	01067	ND	10
50	ug/L	Selenium (Se) (ug/L)	01147	ND	5.0
100	ug/L+	Silver (Ag) (ug/L)	01077	ND	10
2	ug/L	Thallium (ug/L)	01059	ND	1.0
5000	ug/L+	Zinc (Zn) (ug/L)	01092	ND	50

ADDITIONAL ANALYSES

	C	Source Temperature C	00010	20	
		Langelier Index Source Temp.	71814	- 0.10	
		Langelier Index at 60 C	71813	0.60	
		Agressiveness Index	82383	11.87	
	ug/L	Boron (ug/L)	01020	130	100
10000	ug/L	Nitrate + Nitrite as Nitrogen(N) (ug/L)	A-029	1700	400
1000	ug/L	Nitrite as Nitrogen(N) (ug/L)	00620	ND	400
150	ug/L	Cyanide (ug/L)	01291	ND	100
	ug/L	Vanadium (ug/L)	01087	6.6	3.0

+ Indicates Secondary Drinking Water Standards

CLINICAL LAB OF SAN BERNARDINO, INC
21881 BARTON ROAD
GRAND TERRACE, CA 92313
ORGANIC CHEMICAL ANALYSIS (9/99)

EX

1 of 2

Date of Report: 06/11/28
Sample ID No.M65114X-1A
Laboratory
Name: CLINICAL LABORATORIES OF SAN BERNARDINO
Signature Lab Director: ________
Name of Sampler: JEREMY LOGUE
Employed By: L.A.C.S.D.
Date/Time Sample Collected: 06/11/09/1126
Date/Time Sample Received @ Lab: 06/11/10/1030
Date Analyses Completed: 06/11/22

System Name: LOS ALAMOS COMMUNITY SER DIST
System Number: 4210002
Name or Number of Sample Source: WELL 5

User ID: TAP
Station Number:
Date/Time of Sample: |06|11|09|1126|
YY MM DD TTTT
Laboratory Code: 3761
Date Analysis completed: |06|11|22|
YY MM DD
Submitted by: ________
Phone #: ________

Page 1 of 2

REGULATED ORGANIC CHEMICALS

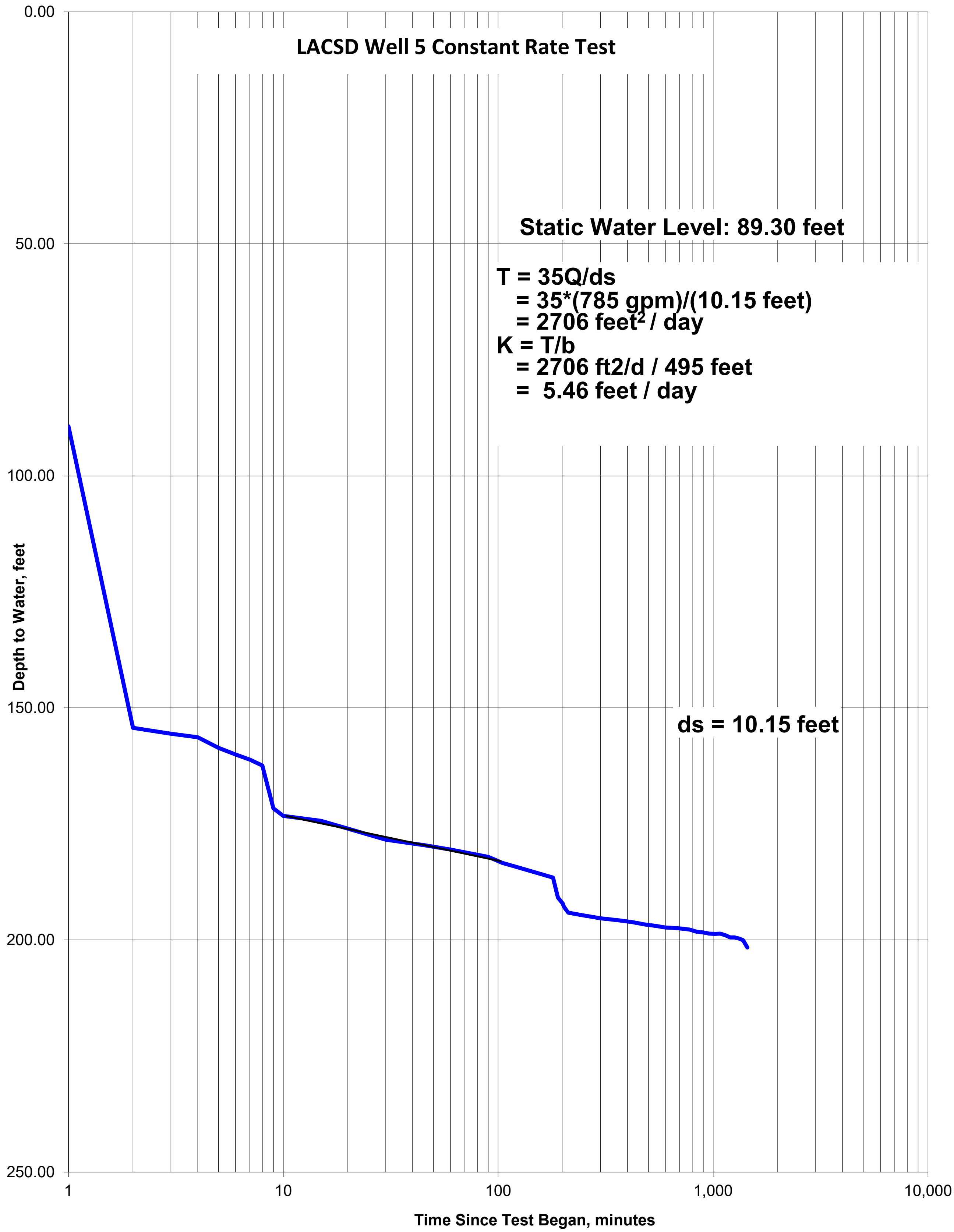
TEST METHOD	CHEMICAL ALL CHEMICALS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL ug/L	DLR ug/L
524.2	Total Trihalomethanes (TTHMs)	82080	ND	80	
524.2	Bromodichloromethane	32101	ND		1.0
524.2	Bromoform	32104	ND		1.0
524.2	Chloroform (Trichloromethane)	32106	ND		1.0
524.2	Dibromochloromethane	32105	ND		1.0
524.2	Benzene	34030	ND	1	0.50
524.2	Carbon Tetrachloride	32102	ND	.5	0.50
524.2	1,2-Dichlorobenzene (o-DCB)	34536	ND	600	0.50
524.2	1,4-Dichlorobenzene (p-DCB)	34571	ND	5	0.50
524.2	1,1-Dichloroethane (1,1-DCA)	34496	ND	5	0.50
524.2	1,2-Dichloroethane (1,2-DCA)	34531	ND	.5	0.50
524.2	1,1-Dichloroethylene (1,1-DCE)	34501	ND	6	0.50
524.2	cis-1,2-Dichloroethylene (c-1,2-DCE)	77093	ND	6	0.50
524.2	trans-1,2-Dichloroethylene (t-1,2-DCE)	34546	ND	10	0.50
524.2	Dichloromethane (Methylene Chloride)	34423	ND	5	0.50
524.2	1,2-Dichloropropane	34541	ND	5	0.50
524.2	Total 1,3-Dichloropropene	34561	ND	.5	0.50
524.2	Ethyl Benzene	34371	ND	300	0.50
524.2	Methyl tert-Butyl Ether (MTBE)	46491	ND	5	3.0
524.2	Monochlorobenzene (Chlorobenzene)	34301	ND	70	0.50
524.2	Styrene	77128	ND	100	0.50
524.2	1,1,2,2-Tetrachloroethane	34516	ND	1	0.50
524.2	Tetrachloroethylene (PCE)	34475	ND	5	0.50
524.2	Toluene	34010	ND	150	0.50
524.2	1,2,4-Trichlorobenzene	34551	ND	5	0.50
524.2	1,1,1-Trichloroethane (1,1,1-TCA)	34506	ND	200	0.50
524.2	1,1,2-Trichloroethane (1,1,2-TCA)	34511	ND	5	0.50
524.2	Trichloroethylene (TCE)	39180	ND	5	0.50
524.2	Trichlorofluoromethane (FREON 11)	34488	ND	150	5.0

REGULATED ORGANIC CHEMICALS CONTINUED M65114X-1A

TEST METHOD	CHEMICAL ALL CHEMICALS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL ug/L	DLR ug/L
524.2	Trichlorotrifluoroethane (FREON 113)	81611	ND	1200	10
524.2	Vinyl Chloride (VC)	39175	ND	.5	0.50
524.2	m,p-Xylene	A-014	ND		1.0
524.2	o-Xylene	77135	ND		0.50
524.2	Total Xylenes (m,p, & o)	81551	ND	1750	
504.1	Dibromochloropropane (DBCP)	38761	ND	.2	0.010
504.1	Ethylene Dibromide (EDB)	77651	ND	.05	0.020
507	Atrazine (AATREX)	39033	ND	1	0.50
507	Molinate (ORDRAM)	82199	ND	20	2.0
507	Simazine (PRINCEP)	39055	ND	4	1.0
507	Thiobencarb (BOLERO)	A-001	ND	70	1.0
507	Alachlor (ALANEX)	77825	ND	2	1.0
515.4	Bentazon (BASAGRAN)	38710	ND	18	2.0
515.4	2,4-D	39730	ND	70	10
515.4	2,4,5-TP (SILVEX)	39045	ND	50	1.0
531.1	Carbofuran (FURADAN)	81405	ND	18	5.0
515.4	Dalapon	38432	ND	200	10
515.4	Dinoseb (DNBP)	81287	ND	7	2.0
531.1	Oxamyl (Vydate)	38865	ND	50	20
515.4	Pentachlorophenol (PCP)	39032	ND	1	0.20
515.4	Picloram	39720	ND	500	1.0

UNREGULATED ORGANIC CHEMICALS

TEST METHOD	CHEMICAL	ENTRY #	ANALYSES RESULTS	MCL ug/L	DLR ug/L
524.2	tert-Amyl Methyl Ether (TAME)	A-034	ND		3.0
524.2	tert-Butyl Alcohol (TBA)	77035	ND		2.0
524.2	Dichlorodifluoromethane (Freon 12)	34668	ND		0.50
524.2	Ethyl tert-Butyl Ether (ETBE)	A-033	ND		3.0



LACSD Well 5 Constant Rate Test
Static Water Level: 89.30 feet
T = 35Q/ds
= 35*(785 gpm)/(10.15 feet)
= 2706 feet² / day
K = T/b
= 2706 ft2/d / 495 feet
= 5.46 feet / day
ds = 10.15 feet
Depth to Water, feet
0.00
50.00
100.00
150.00
200.00
250.00
1
10
100
1,000
10,000
Time Since Test Began, minutes

APPENDIX D-2

Four Deer Ranch Well Field Pumping Tests

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WATER WELL DRILLING PROJECT

HUNTER FOUR DEER RANCH

Los Alamos Area

Santa Barbara County, CA

Managed By

KATHERMAN EXPLORATION CO., LLC

NOVEMBER 2009

WATER WELL DRILLING PROJECT

HUNTER FOUR DEER RANCH

Los Alamos Area
Santa Barbara County, CA

INTRODUCTION

In March of 2009 Katherman Exploration Co., LLC prepared an in-depth ground water review report of the ground water conditions in the Las Flores Canyon Area for the client, Hunter Four Deer Ranch (Figure 1 & 2). Out of this reporting, a well drilling and testing project was proposed in order to develop new water wells to supplement the existing wells on the ranch. Together, these water sources were to meet the long range water needs of the ranch, which would include a domestic water source to supply water to a new proposed domestic water system, and an agricultural water source for a possible vineyard. The Four Deer Ranch consists of approximately 1400 acres of land (Figure 3) west of and adjacent to US Highway 101 at Palmer Road.

PRIOR GROUND WATER REVIEW

The March 2009 report revealed the potential for substantial water reserves under the ranch within the Paso Robles Formation and the Careaga Formation, however there were drilling and extraction concerns uncovered from prior drilling on the ranch, as well as the adjacent property to the south. These concerns centered on observed artesian flow from numerous offsite testholes; several of which were lost due to uncontrollable water flow and sand entry. What was thought to originally be an artesian problem in the Careaga, appeared to now be confined to a sand interval within the Paso Robles Formation from the initial electric log correlations on the existing area water wells and in old oil wells drilled on the property. In addition, the existing water wells on the northern part of the Four Deer Ranch did not exhibit any artesian characteristics and were drilled and completed to a depth of 460 feet without any difficulties. However, a shallow existing domestic well on the subject ranch did have artesian flow both during the drilling and later during the completion. The description of the penetrated sediments during the drilling of this well seemed to indicate a color change at a depth of 130 feet from gray, gray-brown to blue, which is indicative of the Careaga Formation. This appeared to be too shallow to be Careaga based on prior log correlations. Unfortunately, some of the water wells and testholes to the south on the Schaff property failed at even deeper depths due to excessive flow during the drilling and were consequently not completed. Nothing appeared to be consistent as to a single confined water zone within the Paso Robles, so it was assumed to be Careaga related.

The conclusions and recommendations of the initial ground water review report resulted in the identification of four new drilling locations, as well as an analysis of the potential for greater water production from two of the three existing wells. A map showing these new locations and the existing wells is shown in Figure 4.

RE-ANALYSIS OF THE EXISTING WELLS

All three of the existing water wells on the ranch were drilled by Ron Taylor drilling in 1999 and 2000 for the previous property owner, Chevron, and its tenant rancher, Tommy Thompson (Figure 4). The northerly two wells were drilled to similar depths (approx. 460 feet) and were completed with 8 inch PVC casing. Since these wells were being utilized as a primary source wells for livestock watering, low capacity pumps were placed in each of the wells. Following recent pumping testing in 2009, both wells have been shown to have potential flow capabilities of 300-400 gallons per minute (GPM), a similar low percentage of total drawdown (5+%) and a specific capacity of 10-12 gallons per foot of drawdown. These wells formed the basis for the commencement of a 2009 drilling program in order to expand the ground water supplies available for future ranch development.

The third well, located near the ranch house and barns, was again drilled by Ron Taylor but only to 185 feet, as artesian flow was experienced. In order to prevent a hole collapse and potential damage to the rig from surface liquefaction, a 12 inch conductor pipe was run and cemented to a depth of 130 feet. A screened (perforated) interval from 30 to 185 feet within the 8 inch PVC casing was placed in the borehole and gravel packed with Monterey sand. The estimated yield for this well in air jet testing after the completion was 400 GPM, but no specific testing phase was performed and no electric log was run.

Consequently, the well was tested in September of 2009 utilizing the existing downhole submersible pump. With the pump set at an estimated depth of 175-180 feet, the well was tested at a flowrate of 150 GPM for 8 hours. The stabilized pumping level was at a depth of 55 feet for the duration of the test period and the static level was at the surface, since the well still exhibits artesian flow. While the well is capable of producing at a higher rate (>150 gpm), it isn't necessary to change the downhole pump and increase production, as this well will be designated as the domestic water source and will serve the domestic water system for the ranch buildings and residences. A water sample was taken following the test period and analyzed at Creek Environmental Labs. The produced water from this well met all of the standards for potable (drinking) water as determined by the State Health Dept. with the exception of two minor constituents, manganese (Mn) and odor. Both of these items were retested in a second water sample collected on November 4, 2009, however the manganese levels still exceeded the State limits of 0.05 mg/l. Consequently, it is recommended that a green sand filter be installed on the downstream end of the domestic water storage in order to reduce the Mn concentration. It is also suggested that a third sample be taken after the well has been run and the water system is place for a period of time. The results of the testing and the water quality analyses can be located in the Appendix. The recent pump tests on the two existing ag wells are also included in the Appendix along with the drillers logs and the electric logs.

NEW WELL DRILLING & TESTING

NewAg Well #1

The first location, NewAg Well #1, to test for additional ground water supplies was staked north and west of existing ag well #2 (Figure 4). This test site was chosen in order to obtain data on whether the extent of the primary ground water aquifers was this far north on the ranch. Drilled to a total depth of 400 feet on June 2nd of 2009, this testhole penetrated a short Paso Robles section that was only 200 feet thickness and was likely low in water saturation. The underlying Careaga appeared to be clay-rich, with some intervals that were hard and/or cemented, as the drilling rate or rate of penetration was much slower than what would be expected for a permeable, water-bearing sand; i.e. possibly poor reservoir development. Additionally, the water quality was suspect from the appearance of the resisitivity curves on the electric log at the bottom of the hole. Consequently, it was decided to not run casing and complete the wellbore, and to move to the next location. A copy of this e-log is included in the Appendix of this report.

NewAg Well #2

The second new well, NewAg Well #2, was located near the ranch gate entrance, approximately 1000 feet south of existing ag well #1 (Figure 4). Drilled to a total depth of 455 feet on June 5th, new well #2 was completed with 12 inch, high strength PVC casing run to 450 feet. The screened or perforated interval in this well is from 100-450 feet with a 50 foot sanitary seal. An examination of the drill cuttings indicated a color change to typical blue or blue-grey Careaga sands at a depth of 250 feet, which seems to also correlate with a change in log character at a similar depth. It now appears from this new log and the associated cuttings that the Careaga

Sand (Formation) may begin at depths ranging from 130 feet (domestic well) to 310 feet (ex. ag well #1), depending on where one is located on the Four Deer Ranch.

A step-test was conducted on new well #2 after air jetting and clean-up the infiltration of drilling mud into the reservoir. A static level was measured at 40 feet below grade and submersible pump was set at approximately 300 feet. Tested at varying rate of 500 gpm, 750 gpm and 900 gpm, for two hours at each flow rate, the well exhibited strong aquifer characteristics. Drawdowns at the respective flow rates were 14 feet, 23 feet and 32 feet for the highest rate of 900 gpm. With a total potential drawdown of 260 feet, this well drew down during the step test only 12.3% of maximum capacity with the pump set at 300 feet. With Q = flowrate and S = drawdown in feet, the specific capacity (SC=Q/S=900/32) of this well test was 28 gallons per foot of drawdown; significantly better flow characteristics than the two existing ag wells with a SC of 10 gallons per foot.

In addition a water sample was taken at the end of the 6 hour test period and submitted to a certified lab for analysis. The produced water passed for all constituents involved with testing for potability except manganese (0.40 mg/l), which is commonly found in area ground samples at levels slightly above the State limit of 0.05 mg/l. Because this water will be dedicated to ag usage, there is no water quality issue. Overall, the quality of this water is excellent; with a salinity or TDS (total dissolved solids) level of 430 mg/l (ppm), no nitrates or nitrites and a low hardness of 190 mg/l. A copy of the water quality analysis, as well as the drillers report and the e-log, is located in the Appendix.

NewAg Well #3

Following the completion of NewAg Well #2, the rig was moved to the next location, which was on the north end of the ranch approximately halfway between ExAg Well #1 and ExAg Well #2 (Figure 4). Drilled to a total depth of 515 feet and completed with 12 inch PVC casing to 440 feet on June 22, 2009, NewAg Well #3 was plugged back from 515 feet to 440 feet due to the concern over the penetration of very fine grained Careaga sands in the lower 60-70 feet of the well, which in a high flow rate ag well can pass through the Monterey gravel pack into the casing over time and cause damage to the downhole pump. Consequently, the decision was made to leave the bottom of the hole below the cased interval. The screened or perforated interval in this well is from 100-440 feet with a 50 foot cement sanitary seal.

After several days of air jetting and surging this well in order to flush as much of the drilling mud out of the aquifer as possible, a static water level was measured at 63 feet below grade. A step test was performed on this well in July of 2009 utilizing three different flow rates of 400 gpm, 600 gpm and 750 gpm. The corresponding drawdowns and stabilized pumping levels were 12 feet of drawdown with a pumping level of 75 feet at a rate of 400 gpm, 28 feet of drawdown with a pumping level of 91 feet for 600 gpm, and a drawdown of 46 feet with a pumping level of 109 feet for 750 gpm of production.

With a total potential drawdown of 237 feet, this well drew down during the step test only 19.4% of maximum capacity with the pump set at 300 feet. The specific capacity (SC=Q/S=750/46) of this well test was 16 gallons per foot of drawdown, less than NewAg Well #2, but still better flow characteristics than the two existing ag wells with a SC of 10 gallons per foot. No sample of the produced water was taken during the step test, since a water analysis was conducted on NewAg Well #2. A copy of the well drillers report and the e-log is included in the Appendix.

NewAg Well #4

The final testhole to be drilled was located further south on the ranch approximately halfway between NewAg Well #2 and the existing Domestic Well, and nearly 2000 feet south-southeast of NewAg Well #3 (Figure 4). NewAg Well #4 was drilled to a total depth of 622 feet, but was completed with 12 inch PVC casing to 490 feet. Similar to NewAg Well #3, this current well had an abundance of very fine sand in the lower 100+ feet of the hole, based on the examination of drill cutting and the electric log. Consequently, the decision was made to complete the well at 490 feet. The screened or perforated interval was 100-480 feet with Monterey gravel pack and 10 feet of blank pipe placed on bottom along with a 25 foot sanitary seal on top.

Following well clean-up and surging, a step test program was started using flow rate of 600 gpm, 750 gpm and 900 gpm, based on the amount of water recovered during air jetting and a static level only 10 feet from the surface. With the pump set at 300 feet the drawdowns were as follows: 73 feet @ 600 gpm, 100 feet @ 750 gpm, and 124 feet @ 900 gpm. It is interesting that the drawdowns were greater than those observed in the shallower NewAg Well #2, however it's likely that the inclusion of more fine grained Careaga in the completion of NewAg Well #4 may have contributed to the appearance of more water (with a higher static level and more water recovered during air jetting) than in the prior well. This very fine Careaga section added to the completion interval would also likely have lower permeability, thereby reducing the overall flow characteristics of the well as demonstrated in the step test.

With a total potential drawdown of 290 feet, this well drew down during the step test 43% of maximum capacity with the pump set at 300 feet. The specific capacity (SC=Q/S=900/124) of this well test was 7+ gallons per foot of drawdown, a lower SC than was observed in either of the existing wells or the prior two new wells. Again, this is likely attributable to the amount of

Lower Careaga interval included in the completion and that overall the Careaga Sand here is more fine grained than in the prior two wells. Because of this longer interval of finer grained Careaga, it is also possible that the mud infiltration or damage during the drilling will lessen or will clean -up more over time as the reservoir is produced.

A water sample was taken at the end of the 6 hour test period and submitted to a certified lab for analysis. The produced water passed for all constituents involved with testing for potability; i.e. drinking water standards. Overall, the quality of this water is excellent; with a salinity or TDS (total dissolved solids) level of 382 mg/l (ppm), no nitrates or nitrites, a low hardness of 180 mg/l and a Mn level within the allowable limits. A copy of the water quality analysis, as well as the drillers report and e-log, is located in the Appendix.

Estimated Ground Water Supply

An accurate estimate of the amount of ground water in storage is critical to the long term viability of any water supply. In addition the annual recharge to the area reservoirs (aquifers) is also important to proper maintenance and management of the ground water supply. Determining the ground water in storage for the Four Deer Ranch is made difficult, due to the lack of a sufficient amount of long term data concerning the existing water wells and their productivity over time. The recordation and review of crucial data such static levels, producing rates, producing volumes, and pumping levels over years of usage, are critical to a viable understanding of ground water in storage under the subject property.

With the water source originating from the Paso Robles and the Careaga sands and gravels, the term "storage unit" is used here to describe the subsurface extent of water-bearing sediments. These storage units are typically defined by differences in rock types, variations in water quality, changes in static water levels and/or differing responses to pumping. In the case of the Four Deer Ranch there are few differences in these characteristics from one area of the ranch to another and from one well to another. The key parameters required to determine the amount of water in storage are 1) the specific yield or storage coefficient, 2) reservoir thickness, and 3) the vertical and horizontal extent of the reservoir.

The **specific yield** is that part of the total volume of water-saturated reservoir that would drain to a wellbore under the influence of gravity and pressure drawdown, i.e. water extraction or pumping. Typically, the value of the specific yield for normal aquifer is on the order of 10-25%. For the coarse-grained, highly permeable reservoirs in the Paso Robles and Upper Careaga, the specific yield is at the high end of the range; likely 20-25%. It is assumed that the finer-grained sands of the Careaga in the study area may have lower specific yields of perhaps 15%.

The **reservoir thickness** for these water storage units is fairly easy to estimate with detailed description of sediment types in the drillers report, and electric logs in not only the water wells but in numerous oil wells that have been drilled on the property in the past.. The source of first water in all of the water wells typically only varies by 10 or 20 feet occurring within 50 feet of the surface. Most of the wells were drilled to depths greater than 400 feet and some to 600 feet, where full water saturation was observed to total depth. Several of the oil wells show water-bearing sediment to depths of 1000 feet or more. Consequently, a best case estimate for reservoir thickness is 700-900 feet over a majority of the ranch parcel.

The **lateral extent of the storage units (Paso & Careaga)** penetrated by the various water and oil wells is also not difficult to determine. Three factors indicate the existence of a very large storage unit for the local ground water, perhaps in the range of 800-1000 acres in lateral size; basically most of the ranch and likely beyond. One factor is the minimal water level drawdowns at high producing rates observed in three existing and three new well tests (typically less than 100 feet of drawdown at rates of 800-900 gpm). The second factor is the low number of dry testholes and/or low volume wells that have been drilled on the Four Deer Ranch. Based upon the data from the first testhole, NewAg #1, and the thinning of the Paso Robles and the Careaga on the northern 1/3 of the ranch, especially over the Solomon Anticline and the Four Deer Oil Field structural high, the extent of the storage unit changes quite a bit in this area of the ranch. The third indicator of the large size of the storage unit was the rapid recovery of the water level in each test following the cessation of pumping. Even though the duration of testing was relatively short, in each case the water level returned to static level observed at the beginning of the test indicating no effect on the overall area water table.

Therefore, using the estimates mentioned above for specific yield, reservoir thickness and storage unit size, one can calculate the expected range of water in storage around a given well or wells. These conservative results vary from 84,000 acre-feet to 225,000 acre-feet of water in storage under the Four Deer Ranch.

The rate of ground water recharge in the area of Four Deer Ranch is another critical factor for determining the long term viability of the local water supply. Data that is relevant to this issue include the following: 1) soil/sediment permeability for the material overlying the reservoir/storage unit, 2) the duration of time when recharge will occur, and 3) the actual response of the wells and storage unit(s) to rainfall infiltration. In examining the soil types for the properties in the Four Deer Ranch area there is a **range of soil permeabilities** commonly utilized from 0.15 to 0.35 gal/day/sq. ft. depending on the soil thicknesses overlying the storage unit and the type of soil, whether it be sandy, silty or clayey. Therefore, in the case of the Four Deer Ranch storage unit there is a minimal amount of surface soil horizon of 5 to 15 feet overlying the Paso Robles sands and in most areas of the ranch the Paso Robles sands outcrop (no soil cover), so a permeability value ranging from 0.30 - 0.40 gal/day/sq. ft. is used in this analysis.

The **duration of recharge** is based on a yearly average of 12 days of rainfall exceeding 1 inch with the duration of rainfall being 12 hours. Utilizing these parameters, the total average annual period of recharge due to rainfall is 6 days/year. Consequently, based upon the expected percentage (15-20%) of average annual rainfall (18-20 inches/year) the recharge rate is calculated to be 0.30 to 0.35 AFY/acre. However, due to the highly permeable sands present near surface in the Paso Robles outcrop areas, and the observed subsurface communication from the surrounding storage units to the east, south and west, this value for annual recharge is likely to be near the high end, perhaps as high as 0.40 AFY. For the estimated size (1000 - 1200 acres) of storage unit the annual recharge (0.35 AFY/ac) is calculated to range from 350 acre-feet/year (AFY) for a 1000 acre unit and 420 acre-feet/year (AFY) for a 1200 acre unit. If a higher recharge rate of 0.45 AFY/ac is utilized, the annual recharge to the area aquifers varies from 450 to 540 AFY. This total estimate of recharge or "safe yield" is basically a zero sum or balance between potential water infiltration annually versus potential water extraction. This calculation does not include any recharge from local streams, irrigation runoff or subsurface communication which could add significantly to the totals; increasing them by a factor of 40-50%. Obviously, the actual response of the wells over time to seasonal rains has yet to be measured at Four Deer Ranch, and is therefore not applicable to the calculation of annual recharge.

CONCLUSIONS

1. **Paso Robles Fm. vs Careaga Fm.**

   The distinction between the Paso Robles interval and the Careaga Sand became more clear following the drilling of four new wells; with three wells being completed. The examination of the drilling cuttings revealed a change in color (brown to blue and/or gray) from the Paso Robles to the Careaga marking the change from non-marine deposits to marine deposits. In addition a change also occurs in the relative levels of the gamma ray (GR) and SP curves with the Careaga exhibiting a higher GR level and a less well-developed (+) SP curve.

   After drilling four new wells beginning in June of 2009, it became apparent that the Paso Robles section was thinner than first thought and the Careaga Formation was being penetrated in all of the wells as early as 250 feet. This has resulted in a re-interpretation of the thickness map for the Paso Robles interval and the rework of the regional geologic cross section (Appendix).

2. **Water Potential in the Existing Wells**
After a comparison was made between the limited test results in the existing wells and the test results in the new wells, it became apparent that the existing wells have the potential to produce water at rates approaching 400-500 gallons per minute (gpm). The primary limiting factor besides the size of the existing downhole pumps in these wells was the diameter of the casing. Eight (8") inch PVC casing was run in each of the three existing wells versus a larger diameter twelve (12") inch casing run in the new wells, creating more surface area exposed to the aquifers and therefore more production capacity. However, the capacity of the domestic well is purposely restricted due to the artesian effect present in this well and a failure to run the casing beyond 185 feet.

3. **Water Potential in the New Wells**
With the exception of the first new well, which was plugged and abandoned due to the lack of a thick permeable sand interval, each of the newly completed wells is capable of producing at rates in excess of 800 gpm with minimal drawdowns. The completions in each of the three new wells included approximately 150-200 feet of water- bearing Paso Robles sands and 250-350 feet of saturated Careaga Sand. In NewAg #2 and #3, the Careaga Sand grain size in the upper 150-200 feet of the sand zone was comprised of coarser sands and some gravel beds. This was an huge improvement over the normal Careaga section in the Los Alamos Area, where the interval is dominated by very fine, almost flower sand. Consequently, the improved reservoir characteristics in the Careaga in these wells resulted specific capacities of 18 to 28 gallons per foot of drawdown and high transmissivities or permeabilities. These high capacities are reflected in the high producing rates over 800 gpm with minimal drawdowns of only 35-45 feet. During the testing of these wells, the following observations were made:

A. High static water levels

B. The observed percentage of total possible drawdown is low.

C. The wells all stabilized (stable pumping depth) within 15 minutes of pumping, regardless of flow rate.

D. Rapid recovery in the fluid level after the cessation of pumping to the originally observed static level.

All of the above-mentioned factors point to a series of aquifers, which have a significant amount of water in storage and appears to have been minimally affected by the recent three years of low rainfall and drought conditions. However, the only exception to the reservoir conditions listed above is the fourth well, NewAg #4. This well had the longest drilled interval in the Careaga and is characterized by a more normal Careaga section including more very fine grained sand in the bottom of the completed interval than in the other wells. Even with that, the bottom 160 feet of Careaga was excluded from the completion in NewAg #4, due to a concern over very fine sand eventually finding its way past the gravel pack and into the wellbore, thereby shortening the life of the submersible pump or bowels, and the well itself.

4. **Water Quality**

The water quality for the ground water being extracted by all of the wells on the Hunter Four Deer Ranch is excellent. Particularly in comparison to the normal water quality observed in the various ground water basins to the north and south of the Los Alamos or San Antonio Basin. Typically in ground water areas of Santa Barbara and San Luis Obispo Counties the total dissolved solids (TDS) or salinity of the water varies from 750-900 ppm, hardness levels are 300-400 mg/l, and chlorides, calcium, sodium and iron are at high levels. The TDS of the ground water underlying the Four Deer Ranch is 350-450 ppm, the hardness is 180-190 mg/l, chlorides, calcium and sodium are less than 100 mg/l and iron is low. This water is suitable for domestic (drinking water) uses as well as agricultural applications of all kinds; row crops, vineyards, trees, etc.

5. **Artesian Conditions**

As was discussed in the initial ground water study for the Four Deer Ranch, the existence of artesian flow in the southern areas of the ranch, as well as the north ½ of the neighboring parcel (Schaff) to the south, was cause for concern in the drilling of any new wells. While the domestic well (shallow well) near the old barns experienced hole collapse and water and sand flow after drilling to a depth of 345 feet, the well was completed to a shallower depth of 185 feet with 8" PVC casing. Unfortunately, several drilling and completion attempts on the Schaff property to south resulted in the total loss of at least 3 boreholes that we are aware of, but depths approaching 400 feet. Through further correlation work and the successful drilling of new wells on both the Four Deer Ranch and the Schaff parcel, it appears as though the artesian phenomena in this area is confined to the middle of Las Flores Canyon. Unlike the prior interpretation of the artesian flow originating from a sand within the basal interval of the Paso Robles, the new log correlation indicates the pressurized section of aquifer is likely within the

Careaga. In addition the appearance of a minor odor of H2S or rotten egg smell in the water from the domestic wells also points to the older underlying Careaga sands, as the gas normally migrates from the older underlying rocks into the Careaga. Locally there likely exists an internal clay bed confining the water and preventing upward flow and communication with the Upper Careaga and the Lower (basal) Paso Robles reservoir sands. It has also been noted that the first new drilling location penetrated low permeability, clay rich, sediments near the base of the Paso Robles and top of the Careaga. This may possibly be the type of confining bed above the pressurized zone that creates the condition of artesian flow. Consequently, precautions were taken when drilling the new wells on the ranch in order to prevent any drilling stoppage at all from depths from 200 to 400 feet. This interval was drilled continuously without stopping, mud weights were raised slightly and each well's Careaga interval was drilled and completed in the same day, minimizes the chance of uncontrolled water and sand flow.

6. Estimated Ground Water Supply

Underlying the Four Deer Ranch is two primary aquifers, the Paso Robles and the Careaga, both of which are typically highly permeable and nearly fully saturated. The depths to the basal sand interval in the Careaga varies on the ranch from 800 to 1400 feet. With this length of saturation the following is assumed from study of other areas on the calculation of the water supply in place:

➔ The specific yield or storage coefficient ranges between 15 and 25%, average 20%.

➔ The average thickness of the saturated section is 700 to 900 feet, average 800 feet.

➔ The lateral extent of this reservoir thickness is estimated at 1000-1200 acres. Therefore, the estimate of the water supply in storage under the Four Deer Ranch is approximately 150,000 acre-feet (AF).

➔ For the purpose of estimating the amount and rate of annual recharge to the primary aquifers under the subject ranch, assumptions for sediment permeability (0.35 gals/day/sq. ft.), annual rainfall (15-20 inches), and duration of recharge (6 days) are utilized to determine a range in the recharge rate of 0.30 AFY/ac to 0.35AFY/ac, however surface geologic conditions may push this value to as high as 0.45 AFY/acre. This rate is consistent with the rates of recharge utilized for several ground water basins along the Central Coast. Consequently, the annual recharge or "safe yield" available to the Four Deer Ranch is estimated at 350-540 AFY. Or put another way, in a normal rainfall year, 540 AFY of ground water could be extracted from the ranch water wells and would be replenished by rainfall infiltration and subsurface communication without creating an overdraft condition.

This ground water report was prepared by:

KATHERMAN EXPLORATION CO., LLC

Charles E. Katherman
CA Registered Geologist #4069

REGISTERED GEOLOGIST
CHARLES E. KATHERMAN
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NO. 4069
EXP'S 8/11
STATE OF CALIFORNIA

Date: NOVEMBER 30, 2009

APPENDIX

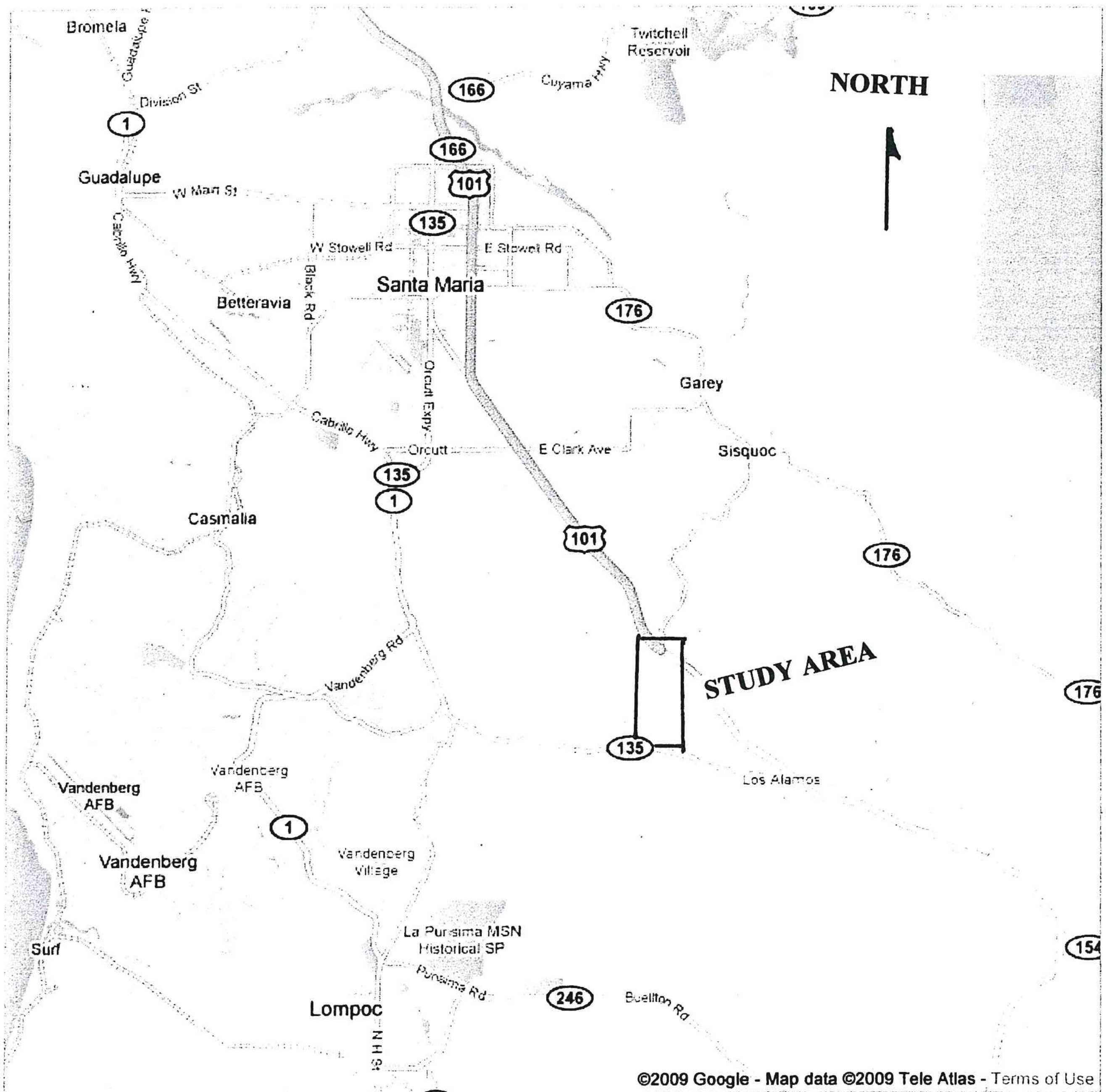


FIGURE 1
LOCATION MAP

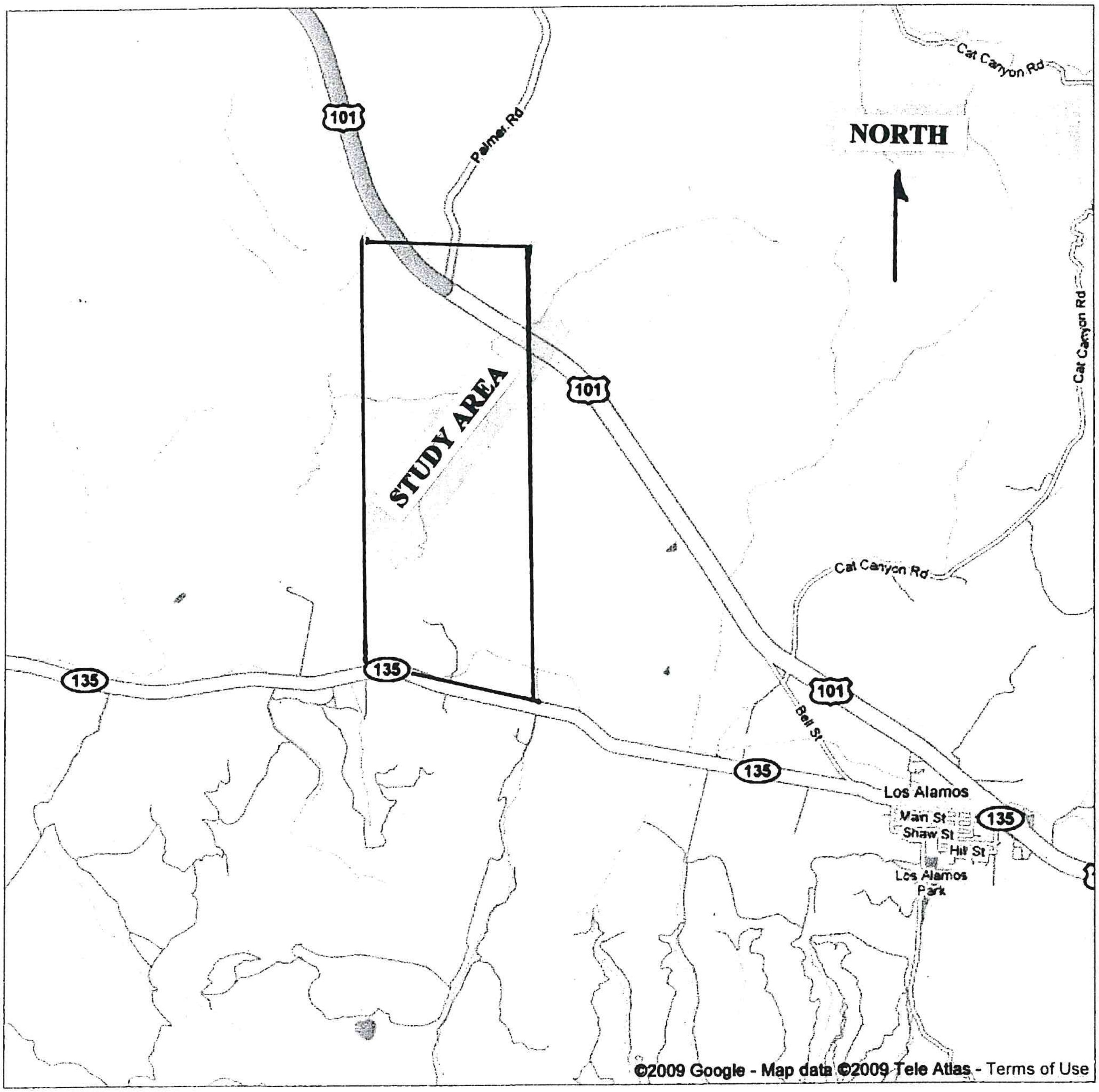
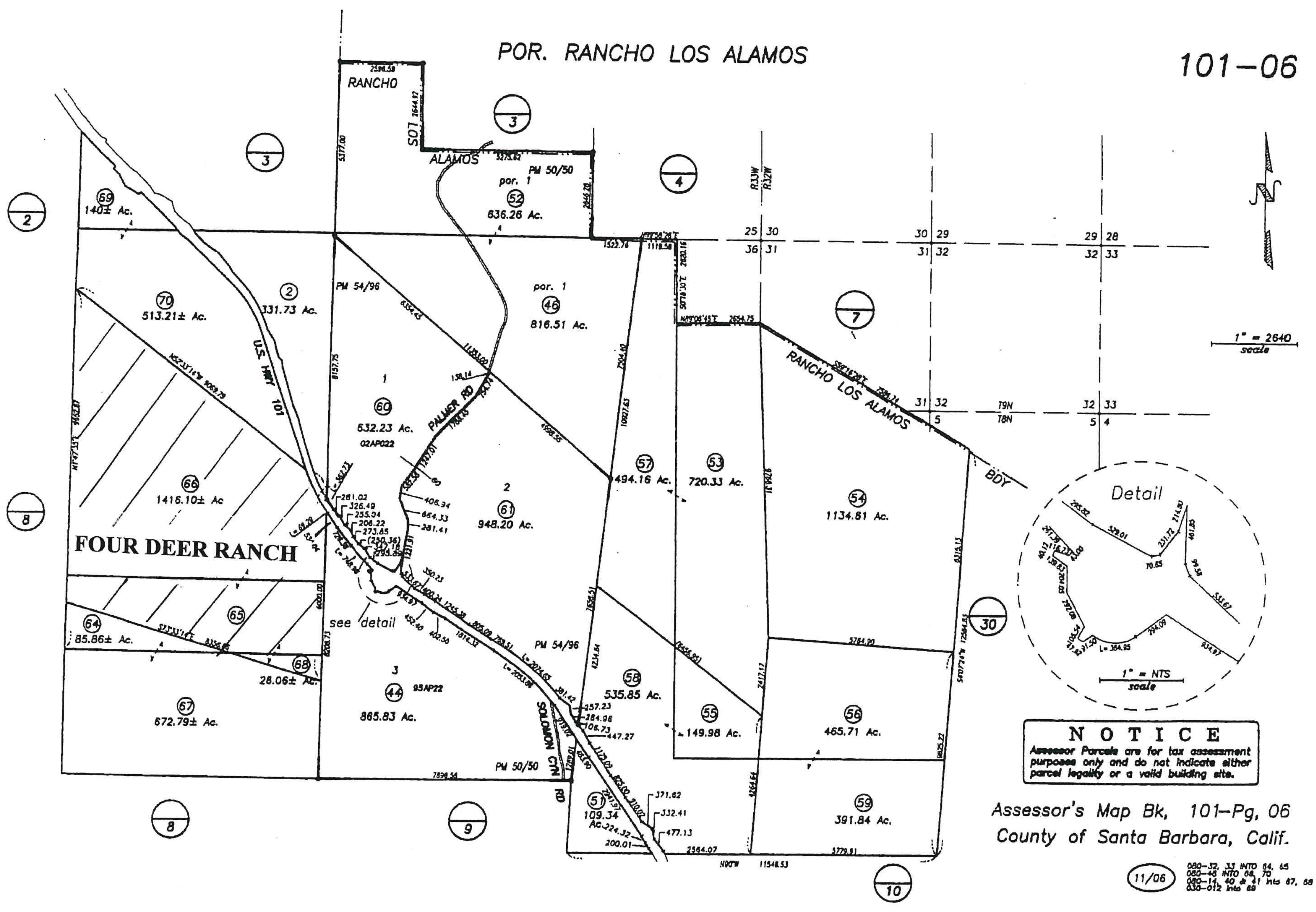


FIGURE 2
LOCATION MAP



N O T I C E

Assessor Parcels are for tax assessment purposes only and do not indicate either parcel legality or a valid building site.

Assessor's Map Bk, 101–Pg, 06
County of Santa Barbara, Calif.

11/06

080–32, 33 INTO 64, 65
080–45 INTO 68, 70
080–14, 40 & 41 Into 67, 68
030–012 Into 69

FIGURE 3
PARCEL MAP

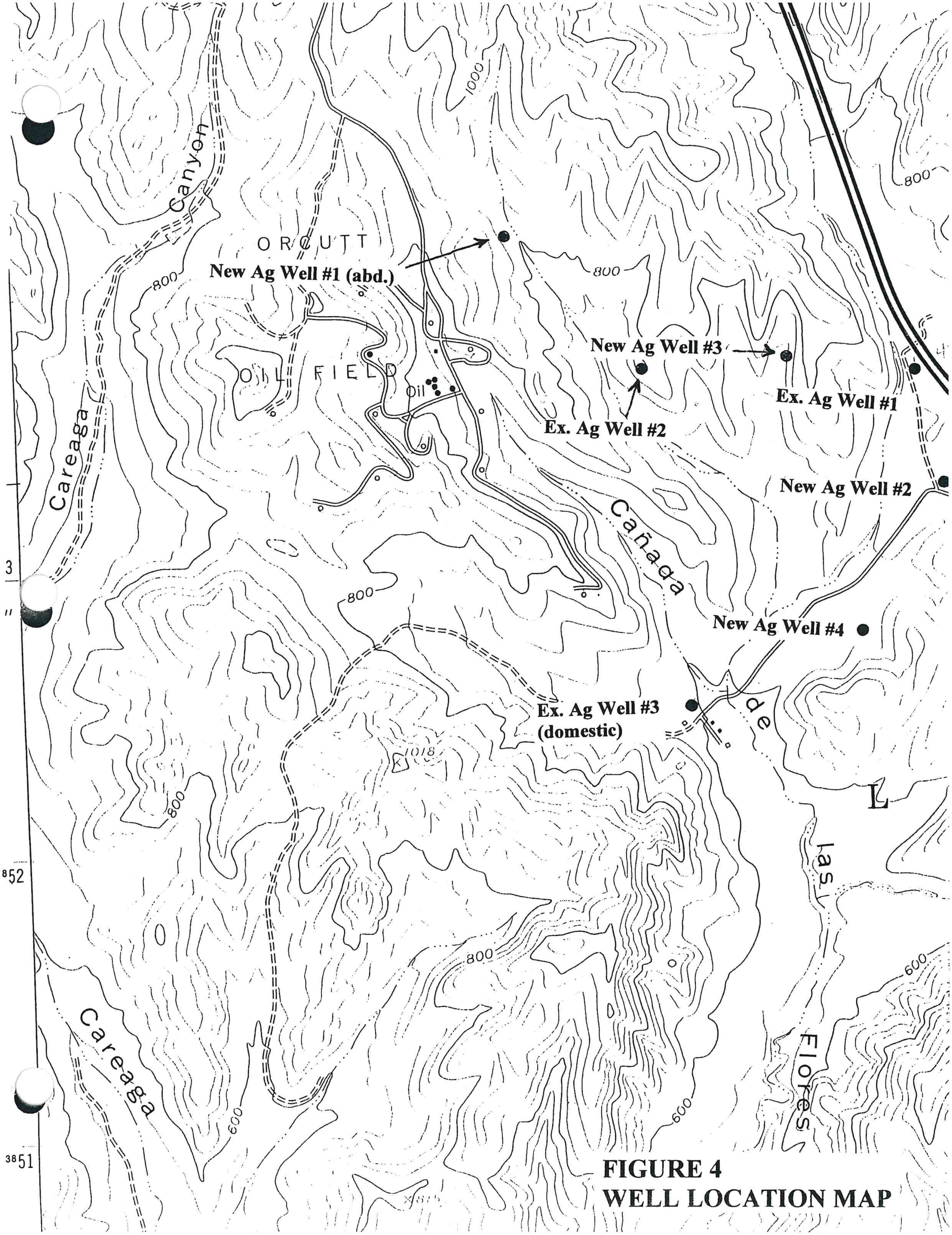


FIGURE 4
WELL LOCATION MAP

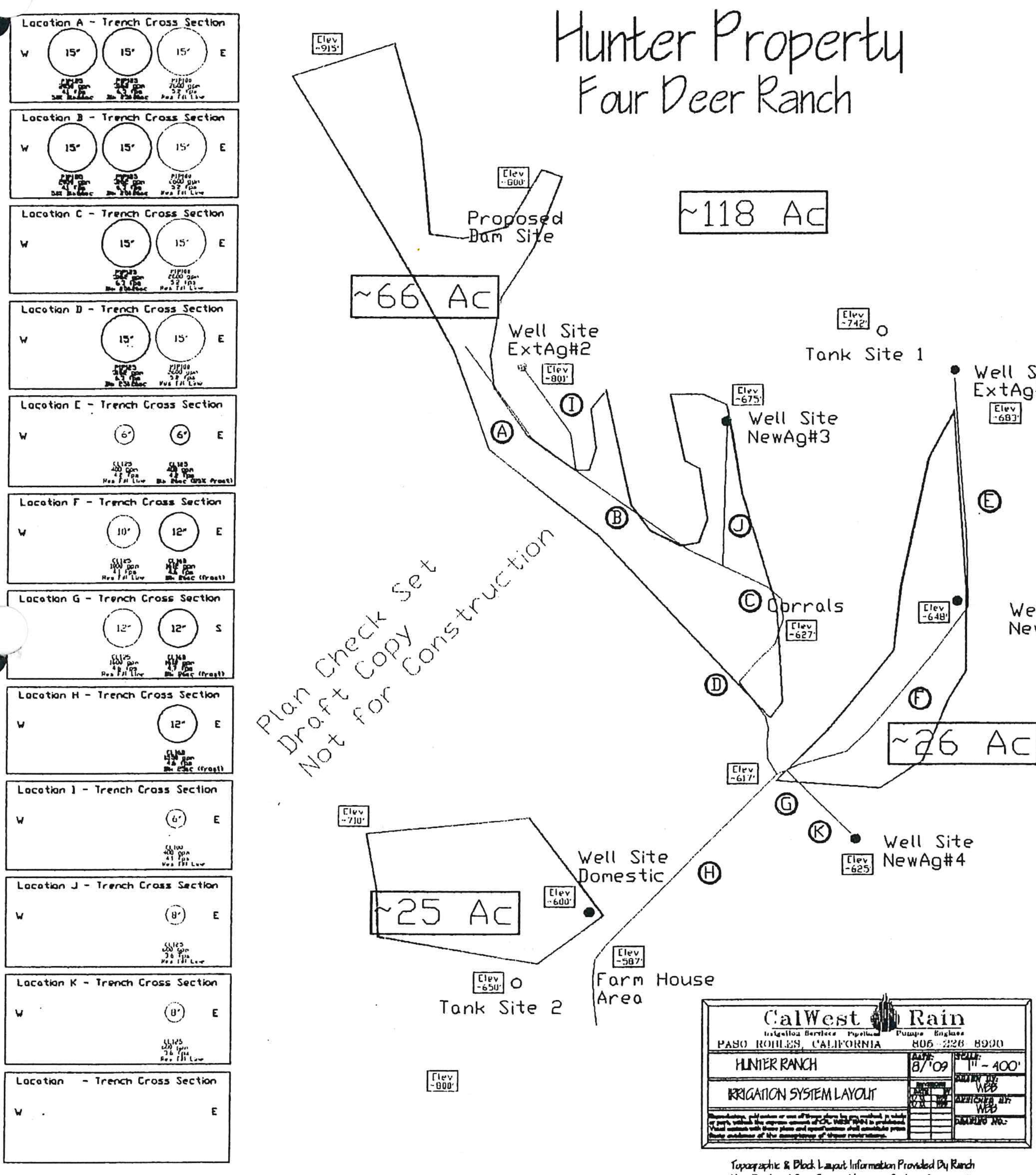


FIGURE 5
WELL/PIPELINE SCHEMATIC

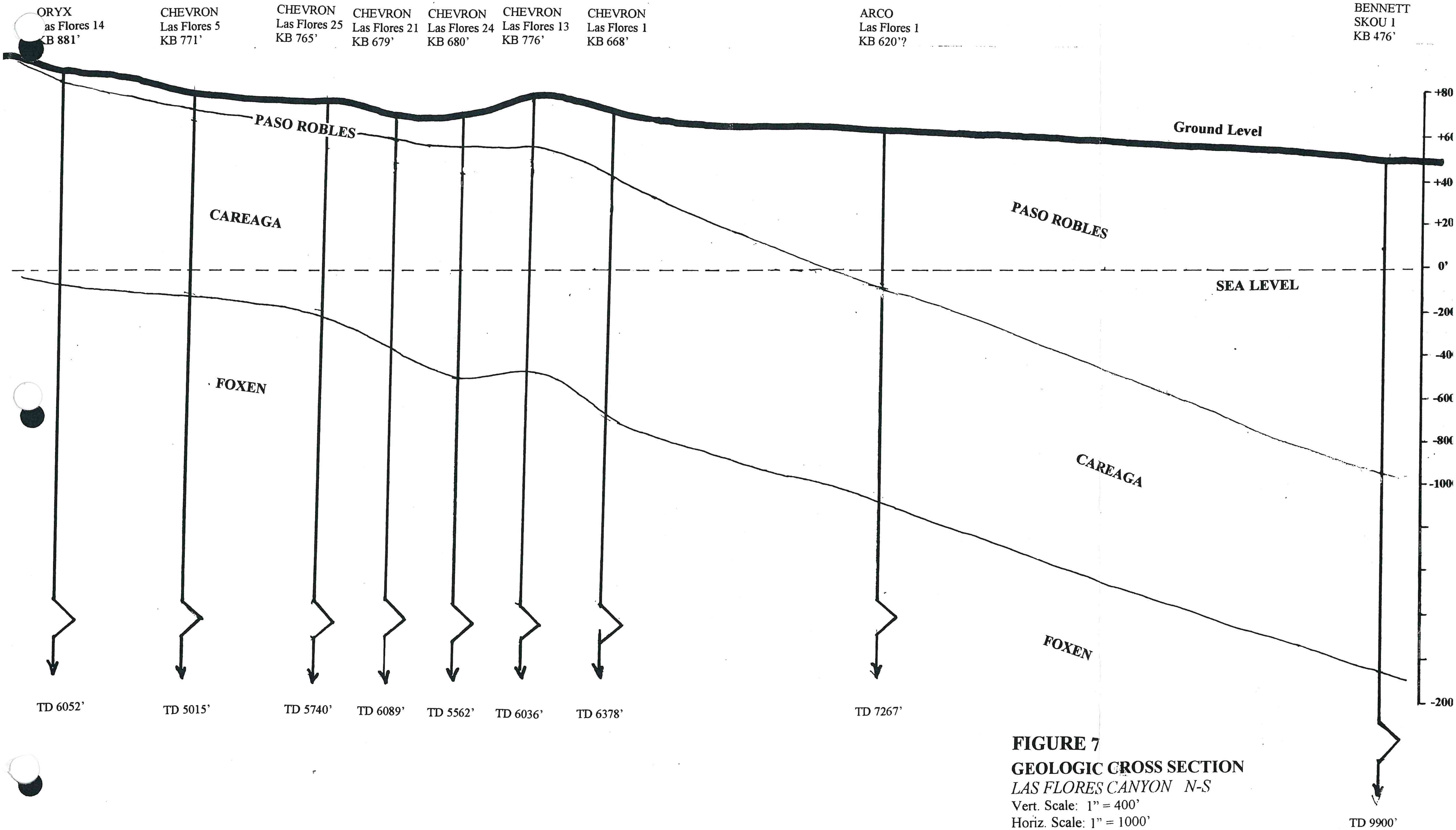


FIGURE 7
GEOLOGIC CROSS SECTION
LAS FLORES CANYON N-S
Vert. Scale: 1" = 400'
Horiz. Scale: 1" = 1000'
3/09 C. Katherman

SISQUOC QUADRANGLE

LEGEND

Holocene | Pleistocene | Pliocene | Miocene

Qg / Qa

SURFICIAL SEDIMENTS

Qg *gravel and sand of Sisquoc River*
Qa *alluvial gravel, sand and clay of valleys and flood plains, in places dissected by active streams*

Qls

LANDSLIDE DEBRIS

Qoa | Qos | Qo

OLDER DISSECTED SURFICIAL SEDIMENTS

remnants of weakly consolidated older alluvial sediments, much dissected
Qoa *alluvial gravel and sand; undivided in this quadrangle*
Qos *wind-deposited sand (may be part of* **Qo***)*
Qo *Orcutt Sand: tan to rusty brown wind-deposited sand, locally pebbly at base*

—UNCONFORMITY—

QTp | QTps

PASO ROBLES FORMATION

weakly consolidated valley alluvial sediments deposited by streams that drained from rising San Rafael Mountains; Pleistocene and latest Pliocene(?) age
QTps *light gray to tan pebbly sand*
QTp *light gray conglomerate or gravel composed mostly of pebbles of white siliceous shale of Monterey Shale in sandy to clayey matrix, crudely to cross-bedded; includes some greenish gray pebbly claystone;* ⊥⊥⊥⊥⊥ *= marly limestone bed, gray-white, hard, impure, of lacustrine origin*

Tcag | Tcac | Tca

CAREAGA SANDSTONE

(of Woodring and Bramlette 1950)
shallow marine clastic, transgressive and regressive; weakly indurated; late Pliocene age
Tcag *Graciosa Member: massive gray-white to tan sandstone or sand; in part nonmarine and wind-deposited; locally pebbly at base*
Tcac *Cebada Member: massive tan to yellow, soft, fine grained sandstone or sand, locally contains small marine shell fragments*
Tca *undifferentiated Careaga Sandstone*

UNCONFORMITY in subsurface

Tf

FOXEN CLAYSTONE

(of Woodring and Bramlette 1950)
<u>in subsurface only</u>; marine clastic; Pliocene age
Tf *dark gray soft claystone; 900-1200 ft. thick*

Tsqd | Tsq | Tsqs

SISQUOC FORMATION

marine clastic-biogenic; late Miocene - early Pliocene age

<u>on surface</u>:
Tsqd *light gray diatomaceous silty claystone, massive to vaguely bedded, weakly indurated, coherent but closely fractured, crumbly where weathered; at surface, 2500-3800 ft. thick thinning northeastward; includes minor fine grained sandstone*
<u>in subsurface</u>:
Sisquoc formation 2500-3000 ft thick, thinning northeastward, composed of:
Tsq *massive, soft but coherent, impervious diatomaceous claystone throuh gray silty claystone to sandy siltstone*
Tsqs *soft gray sandy siltstone to fine grained massive sandstone*

UNCONFORMITY in subsurface
(in northeastern area)

Tm

MONTEREY SHALE

exposed only near northeast corner, elsewhere only <u>in subsurface</u>; marine biogenic; late and middle Miocene age
Tm *thin bedded hard siliceous shale, dark brown to black (from hydrocarbon impregnation), in part brittle, cherty, oil-bearing where closely fractured, lowest part may be age equivalent of Point Sal Formation (Woodring and Bramlette 1950), 2000-3000 ft. thick in this quadrangle*

Tot?

OBISPO TUFF(?)

(Obispo Formation(?) of Hall and Corbató 1967)
mostly volcanic rocks; (<u>in subsurface</u> only in Continental Oil Company McNee No. 4 well, Olivera Canyon area [see cross-section C-D]); middle Miocene age
Tot *tuff, dark gray massive moderately hard, coherent, impervious, fine grained, contains pyrite calcite veinlets, includes tuff breccia ("agglomerate"), one basaltic layer, dark shale, rare thin carbonate layers, undifferentiated*

—UNCONFORMITY—

f

"BASEMENT COMPLEX"

<u>in subsurface only</u>, below Miocene formations; mainly Franciscan Assemblage rocks, ultramafic igneous rocks, and remnants of late Mesozoic sedimentary rocks; structure unknown

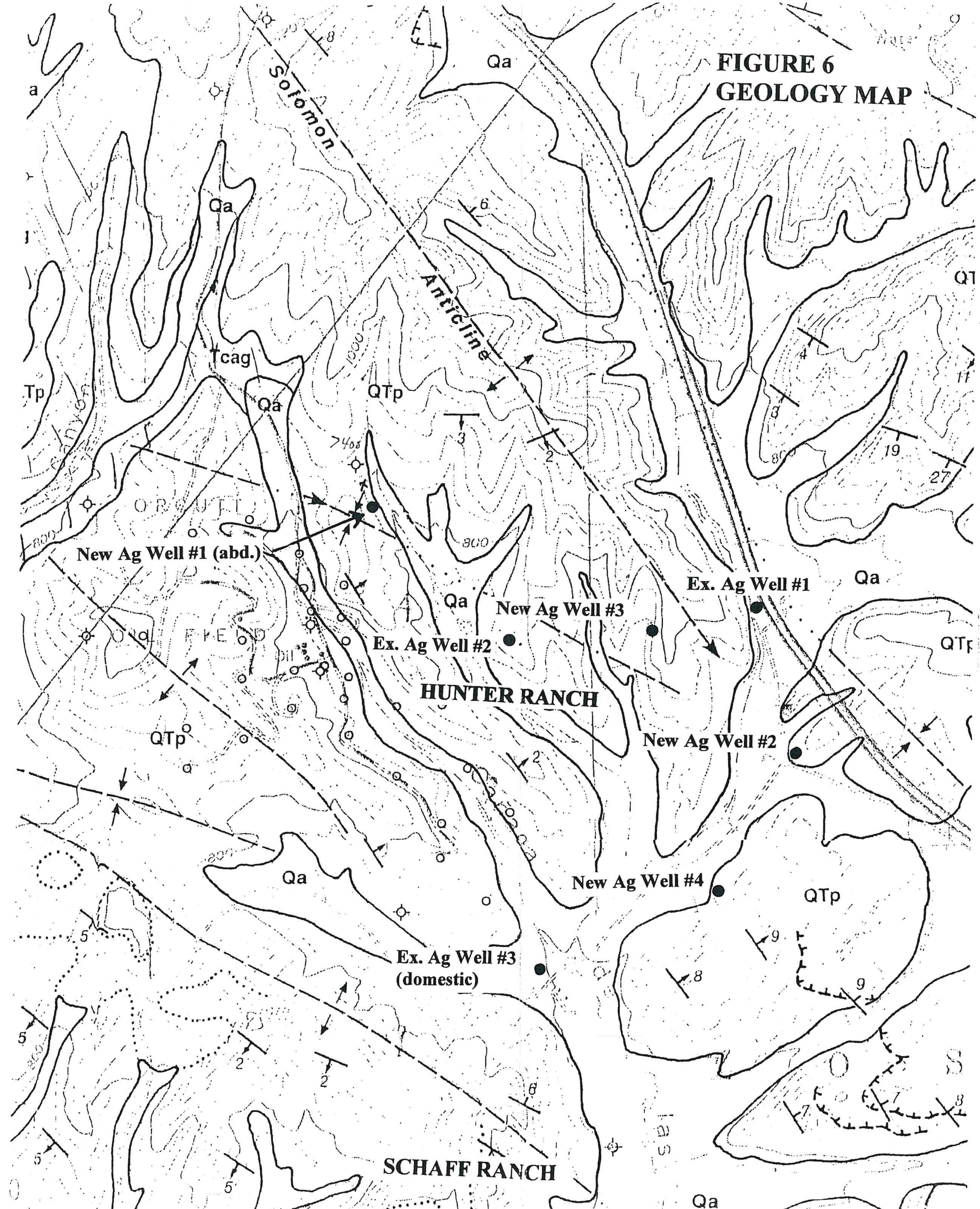
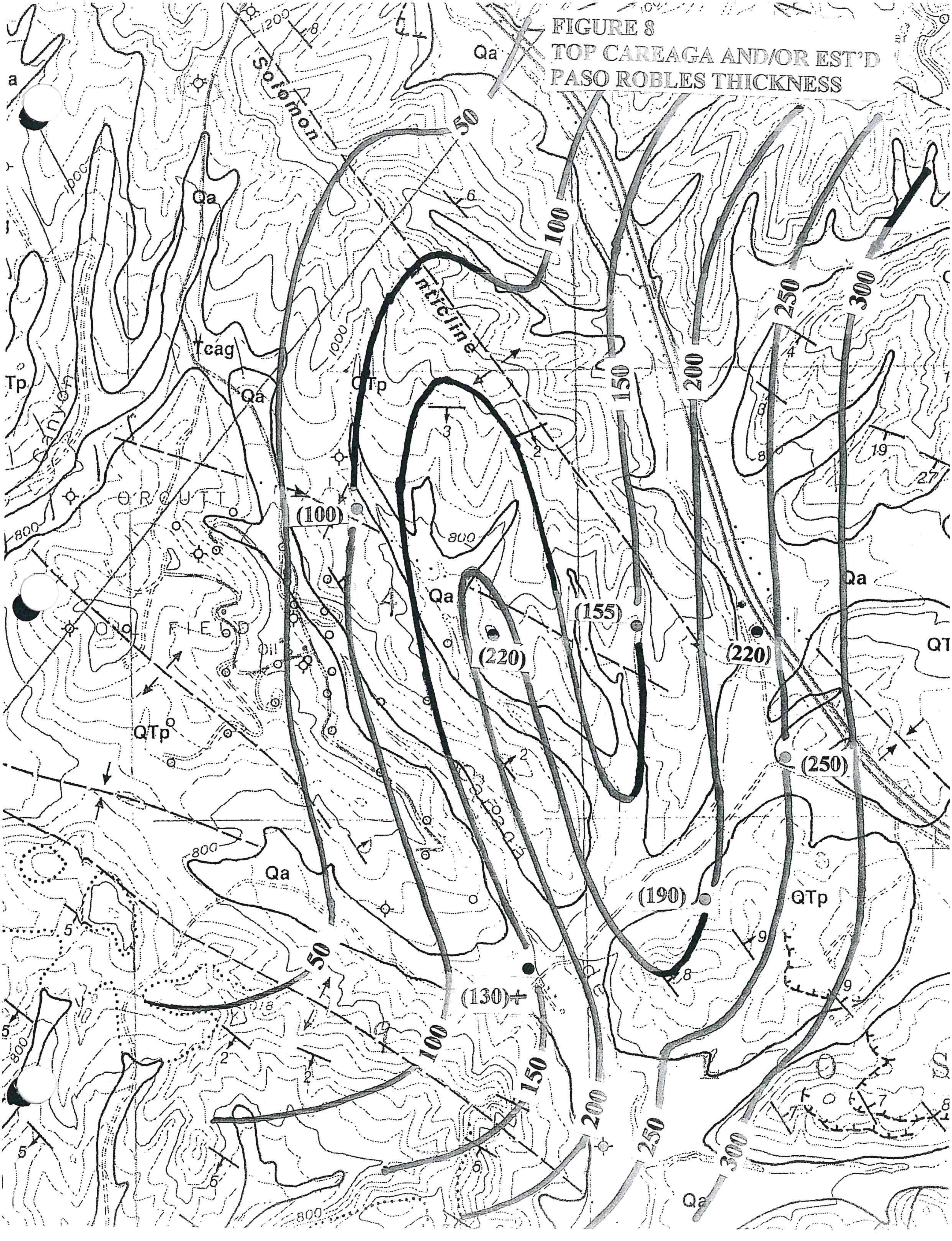


FIGURE 8
TOP CAREAGA AND/OR EST'D PASO ROBLES THICKNESS



welenco

5201 Woodmere Drive, Bakersfield, CA 93313– www.welenco.com–(800) 445-9914
California Contractor's License No. 722373

ELECTRIC - GAMMA RAY - TEMPERATURE LOG

FILING NO.

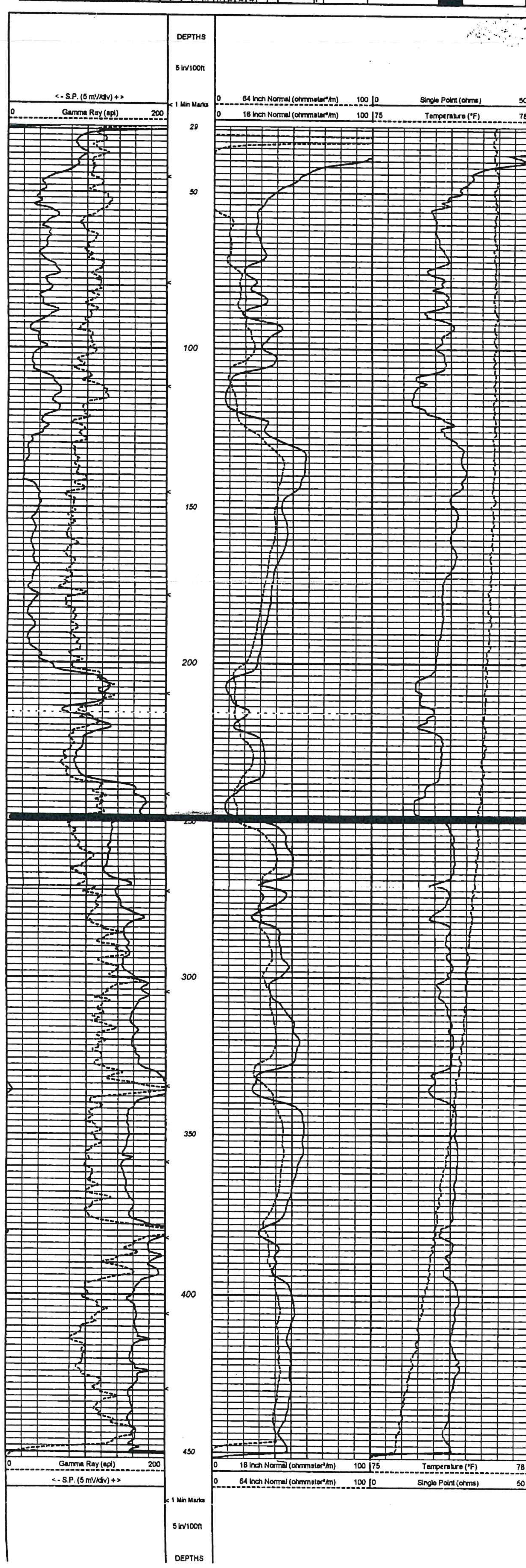
COMPANY Taylor Drilling & Pump
WELL Hunter #2
FIELD Santa Maria
STATE California COUNTY Santa Barbara
LOCATION: Approx. .5 Mi. W. of Palmer Rd. and Hwy. 101
OTHER SERVICES:

JOB NO. 10311
SEC: 4 TWP: 8N RGE: 33W LAT.: 34° 47' 48.8" LONG.: 120° 28' 22.2" MERIDIAN: San Bernardino

Permanent Datum: Ground Level, Elev. ____ Ft. Elev.: K.B. ____ Ft.
Log Measured From: Ground Level 0 Ft. Above Perm. Datum D.F. ____ Ft.
Drilling Measured From: Ground Level G.L. ____ Ft.

Run	One			
Date	Jun. 05, 2009			
Depth-Driller	455 Ft.	Ft.	Ft.	Ft.
Depth-Logger	452 Ft.	Ft.	Ft.	Ft.
Btm. Logged Interval	452 Ft.	Ft.	Ft.	Ft.
Top Logged Interval	30 Ft.	Ft.	Ft.	Ft.
Casing-Driller	0 in @ 0 Ft.	in @ Ft.	in @ Ft.	in @ Ft.
Casing-Logger	0 in @ 0 Ft.	in @ Ft.	in @ Ft.	in @ Ft.
Bit Size	9 7/8 in	in	in	in
Time On Bottom	1850			
Type Fluid In Hole	Bentonite			
Density / Viscosity				
pH / Fluid Loss	ml	ml	ml	ml
Source of Sample	Tank			
Rm @ Measured Temp.	8.1 @ 75 °F	@ °F	@ °F	@ °F
Rmf @ Measured Temp.	4.9 @ 75 °F	@ °F	@ °F	@ °F
Rmc @ Measured Temp.	@ °F	@ °F	@ °F	@ °F
Source Rmf / Rmc	meas.			
Rm @ BHT	@ °F	@ °F	@ °F	@ °F
Time Since Circulation	1 Hr	Hr	Hr	Hr
Max. Rec. Temp.	77.3 °F	°F	°F	°F
Van No. / Location	L-18 / SVG			
Recorded By	Mitch Tullie			
Witnessed By				

New Ag Well #2



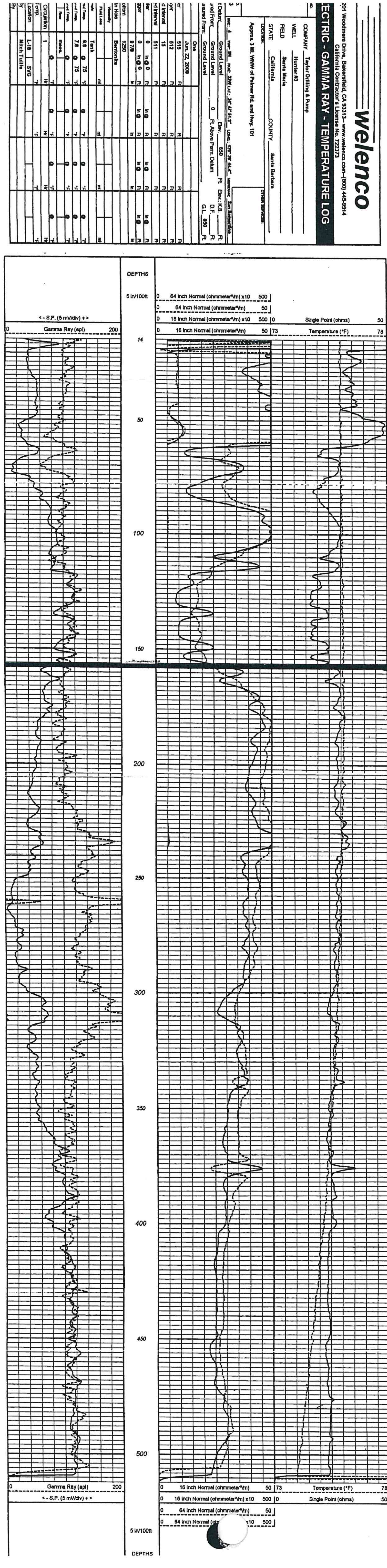
LOG SCALE
1" = 40'

PASO ROBLES

CAREAGA

New Ag Well #3

LOG SCALE
1" = 40'



PASO ROBLES

CAREAGA

WELL DRILLERS REPORTS

MISSING
NEW AG WELL #1

Driller's Copy

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 715604

Page ___ of ___

Owner's Well No. Ex. Ag Well #1

Date Work Began 12/16/99, Ended 12/23/99

Local Permit Agency ___

Permit No. ___ Permit Date ___

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.		DESCRIPTION *Describe material, grain size, color, etc.*
0	9	Sand and gravel
9	65	Brown clay
65	123	Fine brown sand
123	214	Brown clay
214	243	Brown sand
243	254	Blue sand and gravel
254	310	Brown sand and fravel
310	461	Blue sand

TOTAL DEPTH OF BORING 462 (Feet)

TOTAL DEPTH OF COMPLETED WELL 460 (Feet)

WELL OWNER

Name Thompson and Chevron

Mailing Address Prell Road

CITY ___ STATE ___ ZIP ___

WELL LOCATION

Address Palmer rd.

City Santa Maria Ca. 93455

County Santa Barbara

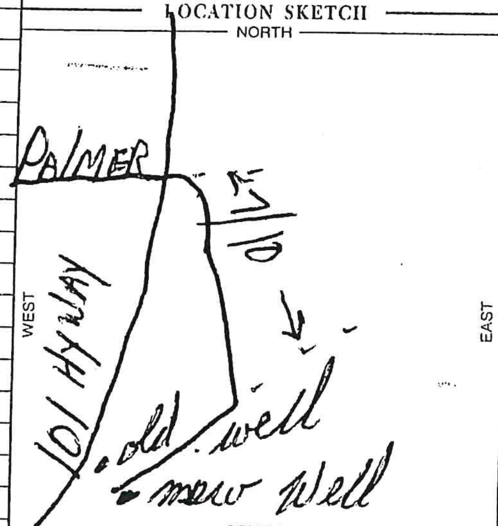
APN Book ___ Page ___ Parcel ___

Township ___ Range ___ Section ___

Latitude ___ NORTH DEG. MIN. SEC. Longitude ___ WEST DEG. MIN. SEC.

LOCATION SKETCH

NORTH



WEST / EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USES (✓)

WATER SUPPLY

___ Domestic ___ Public

X Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 57 (Ft.) & DATE MEASURED 12/27/99

ESTIMATED YIELD * 300 (GPM) & TEST TYPE pump

TEST LENGTH 20 (Hrs.) TOTAL DRAWDOWN 60 (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.		BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	240	15	X				PVC	8		
240	460			X			PVC	8		40

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.		CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	50	X			
					monte...

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ron Taylor Drilling (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

2801 Mallory Santa Maria Calif 93455
ADDRESS CITY STATE ZIP

Signed Ron Taylor WELL DRILLER/AUTHORIZED REPRESENTATIVE 5-30-00 DATE SIGNED 523858 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

File with DWR

Page ___ of ___

Owner's Well No. Ex Ag Well #2

Date Work Began 7/15/00, Ended ______

Local Permit Agency ______

Permit No. ______ Permit Date ______

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 812775

STATE WELL NO./STATION NO. ______

LATITUDE ______ LONGITUDE ______

APN/TRS/OTHER ______

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	52	Gray Clay
52	197	Fine Brown Sand
197	255	Coarse Gray Sand
255	290	Brown Sand
290	351	Dark Gray Sand
351	460	Gray Sand with Seashells

TOTAL DEPTH OF BORING 463 (Feet)

TOTAL DEPTH OF COMPLETED WELL 455 (Feet)

WELL OWNER

Name Thompson & Chevron

Mailing Address ______

Santa Maria, CA 93455

CITY STATE ZIP

WELL LOCATION

Address 7000 Palmer Rd.

City Los Alamos, CA

County ______

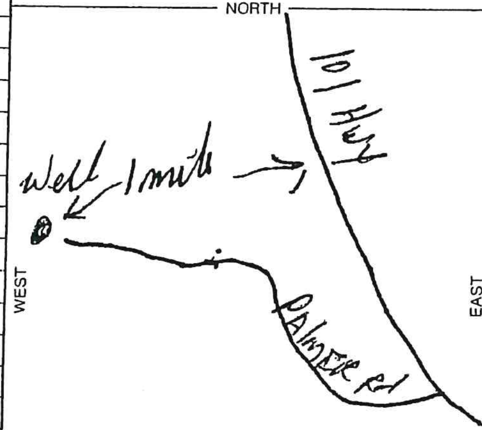
APN Book ___ Page ___ Parcel ___

Township ___ Range ___ Section ___

Latitude ___ DEG. MIN. SEC. NORTH Longitude ___ DEG. MIN. SEC. WEST

LOCATION SKETCH

NORTH



WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ______ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ______ (Ft.) & DATE MEASURED ______

ESTIMATED YIELD * 300 (GPM) & TEST TYPE pump

TEST LENGTH ______ (Hrs.) TOTAL DRAWDOWN ______ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	220	15	X				PVC	8		
220	460			X			PVC	8		040

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	35	X			
					monterey

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analyses
- ___ Other ______

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME [signature] Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

2801 Mahoney Rd
ADDRESS CITY STATE ZIP

Santa Maria Calif

Signed [signature]
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED 7-26-05 C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

File with DWR

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 812774

DO NOT FILL IN

STATE WELL NO./STATION NO.		
LATITUDE		LONGITUDE
APN/TRS/OTHER		

Page ____ of ____

Owner's Well No. Ex Ag Well 3 (Domestic)

Date Work Began 7/24/00, Ended ________

Local Permit Agency ________

Permit No. ________ Permit Date ________

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2	Brown Dirt
2	9	Brown Clay
9	20	Sand & Gravel
20	31	Brown Clay
31	45	Sand & Gravel
45	67	Fine Gray Sand
67	85	Green Fine Sand
85	102	Green Clay
102	130	Fine Green Sand
130	155	Blue Sand
155	159	Blue Clay
159	217	Blue Sand
217	220	Blue Clay
220	340	Blue Sand

TOTAL DEPTH OF BORING 345 (Feet)

TOTAL DEPTH OF COMPLETED WELL 175 (Feet)

WELL OWNER

Name Chevron & WZ9

Mailing Address ________

CITY ________ STATE ____ ZIP ____

WELL LOCATION

Address 7000 Palmer Rd.

City Los Alamos, CA

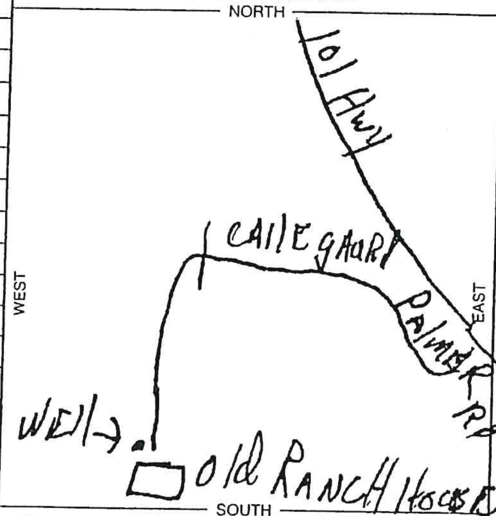
County ________

APN Book ____ Page ____ Parcel ____

Township ____ Range ____ Section ____

Latitude ____ DEG. ____ MIN. ____ SEC. NORTH Longitude ____ DEG. ____ MIN. ____ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ____ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ____ (Ft.) & DATE MEASURED ____

ESTIMATED YIELD * 400 (GPM) & TEST TYPE pump

TEST LENGTH ____ (Hrs.) TOTAL DRAWDOWN ____ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	30		x				PVC	8		
30	185			x			PVC	8		032
0	130				x					

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
					monterey
		x			

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ________

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ron Taylor
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

2801 MAHONEY Rd SANTA MARIA CA
ADDRESS CITY STATE ZIP

Signed Ron Taylor
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1082560

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE / LONGITUDE
APN/TRS/OTHER

Page ___ of ___

Owner's Well No. New Ag Well # 2

Date Work Began 6-04-09, Ended 7-20-09

Local Permit Agency Santa Barbara Co

Permit No. SR-0106424 Permit Date 5-28-09

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain size, color, etc.
0	10	Brown Clay
10	20	Brown Sand
20	50	Brown Sandy Clay
50	120	Brown Course Sand
120	125	White Course Sand
125	130	Gray Clay
130	150	Brown Sandy Clay
150	160	White Clay & Course Sand
160	175	Small Gravel & White Sand
175	208	Brown Course Sand
208	250	Small Gravel & Brown Sand
250	270	Blue Small Gravel
270	340	Blue Course Sand & Some Gravel
340	345	Blue Clay
345	455	Blue Sand

TOTAL DEPTH OF BORING 455 (Feet)

TOTAL DEPTH OF COMPLETED WELL 450 (Feet)

WELL OWNER

Name Four Deer Ranch L.L.C.

Mailing Address 1641 Mission Dr Suite 302

CITY Solvange Calif 93463 STATE ZIP

WELL LOCATION

Address 7770 Hwy 101

City Santa Maria Calif

County Santa Barbara Co

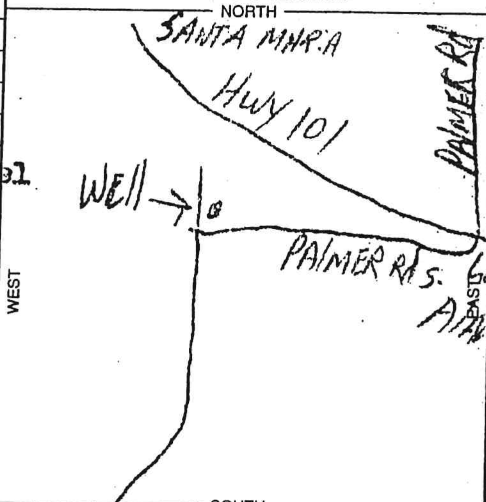
APN Book ___ Page ___ Parcel 101-060-066

Township ___ Range ___ Section ___

Lat ___ DEG. MIN. SEC. N Long ___ DEG. MIN. SEC. W

LOCATION SKETCH

NORTH



WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
X Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 40 (Ft.) & DATE MEASURED 6-14-09

ESTIMATED YIELD * 800 (GPM) & TEST TYPE Pump

TEST LENGTH 12 (Hrs.) TOTAL DRAWDOWN 38 (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	100	22	X				Pvc	12	SDR-21	
100	450	22		X			Pvc	12	SDR-21	040

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	50	X			
					Montery

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ron Taylor Drilling (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 2301 Mahoney Rd Santa Maria Calif 93455 CITY STATE ZIP

Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED 09 C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page ____ of ____

Owner's Well No. New Ag Well #3

Date Work Began 6-18-09, Ended 7-6-09

Local Permit Agency Santa Barbara Co

Permit No. SR# 0106480 Permit Date 6-16-09

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 1082597

DWR USE ONLY – DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ____ HORIZONTAL ____ ANGLE ____ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain size, color, etc.)
0	15	Brown Sand
15	30	Course Sand
30	45	Course Sand & Gravel
45	60	Course Sand
60	80	Brown Clay
80	100	Course Sand & Some Gravel
100	135	Brown Clay
135	208	Course Sand
208	215	Clay
215	230	Course Sand
230	250	Clay
250	265	Course Sand
265	280	Blue Clay & Course Sand
280	345	Blue Sand Fine
345	350	Sandy Clay
350	515	SandyBlue Sand

TOTAL DEPTH OF BORING 515 (Feet)

TOTAL DEPTH OF COMPLETED WELL 440 (Feet)

WELL OWNER

Name Four Deer Ranch L.L.C.

Mailing Address 1641 Mission Dr Suite 302

Solvang Calif 93463

CITY STATE ZIP

WELL LOCATION

Address 7770Hway 101

City Santa Maria Calif 93454

County Santa Barbara

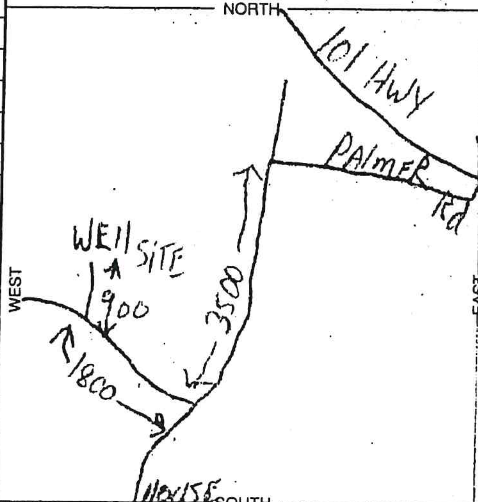
APN Book ____ Page ____ Parcel 101-060-066

Township ____ Range ____ Section ____

Lat ____ N DEG. MIN. SEC. Long ____ W DEG. MIN. SEC.

LOCATION SKETCH

NORTH



SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
- ____ Deepen
- ____ Other (Specify)

____ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)

WATER SUPPLY
- ____ Domestic ____ Public
- X Irrigation ____ Industrial

MONITORING ____
TEST WELL ____
CATHODIC PROTECTION ____
HEAT EXCHANGE ____
DIRECT PUSH ____
INJECTION ____
VAPOR EXTRACTION ____
SPARGING ____
REMEDIATION ____
OTHER (SPECIFY) ____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ____ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 63 (Ft.) & DATE MEASURED 8-24-09

ESTIMATED YIELD * 800 (GPM) & TEST TYPE Pump

TEST LENGTH 8 (Hrs.) TOTAL DRAWDOWN 47 (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	100	22	X				PVC	12	SDR-21	
100	440	22		X			PVC	12	SDR-21	040

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	50	X			
					Montery

ATTACHMENTS (✓)

- ____ Geologic Log
- ____ Well Construction Diagram
- ____ Geophysical Log(s)
- ____ Soil/Water Chemical Analyses
- ____ Other ____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ron Taylor Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

2801 Mahoney Rd Santa Maria Calif 93455
ADDRESS CITY STATE ZIP

Signed [signature] 9-9-09 523-858
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page ___ of ___

Owner's Well No. ~~#3~~ #4 New Agheel #4

Date Work Began 8-3-09, Ended 8-23-09

Local Permit Agency Santa Barbara Co

Permit No. SB# 0106635 Permit Date 8-03-09

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 1082599

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain size, color, etc.
0	10	Brown Clay
10	30	Brown Sand & Small Gravel
30	60	Gray Coures Sand
60	70	Gray Rock & Coures Sand
70	120	Coures Sand Gray
120	135	Clay
135	145	Course Sand
145	150	Sandy Clay
150	190	Sand
190	200	Clay
200	310	Grey Sand
310	480	Course Sand & Small Gravel
480	500	Sandy Clay With Sea Shells
500	622	Gray Fine Sandy Clay

TOTAL DEPTH OF BORING 600 (Feet)

TOTAL DEPTH OF COMPLETED WELL 490 (Feet)

WELL OWNER

Name Four Deer Ranch L.L.C.

Mailing Address 1641 Mission Dr. Suite 302

Solvang Calif 93463

CITY STATE ZIP

WELL LOCATION

Address 7700 South Hway 101

City Santa Maria Calif 93455

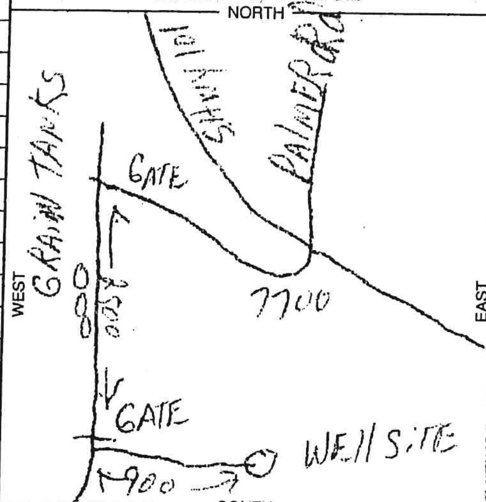
County Santa Barbara Co

APN Book ___ Page ___ Parcel 101-060-066

Township ___ Range ___ Section ___

Lat ___ N DEG. MIN. SEC. Long ___ W DEG. MIN. SEC.

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
X Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 11 (Ft.) & DATE MEASURED 8-18-09

ESTIMATED YIELD * 900 (GPM) & TEST TYPE Pump

TEST LENGTH 8 (Hrs.) TOTAL DRAWDOWN 123 (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	100	22	X				PVC	12	SDR-21	
100	480	22		X			PVC	12	SDR-21	.040
480	490	22	X				PVC	12	SDR-21	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	25	X			
					Monterey S...

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Ron Taylor Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

2801 Mahoney Santa Maria Calif 93455
ADDRESS CITY STATE ZIP

Signed [signature] 9-26-09
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Hunter Four Deer Ranch
Water Well Data
Oct-09

Well #	Status	Total Depth (feet)	Static Level (feet)	Comp Interval (feet)	Test Rate (gpm)	Drawdown (feet)	Comments
Domestic	Existing	340	0 (sfc)	130-185	150	55	Well will serve as potable water source
ExAg - 1	Existing	460	82	240-460	38	3	Est. optimum producing rate = 400-500 gpm
ExAg - 2	Existing	460	189	220-460	100	10	Est. optimum producing rate = 400-500 gpm
NewAg - 1	New	400	NA	Not Comp'd	NA	NA	Well not completed
NewAg - 2	New	455	40	100-450	900	32	Est. optimum producing rate = 800-900 gpm
NewAg - 3	New	515	63	100-480	750	46	Est. optimum producing rate = 700-800 gpm
NewAg - 4	New	600	10	100-440	900	124	Est. optimum producing rate = 600-700 gpm

WELL TEST RESULTS

HUNTER - LOS FLORES RANCH
WATER WELL TESTING
Jan-09

EAST WELL ExtAg #1
NEAR FREEWAY
Air line/pump set @ 140 ft.

PUMPING PHASE

Time (min's)	Fluid Level (feet below sfc)	Fluid Level (feet above pump)	Drawdown (feet)	Flowrate (gal/min	Remarks
0	82	58	0	0	Static level
5	84.5	55.5	2.5	37.5	
10	84.5	55.5	2.5	37.5	
15	84.5	55.5	2.5	37.5	
20	84.5	55.5	2.5	37.5	
25	84.5	55.5	2.5	37.5	
30	84.5	55.5	2.5	37.5	
45	84.5	55.5	2.5	37.5	
60	84.5	55.5	2.5	37.5	
120	84.5	55.5	2.5	37.5	
180	84.5	55.5	2.5	37.5	
240	84.5	55.5	2.5	37.5	
300	84.5	55.5	2.5	37.5	
360	84.5	55.5	2.5	37.5	
420	84.5	55.5	2.5	37.5	
480	84.5	55.5	2.5	37.5	
540	84.5	55.5	2.5	37.5	
600	84.5	55.5	2.5	37.5	
660	84.5	55.5	2.5	37.5	
720	84.5	55.5	2.5	37.5	
Recovery Phase					
0	84.5	55.5	2.5	0	
5	82	58	0	0	Return to static level

APPENDIX D-3

Vandenberg Space Force Base Well Field Pumping Tests

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Vandenberg Space Force Base
Well Field Pumping Tests

Well Field Pumping Test Data

Well Name	Test Duration (hours)	Flow (gpm)	Static Water Level	Pumping Water Level	Well Depth (ft bgs)	Screened Interval (ft bgs)
Well#4	2.3	956	67’	121’	334’	111’
Well#7	2.5	1,200	69.15’	107’	410’	190’
Well#6	3.7	684	56.5’	90’	Unconfirmed	180’
Well#5	3.1	768	58’	104.5’	400’	110’

Screen Interval Data

Well#4

Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	162-219/234-273/319-334

Well#5

Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	200-210 220-230 270-290 300-320 330-340 350-360 370-390

Well#6

Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	210-390

Well#7A

Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	200'-390'

APPENDIX D-4

Los Alamos Fire Department Weather Station Precipitation Data

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County of Santa Barbara
Daily Rainfall Record - through 05-01-2020

#204 - Los Alamos Fire Station
Lat 34-44-43, Long 120-16-48, Elev 580 ft

Daily Rainfall (in inches) recorded as of 8am for the previous 24 hours (PST)
Codes: PR = Preliminary data, E = Estimated from nearby gauge

station id	water year	year	month	day	daily rain
204	1910	1909	10	3	0.90
204	1910	1909	10	29	0.05
204	1910	1909	11	9	0.96
204	1910	1909	11	11	0.13
204	1910	1909	11	26	0.17
204	1910	1909	11	27	0.43
204	1910	1909	12	5	1.20
204	1910	1909	12	7	0.37
204	1910	1909	12	8	0.71
204	1910	1909	12	9	2.35
204	1910	1909	12	20	0.66
204	1910	1909	12	21	0.31
204	1910	1909	12	22	0.20
204	1910	1910	1	1	1.47
204	1910	1910	1	2	0.33
204	1910	1910	1	12	0.06
204	1910	1910	1	15	0.19
204	1910	1910	1	16	1.05
204	1910	1910	1	23	0.18
204	1910	1910	1	24	0.30
204	1910	1910	2	6	0.10
204	1910	1910	2	19	0.08
204	1910	1910	2	23	0.05
204	1910	1910	3	14	0.70
204	1910	1910	3	17	0.15
204	1910	1910	3	21	1.03
204	1910	1910	3	22	0.43
204	1910	1910	3	23	0.10
204	1910	1910	3	25	0.22
204	1910	1910	3	27	1.45
204	1910	1910	3	28	0.10
204	1911	1910	9	14	0.14
204	1911	1910	9	15	0.70
204	1911	1910	10	11	0.12
204	1911	1910	11	4	0.18
204	1911	1910	11	25	0.40

station id	water year	year	month	day	daily rain
204	1911	1910	12	3	0.03
204	1911	1910	12	10	0.10
204	1911	1910	12	18	0.20
204	1911	1910	12	19	0.13
204	1911	1911	1	9	1.00
204	1911	1911	1	10	0.45
204	1911	1911	1	11	0.03
204	1911	1911	1	12	0.11
204	1911	1911	1	13	0.15
204	1911	1911	1	14	0.47
204	1911	1911	1	15	0.18
204	1911	1911	1	19	0.15
204	1911	1911	1	24	0.84
204	1911	1911	1	25	0.63
204	1911	1911	1	28	0.60
204	1911	1911	1	29	2.95
204	1911	1911	1	30	1.10
204	1911	1911	1	31	0.87
204	1911	1911	2	3	0.72
204	1911	1911	2	4	0.48
204	1911	1911	2	11	0.84
204	1911	1911	2	12	0.15
204	1911	1911	2	14	0.38
204	1911	1911	2	26	0.06
204	1911	1911	2	27	0.26
204	1911	1911	2	28	0.75
204	1911	1911	3	1	2.66
204	1911	1911	3	2	0.22
204	1911	1911	3	3	0.61
204	1911	1911	3	4	0.95
204	1911	1911	3	5	0.92
204	1911	1911	3	6	1.06
204	1911	1911	3	7	3.10
204	1911	1911	3	8	0.98
204	1911	1911	3	9	1.16
204	1911	1911	3	10	0.55
204	1911	1911	3	21	0.20
204	1911	1911	4	1	0.92
204	1911	1911	4	5	0.23
204	1911	1911	4	6	0.07
204	1911	1911	4	26	0.25
204	1912	1911	12	4	0.42
204	1912	1911	12	6	0.70
204	1912	1911	12	7	0.06
204	1912	1911	12	17	0.15

station id	water year	year	month	day	daily rain
204	1912	1911	12	28	0.17
204	1912	1911	12	29	0.35
204	1912	1912	1	2	0.55
204	1912	1912	1	10	0.41
204	1912	1912	1	11	0.11
204	1912	1912	1	16	0.22
204	1912	1912	1	26	0.30
204	1912	1912	3	1	0.09
204	1912	1912	3	2	0.11
204	1912	1912	3	3	0.15
204	1912	1912	3	4	0.71
204	1912	1912	3	5	1.11
204	1912	1912	3	6	0.27
204	1912	1912	3	9	0.60
204	1912	1912	3	10	1.00
204	1912	1912	3	12	1.85
204	1912	1912	3	13	0.25
204	1912	1912	3	16	0.05
204	1912	1912	3	21	0.42
204	1912	1912	3	26	0.16
204	1912	1912	4	8	0.12
204	1912	1912	4	9	0.08
204	1912	1912	4	10	0.11
204	1912	1912	4	11	0.42
204	1912	1912	4	29	0.12
204	1912	1912	5	6	0.10
204	1912	1912	5	7	0.17
204	1912	1912	5	8	0.17
204	1912	1912	5	25	0.68
204	1913	1912	11	10	0.30
204	1913	1912	12	15	0.16
204	1913	1913	1	9	0.62
204	1913	1913	1	10	0.30
204	1913	1913	1	14	0.03
204	1913	1913	1	15	1.44
204	1913	1913	1	16	0.37
204	1913	1913	1	17	0.10
204	1913	1913	1	18	0.02
204	1913	1913	2	8	0.53
204	1913	1913	2	21	0.37
204	1913	1913	2	22	0.27
204	1913	1913	2	23	0.31
204	1913	1913	2	24	1.32
204	1913	1913	2	25	0.42
204	1913	1913	3	18	0.25

station id	water year	year	month	day	daily rain
204	1913	1913	3	21	0.20
204	1913	1913	3	22	0.05
204	1913	1913	3	23	0.25
204	1913	1913	4	14	0.14
204	1913	1913	4	17	0.19
204	1913	1913	4	18	0.09
204	1913	1913	4	22	0.08
204	1913	1913	5	28	0.15
204	1913	1913	6	26	0.30
204	1913	1913	6	27	0.05
204	1913	1913	8	28	1.20
204	1914	1913	11	1	0.10
204	1914	1913	11	12	0.30
204	1914	1913	11	13	0.95
204	1914	1913	11	14	0.05
204	1914	1913	11	18	0.75
204	1914	1913	11	19	0.20
204	1914	1913	11	29	0.10
204	1914	1913	12	14	0.40
204	1914	1913	12	19	0.07
204	1914	1913	12	23	0.60
204	1914	1913	12	25	1.02
204	1914	1913	12	30	0.85
204	1914	1913	12	31	0.11
204	1914	1914	1	1	0.10
204	1914	1914	1	2	0.10
204	1914	1914	1	15	1.20
204	1914	1914	1	16	0.15
204	1914	1914	1	18	1.25
204	1914	1914	1	19	2.10
204	1914	1914	1	22	0.23
204	1914	1914	1	23	0.04
204	1914	1914	1	24	1.93
204	1914	1914	1	25	2.75
204	1914	1914	1	26	0.35
204	1914	1914	1	27	1.10
204	1914	1914	2	18	2.36
204	1914	1914	2	20	3.50
204	1914	1914	2	21	0.40
204	1914	1914	3	27	0.07
204	1914	1914	3	29	0.90
204	1914	1914	4	4	0.07
204	1914	1914	4	5	0.03
204	1914	1914	4	22	0.35
204	1915	1914	12	1	1.20

station id	water year	year	month	day	daily rain
204	1915	1914	12	3	0.10
204	1915	1914	12	4	0.13
204	1915	1914	12	5	0.18
204	1915	1914	12	6	0.15
204	1915	1914	12	10	0.74
204	1915	1914	12	11	0.58
204	1915	1914	12	12	0.15
204	1915	1914	12	17	1.27
204	1915	1914	12	18	0.20
204	1915	1914	12	20	0.19
204	1915	1914	12	27	0.23
204	1915	1915	1	4	0.25
204	1915	1915	1	5	0.20
204	1915	1915	1	8	0.38
204	1915	1915	1	14	0.25
204	1915	1915	1	20	0.06
204	1915	1915	1	24	0.22
204	1915	1915	1	27	0.07
204	1915	1915	1	28	0.86
204	1915	1915	1	29	2.15
204	1915	1915	1	30	0.90
204	1915	1915	2	2	1.36
204	1915	1915	2	3	0.46
204	1915	1915	2	8	0.95
204	1915	1915	2	9	2.08
204	1915	1915	2	10	0.84
204	1915	1915	2	11	0.12
204	1915	1915	2	16	0.25
204	1915	1915	2	17	0.48
204	1915	1915	2	19	0.06
204	1915	1915	2	20	0.69
204	1915	1915	2	24	0.51
204	1915	1915	2	28	0.36
204	1915	1915	3	1	0.05
204	1915	1915	3	7	0.16
204	1915	1915	3	28	0.40
204	1915	1915	4	7	0.05
204	1915	1915	4	21	1.25
204	1915	1915	4	22	0.05
204	1915	1915	4	23	0.10
204	1915	1915	4	26	0.25
204	1915	1915	4	28	0.35
204	1915	1915	4	29	0.09
204	1915	1915	5	1	0.14
204	1915	1915	5	2	0.46

station id	water year	year	month	day	daily rain
204	1915	1915	5	4	0.70
204	1915	1915	5	5	0.03
204	1915	1915	5	12	0.12
204	1915	1915	5	17	0.20
204	1918	1917	12	26	0.04
204	1918	1918	1	13	0.30
204	1918	1918	1	14	0.04
204	1918	1918	1	26	0.07
204	1918	1918	2	6	0.04
204	1918	1918	2	7	0.30
204	1918	1918	2	17	0.83
204	1918	1918	2	18	0.12
204	1918	1918	2	19	0.14
204	1918	1918	2	20	5.81
204	1918	1918	2	21	2.32
204	1918	1918	2	22	1.12
204	1918	1918	2	24	1.10
204	1918	1918	2	26	0.10
204	1918	1918	3	5	0.55
204	1918	1918	3	6	0.39
204	1918	1918	3	7	1.25
204	1918	1918	3	8	0.10
204	1918	1918	3	10	0.26
204	1918	1918	3	11	0.76
204	1918	1918	3	18	0.81
204	1918	1918	3	19	3.01
204	1918	1918	3	27	0.05
204	1918	1918	8	13	0.03
204	1918	1918	8	14	0.05
204	1918	1918	8	27	0.12
204	1919	1918	9	13	0.03
204	1919	1918	9	14	0.05
204	1919	1918	9	27	0.12
204	1919	1918	10	1	0.30
204	1919	1918	11	4	0.17
204	1919	1918	11	5	0.15
204	1919	1918	11	14	0.31
204	1919	1918	11	15	0.18
204	1919	1918	11	18	0.98
204	1919	1918	11	19	0.38
204	1919	1918	11	23	0.77
204	1919	1918	12	7	1.69
204	1919	1918	12	8	0.28
204	1919	1918	12	9	0.30
204	1919	1918	12	20	0.06

station id	water year	year	month	day	daily rain
204	1919	1918	12	21	0.30
204	1919	1919	1	19	0.46
204	1919	1919	2	1	0.40
204	1919	1919	2	2	0.04
204	1919	1919	2	9	0.10
204	1919	1919	2	10	0.43
204	1919	1919	2	11	1.05
204	1919	1919	2	15	0.04
204	1919	1919	2	22	0.04
204	1919	1919	2	23	0.19
204	1919	1919	2	24	0.04
204	1919	1919	2	26	0.36
204	1919	1919	2	27	0.04
204	1919	1919	2	28	0.02
204	1919	1919	3	1	0.03
204	1919	1919	3	2	0.13
204	1919	1919	3	13	0.97
204	1919	1919	3	14	0.52
204	1919	1919	4	26	0.06
204	1919	1919	5	28	1.11
204	1919	1919	5	29	0.24
204	1920	1919	9	1	0.02
204	1920	1919	9	2	0.56
204	1920	1919	10	24	0.16
204	1920	1919	10	25	0.02
204	1920	1919	11	26	0.03
204	1920	1919	11	27	0.11
204	1920	1919	11	30	0.03
204	1920	1919	12	1	0.04
204	1920	1919	12	2	0.17
204	1920	1919	12	4	0.62
204	1920	1919	12	5	0.97
204	1920	1919	12	6	0.32
204	1920	1919	12	8	0.05
204	1920	1919	12	11	0.50
204	1920	1920	1	4	0.14
204	1920	1920	1	22	0.07
204	1920	1920	1	23	0.18
204	1920	1920	2	1	0.40
204	1920	1920	2	2	0.54
204	1920	1920	2	9	0.02
204	1920	1920	2	19	0.66
204	1920	1920	2	22	0.84
204	1920	1920	2	23	0.18
204	1920	1920	2	27	0.18

station id	water year	year	month	day	daily rain
204	1920	1920	2	29	0.15
204	1920	1920	3	1	0.46
204	1920	1920	3	2	0.11
204	1920	1920	3	9	0.06
204	1920	1920	3	10	0.22
204	1920	1920	3	16	0.44
204	1920	1920	3	21	0.93
204	1920	1920	3	22	0.94
204	1920	1920	3	23	0.16
204	1920	1920	3	25	0.06
204	1920	1920	3	26	0.37
204	1920	1920	4	9	0.26
204	1920	1920	4	10	0.03
204	1920	1920	4	15	0.36
204	1920	1920	4	16	0.06
204	1921	1920	9	24	0.03
204	1921	1920	10	6	0.04
204	1921	1920	10	9	0.29
204	1921	1920	10	18	0.15
204	1921	1920	10	19	0.10
204	1921	1920	11	7	1.15
204	1921	1920	11	15	0.18
204	1921	1920	12	7	0.45
204	1921	1920	12	8	0.02
204	1921	1920	12	10	0.25
204	1921	1920	12	11	0.06
204	1921	1920	12	19	0.41
204	1921	1920	12	24	0.10
204	1921	1921	1	17	0.07
204	1921	1921	1	18	1.39
204	1921	1921	1	19	0.12
204	1921	1921	1	20	0.71
204	1921	1921	1	21	0.06
204	1921	1921	1	22	0.14
204	1921	1921	1	26	0.12
204	1921	1921	1	27	0.58
204	1921	1921	1	30	0.58
204	1921	1921	2	5	0.07
204	1921	1921	2	14	0.94
204	1921	1921	2	15	0.02
204	1921	1921	2	17	0.70
204	1921	1921	2	21	0.07
204	1921	1921	3	6	0.04
204	1921	1921	3	11	0.07
204	1921	1921	3	12	0.28

station id	water year	year	month	day	daily rain
204	1921	1921	3	13	0.43
204	1921	1921	3	14	0.17
204	1921	1921	3	22	0.07
204	1921	1921	4	11	0.32
204	1921	1921	4	13	0.02
204	1921	1921	5	5	0.43
204	1921	1921	5	6	0.28
204	1921	1921	5	20	0.31
204	1921	1921	5	21	0.31
204	1921	1921	5	22	0.14
204	1922	1921	9	1	0.16
204	1922	1921	9	17	0.34
204	1922	1921	9	18	0.34
204	1922	1921	10	23	0.32
204	1922	1921	12	18	0.34
204	1922	1921	12	19	0.84
204	1922	1921	12	20	1.40
204	1922	1921	12	21	0.45
204	1922	1921	12	22	1.15
204	1922	1921	12	23	0.17
204	1922	1921	12	24	0.20
204	1922	1921	12	25	0.59
204	1922	1921	12	26	0.21
204	1922	1921	12	27	0.22
204	1922	1921	12	28	0.16
204	1922	1921	12	29	0.04
204	1922	1922	1	1	0.45
204	1922	1922	1	2	0.29
204	1922	1922	1	3	0.06
204	1922	1922	1	4	0.08
204	1922	1922	1	6	0.32
204	1922	1922	1	7	0.13
204	1922	1922	1	29	1.38
204	1922	1922	1	30	1.28
204	1922	1922	1	31	0.36
204	1922	1922	2	8	0.22
204	1922	1922	2	9	0.74
204	1922	1922	2	10	0.21
204	1922	1922	2	11	0.26
204	1922	1922	2	20	1.79
204	1922	1922	2	21	0.04
204	1922	1922	2	22	0.06
204	1922	1922	2	24	0.05
204	1922	1922	2	27	0.23
204	1922	1922	3	11	0.98

station id	water year	year	month	day	daily rain
204	1922	1922	3	16	1.36
204	1922	1922	3	17	0.04
204	1922	1922	3	23	0.11
204	1922	1922	3	27	0.06
204	1922	1922	3	31	0.03
204	1922	1922	4	5	0.13
204	1922	1922	4	12	0.13
204	1922	1922	5	9	0.39
204	1923	1922	10	27	0.52
204	1923	1922	10	28	0.03
204	1923	1922	11	6	0.02
204	1923	1922	11	7	0.06
204	1923	1922	11	8	0.10
204	1923	1922	11	9	1.08
204	1923	1922	12	1	0.33
204	1923	1922	12	2	0.31
204	1923	1922	12	3	0.12
204	1923	1922	12	6	0.25
204	1923	1922	12	7	0.09
204	1923	1922	12	10	0.25
204	1923	1922	12	12	0.99
204	1923	1922	12	13	0.95
204	1923	1922	12	14	0.24
204	1923	1922	12	15	0.09
204	1923	1922	12	17	0.11
204	1923	1922	12	27	0.42
204	1923	1923	2	1	0.13
204	1923	1923	2	8	0.05
204	1923	1923	2	9	0.13
204	1923	1923	2	11	0.82
204	1923	1923	2	12	0.13
204	1923	1923	3	3	0.35
204	1923	1923	4	1	0.35
204	1923	1923	4	2	0.19
204	1923	1923	4	3	0.07
204	1923	1923	4	4	0.01
204	1923	1923	4	5	0.72
204	1923	1923	4	6	0.92
204	1923	1923	4	10	0.58
204	1923	1923	4	18	0.76
204	1923	1923	6	15	0.05
204	1924	1923	9	25	0.12
204	1924	1923	9	26	0.03
204	1924	1923	10	7	0.05
204	1924	1923	11	8	0.13

station id	water year	year	month	day	daily rain
204	1924	1923	11	9	0.03
204	1924	1923	11	30	0.02
204	1924	1923	12	14	0.22
204	1924	1923	12	19	0.03
204	1924	1923	12	30	0.02
204	1924	1923	12	31	0.09
204	1924	1924	1	1	0.03
204	1924	1924	1	27	0.47
204	1924	1924	1	28	0.07
204	1924	1924	1	29	0.02
204	1924	1924	2	8	0.03
204	1924	1924	2	9	0.16
204	1924	1924	3	2	0.68
204	1924	1924	3	3	0.27
204	1924	1924	3	4	0.05
204	1924	1924	3	17	0.43
204	1924	1924	3	19	0.01
204	1924	1924	3	20	0.01
204	1924	1924	3	23	0.35
204	1924	1924	3	24	0.02
204	1924	1924	3	26	1.28
204	1924	1924	3	28	0.05
204	1924	1924	4	1	0.30
204	1924	1924	4	3	0.03
204	1924	1924	4	4	0.02
204	1924	1924	4	23	0.36
204	1925	1924	10	6	0.38
204	1925	1924	10	10	0.10
204	1925	1924	10	16	0.04
204	1925	1924	10	28	0.06
204	1925	1924	10	29	0.24
204	1925	1924	11	8	0.07
204	1925	1924	11	9	0.56
204	1925	1924	11	10	0.22
204	1925	1924	12	6	0.62
204	1925	1924	12	7	0.07
204	1925	1924	12	8	0.30
204	1925	1924	12	16	0.24
204	1925	1924	12	17	0.10
204	1925	1924	12	22	0.09
204	1925	1924	12	30	0.01
204	1925	1925	1	14	0.15
204	1925	1925	1	25	0.48
204	1925	1925	1	26	0.21
204	1925	1925	2	6	0.22

station id	water year	year	month	day	daily rain
204	1925	1925	2	8	0.44
204	1925	1925	2	12	0.54
204	1925	1925	2	13	0.04
204	1925	1925	2	19	0.05
204	1925	1925	2	20	0.05
204	1925	1925	2	23	0.41
204	1925	1925	3	6	0.40
204	1925	1925	3	7	0.41
204	1925	1925	3	8	0.04
204	1925	1925	3	9	0.03
204	1925	1925	3	10	0.06
204	1925	1925	3	26	0.06
204	1925	1925	3	27	0.10
204	1925	1925	3	29	1.34
204	1925	1925	3	31	1.08
204	1925	1925	4	1	0.03
204	1925	1925	4	3	0.56
204	1925	1925	4	4	1.62
204	1925	1925	4	5	0.26
204	1925	1925	4	20	0.06
204	1925	1925	4	22	0.10
204	1925	1925	5	10	0.04
204	1925	1925	5	13	0.41
204	1925	1925	5	16	0.03
204	1925	1925	5	20	0.73
204	1925	1925	6	3	0.08
204	1926	1925	10	12	0.81
204	1926	1925	10	13	0.01
204	1926	1925	11	3	0.10
204	1926	1925	11	5	0.10
204	1926	1925	11	24	0.05
204	1926	1925	12	1	0.25
204	1926	1925	12	3	0.51
204	1926	1925	12	19	0.86
204	1926	1925	12	29	0.03
204	1926	1926	1	17	0.05
204	1926	1926	1	29	0.86
204	1926	1926	1	31	0.96
204	1926	1926	2	1	0.20
204	1926	1926	2	2	0.90
204	1926	1926	2	3	0.02
204	1926	1926	2	4	0.01
204	1926	1926	2	11	0.06
204	1926	1926	2	12	0.86
204	1926	1926	2	13	0.73

station id	water year	year	month	day	daily rain
204	1926	1926	2	14	0.19
204	1926	1926	2	15	0.10
204	1926	1926	2	16	0.05
204	1926	1926	3	3	0.04
204	1926	1926	3	4	0.16
204	1926	1926	3	5	0.08
204	1926	1926	3	6	0.02
204	1926	1926	3	18	0.02
204	1926	1926	4	2	0.04
204	1926	1926	4	4	0.07
204	1926	1926	4	5	1.57
204	1926	1926	4	6	0.38
204	1926	1926	4	7	0.98
204	1926	1926	4	8	0.84
204	1926	1926	4	9	0.04
204	1926	1926	4	19	0.05
204	1926	1926	4	29	0.12
204	1926	1926	5	3	0.03
204	1927	1926	10	2	0.49
204	1927	1926	11	12	0.06
204	1927	1926	11	24	2.12
204	1927	1926	11	25	0.16
204	1927	1926	11	26	2.05
204	1927	1926	11	27	0.29
204	1927	1926	12	3	0.40
204	1927	1926	12	6	0.05
204	1927	1926	12	18	0.02
204	1927	1926	12	21	0.20
204	1927	1926	12	22	0.02
204	1927	1926	12	23	0.12
204	1927	1927	1	6	0.38
204	1927	1927	1	10	0.33
204	1927	1927	1	11	0.53
204	1927	1927	1	12	0.27
204	1927	1927	1	19	0.05
204	1927	1927	1	20	0.27
204	1927	1927	1	26	0.08
204	1927	1927	2	4	1.06
204	1927	1927	2	13	0.47
204	1927	1927	2	14	1.55
204	1927	1927	2	15	0.86
204	1927	1927	2	16	1.42
204	1927	1927	2	17	0.02
204	1927	1927	2	18	0.40
204	1927	1927	2	21	0.02

station id	water year	year	month	day	daily rain
204	1927	1927	2	22	0.06
204	1927	1927	2	24	0.16
204	1927	1927	3	3	1.41
204	1927	1927	3	4	0.20
204	1927	1927	3	8	0.03
204	1927	1927	3	9	0.16
204	1927	1927	3	28	0.20
204	1927	1927	3	29	0.07
204	1927	1927	3	30	0.09
204	1927	1927	4	3	0.27
204	1927	1927	4	10	1.08
204	1927	1927	4	16	0.08
204	1927	1927	5	7	0.08
204	1928	1927	10	25	0.08
204	1928	1927	10	26	0.34
204	1928	1927	10	27	1.70
204	1928	1927	10	31	1.29
204	1928	1927	11	5	0.04
204	1928	1927	11	13	0.20
204	1928	1927	11	21	0.03
204	1928	1927	12	9	0.15
204	1928	1927	12	10	0.41
204	1928	1927	12	14	0.25
204	1928	1927	12	21	0.32
204	1928	1927	12	25	2.92
204	1928	1927	12	26	0.11
204	1928	1927	12	29	0.20
204	1928	1927	12	30	0.14
204	1928	1928	1	22	0.06
204	1928	1928	1	23	0.06
204	1928	1928	2	1	0.12
204	1928	1928	2	2	0.06
204	1928	1928	2	3	1.29
204	1928	1928	2	4	1.26
204	1928	1928	2	5	0.26
204	1928	1928	3	3	0.89
204	1928	1928	3	5	0.01
204	1928	1928	3	6	0.02
204	1928	1928	3	23	0.20
204	1928	1928	3	24	1.11
204	1928	1928	3	25	0.09
204	1928	1928	3	27	0.22
204	1928	1928	4	3	0.19
204	1928	1928	4	4	0.04
204	1928	1928	5	7	0.01

station id	water year	year	month	day	daily rain
204	1928	1928	5	8	0.89
204	1928	1928	5	9	0.02
204	1929	1928	10	12	0.23
204	1929	1928	11	3	0.14
204	1929	1928	11	13	1.16
204	1929	1928	11	14	1.37
204	1929	1928	11	15	0.12
204	1929	1928	12	2	0.14
204	1929	1928	12	3	0.92
204	1929	1928	12	10	0.37
204	1929	1928	12	11	0.12
204	1929	1928	12	12	0.26
204	1929	1928	12	13	0.37
204	1929	1929	1	16	0.57
204	1929	1929	1	19	0.34
204	1929	1929	1	20	0.79
204	1929	1929	2	3	0.50
204	1929	1929	2	4	0.13
204	1929	1929	2	6	0.03
204	1929	1929	2	7	0.01
204	1929	1929	2	18	0.35
204	1929	1929	3	9	0.04
204	1929	1929	3	10	0.55
204	1929	1929	3	11	0.07
204	1929	1929	3	13	0.10
204	1929	1929	3	18	0.03
204	1929	1929	3	24	0.36
204	1929	1929	3	25	0.01
204	1929	1929	4	4	0.85
204	1929	1929	4	5	0.12
204	1929	1929	4	6	0.12
204	1929	1929	4	9	0.04
204	1929	1929	4	19	0.08
204	1929	1929	6	8	0.03
204	1929	1929	6	16	0.07
204	1930	1929	12	12	0.06
204	1930	1929	12	13	0.03
204	1930	1929	12	14	0.02
204	1930	1930	1	5	0.60
204	1930	1930	1	6	0.56
204	1930	1930	1	9	0.95
204	1930	1930	1	10	0.19
204	1930	1930	1	11	0.68
204	1930	1930	1	12	0.66
204	1930	1930	1	13	0.16

station id	water year	year	month	day	daily rain
204	1930	1930	1	14	0.28
204	1930	1930	1	15	0.04
204	1930	1930	1	18	0.08
204	1930	1930	1	19	0.02
204	1930	1930	2	20	0.22
204	1930	1930	2	22	0.80
204	1930	1930	2	23	0.12
204	1930	1930	2	26	0.17
204	1930	1930	2	27	0.14
204	1930	1930	3	3	0.03
204	1930	1930	3	4	0.37
204	1930	1930	3	5	0.09
204	1930	1930	3	6	0.22
204	1930	1930	3	14	1.49
204	1930	1930	3	15	0.65
204	1930	1930	3	16	0.11
204	1930	1930	3	17	0.22
204	1930	1930	3	18	0.11
204	1930	1930	3	19	0.02
204	1930	1930	4	13	0.27
204	1930	1930	4	14	0.18
204	1930	1930	4	30	0.14
204	1930	1930	5	1	0.17
204	1930	1930	5	3	0.45
204	1930	1930	5	4	0.13
204	1930	1930	5	5	0.03
204	1930	1930	5	8	0.01
204	1930	1930	5	16	0.10
204	1931	1930	9	30	0.29
204	1931	1930	11	13	0.14
204	1931	1930	11	15	0.09
204	1931	1930	11	16	0.17
204	1931	1930	11	17	0.30
204	1931	1930	11	26	0.75
204	1931	1930	11	27	0.19
204	1931	1931	1	1	0.38
204	1931	1931	1	2	0.73
204	1931	1931	1	5	0.75
204	1931	1931	1	6	0.04
204	1931	1931	1	7	0.72
204	1931	1931	1	8	0.31
204	1931	1931	1	13	0.45
204	1931	1931	1	31	0.54
204	1931	1931	2	3	0.71
204	1931	1931	2	4	0.46

station id	water year	year	month	day	daily rain
204	1931	1931	2	8	0.10
204	1931	1931	2	10	0.12
204	1931	1931	2	12	0.36
204	1931	1931	2	13	0.11
204	1931	1931	2	14	0.04
204	1931	1931	2	18	0.02
204	1931	1931	3	11	0.12
204	1931	1931	4	23	0.12
204	1931	1931	4	26	0.39
204	1931	1931	4	27	0.12
204	1931	1931	4	28	0.02
204	1931	1931	5	24	0.98
204	1931	1931	5	25	0.12
204	1931	1931	8	13	0.14
204	1932	1931	11	15	0.78
204	1932	1931	11	17	0.02
204	1932	1931	11	27	1.92
204	1932	1931	12	8	0.90
204	1932	1931	12	11	0.35
204	1932	1931	12	12	0.06
204	1932	1931	12	14	1.02
204	1932	1931	12	21	0.43
204	1932	1931	12	22	0.03
204	1932	1931	12	23	0.02
204	1932	1931	12	24	0.44
204	1932	1931	12	25	1.37
204	1932	1931	12	27	0.41
204	1932	1931	12	28	1.98
204	1932	1931	12	31	0.29
204	1932	1932	1	2	0.31
204	1932	1932	1	12	0.14
204	1932	1932	1	13	0.28
204	1932	1932	1	15	1.45
204	1932	1932	1	16	0.02
204	1932	1932	1	26	0.07
204	1932	1932	1	31	0.83
204	1932	1932	2	1	0.33
204	1932	1932	2	2	0.35
204	1932	1932	2	6	0.15
204	1932	1932	2	8	1.41
204	1932	1932	2	9	0.72
204	1932	1932	2	13	0.13
204	1932	1932	2	14	0.06
204	1932	1932	2	16	0.29
204	1932	1932	2	17	0.07

station id	water year	year	month	day	daily rain
204	1932	1932	3	14	0.06
204	1932	1932	3	15	0.12
204	1932	1932	4	26	0.59
204	1932	1932	4	27	0.17
204	1932	1932	5	5	0.12
204	1933	1932	9	30	0.17
204	1933	1932	10	1	0.04
204	1933	1932	11	1	0.01
204	1933	1932	12	9	0.08
204	1933	1932	12	10	0.22
204	1933	1932	12	11	0.34
204	1933	1932	12	12	0.12
204	1933	1932	12	19	0.22
204	1933	1932	12	20	0.02
204	1933	1932	12	22	0.03
204	1933	1932	12	23	0.35
204	1933	1933	1	16	0.61
204	1933	1933	1	17	0.18
204	1933	1933	1	19	2.12
204	1933	1933	1	20	0.69
204	1933	1933	1	22	0.59
204	1933	1933	1	23	0.54
204	1933	1933	1	24	0.02
204	1933	1933	1	25	0.66
204	1933	1933	1	26	0.10
204	1933	1933	1	28	0.33
204	1933	1933	1	29	0.42
204	1933	1933	1	30	0.69
204	1933	1933	2	12	0.15
204	1933	1933	2	13	0.15
204	1933	1933	3	13	0.07
204	1933	1933	3	17	0.25
204	1933	1933	3	24	0.23
204	1933	1933	4	28	0.66
204	1933	1933	5	2	0.13
204	1933	1933	5	21	0.15
204	1933	1933	6	5	1.26
204	1934	1933	10	31	0.27
204	1934	1933	11	29	0.02
204	1934	1933	12	3	0.13
204	1934	1933	12	4	0.03
204	1934	1933	12	12	0.17
204	1934	1933	12	13	1.45
204	1934	1933	12	14	0.25
204	1934	1933	12	15	0.27

station id	water year	year	month	day	daily rain
204	1934	1933	12	16	0.07
204	1934	1933	12	30	0.48
204	1934	1933	12	31	0.18
204	1934	1934	1	1	1.53
204	1934	1934	1	2	0.10
204	1934	1934	2	5	0.02
204	1934	1934	2	6	0.03
204	1934	1934	2	15	0.49
204	1934	1934	2	16	0.25
204	1934	1934	2	20	0.36
204	1934	1934	2	23	0.43
204	1934	1934	2	24	1.23
204	1934	1934	2	26	0.13
204	1934	1934	2	27	0.10
204	1934	1934	5	26	0.34
204	1934	1934	6	5	0.40
204	1934	1934	6	6	0.13
204	1935	1934	10	17	0.66
204	1935	1934	10	18	0.76
204	1935	1934	11	1	0.21
204	1935	1934	11	15	0.37
204	1935	1934	11	16	0.38
204	1935	1934	11	17	0.40
204	1935	1934	11	18	1.64
204	1935	1934	12	8	0.05
204	1935	1934	12	9	0.07
204	1935	1934	12	12	0.09
204	1935	1934	12	13	1.03
204	1935	1934	12	28	0.41
204	1935	1934	12	31	0.05
204	1935	1935	1	4	0.27
204	1935	1935	1	5	0.99
204	1935	1935	1	6	0.05
204	1935	1935	1	9	1.03
204	1935	1935	1	10	0.28
204	1935	1935	1	11	0.15
204	1935	1935	1	15	0.98
204	1935	1935	1	16	0.03
204	1935	1935	1	17	0.04
204	1935	1935	1	18	0.06
204	1935	1935	1	19	0.30
204	1935	1935	2	4	0.69
204	1935	1935	2	5	0.45
204	1935	1935	2	6	0.31
204	1935	1935	2	7	0.05

station id	water year	year	month	day	daily rain
204	1935	1935	2	8	0.05
204	1935	1935	2	14	0.11
204	1935	1935	3	2	0.41
204	1935	1935	3	3	0.56
204	1935	1935	3	4	0.09
204	1935	1935	3	7	0.89
204	1935	1935	3	8	0.32
204	1935	1935	3	9	0.05
204	1935	1935	3	19	0.06
204	1935	1935	3	23	0.05
204	1935	1935	3	24	0.94
204	1935	1935	4	3	0.10
204	1935	1935	4	4	0.57
204	1935	1935	4	7	0.29
204	1935	1935	4	8	0.93
204	1935	1935	4	9	0.17
204	1935	1935	4	14	0.06
204	1935	1935	4	15	0.07
204	1935	1935	4	16	0.13
204	1935	1935	4	29	0.22
204	1935	1935	4	30	0.04
204	1935	1935	5	1	0.17
204	1935	1935	8	26	0.15
204	1936	1935	10	1	0.04
204	1936	1935	10	11	0.07
204	1936	1935	10	15	0.45
204	1936	1935	11	2	0.29
204	1936	1935	11	17	0.88
204	1936	1935	11	18	0.04
204	1936	1935	12	3	0.74
204	1936	1935	12	12	0.14
204	1936	1935	12	27	0.02
204	1936	1935	12	29	0.69
204	1936	1935	12	30	0.07
204	1936	1936	1	10	0.11
204	1936	1936	1	11	0.25
204	1936	1936	1	12	0.15
204	1936	1936	1	28	0.04
204	1936	1936	2	1	0.44
204	1936	1936	2	2	1.47
204	1936	1936	2	11	0.29
204	1936	1936	2	12	0.25
204	1936	1936	2	13	0.90
204	1936	1936	2	14	0.26
204	1936	1936	2	15	0.99

station id	water year	year	month	day	daily rain
204	1936	1936	2	16	0.76
204	1936	1936	2	18	0.48
204	1936	1936	2	19	0.05
204	1936	1936	2	20	0.04
204	1936	1936	2	23	0.97
204	1936	1936	2	24	0.30
204	1936	1936	3	21	0.09
204	1936	1936	3	24	0.57
204	1936	1936	3	31	0.70
204	1936	1936	4	3	0.22
204	1936	1936	4	4	0.39
204	1936	1936	5	29	0.08
204	1936	1936	6	2	0.05
204	1936	1936	8	9	0.02
204	1936	1936	8	10	0.17
204	1937	1936	9	3	0.03
204	1937	1936	9	4	0.04
204	1937	1936	10	17	0.86
204	1937	1936	10	18	0.94
204	1937	1936	10	19	0.38
204	1937	1936	10	31	0.55
204	1937	1936	12	15	0.43
204	1937	1936	12	16	0.08
204	1937	1936	12	17	0.03
204	1937	1936	12	24	0.34
204	1937	1936	12	27	1.58
204	1937	1936	12	28	0.44
204	1937	1936	12	29	0.25
204	1937	1936	12	30	0.13
204	1937	1936	12	31	1.15
204	1937	1937	1	1	0.19
204	1937	1937	1	6	0.63
204	1937	1937	1	7	0.04
204	1937	1937	1	12	0.80
204	1937	1937	1	13	0.39
204	1937	1937	1	16	0.14
204	1937	1937	1	19	0.04
204	1937	1937	1	28	0.05
204	1937	1937	1	29	0.29
204	1937	1937	1	30	0.35
204	1937	1937	1	31	0.74
204	1937	1937	2	2	0.14
204	1937	1937	2	5	0.54
204	1937	1937	2	6	1.12
204	1937	1937	2	7	0.92

station id	water year	year	month	day	daily rain
204	1937	1937	2	12	0.28
204	1937	1937	2	13	0.02
204	1937	1937	2	14	1.46
204	1937	1937	2	15	0.07
204	1937	1937	2	25	0.69
204	1937	1937	2	26	0.10
204	1937	1937	3	12	0.65
204	1937	1937	3	13	0.93
204	1937	1937	3	15	0.34
204	1937	1937	3	18	0.28
204	1937	1937	3	22	1.37
204	1937	1937	3	23	0.24
204	1937	1937	3	24	0.14
204	1937	1937	3	25	0.73
204	1937	1937	3	28	0.14
204	1937	1937	4	6	0.07
204	1937	1937	4	27	0.16
204	1937	1937	4	28	0.02
204	1938	1937	10	13	0.06
204	1938	1937	12	10	0.35
204	1938	1937	12	11	0.21
204	1938	1937	12	12	1.39
204	1938	1937	12	23	0.07
204	1938	1937	12	26	0.16
204	1938	1938	1	15	1.52
204	1938	1938	1	17	0.05
204	1938	1938	1	18	0.04
204	1938	1938	1	19	0.37
204	1938	1938	1	20	0.09
204	1938	1938	1	29	0.49
204	1938	1938	2	1	1.78
204	1938	1938	2	2	0.10
204	1938	1938	2	3	0.95
204	1938	1938	2	4	0.35
204	1938	1938	2	5	0.06
204	1938	1938	2	9	0.22
204	1938	1938	2	10	0.21
204	1938	1938	2	11	2.15
204	1938	1938	2	12	1.13
204	1938	1938	2	14	0.27
204	1938	1938	2	15	0.06
204	1938	1938	2	18	0.03
204	1938	1938	2	19	0.19
204	1938	1938	2	28	0.17
204	1938	1938	3	1	1.18

station id	water year	year	month	day	daily rain
204	1938	1938	3	2	0.52
204	1938	1938	3	3	1.98
204	1938	1938	3	4	0.13
204	1938	1938	3	6	0.05
204	1938	1938	3	7	0.27
204	1938	1938	3	8	0.26
204	1938	1938	3	12	0.79
204	1938	1938	3	13	0.44
204	1938	1938	3	14	0.06
204	1938	1938	3	17	0.05
204	1938	1938	3	24	0.06
204	1938	1938	4	5	0.07
204	1938	1938	4	13	0.14
204	1938	1938	4	25	0.80
204	1938	1938	4	26	0.07
204	1938	1938	4	29	0.10
204	1938	1938	4	30	0.25
204	1938	1938	5	1	0.02
204	1939	1938	9	27	0.56
204	1939	1938	9	28	0.33
204	1939	1938	10	13	0.02
204	1939	1938	10	15	0.03
204	1939	1938	10	31	0.11
204	1939	1938	11	30	0.13
204	1939	1938	12	14	0.05
204	1939	1938	12	15	0.33
204	1939	1938	12	16	0.94
204	1939	1938	12	18	0.08
204	1939	1938	12	19	0.15
204	1939	1938	12	20	1.12
204	1939	1938	12	21	0.87
204	1939	1939	1	3	0.11
204	1939	1939	1	5	0.76
204	1939	1939	1	6	0.39
204	1939	1939	1	21	0.76
204	1939	1939	1	22	0.18
204	1939	1939	1	28	0.03
204	1939	1939	1	30	0.82
204	1939	1939	2	1	0.16
204	1939	1939	2	3	0.52
204	1939	1939	2	4	0.49
204	1939	1939	2	7	0.06
204	1939	1939	2	8	0.22
204	1939	1939	2	9	0.20
204	1939	1939	2	10	0.31

station id	water year	year	month	day	daily rain
204	1939	1939	3	9	0.35
204	1939	1939	3	10	1.47
204	1939	1939	3	20	0.07
204	1939	1939	3	26	0.63
204	1939	1939	3	27	0.32
204	1939	1939	4	1	0.07
204	1939	1939	4	13	0.03
204	1939	1939	5	11	0.05
204	1940	1939	9	25	1.85
204	1940	1939	9	26	0.10
204	1940	1939	10	1	0.06
204	1940	1939	10	7	0.50
204	1940	1939	11	26	1.05
204	1940	1939	12	11	0.48
204	1940	1939	12	24	0.97
204	1940	1940	1	2	0.25
204	1940	1940	1	3	0.12
204	1940	1940	1	4	0.35
204	1940	1940	1	6	0.15
204	1940	1940	1	7	0.10
204	1940	1940	1	8	0.44
204	1940	1940	1	9	0.22
204	1940	1940	1	10	0.41
204	1940	1940	1	11	1.49
204	1940	1940	1	12	0.35
204	1940	1940	1	23	0.20
204	1940	1940	1	24	0.66
204	1940	1940	1	26	0.03
204	1940	1940	2	1	0.10
204	1940	1940	2	2	0.18
204	1940	1940	2	3	0.10
204	1940	1940	2	4	0.73
204	1940	1940	2	7	0.09
204	1940	1940	2	14	0.54
204	1940	1940	2	15	0.17
204	1940	1940	2	18	0.03
204	1940	1940	2	26	0.56
204	1940	1940	2	29	0.25
204	1940	1940	3	27	0.16
204	1940	1940	3	30	0.03
204	1940	1940	3	31	0.87
204	1940	1940	4	1	0.81
204	1940	1940	4	26	0.41
204	1940	1940	4	27	0.71
204	1941	1940	10	8	0.03

station id	water year	year	month	day	daily rain
204	1941	1940	10	25	0.40
204	1941	1940	10	26	0.03
204	1941	1940	11	18	0.10
204	1941	1940	12	16	0.64
204	1941	1940	12	17	0.97
204	1941	1940	12	18	0.09
204	1941	1940	12	19	0.29
204	1941	1940	12	22	0.95
204	1941	1940	12	23	1.90
204	1941	1940	12	24	0.25
204	1941	1940	12	25	0.39
204	1941	1940	12	27	0.17
204	1941	1940	12	29	0.25
204	1941	1940	12	30	0.10
204	1941	1940	12	31	0.04
204	1941	1941	1	4	0.10
204	1941	1941	1	5	0.19
204	1941	1941	1	7	0.68
204	1941	1941	1	8	0.53
204	1941	1941	1	9	2.10
204	1941	1941	1	10	0.21
204	1941	1941	1	11	0.03
204	1941	1941	1	14	0.28
204	1941	1941	1	16	0.03
204	1941	1941	1	20	0.33
204	1941	1941	1	22	0.81
204	1941	1941	1	23	0.03
204	1941	1941	1	24	0.57
204	1941	1941	1	26	0.55
204	1941	1941	2	6	1.10
204	1941	1941	2	8	0.55
204	1941	1941	2	9	0.03
204	1941	1941	2	10	0.45
204	1941	1941	2	11	0.72
204	1941	1941	2	12	0.60
204	1941	1941	2	15	0.92
204	1941	1941	2	16	0.06
204	1941	1941	2	17	2.12
204	1941	1941	2	18	0.03
204	1941	1941	2	20	0.12
204	1941	1941	2	21	0.28
204	1941	1941	2	22	0.60
204	1941	1941	2	24	0.52
204	1941	1941	2	25	0.05
204	1941	1941	3	1	1.79

station id	water year	year	month	day	daily rain
204	1941	1941	3	2	0.38
204	1941	1941	3	3	0.12
204	1941	1941	3	4	1.56
204	1941	1941	3	5	0.63
204	1941	1941	3	12	0.32
204	1941	1941	3	13	2.21
204	1941	1941	3	14	0.35
204	1941	1941	3	15	0.17
204	1941	1941	3	29	1.66
204	1941	1941	3	31	0.94
204	1941	1941	4	1	0.81
204	1941	1941	4	2	0.32
204	1941	1941	4	5	0.92
204	1941	1941	4	10	0.11
204	1941	1941	4	11	1.12
204	1941	1941	4	30	0.55
204	1941	1941	5	12	0.06
204	1941	1941	7	26	0.05
204	1941	1941	8	15	0.03
204	1942	1941	10	20	0.19
204	1942	1941	10	22	0.36
204	1942	1941	10	27	0.50
204	1942	1941	11	30	0.32
204	1942	1941	12	3	0.61
204	1942	1941	12	4	0.22
204	1942	1941	12	9	0.03
204	1942	1941	12	10	0.08
204	1942	1941	12	11	0.75
204	1942	1941	12	13	0.05
204	1942	1941	12	15	0.37
204	1942	1941	12	17	0.15
204	1942	1941	12	21	0.04
204	1942	1941	12	26	0.31
204	1942	1941	12	27	0.02
204	1942	1941	12	28	3.87
204	1942	1941	12	29	0.55
204	1942	1941	12	30	0.35
204	1942	1941	12	31	0.51
204	1942	1942	1	1	0.51
204	1942	1942	1	22	0.74
204	1942	1942	1	23	0.02
204	1942	1942	1	25	0.27
204	1942	1942	1	26	0.07
204	1942	1942	1	28	0.24
204	1942	1942	1	29	0.01

station id	water year	year	month	day	daily rain
204	1942	1942	2	3	0.10
204	1942	1942	2	7	0.03
204	1942	1942	2	22	0.55
204	1942	1942	2	24	0.02
204	1942	1942	3	11	0.50
204	1942	1942	3	12	0.03
204	1942	1942	3	15	1.42
204	1942	1942	4	4	0.35
204	1942	1942	4	5	0.05
204	1942	1942	4	6	0.55
204	1942	1942	4	10	0.08
204	1942	1942	4	11	0.06
204	1942	1942	4	13	0.03
204	1942	1942	4	14	0.54
204	1942	1942	4	17	0.48
204	1942	1942	4	21	0.06
204	1942	1942	4	22	1.35
204	1942	1942	4	28	0.08
204	1942	1942	5	1	0.07
204	1942	1942	5	11	0.06
204	1942	1942	5	26	0.10
204	1942	1942	8	10	0.07
204	1943	1942	10	28	0.11
204	1943	1942	10	29	0.69
204	1943	1942	11	4	0.01
204	1943	1942	11	15	0.11
204	1943	1942	11	18	0.04
204	1943	1942	11	19	0.48
204	1943	1942	11	20	0.08
204	1943	1942	12	7	0.02
204	1943	1942	12	24	1.53
204	1943	1942	12	25	0.38
204	1943	1943	1	21	0.30
204	1943	1943	1	22	2.83
204	1943	1943	1	23	2.14
204	1943	1943	1	24	0.23
204	1943	1943	1	25	0.10
204	1943	1943	1	26	0.30
204	1943	1943	1	27	0.50
204	1943	1943	1	30	0.12
204	1943	1943	1	31	0.31
204	1943	1943	2	8	0.09
204	1943	1943	2	9	0.15
204	1943	1943	2	17	0.12
204	1943	1943	2	21	0.35

station id	water year	year	month	day	daily rain
204	1943	1943	2	22	0.97
204	1943	1943	2	23	0.25
204	1943	1943	2	24	0.25
204	1943	1943	3	3	0.14
204	1943	1943	3	4	0.95
204	1943	1943	3	5	0.45
204	1943	1943	3	6	0.03
204	1943	1943	3	7	0.05
204	1943	1943	3	8	0.15
204	1943	1943	3	9	0.35
204	1943	1943	3	10	0.24
204	1943	1943	3	11	0.07
204	1943	1943	3	18	0.30
204	1943	1943	3	30	0.11
204	1943	1943	4	6	0.87
204	1943	1943	4	8	0.12
204	1943	1943	4	15	0.01
204	1944	1943	10	19	0.37
204	1944	1943	10	20	0.07
204	1944	1943	10	21	0.03
204	1944	1943	10	27	0.37
204	1944	1943	10	28	0.09
204	1944	1943	11	18	0.04
204	1944	1943	11	20	0.13
204	1944	1943	12	6	0.74
204	1944	1943	12	10	0.09
204	1944	1943	12	11	0.93
204	1944	1943	12	12	0.03
204	1944	1943	12	18	0.02
204	1944	1943	12	20	0.06
204	1944	1943	12	21	0.58
204	1944	1943	12	28	0.58
204	1944	1943	12	29	0.87
204	1944	1943	12	30	0.32
204	1944	1944	1	2	0.10
204	1944	1944	1	3	0.22
204	1944	1944	1	4	0.04
204	1944	1944	1	6	0.22
204	1944	1944	1	24	0.55
204	1944	1944	1	25	0.03
204	1944	1944	1	27	0.03
204	1944	1944	1	30	0.74
204	1944	1944	2	3	0.13
204	1944	1944	2	4	1.02
204	1944	1944	2	9	0.43

station id	water year	year	month	day	daily rain
204	1944	1944	2	15	0.15
204	1944	1944	2	17	0.03
204	1944	1944	2	20	1.57
204	1944	1944	2	21	0.91
204	1944	1944	2	22	2.13
204	1944	1944	2	23	0.33
204	1944	1944	2	24	0.12
204	1944	1944	2	26	0.09
204	1944	1944	2	27	0.25
204	1944	1944	2	29	0.20
204	1944	1944	3	1	0.23
204	1944	1944	3	2	0.29
204	1944	1944	3	4	0.14
204	1944	1944	3	5	0.35
204	1944	1944	3	14	0.03
204	1944	1944	4	9	0.03
204	1944	1944	4	12	0.05
204	1944	1944	4	27	1.51
204	1944	1944	4	28	0.06
204	1944	1944	5	15	0.04
204	1944	1944	5	18	0.02
204	1945	1944	11	1	0.17
204	1945	1944	11	5	0.28
204	1945	1944	11	10	0.28
204	1945	1944	11	11	0.74
204	1945	1944	11	12	0.77
204	1945	1944	11	13	0.10
204	1945	1944	11	14	0.48
204	1945	1944	11	15	0.35
204	1945	1944	12	2	0.25
204	1945	1944	12	22	0.22
204	1945	1944	12	23	0.50
204	1945	1944	12	28	0.28
204	1945	1944	12	29	0.30
204	1945	1945	1	31	0.10
204	1945	1945	2	1	1.25
204	1945	1945	2	2	1.75
204	1945	1945	2	3	0.69
204	1945	1945	2	4	0.05
204	1945	1945	2	5	0.02
204	1945	1945	2	15	0.04
204	1945	1945	2	28	0.15
204	1945	1945	3	2	0.31
204	1945	1945	3	4	0.25
204	1945	1945	3	15	0.42

station id	water year	year	month	day	daily rain
204	1945	1945	3	17	0.95
204	1945	1945	3	21	0.14
204	1945	1945	3	22	0.02
204	1945	1945	3	23	0.69
204	1945	1945	3	26	0.45
204	1945	1945	3	27	0.03
204	1945	1945	4	9	0.09
204	1945	1945	5	13	0.02
204	1945	1945	6	4	0.02
204	1945	1945	8	2	0.09
204	1946	1945	10	15	0.02
204	1946	1945	10	30	0.44
204	1946	1945	10	31	0.06
204	1946	1945	11	6	0.09
204	1946	1945	11	7	0.10
204	1946	1945	11	11	0.14
204	1946	1945	11	15	0.04
204	1946	1945	11	25	0.22
204	1946	1945	11	29	0.31
204	1946	1945	12	5	0.41
204	1946	1945	12	6	0.33
204	1946	1945	12	22	2.02
204	1946	1945	12	23	0.70
204	1946	1945	12	25	0.40
204	1946	1945	12	26	0.02
204	1946	1946	1	3	0.33
204	1946	1946	1	5	0.31
204	1946	1946	2	3	0.85
204	1946	1946	2	4	0.30
204	1946	1946	2	11	0.07
204	1946	1946	2	16	0.15
204	1946	1946	2	20	0.03
204	1946	1946	3	13	0.06
204	1946	1946	3	14	0.12
204	1946	1946	3	19	0.92
204	1946	1946	3	20	0.31
204	1946	1946	3	28	0.32
204	1946	1946	3	29	0.63
204	1946	1946	3	30	2.14
204	1946	1946	3	31	0.27
204	1946	1946	4	1	1.18
204	1946	1946	4	7	0.01
204	1946	1946	5	22	0.03
204	1946	1946	5	26	0.05
204	1946	1946	5	27	0.03

station id	water year	year	month	day	daily rain
204	1947	1946	10	1	0.08
204	1947	1946	10	16	0.22
204	1947	1946	11	8	0.04
204	1947	1946	11	12	0.70
204	1947	1946	11	13	1.20
204	1947	1946	11	14	0.47
204	1947	1946	11	20	1.73
204	1947	1946	11	21	0.12
204	1947	1946	11	23	0.54
204	1947	1946	11	24	0.04
204	1947	1946	12	5	0.14
204	1947	1946	12	6	0.08
204	1947	1946	12	7	0.15
204	1947	1946	12	24	0.05
204	1947	1946	12	25	0.23
204	1947	1946	12	26	0.34
204	1947	1946	12	27	0.29
204	1947	1946	12	28	0.05
204	1947	1947	1	13	0.01
204	1947	1947	1	28	0.42
204	1947	1947	1	29	0.10
204	1947	1947	2	9	0.13
204	1947	1947	2	10	0.46
204	1947	1947	2	12	0.02
204	1947	1947	2	13	0.02
204	1947	1947	2	17	0.07
204	1947	1947	3	2	0.05
204	1947	1947	3	4	0.35
204	1947	1947	3	20	0.05
204	1947	1947	3	21	0.02
204	1947	1947	3	28	0.39
204	1947	1947	3	29	0.01
204	1947	1947	3	30	0.04
204	1947	1947	4	3	0.04
204	1947	1947	4	4	0.05
204	1947	1947	4	25	0.03
204	1947	1947	5	27	0.11
204	1947	1947	6	7	0.03
204	1947	1947	8	9	0.05
204	1948	1947	10	11	0.14
204	1948	1947	10	17	0.08
204	1948	1947	10	29	0.02
204	1948	1947	10	30	0.10
204	1948	1947	11	2	0.01
204	1948	1947	12	4	0.04

station id	water year	year	month	day	daily rain
204	1948	1947	12	5	0.14
204	1948	1947	12	6	0.02
204	1948	1947	12	18	0.03
204	1948	1947	12	21	0.33
204	1948	1948	1	3	0.01
204	1948	1948	2	2	0.02
204	1948	1948	2	5	0.70
204	1948	1948	2	6	0.29
204	1948	1948	2	7	0.14
204	1948	1948	2	28	0.20
204	1948	1948	2	29	0.01
204	1948	1948	3	9	0.11
204	1948	1948	3	14	1.10
204	1948	1948	3	15	0.22
204	1948	1948	3	17	0.62
204	1948	1948	3	19	0.05
204	1948	1948	3	20	0.04
204	1948	1948	3	24	0.71
204	1948	1948	3	25	0.34
204	1948	1948	3	29	0.07
204	1948	1948	4	3	0.36
204	1948	1948	4	4	0.02
204	1948	1948	4	6	0.04
204	1948	1948	4	9	0.15
204	1948	1948	4	10	0.26
204	1948	1948	4	11	0.06
204	1948	1948	4	22	0.05
204	1948	1948	4	29	0.78
204	1948	1948	5	19	0.05
204	1948	1948	5	30	0.20
204	1948	1948	5	31	0.51
204	1948	1948	6	4	0.06
204	1949	1948	10	12	0.15
204	1949	1948	12	4	0.25
204	1949	1948	12	6	0.05
204	1949	1948	12	14	0.09
204	1949	1948	12	15	0.09
204	1949	1948	12	17	1.41
204	1949	1948	12	18	0.05
204	1949	1948	12	23	0.05
204	1949	1948	12	25	0.03
204	1949	1948	12	26	0.39
204	1949	1948	12	27	1.05
204	1949	1948	12	28	0.12
204	1949	1949	1	1	0.02

station id	water year	year	month	day	daily rain
204	1949	1949	1	2	0.11
204	1949	1949	1	12	0.24
204	1949	1949	1	19	0.02
204	1949	1949	1	20	0.34
204	1949	1949	1	22	0.19
204	1949	1949	1	23	0.34
204	1949	1949	1	24	0.02
204	1949	1949	2	3	0.12
204	1949	1949	2	5	0.14
204	1949	1949	2	7	0.37
204	1949	1949	2	8	0.01
204	1949	1949	2	12	0.21
204	1949	1949	2	24	0.22
204	1949	1949	2	25	0.25
204	1949	1949	2	26	0.08
204	1949	1949	2	27	0.21
204	1949	1949	3	2	0.21
204	1949	1949	3	3	0.07
204	1949	1949	3	4	1.19
204	1949	1949	3	5	0.52
204	1949	1949	3	6	0.06
204	1949	1949	3	8	0.06
204	1949	1949	3	10	0.11
204	1949	1949	3	11	0.52
204	1949	1949	3	12	0.20
204	1949	1949	3	16	0.05
204	1949	1949	3	20	0.71
204	1949	1949	3	23	0.34
204	1949	1949	3	24	0.08
204	1949	1949	4	17	0.24
204	1949	1949	5	18	0.16
204	1949	1949	5	19	0.56
204	1949	1949	5	20	0.03
204	1950	1949	10	19	0.02
204	1950	1949	11	8	0.13
204	1950	1949	11	10	1.50
204	1950	1949	12	8	2.33
204	1950	1949	12	9	0.11
204	1950	1949	12	15	0.43
204	1950	1949	12	18	0.21
204	1950	1949	12	19	0.55
204	1950	1950	1	2	0.06
204	1950	1950	1	8	0.10
204	1950	1950	1	9	0.66
204	1950	1950	1	11	0.48

station id	water year	year	month	day	daily rain
204	1950	1950	1	12	0.15
204	1950	1950	1	14	0.20
204	1950	1950	1	15	0.26
204	1950	1950	1	17	0.15
204	1950	1950	1	24	0.02
204	1950	1950	1	28	0.19
204	1950	1950	1	29	0.25
204	1950	1950	2	5	0.22
204	1950	1950	2	6	0.99
204	1950	1950	2	10	0.23
204	1950	1950	2	11	0.02
204	1950	1950	3	2	0.10
204	1950	1950	3	25	1.39
204	1950	1950	3	26	0.02
204	1950	1950	4	8	0.62
204	1950	1950	5	3	0.15
204	1950	1950	7	10	0.90
204	1951	1950	10	27	0.77
204	1951	1950	10	31	0.09
204	1951	1950	11	13	0.09
204	1951	1950	11	14	0.30
204	1951	1950	11	15	0.05
204	1951	1950	11	17	0.06
204	1951	1950	11	18	0.52
204	1951	1950	11	19	0.25
204	1951	1950	11	20	0.56
204	1951	1950	12	1	0.06
204	1951	1950	12	4	0.40
204	1951	1950	12	7	0.02
204	1951	1950	12	14	0.04
204	1951	1950	12	15	0.13
204	1951	1950	12	26	0.03
204	1951	1951	1	5	0.19
204	1951	1951	1	10	0.50
204	1951	1951	1	11	0.02
204	1951	1951	1	12	0.41
204	1951	1951	1	16	0.16
204	1951	1951	1	18	0.05
204	1951	1951	1	19	0.34
204	1951	1951	1	29	0.42
204	1951	1951	2	5	0.02
204	1951	1951	2	12	0.09
204	1951	1951	2	23	0.10
204	1951	1951	2	25	0.20
204	1951	1951	2	27	1.20

station id	water year	year	month	day	daily rain
204	1951	1951	3	1	1.14
204	1951	1951	3	2	0.17
204	1951	1951	3	5	0.05
204	1951	1951	3	6	0.06
204	1951	1951	4	4	0.10
204	1951	1951	4	19	0.19
204	1951	1951	4	25	0.65
204	1951	1951	4	26	0.01
204	1951	1951	4	28	0.74
204	1951	1951	5	4	0.02
204	1952	1951	10	25	0.59
204	1952	1951	10	26	0.21
204	1952	1951	11	20	0.95
204	1952	1951	11	21	0.24
204	1952	1951	11	22	0.02
204	1952	1951	12	1	0.05
204	1952	1951	12	2	0.54
204	1952	1951	12	4	0.70
204	1952	1951	12	5	0.83
204	1952	1951	12	12	0.29
204	1952	1951	12	13	0.10
204	1952	1951	12	19	0.43
204	1952	1951	12	29	0.28
204	1952	1951	12	30	0.80
204	1952	1951	12	31	0.29
204	1952	1952	1	7	0.74
204	1952	1952	1	8	0.10
204	1952	1952	1	11	0.05
204	1952	1952	1	12	0.44
204	1952	1952	1	13	0.64
204	1952	1952	1	14	0.05
204	1952	1952	1	15	1.36
204	1952	1952	1	16	1.44
204	1952	1952	1	17	0.30
204	1952	1952	1	18	0.48
204	1952	1952	1	21	0.08
204	1952	1952	1	24	0.04
204	1952	1952	1	27	0.87
204	1952	1952	2	2	0.03
204	1952	1952	2	12	0.18
204	1952	1952	2	17	0.11
204	1952	1952	2	21	0.04
204	1952	1952	3	1	0.47
204	1952	1952	3	2	0.06
204	1952	1952	3	4	0.17

station id	water year	year	month	day	daily rain
204	1952	1952	3	7	1.97
204	1952	1952	3	8	0.02
204	1952	1952	3	9	0.30
204	1952	1952	3	10	0.07
204	1952	1952	3	11	0.18
204	1952	1952	3	13	0.18
204	1952	1952	3	15	3.58
204	1952	1952	3	16	0.55
204	1952	1952	3	19	0.20
204	1952	1952	3	20	0.03
204	1952	1952	4	7	0.09
204	1952	1952	4	8	0.20
204	1952	1952	4	10	0.19
204	1952	1952	4	11	0.04
204	1952	1952	4	14	0.01
204	1952	1952	4	26	0.04
204	1952	1952	5	12	0.02
204	1952	1952	6	6	0.03
204	1952	1952	7	30	0.02
204	1953	1952	11	14	0.65
204	1953	1952	11	15	1.31
204	1953	1952	11	16	0.66
204	1953	1952	11	23	0.04
204	1953	1952	11	30	0.74
204	1953	1952	12	2	1.13
204	1953	1952	12	6	0.16
204	1953	1952	12	7	0.15
204	1953	1952	12	8	0.15
204	1953	1952	12	20	1.41
204	1953	1952	12	27	0.29
204	1953	1952	12	28	1.01
204	1953	1952	12	31	1.09
204	1953	1953	1	6	0.10
204	1953	1953	1	7	0.07
204	1953	1953	1	8	0.09
204	1953	1953	1	13	0.17
204	1953	1953	1	14	0.75
204	1953	1953	1	15	0.07
204	1953	1953	1	20	0.01
204	1953	1953	3	2	0.39
204	1953	1953	3	10	0.10
204	1953	1953	3	20	0.59
204	1953	1953	4	8	0.03
204	1953	1953	4	20	0.16
204	1953	1953	4	27	0.13

station id	water year	year	month	day	daily rain
204	1953	1953	4	28	0.95
204	1954	1953	11	5	0.24
204	1954	1953	11	14	2.05
204	1954	1953	11	15	0.07
204	1954	1953	11	20	0.15
204	1954	1953	12	4	0.25
204	1954	1954	1	11	0.43
204	1954	1954	1	12	0.52
204	1954	1954	1	13	0.14
204	1954	1954	1	17	0.02
204	1954	1954	1	18	0.12
204	1954	1954	1	19	0.22
204	1954	1954	1	20	1.24
204	1954	1954	1	23	0.03
204	1954	1954	1	24	0.50
204	1954	1954	1	25	1.42
204	1954	1954	2	13	0.82
204	1954	1954	2	14	0.39
204	1954	1954	2	15	0.05
204	1954	1954	2	17	0.03
204	1954	1954	2	18	0.18
204	1954	1954	3	9	0.15
204	1954	1954	3	10	0.07
204	1954	1954	3	16	0.02
204	1954	1954	3	17	1.39
204	1954	1954	3	18	0.03
204	1954	1954	3	20	1.02
204	1954	1954	3	21	0.34
204	1954	1954	3	24	0.11
204	1954	1954	3	25	0.39
204	1954	1954	3	30	0.79
204	1954	1954	4	28	0.26
204	1954	1954	5	15	0.02
204	1955	1954	11	11	0.31
204	1955	1954	11	12	0.10
204	1955	1954	11	16	0.88
204	1955	1954	12	3	0.32
204	1955	1954	12	4	1.53
204	1955	1954	12	10	0.82
204	1955	1954	12	15	0.01
204	1955	1955	1	1	0.10
204	1955	1955	1	2	0.72
204	1955	1955	1	5	0.02
204	1955	1955	1	10	1.06
204	1955	1955	1	11	0.22

station id	water year	year	month	day	daily rain
204	1955	1955	1	16	0.62
204	1955	1955	1	17	0.08
204	1955	1955	1	18	1.06
204	1955	1955	1	19	0.47
204	1955	1955	1	20	0.02
204	1955	1955	1	31	0.05
204	1955	1955	2	1	0.01
204	1955	1955	2	17	0.76
204	1955	1955	2	18	0.06
204	1955	1955	2	26	0.12
204	1955	1955	2	27	0.33
204	1955	1955	2	28	0.14
204	1955	1955	3	9	0.01
204	1955	1955	3	10	0.09
204	1955	1955	3	11	0.23
204	1955	1955	4	18	0.06
204	1955	1955	4	21	0.05
204	1955	1955	4	22	1.06
204	1955	1955	4	23	0.02
204	1955	1955	4	26	0.14
204	1955	1955	4	30	0.53
204	1955	1955	5	1	0.10
204	1955	1955	5	2	0.09
204	1955	1955	5	7	0.21
204	1955	1955	5	8	0.79
204	1955	1955	5	30	0.02
204	1955	1955	6	14	0.02
204	1955	1955	8	5	0.01
204	1956	1955	11	14	1.40
204	1956	1955	11	17	0.25
204	1956	1955	11	18	0.11
204	1956	1955	11	21	0.20
204	1956	1955	12	1	0.01
204	1956	1955	12	2	0.13
204	1956	1955	12	4	0.34
204	1956	1955	12	5	0.02
204	1956	1955	12	6	0.12
204	1956	1955	12	7	0.18
204	1956	1955	12	9	0.02
204	1956	1955	12	20	0.04
204	1956	1955	12	23	0.17
204	1956	1955	12	24	1.25
204	1956	1955	12	25	3.15
204	1956	1955	12	26	0.12
204	1956	1955	12	27	0.74

station id	water year	year	month	day	daily rain
204	1956	1955	12	31	0.18
204	1956	1956	1	2	0.02
204	1956	1956	1	16	0.04
204	1956	1956	1	20	0.02
204	1956	1956	1	21	0.02
204	1956	1956	1	23	0.16
204	1956	1956	1	25	1.17
204	1956	1956	1	26	2.24
204	1956	1956	1	27	0.76
204	1956	1956	1	31	0.27
204	1956	1956	2	18	0.04
204	1956	1956	2	23	0.30
204	1956	1956	2	24	0.18
204	1956	1956	2	26	0.07
204	1956	1956	4	1	0.06
204	1956	1956	4	2	0.02
204	1956	1956	4	11	0.06
204	1956	1956	4	12	0.94
204	1956	1956	4	14	0.04
204	1956	1956	4	15	0.01
204	1956	1956	4	27	0.36
204	1956	1956	4	28	0.39
204	1956	1956	5	4	0.04
204	1956	1956	5	9	0.73
204	1956	1956	5	10	0.42
204	1957	1956	10	2	0.01
204	1957	1956	10	4	0.53
204	1957	1956	10	6	0.04
204	1957	1956	10	7	0.02
204	1957	1956	10	31	0.04
204	1957	1956	12	5	0.06
204	1957	1956	12	6	0.30
204	1957	1957	1	4	0.40
204	1957	1957	1	7	0.04
204	1957	1957	1	12	0.01
204	1957	1957	1	13	1.23
204	1957	1957	1	14	0.02
204	1957	1957	1	20	0.10
204	1957	1957	1	21	0.58
204	1957	1957	1	23	0.03
204	1957	1957	1	24	0.23
204	1957	1957	1	26	0.39
204	1957	1957	1	27	0.01
204	1957	1957	1	29	0.13
204	1957	1957	2	8	0.41

station id	water year	year	month	day	daily rain
204	1957	1957	2	9	0.47
204	1957	1957	2	10	0.02
204	1957	1957	2	17	0.01
204	1957	1957	2	18	0.03
204	1957	1957	2	20	0.01
204	1957	1957	2	23	0.91
204	1957	1957	2	24	0.04
204	1957	1957	2	28	0.30
204	1957	1957	3	1	0.76
204	1957	1957	3	9	0.05
204	1957	1957	3	10	0.15
204	1957	1957	3	16	0.17
204	1957	1957	3	19	0.11
204	1957	1957	4	14	0.06
204	1957	1957	4	17	0.01
204	1957	1957	4	18	0.97
204	1957	1957	4	20	0.13
204	1957	1957	4	21	0.13
204	1957	1957	5	11	0.02
204	1957	1957	5	12	0.25
204	1957	1957	5	15	0.09
204	1957	1957	5	19	0.60
204	1957	1957	5	20	0.05
204	1957	1957	5	21	0.27
204	1957	1957	6	10	0.08
204	1958	1957	10	11	0.18
204	1958	1957	10	12	0.01
204	1958	1957	10	13	0.06
204	1958	1957	10	14	0.34
204	1958	1957	10	20	0.01
204	1958	1957	10	21	0.22
204	1958	1957	11	3	0.20
204	1958	1957	11	14	0.11
204	1958	1957	11	15	0.09
204	1958	1957	11	17	0.03
204	1958	1957	12	5	1.06
204	1958	1957	12	6	0.54
204	1958	1957	12	15	0.25
204	1958	1957	12	16	0.65
204	1958	1957	12	17	0.91
204	1958	1957	12	18	0.01
204	1958	1957	12	19	0.07
204	1958	1957	12	22	0.02
204	1958	1958	1	2	0.09
204	1958	1958	1	10	0.18

station id	water year	year	month	day	daily rain
204	1958	1958	1	24	0.01
204	1958	1958	1	25	0.67
204	1958	1958	1	26	1.62
204	1958	1958	1	27	0.29
204	1958	1958	1	30	0.17
204	1958	1958	2	3	1.43
204	1958	1958	2	4	0.79
204	1958	1958	2	5	0.34
204	1958	1958	2	7	0.10
204	1958	1958	2	8	0.26
204	1958	1958	2	13	0.52
204	1958	1958	2	19	1.73
204	1958	1958	2	25	1.84
204	1958	1958	2	26	0.18
204	1958	1958	3	1	0.12
204	1958	1958	3	2	0.01
204	1958	1958	3	6	0.32
204	1958	1958	3	7	0.02
204	1958	1958	3	9	0.02
204	1958	1958	3	11	0.15
204	1958	1958	3	12	0.01
204	1958	1958	3	13	0.11
204	1958	1958	3	14	0.07
204	1958	1958	3	15	0.69
204	1958	1958	3	16	0.81
204	1958	1958	3	17	0.14
204	1958	1958	3	20	0.06
204	1958	1958	3	21	0.63
204	1958	1958	3	22	0.76
204	1958	1958	3	24	0.07
204	1958	1958	3	27	0.97
204	1958	1958	3	28	0.39
204	1958	1958	3	30	0.31
204	1958	1958	3	31	0.19
204	1958	1958	4	1	1.11
204	1958	1958	4	2	0.58
204	1958	1958	4	3	1.61
204	1958	1958	4	4	0.52
204	1958	1958	4	5	1.26
204	1958	1958	4	6	1.31
204	1958	1958	5	1	0.05
204	1958	1958	5	11	0.01
204	1958	1958	5	12	0.02
204	1958	1958	5	22	0.25
204	1959	1958	9	7	0.59

station id	water year	year	month	day	daily rain
204	1959	1958	9	8	0.32
204	1959	1958	9	23	0.56
204	1959	1958	9	24	0.15
204	1959	1958	11	10	0.10
204	1959	1958	11	11	0.03
204	1959	1958	11	15	0.04
204	1959	1958	12	28	0.10
204	1959	1958	12	29	0.11
204	1959	1959	1	6	2.05
204	1959	1959	1	7	0.07
204	1959	1959	1	10	0.08
204	1959	1959	1	13	0.30
204	1959	1959	2	7	0.02
204	1959	1959	2	8	0.18
204	1959	1959	2	10	0.21
204	1959	1959	2	11	1.57
204	1959	1959	2	12	0.45
204	1959	1959	2	16	0.58
204	1959	1959	2	17	0.34
204	1959	1959	2	18	0.03
204	1959	1959	2	19	0.09
204	1959	1959	2	21	1.32
204	1959	1959	2	22	0.19
204	1959	1959	4	25	0.31
204	1959	1959	4	26	0.19
204	1959	1959	4	27	0.18
204	1960	1959	9	17	0.01
204	1960	1959	9	19	0.04
204	1960	1959	12	10	0.06
204	1960	1959	12	24	0.36
204	1960	1959	12	25	0.47
204	1960	1960	1	1	0.02
204	1960	1960	1	10	2.30
204	1960	1960	1	11	0.12
204	1960	1960	1	12	0.78
204	1960	1960	1	14	0.20
204	1960	1960	1	15	0.53
204	1960	1960	1	23	0.39
204	1960	1960	1	25	0.16
204	1960	1960	2	2	2.02
204	1960	1960	2	3	0.04
204	1960	1960	2	4	0.13
204	1960	1960	2	6	0.13
204	1960	1960	2	9	0.40
204	1960	1960	2	10	0.41

station id	water year	year	month	day	daily rain
204	1960	1960	2	11	0.05
204	1960	1960	2	19	0.04
204	1960	1960	2	29	0.75
204	1960	1960	3	13	0.29
204	1960	1960	3	23	0.01
204	1960	1960	3	28	0.49
204	1960	1960	4	23	0.17
204	1960	1960	4	24	0.12
204	1960	1960	4	27	1.47
204	1960	1960	4	28	0.89
204	1961	1960	10	6	0.64
204	1961	1960	11	4	0.38
204	1961	1960	11	6	0.67
204	1961	1960	11	12	0.24
204	1961	1960	11	13	0.44
204	1961	1960	11	14	0.08
204	1961	1960	11	26	0.77
204	1961	1960	11	27	0.65
204	1961	1960	12	2	0.95
204	1961	1960	12	11	0.07
204	1961	1961	1	26	0.89
204	1961	1961	1	27	0.01
204	1961	1961	2	1	0.11
204	1961	1961	2	12	0.01
204	1961	1961	3	6	0.08
204	1961	1961	3	15	0.58
204	1961	1961	3	17	0.10
204	1961	1961	3	25	0.09
204	1961	1961	3	27	0.02
204	1961	1961	3	28	0.01
204	1961	1961	4	22	0.25
204	1961	1961	5	7	0.16
204	1962	1961	11	20	2.16
204	1962	1961	11	21	0.47
204	1962	1961	11	25	0.02
204	1962	1961	11	26	0.64
204	1962	1961	11	30	0.06
204	1962	1961	12	2	2.13
204	1962	1961	12	3	0.16
204	1962	1961	12	14	0.04
204	1962	1961	12	15	0.01
204	1962	1961	12	16	0.01
204	1962	1961	12	17	0.01
204	1962	1962	1	13	0.10
204	1962	1962	1	20	2.00

station id	water year	year	month	day	daily rain
204	1962	1962	1	21	0.34
204	1962	1962	1	22	0.38
204	1962	1962	1	23	0.12
204	1962	1962	2	7	0.32
204	1962	1962	2	8	1.24
204	1962	1962	2	9	0.89
204	1962	1962	2	10	2.61
204	1962	1962	2	11	2.27
204	1962	1962	2	12	0.76
204	1962	1962	2	14	0.17
204	1962	1962	2	15	1.02
204	1962	1962	2	16	0.36
204	1962	1962	2	17	0.04
204	1962	1962	2	19	1.76
204	1962	1962	2	20	0.13
204	1962	1962	2	21	0.40
204	1962	1962	2	24	0.02
204	1962	1962	2	25	0.10
204	1962	1962	2	26	0.42
204	1962	1962	3	2	0.08
204	1962	1962	3	3	0.08
204	1962	1962	3	5	0.05
204	1962	1962	3	6	0.75
204	1962	1962	3	7	0.34
204	1962	1962	3	8	0.02
204	1962	1962	3	15	0.06
204	1962	1962	3	19	0.21
204	1962	1962	3	20	0.02
204	1962	1962	3	21	0.02
204	1962	1962	3	23	0.32
204	1962	1962	3	28	0.02
204	1962	1962	4	28	0.04
204	1962	1962	5	12	0.01
204	1962	1962	5	17	0.08
204	1962	1962	5	27	0.01
204	1963	1962	10	14	0.46
204	1963	1962	11	2	0.01
204	1963	1962	12	16	0.28
204	1963	1962	12	17	0.16
204	1963	1963	1	30	0.06
204	1963	1963	1	31	0.42
204	1963	1963	2	1	0.52
204	1963	1963	2	2	0.32
204	1963	1963	2	9	0.16
204	1963	1963	2	10	2.65

station id	water year	year	month	day	daily rain
204	1963	1963	2	11	0.86
204	1963	1963	2	13	0.20
204	1963	1963	2	14	0.05
204	1963	1963	3	7	0.02
204	1963	1963	3	9	0.18
204	1963	1963	3	10	0.07
204	1963	1963	3	15	0.16
204	1963	1963	3	16	0.06
204	1963	1963	3	17	1.52
204	1963	1963	3	23	0.46
204	1963	1963	3	28	1.16
204	1963	1963	4	7	0.05
204	1963	1963	4	8	0.12
204	1963	1963	4	9	0.02
204	1963	1963	4	10	0.03
204	1963	1963	4	14	0.68
204	1963	1963	4	15	0.21
204	1963	1963	4	17	0.02
204	1963	1963	4	18	0.02
204	1963	1963	4	19	0.02
204	1963	1963	4	20	0.04
204	1963	1963	4	21	0.43
204	1963	1963	4	26	0.97
204	1963	1963	5	9	0.23
204	1963	1963	5	11	0.01
204	1963	1963	5	25	0.01
204	1963	1963	5	28	0.05
204	1963	1963	6	11	0.14
204	1963	1963	6	12	0.03
204	1963	1963	8	8	0.27
204	1963	1963	8	9	0.04
204	1964	1963	9	5	0.28
204	1964	1963	9	18	0.29
204	1964	1963	9	19	0.44
204	1964	1963	10	10	0.12
204	1964	1963	10	11	0.13
204	1964	1963	10	16	0.89
204	1964	1963	11	3	0.09
204	1964	1963	11	6	0.57
204	1964	1963	11	7	0.04
204	1964	1963	11	15	0.27
204	1964	1963	11	20	0.93
204	1964	1963	11	21	0.05
204	1964	1963	11	24	0.08
204	1964	1963	12	9	0.14

station id	water year	year	month	day	daily rain
204	1964	1963	12	10	0.02
204	1964	1964	1	18	0.05
204	1964	1964	1	20	0.05
204	1964	1964	1	21	0.68
204	1964	1964	1	22	0.83
204	1964	1964	1	23	0.10
204	1964	1964	1	26	0.10
204	1964	1964	2	16	0.03
204	1964	1964	2	29	0.09
204	1964	1964	3	2	0.17
204	1964	1964	3	8	0.04
204	1964	1964	3	12	0.02
204	1964	1964	3	13	0.12
204	1964	1964	3	22	0.03
204	1964	1964	3	23	1.20
204	1964	1964	3	24	0.30
204	1964	1964	3	25	0.11
204	1964	1964	4	1	1.34
204	1964	1964	4	23	0.02
204	1964	1964	4	24	0.04
204	1964	1964	4	28	0.02
204	1964	1964	4	29	0.07
204	1964	1964	5	5	0.03
204	1964	1964	5	6	0.24
204	1964	1964	5	7	0.14
204	1964	1964	5	17	0.03
204	1964	1964	6	9	0.07
204	1964	1964	7	27	0.02
204	1965	1964	10	27	0.01
204	1965	1964	10	28	0.47
204	1965	1964	10	29	0.98
204	1965	1964	10	30	0.01
204	1965	1964	11	1	0.10
204	1965	1964	11	8	0.16
204	1965	1964	11	9	0.64
204	1965	1964	11	10	0.84
204	1965	1964	11	11	0.06
204	1965	1964	11	12	0.59
204	1965	1964	11	13	0.01
204	1965	1964	11	14	0.01
204	1965	1964	12	18	0.01
204	1965	1964	12	19	0.18
204	1965	1964	12	20	0.18
204	1965	1964	12	21	0.01
204	1965	1964	12	23	0.17

station id	water year	year	month	day	daily rain
204	1965	1964	12	24	0.11
204	1965	1964	12	27	0.38
204	1965	1964	12	28	0.45
204	1965	1964	12	29	0.03
204	1965	1964	12	30	0.08
204	1965	1964	12	31	0.51
204	1965	1965	1	4	0.14
204	1965	1965	1	5	0.03
204	1965	1965	1	6	0.12
204	1965	1965	1	7	0.23
204	1965	1965	1	24	0.18
204	1965	1965	1	25	0.02
204	1965	1965	2	5	0.40
204	1965	1965	2	6	0.10
204	1965	1965	2	7	0.01
204	1965	1965	3	5	0.50
204	1965	1965	3	6	0.09
204	1965	1965	3	7	0.22
204	1965	1965	3	8	0.21
204	1965	1965	3	9	0.05
204	1965	1965	3	10	0.25
204	1965	1965	3	11	0.02
204	1965	1965	3	31	1.03
204	1965	1965	4	1	0.01
204	1965	1965	4	2	0.19
204	1965	1965	4	3	0.49
204	1965	1965	4	4	0.33
204	1965	1965	4	5	0.07
204	1965	1965	4	6	0.09
204	1965	1965	4	7	0.26
204	1965	1965	4	8	1.43
204	1965	1965	4	9	0.14
204	1965	1965	4	10	1.03
204	1965	1965	4	11	0.12
204	1965	1965	4	12	0.01
204	1965	1965	4	13	0.03
204	1966	1965	10	15	0.01
204	1966	1965	11	13	0.31
204	1966	1965	11	14	0.21
204	1966	1965	11	15	0.63
204	1966	1965	11	16	1.35
204	1966	1965	11	17	0.58
204	1966	1965	11	18	0.03
204	1966	1965	11	22	0.01
204	1966	1965	11	23	0.35

station id	water year	year	month	day	daily rain
204	1966	1965	11	24	1.98
204	1966	1965	11	25	0.32
204	1966	1965	11	26	0.02
204	1966	1965	12	10	0.02
204	1966	1965	12	12	0.38
204	1966	1965	12	13	0.07
204	1966	1965	12	14	0.13
204	1966	1965	12	25	0.04
204	1966	1965	12	29	1.90
204	1966	1965	12	30	0.49
204	1966	1965	12	31	0.40
204	1966	1966	1	1	0.23
204	1966	1966	1	20	0.12
204	1966	1966	1	26	0.09
204	1966	1966	1	30	1.39
204	1966	1966	1	31	0.20
204	1966	1966	2	2	0.15
204	1966	1966	2	5	0.03
204	1966	1966	2	6	0.59
204	1966	1966	2	8	0.01
204	1966	1966	2	10	0.02
204	1966	1966	2	26	0.07
204	1966	1966	3	2	0.25
204	1966	1966	3	3	0.03
204	1966	1966	4	10	0.09
204	1966	1966	5	5	0.03
204	1966	1966	6	16	0.02
204	1967	1966	9	29	0.09
204	1967	1966	11	7	0.68
204	1967	1966	11	8	0.64
204	1967	1966	11	16	0.03
204	1967	1966	11	20	0.35
204	1967	1966	11	21	0.03
204	1967	1966	11	22	0.09
204	1967	1966	11	29	0.20
204	1967	1967	1	22	1.43
204	1967	1967	1	24	1.05
204	1967	1967	1	25	1.89
204	1967	1967	1	30	0.04
204	1967	1967	1	31	0.26
204	1967	1967	2	25	0.31
204	1967	1967	3	4	0.17
204	1967	1967	3	11	0.12
204	1967	1967	3	12	0.65
204	1967	1967	3	13	0.41

station id	water year	year	month	day	daily rain
204	1967	1967	3	14	0.23
204	1967	1967	3	17	0.11
204	1967	1967	3	31	0.61
204	1967	1967	4	1	0.21
204	1967	1967	4	2	0.26
204	1967	1967	4	4	0.10
204	1967	1967	4	5	0.40
204	1967	1967	4	7	0.56
204	1967	1967	4	8	0.02
204	1967	1967	4	11	0.84
204	1967	1967	4	12	0.03
204	1967	1967	4	15	0.10
204	1967	1967	4	16	0.10
204	1967	1967	4	18	0.63
204	1967	1967	4	19	0.52
204	1967	1967	4	20	0.21
204	1967	1967	4	21	0.15
204	1967	1967	4	22	0.56
204	1967	1967	4	23	0.01
204	1967	1967	4	24	0.22
204	1967	1967	4	29	0.06
204	1968	1967	9	21	0.05
204	1968	1967	9	28	0.10
204	1968	1967	9	29	0.13
204	1967	1966	12	3	1.70
204	1967	1966	12	5	0.34
204	1967	1966	12	6	2.00
204	1967	1966	12	7	1.35
204	1968	1967	11	19	0.37
204	1968	1967	11	20	0.35
204	1968	1967	11	21	0.44
204	1968	1967	11	22	0.27
204	1968	1967	11	27	0.02
204	1968	1967	11	30	0.61
204	1968	1967	12	1	0.05
204	1968	1967	12	4	0.02
204	1968	1967	12	5	0.05
204	1968	1967	12	7	0.08
204	1968	1967	12	19	0.57
204	1968	1967	12	20	0.23
204	1968	1967	12	21	0.03
204	1968	1968	1	10	0.06
204	1968	1968	1	11	0.18
204	1968	1968	1	16	0.03
204	1968	1968	1	27	0.01

station id	water year	year	month	day	daily rain
204	1968	1968	1	28	0.82
204	1968	1968	1	30	0.35
204	1968	1968	2	13	0.16
204	1968	1968	2	17	0.62
204	1968	1968	2	18	0.08
204	1968	1968	2	21	0.02
204	1968	1968	3	7	0.09
204	1968	1968	3	8	1.44
204	1968	1968	3	9	0.02
204	1968	1968	3	13	0.91
204	1968	1968	3	14	0.02
204	1968	1968	3	17	0.35
204	1968	1968	4	2	0.97
204	1968	1968	5	12	0.02
204	1968	1968	5	13	0.14
204	1969	1968	10	13	0.20
204	1969	1968	10	14	1.36
204	1969	1968	10	30	0.37
204	1969	1968	11	3	0.16
204	1969	1968	11	4	0.05
204	1969	1968	11	15	0.90
204	1969	1968	11	16	0.05
204	1969	1968	11	30	0.02
204	1969	1968	12	10	0.29
204	1969	1968	12	14	0.14
204	1969	1968	12	15	0.11
204	1969	1968	12	16	0.34
204	1969	1968	12	20	0.10
204	1969	1968	12	25	0.10
204	1969	1968	12	26	0.60
204	1969	1968	12	27	0.01
204	1969	1968	12	29	0.11
204	1969	1969	1	14	0.67
204	1969	1969	1	19	1.19
204	1969	1969	1	20	1.47
204	1969	1969	1	21	1.20
204	1969	1969	1	22	0.36
204	1969	1969	1	24	0.40
204	1969	1969	1	25	2.44
204	1969	1969	1	26	1.07
204	1969	1969	1	27	0.05
204	1969	1969	1	28	0.17
204	1969	1969	1	29	0.35
204	1969	1969	1	31	0.02
204	1969	1969	2	5	0.56

station id	water year	year	month	day	daily rain
204	1969	1969	2	6	1.00
204	1969	1969	2	7	0.30
204	1969	1969	2	12	0.37
204	1969	1969	2	15	0.37
204	1969	1969	2	16	0.12
204	1969	1969	2	18	0.41
204	1969	1969	2	19	0.50
204	1969	1969	2	20	0.48
204	1969	1969	2	21	0.01
204	1969	1969	2	22	0.80
204	1969	1969	2	23	0.85
204	1969	1969	2	24	0.46
204	1969	1969	2	25	2.46
204	1969	1969	2	26	0.32
204	1969	1969	2	28	0.46
204	1969	1969	3	1	0.58
204	1969	1969	3	10	0.30
204	1969	1969	3	13	0.08
204	1969	1969	3	21	0.17
204	1969	1969	3	22	0.20
204	1969	1969	4	3	0.78
204	1969	1969	4	5	1.08
204	1969	1969	4	6	0.02
204	1969	1969	4	10	0.02
204	1969	1969	5	4	0.10
204	1970	1969	9	6	0.03
204	1970	1969	9	7	0.05
204	1970	1969	9	16	0.03
204	1970	1969	10	16	0.08
204	1970	1969	10	17	0.05
204	1970	1969	11	6	0.86
204	1970	1969	11	7	0.64
204	1970	1969	11	8	0.04
204	1970	1969	12	9	0.15
204	1970	1969	12	20	0.10
204	1970	1969	12	21	0.05
204	1970	1969	12	22	0.08
204	1970	1969	12	25	0.04
204	1970	1969	12	26	0.11
204	1970	1970	1	9	0.11
204	1970	1970	1	10	1.05
204	1970	1970	1	11	0.07
204	1970	1970	1	12	0.14
204	1970	1970	1	15	0.07
204	1970	1970	1	16	1.02

station id	water year	year	month	day	daily rain
204	1970	1970	1	17	0.40
204	1970	1970	1	20	0.08
204	1970	1970	1	24	0.12
204	1970	1970	2	10	0.10
204	1970	1970	2	11	0.32
204	1970	1970	2	13	0.12
204	1970	1970	2	17	0.06
204	1970	1970	2	28	0.75
204	1970	1970	3	1	1.60
204	1970	1970	3	2	0.50
204	1970	1970	3	5	1.05
204	1970	1970	3	10	0.05
204	1970	1970	3	11	0.05
204	1970	1970	4	14	0.09
204	1970	1970	4	27	0.10
204	1971	1970	10	21	0.03
204	1971	1970	11	4	0.02
204	1971	1970	11	5	0.13
204	1971	1970	11	6	0.14
204	1971	1970	11	7	0.03
204	1971	1970	11	26	1.38
204	1971	1970	11	28	0.15
204	1971	1970	11	29	0.60
204	1971	1970	11	30	0.48
204	1971	1970	12	1	0.04
204	1971	1970	12	2	0.56
204	1971	1970	12	3	0.02
204	1971	1970	12	9	0.11
204	1971	1970	12	14	0.10
204	1971	1970	12	16	0.13
204	1971	1970	12	17	0.51
204	1971	1970	12	18	0.30
204	1971	1970	12	19	1.03
204	1971	1970	12	21	1.03
204	1971	1970	12	22	0.53
204	1971	1970	12	26	0.08
204	1971	1971	1	2	0.23
204	1971	1971	1	12	0.16
204	1971	1971	1	13	0.24
204	1971	1971	1	14	0.16
204	1971	1971	1	20	0.01
204	1971	1971	2	17	0.57
204	1971	1971	2	19	0.05
204	1971	1971	3	13	0.62
204	1971	1971	3	26	0.03

station id	water year	year	month	day	daily rain
204	1971	1971	3	27	0.01
204	1971	1971	4	14	0.60
204	1971	1971	4	18	0.14
204	1971	1971	5	3	0.05
204	1971	1971	5	6	0.03
204	1971	1971	5	7	0.08
204	1971	1971	5	27	0.10
204	1971	1971	5	28	0.69
204	1972	1971	9	30	0.04
204	1972	1971	10	15	0.09
204	1972	1971	10	16	0.12
204	1972	1971	10	25	0.06
204	1972	1971	11	11	0.01
204	1972	1971	11	12	0.25
204	1972	1971	11	14	0.01
204	1972	1971	11	29	0.09
204	1972	1971	12	3	0.40
204	1972	1971	12	4	0.05
204	1972	1971	12	13	0.23
204	1972	1971	12	22	0.63
204	1972	1971	12	23	0.58
204	1972	1971	12	24	0.26
204	1972	1971	12	25	0.32
204	1972	1971	12	26	0.65
204	1972	1971	12	27	2.75
204	1972	1971	12	28	0.15
204	1972	1972	1	27	0.07
204	1972	1972	1	28	0.02
204	1972	1972	2	5	0.15
204	1972	1972	2	22	0.13
204	1972	1972	4	11	0.10
204	1972	1972	4	12	0.05
204	1972	1972	4	13	0.04
204	1972	1972	5	20	0.10
204	1972	1972	7	30	0.05
204	1973	1972	10	12	0.23
204	1973	1972	10	13	0.08
204	1973	1972	10	15	0.09
204	1973	1972	10	16	0.03
204	1973	1972	10	18	0.10
204	1973	1972	10	19	0.02
204	1973	1972	11	4	0.52
204	1973	1972	11	10	0.34
204	1973	1972	11	11	0.30
204	1973	1972	11	13	0.07

station id	water year	year	month	day	daily rain
204	1973	1972	11	14	1.07
204	1973	1972	11	15	0.83
204	1973	1972	11	16	0.71
204	1973	1972	12	4	0.53
204	1973	1972	12	5	0.06
204	1973	1972	12	6	0.35
204	1973	1972	12	7	0.25
204	1973	1972	12	8	0.03
204	1973	1973	1	4	0.05
204	1973	1973	1	5	0.14
204	1973	1973	1	8	0.03
204	1973	1973	1	9	0.54
204	1973	1973	1	10	0.35
204	1973	1973	1	16	0.10
204	1973	1973	1	17	1.21
204	1973	1973	1	18	0.17
204	1973	1973	1	19	2.12
204	1973	1973	1	20	0.09
204	1973	1973	1	26	0.02
204	1973	1973	1	29	0.17
204	1973	1973	2	3	0.12
204	1973	1973	2	4	0.67
204	1973	1973	2	5	0.02
204	1973	1973	2	6	0.56
204	1973	1973	2	7	0.61
204	1973	1973	2	8	0.03
204	1973	1973	2	10	0.32
204	1973	1973	2	11	1.94
204	1973	1973	2	12	0.14
204	1973	1973	2	13	0.60
204	1973	1973	2	15	0.13
204	1973	1973	2	24	0.46
204	1973	1973	2	27	0.10
204	1973	1973	2	28	1.51
204	1973	1973	3	4	0.24
204	1973	1973	3	7	0.34
204	1973	1973	3	8	0.35
204	1973	1973	3	9	0.10
204	1973	1973	3	11	0.38
204	1973	1973	3	12	0.17
204	1973	1973	3	13	0.01
204	1973	1973	3	20	1.48
204	1973	1973	3	21	0.03
204	1973	1973	3	22	0.38
204	1973	1973	4	13	0.05

station id	water year	year	month	day	daily rain
204	1973	1973	5	31	0.19
204	1974	1973	9	5	0.05
204	1974	1973	10	8	0.12
204	1974	1973	10	22	0.05
204	1974	1973	10	23	0.15
204	1974	1973	11	12	0.51
204	1974	1973	11	14	0.04
204	1974	1973	11	17	0.25
204	1974	1973	11	18	0.85
204	1974	1973	11	23	0.74
204	1974	1973	11	26	0.03
204	1974	1973	12	1	1.03
204	1974	1973	12	14	0.07
204	1974	1973	12	22	0.37
204	1974	1973	12	27	0.15
204	1974	1973	12	28	0.61
204	1974	1974	1	1	0.10
204	1974	1974	1	2	0.07
204	1974	1974	1	4	1.51
204	1974	1974	1	5	0.42
204	1974	1974	1	6	0.43
204	1974	1974	1	7	1.38
204	1974	1974	1	8	0.88
204	1974	1974	1	12	0.13
204	1974	1974	1	13	0.02
204	1974	1974	1	17	0.84
204	1974	1974	1	19	0.02
204	1974	1974	1	20	0.03
204	1974	1974	1	21	0.09
204	1974	1974	2	13	0.05
204	1974	1974	2	20	0.08
204	1974	1974	3	1	0.10
204	1974	1974	3	2	0.90
204	1974	1974	3	3	0.27
204	1974	1974	3	4	0.10
204	1974	1974	3	7	0.03
204	1974	1974	3	8	0.98
204	1974	1974	3	26	0.38
204	1974	1974	3	27	0.43
204	1974	1974	3	28	0.06
204	1974	1974	3	29	0.10
204	1974	1974	3	30	0.50
204	1974	1974	3	31	0.15
204	1974	1974	4	2	0.85
204	1974	1974	4	9	0.05

station id	water year	year	month	day	daily rain
204	1974	1974	4	24	0.06
204	1975	1974	10	8	0.04
204	1975	1974	10	28	0.54
204	1975	1974	10	29	0.43
204	1975	1974	11	1	0.03
204	1975	1974	11	22	0.23
204	1975	1974	12	4	3.14
204	1975	1974	12	28	1.40
204	1975	1974	12	29	0.56
204	1975	1974	12	31	0.02
204	1975	1975	1	7	0.05
204	1975	1975	1	8	0.04
204	1975	1975	1	9	0.07
204	1975	1975	1	31	0.05
204	1975	1975	2	1	0.18
204	1975	1975	2	2	0.65
204	1975	1975	2	3	2.28
204	1975	1975	2	4	0.15
204	1975	1975	2	5	0.45
204	1975	1975	2	9	0.22
204	1975	1975	2	10	0.20
204	1975	1975	2	13	0.05
204	1975	1975	2	14	0.05
204	1975	1975	3	5	0.04
204	1975	1975	3	6	1.35
204	1975	1975	3	7	0.86
204	1975	1975	3	8	1.18
204	1975	1975	3	9	0.03
204	1975	1975	3	10	0.08
204	1975	1975	3	11	0.64
204	1975	1975	3	14	0.40
204	1975	1975	3	16	0.13
204	1975	1975	3	22	0.50
204	1975	1975	3	25	0.06
204	1975	1975	3	26	0.02
204	1975	1975	4	5	0.39
204	1975	1975	4	6	0.35
204	1975	1975	4	25	0.12
204	1976	1975	10	7	0.05
204	1976	1975	10	11	0.50
204	1976	1975	10	27	0.07
204	1976	1975	10	30	0.17
204	1976	1975	10	31	0.05
204	1976	1975	12	12	0.03
204	1976	1975	12	13	0.11

station id	water year	year	month	day	daily rain
204	1976	1975	12	14	0.03
204	1976	1976	1	11	0.01
204	1976	1976	2	6	0.24
204	1976	1976	2	7	0.53
204	1976	1976	2	8	0.65
204	1976	1976	2	9	1.89
204	1976	1976	2	10	1.05
204	1976	1976	2	11	2.00
204	1976	1976	2	14	0.12
204	1976	1976	2	15	0.03
204	1976	1976	2	19	0.01
204	1976	1976	2	20	0.02
204	1976	1976	2	24	0.14
204	1976	1976	3	2	0.82
204	1976	1976	3	3	0.09
204	1976	1976	3	4	0.76
204	1976	1976	4	5	0.15
204	1976	1976	4	6	0.10
204	1976	1976	4	7	0.03
204	1976	1976	4	9	0.38
204	1976	1976	4	10	0.10
204	1976	1976	4	12	0.08
204	1976	1976	4	14	0.40
204	1976	1976	4	16	0.07
204	1976	1976	5	8	0.03
204	1976	1976	6	11	0.13
204	1976	1976	7	16	0.02
204	1976	1976	8	16	0.07
204	1976	1976	8	19	0.20
204	1976	1976	8	20	0.17
204	1977	1976	9	10	0.14
204	1977	1976	9	11	2.32
204	1977	1976	9	20	0.03
204	1977	1976	9	29	2.18
204	1977	1976	9	30	0.15
204	1977	1976	10	1	0.27
204	1977	1976	10	21	0.06
204	1977	1976	10	23	0.05
204	1977	1976	11	11	0.01
204	1977	1976	11	12	0.26
204	1977	1976	11	13	0.05
204	1977	1976	11	14	0.07
204	1977	1976	12	30	0.48
204	1977	1976	12	31	0.29
204	1977	1977	1	1	0.02

station id	water year	year	month	day	daily rain
204	1977	1977	1	3	0.84
204	1977	1977	1	5	0.83
204	1977	1977	1	6	0.73
204	1977	1977	1	21	0.08
204	1977	1977	1	28	0.10
204	1977	1977	2	21	0.03
204	1977	1977	2	23	0.05
204	1977	1977	2	24	0.05
204	1977	1977	3	16	1.28
204	1977	1977	3	17	0.09
204	1977	1977	3	25	0.47
204	1977	1977	3	30	0.06
204	1977	1977	3	31	0.12
204	1977	1977	4	9	0.01
204	1977	1977	5	1	0.03
204	1977	1977	5	8	0.66
204	1977	1977	5	9	1.72
204	1977	1977	5	10	0.10
204	1977	1977	5	12	0.07
204	1977	1977	5	13	0.24
204	1977	1977	5	23	0.02
204	1978	1977	11	5	0.14
204	1978	1977	12	15	0.12
204	1978	1977	12	16	0.02
204	1978	1977	12	17	0.03
204	1978	1977	12	18	0.46
204	1978	1977	12	19	0.28
204	1978	1977	12	22	0.19
204	1978	1977	12	23	0.51
204	1978	1977	12	24	0.03
204	1978	1977	12	26	0.12
204	1978	1977	12	27	0.05
204	1978	1977	12	28	1.25
204	1978	1977	12	29	0.04
204	1978	1978	1	3	0.40
204	1978	1978	1	4	0.12
204	1978	1978	1	5	0.52
204	1978	1978	1	6	0.29
204	1978	1978	1	9	0.10
204	1978	1978	1	10	1.01
204	1978	1978	1	11	0.15
204	1978	1978	1	13	0.01
204	1978	1978	1	15	1.23
204	1978	1978	1	16	0.05
204	1978	1978	1	17	1.27

station id	water year	year	month	day	daily rain
204	1978	1978	1	18	0.13
204	1978	1978	1	19	0.29
204	1978	1978	1	20	0.05
204	1978	1978	2	5	0.10
204	1978	1978	2	6	0.05
204	1978	1978	2	7	0.02
204	1978	1978	2	8	1.18
204	1978	1978	2	9	1.76
204	1978	1978	2	10	3.07
204	1978	1978	2	11	0.45
204	1978	1978	2	13	1.44
204	1978	1978	2	14	0.10
204	1978	1978	2	28	0.05
204	1978	1978	3	1	0.80
204	1978	1978	3	2	0.58
204	1978	1978	3	3	0.33
204	1978	1978	3	4	1.90
204	1978	1978	3	5	1.10
204	1978	1978	3	6	0.07
204	1978	1978	3	9	0.43
204	1978	1978	3	10	0.25
204	1978	1978	3	12	0.26
204	1978	1978	3	22	0.82
204	1978	1978	3	23	0.09
204	1978	1978	3	30	0.04
204	1978	1978	3	31	0.99
204	1978	1978	4	4	0.50
204	1978	1978	4	7	0.49
204	1978	1978	4	8	0.34
204	1978	1978	4	15	0.20
204	1978	1978	4	16	0.95
204	1978	1978	4	17	0.05
204	1978	1978	4	25	0.35
204	1979	1978	9	4	1.89
204	1979	1978	9	5	0.28
204	1979	1978	11	11	0.33
204	1979	1978	11	13	0.60
204	1979	1978	11	14	0.05
204	1979	1978	11	20	0.17
204	1979	1978	11	21	0.47
204	1979	1978	11	22	0.46
204	1979	1978	12	2	0.15
204	1979	1978	12	17	0.70
204	1979	1978	12	18	0.37
204	1979	1978	12	19	0.74

station id	water year	year	month	day	daily rain
204	1979	1979	1	5	0.27
204	1979	1979	1	6	0.48
204	1979	1979	1	9	0.15
204	1979	1979	1	12	0.04
204	1979	1979	1	14	1.29
204	1979	1979	1	15	0.95
204	1979	1979	1	16	0.18
204	1979	1979	1	17	0.53
204	1979	1979	1	18	0.05
204	1979	1979	1	31	0.65
204	1979	1979	2	1	0.70
204	1979	1979	2	2	0.30
204	1979	1979	2	3	0.29
204	1979	1979	2	14	0.49
204	1979	1979	2	15	0.29
204	1979	1979	2	19	0.09
204	1979	1979	2	21	1.18
204	1979	1979	2	22	0.23
204	1979	1979	2	23	0.20
204	1979	1979	2	25	0.03
204	1979	1979	3	1	0.43
204	1979	1979	3	14	0.04
204	1979	1979	3	16	0.14
204	1979	1979	3	17	0.44
204	1979	1979	3	19	0.45
204	1979	1979	3	20	0.71
204	1979	1979	3	27	1.53
204	1979	1979	3	28	0.79
204	1979	1979	3	29	0.67
204	1979	1979	3	30	0.02
204	1979	1979	5	7	0.04
204	1980	1979	9	29	0.20
204	1980	1979	10	14	0.10
204	1980	1979	10	20	0.63
204	1980	1979	10	26	0.19
204	1980	1979	11	4	0.15
204	1980	1979	11	8	0.52
204	1980	1979	11	26	0.02
204	1980	1979	12	21	0.11
204	1980	1979	12	22	0.03
204	1980	1979	12	24	0.38
204	1980	1979	12	25	1.28
204	1980	1980	1	8	0.08
204	1980	1980	1	9	0.13
204	1980	1980	1	10	1.08

station id	water year	year	month	day	daily rain
204	1980	1980	1	11	0.53
204	1980	1980	1	12	0.53
204	1980	1980	1	13	0.20
204	1980	1980	1	14	0.80
204	1980	1980	1	15	0.35
204	1980	1980	1	16	0.11
204	1980	1980	1	17	0.14
204	1980	1980	1	18	0.10
204	1980	1980	1	29	0.20
204	1980	1980	2	14	0.05
204	1980	1980	2	15	0.52
204	1980	1980	2	16	1.01
204	1980	1980	2	17	1.84
204	1980	1980	2	18	0.95
204	1980	1980	2	19	0.97
204	1980	1980	2	20	0.83
204	1980	1980	2	21	0.61
204	1980	1980	2	28	0.13
204	1980	1980	3	3	0.45
204	1980	1980	3	5	0.45
204	1980	1980	3	6	1.22
204	1980	1980	3	7	0.05
204	1980	1980	3	22	0.02
204	1980	1980	3	26	0.23
204	1980	1980	4	5	0.01
204	1980	1980	4	6	0.18
204	1980	1980	4	22	0.66
204	1980	1980	4	23	0.35
204	1980	1980	4	24	0.02
204	1980	1980	4	28	0.33
204	1980	1980	5	11	0.27
204	1980	1980	5	20	0.01
204	1980	1980	7	3	0.01
204	1981	1980	12	4	0.70
204	1981	1980	12	5	0.16
204	1981	1981	1	3	0.05
204	1981	1981	1	4	0.02
204	1981	1981	1	23	1.11
204	1981	1981	1	27	0.02
204	1981	1981	1	28	1.08
204	1981	1981	1	29	0.57
204	1981	1981	1	30	0.02
204	1981	1981	2	8	0.04
204	1981	1981	2	9	1.61
204	1981	1981	2	11	0.03

station id	water year	year	month	day	daily rain
204	1981	1981	2	12	0.02
204	1981	1981	2	13	0.02
204	1981	1981	2	26	1.01
204	1981	1981	2	28	0.02
204	1981	1981	3	1	1.85
204	1981	1981	3	2	0.40
204	1981	1981	3	5	2.45
204	1981	1981	3	14	0.13
204	1981	1981	3	19	0.14
204	1981	1981	3	20	0.54
204	1981	1981	3	21	0.05
204	1981	1981	3	22	0.60
204	1981	1981	3	26	0.08
204	1981	1981	3	27	0.10
204	1981	1981	4	19	0.42
204	1981	1981	4	20	0.06
204	1982	1981	10	1	0.02
204	1982	1981	10	28	0.24
204	1982	1981	10	29	0.31
204	1982	1981	11	14	0.14
204	1982	1981	11	17	0.12
204	1982	1981	11	27	0.41
204	1982	1981	11	28	0.19
204	1982	1981	11	29	0.06
204	1982	1981	12	13	0.01
204	1982	1981	12	21	0.26
204	1982	1981	12	30	0.55
204	1982	1981	12	31	0.04
204	1982	1982	1	1	0.19
204	1982	1982	1	2	0.29
204	1982	1982	1	3	0.08
204	1982	1982	1	5	0.35
204	1982	1982	1	6	0.03
204	1982	1982	1	11	0.02
204	1982	1982	1	19	0.04
204	1982	1982	1	20	0.65
204	1982	1982	1	21	0.96
204	1982	1982	1	27	0.04
204	1982	1982	1	28	0.03
204	1982	1982	1	29	0.22
204	1982	1982	2	8	0.02
204	1982	1982	2	10	0.07
204	1982	1982	2	11	0.33
204	1982	1982	2	14	0.05
204	1982	1982	2	15	0.05

station id	water year	year	month	day	daily rain
204	1982	1982	2	16	0.27
204	1982	1982	3	1	0.07
204	1982	1982	3	2	0.66
204	1982	1982	3	3	0.04
204	1982	1982	3	11	0.20
204	1982	1982	3	12	0.55
204	1982	1982	3	14	0.14
204	1982	1982	3	15	0.37
204	1982	1982	3	16	0.32
204	1982	1982	3	17	1.14
204	1982	1982	3	18	0.65
204	1982	1982	3	19	0.28
204	1982	1982	3	26	0.35
204	1982	1982	3	29	0.30
204	1982	1982	3	30	0.43
204	1982	1982	4	1	1.30
204	1982	1982	4	2	0.21
204	1982	1982	4	10	0.10
204	1982	1982	4	11	1.01
204	1982	1982	4	12	0.28
204	1983	1982	9	16	0.06
204	1983	1982	9	24	0.04
204	1983	1982	9	26	0.21
204	1983	1982	10	24	0.29
204	1983	1982	10	26	0.34
204	1983	1982	10	29	0.52
204	1983	1982	10	30	0.33
204	1983	1982	11	9	0.73
204	1983	1982	11	10	0.65
204	1983	1982	11	11	0.11
204	1983	1982	11	19	0.68
204	1983	1982	11	23	0.35
204	1983	1982	11	24	0.06
204	1983	1982	11	28	0.13
204	1983	1982	11	29	0.50
204	1983	1982	11	30	1.43
204	1983	1982	12	1	0.59
204	1983	1982	12	2	0.09
204	1983	1982	12	22	0.25
204	1983	1982	12	23	1.53
204	1983	1983	1	19	0.90
204	1983	1983	1	22	0.26
204	1983	1983	1	23	2.35
204	1983	1983	1	24	0.67
204	1983	1983	1	27	2.20

station id	water year	year	month	day	daily rain
204	1983	1983	1	28	0.38
204	1983	1983	1	29	1.40
204	1983	1983	2	3	0.29
204	1983	1983	2	6	0.54
204	1983	1983	2	7	0.21
204	1983	1983	2	8	1.03
204	1983	1983	2	13	0.75
204	1983	1983	2	24	0.14
204	1983	1983	2	26	1.30
204	1983	1983	2	27	0.77
204	1983	1983	2	28	0.20
204	1983	1983	3	1	2.03
204	1983	1983	3	2	1.40
204	1983	1983	3	3	0.52
204	1983	1983	3	4	0.25
204	1983	1983	3	5	0.40
204	1983	1983	3	6	0.05
204	1983	1983	3	7	0.10
204	1983	1983	3	14	0.45
204	1983	1983	3	17	0.36
204	1983	1983	3	18	0.47
204	1983	1983	3	19	0.19
204	1983	1983	3	21	1.10
204	1983	1983	3	23	0.36
204	1983	1983	3	24	0.79
204	1983	1983	3	25	0.12
204	1983	1983	3	28	0.08
204	1983	1983	4	6	0.02
204	1983	1983	4	12	0.36
204	1983	1983	4	18	1.01
204	1983	1983	4	19	0.63
204	1983	1983	4	20	1.08
204	1983	1983	4	21	0.32
204	1983	1983	4	28	0.28
204	1983	1983	4	29	0.03
204	1983	1983	4	30	0.45
204	1983	1983	5	1	0.15
204	1983	1983	5	2	0.09
204	1983	1983	5	6	0.02
204	1983	1983	8	19	0.31
204	1984	1983	9	30	0.05
204	1984	1983	10	1	1.22
204	1984	1983	11	1	0.22
204	1984	1983	11	2	0.44
204	1984	1983	11	11	0.22

station id	water year	year	month	day	daily rain
204	1984	1983	11	12	0.29
204	1984	1983	11	13	0.15
204	1984	1983	11	14	0.04
204	1984	1983	11	17	0.07
204	1984	1983	11	18	0.17
204	1984	1983	11	20	0.42
204	1984	1983	11	21	0.36
204	1984	1983	11	25	0.82
204	1984	1983	12	1	0.04
204	1984	1983	12	4	0.86
204	1984	1983	12	9	0.11
204	1984	1983	12	10	0.72
204	1984	1983	12	11	0.01
204	1984	1983	12	12	0.17
204	1984	1983	12	25	1.30
204	1984	1983	12	26	0.25
204	1984	1983	12	27	0.15
204	1984	1984	1	17	0.01
204	1984	1984	2	2	0.08
204	1984	1984	2	10	0.15
204	1984	1984	2	14	0.04
204	1984	1984	2	16	0.14
204	1984	1984	3	14	0.54
204	1984	1984	3	31	0.03
204	1984	1984	4	6	0.35
204	1984	1984	4	19	0.24
204	1985	1984	10	12	0.20
204	1985	1984	10	15	0.50
204	1985	1984	11	8	0.42
204	1985	1984	11	13	1.19
204	1985	1984	11	16	0.62
204	1985	1984	11	17	0.04
204	1985	1984	11	25	0.57
204	1985	1984	11	28	0.30
204	1985	1984	12	3	0.10
204	1985	1984	12	8	0.32
204	1985	1984	12	10	0.33
204	1985	1984	12	16	0.54
204	1985	1984	12	18	0.08
204	1985	1984	12	19	1.44
204	1985	1984	12	20	0.82
204	1985	1985	1	7	0.28
204	1985	1985	1	10	0.12
204	1985	1985	1	29	0.18
204	1985	1985	2	2	0.24

station id	water year	year	month	day	daily rain
204	1985	1985	2	8	0.03
204	1985	1985	2	9	0.70
204	1985	1985	3	3	0.08
204	1985	1985	3	6	0.20
204	1985	1985	3	7	0.33
204	1985	1985	3	11	0.11
204	1985	1985	3	18	0.04
204	1985	1985	3	19	0.04
204	1985	1985	3	27	0.39
204	1985	1985	3	28	0.21
204	1985	1985	8	17	0.02
204	1986	1985	10	22	0.41
204	1986	1985	11	11	0.80
204	1986	1985	11	12	0.15
204	1986	1985	11	24	0.01
204	1986	1985	11	25	0.70
204	1986	1985	11	26	0.42
204	1986	1985	11	29	0.96
204	1986	1985	11	30	0.45
204	1986	1985	12	2	0.37
204	1986	1985	12	3	0.02
204	1986	1985	12	29	0.03
204	1986	1985	12	30	0.02
204	1986	1986	1	5	0.60
204	1986	1986	1	15	0.02
204	1986	1986	1	30	0.23
204	1986	1986	1	31	0.34
204	1986	1986	2	1	0.25
204	1986	1986	2	3	0.10
204	1986	1986	2	12	0.06
204	1986	1986	2	13	1.33
204	1986	1986	2	14	0.42
204	1986	1986	2	15	1.69
204	1986	1986	2	18	0.47
204	1986	1986	2	19	0.38
204	1986	1986	3	8	0.27
204	1986	1986	3	9	0.80
204	1986	1986	3	10	0.72
204	1986	1986	3	11	0.32
204	1986	1986	3	12	0.27
204	1986	1986	3	13	0.85
204	1986	1986	3	16	1.49
204	1986	1986	3	17	0.65
204	1986	1986	4	6	0.15
204	1986	1986	4	7	0.03

station id	water year	year	month	day	daily rain
204	1986	1986	4	8	0.09
204	1987	1986	9	24	0.25
204	1987	1986	9	25	0.52
204	1987	1986	9	26	0.01
204	1987	1986	11	18	1.25
204	1987	1986	12	6	0.68
204	1987	1986	12	16	0.30
204	1987	1986	12	20	0.27
204	1987	1987	1	4	0.74
204	1987	1987	1	5	0.10
204	1987	1987	1	7	0.55
204	1987	1987	1	23	0.03
204	1987	1987	1	28	0.12
204	1987	1987	1	30	0.01
204	1987	1987	2	9	0.02
204	1987	1987	2	10	0.08
204	1987	1987	2	12	0.71
204	1987	1987	2	13	0.17
204	1987	1987	2	22	0.38
204	1987	1987	2	24	0.15
204	1987	1987	2	25	0.28
204	1987	1987	2	26	0.05
204	1987	1987	3	5	1.36
204	1987	1987	3	6	1.49
204	1987	1987	3	9	0.40
204	1987	1987	3	13	0.08
204	1987	1987	3	16	0.22
204	1987	1987	3	21	0.41
204	1987	1987	3	22	0.28
204	1987	1987	4	4	0.30
204	1987	1987	6	6	0.50
204	1988	1987	10	23	0.56
204	1988	1987	10	24	0.05
204	1988	1987	10	27	0.28
204	1988	1987	10	28	0.03
204	1988	1987	10	29	0.05
204	1988	1987	10	31	0.35
204	1988	1987	11	1	0.06
204	1988	1987	11	4	0.07
204	1988	1987	11	5	0.65
204	1988	1987	11	14	0.19
204	1988	1987	11	17	0.32
204	1988	1987	11	20	0.09
204	1988	1987	12	5	0.99
204	1988	1987	12	7	0.10

station id	water year	year	month	day	daily rain
204	1988	1987	12	9	0.05
204	1988	1987	12	16	0.80
204	1988	1987	12	17	0.26
204	1988	1987	12	28	0.30
204	1988	1987	12	29	0.60
204	1988	1987	12	30	0.58
204	1988	1988	1	6	0.82
204	1988	1988	1	9	0.03
204	1988	1988	1	17	0.47
204	1988	1988	1	18	0.62
204	1988	1988	2	27	0.10
204	1988	1988	2	28	0.98
204	1988	1988	2	29	1.34
204	1988	1988	3	1	0.88
204	1988	1988	3	2	0.15
204	1988	1988	4	15	1.40
204	1988	1988	4	20	1.06
204	1988	1988	4	21	0.12
204	1988	1988	4	23	0.41
204	1988	1988	5	6	0.02
204	1988	1988	5	29	0.09
204	1988	1988	6	24	0.19
204	1989	1988	11	14	0.22
204	1989	1988	11	17	0.08
204	1989	1988	11	24	0.25
204	1989	1988	11	25	0.51
204	1989	1988	12	16	0.82
204	1989	1988	12	17	1.23
204	1989	1988	12	18	0.38
204	1989	1988	12	20	0.08
204	1989	1988	12	21	0.65
204	1989	1988	12	23	0.25
204	1989	1988	12	25	0.74
204	1989	1988	12	30	0.12
204	1989	1989	1	5	0.03
204	1989	1989	1	6	0.21
204	1989	1989	1	7	0.09
204	1989	1989	1	24	0.06
204	1989	1989	2	3	0.03
204	1989	1989	2	4	0.28
204	1989	1989	2	5	0.12
204	1989	1989	2	8	0.36
204	1989	1989	2	9	0.32
204	1989	1989	2	20	0.05
204	1989	1989	3	2	0.42

station id	water year	year	month	day	daily rain
204	1989	1989	3	3	0.10
204	1989	1989	3	11	0.02
204	1989	1989	3	25	0.12
204	1989	1989	3	26	0.04
204	1989	1989	4	24	0.07
204	1989	1989	4	25	0.11
204	1989	1989	4	26	0.04
204	1989	1989	5	8	0.08
204	1989	1989	5	9	0.36
204	1990	1989	9	16	0.16
204	1990	1989	9	17	0.08
204	1990	1989	9	19	0.08
204	1990	1989	9	29	0.30
204	1990	1989	10	22	0.03
204	1990	1989	10	24	0.44
204	1990	1989	10	25	0.01
204	1990	1989	11	27	0.27
204	1990	1990	1	2	0.42
204	1990	1990	1	13	1.30
204	1990	1990	1	14	0.54
204	1990	1990	1	15	0.64
204	1990	1990	1	16	0.01
204	1990	1990	1	17	0.39
204	1990	1990	1	31	0.11
204	1990	1990	2	1	0.07
204	1990	1990	2	4	0.69
204	1990	1990	2	17	1.00
204	1990	1990	2	18	0.30
204	1990	1990	3	5	0.25
204	1990	1990	3	12	0.18
204	1990	1990	4	16	0.28
204	1990	1990	4	24	0.13
204	1990	1990	5	24	0.02
204	1990	1990	5	28	0.37
204	1991	1990	9	21	0.02
204	1991	1990	9	22	0.16
204	1991	1990	9	23	0.05
204	1991	1990	11	20	0.09
204	1991	1990	11	26	0.20
204	1991	1990	12	16	0.15
204	1991	1990	12	20	0.39
204	1991	1991	1	3	0.12
204	1991	1991	1	4	0.39
204	1991	1991	1	5	0.08
204	1991	1991	1	9	0.39

station id	water year	year	month	day	daily rain
204	1991	1991	1	10	0.22
204	1991	1991	2	5	0.15
204	1991	1991	2	28	1.54
204	1991	1991	3	1	1.77
204	1991	1991	3	2	0.25
204	1991	1991	3	5	0.78
204	1991	1991	3	11	0.21
204	1991	1991	3	13	0.32
204	1991	1991	3	14	0.23
204	1991	1991	3	16	0.20
204	1991	1991	3	18	1.86
204	1991	1991	3	19	3.69
204	1991	1991	3	20	0.77
204	1991	1991	3	21	0.17
204	1991	1991	3	25	0.79
204	1991	1991	3	26	0.35
204	1991	1991	3	27	0.94
204	1991	1991	4	1	0.07
204	1991	1991	4	21	0.13
204	1992	1991	10	27	0.38
204	1992	1991	11	18	0.19
204	1992	1991	12	8	0.16
204	1992	1991	12	28	1.55
204	1992	1991	12	29	0.91
204	1992	1991	12	30	1.31
204	1992	1992	1	3	0.18
204	1992	1992	1	4	0.07
204	1992	1992	1	5	1.27
204	1992	1992	1	6	0.71
204	1992	1992	1	7	0.20
204	1992	1992	1	8	0.14
204	1992	1992	2	6	0.30
204	1992	1992	2	7	0.23
204	1992	1992	2	8	0.01
204	1992	1992	2	10	1.21
204	1992	1992	2	11	0.74
204	1992	1992	2	12	2.01
204	1992	1992	2	13	0.88
204	1992	1992	2	15	1.25
204	1992	1992	2	16	0.25
204	1992	1992	2	17	0.03
204	1992	1992	2	20	0.04
204	1992	1992	3	2	0.36
204	1992	1992	3	3	0.31
204	1992	1992	3	4	0.05

station id	water year	year	month	day	daily rain
204	1992	1992	3	6	0.72
204	1992	1992	3	7	0.10
204	1992	1992	3	15	0.02
204	1992	1992	3	20	0.11
204	1992	1992	3	21	0.22
204	1992	1992	3	22	0.02
204	1992	1992	3	23	0.60
204	1992	1992	3	26	0.01
204	1992	1992	3	27	0.19
204	1992	1992	3	31	0.19
204	1992	1992	7	9	0.04
204	1992	1992	7	13	0.04
204	1993	1992	10	21	0.07
204	1993	1992	10	22	0.02
204	1993	1992	10	27	0.09
204	1993	1992	10	30	0.70
204	1993	1992	10	31	0.19
204	1993	1992	12	4	0.13
204	1993	1992	12	7	2.14
204	1993	1992	12	8	0.07
204	1993	1992	12	9	0.02
204	1993	1992	12	11	0.30
204	1993	1992	12	12	0.11
204	1993	1992	12	18	0.23
204	1993	1992	12	29	0.78
204	1993	1992	12	30	0.34
204	1993	1993	1	2	0.65
204	1993	1993	1	6	0.03
204	1993	1993	1	7	1.31
204	1993	1993	1	8	0.27
204	1993	1993	1	9	0.22
204	1993	1993	1	10	0.05
204	1993	1993	1	11	0.45
204	1993	1993	1	13	0.81
204	1993	1993	1	14	1.51
204	1993	1993	1	16	0.14
204	1993	1993	1	17	0.02
204	1993	1993	1	18	1.52
204	1993	1993	1	19	0.12
204	1993	1993	1	22	0.05
204	1993	1993	2	5	0.07
204	1993	1993	2	8	1.58
204	1993	1993	2	9	0.83
204	1993	1993	2	10	0.08
204	1993	1993	2	18	0.33

station id	water year	year	month	day	daily rain
204	1993	1993	2	19	1.98
204	1993	1993	2	20	0.30
204	1993	1993	2	21	0.05
204	1993	1993	2	23	1.21
204	1993	1993	2	24	0.17
204	1993	1993	2	26	0.54
204	1993	1993	3	1	0.33
204	1993	1993	3	17	0.03
204	1993	1993	3	18	0.01
204	1993	1993	3	24	0.10
204	1993	1993	3	25	1.76
204	1993	1993	3	26	1.66
204	1993	1993	3	29	0.85
204	1993	1993	4	18	0.10
204	1993	1993	5	25	0.28
204	1993	1993	6	5	0.11
204	1994	1993	10	11	0.16
204	1994	1993	10	18	0.10
204	1994	1993	11	11	0.28
204	1994	1993	11	12	0.05
204	1994	1993	11	13	0.14
204	1994	1993	11	22	0.03
204	1994	1993	11	30	0.52
204	1994	1993	12	12	1.04
204	1994	1993	12	15	0.52
204	1994	1993	12	19	0.01
204	1994	1994	1	24	0.57
204	1994	1994	1	25	1.11
204	1994	1994	1	26	0.08
204	1994	1994	2	4	0.80
204	1994	1994	2	7	0.50
204	1994	1994	2	8	0.79
204	1994	1994	2	9	0.04
204	1994	1994	2	11	0.03
204	1994	1994	2	17	0.94
204	1994	1994	2	18	0.22
204	1994	1994	2	19	0.07
204	1994	1994	2	20	1.04
204	1994	1994	3	6	0.97
204	1994	1994	3	7	0.18
204	1994	1994	3	19	0.23
204	1994	1994	3	25	1.05
204	1994	1994	4	9	0.15
204	1994	1994	4	25	0.07
204	1994	1994	4	26	0.52

station id	water year	year	month	day	daily rain
204	1994	1994	4	27	0.05
204	1994	1994	5	8	0.59
204	1994	1994	5	17	0.13
204	1994	1994	5	18	0.35
204	1994	1994	5	19	0.04
204	1995	1994	9	23	0.04
204	1995	1994	9	28	0.03
204	1995	1994	9	29	0.02
204	1995	1994	10	4	0.44
204	1995	1994	10	5	0.20
204	1995	1994	11	8	0.13
204	1995	1994	11	10	1.09
204	1995	1994	11	16	0.27
204	1995	1994	11	26	0.24
204	1995	1994	12	13	0.28
204	1995	1994	12	14	0.06
204	1995	1994	12	15	0.12
204	1995	1994	12	25	0.73
204	1995	1995	1	3	1.23
204	1995	1995	1	4	0.85
204	1995	1995	1	5	1.65
204	1995	1995	1	6	0.04
204	1995	1995	1	7	0.80
204	1995	1995	1	9	0.55
204	1995	1995	1	10	2.50
204	1995	1995	1	11	1.12
204	1995	1995	1	12	0.34
204	1995	1995	1	13	0.02
204	1995	1995	1	14	0.04
204	1995	1995	1	15	0.48
204	1995	1995	1	16	0.48
204	1995	1995	1	17	0.01
204	1995	1995	1	21	0.47
204	1995	1995	1	23	0.24
204	1995	1995	1	24	0.98
204	1995	1995	1	25	2.20
204	1995	1995	1	26	0.92
204	1995	1995	2	8	0.22
204	1995	1995	2	9	0.08
204	1995	1995	2	14	1.55
204	1995	1995	3	2	0.02
204	1995	1995	3	3	0.10
204	1995	1995	3	5	0.43
204	1995	1995	3	6	1.00
204	1995	1995	3	10	0.25

station id	water year	year	month	day	daily rain
204	1995	1995	3	11	2.15
204	1995	1995	3	12	0.58
204	1995	1995	3	21	0.62
204	1995	1995	3	22	0.13
204	1995	1995	3	23	1.41
204	1995	1995	3	24	0.05
204	1995	1995	4	14	0.07
204	1995	1995	4	16	0.27
204	1995	1995	4	21	0.11
204	1995	1995	5	2	0.04
204	1995	1995	5	7	0.10
204	1995	1995	5	14	0.10
204	1995	1995	5	15	0.50
204	1995	1995	5	16	0.05
204	1995	1995	6	15	0.25
204	1995	1995	6	16	0.54
204	1996	1995	11	1	0.25
204	1996	1995	12	13	0.73
204	1996	1995	12	14	0.08
204	1996	1995	12	21	0.02
204	1996	1995	12	23	0.30
204	1996	1995	12	25	0.04
204	1996	1996	1	17	0.57
204	1996	1996	1	19	0.15
204	1996	1996	1	22	0.10
204	1996	1996	1	25	0.47
204	1996	1996	1	28	0.19
204	1996	1996	1	31	0.20
204	1996	1996	2	1	0.75
204	1996	1996	2	3	0.50
204	1996	1996	2	4	0.47
204	1996	1996	2	5	0.42
204	1996	1996	2	6	1.10
204	1996	1996	2	16	0.16
204	1996	1996	2	19	0.29
204	1996	1996	2	20	2.47
204	1996	1996	2	21	1.13
204	1996	1996	2	22	0.33
204	1996	1996	2	25	0.46
204	1996	1996	2	26	0.27
204	1996	1996	2	27	0.62
204	1996	1996	3	1	0.04
204	1996	1996	3	4	0.30
204	1996	1996	3	5	0.26
204	1996	1996	3	6	0.02

station id	water year	year	month	day	daily rain
204	1996	1996	3	13	0.85
204	1996	1996	3	14	0.80
204	1996	1996	3	28	0.06
204	1996	1996	4	2	0.41
204	1996	1996	4	16	0.13
204	1996	1996	4	17	0.16
204	1996	1996	4	18	0.15
204	1996	1996	5	16	0.20
204	1996	1996	5	17	0.02
204	1996	1996	6	26	0.03
204	1997	1996	10	25	0.03
204	1997	1996	10	26	0.04
204	1997	1996	10	30	2.18
204	1997	1996	11	17	0.07
204	1997	1996	11	18	0.16
204	1997	1996	11	20	0.16
204	1997	1996	11	21	0.65
204	1997	1996	11	22	0.71
204	1997	1996	11	23	0.09
204	1997	1996	12	7	0.33
204	1997	1996	12	10	0.78
204	1997	1996	12	11	1.72
204	1997	1996	12	12	0.35
204	1997	1996	12	13	0.05
204	1997	1996	12	22	0.85
204	1997	1996	12	27	0.26
204	1997	1996	12	30	0.11
204	1997	1996	12	31	0.17
204	1997	1997	1	2	0.72
204	1997	1997	1	3	0.36
204	1997	1997	1	5	0.08
204	1997	1997	1	14	0.52
204	1997	1997	1	15	0.04
204	1997	1997	1	16	0.43
204	1997	1997	1	17	0.12
204	1997	1997	1	20	0.51
204	1997	1997	1	21	0.04
204	1997	1997	1	22	0.29
204	1997	1997	1	23	0.53
204	1997	1997	1	24	0.01
204	1997	1997	1	25	0.02
204	1997	1997	1	26	0.36
204	1997	1997	1	27	0.21
204	1997	1997	2	11	0.08
204	1997	1997	7	23	0.13

station id	water year	year	month	day	daily rain
204	1998	1997	9	3	0.54
204	1998	1997	11	10	0.07
204	1998	1997	11	11	0.30
204	1998	1997	11	12	0.02
204	1998	1997	11	13	0.11
204	1998	1997	11	14	0.23
204	1998	1997	11	16	0.49
204	1998	1997	11	19	0.07
204	1998	1997	11	20	0.16
204	1998	1997	11	26	0.93
204	1998	1997	11	27	0.53
204	1998	1997	11	30	0.75
204	1998	1997	12	1	0.23
204	1998	1997	12	5	0.86
204	1998	1997	12	6	1.68
204	1998	1997	12	9	0.39
204	1998	1997	12	10	0.11
204	1998	1997	12	15	0.11
204	1998	1997	12	19	0.70
204	1998	1998	1	3	0.05
204	1998	1998	1	4	0.10
204	1998	1998	1	5	0.28
204	1998	1998	1	9	0.03
204	1998	1998	1	10	0.90
204	1998	1998	1	11	0.14
204	1998	1998	1	13	0.21
204	1998	1998	1	15	0.10
204	1998	1998	1	16	0.82
204	1998	1998	1	19	0.53
204	1998	1998	1	29	0.64
204	1998	1998	1	30	0.20
204	1998	1998	1	31	0.19
204	1998	1998	2	1	0.03
204	1998	1998	2	2	3.22
204	1998	1998	2	3	2.75
204	1998	1998	2	4	0.54
204	1998	1998	2	5	0.02
204	1998	1998	2	6	0.86
204	1998	1998	2	7	0.61
204	1998	1998	2	8	1.13
204	1998	1998	2	9	0.31
204	1998	1998	2	11	0.03
204	1998	1998	2	13	0.12
204	1998	1998	2	14	0.41
204	1998	1998	2	15	1.15

station id	water year	year	month	day	daily rain
204	1998	1998	2	17	0.80
204	1998	1998	2	20	0.62
204	1998	1998	2	22	1.01
204	1998	1998	2	23	0.69
204	1998	1998	2	24	0.64
204	1998	1998	3	6	0.37
204	1998	1998	3	14	0.14
204	1998	1998	3	25	1.47
204	1998	1998	3	26	0.42
204	1998	1998	3	28	0.46
204	1998	1998	3	29	0.19
204	1998	1998	4	1	1.20
204	1998	1998	4	2	0.30
204	1998	1998	4	4	0.62
204	1998	1998	4	6	0.06
204	1998	1998	4	7	0.03
204	1998	1998	4	11	0.01
204	1998	1998	4	12	0.93
204	1998	1998	4	13	0.09
204	1998	1998	4	23	0.07
204	1998	1998	4	24	0.03
204	1998	1998	5	2	0.12
204	1998	1998	5	3	0.54
204	1998	1998	5	4	0.03
204	1998	1998	5	5	0.32
204	1998	1998	5	6	0.15
204	1998	1998	5	12	0.21
204	1998	1998	5	13	0.75
204	1998	1998	5	29	0.26
204	1998	1998	6	7	0.03
204	1998	1998	6	11	0.02
204	1999	1998	9	4	0.08
204	1999	1998	9	5	0.42
204	1999	1998	10	25	0.14
204	1999	1998	11	8	0.45
204	1999	1998	11	11	0.07
204	1999	1998	11	24	0.04
204	1999	1998	11	28	1.37
204	1999	1998	11	29	0.06
204	1999	1998	12	1	0.69
204	1999	1998	12	2	0.05
204	1999	1998	12	4	0.16
204	1999	1998	12	6	0.17
204	1999	1998	12	21	0.05
204	1999	1999	1	20	0.34

station id	water year	year	month	day	daily rain
204	1999	1999	1	21	0.26
204	1999	1999	1	24	0.27
204	1999	1999	1	25	0.04
204	1999	1999	1	26	0.34
204	1999	1999	1	27	0.40
204	1999	1999	1	31	0.97
204	1999	1999	2	1	0.13
204	1999	1999	2	6	0.01
204	1999	1999	2	7	0.07
204	1999	1999	2	8	0.10
204	1999	1999	2	9	0.14
204	1999	1999	2	10	0.64
204	1999	1999	2	21	0.07
204	1999	1999	2	25	0.02
204	1999	1999	2	26	0.03
204	1999	1999	3	9	0.23
204	1999	1999	3	11	0.24
204	1999	1999	3	15	1.31
204	1999	1999	3	16	1.13
204	1999	1999	3	20	1.04
204	1999	1999	3	21	0.15
204	1999	1999	3	23	0.05
204	1999	1999	3	25	1.17
204	1999	1999	3	26	0.86
204	1999	1999	3	31	0.13
204	1999	1999	4	4	0.02
204	1999	1999	4	6	0.25
204	1999	1999	4	7	0.04
204	1999	1999	4	9	0.29
204	1999	1999	4	11	0.12
204	1999	1999	4	12	1.41
204	1999	1999	4	30	0.00
204	1999	1999	6	3	0.00
204	1999	1999	7	13	0.00
204	1999	1999	8	27	0.13
204	2000	1999	9	22	0.00
204	2000	1999	11	8	1.48
204	2000	1999	11	17	0.08
204	2000	1999	11	20	0.10
204	2000	1999	12	10	0.03
204	2000	2000	1	17	0.02
204	2000	2000	1	18	0.20
204	2000	2000	1	19	0.05
204	2000	2000	1	21	0.04
204	2000	2000	1	23	0.14

station id	water year	year	month	day	daily rain
204	2000	2000	1	24	0.31
204	2000	2000	1	25	0.47
204	2000	2000	1	26	0.21
204	2000	2000	1	30	0.02
204	2000	2000	1	31	0.07
204	2000	2000	2	4	0.28
204	2000	2000	2	10	0.26
204	2000	2000	2	11	0.33
204	2000	2000	2	12	0.98
204	2000	2000	2	13	0.23
204	2000	2000	2	14	0.71
204	2000	2000	2	15	0.34
204	2000	2000	2	16	0.11
204	2000	2000	2	17	0.16
204	2000	2000	2	20	0.45
204	2000	2000	2	21	1.48
204	2000	2000	2	22	1.10
204	2000	2000	2	23	1.33
204	2000	2000	2	24	0.16
204	2000	2000	2	27	0.52
204	2000	2000	2	28	0.32
204	2000	2000	2	29	0.02
204	2000	2000	3	1	0.05
204	2000	2000	3	3	0.11
204	2000	2000	3	4	0.05
204	2000	2000	3	5	0.60
204	2000	2000	3	6	0.71
204	2000	2000	3	7	0.01
204	2000	2000	3	8	0.35
204	2000	2000	3	9	0.00
204	2000	2000	4	15	0.39
204	2000	2000	4	17	1.47
204	2000	2000	4	18	1.56
204	2000	2000	4	19	0.03
204	2000	2000	6	8	0.08
204	2000	2000	6	9	0.10
204	2001	2000	10	8	0.01
204	2001	2000	10	11	0.59
204	2001	2000	10	12	0.08
204	2001	2000	10	26	0.04
204	2001	2000	10	27	0.82
204	2001	2000	10	28	0.00
204	2001	2000	10	29	0.73
204	2001	2000	10	30	0.03
204	2001	2000	12	12	0.03

station id	water year	year	month	day	daily rain
204	2001	2000	12	14	0.00
204	2001	2001	1	8	0.52
204	2001	2001	1	9	0.17
204	2001	2001	1	11	2.20
204	2001	2001	1	12	0.79
204	2001	2001	1	13	0.05
204	2001	2001	1	24	0.58
204	2001	2001	1	25	0.18
204	2001	2001	1	26	0.60
204	2001	2001	1	27	0.04
204	2001	2001	2	10	0.76
204	2001	2001	2	11	0.12
204	2001	2001	2	12	0.77
204	2001	2001	2	13	1.10
204	2001	2001	2	14	0.30
204	2001	2001	2	18	0.05
204	2001	2001	2	19	0.24
204	2001	2001	2	20	0.64
204	2001	2001	2	21	0.00
204	2001	2001	2	23	0.20
204	2001	2001	2	24	0.17
204	2001	2001	2	25	0.40
204	2001	2001	2	26	0.22
204	2001	2001	2	27	0.10
204	2001	2001	2	28	0.15
204	2001	2001	3	1	0.16
204	2001	2001	3	4	0.16
204	2001	2001	3	5	2.20
204	2001	2001	3	6	1.42
204	2001	2001	3	7	0.05
204	2001	2001	4	5	0.02
204	2001	2001	4	7	0.85
204	2001	2001	4	8	0.12
204	2001	2001	4	10	0.03
204	2001	2001	4	21	0.64
204	2002	2001	9	1	0.00
204	2002	2001	10	30	0.22
204	2002	2001	10	31	0.32
204	2002	2001	11	6	0.01
204	2002	2001	11	11	0.36
204	2002	2001	11	12	0.01
204	2002	2001	11	13	1.16
204	2002	2001	11	24	0.04
204	2002	2001	11	25	0.92
204	2002	2001	11	29	0.51

station id	water year	year	month	day	daily rain
204	2002	2001	11	30	0.02
204	2002	2001	12	2	0.01
204	2002	2001	12	3	0.01
204	2002	2001	12	10	0.04
204	2002	2001	12	14	0.08
204	2002	2001	12	15	0.01
204	2002	2001	12	20	0.08
204	2002	2001	12	21	1.19
204	2002	2001	12	23	0.02
204	2002	2001	12	29	0.21
204	2002	2001	12	30	0.04
204	2002	2001	12	31	0.21
204	2002	2002	1	3	0.21
204	2002	2002	1	12	0.01
204	2002	2002	1	27	0.18
204	2002	2002	1	28	0.44
204	2002	2002	1	29	0.09
204	2002	2002	1	30	0.01
204	2002	2002	2	7	0.01
204	2002	2002	2	17	0.25
204	2002	2002	3	7	0.26
204	2002	2002	3	8	0.06
204	2002	2002	3	18	0.10
204	2002	2002	3	23	0.02
204	2002	2002	3	24	0.22
204	2002	2002	4	17	0.01
204	2002	2002	4	26	0.10
204	2002	2002	4	27	0.08
204	2002	2002	5	20	0.00
204	2002	2002	5	21	0.15
204	2002	2002	8	22	0.01
204	2003	2002	9	6	0.00
204	2003	2002	9	29	0.01
204	2003	2002	11	7	0.14
204	2003	2002	11	8	1.31
204	2003	2002	11	9	1.01
204	2003	2002	11	10	0.14
204	2003	2002	11	27	0.01
204	2003	2002	12	5	0.01
204	2003	2002	12	7	0.03
204	2003	2002	12	15	0.35
204	2003	2002	12	17	1.70
204	2003	2002	12	18	0.23
204	2003	2002	12	20	1.43
204	2003	2002	12	21	0.06

station id	water year	year	month	day	daily rain
204	2003	2002	12	22	0.65
204	2003	2002	12	23	0.01
204	2003	2002	12	29	0.47
204	2003	2002	12	30	0.02
204	2003	2002	12	31	0.04
204	2003	2003	1	11	0.04
204	2003	2003	2	11	0.50
204	2003	2003	2	12	0.49
204	2003	2003	2	13	0.48
204	2003	2003	2	14	0.15
204	2003	2003	2	25	0.50
204	2003	2003	2	26	0.03
204	2003	2003	2	27	0.31
204	2003	2003	3	5	0.05
204	2003	2003	3	15	1.45
204	2003	2003	3	16	0.20
204	2003	2003	4	13	0.50
204	2003	2003	4	14	0.93
204	2003	2003	4	15	0.07
204	2003	2003	4	28	0.15
204	2003	2003	4	29	0.02
204	2003	2003	5	3	0.90
204	2003	2003	5	4	0.35
204	2003	2003	5	7	0.05
204	2003	2003	5	8	0.01
204	2003	2003	6	5	0.01
204	2003	2003	6	6	0.01
204	2003	2003	6	10	0.01
204	2004	2003	9	26	0.01
204	2004	2003	11	1	0.33
204	2004	2003	11	3	0.15
204	2004	2003	11	4	0.05
204	2004	2003	11	9	0.70
204	2004	2003	11	10	0.05
204	2004	2003	11	12	0.01
204	2004	2003	11	16	0.03
204	2004	2003	12	7	0.01
204	2004	2003	12	8	0.05
204	2004	2003	12	11	0.23
204	2004	2003	12	12	0.01
204	2004	2003	12	15	0.30
204	2004	2003	12	16	0.01
204	2004	2003	12	20	0.02
204	2004	2003	12	21	0.11
204	2004	2003	12	23	0.07

station id	water year	year	month	day	daily rain
204	2004	2003	12	24	0.05
204	2004	2003	12	25	0.13
204	2004	2003	12	26	0.91
204	2004	2004	1	2	0.29
204	2004	2004	1	3	0.06
204	2004	2004	1	25	0.14
204	2004	2004	1	28	0.20
204	2004	2004	2	3	0.98
204	2004	2004	2	18	0.41
204	2004	2004	2	19	0.46
204	2004	2004	2	21	0.12
204	2004	2004	2	22	0.27
204	2004	2004	2	23	1.03
204	2004	2004	2	26	1.65
204	2004	2004	2	27	0.03
204	2004	2004	3	2	0.30
204	2004	2004	3	26	0.19
204	2005	2004	10	17	0.93
204	2005	2004	10	18	0.08
204	2005	2004	10	20	1.88
204	2005	2004	10	25	0.01
204	2005	2004	10	27	1.61
204	2005	2004	10	28	0.01
204	2005	2004	11	4	0.04
204	2005	2004	11	5	0.41
204	2005	2004	11	8	0.48
204	2005	2004	11	11	0.01
204	2005	2004	11	28	0.03
204	2005	2004	12	7	0.09
204	2005	2004	12	8	0.14
204	2005	2004	12	9	0.01
204	2005	2004	12	10	0.01
204	2005	2004	12	14	0.01
204	2005	2004	12	27	0.18
204	2005	2004	12	28	3.33
204	2005	2004	12	29	0.61
204	2005	2004	12	30	0.05
204	2005	2004	12	31	1.51
204	2005	2005	1	1	0.02
204	2005	2005	1	2	0.15
204	2005	2005	1	3	0.79
204	2005	2005	1	4	0.09
204	2005	2005	1	7	0.43
204	2005	2005	1	8	0.80
204	2005	2005	1	9	2.05

station id	water year	year	month	day	daily rain
204	2005	2005	1	10	0.87
204	2005	2005	1	11	0.58
204	2005	2005	1	12	0.18
204	2005	2005	1	26	0.01
204	2005	2005	1	27	0.05
204	2005	2005	1	28	0.04
204	2005	2005	1	29	0.04
204	2005	2005	2	11	0.21
204	2005	2005	2	12	0.04
204	2005	2005	2	18	1.05
204	2005	2005	2	19	0.86
204	2005	2005	2	20	0.29
204	2005	2005	2	21	0.91
204	2005	2005	2	22	0.63
204	2005	2005	2	23	0.98
204	2005	2005	2	28	0.28
204	2005	2005	3	3	0.02
204	2005	2005	3	4	0.31
204	2005	2005	3	5	1.09
204	2005	2005	3	9	0.01
204	2005	2005	3	14	0.03
204	2005	2005	3	19	0.29
204	2005	2005	3	20	0.14
204	2005	2005	3	22	0.15
204	2005	2005	3	23	1.61
204	2005	2005	3	24	0.08
204	2005	2005	3	28	0.10
204	2005	2005	4	4	0.08
204	2005	2005	4	8	0.04
204	2005	2005	4	9	0.05
204	2005	2005	4	28	0.45
204	2005	2005	4	29	0.18
204	2005	2005	4	30	0.01
204	2005	2005	5	5	0.11
204	2005	2005	5	6	0.46
204	2005	2005	5	9	0.23
204	2005	2005	5	10	0.03
204	2005	2005	6	18	0.01
204	2006	2005	9	17	0.04
204	2006	2005	9	26	0.05
204	2006	2005	9	28	0.01
204	2006	2005	10	18	0.60
204	2006	2005	10	20	0.01
204	2006	2005	10	24	0.02
204	2006	2005	10	26	0.01

station id	water year	year	month	day	daily rain
204	2006	2005	10	27	0.05
204	2006	2005	10	28	0.01
204	2006	2005	11	9	1.19
204	2006	2005	11	10	0.47
204	2006	2005	11	11	0.03
204	2006	2005	11	12	0.01
204	2006	2005	12	2	0.63
204	2006	2005	12	3	0.15
204	2006	2005	12	15	0.08
204	2006	2005	12	20	0.01
204	2006	2005	12	26	0.16
204	2006	2005	12	29	0.01
204	2006	2005	12	30	0.01
204	2006	2005	12	31	0.04
204	2006	2006	1	1	0.97
204	2006	2006	1	2	3.11
204	2006	2006	1	3	0.17
204	2006	2006	1	13	0.01
204	2006	2006	1	14	0.10
204	2006	2006	1	15	0.04
204	2006	2006	1	18	0.09
204	2006	2006	1	19	0.01
204	2006	2006	1	21	0.01
204	2006	2006	2	18	0.15
204	2006	2006	2	19	0.13
204	2006	2006	2	22	0.01
204	2006	2006	2	28	0.78
204	2006	2006	3	1	0.01
204	2006	2006	3	3	0.67
204	2006	2006	3	4	0.07
204	2006	2006	3	5	0.01
204	2006	2006	3	6	0.25
204	2006	2006	3	7	0.48
204	2006	2006	3	10	0.33
204	2006	2006	3	11	0.32
204	2006	2006	3	12	0.21
204	2006	2006	3	13	0.28
204	2006	2006	3	15	0.03
204	2006	2006	3	17	0.23
204	2006	2006	3	18	0.22
204	2006	2006	3	19	0.01
204	2006	2006	3	21	0.32
204	2006	2006	3	22	0.01
204	2006	2006	3	26	0.07
204	2006	2006	3	28	0.41

station id	water year	year	month	day	daily rain
204	2006	2006	3	29	0.21
204	2006	2006	3	30	0.03
204	2006	2006	3	31	0.04
204	2006	2006	4	1	0.10
204	2006	2006	4	3	0.43
204	2006	2006	4	4	1.54
204	2006	2006	4	5	0.81
204	2006	2006	4	6	0.19
204	2006	2006	4	11	0.05
204	2006	2006	4	14	0.04
204	2006	2006	4	15	0.19
204	2006	2006	4	17	0.01
204	2006	2006	4	18	0.01
204	2006	2006	4	22	0.03
204	2006	2006	4	23	0.04
204	2006	2006	4	26	0.21
204	2006	2006	4	27	0.42
204	2006	2006	4	30	0.01
204	2006	2006	5	4	0.01
204	2006	2006	5	21	0.02
204	2006	2006	5	22	0.81
204	2006	2006	5	23	0.01
204	2007	2006	10	5	0.01
204	2007	2006	10	13	0.08
204	2007	2006	10	14	0.59
204	2007	2006	10	18	0.01
204	2007	2006	11	14	0.04
204	2007	2006	11	27	0.17
204	2007	2006	12	9	0.09
204	2007	2006	12	10	0.57
204	2007	2006	12	11	0.13
204	2007	2006	12	12	0.01
204	2007	2006	12	17	0.06
204	2007	2006	12	22	0.16
204	2007	2006	12	27	0.11
204	2007	2006	12	28	0.10
204	2007	2007	1	5	0.03
204	2007	2007	1	17	0.04
204	2007	2007	1	18	0.01
204	2007	2007	1	27	0.08
204	2007	2007	1	28	0.39
204	2007	2007	1	29	0.66
204	2007	2007	2	11	0.59
204	2007	2007	2	12	0.08
204	2007	2007	2	13	0.01

station id	water year	year	month	day	daily rain
204	2007	2007	2	21	0.01
204	2007	2007	2	22	0.02
204	2007	2007	2	23	0.74
204	2007	2007	2	25	0.09
204	2007	2007	2	27	0.42
204	2007	2007	2	28	0.24
204	2007	2007	3	21	0.03
204	2007	2007	3	27	0.10
204	2007	2007	3	28	0.01
204	2007	2007	4	20	0.40
204	2007	2007	4	21	0.04
204	2007	2007	4	22	0.01
204	2007	2007	4	23	0.09
204	2007	2007	5	4	0.03
204	2007	2007	5	5	0.01
204	2007	2007	8	30	0.03
204	2008	2007	9	1	0.01
204	2008	2007	9	23	0.69
204	2008	2007	10	13	0.20
204	2008	2007	10	15	0.01
204	2008	2007	10	17	0.18
204	2008	2007	10	19	0.02
204	2008	2007	10	28	0.11
204	2008	2007	11	10	0.01
204	2008	2007	11	11	0.01
204	2008	2007	12	7	0.33
204	2008	2007	12	8	0.03
204	2008	2007	12	18	0.36
204	2008	2007	12	19	1.82
204	2008	2007	12	21	0.06
204	2008	2008	1	5	1.96
204	2008	2008	1	6	0.41
204	2008	2008	1	7	0.49
204	2008	2008	1	8	0.01
204	2008	2008	1	9	0.06
204	2008	2008	1	17	0.01
204	2008	2008	1	22	0.13
204	2008	2008	1	23	1.95
204	2008	2008	1	24	1.72
204	2008	2008	1	25	1.22
204	2008	2008	1	26	0.73
204	2008	2008	1	27	1.02
204	2008	2008	1	28	1.64
204	2008	2008	1	29	0.04
204	2008	2008	1	31	0.01

station id	water year	year	month	day	daily rain
204	2008	2008	2	3	1.00
204	2008	2008	2	4	0.07
204	2008	2008	2	20	0.16
204	2008	2008	2	22	0.02
204	2008	2008	2	23	0.01
204	2008	2008	2	24	0.44
204	2008	2008	2	25	0.02
204	2008	2008	3	2	0.01
204	2008	2008	3	16	0.01
204	2008	2008	4	3	0.04
204	2008	2008	4	25	0.01
204	2009	2008	10	5	0.02
204	2009	2008	11	1	0.01
204	2009	2008	11	2	0.25
204	2009	2008	11	4	0.31
204	2009	2008	11	9	0.03
204	2009	2008	11	26	1.39
204	2009	2008	11	27	0.17
204	2009	2008	12	1	0.01
204	2009	2008	12	13	0.07
204	2009	2008	12	15	1.00
204	2009	2008	12	16	0.21
204	2009	2008	12	17	0.27
204	2009	2008	12	20	0.01
204	2009	2008	12	22	0.17
204	2009	2008	12	23	0.09
204	2009	2008	12	25	0.03
204	2009	2008	12	26	0.16
204	2009	2009	1	3	0.03
204	2009	2009	1	22	0.06
204	2009	2009	1	23	0.04
204	2009	2009	1	24	0.09
204	2009	2009	1	25	0.01
204	2009	2009	2	5	0.28
204	2009	2009	2	6	0.29
204	2009	2009	2	7	0.72
204	2009	2009	2	8	0.10
204	2009	2009	2	9	0.42
204	2009	2009	2	10	0.20
204	2009	2009	2	12	0.11
204	2009	2009	2	14	0.43
204	2009	2009	2	16	1.21
204	2009	2009	2	17	0.89
204	2009	2009	2	18	0.12
204	2009	2009	2	22	0.21

station id	water year	year	month	day	daily rain
204	2009	2009	2	23	0.18
204	2009	2009	3	4	0.32
204	2009	2009	3	5	0.05
204	2009	2009	3	22	0.26
204	2009	2009	3	23	0.01
204	2009	2009	4	8	0.07
204	2009	2009	4	9	0.06
204	2009	2009	5	2	0.05
204	2009	2009	6	5	0.10
204	2010	2009	9	16	0.01
204	2010	2009	10	13	0.03
204	2010	2009	10	14	1.25
204	2010	2009	10	15	0.13
204	2010	2009	12	7	0.53
204	2010	2009	12	8	0.37
204	2010	2009	12	11	0.93
204	2010	2009	12	12	0.16
204	2010	2009	12	13	0.63
204	2010	2009	12	22	0.16
204	2010	2009	12	30	0.06
204	2010	2009	12	31	0.01
204	2010	2010	1	13	0.94
204	2010	2010	1	18	0.66
204	2010	2010	1	19	0.76
204	2010	2010	1	20	1.05
204	2010	2010	1	21	1.32
204	2010	2010	1	22	1.18
204	2010	2010	1	23	0.21
204	2010	2010	1	27	0.56
204	2010	2010	1	30	0.01
204	2010	2010	2	2	0.01
204	2010	2010	2	5	0.20
204	2010	2010	2	6	0.54
204	2010	2010	2	7	0.51
204	2010	2010	2	9	0.20
204	2010	2010	2	10	0.27
204	2010	2010	2	20	0.07
204	2010	2010	2	21	0.17
204	2010	2010	2	22	0.05
204	2010	2010	2	24	0.10
204	2010	2010	2	25	0.12
204	2010	2010	2	27	1.32
204	2010	2010	2	28	0.04
204	2010	2010	3	3	0.07
204	2010	2010	3	4	0.26

station id	water year	year	month	day	daily rain
204	2010	2010	3	7	0.04
204	2010	2010	3	9	0.02
204	2010	2010	3	10	0.01
204	2010	2010	3	13	0.01
204	2010	2010	4	1	0.07
204	2010	2010	4	5	0.45
204	2010	2010	4	6	0.01
204	2010	2010	4	12	0.89
204	2010	2010	4	13	0.18
204	2010	2010	4	20	0.30
204	2010	2010	4	21	0.48
204	2010	2010	4	22	0.07
204	2010	2010	4	23	0.01
204	2010	2010	4	25	0.01
204	2010	2010	4	28	0.11
204	2010	2010	5	18	0.06
204	2011	2010	10	1	0.01
204	2011	2010	10	6	0.45
204	2011	2010	10	7	0.01
204	2011	2010	10	8	0.01
204	2011	2010	10	17	0.02
204	2011	2010	10	18	0.06
204	2011	2010	10	19	0.15
204	2011	2010	10	20	0.01
204	2011	2010	10	23	0.02
204	2011	2010	10	25	0.12
204	2011	2010	10	30	0.64
204	2011	2010	11	8	0.18
204	2011	2010	11	20	0.13
204	2011	2010	11	21	0.48
204	2011	2010	11	22	0.01
204	2011	2010	11	24	0.08
204	2011	2010	11	28	0.10
204	2011	2010	12	4	0.09
204	2011	2010	12	5	0.07
204	2011	2010	12	6	0.43
204	2011	2010	12	7	0.01
204	2011	2010	12	15	0.03
204	2011	2010	12	16	0.01
204	2011	2010	12	17	0.05
204	2011	2010	12	18	0.53
204	2011	2010	12	19	2.03
204	2011	2010	12	20	2.48
204	2011	2010	12	21	0.63
204	2011	2010	12	22	0.54

station id	water year	year	month	day	daily rain
204	2011	2010	12	23	0.14
204	2011	2010	12	26	0.62
204	2011	2010	12	29	1.02
204	2011	2011	1	2	0.61
204	2011	2011	1	3	0.28
204	2011	2011	1	4	0.01
204	2011	2011	1	30	0.12
204	2011	2011	1	31	0.44
204	2011	2011	2	1	0.01
204	2011	2011	2	16	0.17
204	2011	2011	2	17	0.17
204	2011	2011	2	18	0.01
204	2011	2011	2	19	2.23
204	2011	2011	2	20	0.38
204	2011	2011	2	26	0.77
204	2011	2011	3	2	0.07
204	2011	2011	3	3	0.02
204	2011	2011	3	4	0.01
204	2011	2011	3	7	0.13
204	2011	2011	3	19	0.37
204	2011	2011	3	20	2.78
204	2011	2011	3	21	0.80
204	2011	2011	3	23	0.01
204	2011	2011	3	24	0.17
204	2011	2011	3	25	0.28
204	2011	2011	3	27	0.07
204	2011	2011	3	28	0.01
204	2011	2011	4	8	0.02
204	2011	2011	4	9	0.08
204	2011	2011	4	10	0.01
204	2011	2011	4	21	0.02
204	2011	2011	4	22	0.01
204	2011	2011	5	15	0.02
204	2011	2011	5	17	0.08
204	2011	2011	5	18	0.09
204	2011	2011	5	19	0.01
204	2011	2011	6	5	0.03
204	2011	2011	6	6	0.22
204	2011	2011	6	7	0.01
204	2012	2011	9	11	0.03
204	2012	2011	9	12	0.01
204	2012	2011	10	4	0.06
204	2012	2011	10	5	0.31
204	2012	2011	10	6	0.27
204	2012	2011	11	4	0.11

station id	water year	year	month	day	daily rain
204	2012	2011	11	6	0.19
204	2012	2011	11	12	0.47
204	2012	2011	11	20	0.91
204	2012	2011	11	21	0.44
204	2012	2011	12	12	0.02
204	2012	2011	12	13	0.16
204	2012	2012	1	21	0.74
204	2012	2012	1	23	0.42
204	2012	2012	1	24	0.38
204	2012	2012	2	7	0.02
204	2012	2012	2	11	0.03
204	2012	2012	2	12	0.01
204	2012	2012	2	13	0.01
204	2012	2012	2	14	0.18
204	2012	2012	2	15	0.05
204	2012	2012	3	11	0.03
204	2012	2012	3	12	0.01
204	2012	2012	3	17	0.96
204	2012	2012	3	18	0.88
204	2012	2012	3	19	0.09
204	2012	2012	3	25	0.51
204	2012	2012	3	26	0.30
204	2012	2012	3	29	0.01
204	2012	2012	4	1	0.17
204	2012	2012	4	11	0.82
204	2012	2012	4	12	0.01
204	2012	2012	4	13	1.27
204	2012	2012	4	14	0.37
204	2012	2012	4	25	0.04
204	2012	2012	4	26	0.24
204	2012	2012	4	27	0.03
204	2013	2012	10	23	0.07
204	2013	2012	11	9	0.01
204	2013	2012	11	10	0.06
204	2013	2012	11	16	0.01
204	2013	2012	11	17	0.47
204	2013	2012	11	18	0.14
204	2013	2012	11	19	0.02
204	2013	2012	11	30	0.02
204	2013	2012	12	1	0.14
204	2013	2012	12	2	0.10
204	2013	2012	12	3	0.61
204	2013	2012	12	6	0.01
204	2013	2012	12	13	0.13
204	2013	2012	12	15	0.02

station id	water year	year	month	day	daily rain
204	2013	2012	12	16	0.11
204	2013	2012	12	18	0.18
204	2013	2012	12	22	0.05
204	2013	2012	12	23	0.14
204	2013	2012	12	24	0.60
204	2013	2012	12	26	0.22
204	2013	2012	12	27	0.01
204	2013	2012	12	29	0.35
204	2013	2012	12	30	0.27
204	2013	2012	12	31	0.01
204	2013	2013	1	6	0.39
204	2013	2013	1	7	0.18
204	2013	2013	1	25	0.10
204	2013	2013	1	26	0.13
204	2013	2013	1	28	0.03
204	2013	2013	2	8	0.27
204	2013	2013	2	9	0.23
204	2013	2013	2	13	0.01
204	2013	2013	2	16	0.01
204	2013	2013	2	20	0.14
204	2013	2013	3	6	0.02
204	2013	2013	3	7	0.15
204	2013	2013	3	8	0.74
204	2013	2013	3	9	0.01
204	2013	2013	3	31	0.06
204	2013	2013	4	1	0.03
204	2013	2013	4	2	0.02
204	2013	2013	4	4	0.01
204	2013	2013	4	8	0.02
204	2013	2013	5	6	0.01
204	2014	2013	10	28	0.08
204	2014	2013	10	29	0.20
204	2014	2013	10	31	0.01
204	2014	2013	11	20	0.01
204	2014	2013	11	21	0.22
204	2014	2013	11	29	0.24
204	2014	2013	11	30	0.01
204	2014	2013	12	7	0.20
204	2014	2013	12	20	0.01
204	2014	2014	2	3	0.48
204	2014	2014	2	4	0.01
204	2014	2014	2	7	0.36
204	2014	2014	2	8	0.01
204	2014	2014	2	9	0.03
204	2014	2014	2	10	0.01

station id	water year	year	month	day	daily rain
204	2014	2014	2	11	0.01
204	2014	2014	2	27	0.35
204	2014	2014	2	28	1.25
204	2014	2014	3	1	1.20
204	2014	2014	3	2	0.46
204	2014	2014	3	4	0.01
204	2014	2014	3	26	0.09
204	2014	2014	3	27	0.09
204	2014	2014	3	30	0.13
204	2014	2014	4	1	0.43
204	2014	2014	4	2	0.20
204	2014	2014	4	3	0.02
204	2014	2014	4	10	0.01
204	2014	2014	4	26	0.11
204	2014	2014	4	27	0.01
204	2015	2014	10	13	0.01
204	2015	2014	11	1	0.94
204	2015	2014	11	2	0.11
204	2015	2014	11	14	0.01
204	2015	2014	11	15	0.01
204	2015	2014	11	21	0.01
204	2015	2014	11	22	0.01
204	2015	2014	12	2	0.24
204	2015	2014	12	3	0.56
204	2015	2014	12	7	0.01
204	2015	2014	12	9	0.02
204	2015	2014	12	12	1.95
204	2015	2014	12	13	0.02
204	2015	2014	12	16	0.26
204	2015	2014	12	17	0.51
204	2015	2014	12	18	0.01
204	2015	2014	12	19	0.01
204	2015	2014	12	25	0.01
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204	2015	2015	1	12	0.01
204	2015	2015	1	14	0.01
204	2015	2015	1	20	0.01
204	2015	2015	1	21	0.01
204	2015	2015	1	27	0.20
204	2015	2015	1	31	0.01
204	2015	2015	2	6	0.01
204	2015	2015	2	7	0.04
204	2015	2015	2	8	0.27
204	2015	2015	2	9	0.23
204	2015	2015	2	23	0.41

station id	water year	year	month	day	daily rain
204	2015	2015	2	24	0.01
204	2015	2015	3	1	0.02
204	2015	2015	3	2	0.04
204	2015	2015	3	3	0.33
204	2015	2015	3	5	0.01
204	2015	2015	4	8	0.17
204	2015	2015	4	26	0.15
204	2015	2015	5	15	0.06
204	2015	2015	6	10	0.08
204	2015	2015	7	19	0.05
204	2015	2015	7	20	0.02
204	2015	2015	8	1	0.01
204	2016	2015	9	15	0.05
204	2016	2015	10	5	0.03
204	2016	2015	10	15	0.08
204	2016	2015	10	16	0.01
204	2016	2015	11	3	0.26
204	2016	2015	11	9	0.10
204	2016	2015	11	10	0.14
204	2016	2015	11	16	0.20
204	2016	2015	11	25	0.05
204	2016	2015	12	11	0.30
204	2016	2015	12	12	0.12
204	2016	2015	12	14	0.18
204	2016	2015	12	20	0.45
204	2016	2015	12	21	0.01
204	2016	2015	12	22	0.51
204	2016	2015	12	23	0.07
204	2016	2015	12	25	0.04
204	2016	2015	12	28	0.03
204	2016	2016	1	5	0.49
204	2016	2016	1	6	0.68
204	2016	2016	1	7	1.13
204	2016	2016	1	8	0.02
204	2016	2016	1	10	0.02
204	2016	2016	1	11	0.15
204	2016	2016	1	13	0.01
204	2016	2016	1	14	0.05
204	2016	2016	1	15	0.01
204	2016	2016	1	16	0.02
204	2016	2016	1	17	0.01
204	2016	2016	1	18	0.04
204	2016	2016	1	19	0.02
204	2016	2016	1	20	0.57
204	2016	2016	1	22	0.01

station id	water year	year	month	day	daily rain
204	2016	2016	1	23	0.08
204	2016	2016	1	25	0.01
204	2016	2016	1	30	0.01
204	2016	2016	1	31	0.18
204	2016	2016	2	1	0.74
204	2016	2016	2	2	0.01
204	2016	2016	2	18	0.49
204	2016	2016	2	19	0.01
204	2016	2016	2	22	0.01
204	2016	2016	3	5	0.04
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204	2016	2016	3	7	0.85
204	2016	2016	3	8	0.62
204	2016	2016	3	11	0.01
204	2016	2016	3	12	0.65
204	2016	2016	3	14	0.18
204	2016	2016	3	16	0.01
204	2016	2016	3	20	0.01
204	2016	2016	4	8	0.12
204	2016	2016	4	9	0.20
204	2016	2016	4	10	0.79
204	2016	2016	4	23	0.02
204	2016	2016	5	6	0.02
204	2016	2016	5	7	0.09
204	2017	2016	10	16	0.19
204	2017	2016	10	17	0.30
204	2017	2016	10	28	0.66
204	2017	2016	10	29	0.16
204	2017	2016	10	30	0.03
204	2017	2016	10	31	0.11
204	2017	2016	11	1	0.01
204	2017	2016	11	17	0.01
204	2017	2016	11	21	1.02
204	2017	2016	11	22	0.01
204	2017	2016	11	24	0.01
204	2017	2016	11	27	0.64
204	2017	2016	11	28	0.14
204	2017	2016	11	29	0.01
204	2017	2016	12	8	0.01
204	2017	2016	12	9	0.43
204	2017	2016	12	10	0.01
204	2017	2016	12	11	0.02
204	2017	2016	12	15	0.01
204	2017	2016	12	16	1.11
204	2017	2016	12	24	1.00

station id	water year	year	month	day	daily rain
204	2017	2016	12	27	0.01
204	2017	2016	12	30	0.02
204	2017	2016	12	31	0.06
204	2017	2017	1	1	0.09
204	2017	2017	1	5	0.29
204	2017	2017	1	6	0.01
204	2017	2017	1	7	0.21
204	2017	2017	1	8	0.49
204	2017	2017	1	9	1.65
204	2017	2017	1	10	0.09
204	2017	2017	1	11	0.51
204	2017	2017	1	12	0.17
204	2017	2017	1	13	0.12
204	2017	2017	1	14	0.01
204	2017	2017	1	16	0.01
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204	2017	2017	1	21	1.03
204	2017	2017	1	22	0.39
204	2017	2017	1	23	0.66
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204	2017	2017	1	26	0.01
204	2017	2017	1	29	0.01
204	2017	2017	2	2	0.02
204	2017	2017	2	3	0.12
204	2017	2017	2	4	0.16
204	2017	2017	2	5	0.01
204	2017	2017	2	6	0.91
204	2017	2017	2	7	0.06
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204	2017	2017	2	10	0.12
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204	2017	2017	2	12	0.16
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204	2017	2017	2	21	0.08
204	2017	2017	2	22	0.01
204	2017	2017	2	26	0.11
204	2017	2017	2	27	0.02
204	2017	2017	2	28	0.10
204	2017	2017	3	1	0.01

station id	water year	year	month	day	daily rain
204	2017	2017	3	5	0.02
204	2017	2017	3	6	0.20
204	2017	2017	3	21	0.19
204	2017	2017	3	22	0.19
204	2017	2017	3	23	0.08
204	2017	2017	3	25	0.15
204	2017	2017	3	26	0.01
204	2017	2017	3	27	0.01
204	2017	2017	4	8	0.14
204	2017	2017	4	14	0.04
204	2017	2017	4	17	0.07
204	2017	2017	4	18	0.22
204	2017	2017	4	19	0.12
204	2017	2017	4	20	0.01
204	2017	2017	5	7	0.34
204	2017	2017	5	8	0.05
204	2017	2017	5	9	0.01
204	2018	2017	9	4	0.33
204	2018	2017	9	11	0.33
204	2018	2017	9	12	0.01
204	2018	2017	11	3	0.02
204	2018	2017	11	6	0.01
204	2018	2017	11	17	0.01
204	2018	2017	11	18	0.01
204	2018	2017	11	27	0.06
204	2018	2017	12	21	0.02
204	2018	2018	1	4	0.09
204	2018	2018	1	5	0.01
204	2018	2018	1	6	0.01
204	2018	2018	1	8	0.02
204	2018	2018	1	9	2.05
204	2018	2018	1	10	0.05
204	2018	2018	1	12	0.01
204	2018	2018	1	19	0.02
204	2018	2018	1	23	0.01
204	2018	2018	1	25	0.03
204	2018	2018	1	27	0.01
204	2018	2018	2	27	0.17
204	2018	2018	2	28	0.01
204	2018	2018	3	2	0.45
204	2018	2018	3	3	0.14
204	2018	2018	3	4	0.13
204	2018	2018	3	11	0.63
204	2018	2018	3	13	0.01
204	2018	2018	3	14	0.20

station id	water year	year	month	day	daily rain
204	2018	2018	3	15	0.18
204	2018	2018	3	17	0.20
204	2018	2018	3	20	0.01
204	2018	2018	3	21	0.99
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204	2018	2018	3	23	0.90
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204	2019	2018	11	22	0.50
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204	2019	2018	11	24	0.08
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204	2019	2018	12	9	0.01
204	2019	2018	12	12	0.01
204	2019	2018	12	17	0.20
204	2019	2018	12	19	0.01
204	2019	2018	12	25	0.38
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204	2019	2019	1	21	0.12
204	2019	2019	1	31	0.94
204	2019	2019	2	1	0.08
204	2019	2019	2	2	1.51

station id	water year	year	month	day	daily rain
204	2019	2019	2	3	1.17
204	2019	2019	2	4	0.59
204	2019	2019	2	5	0.44
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204	2019	2019	2	13	0.01
204	2019	2019	2	14	0.41
204	2019	2019	2	15	0.35
204	2019	2019	2	16	0.35
204	2019	2019	2	17	0.19
204	2019	2019	2	18	0.29
204	2019	2019	2	21	0.04
204	2019	2019	2	22	0.12
204	2019	2019	2	23	0.01
204	2019	2019	2	27	0.08
204	2019	2019	2	28	0.15
204	2019	2019	3	2	0.95
204	2019	2019	3	3	0.10
204	2019	2019	3	4	0.08
204	2019	2019	3	5	0.01
204	2019	2019	3	6	1.09
204	2019	2019	3	7	0.09
204	2019	2019	3	8	0.06
204	2019	2019	3	10	0.01
204	2019	2019	3	11	0.01
204	2019	2019	3	20	0.10
204	2019	2019	3	21	0.09
204	2019	2019	3	23	0.01
204	2019	2019	3	24	0.03
204	2019	2019	3	25	0.01
204	2019	2019	3	27	0.03
204	2019	2019	3	28	0.01
204	2019	2019	4	3	0.01
204	2019	2019	4	4	0.01
204	2019	2019	4	16	0.02
204	2019	2019	4	17	0.01
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204	2019	2019	5	7	0.04
204	2019	2019	5	11	0.03
204	2019	2019	5	16	0.33
204	2019	2019	5	17	0.05
204	2019	2019	5	19	0.47

station id	water year	year	month	day	daily rain
204	2019	2019	5	20	0.06
204	2019	2019	5	21	0.02
204	2019	2019	5	22	0.01
204	2019	2019	5	26	0.02
204	2019	2019	5	27	0.04
204	2019	2019	6	21	0.02
204	2019	2019	8	11	0.01
204	2019	2019	8	24	0.01
204	2020	2019	11	9	0.01
204	2020	2019	11	12	0.01
204	2020	2019	11	20	0.05
204	2020	2019	11	23	0.01
204	2020	2019	11	27	0.77
204	2020	2019	11	28	0.41
204	2020	2019	11	29	0.11
204	2020	2019	12	1	0.50
204	2020	2019	12	4	0.43
204	2020	2019	12	5	0.05
204	2020	2019	12	7	0.01
204	2020	2019	12	8	0.19
204	2020	2019	12	9	0.11
204	2020	2019	12	12	0.01
204	2020	2019	12	14	0.01
204	2020	2019	12	23	1.33
204	2020	2019	12	24	0.50
204	2020	2019	12	26	1.11
204	2020	2019	12	27	0.01
204	2020	2019	12	30	0.36
204	2020	2020	1	10	0.08
204	2020	2020	1	12	0.01
204	2020	2020	1	16	0.01
204	2020	2020	1	17	0.42
204	2020	2020	1	21	0.04
204	2020	2020	1	24	0.01
204	2020	2020	1	28	0.01
204	2020	2020	2	9	0.01
204	2020	2020	2	18	0.01
204	2020	2020	3	2	0.08
204	2020	2020	3	10	0.04
204	2020	2020	3	11	1.23
204	2020	2020	3	12	0.67
204	2020	2020	3	14	0.02
204	2020	2020	3	15	0.10
204	2020	2020	3	16	1.15
204	2020	2020	3	17	1.22

station id	water year	year	month	day	daily rain
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204	2020	2020	3	19	0.01
204	2020	2020	3	20	0.17
204	2020	2020	3	23	0.70
204	2020	2020	3	24	0.02
204	2020	2020	3	25	0.03
204	2020	2020	3	26	0.05
204	2020	2020	3	27	0.08
204	2020	2020	4	6	1.97
204	2020	2020	4	8	0.33
204	2020	2020	4	9	0.26
204	2020	2020	4	10	0.24
204	2020	2020	4	11	0.01
204	2020	2020	4	17	0.01
204	2020	2020	5	1	0.00

APPENDIX D-5

Map and Hydrographs of Wells in the San Antonio Creek Valley Groundwater Basin

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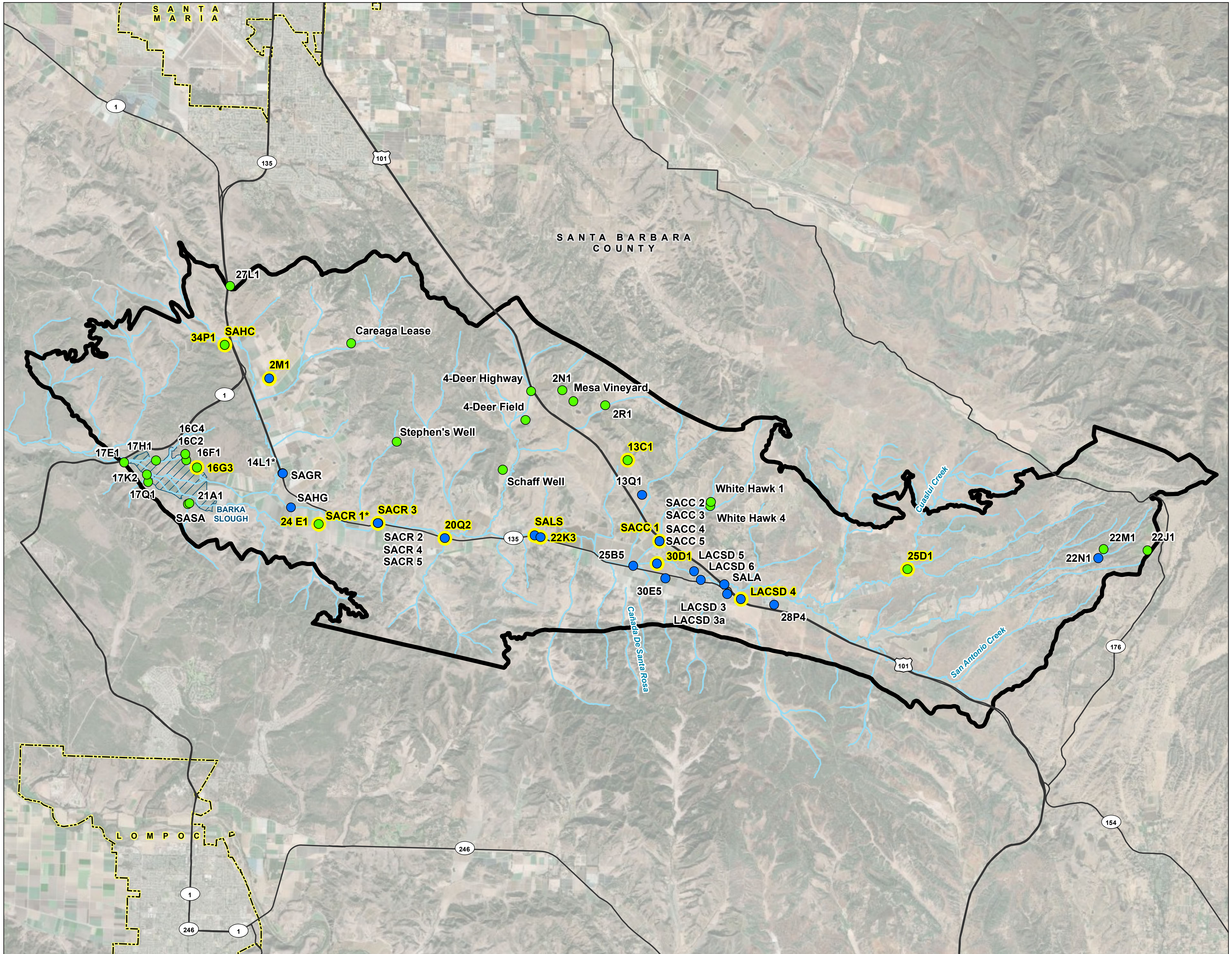


Wells Included in the San Antonio Creek Valley Groundwater Basin Groundwater Monitoring Network

Groundwater Sustainability Plan
San Antonio Creek Valley
Groundwater Basin

LEGEND

Representative Well

Wells (by screened aquifer)

Paso Robles Formation

Careaga Sand

All Other Features

San Antonio Creek or Tributary

Major Road

San Antonio Creek Valley Groundwater Basin

Barka Slough

City Boundary

NOTES

*SACR 1 and 14L1 are screened in the Careaga Sand.

San Antonio Creek Valley Groundwater Basin Boundary as defined in the California Department of Water Resources Bulletin 118.

N

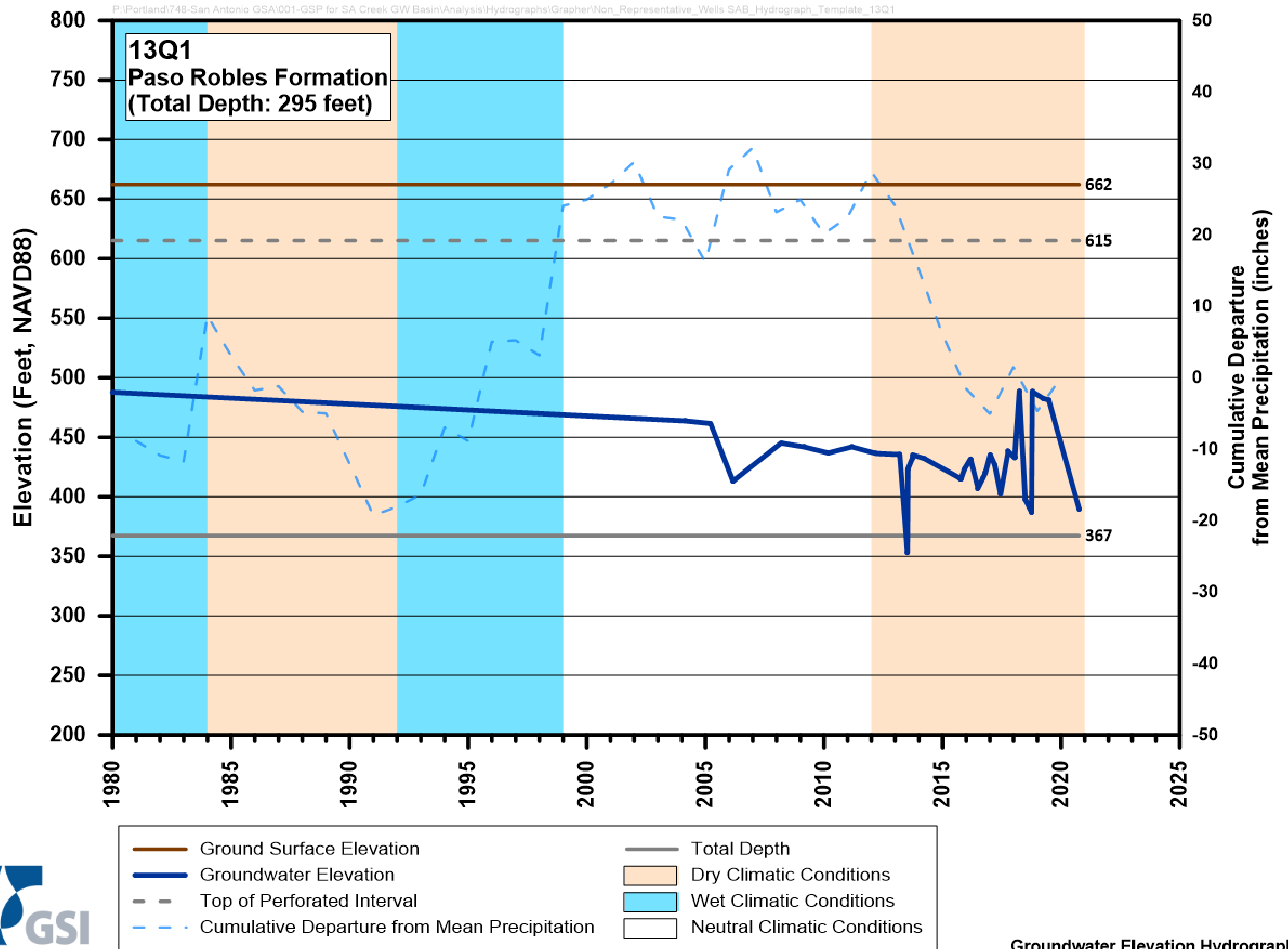
0 5,000 10,000 15,000
Feet

Date: September 16, 2021
Data Sources: USGS (2020b), ESRI, DWR (2019a), Maxar imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0748_San_Antonio_GSP\Source_Figures\001_SanAntonio_Basin_GSA\GW_Sustainability_Plan\Section3\Figure3_11_Representative_Wells.mxd

Paso Robles Formation



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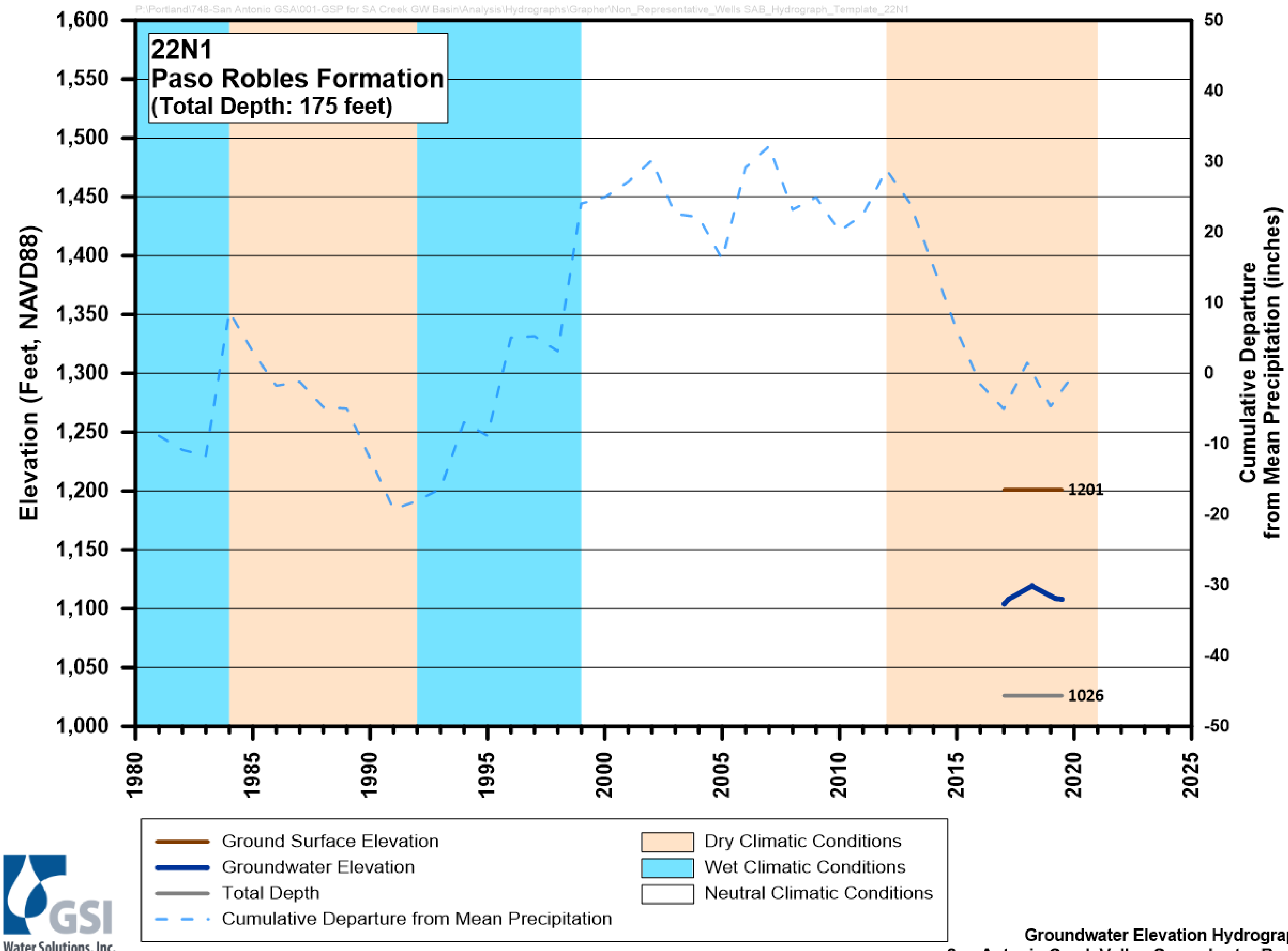
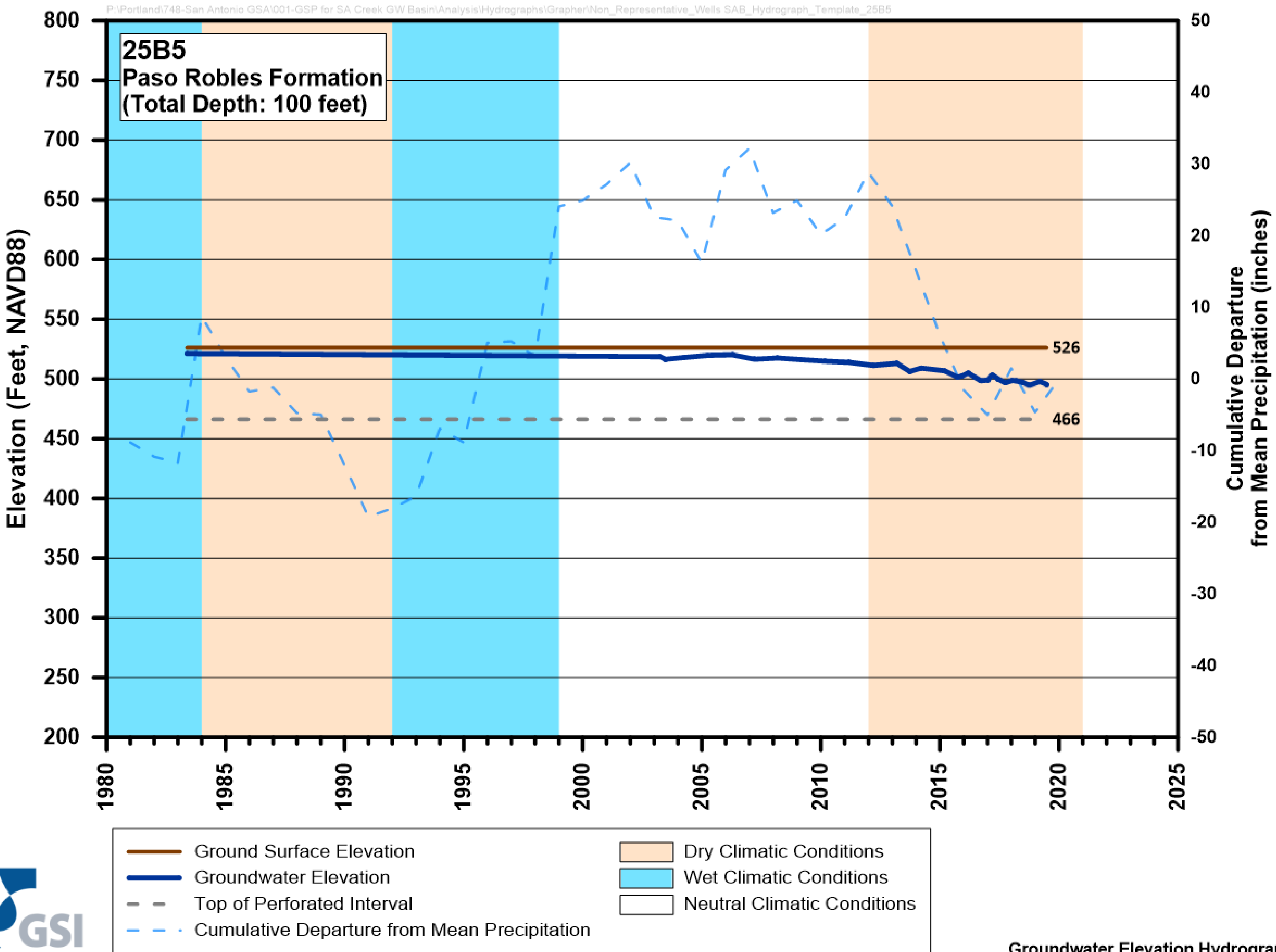
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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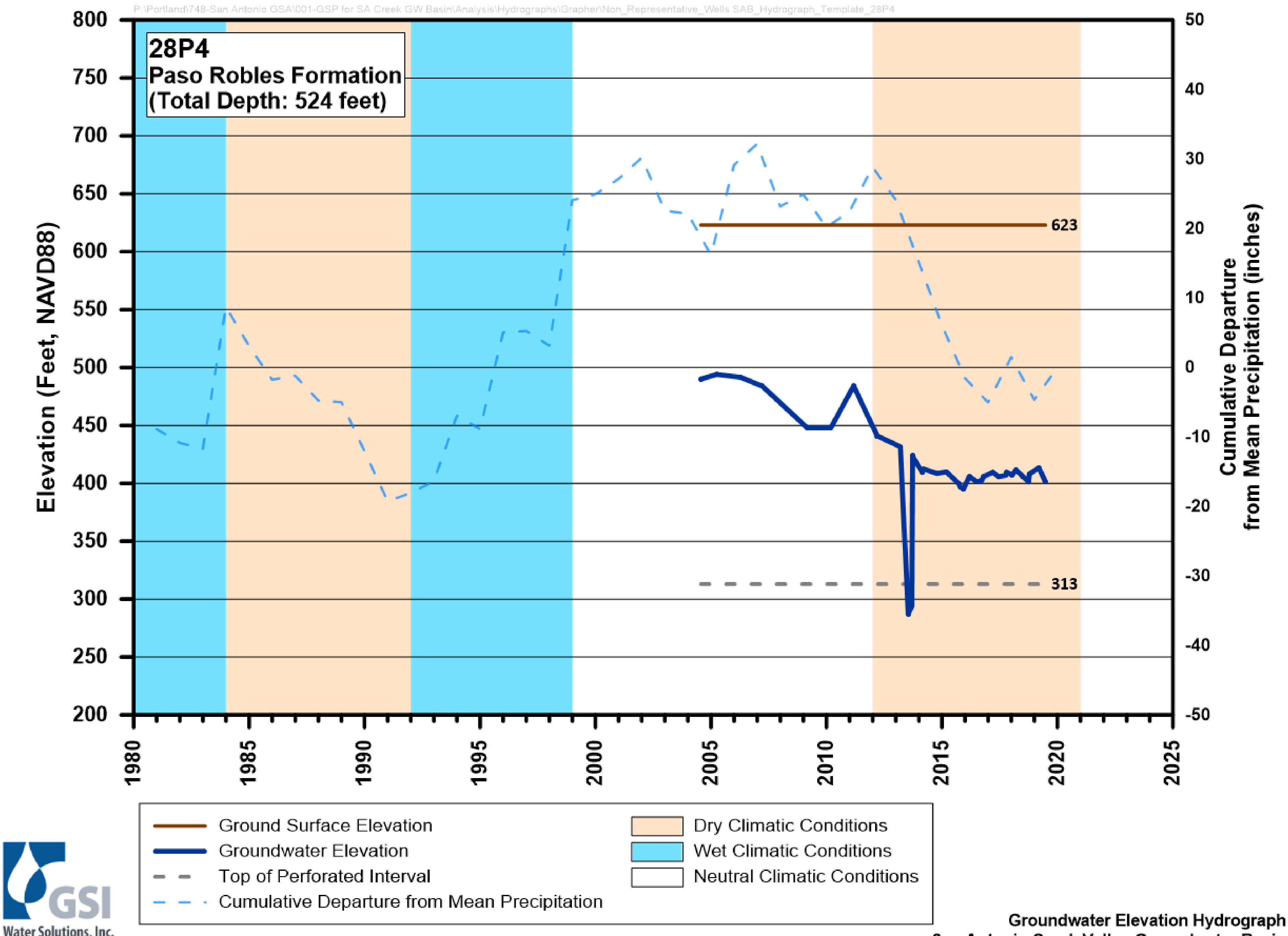
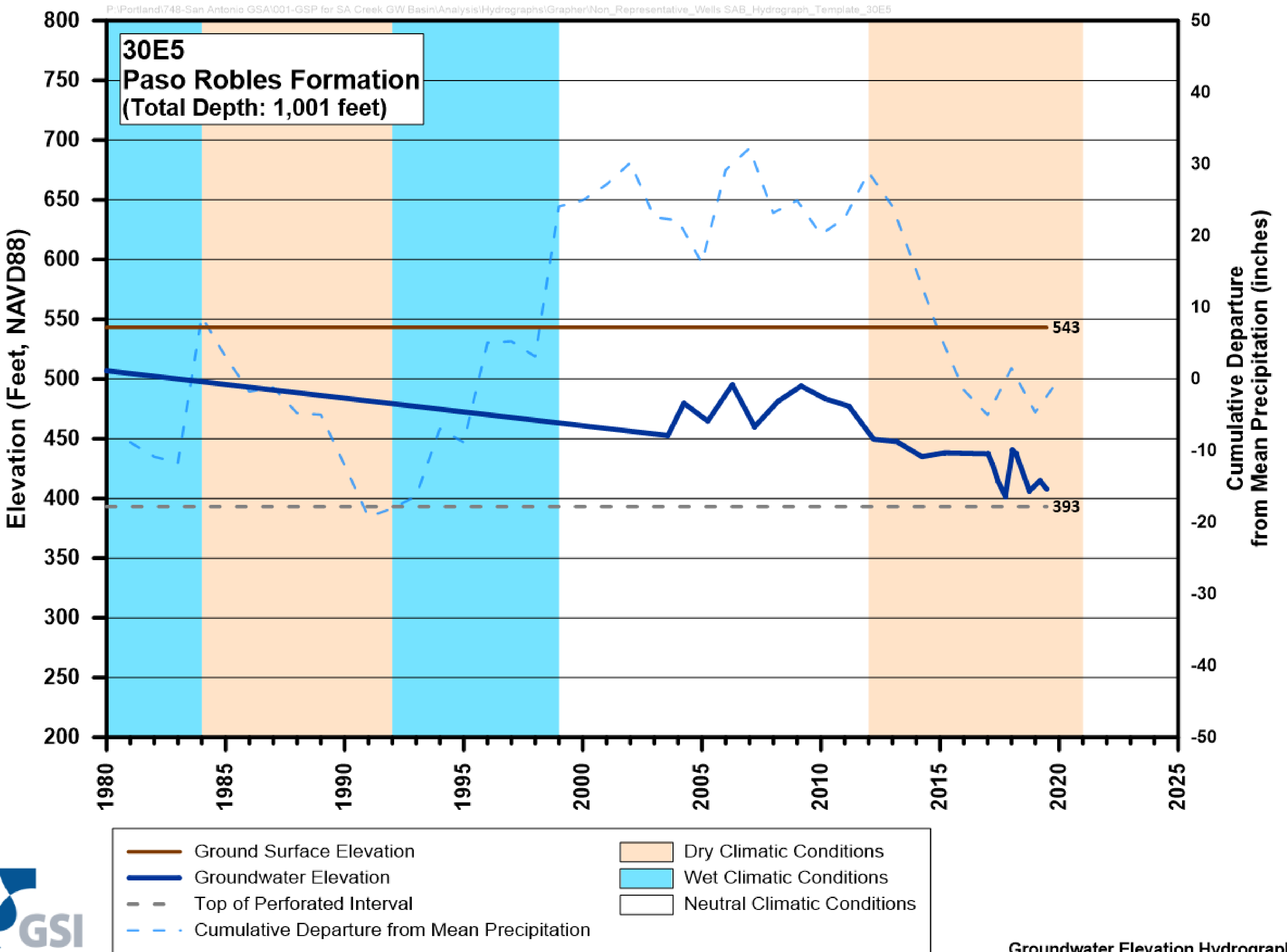
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

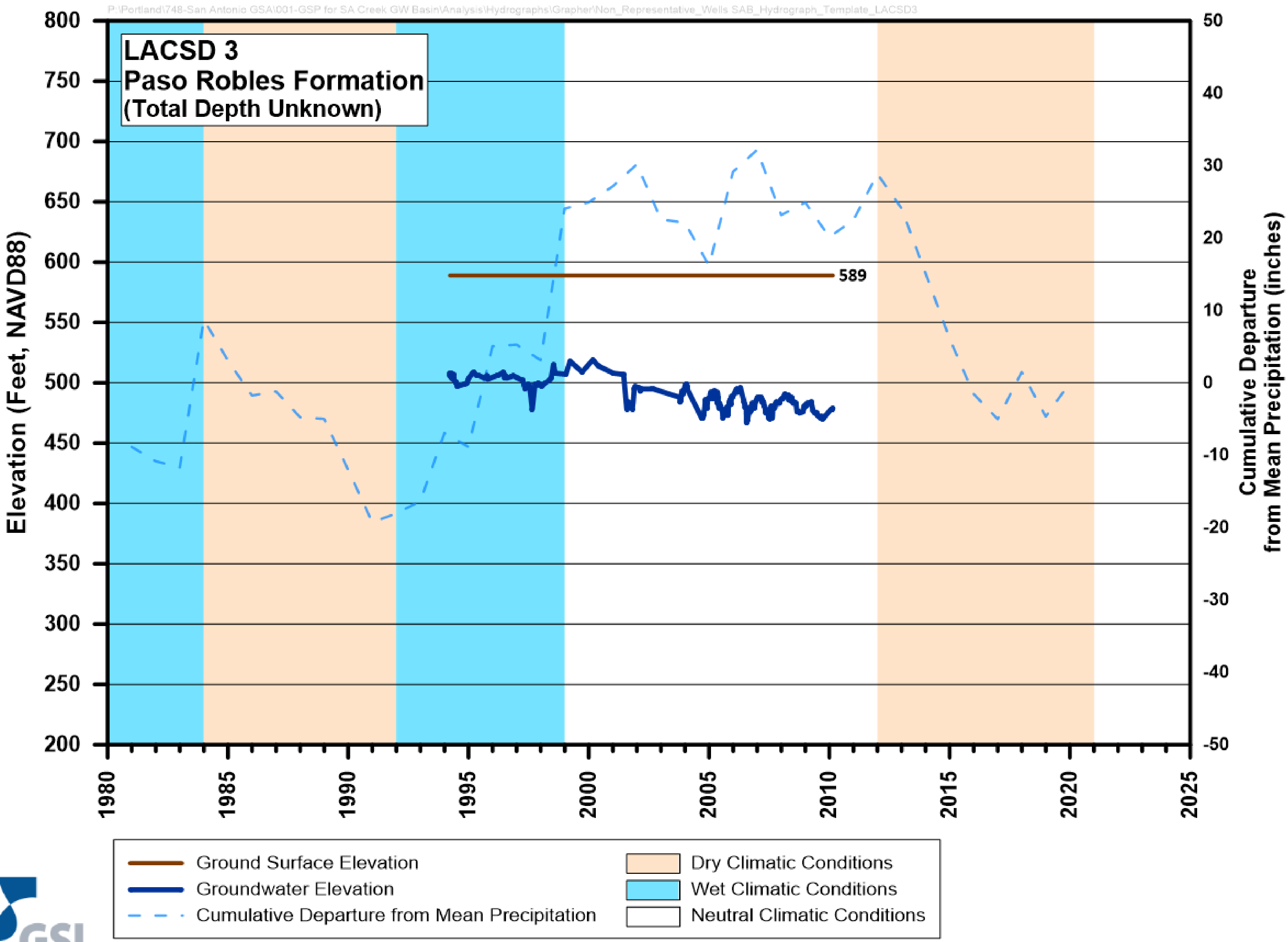


Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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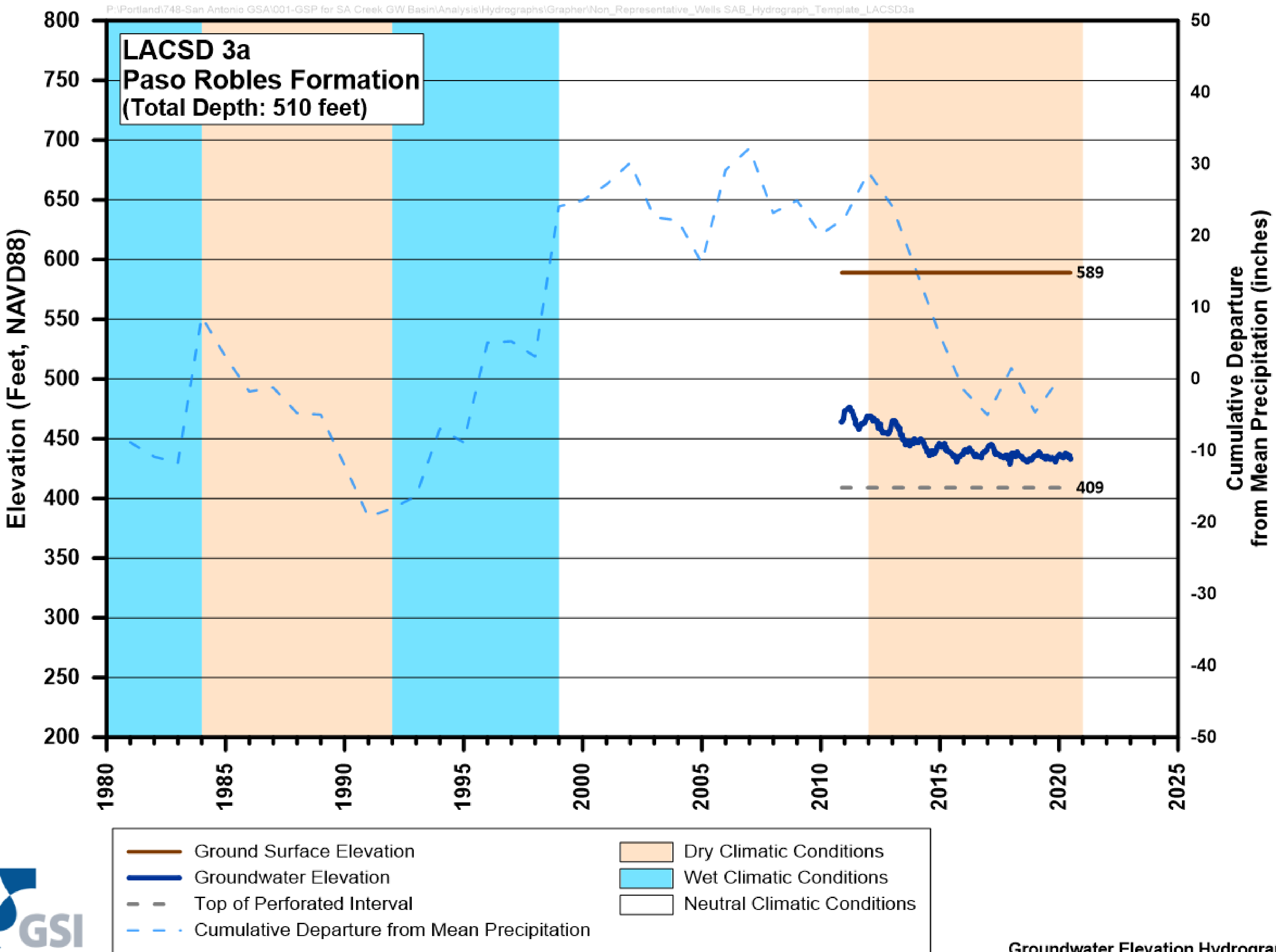
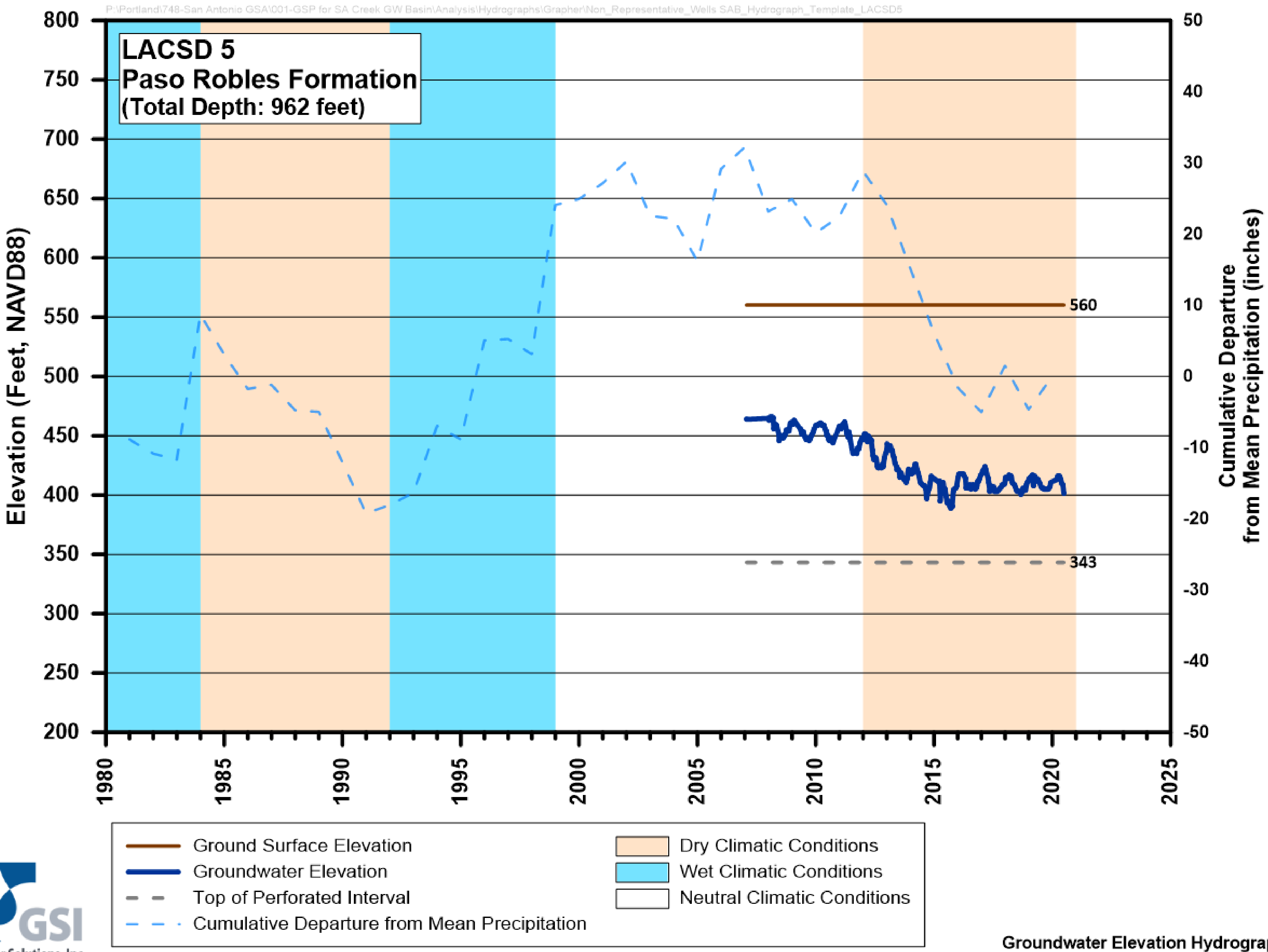
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



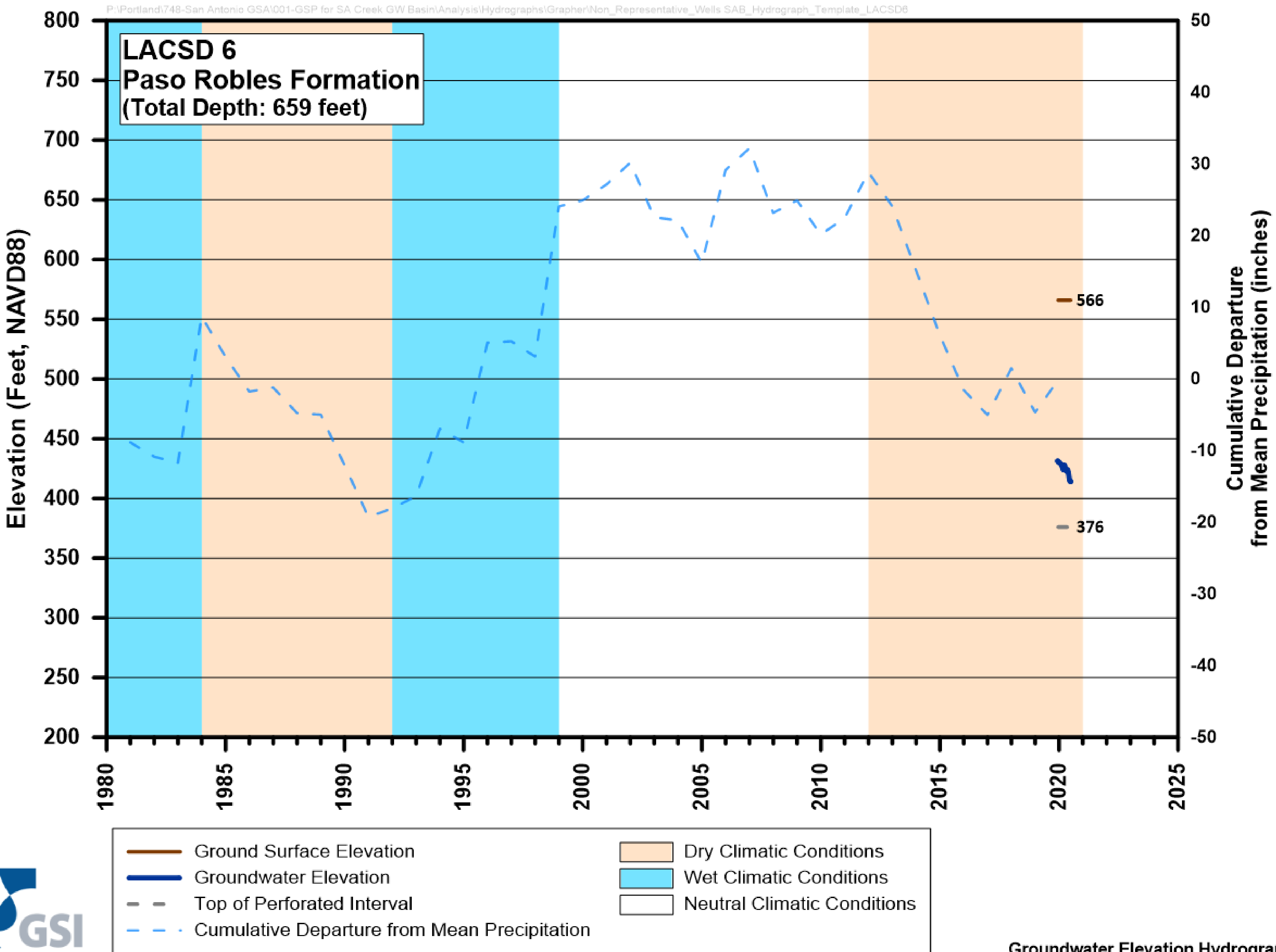
GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



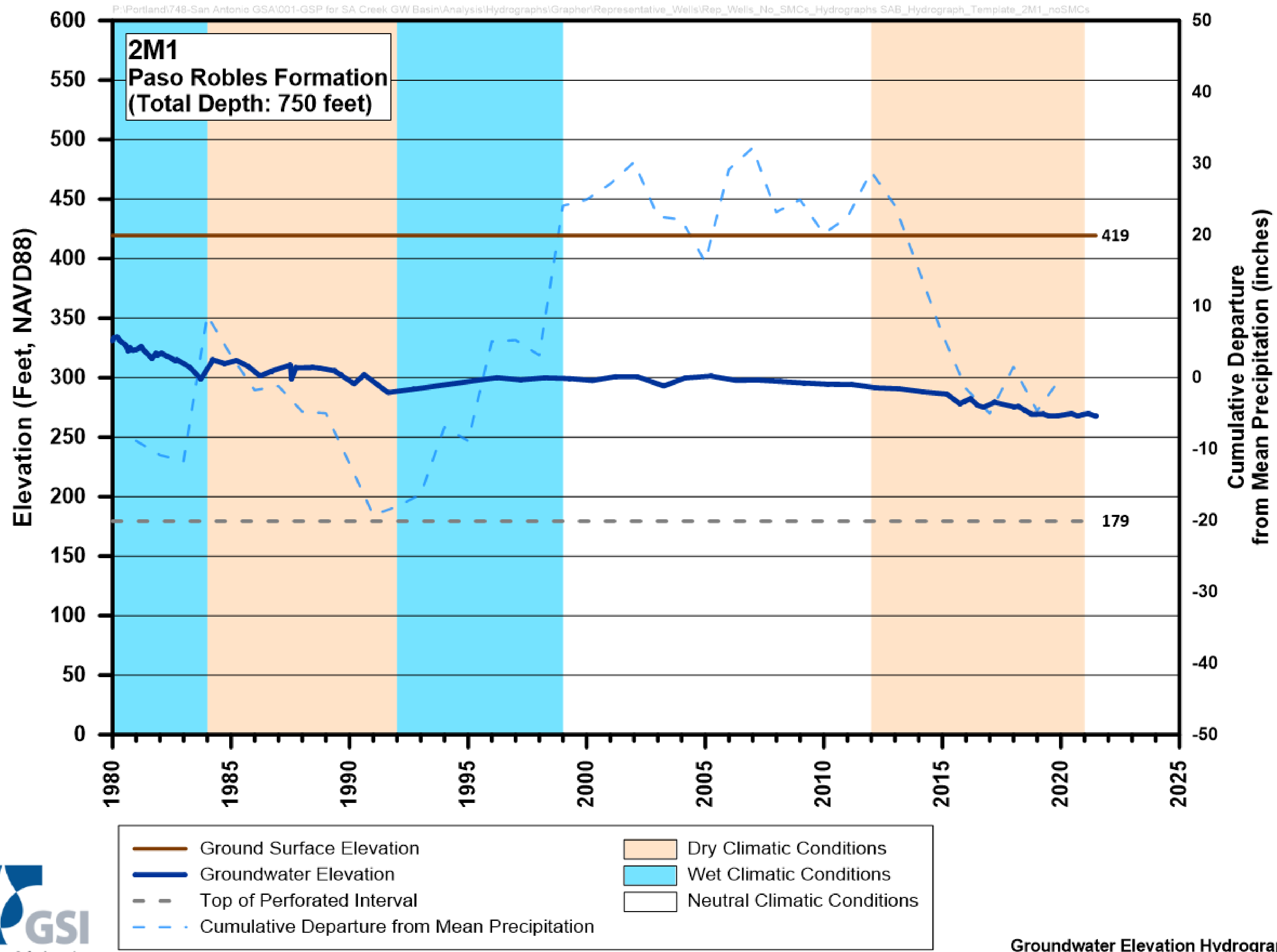
GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

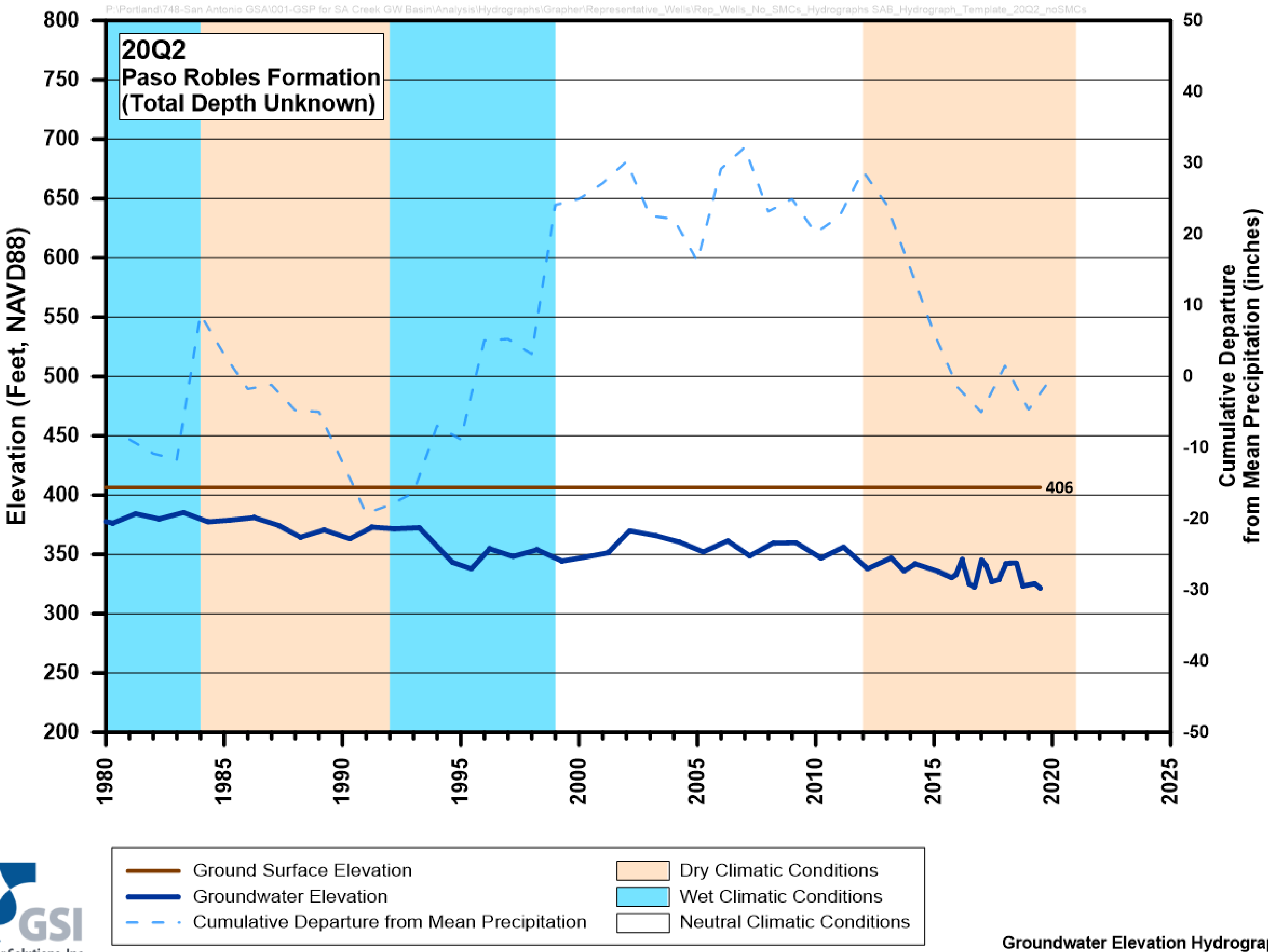


GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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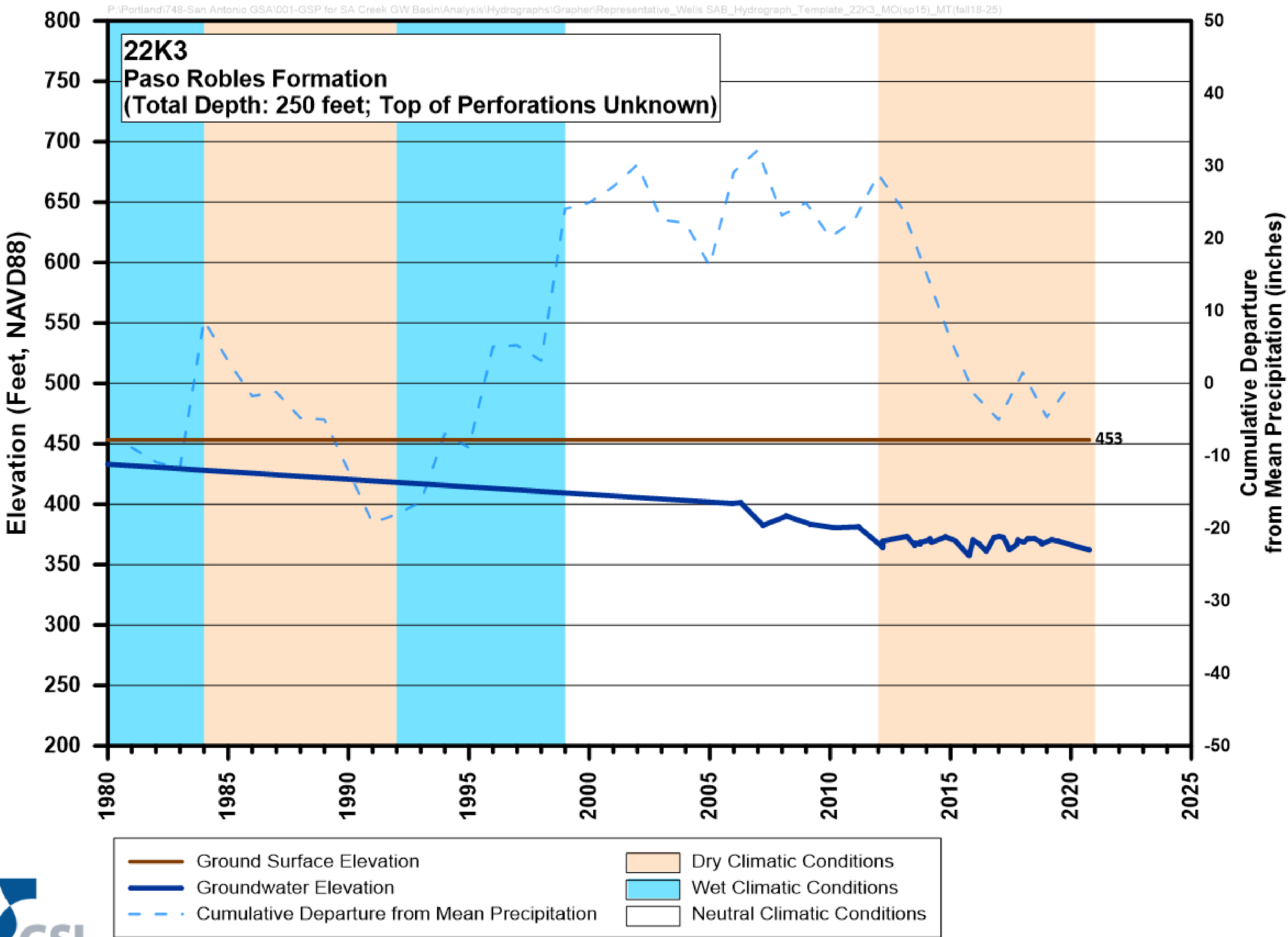
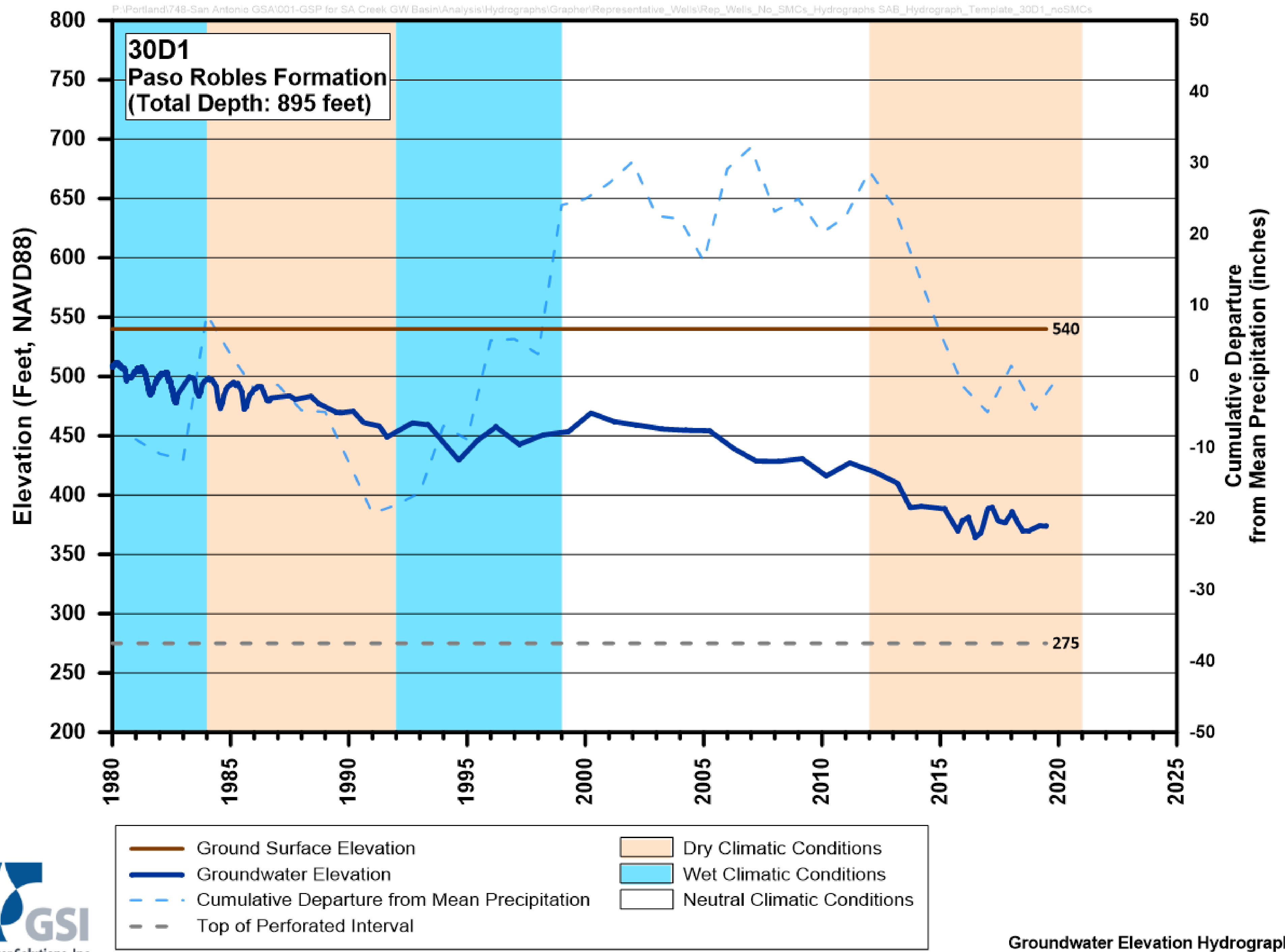
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



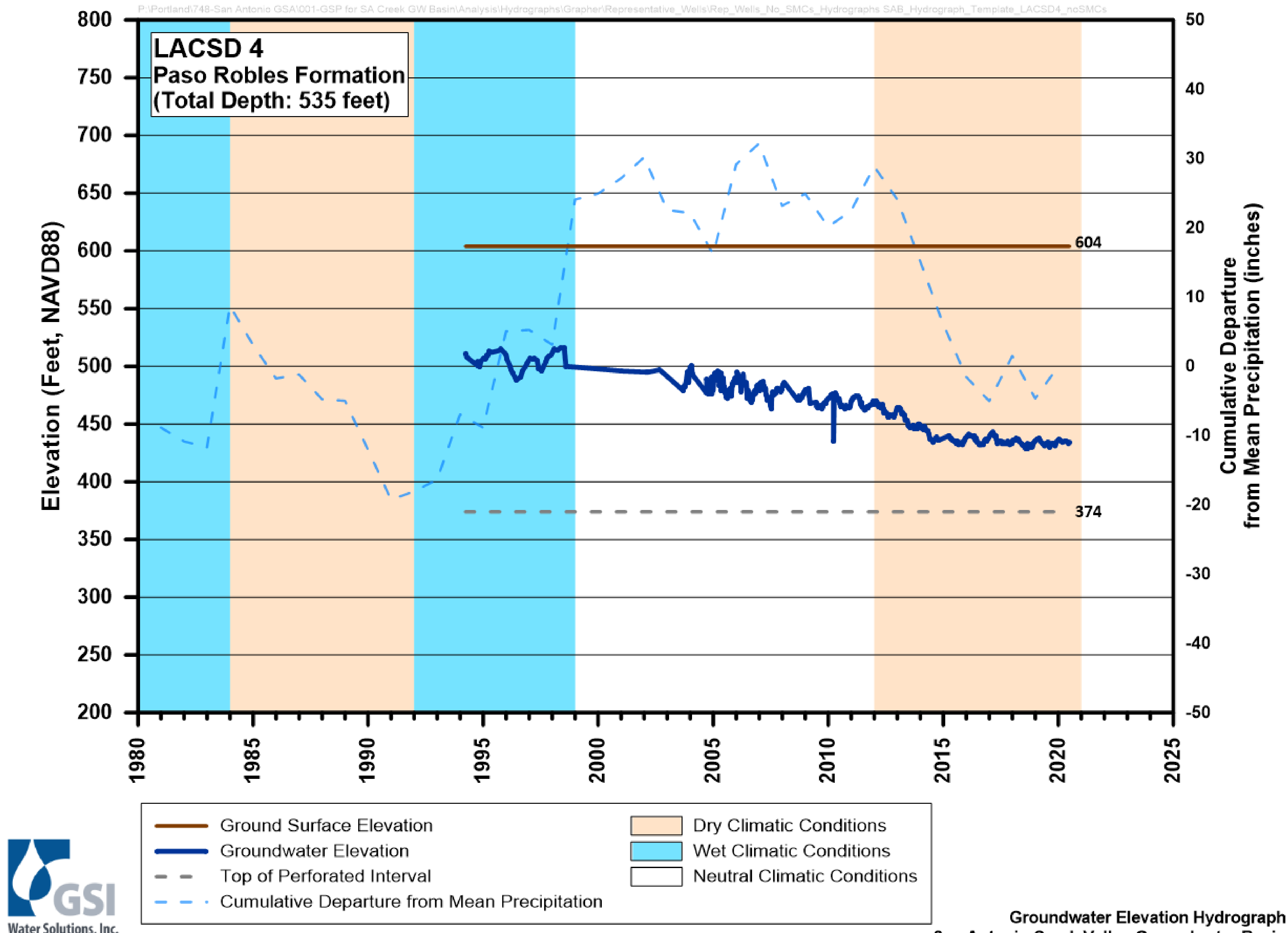
GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

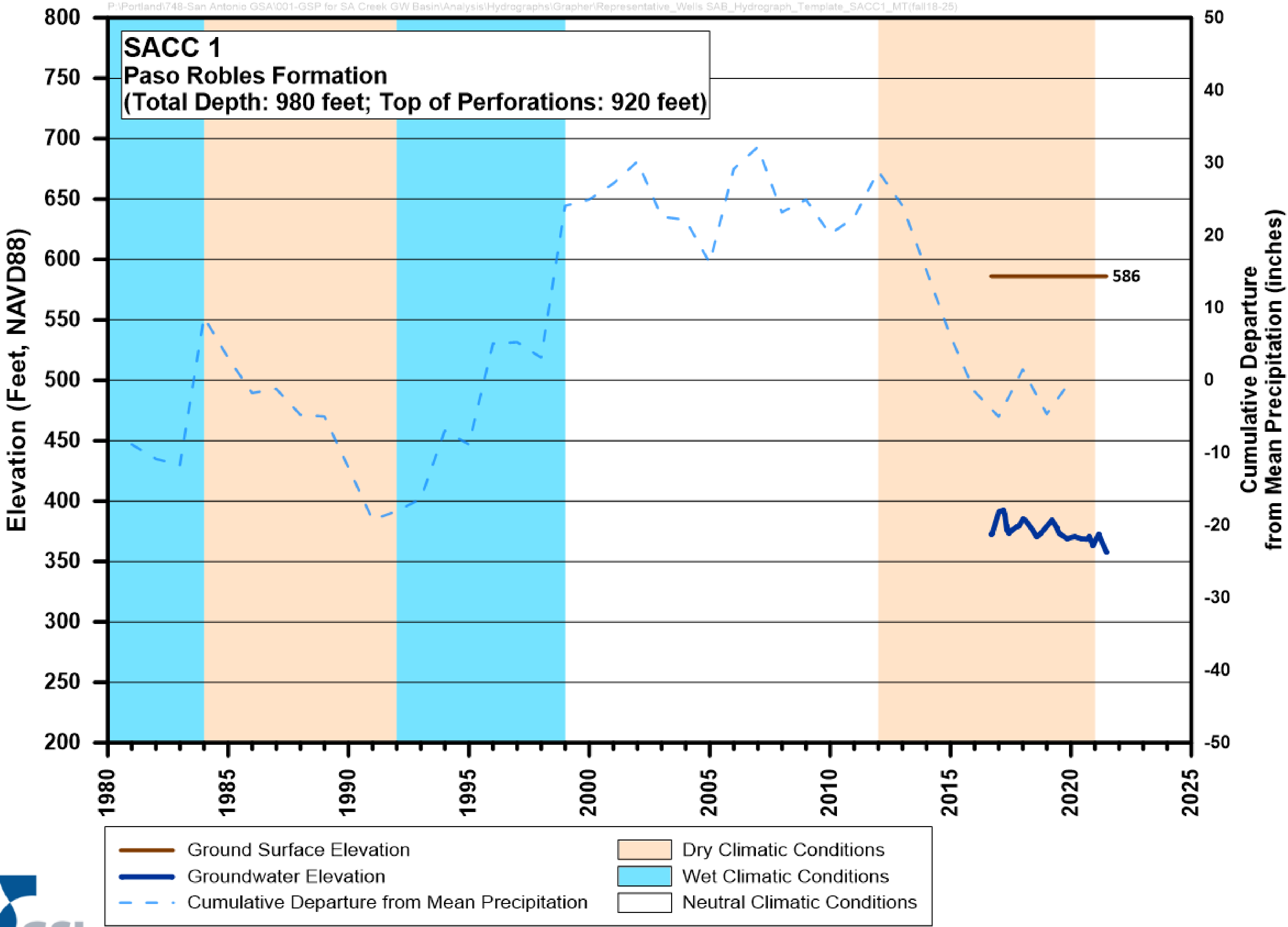


GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

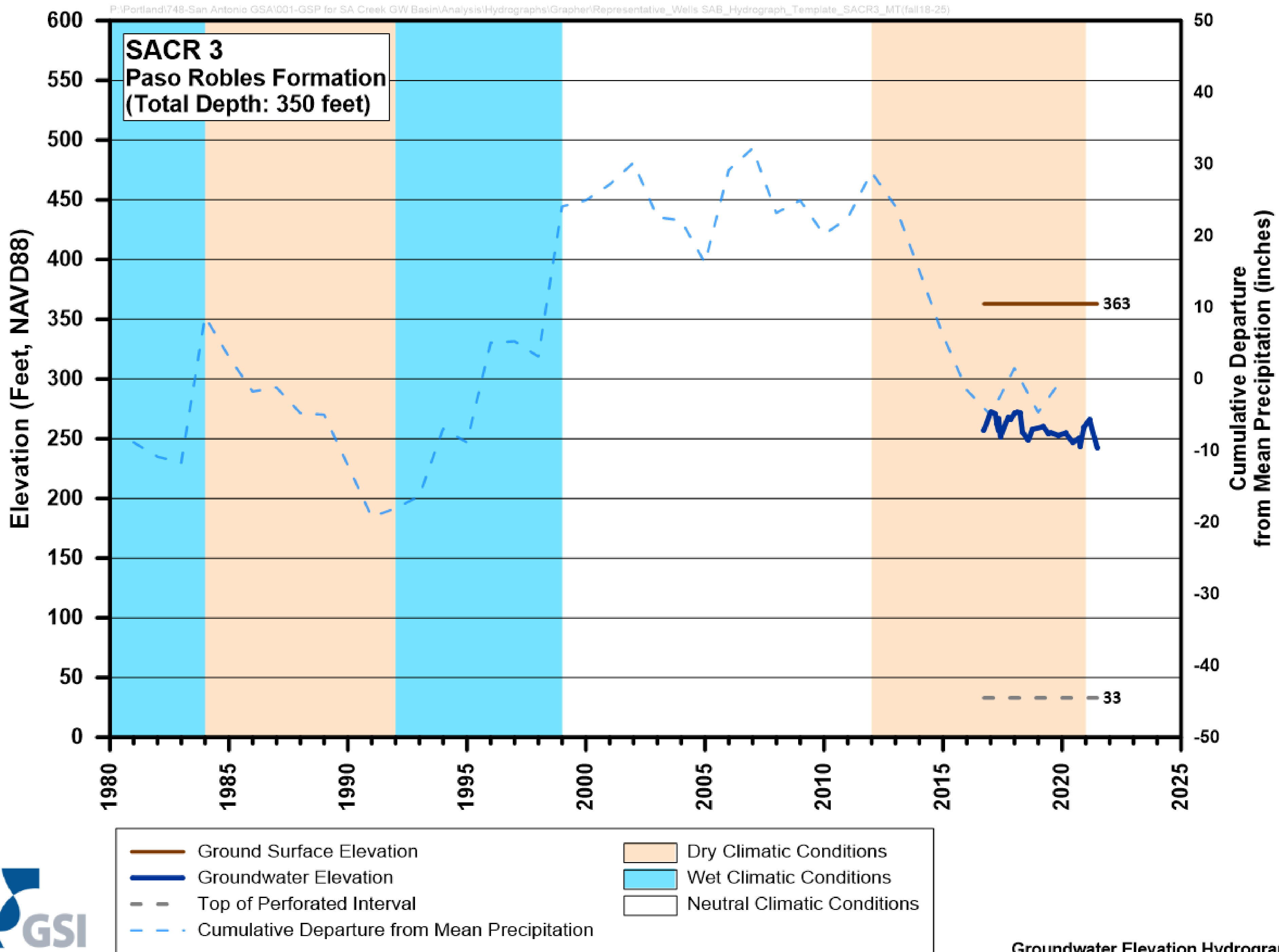


Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



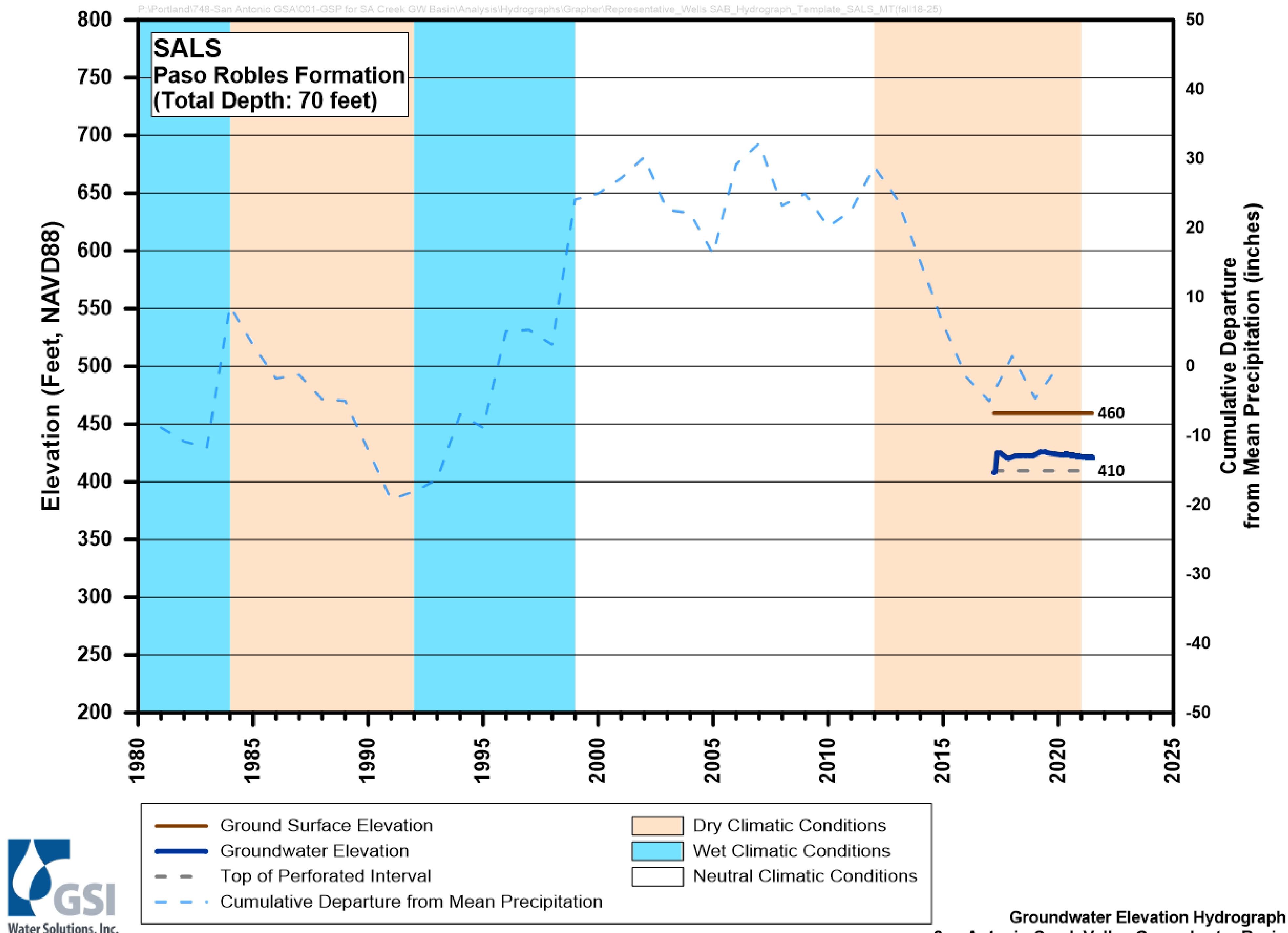
GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

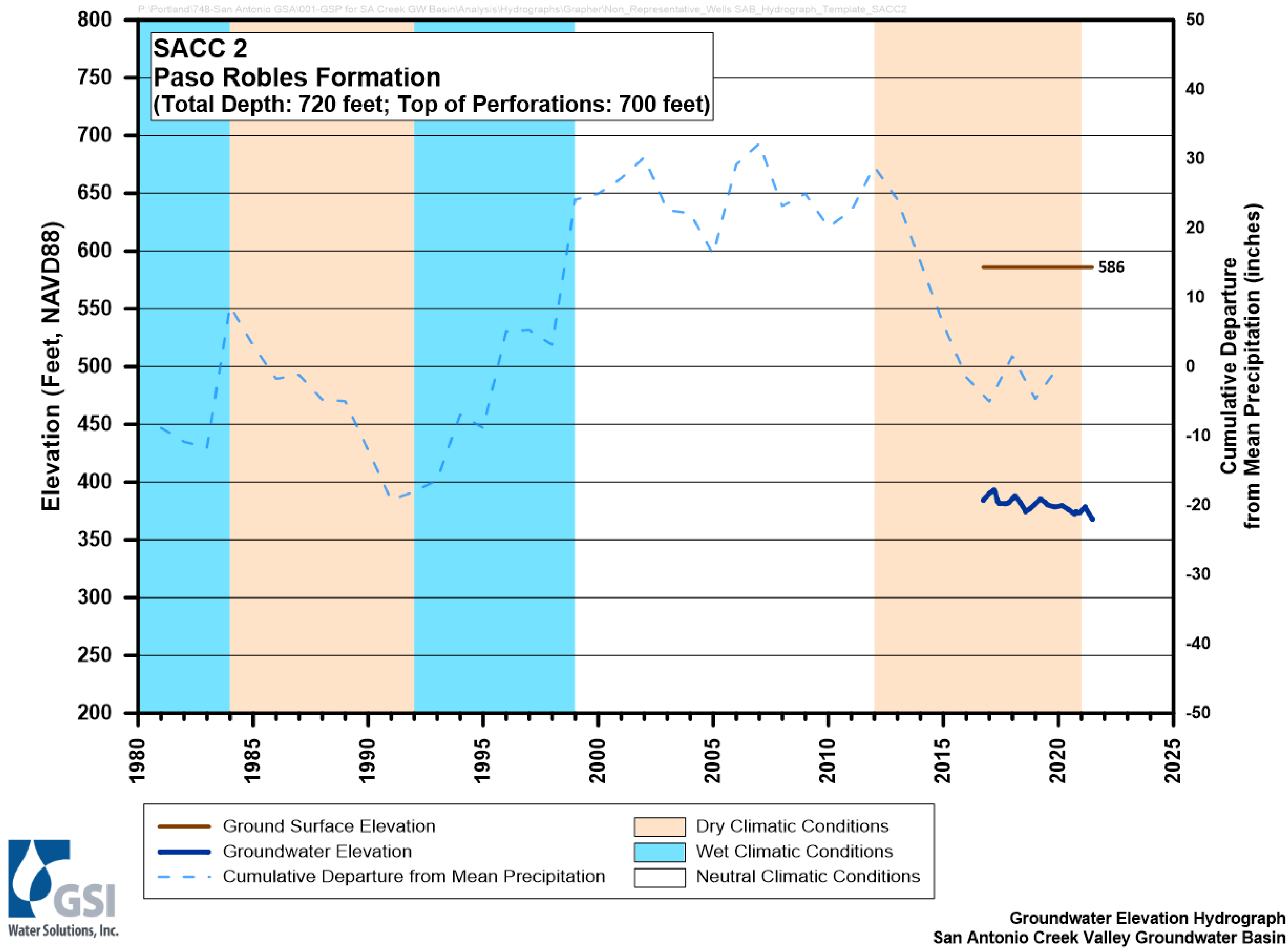


GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin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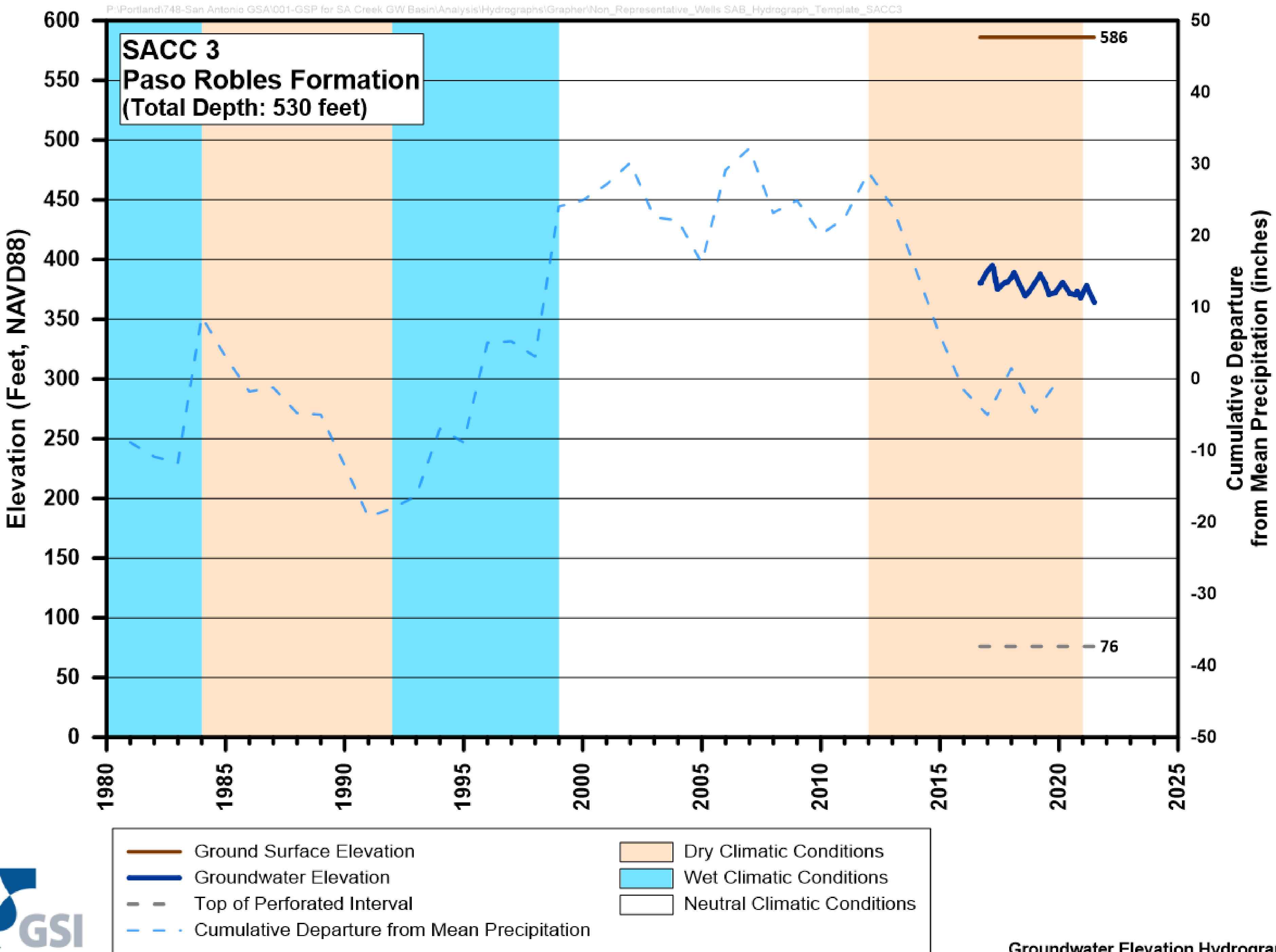
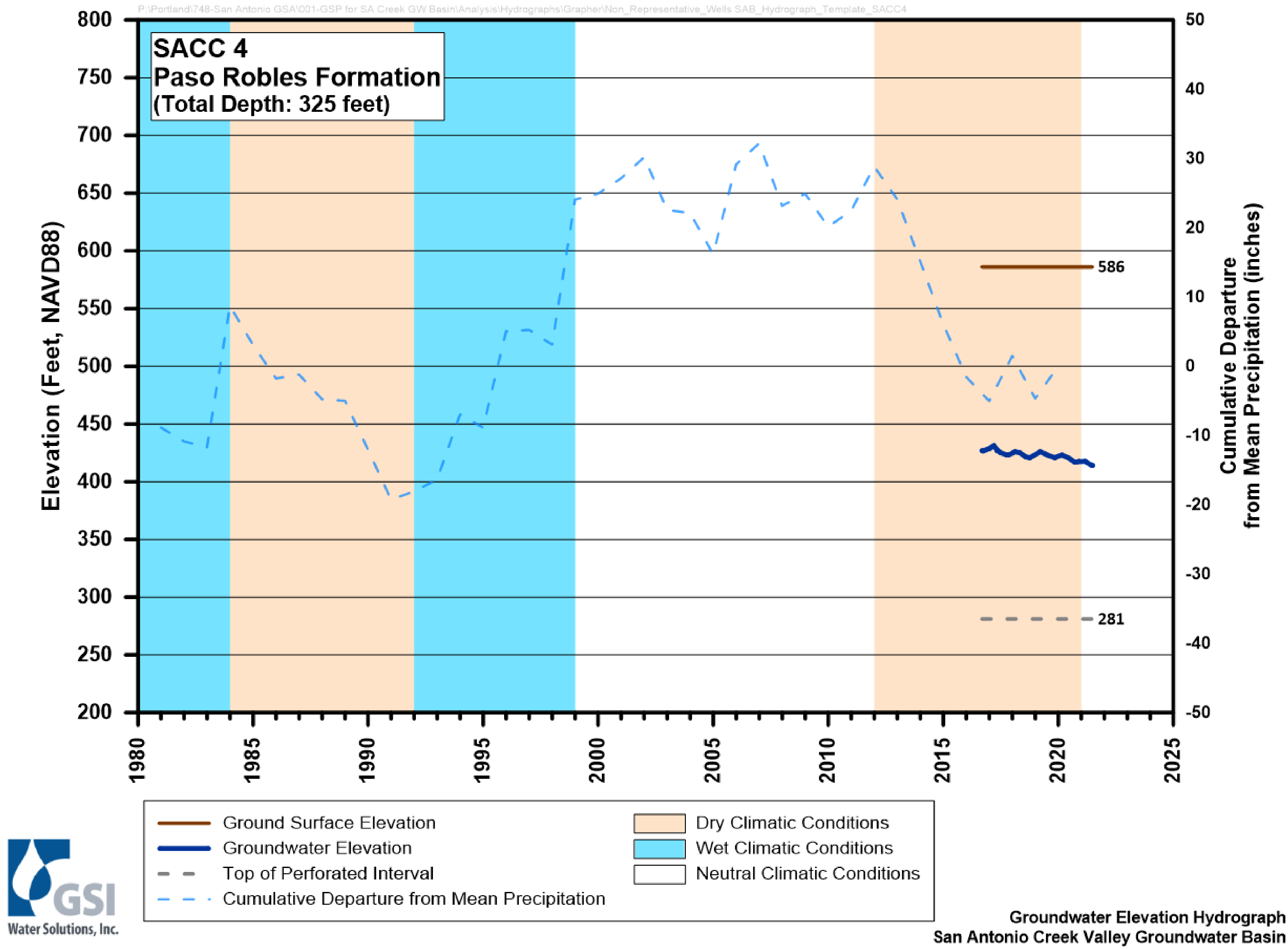
SACC 2
Paso Robles Formation
(Total Depth: 720 feet; Top of Perforations: 700 feet)
Elevation (Feet, NAVD88)
Cumulative Departure from Mean Precipitation (inches)
586
800
750
700
650
600
550
500
450
400
350
300
250
200
50
40
30
20
10
0
-10
-20
-30
-40
-50
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Ground Surface Elevation
Groundwater Elevation
Cumulative Departure from Mean Precipitation
Dry Climatic Conditions
Wet Climatic Conditions
Neutral Climatic Conditions
GSI
Water Solutions, Inc.
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

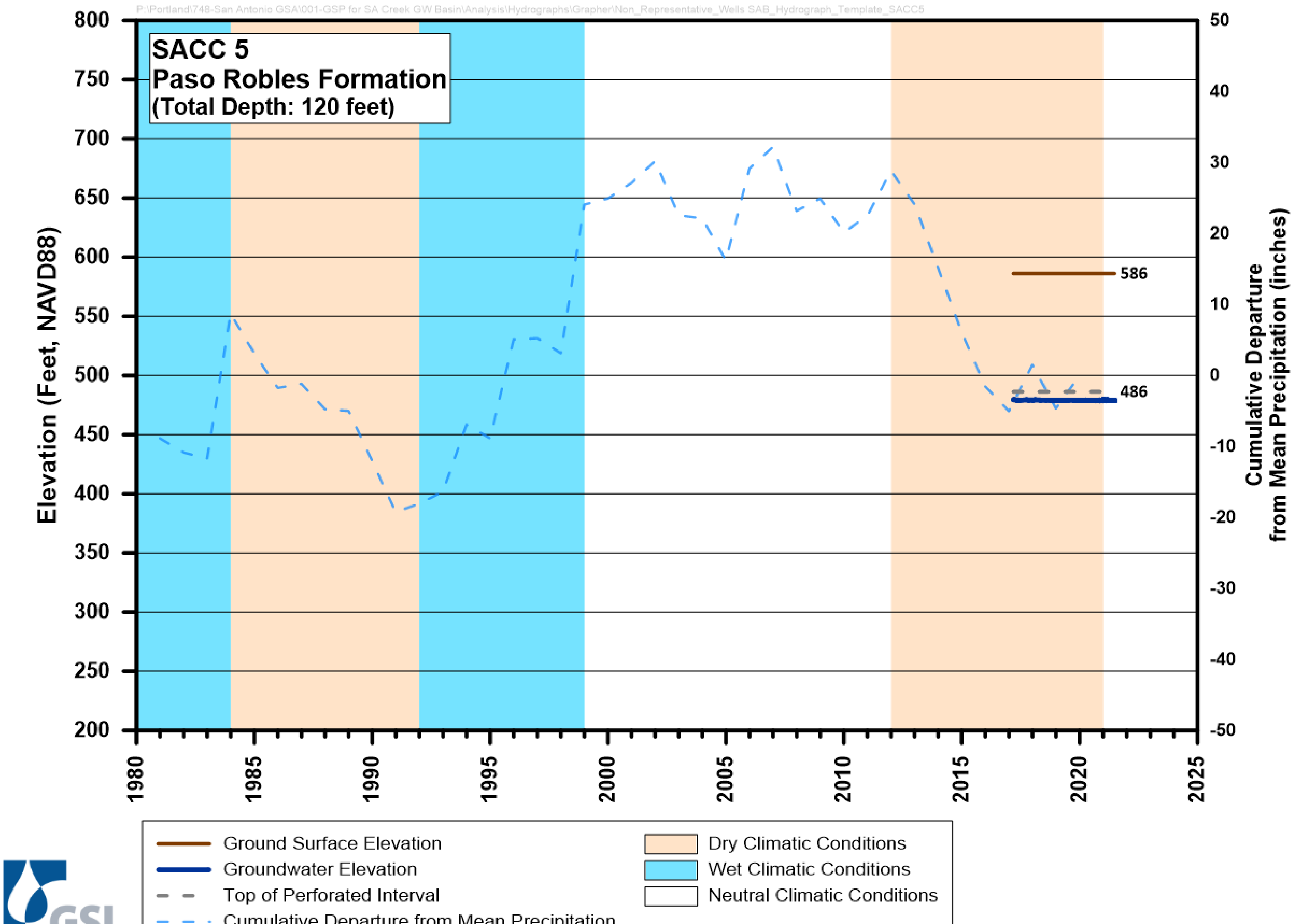


GSI Water Solutions, Inc.

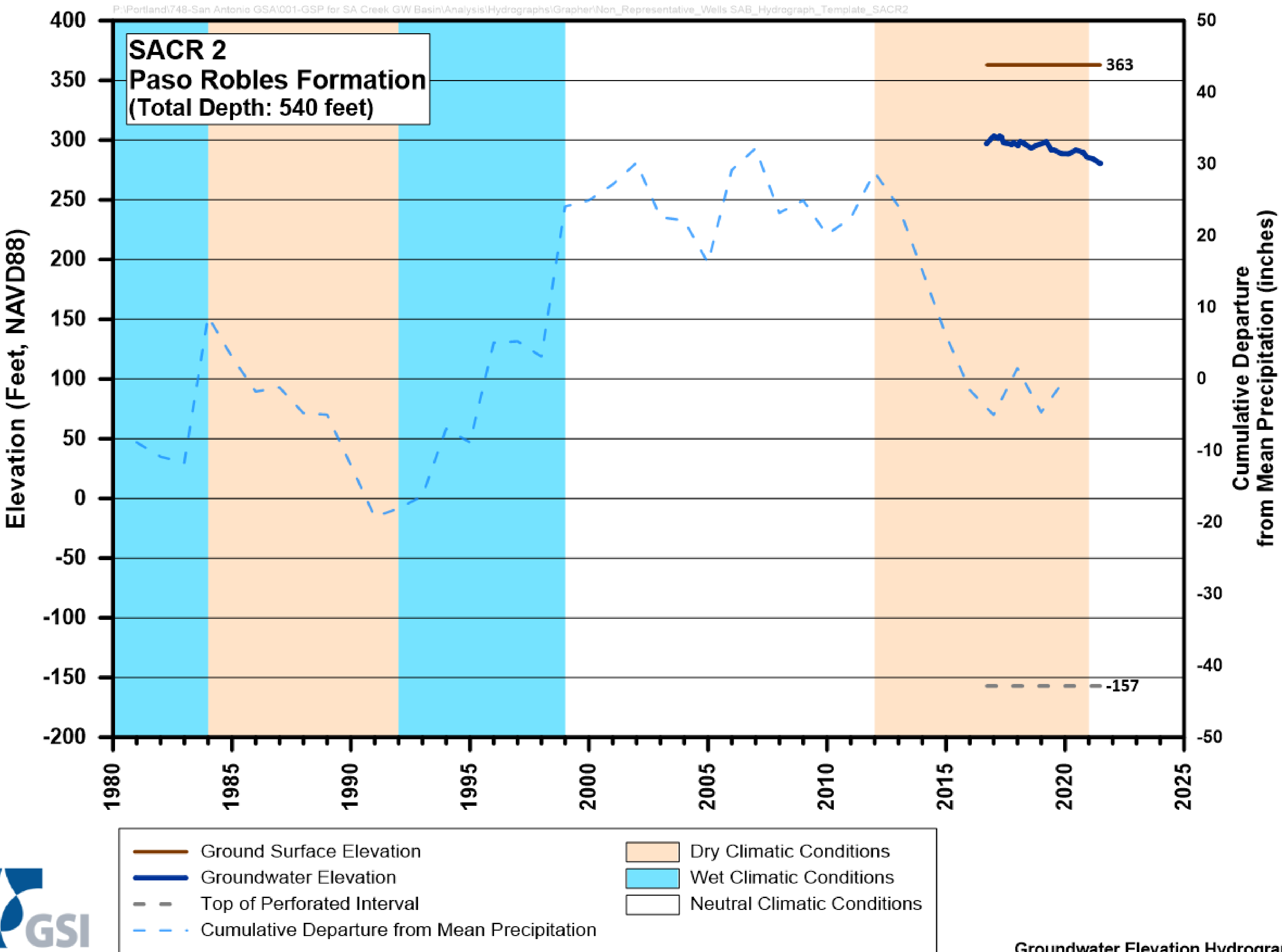
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

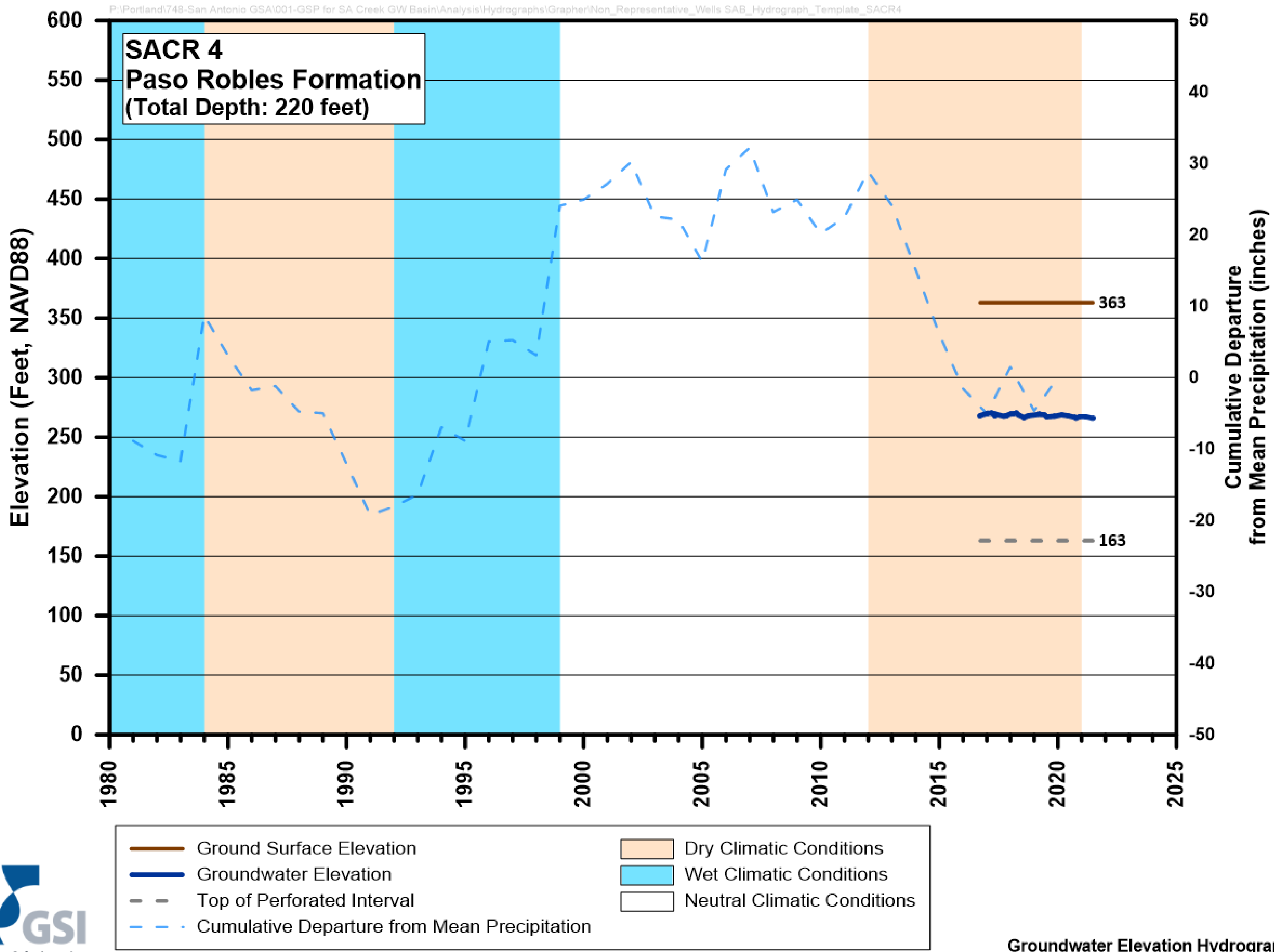


Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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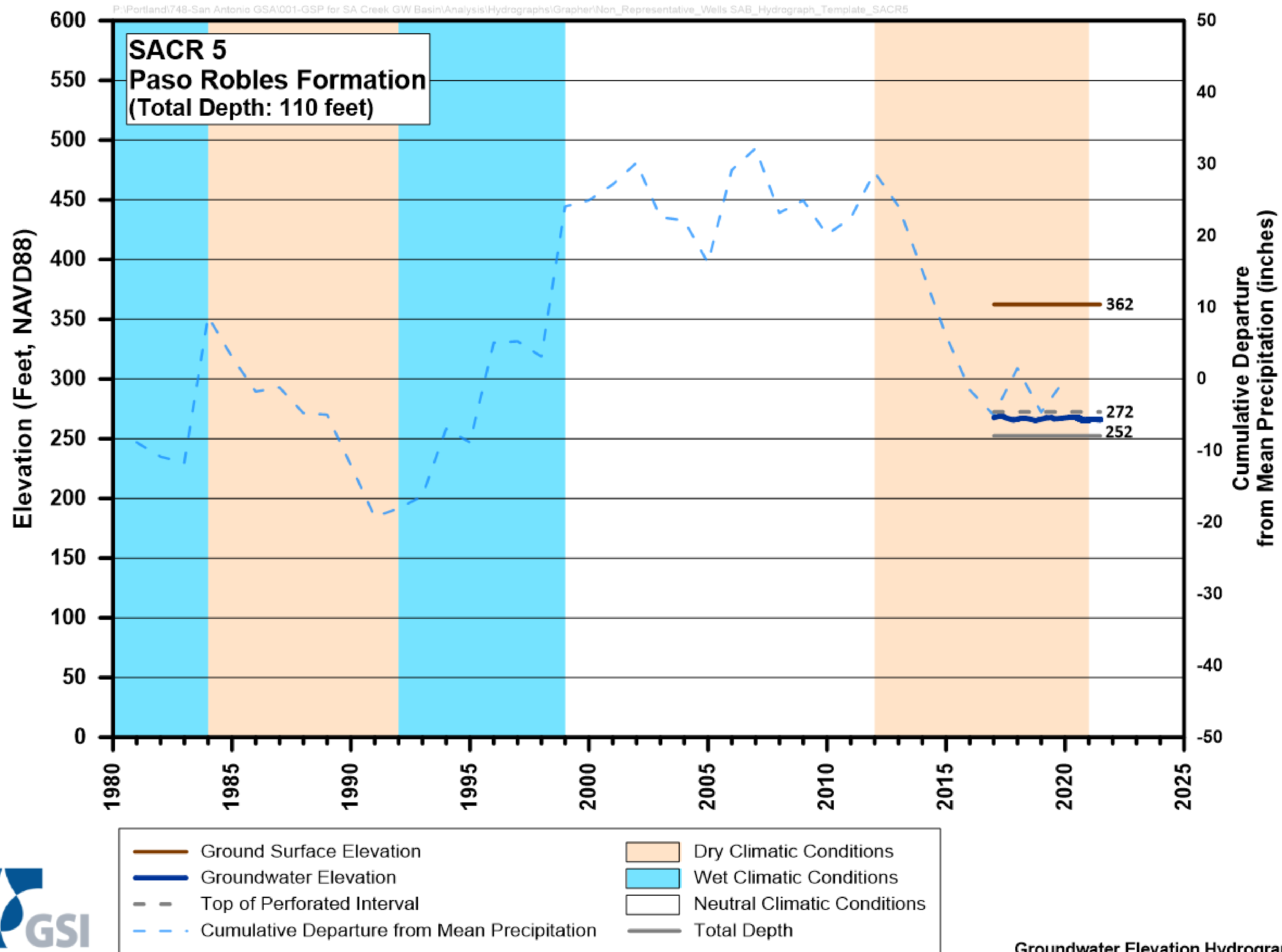
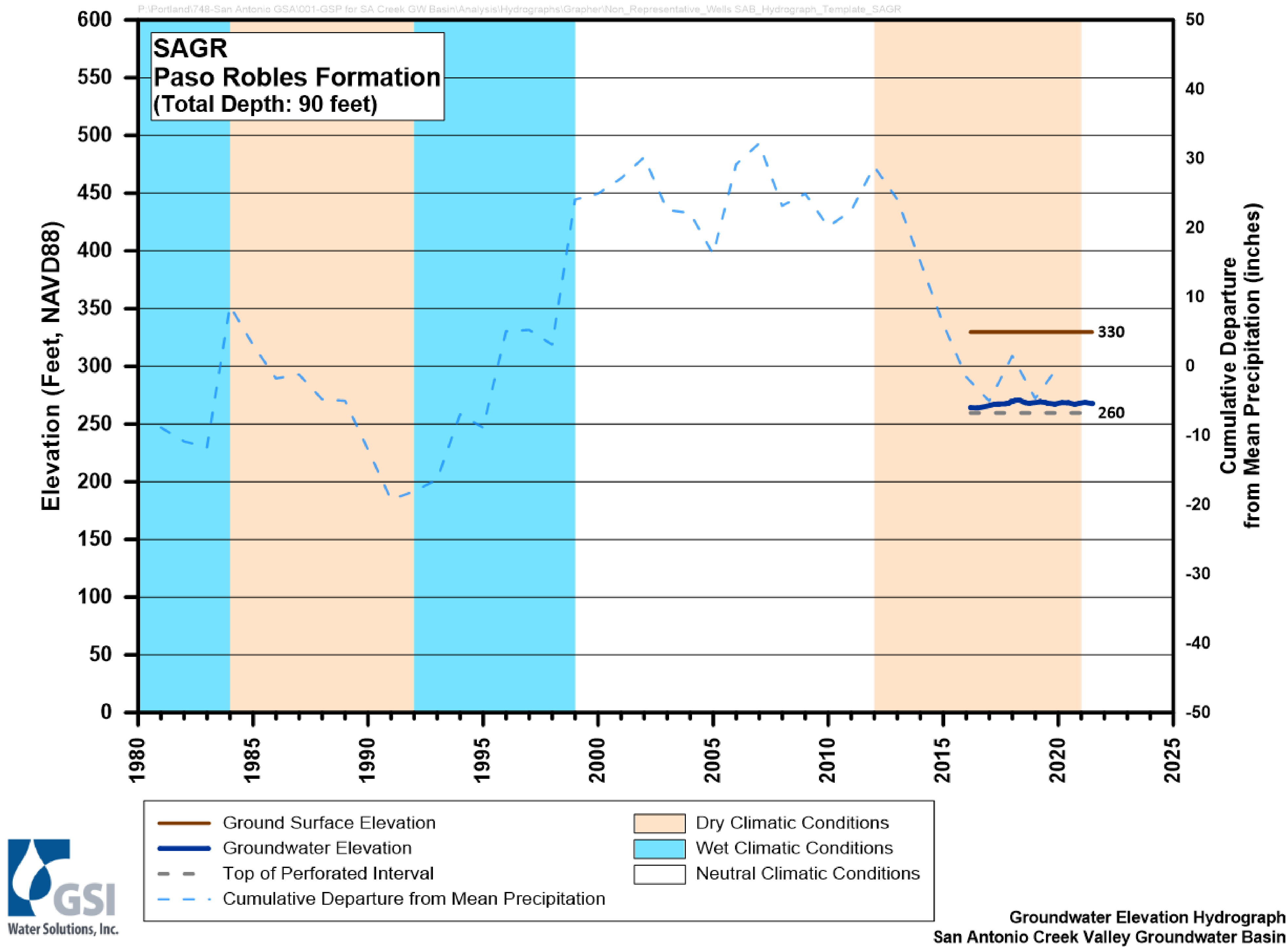
San Antonio Creek Valley Groundwater Basin

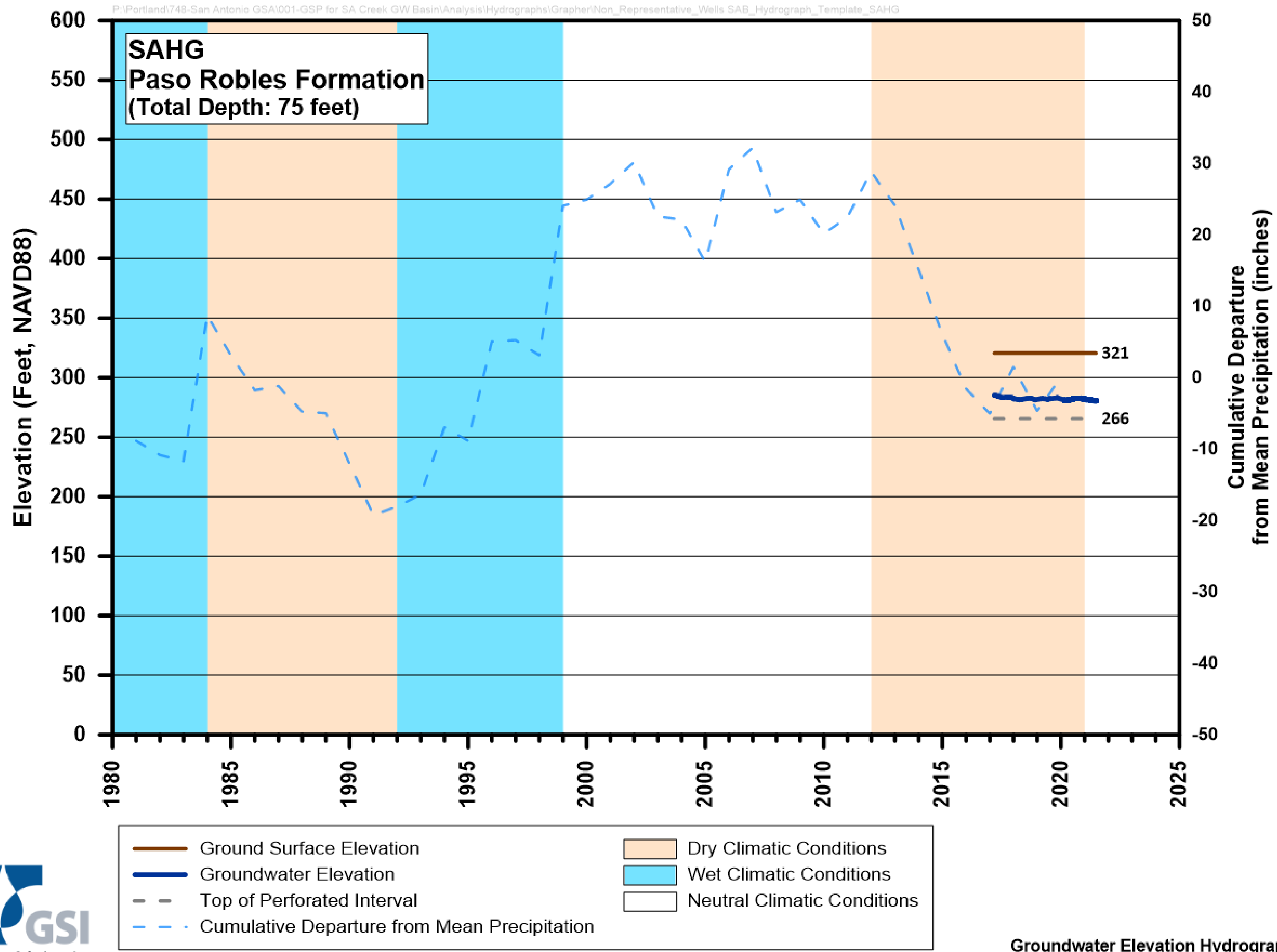


GSI Water Solutions, Inc.

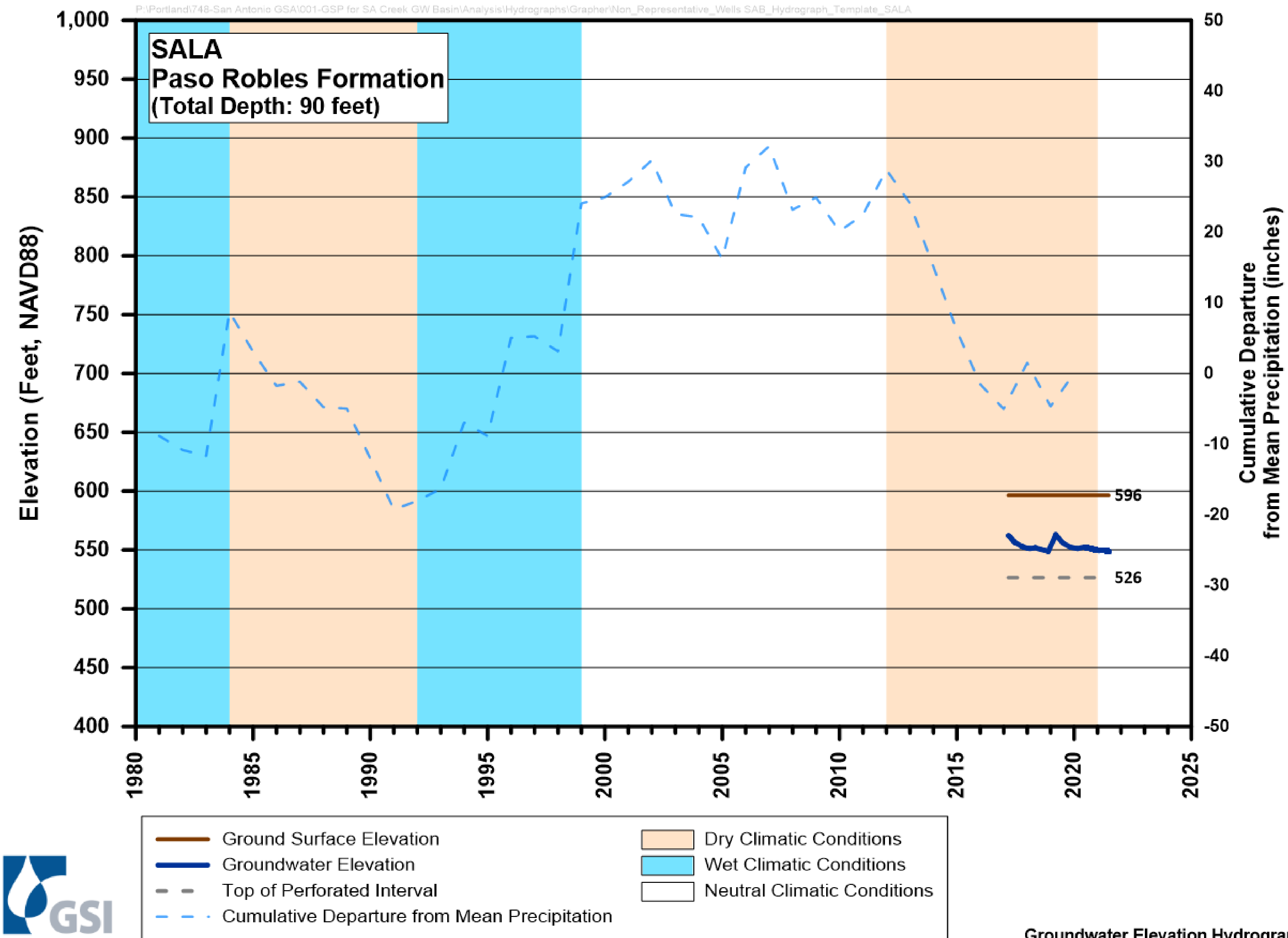
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



P:\Portland\748-San Antonio GSA\001-GSP for SA Creek GW Basin\Analysis\Hydrographs\Grapher\Non_Representative_Wells SAB_Hydrograph_Template_SAGR
SAGR
Paso Robles Formation
(Total Depth: 90 feet)
Elevation (Feet, NAVD88)
Cumulative Departure from Mean Precipitation (inches)
600
550
500
450
400
350
300
250
200
150
100
50
0
50
40
30
20
10
0
-10
-20
-30
-40
-50
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
330
260
Ground Surface Elevation
Groundwater Elevation
Top of Perforated Interval
Cumulative Departure from Mean Precipitation
Dry Climatic Conditions
Wet Climatic Conditions
Neutral Climatic Conditions
GSI Water Solutions, Inc.
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

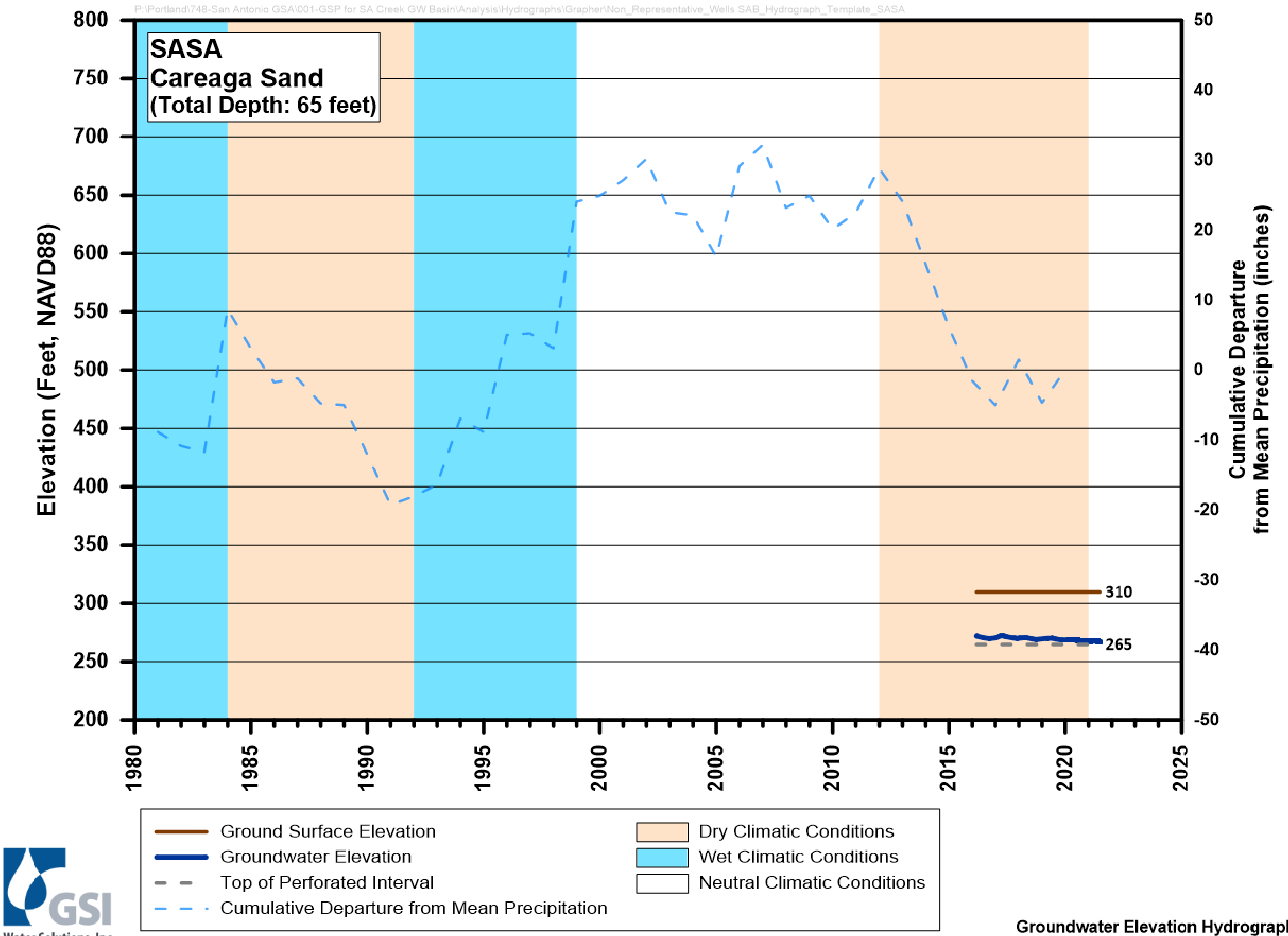


Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



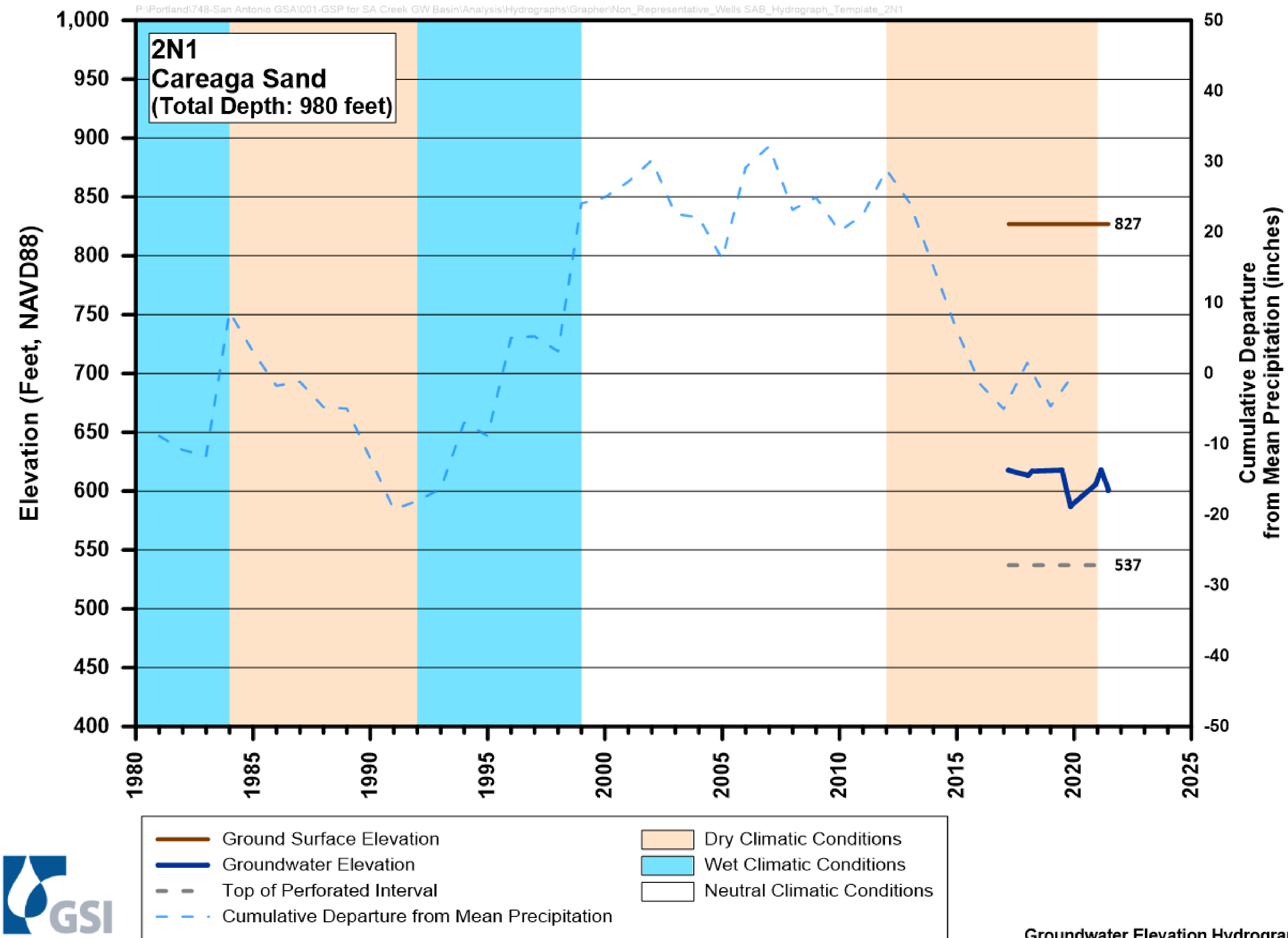
GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



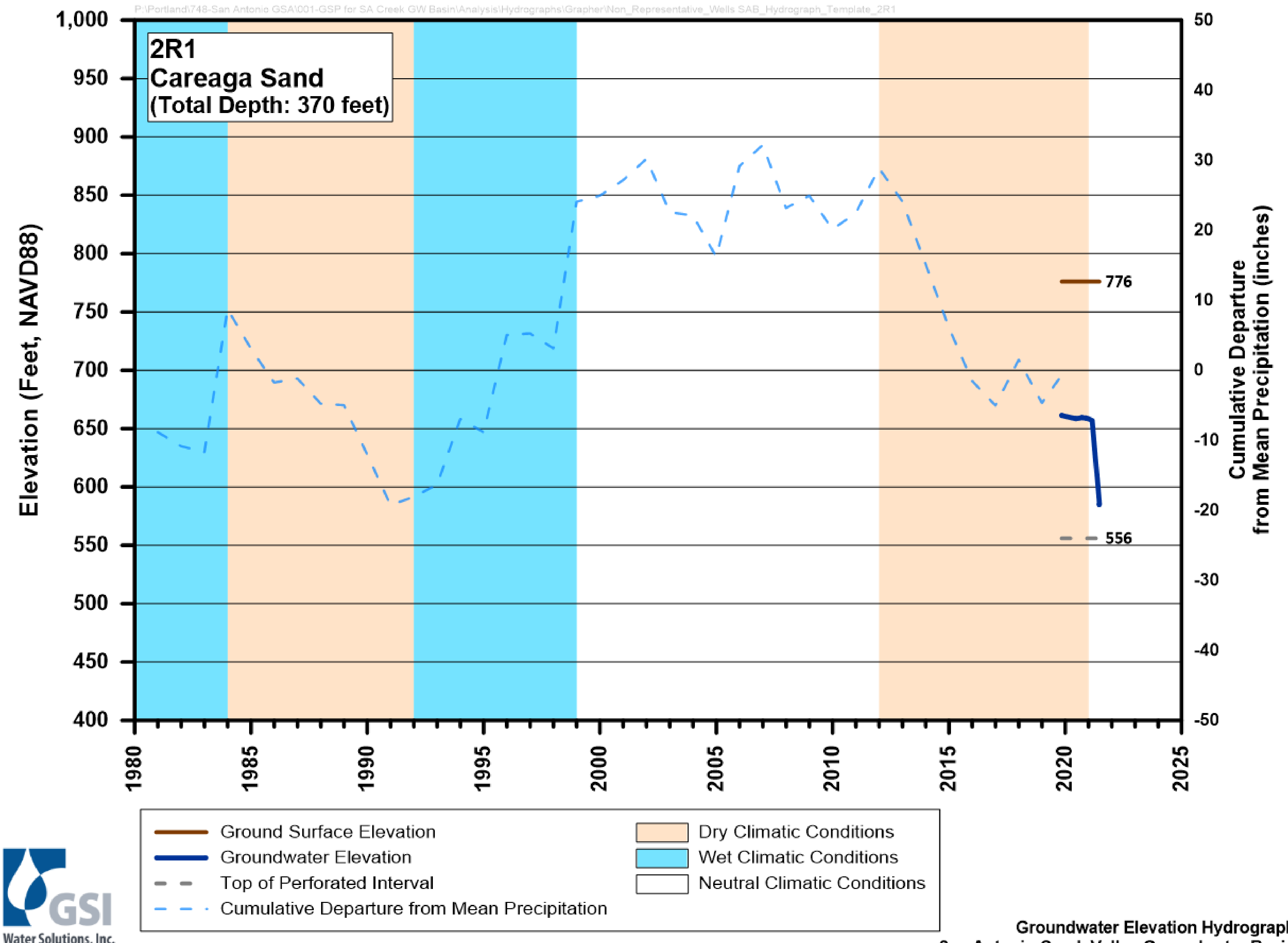
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

Careaga Sand

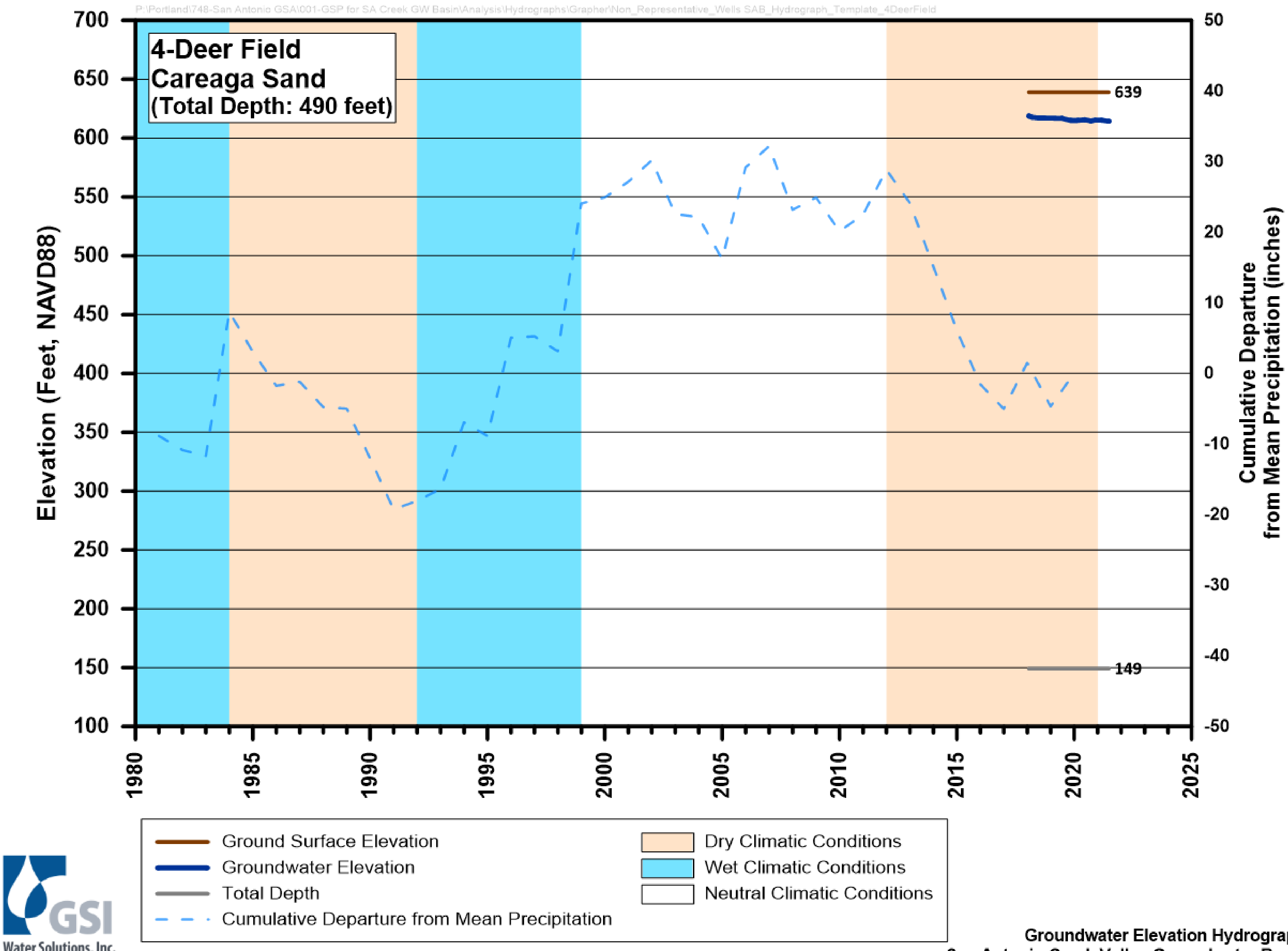


GSI Water Solutions, Inc.

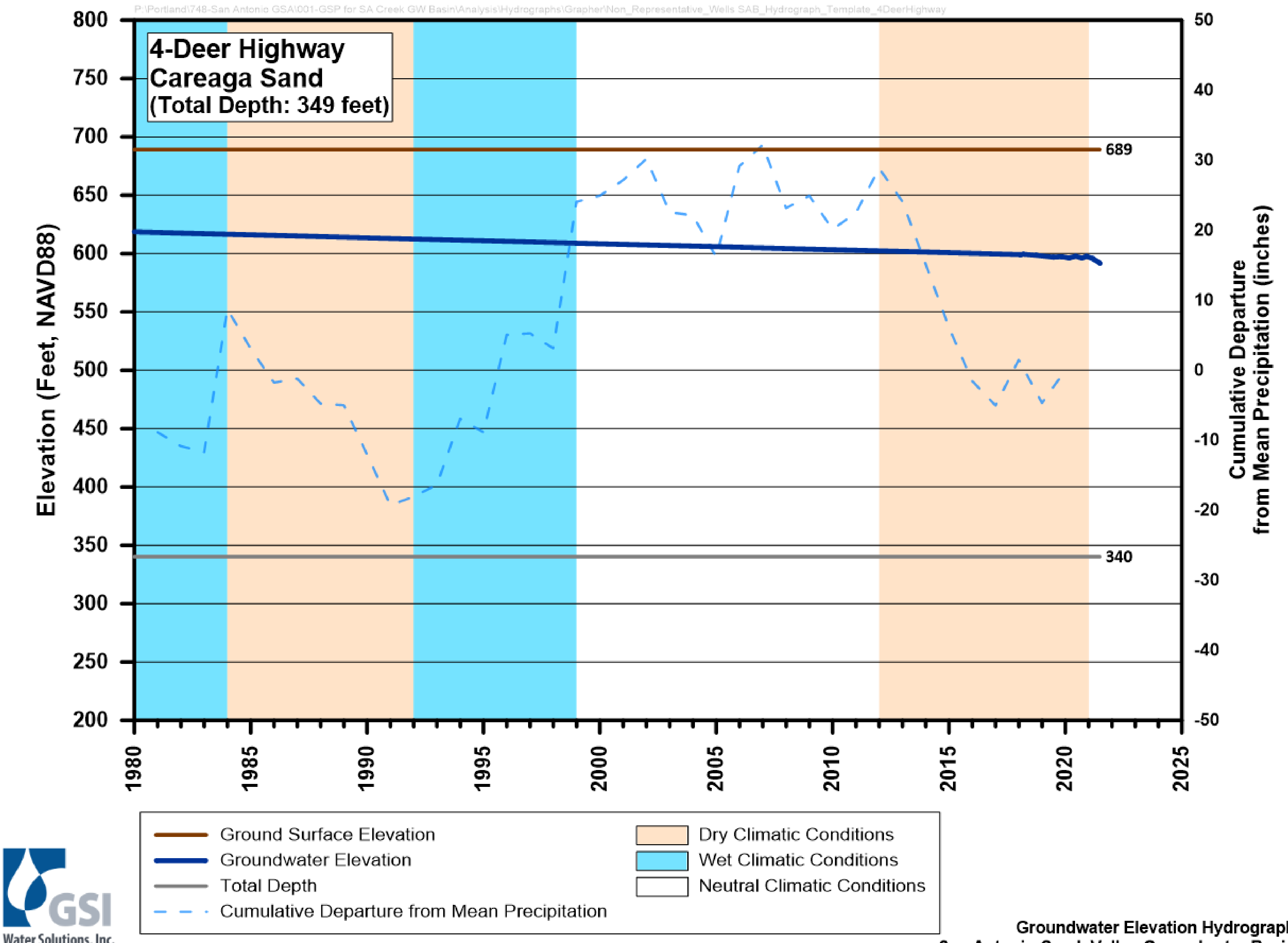
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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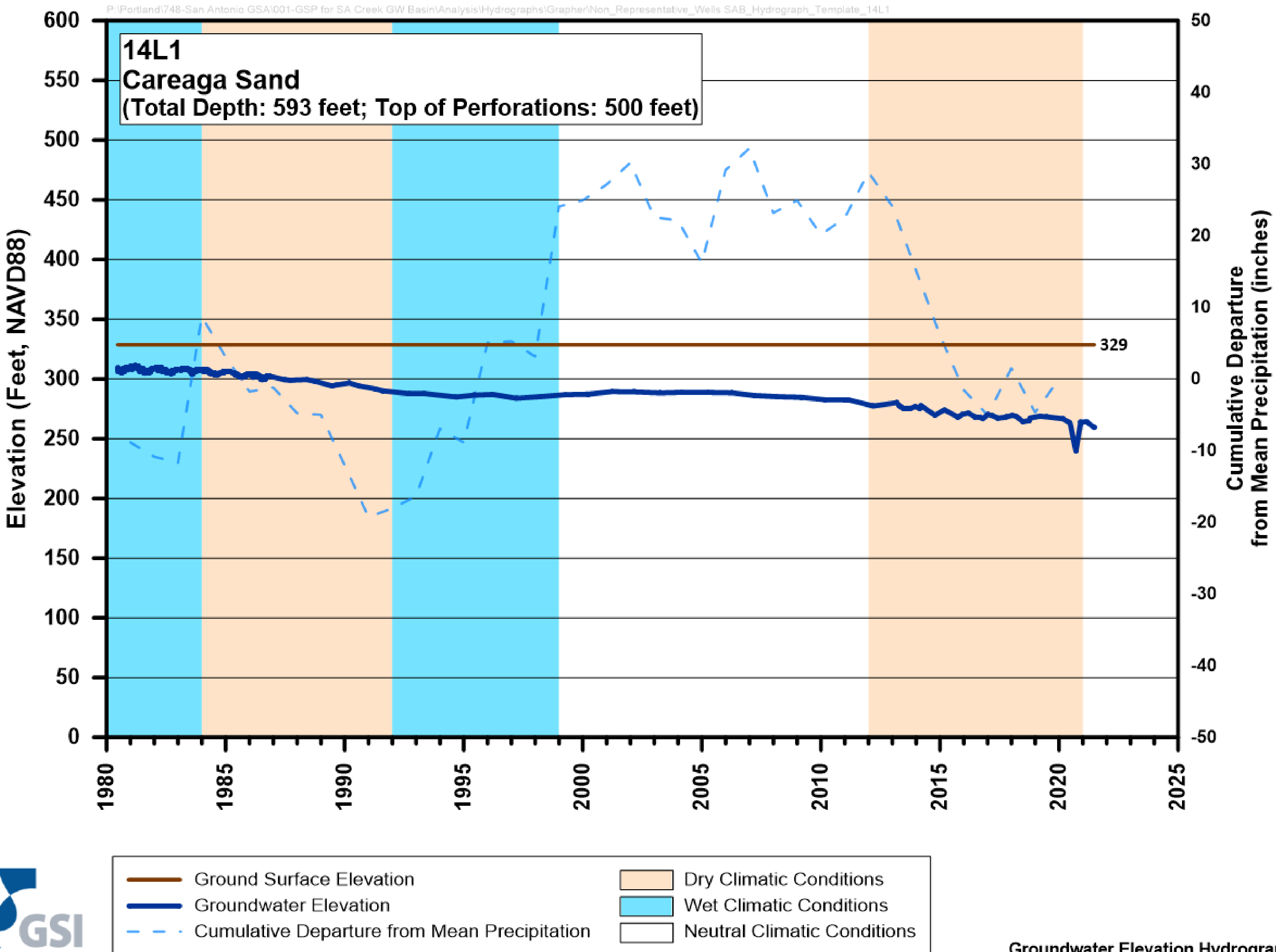
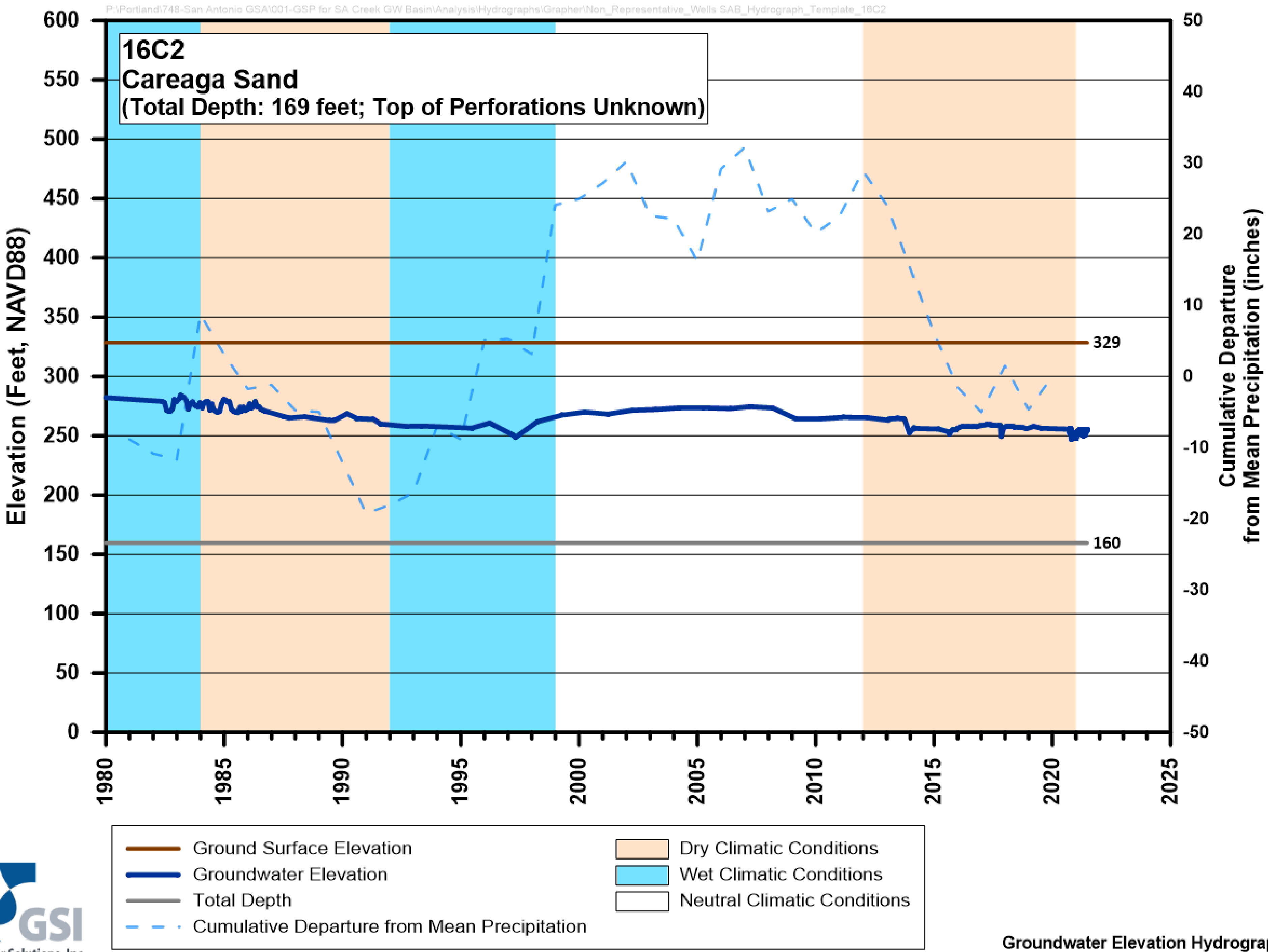
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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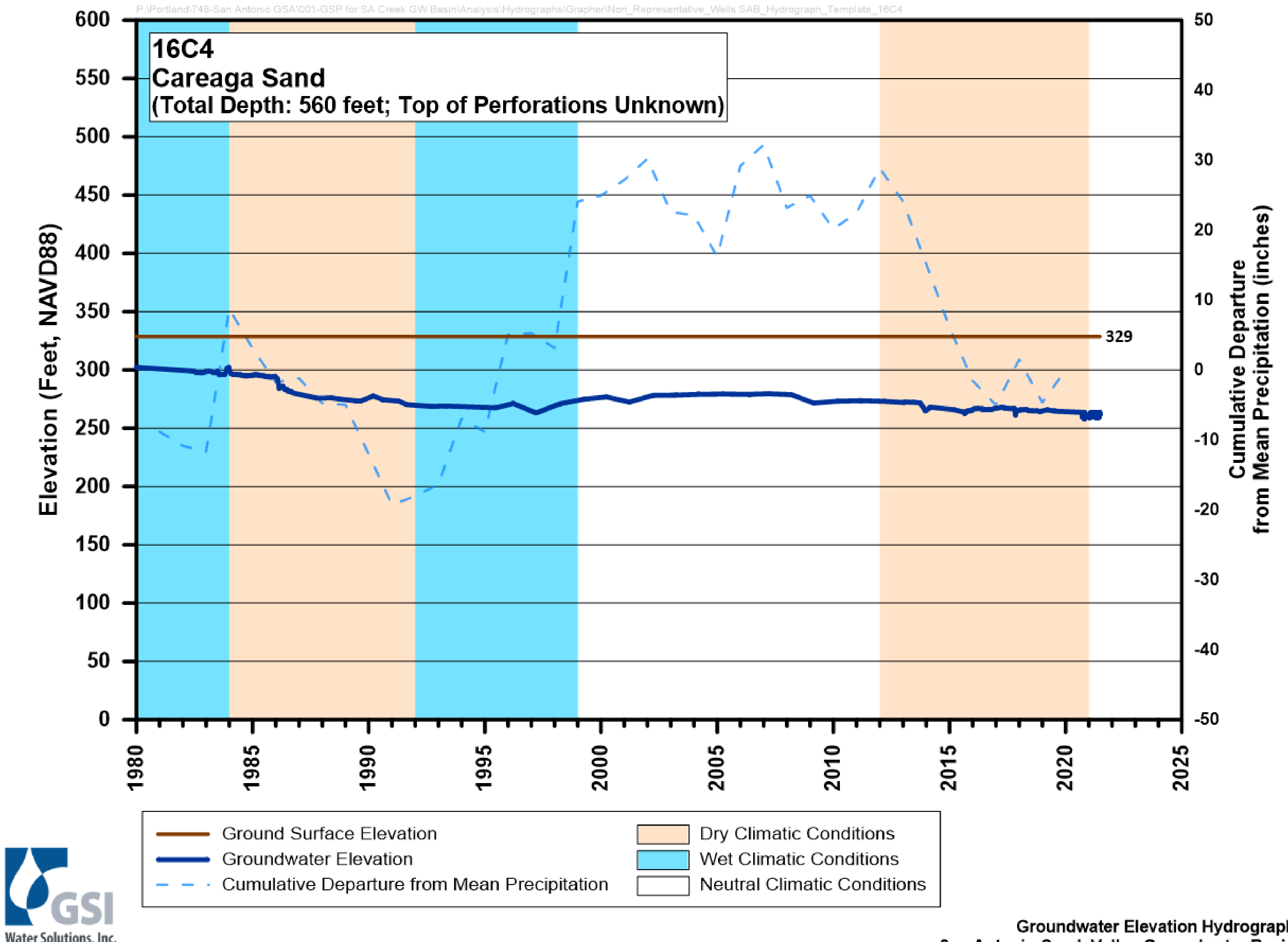
San Antonio Creek Valley Groundwater Basin



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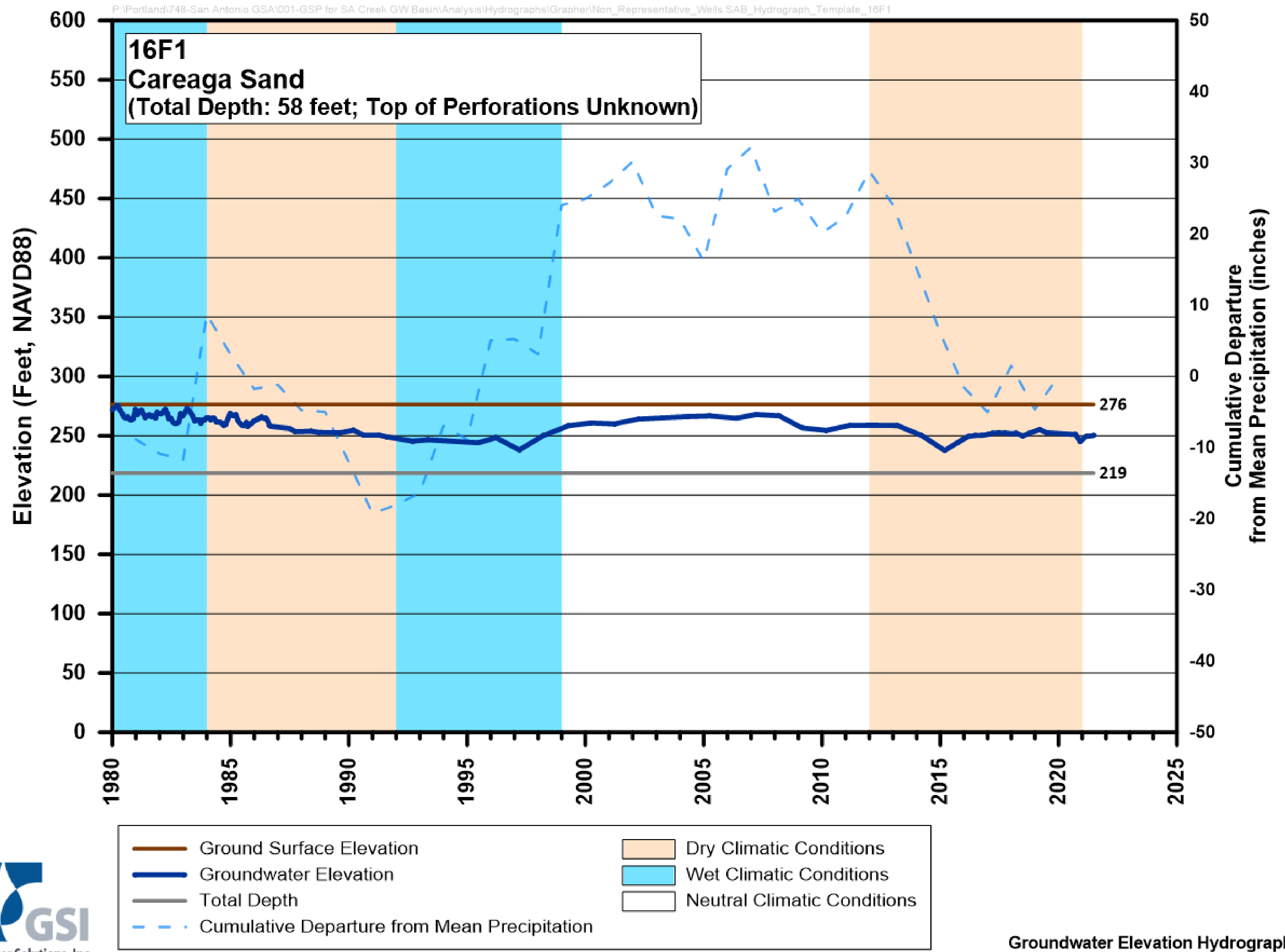
San Antonio Creek Valley Groundwater Basin



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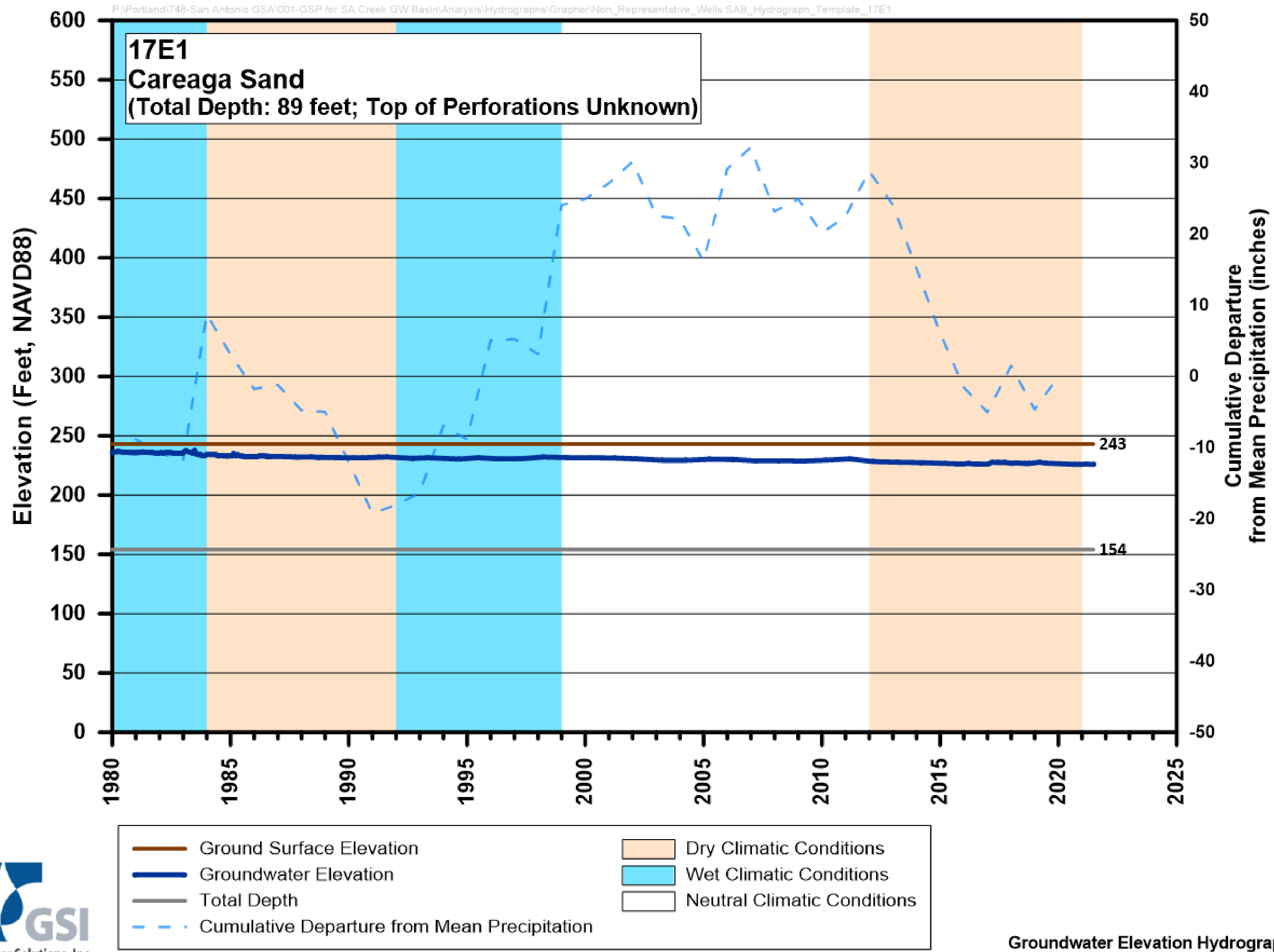
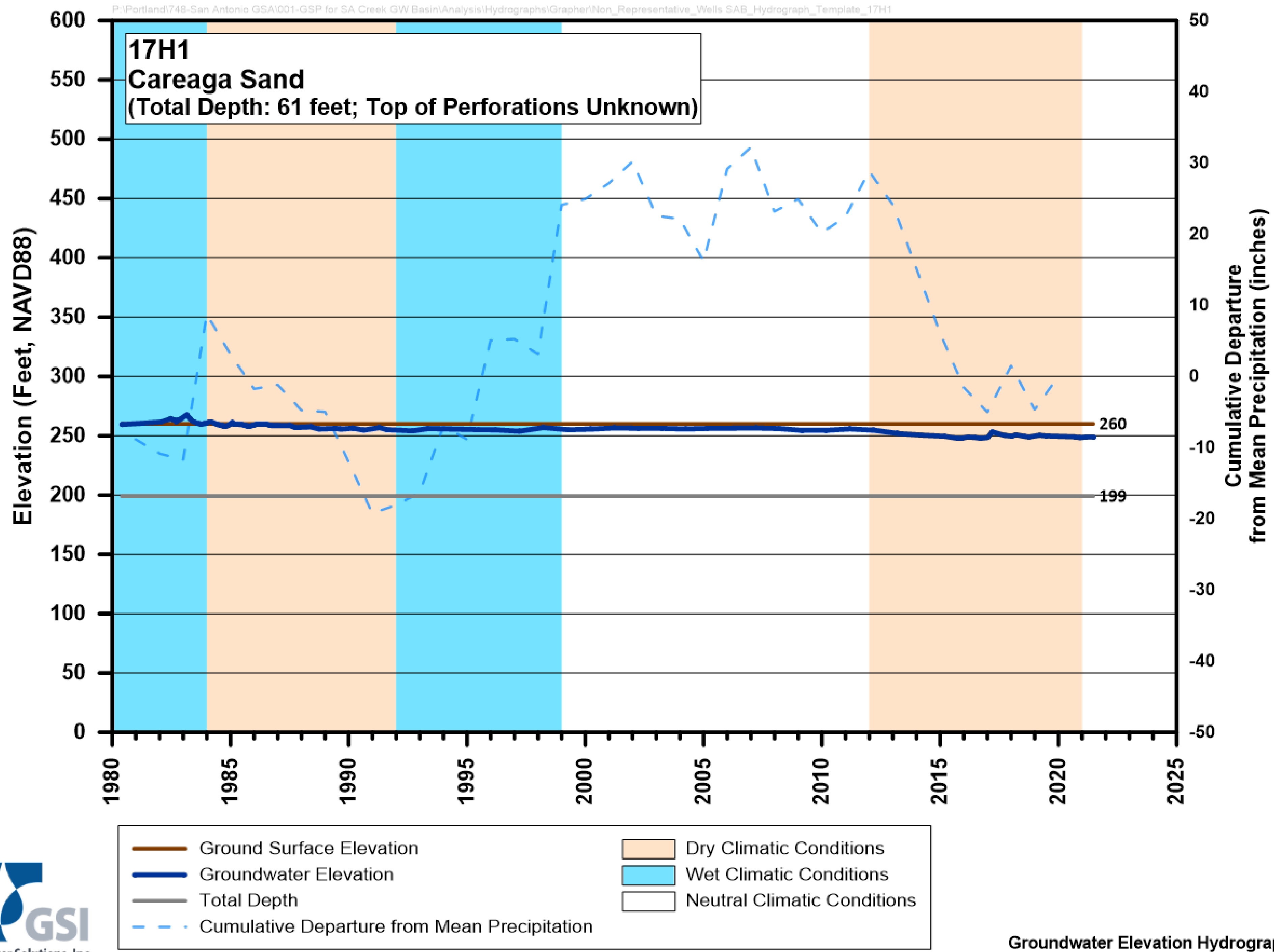
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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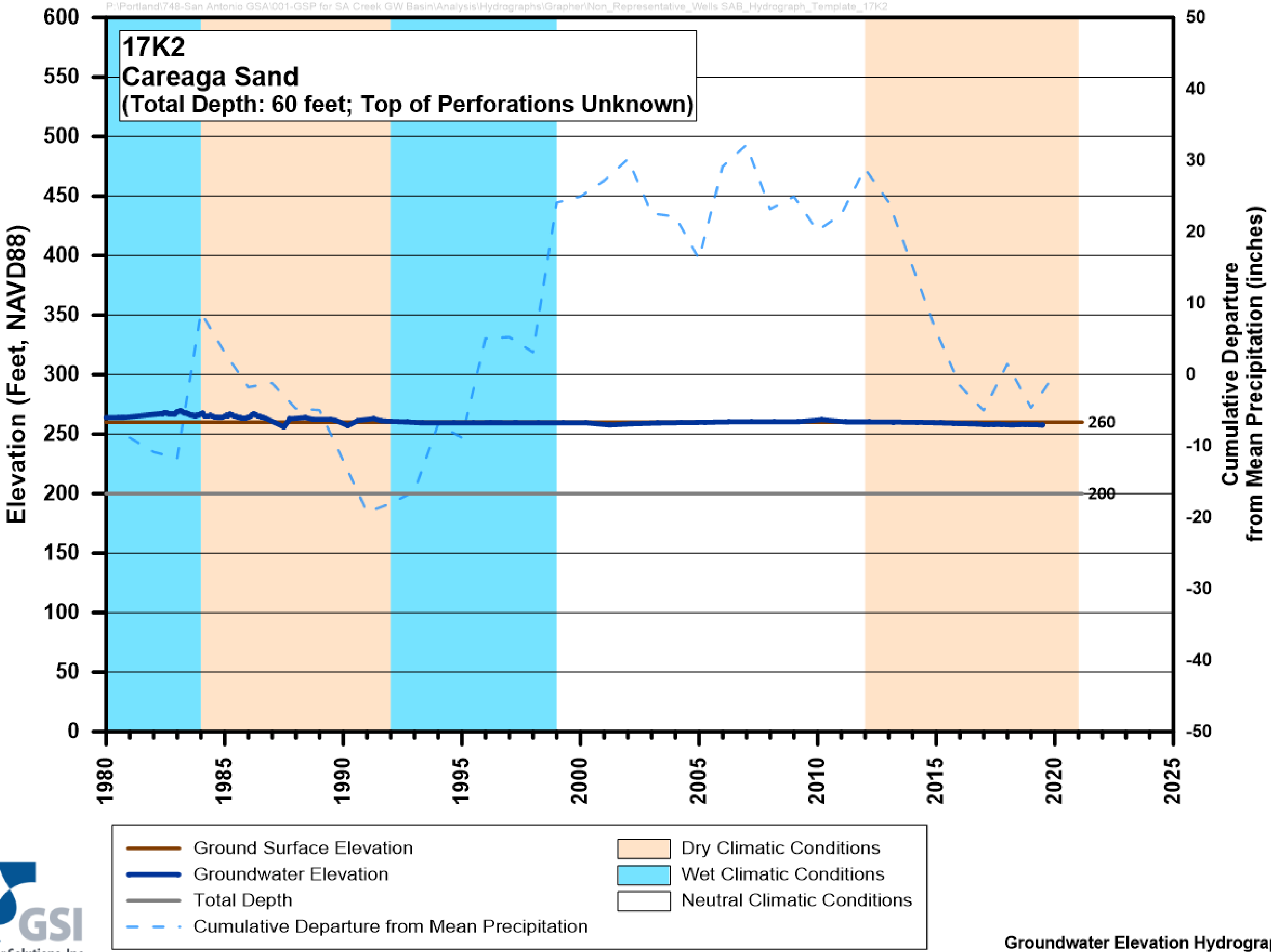
San Antonio Creek Valley Groundwater Basin



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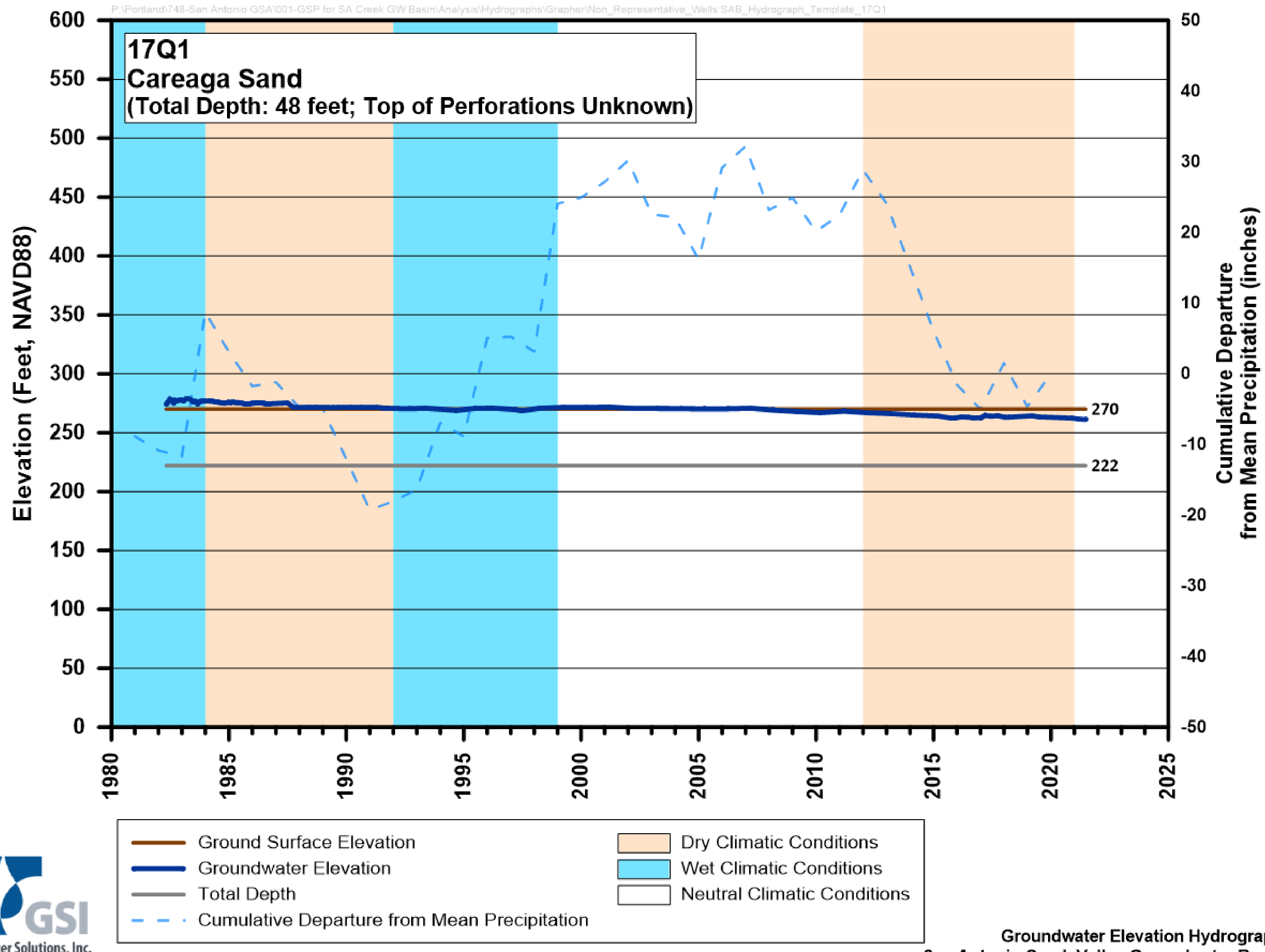
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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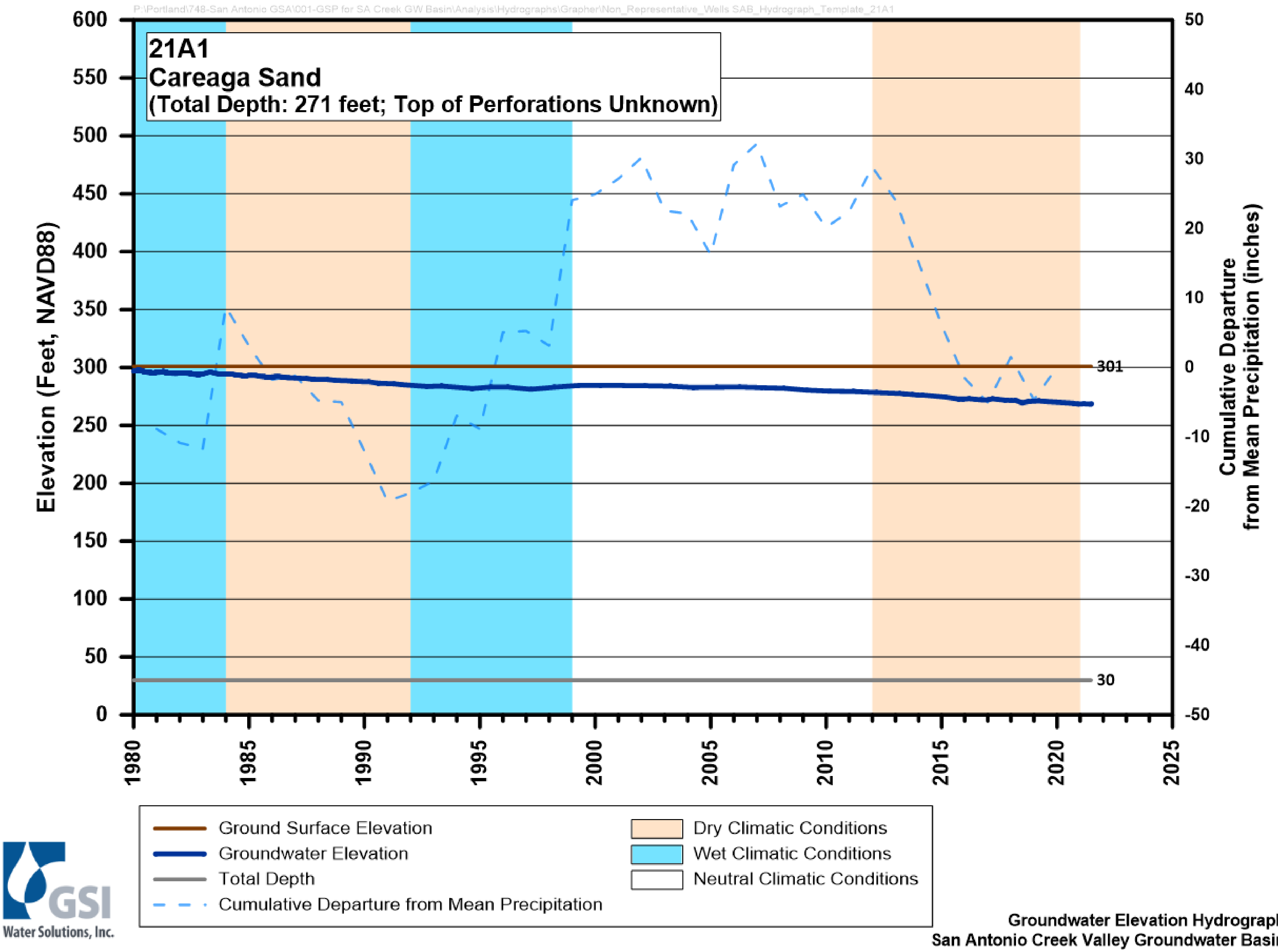
San Antonio Creek Valley Groundwater Basin



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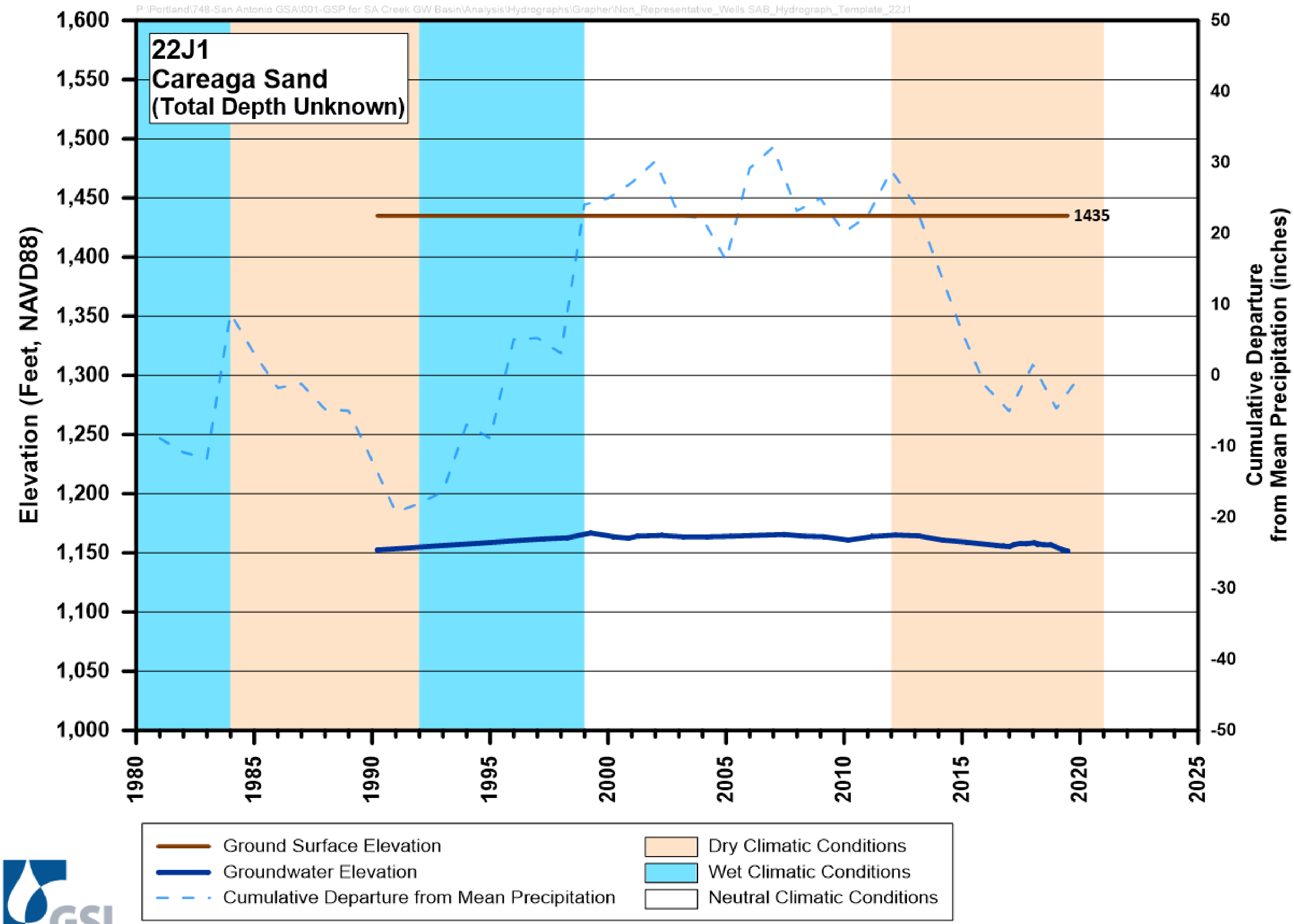
San Antonio Creek Valley Groundwater Basin



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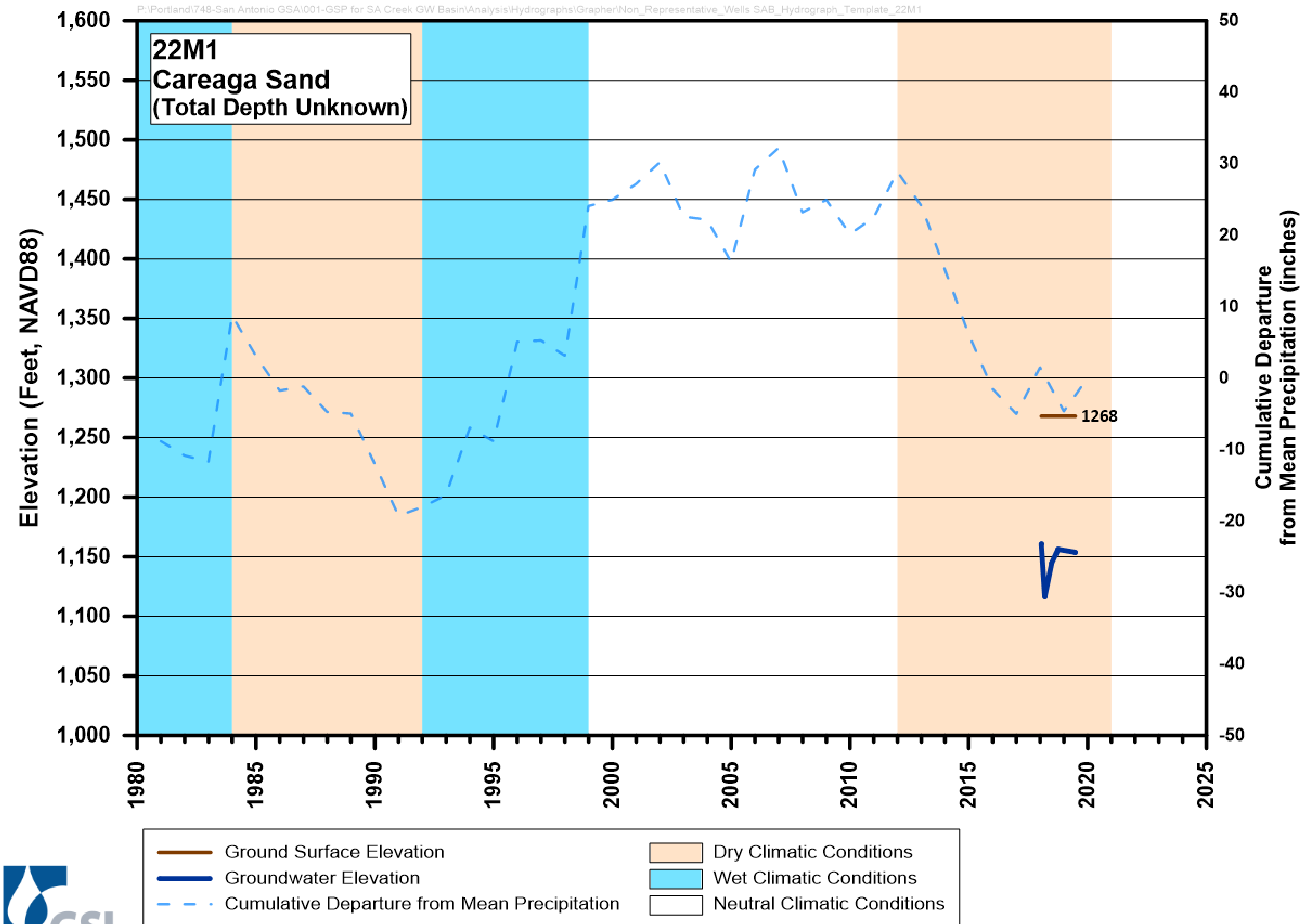
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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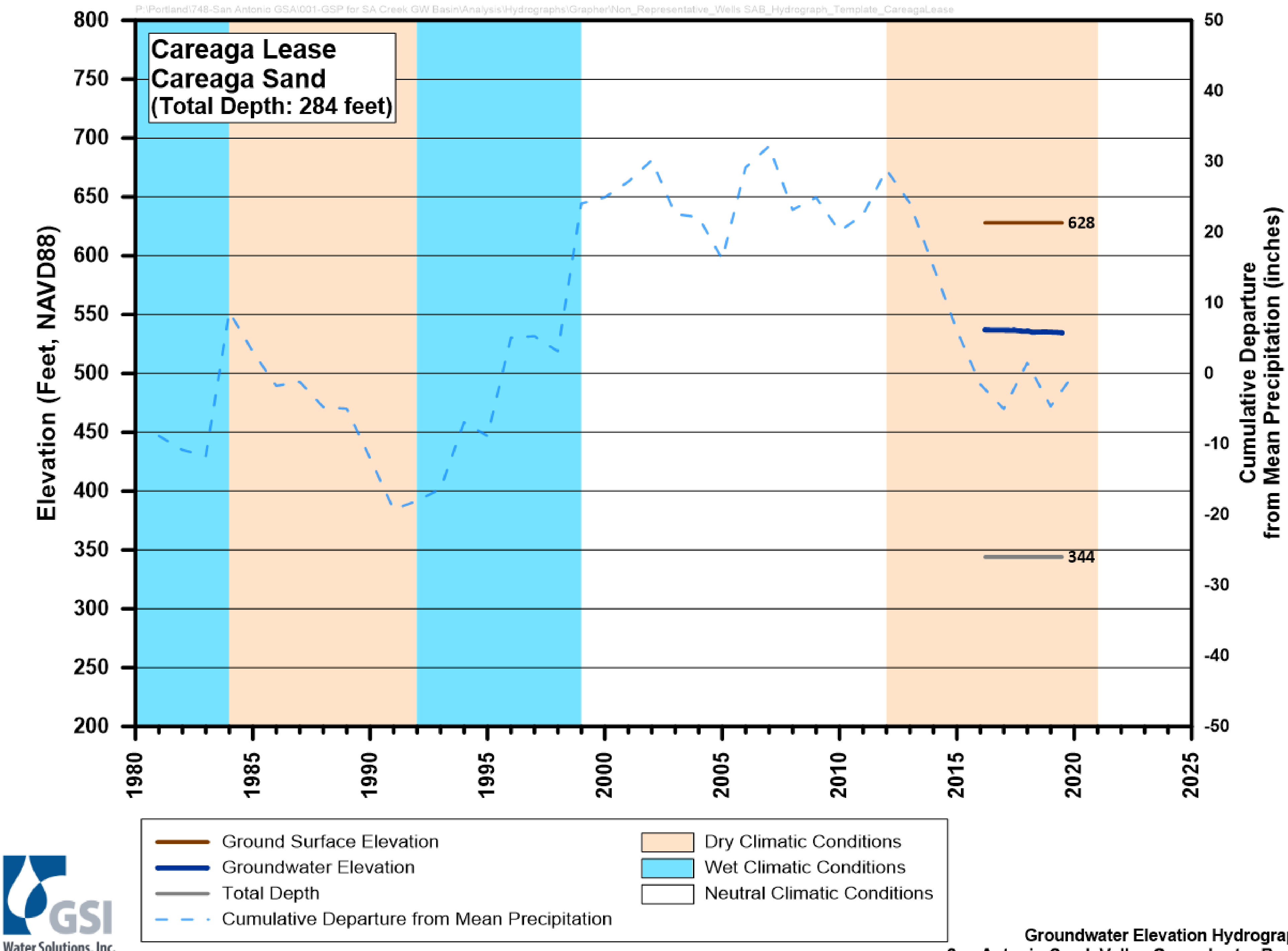

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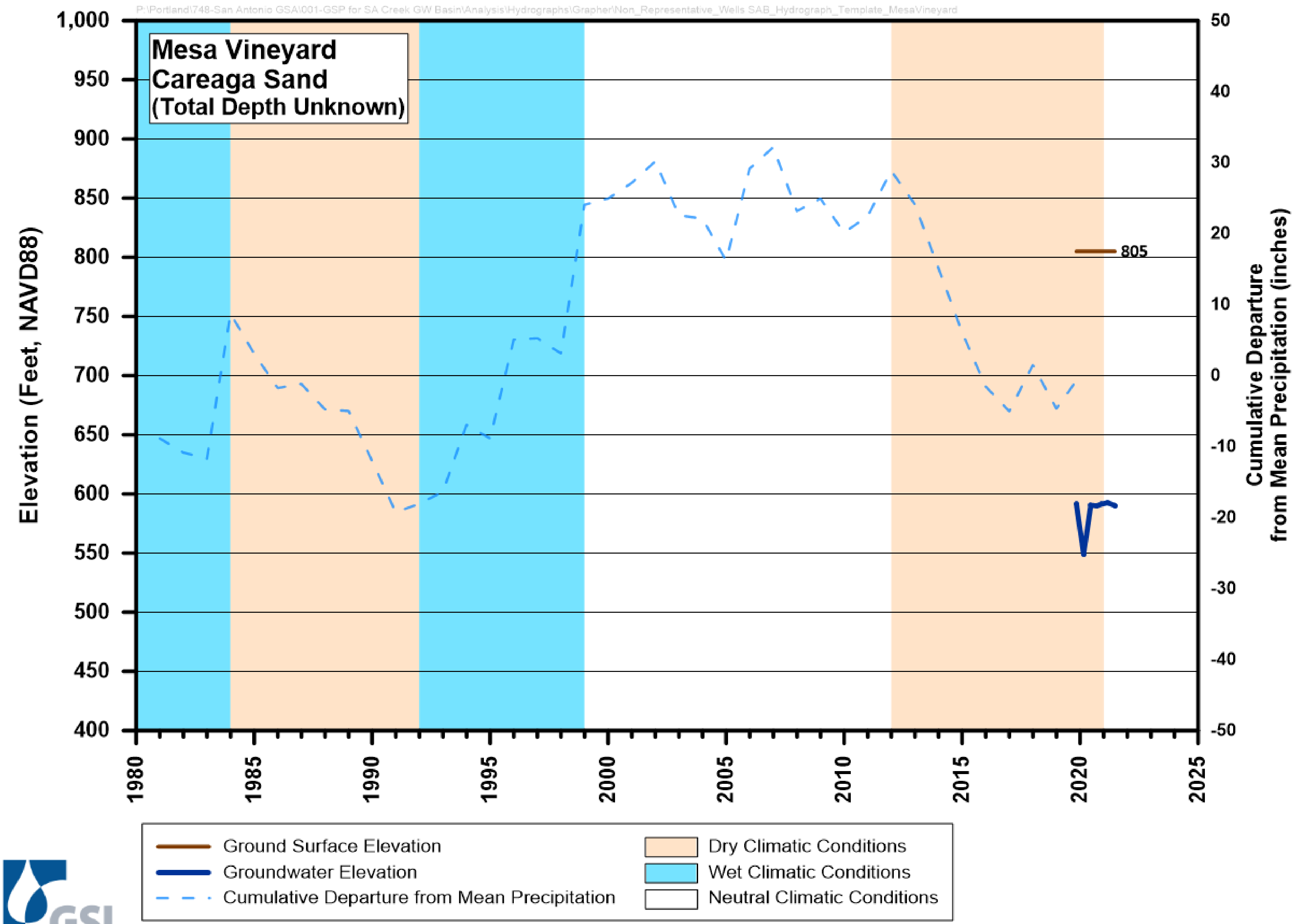
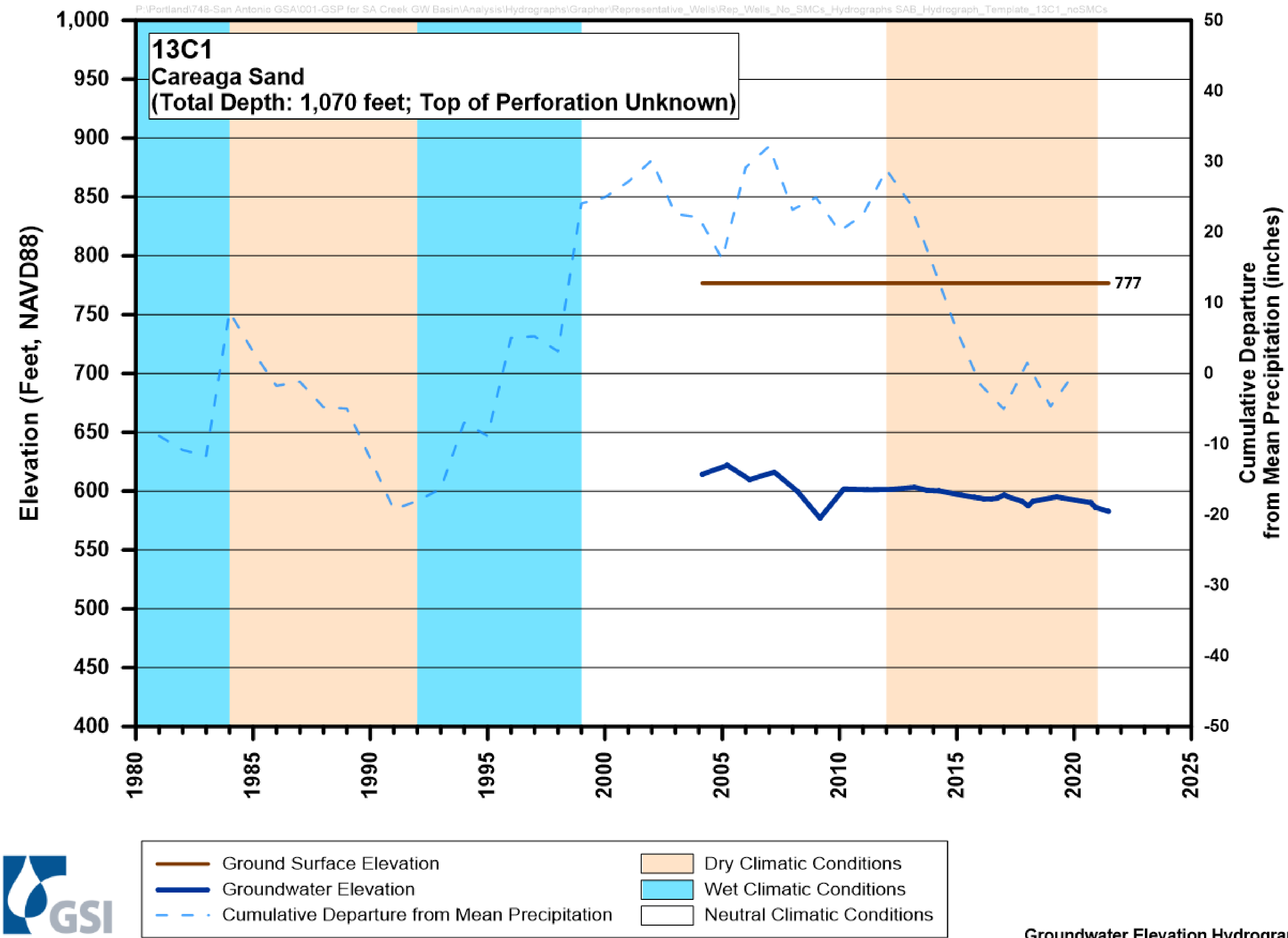
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

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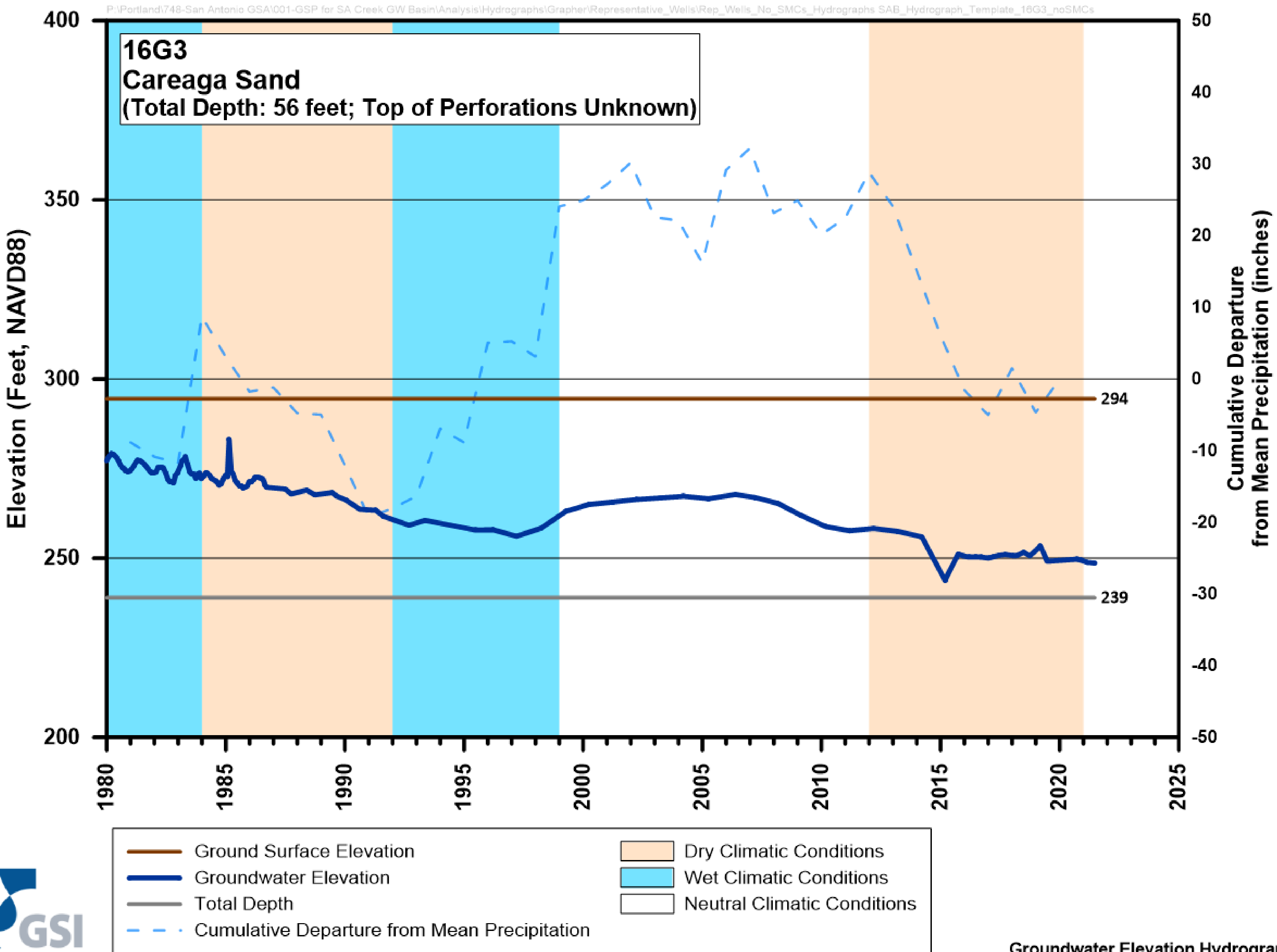
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

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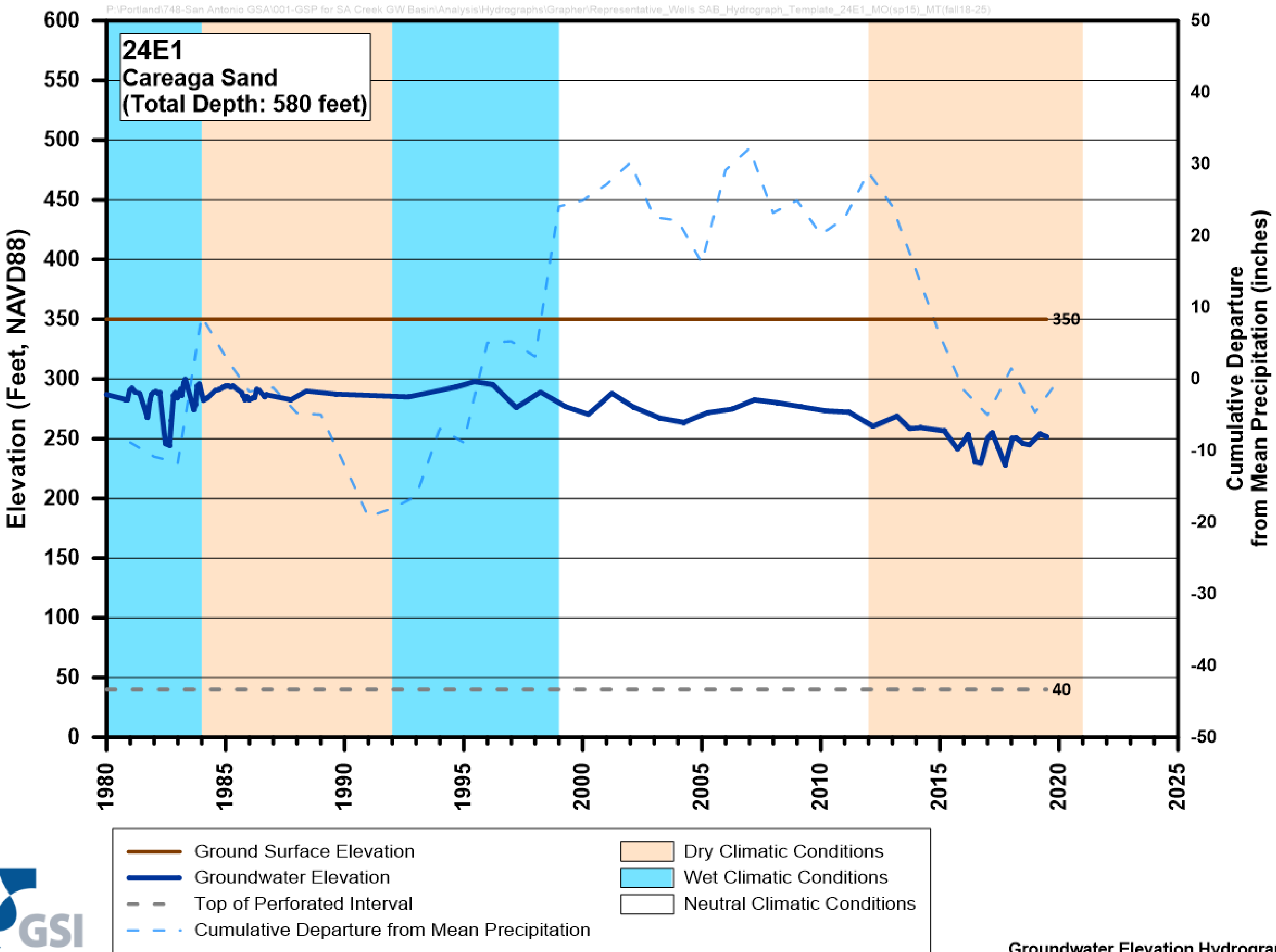
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

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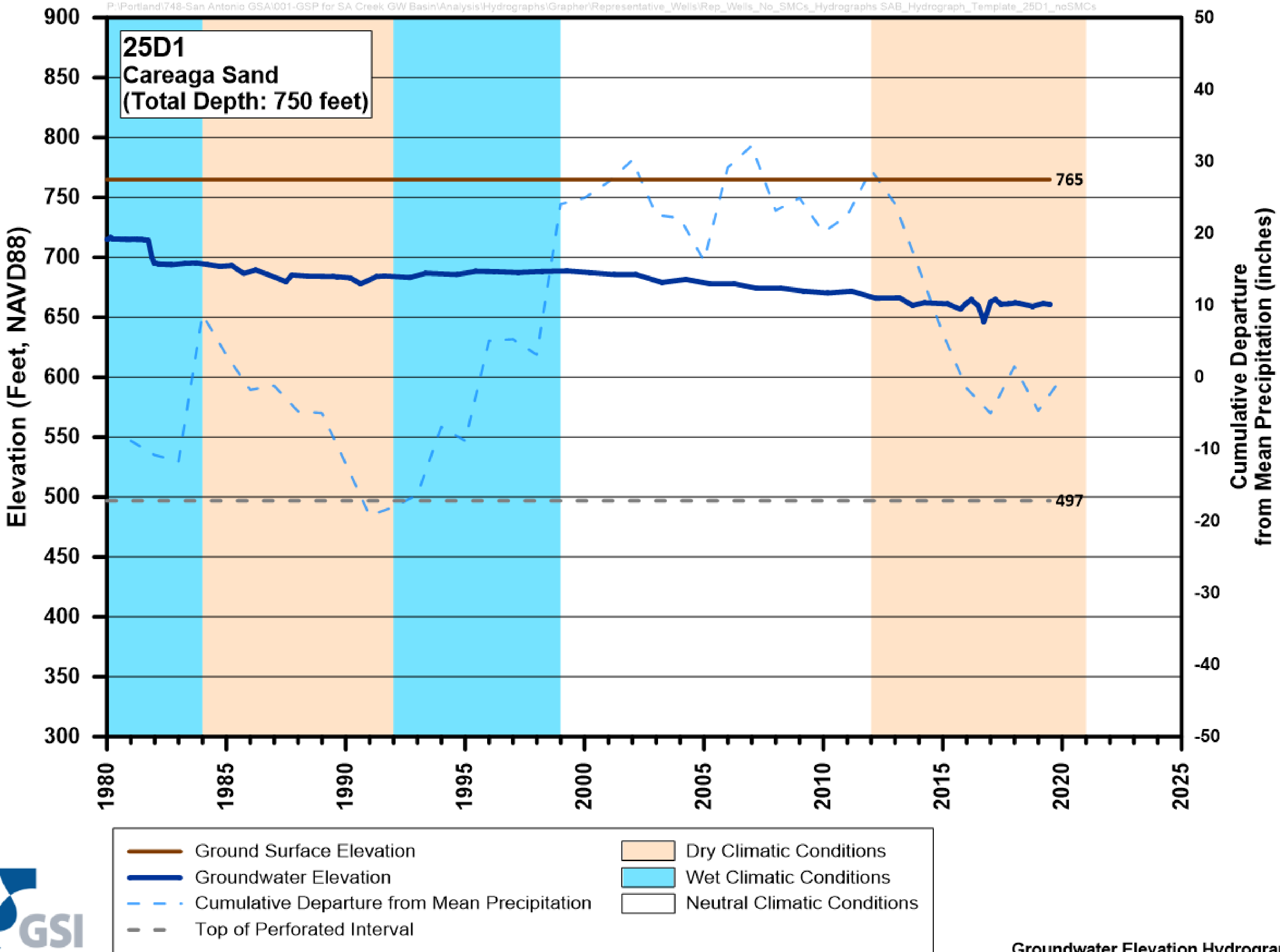
San Antonio Creek Valley Groundwater Basin



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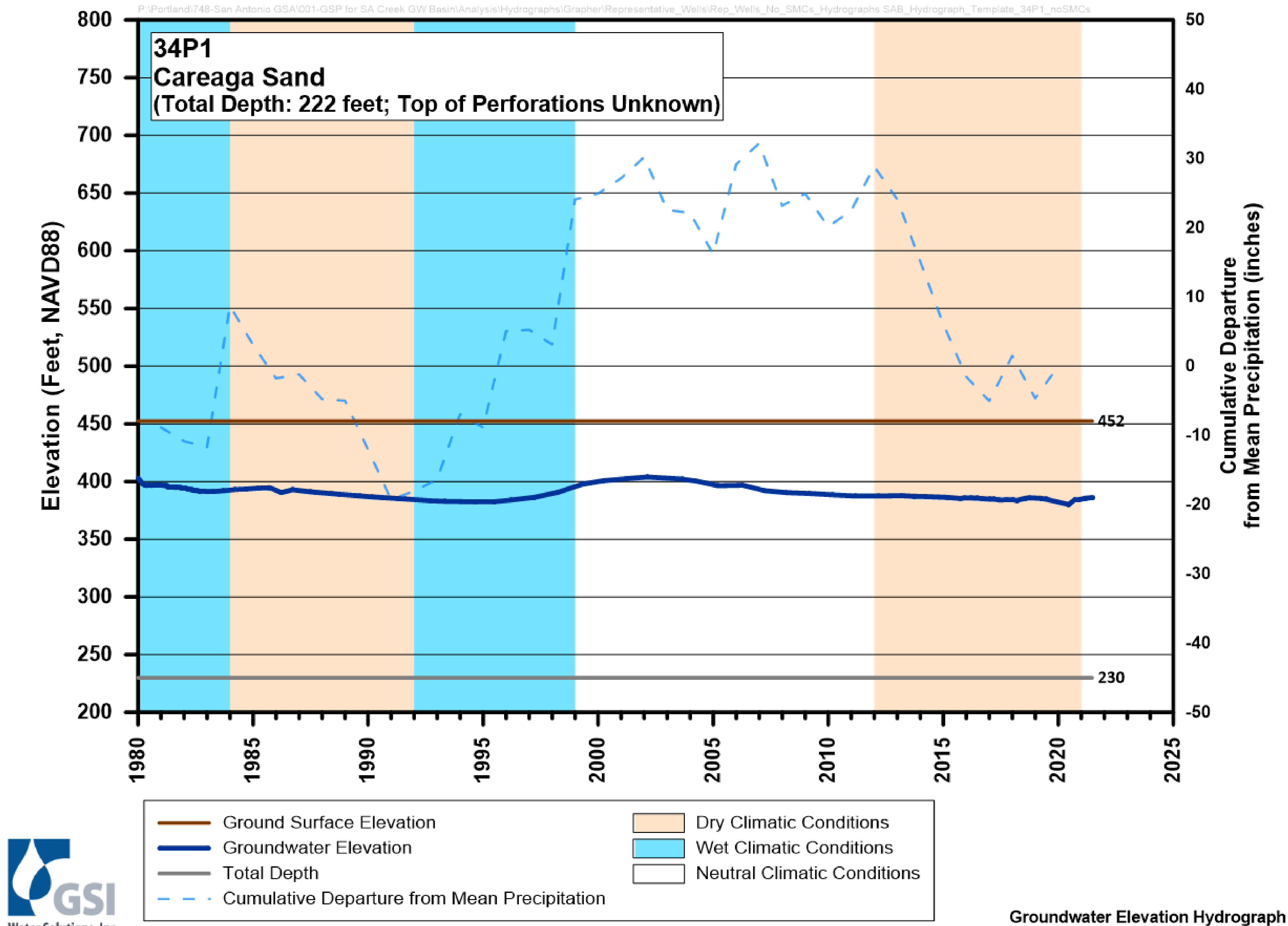
San Antonio Creek Valley Groundwater Basin



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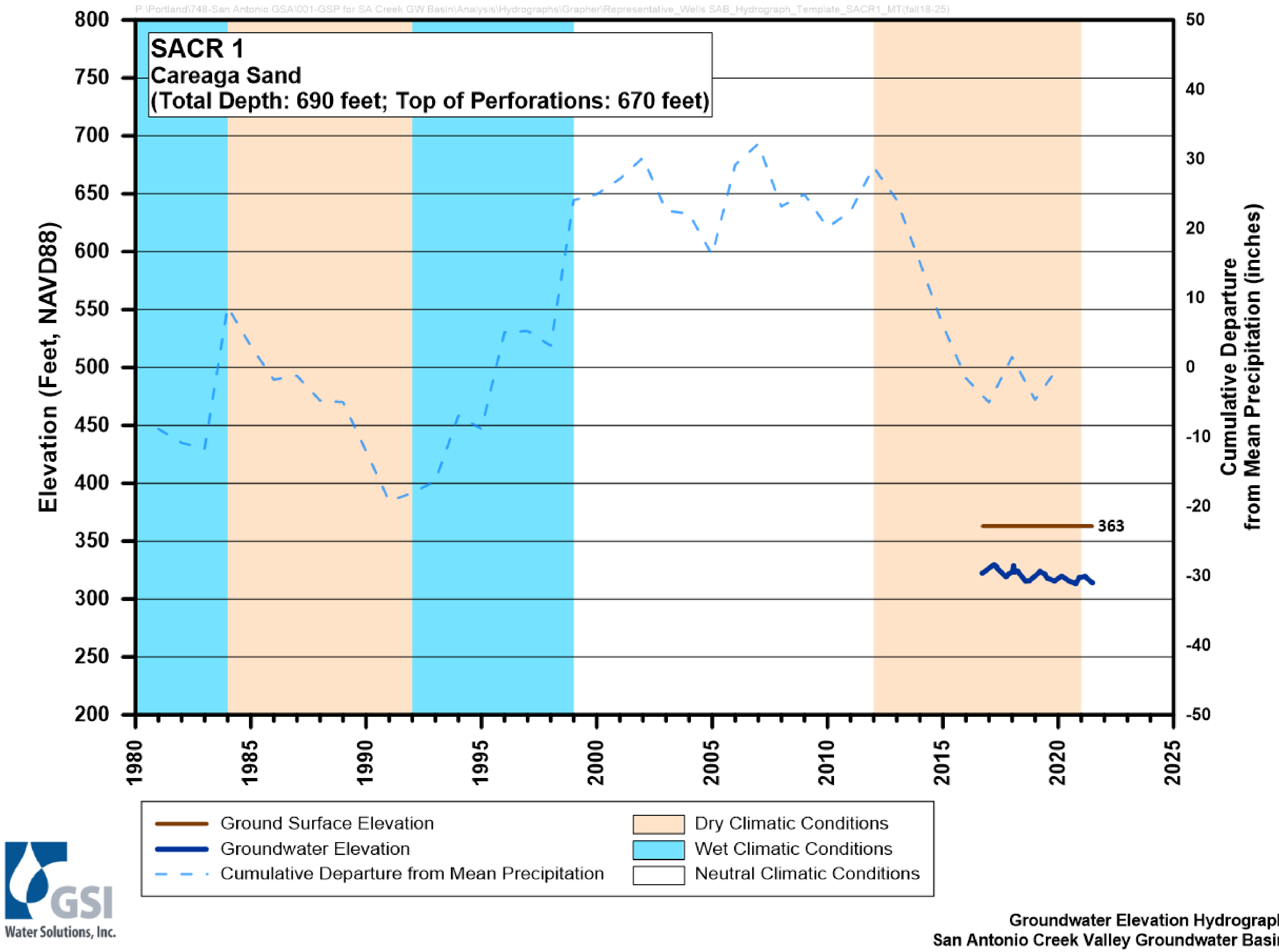
San Antonio Creek Valley Groundwater Basin



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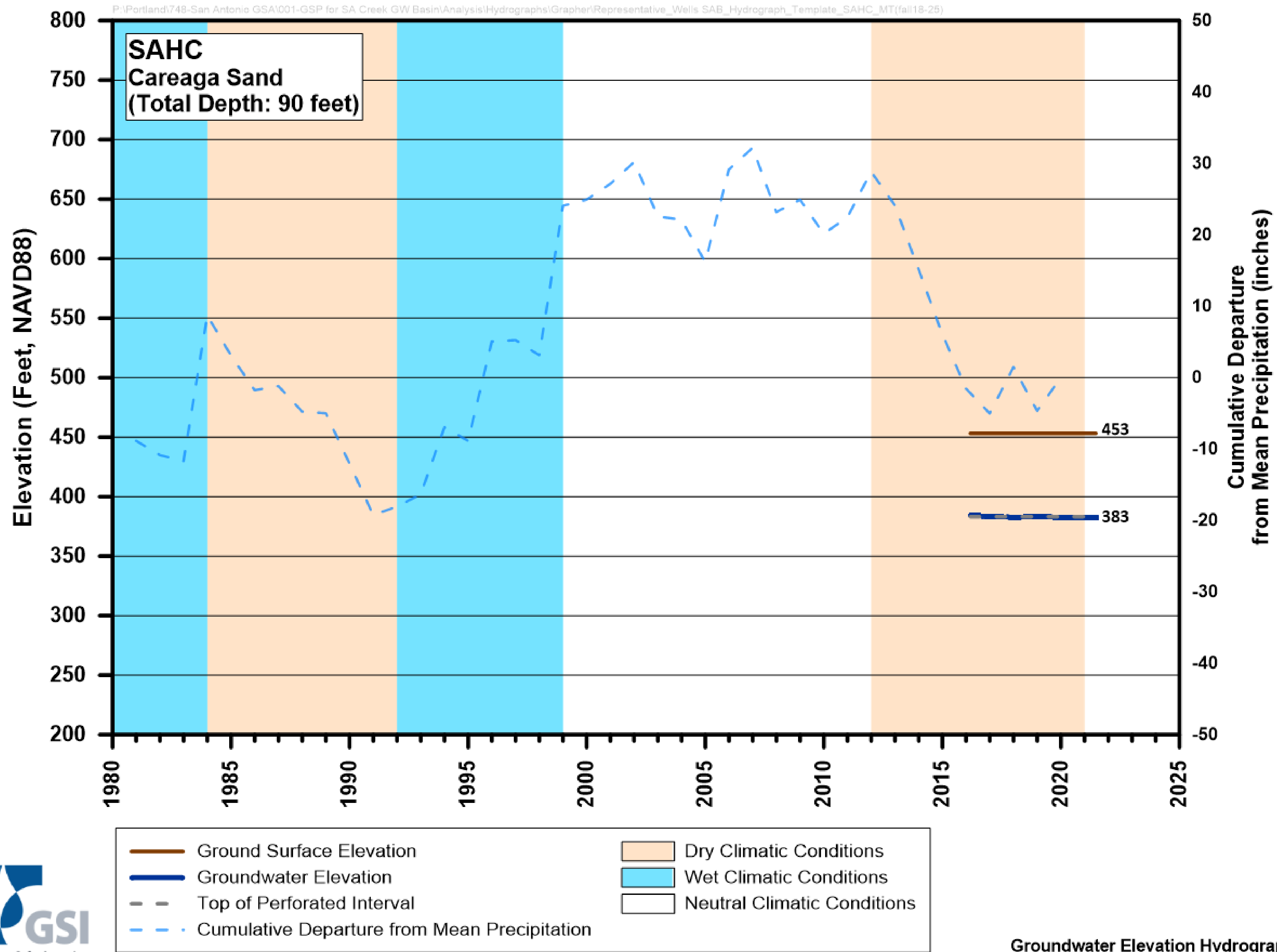
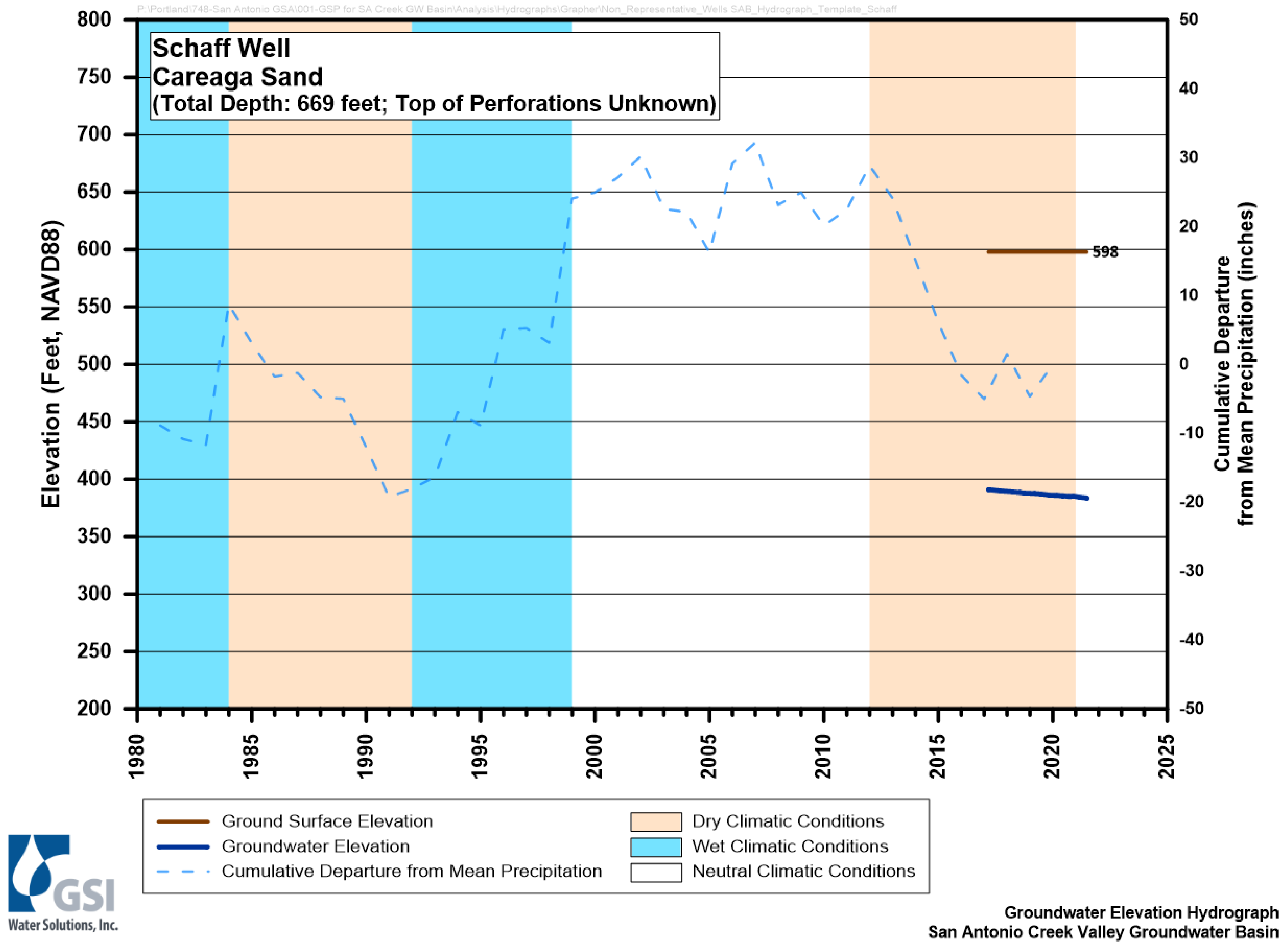
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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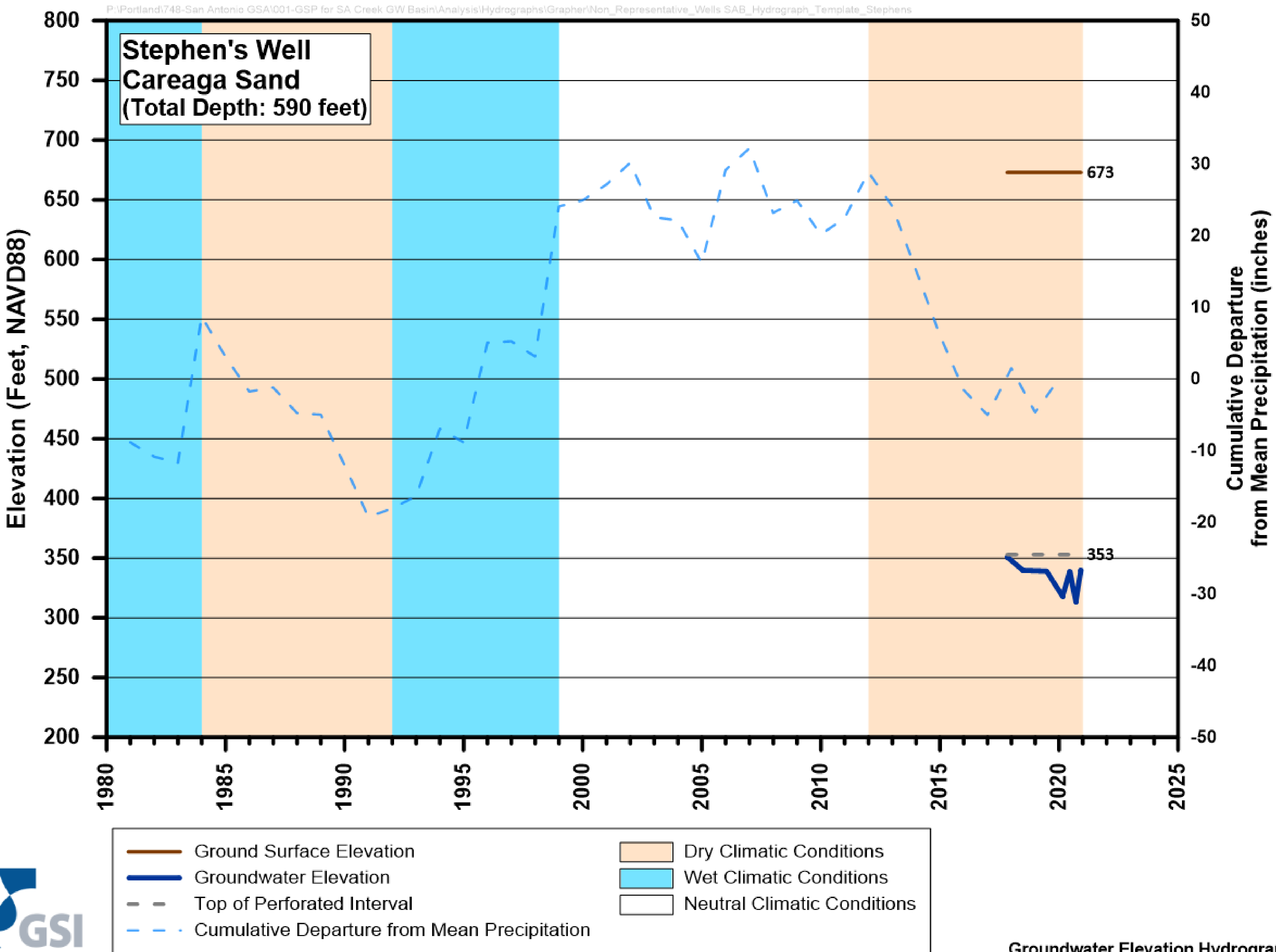
San Antonio Creek Valley Groundwater Basin



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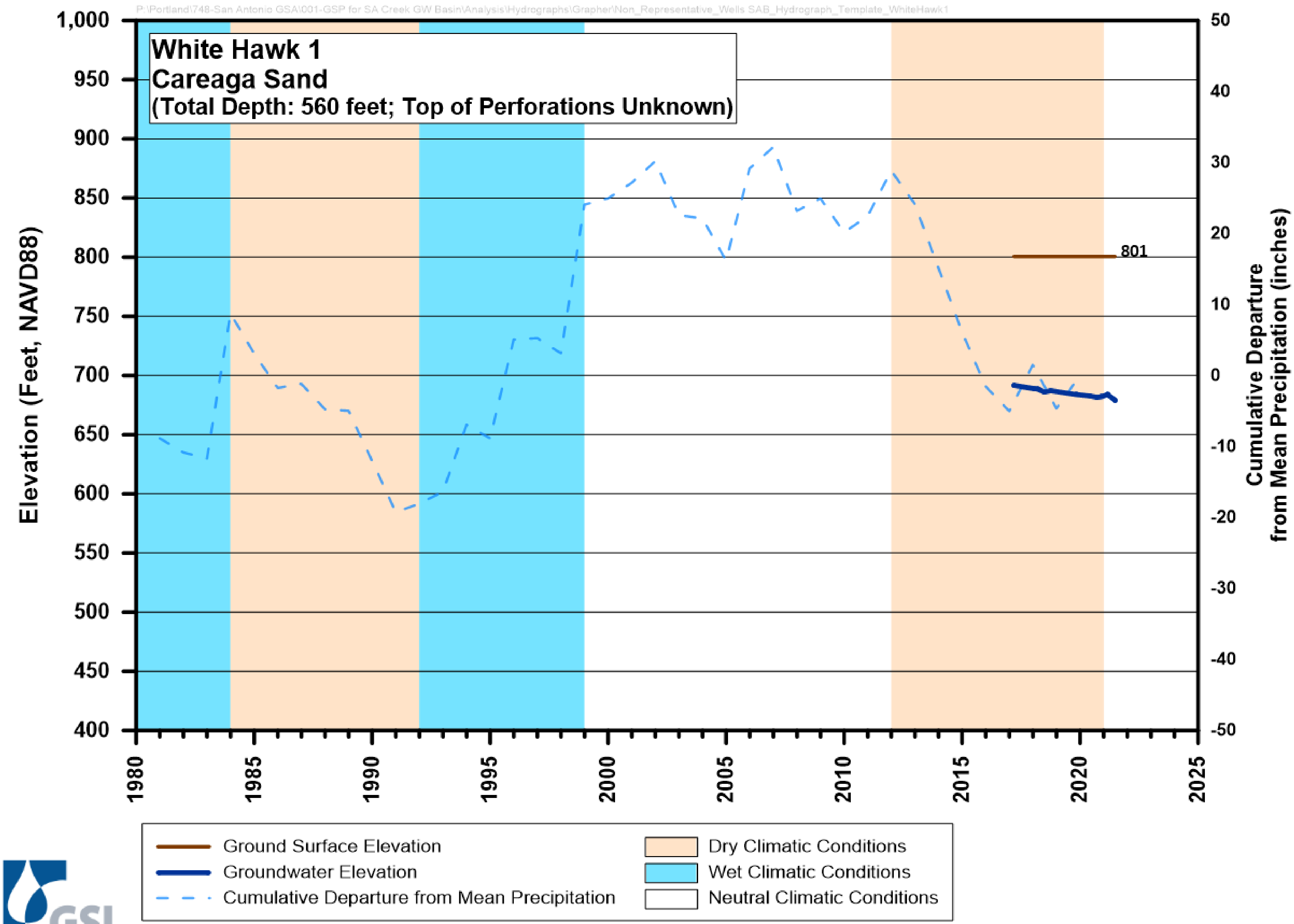
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



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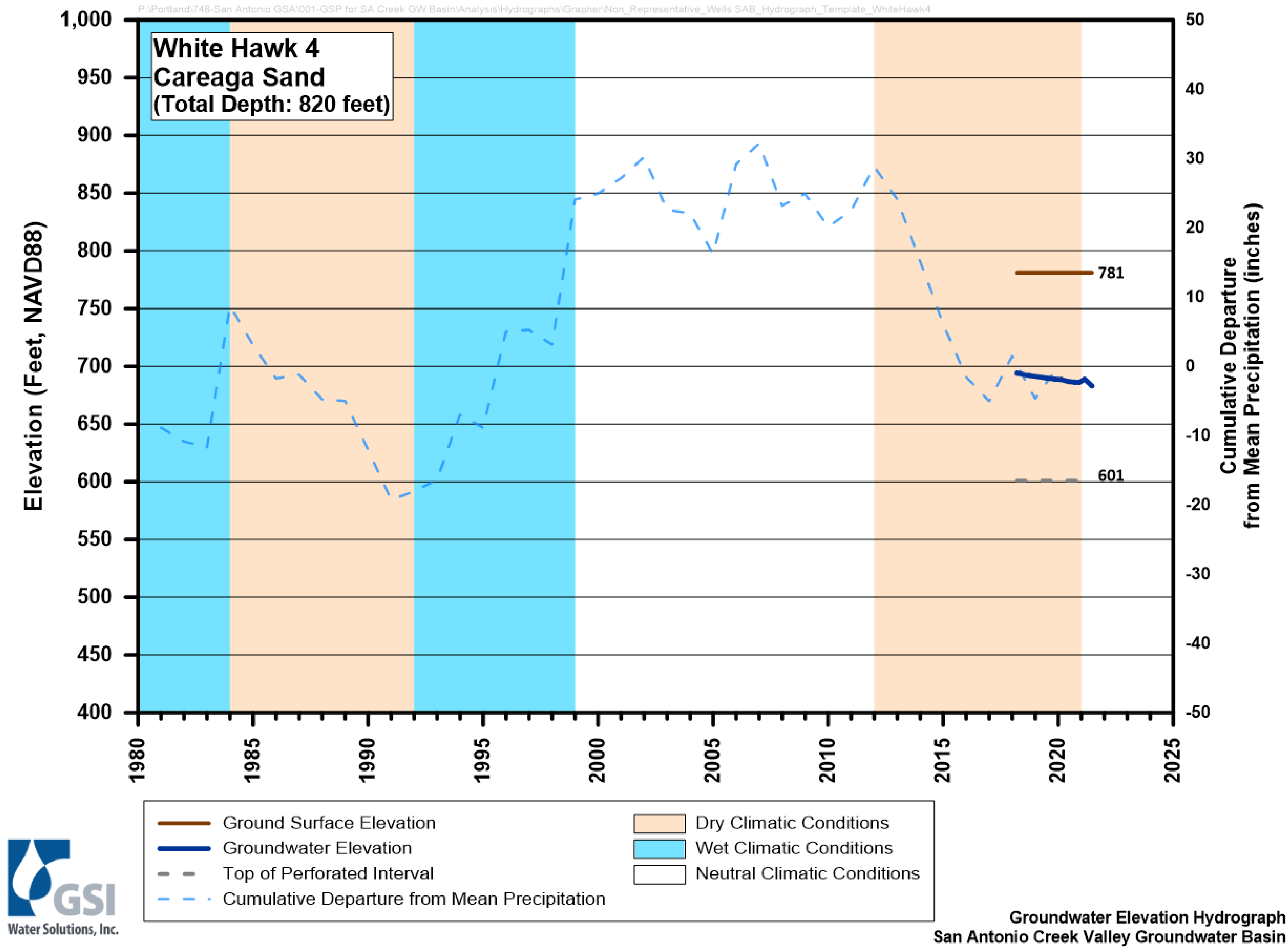
Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

APPENDIX D-6

Preliminary Subsidence Evaluation, San Antonio Creek Basin GSP

Technical Memorandum

To: Mr. Jeff Barry, GSI Water Solutions, Inc.

From: Michael Cornelius, PG
Joseph de Larios, PE, GE
Nicholas Paull, EIT

c:

Date: May 17, 2021

Re:
Preliminary Subsidence Evaluation
San Antonio Creek Basin GSP
Santa Barbara County, California
GEI Project No. 2100279

As requested by GSI Water Solutions, Inc. (GSI), GEI Consultants, Inc. (GEI) performed a preliminary evaluation of potential subsidence within the San Antonio Creek Valley Groundwater Basin (SAB). The groundwater basin in located in northwestern Santa Barbara County, California.

The purpose of the preliminary evaluation is to assess the range of possible long-term ground surface elevation changes related to withdrawal of groundwater from the San Antonio Creek groundwater basin. GEI's evaluation of possible long-term subsidence is based on limited information and is therefore a screening-level study for the purpose of assessing relative risk. GEI's scope of services for the preliminary evaluation, which is described in the contract scope document dated January 6, 2021, included:

- Reviewing information regarding land surface elevations and indications that subsidence has occurred in the past.
- Reviewing subsurface geologic information and groundwater level data provided by GSI to assess the general susceptibility of the SAB to experience subsidence as a result of lowering groundwater levels below historical levels.
- Developing stratigraphic profiles from well logs provided by GSI and estimating ranges of possible long-term subsidence that might be expected in the future, based on a simple one-dimensional settlement model, assumed soil parameters, and professional judgement.

This technical memorandum (TM) describes the background, approach, and results of the preliminary subsidence evaluation.

OVERVIEW

Historically, subsidence of land in California has typically been related to excessive groundwater pumping. In sedimentary aquifers, groundwater is pumped from the pore spaces between sand and gravel grains, causing a lowering of pore-water pressure and a corresponding increase in the effective stress in the aquifer. The increased stresses can induce elastic (reversable) and inelastic (permanent) settlement of the ground surface, depending on a number of factors (including the magnitude and duration of groundwater elevation decline). Fine-grained soil materials (e.g., clays) within the aquifer

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Rancho Cordova, CA 95670
916.631.4500

tend to be much more compressible than the coarser-grained materials (sands and gravels). Consequently, the typical causes of land subsidence are related to compression of the finer-grained strata within a given aquifer.

The relationship between groundwater level decline-and-recovery and subsidence is complex. There are time-dependent and non-linear interactions between the various aspects of the aquifer system, such as the variable thicknesses of the soil strata within a given aquifer, time-dependent changes in effective stress (related to lowering and raising of groundwater levels), and variability in the rates and distribution of drainage from the different soil types within the aquifer. If the magnitude and duration of groundwater elevation decline is limited, land subsidence may be elastic (reversable). Otherwise, some inelastic (permanent) subsidence may be induced.

A check of the U.S. Geological Survey (USGS) land subsidence website (USGS, 2021) indicates that the San Antonio Creek Valley Groundwater Basin (SAB) is not in a mapped area of ongoing USGS subsidence studies.

The draft Groundwater Sustainability Plan prepared by GSI includes a summary of existing information for long-term changes in ground surface elevation within the groundwater basin (GSI, 2020). The available information is somewhat limited, with elevation data for a specific site within the basin (a monitoring station in the town of Los Alamos) going back to the year 2000 and relative elevation data for the overall basin going back to 2015. The limited UNAVCO CGPS data available within the SAB indicates that ground surface elevations are stable. In addition, in the data that we reviewed, GEI did not find any reports indicating observations of ground deformation attributed to subsidence within the SAB.

PRELIMINARY EVALUATION OF SUBSIDENCE POTENTIAL

The subsurface geologic information and groundwater level data provided by GSI to GEI was reviewed and the general susceptibility of the SAB to experience subsidence as a result of lowering groundwater levels below historical levels was assessed. The selection of data, the approached used for the first-order estimates of subsidence, and the limitations and uncertainties of the subsidence estimates are discussed below.

> *§354.16 Groundwater Conditions. Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following: (e) The extent, cumulative total, and annual rate of land subsidence, including maps depicting total subsidence, utilizing data available from the Department, as specified in Section 353.2, or the best available information.*

GEI performed a screening-level, preliminary evaluation of the potential for ground surface subsidence within the basin. Our preliminary evaluation included developing stratigraphic profiles from well logs provided by GSI and estimating ranges of possible long-term subsidence that might be expected in the future. There is limited data on the historic groundwater levels across the SAB (GSI, 2020). Most hydrographs (groundwater elevation data plots) made available to GEI extend back less than 10 years. In addition, there is limited information on the geotechnical conditions within the SAB aquifers (i.e., no site-specific data on the geotechnical properties or engineering parameters).

Our preliminary evaluation focused on two locations within the basin for which there are recorded groundwater elevations extending back several years. A map showing the locations of the wells and copies of the well logs are included in Attachment A. Locations analyzed:

Well ID	**LACSD6**	**SACR 1-4**
Coordinates:	34.7447083 -120.2797861	34.7588888 -120.39416666
Estimated Ground Surface Elevation (GSE), feet (estimated from Google Maps):	578	375
Source of Historic Water Level Data:	LACSD5 (2003 to 2018)	20Q2 (1965 to 2018)*

* Water levels from 20Q2 were adjusted to account for the GSE difference between 20Q2 and SACR 1-4 (405 feet and 375 feet, respectively).

The hydrograph from the first location (LACSD5) indicates that the groundwater level at that location has dropped about 55 feet since 2010. For the second location (SACR 1-4) the closest hydrograph is for well designated 20Q2, which indicates that groundwater levels in that area have dropped about 65 feet since the 1960s.

To estimate possible ranges of past and ongoing ground surface settlement, GEI used assumed geotechnical parameters (e.g., unit weights, compressibility, stress history), professional judgement, and classical consolidation theory developed by Terzaghi (Holtz et al., 2011):

$$\delta_c = \frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_{zc}}{\sigma'_{z0}}\right) + \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_{zf}}{\sigma'_{zc}}\right)$$

Where:

δ_c = the settlement due to consolidation in a given stratum.
C_c = the compression index.
Cr = the recompression index.
e_0 = the initial void ratio.
H = the height of the compressible soil stratum.
σ_{zf} = the final vertical stress.
σ_{z0} = the initial vertical stress.
σ_{zc} = the preconsolidation stress of the soil.

The stratigraphy, assumed parameters, and the above equation were used to develop simple, one-dimensional settlement models for each of the two sites. First-order estimates of the soil parameters were based on a range of possible values. The estimates from these models are considered first-order estimates and are subject to confirmation through additional investigations.

An important factor and key limitation in assessing the magnitude of potential settlement is the stress history within the soil column (including long-term groundwater levels prior to the available hydrographs). The sediments in the groundwater basin were assumed to be “unconsolidated” from a geologic perspective, but to be near-normally consolidated from a geotechnical perspective. The estimated ranges of possible consolidation settlement were based on model consolidation curves, which were in-turn based on assumed over-consolidation ratio (OCR) values ranging from 1.2 to 2.0 and Janbu's tangent modulus approach (Holtz et al. 2011).

Other key assumptions included:

- Soil layer discretization was based on the well logs.
- Settlement of soil strata assumed to be predominantly coarse-grained (i.e., material retained on the No. 200 sieve) was considered to be negligible.
- All soil properties (unit weights, compressibility, etc.) were assumed based on soil types indicated on well logs.
- Individual soil layers assumed uniform.
- Any layer with clay indicated in the well log was assumed to have clay behavior (i.e., compressible).
- No settlement assumed below the materials listed in the well logs.
- Unit weights were assumed to be constant, with clay assumed to be 120 pounds per cubic foot (pcf), sand unit weight assumed to be 125 pcf, and gravel unit weight assumed to be 140 pcf.
- All calculations estimate the ultimate consolidation settlement (time rate effects are not included; assumes groundwater levels do not recover).

The models produced similar subsidence estimates for the two locations, with estimated potential subsidence on the order of 1 to 2 feet resulting from the changes in groundwater elevation reported in the hydrographs. This estimated range assumes that the sediments in the SAB remain at or above the "normally consolidated" stress state (i.e., the current stresses on the soils are less than the maximum those soils have previously been subjected to over geologic time). If the present or future stresses on the soils exceed the maximum past pressure, the potential long-term subsidence could be several times the estimated range.

Historic subsidence on the order of 1 to 2 feet appears relatively consistent with the estimated subsidence rate of 0.5 inches per year reported for the UNAVCO CGPS Station located in the town of Los Alamos (Section 3.2.4.2 of GSI, 2020), which is in the general area of Well ID LACSD6.

DISCUSSION AND CONCLUSIONS

As noted above, ground subsidence is a complex, time-dependent phenomenon. There is commonly significant time-lag between the lowering of groundwater levels and observed subsidence. Figures 1 and 2 include descriptions of the mechanisms, three-dimensional effects, and time-dependent aspects of ground subsidence.

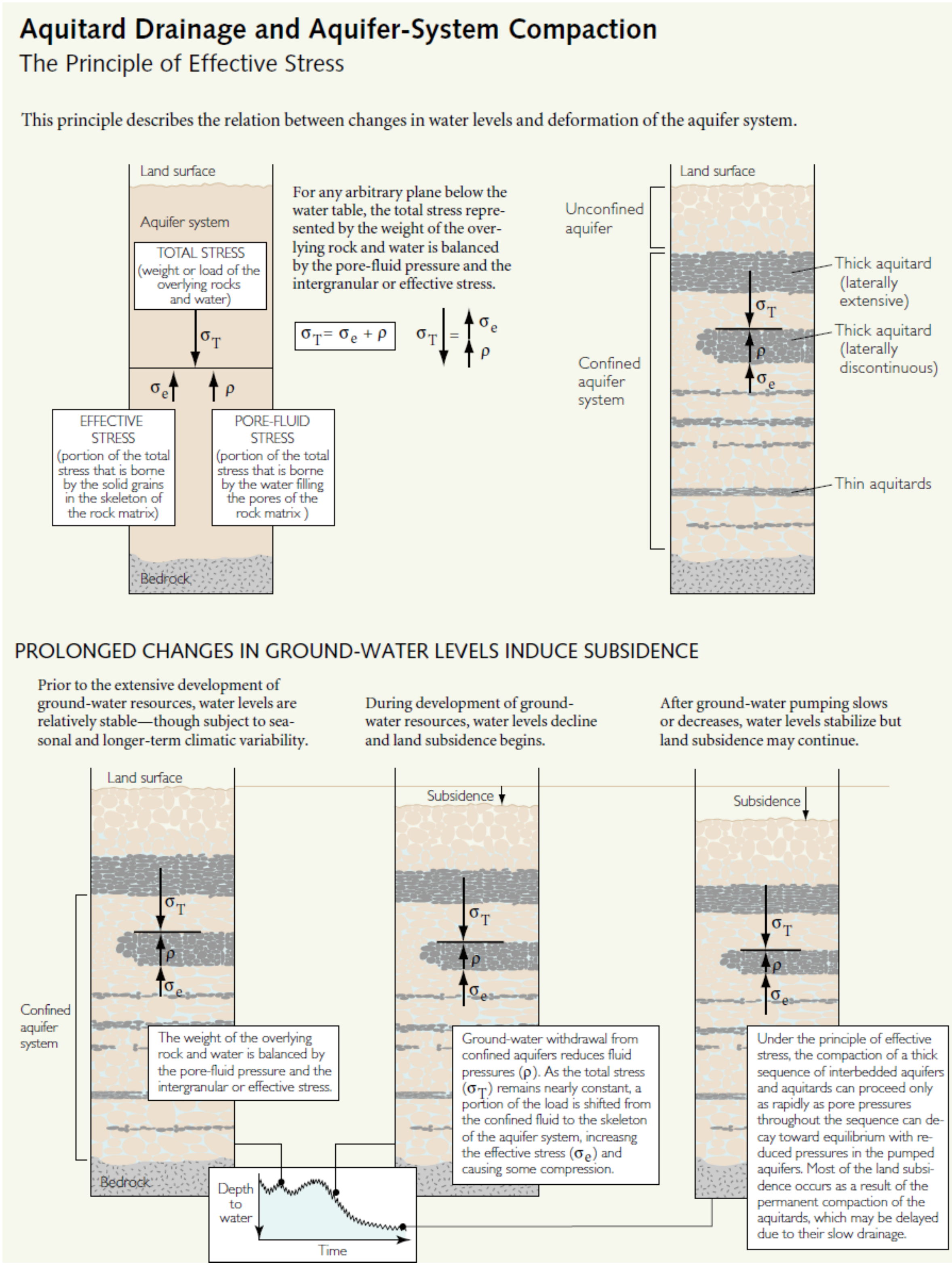

Figure 1: Schematic diagram of land subsidence due to groundwater withdrawal (from Galloway et al., 1999).

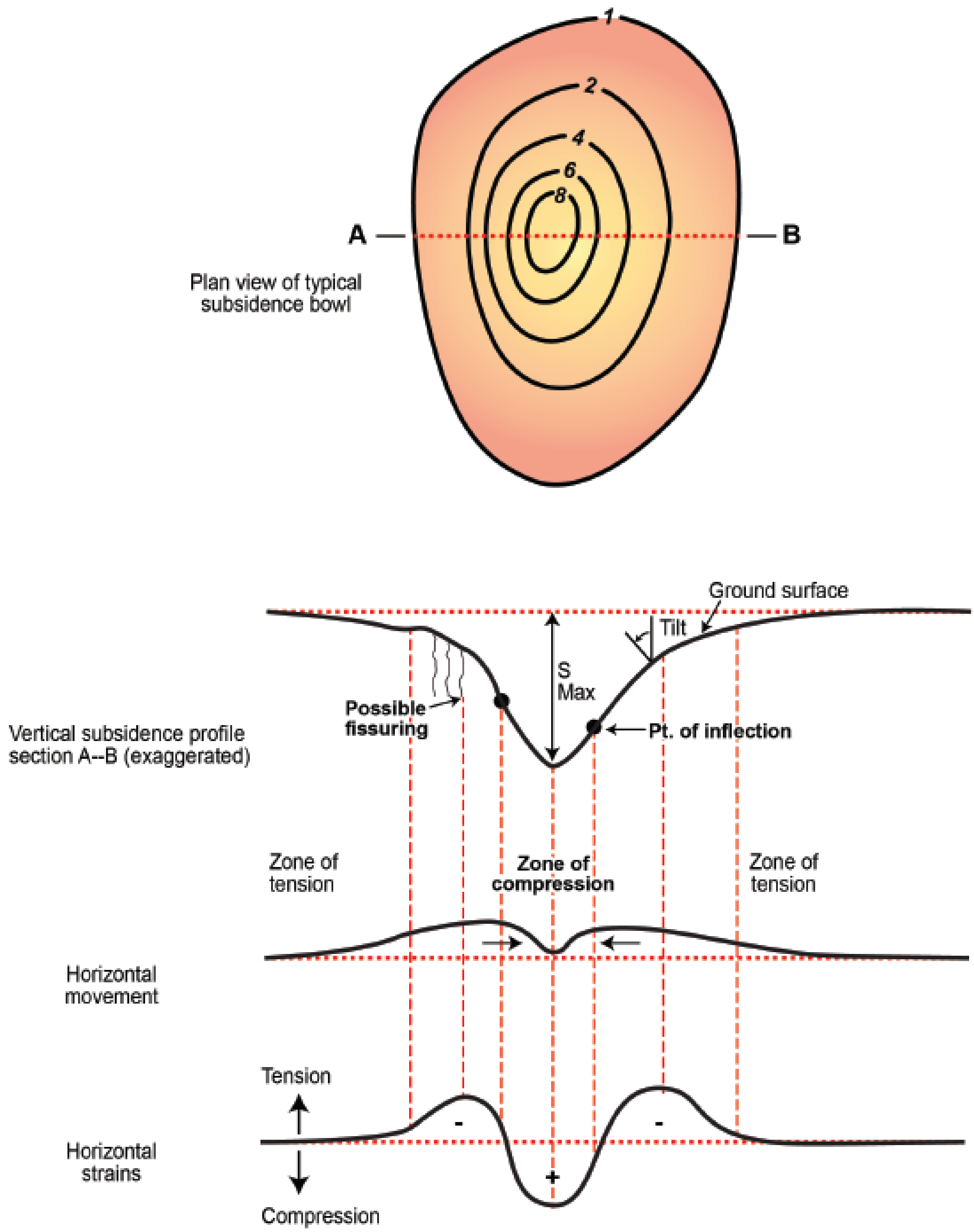

Figure 2: Schematic diagram of land-surface movements associated with subsidence bowls (from Lowe, 2012, modified from Viets and others, 1979). S max is maximum vertical subsidence.

It is important to note that while settlement of the ground surface may have adverse effects on constructed facilities, the relative impact is dependent on the specific facility and the magnitude of settlement (both total and differential). The greatest potential for damage is along linear surface features, including pipelines, canals, levees, railroad tracks, highways. There may be localized impacts at bridges or building foundations. It is likely that limited amounts of subsidence will not adversely affect the performance of surface improvements and infrastructure.

Groundwater Management Perspective

From a groundwater management perspective, we are interested in the magnitude of subsidence that may take place as a result of removal of groundwater from the aquifer system. In California much of the land subsidence resulting from groundwater extraction has occurred in the San Joaquin Valley where the Corcoran Clay is present. As ground water levels in the aquifers beneath the Corcoran Clay are lowered, the water no longer provides the buoyancy to help support the above soil column, so the sediments may compress.

Consolidation of sediments typically takes a relatively long time, often tens of years before it becomes evident at the ground surface. Once the mechanism to initiate subsidence has been started, it may persist for years after groundwater levels have returned above e the threshold which triggered it. Also, compressed sediments cannot be "uncompressed" by adding water to the system. Even if groundwater levels are returned to the "original" elevation, subsidence may continue for some period of time (as the system comes to the new equilibrium).

In the San Antonio Basin (SAB) there has been no reported historical or anecdotal information regarding land subsidence as a result of groundwater extractions. There may be, and likely has been some subsidence as a result for groundwater extraction, but to date has not been documented to impact surface features. With groundwater declines of as much as 70 to 90 feet in the SAB, some subsidence may have occurred prior to the initiation of SGMA, but there is not readily available information to document that. We do not know how much has occurred, or how it relates to the maximum amount that may occur based on the geotechnical analysis based on the limited data available.

Recommendations

Future declines in groundwater levels may result in land subsidence, but we are not able to accurately estimate those with the available data. If subsidence is a threat to the groundwater basin, more rigorous investigation and analysis can be conducted to estimate the amount of compaction that has taken place to allow to estimate the maximum amount of compression that may be experienced at a specific location. In order to avoid the potential for additional subsidence from groundwater extraction, groundwater levels should be maintained at or above the historic lows.

During planning and defining of groundwater management goals for the SAB, the need for additional studies should be assessed. Studies could include performing reconnaissance or inspection of critical infrastructure and other facilities to assess whether signs of deformation or subsidence can be observed. If additional ground surface data becomes available, it may be beneficial to evaluate the estimated basin storage and compare it to the measured subsidence.

As a minimum, we recommend that the ground surface elevations within the San Antonio Basin continue to be periodically surveyed and apparent changes in elevation be assessed. If total and differential settlements across the basin are of concern, additional measures should be developed to fill data gaps and allow for more-detailed evaluation. If a more-detailed evaluation of potential subsidence is desired, a plan should be developed to investigate the geotechnical parameters and stress history within the aquifer materials, which could include in situ and laboratory testing of soil samples.

Limitations

In the performance of its professional services, GEI Consultants, Inc., its employees, and its agents comply with the standards of care and skill ordinarily exercised by members of our profession practicing in similar localities. The analyses, conclusions, and recommendations discussed in this memorandum are based on limited information about the sites evaluated. Subsurface conditions may vary from those assumed for the purposes of this study.

No warranty, either express or implied, is made or intended in connection with the services performed by us, or by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. In the event conclusions or recommendations based on information in this memorandum are made by others, such conclusions and recommendations are not our responsibility unless we have been given an opportunity to review and concur with such conclusions or recommendations in writing.

REFERENCES

Galloway, D.L., Jones, D.R., and Ingebritsen, S.E., Editors, 1999, Land subsidence in the United States: U.S. Geological Survey Circular 1182 (https://pubs.usgs.gov/circ/circ1182/#pdf).

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Lowe, M., 2012. Subsidence in Sedimentary Basins Due to Groundwater Withdrawal for Geothermal Energy Development, Utah Geological Survey Open-File Report 601, (https://ugspub.nr.utah.gov/publications/open_file_reports/OFR-601.pdf).

Poland, J.F., Editor, 1984. Guidebook to Studies of Land Subsidence Due to Ground-Water Withdrawal (https://wwwrcamnl.wr.usgs.gov/rgws/Unesco/), prepared for the International Hydrological Programme, Working Group 8.4., United Nations Educational, Scientific and Cultural Organization (UNESCO).

U.S. Geological Survey (USGS), 2021. “Areas of Land Subsidence in California,” https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html, accessed February 23.

ATTACHMENT A

Well Locations, Stratigraphic Information, and Hydrographs Used in Analyses (well logs and excerpts from GSI Water Solutions, Inc., 2020)

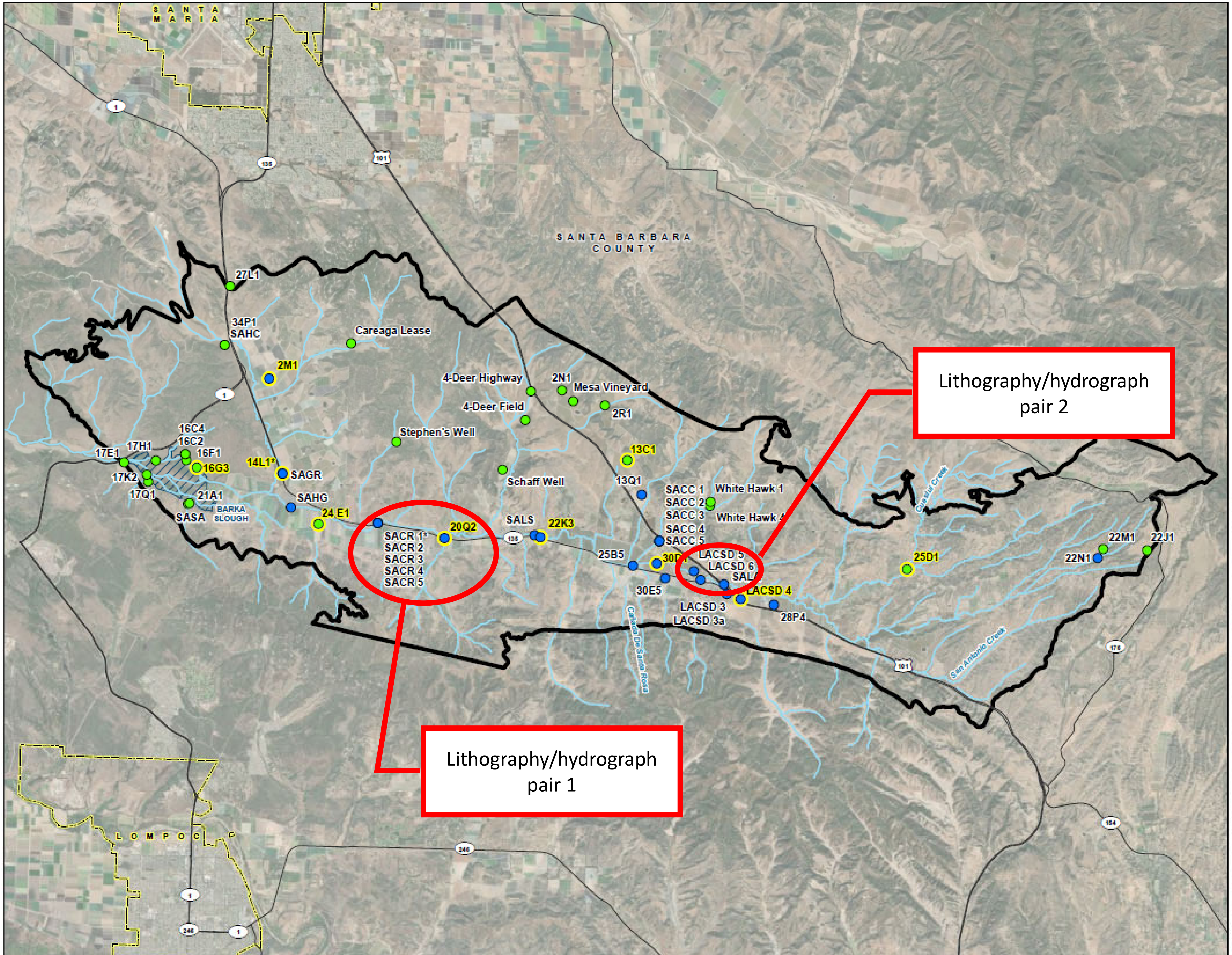


FIGURE 3-12

Wells Included in the San Antonio Creek Valley Groundwater Basin Groundwater Monitoring Program

Groundwater Sustainability Plan
San Antonio Creek Valley Groundwater Basin

LEGEND

Representative Well

Wells (by screened aquifer)

Paso Robles Formation

Careaga Sand Formation

All Other Features

San Antonio Creek or Tributary

Major Road

San Antonio Creek Valley Groundwater Basin

Barka Slough

City Boundary

NOTES

*SACR 1 and 14L1 are screened in the Careaga Formation aquifer.
San Antonio Creek Valley Groundwater Basin Boundary as defined in the California Department of Water Resources Bulletin 118.

N

0 5,000 10,000 15,000
Feet

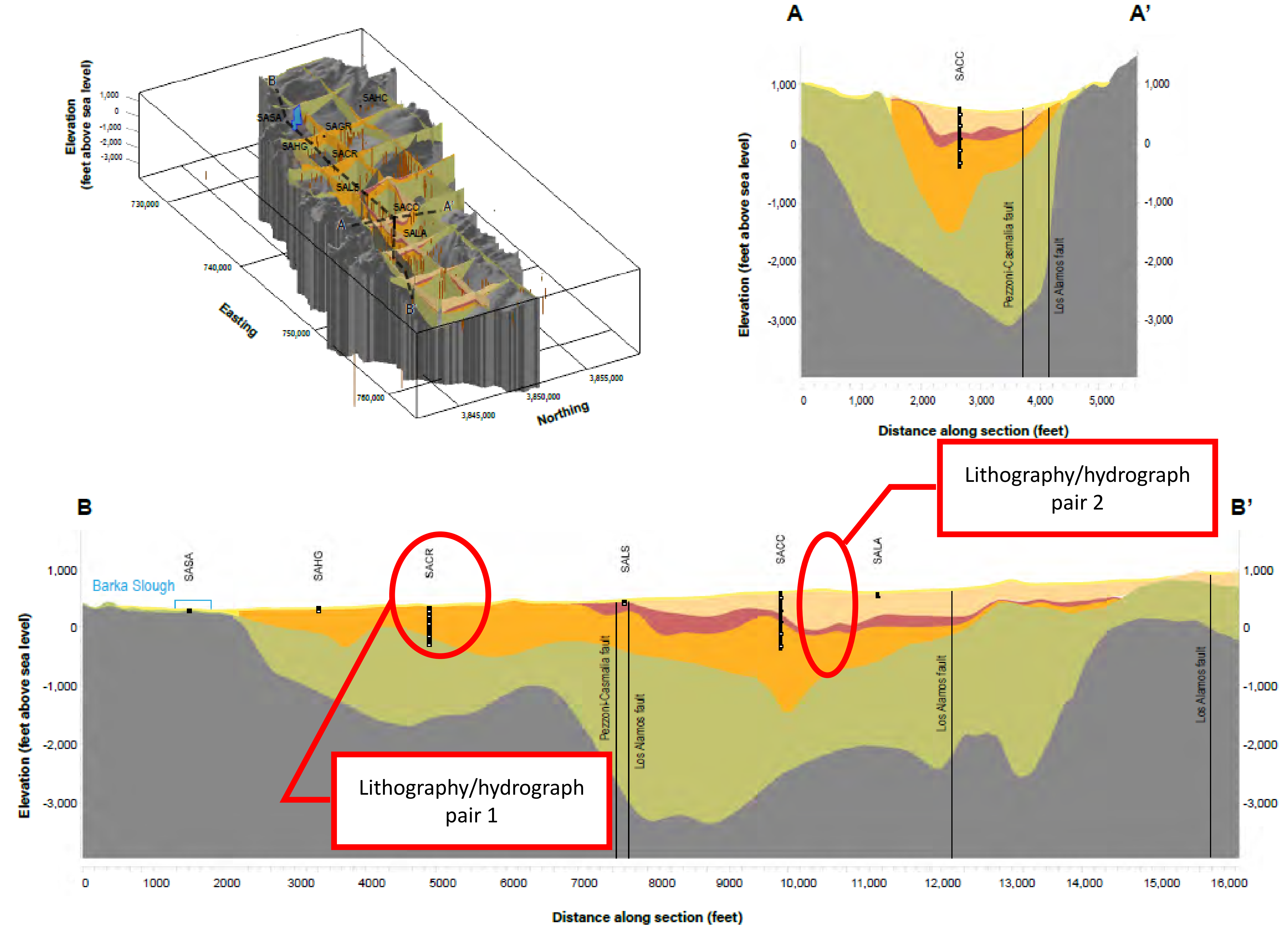
GSI Water Solutions, Inc.

Date: October 21, 2020
Data Sources: USGS, ESRI, CADWR

FIGURE 3-5

Geological Cross Sections San Antonio Creek Valley Groundwater Basin

Groundwater Sustainability Plan
San Antonio Creek Valley
Groundwater Basin



LEGEND

- Channel Alluvium
- Upper member - Paso Robles Formation
- Middle member - Paso Robles Formation
- Lower member - Paso Robles Formation
- Careaga Sandstone
- Consolidated bedrock

WELL LEGEND

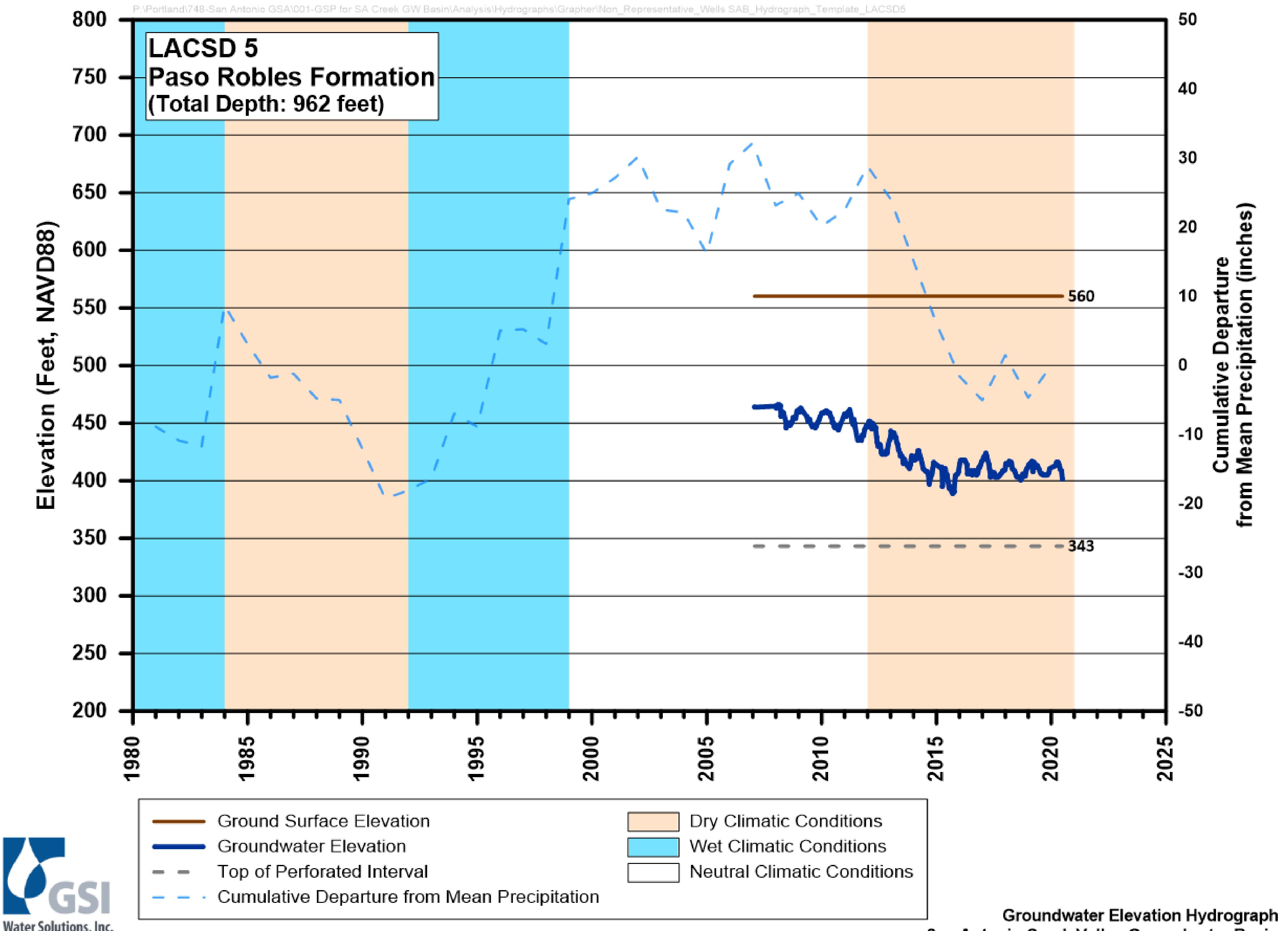
- Screen

NOTE:
Geologic cross sections shown on Figure 3-4.

Date: September 24, 2020
Data Sources: (USGS, 2020).

GSI Water Solutions, Inc.

Y:\0748_San_Antonio_GSP\Source_Figures\001_SanAntonio_Basin_GSA\GW_Sustainability_Plan



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California
Well Completion Report
Refer to Instruction Pamphlet

No. e046752

Page 1 of 2

Owner's Well Number: WELL NO 5

Date Work Began: 10-4-06 Date Work Ended: 11-18-06

Local Permit Agency: LOS ALAMOS COMM. SERV. DIST

Permit Number: N.A Permit Date: N.A

DWR Use Only – Do Not Fill In

State Well Number/Site Number: N W

Latitude / Longitude

APN/TRS/Other

Geologic Log

Orientation: ☒ Vertical ○ Horizontal ○ Angle Specify ____

Drilling Method ____ Drilling Fluid ____

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	90	BROWN SAND
90	110	GRAVEL AND SAND
110	230	CLAY W, SAND AND GRAVEL
230	360	BROWN SAND CLAY
360	500	HARD BROWN CLAY
500	700	BROWN GRAVELLY CLAY AND SAND
700	800	BROWN CLAY W/ SAND
800	900	SANDY CLAY
900	970	BROWN GRAVELLY SAND
970	1010	HARD GREY CLAY

Total Depth of Boring: 1010 Feet

Total Depth of Completed Well: 962 Feet

Well Owner

Name: LOS ALAMOS COMM. SERV. DISTRICT

Mailing Address: 82 NORTH ST. JOSEPH ST

City: LOS ALAMOS State: CA Zip: 93440

Well Location

Address: 33 ST JOSEPH ST

City: LOS ALAMOS County: SANTA BARBARA

Latitude ____ Deg. ____ Min. ____ Sec. N Longitude ____ Deg. ____ Min. ____ Sec. W

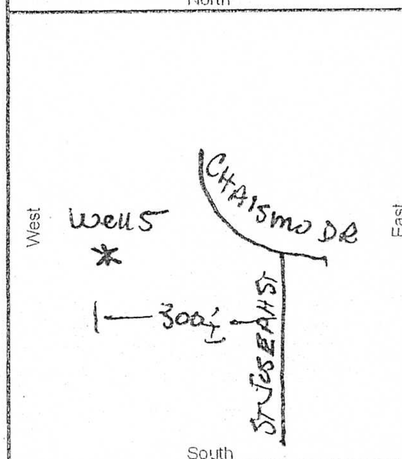
Datum ____ Decimal Lat. ____ Decimal Long. ____

APN Book: 101 Page: 110 Parcel: 035

Township ____ Range ____ Section ____

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

☒ New Well
○ Modification/Repair
○ Deepen
○ Other ____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

☒ Water Supply
☐ Domestic ☒ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other ____

Water Level and Yield of Completed Well

Depth to first water: 40 (Feet below surface)

Depth to Static Water Level: 89 (Feet) Date Measured: 11-7-06

Estimated Yield *: 800 (GPM) Test Type: CONSTANT

Test Length: 72 (Hours) Total Drawdown: 115 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	60	36	COND	STEEL	5/16	28		
+2	210	24	BLANK	STEEL	1/4	12 3/4		
210	212	"	MECHICAL CONNECTOR			12 3/4		
212	217	"	BLANK	T 304 SS	1/4	12 3/4		
217	352	"	SCREEN	T 304 SS		12 3/4	LSW	
352	502	"	BLANK	T 304 SS	1/4	12 3/4		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	60	CEMENT	10.5 SK
60	120	CEMENT	10.5 SK
120	1010	GRAVEL	RMC #3

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other ____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: BEST DRILLING AND PUMP, INC
Person, Firm or Corporation

2950 OLETA LANE, HIGHLAND, CA 92346
Address, City, State, Zip

Signed: [signature] 12-7-06 826672
C-57 Licensed Water Well Contractor, Date Signed, C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e046752 CONT.

Page 2 of 2

Owner's Well Number Well 5

Date Work Began ______ Date Work Ended ______

Local Permit Agency ______

Permit Number ______ Permit Date ______

DWR Use Only – Do Not Fill In

State Well Number/Site Number ______

Latitude ______ N Longitude ______ W

APN/TRS/Other ______

Geologic Log

Orientation ○ Vertical ○ Horizontal ○ Angle Specify ______

Drilling Method ______ Drilling Fluid ______

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)

Total Depth of Boring ______ Feet

Total Depth of Completed Well ______ Feet

Well Owner

Name ______

Mailing Address ______

City ______ State ______ Zip ______

Well Location

Address ______

City ______ County ______

Latitude ______ Deg. ______ Min. ______ Sec. N Longitude ______ Deg. ______ Min. ______ Sec. W

Datum ______ Decimal Lat. ______ Decimal Long. ______

APN Book ______ Page ______ Parcel ______

Township ______ Range ______ Section ______

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West

East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

○ New Well

○ Modification/Repair

○ Deepen

○ Other ______

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

☒ Water Supply

☐ Domestic ☒ Public

☐ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other ______

Water Level and Yield of Completed Well

Depth to first water 40 (Feet below surface)

Depth to Static Water Level 89 (Feet) Date Measured 11-7

Estimated Yield * 800 (GPM) Test Type CONSTANT

Test Length 72 (Hours) Total Drawdown 115 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
502	702	24	Screen	T304 SS		12 3/4	WW	.040
702	792	24	Blank	T304 SS	1/4	12 3/4		
792	952	24	Screen	T304 SS		12 3/4	WW	.040
952	962	24	Blank	T304 SS	1/4	12 3/4		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other ______

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name ______ Person, Firm or Corporation

______ Address ______ City CA State ______ Zip

Signed ______ C-57 Licensed Water Well Contractor ______ Date Signed ______ C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Well Log
St. Joseph Street Well (Well #5)
Los Alamos Community Services District

Well ID: St. Joseph Street Well (Well #5)
Date: October 5 to October 14, 2006
Location: Saint Joseph Street, north of San Antonio Creek
Elevation: 560.20 ft above sea level (from survey)
Geologists: D. Williams, and D. Burke, Cleath & Associates.
Drilling Company: Best Drilling and Pump, Inc.
Drilling Method: reverse rotary
Total depth: 1,010 feet

Lithologic Log
Depth to top and bottom in feet

Top	Bottom	Thickness	Description
0	7	7	**Sandy Silt;** trace gravel; dark yellowish brown (10YR 4/4); fine to medium grained sand, gravel to 3", subrounded shale gravel; damp.
7	8	1	**Sandy Clay;** yellowish brown (10YR 5/4); soft, fine to medium grained sand; moist.
8	16	8	**Clayey Sand;** trace gravel; yellowish brown (10YR 5/4); fine grained sand; siliceous shale gravel to 3"; moist.
16	18	2	**Sandy Clay;** trace gravel; yellowish brown (10YR 5/4) to grayish brown (10YR 5/2); soft, fine grained sand; moist.
18	28	10	**Clayey Sand;** trace gravel; yellowish brown (10YR 5/4); fine grained sand; gravel to 3". Becomes wet at 25' depth.
28	41	13	**Clayey Sand with Gravel;** light yellowish brown (10YR 6/4); fine grained sand; gravel to ½", subrounded; saturated. Hole sloughing.
41	45	4	**Clayey Sand;** light yellowish brown (10YR 6/4); fine grained sand. Base of alluvium.
45	47	2	**Gravelly Sand with Clay;** with cobbles; grayish brown (10YR 5/2); fine to medium grained sand; clasts to 6", porcelaneous shale gravel, subrounded to rounded; interbedded with clay.
47	50	3	**Sandy Clay;** grayish brown (10YR 5/2); stiff.
50	55	5	**Clayey Sand;** trace gravel; grayish brown (10YR 5/2); fine grained sand.

Los Alamos CSD St. Joseph Street Well (Well #5); (Continued)

Top	Bottom	Thickness	Description
55	70	15	**Clay;** trace sand; grayish brown (10YR 5/2); stiff, fine grained sand.
70	105	35	**Gravelly Sand**; pale brown (10YR 6/3); medium to coarse grained quartzose sand, subangular to subrounded; subrounded to rounded porcelaneous shale and chert gravel to 2".
105	115	10	**Clay with Sand;** brown (10YR 5/3); soft, fine to medium grained sand.
115	134	19	**Sand with Gravel;** pale brown (10YR 6/3); fine to coarse grained, lesser coarse; gravel to ½".
134	140	6	**Sandy Clay;** trace gravel; brown (10YR 5/3); soft clay; fine to coarse grained sand.
140	155	15	**Clayey Sand;** trace gravel; brown (10YR 5/3); fine to coarse grained sand; gravel to ½".
155	175	20	**Sandy Clay;** trace gravel; brown (10YR 5/3); soft clay; fine to coarse grained sand; gravel to ½".
175	185	10	**Sand with Clay and Gravel;** yellowish brown (10YR 5/4); fine to coarse grained sand; gravel to ¾".
185	200	15	**Gravelly Sand with Clay;** yellowish brown (10YR 5/4); fine to coarse grained sand; subrounded porcelaneous shale gravel.
200	205	5	**Clay;** brown (10YR 5/3); soft, sticky.
205	225	20	**Sand and Gravel with Clay;** yellowish brown (10YR 5/4); fine to coarse grained sand; shale gravel to 1".
225	245	20	**Clay with Sand;** trace gravel; brown (10YR 5/3); fine to medium grained sand; gravel to ½".
245	265	20	**Sandy Clay;** yellowish brown (10YR 5/4); soft; fine to medium grained sand.
265	275	10	**Clayey Sand;** trace gravel; yellowish brown (10YR 5/4); fine to coarse grained, lesser coarse; gravel to ½".
275	278	3	**Clayey Sand with Gravel;** yellowish brown (10YR 5/4); fine to coarse grained sand; gravel to ¾".
278	285	7	**Gravelly Sand;** yellowish brown (10YR 5/4); fine to coarse grained sand; gravel to 2", mostly siliceous shale and chert gravel.
285	298	13	**Clayey Sand with Gravel;** brown (10YR 5/3); fine to coarse grained, lesser coarse; gravel to 1".
298	315	17	**Clay;** brown (10YR 5/3); soft, sticky.

Los Alamos CSD St. Joseph Street Well (Well #5); (Continued)

Top	Bottom	Thickness	Description
315	327	12	**Sandy Clay;** brown (10YR 5/3); soft clay; fine to medium grained sand.
327	330	3	**Clayey Sand with Gravel;** yellowish brown (10YR 5/4); fine to coarse grained; gravel to ¾".
330	340	10	**Clay with Sand;** brown (10YR 5/3); soft; fine grained sand.
340	352	12	**Sand with Clay;** brown (10YR 5/3); fine to medium grained sand; olive yellow (5Y 6/6) clay from 251 to 352.
352	365	13	**Clayey Sand;** brown; (10YR 5/3); fine grained sand; soft clay.
365	385	20	**Sandy Clay;** trace gravel; yellowish brown (10YR 5/4); soft clay; fine to coarse grained sand; gravel to ½".
385	388	3	**Clayey Sand with Gravel;** yellowish brown (10YR 5/4); fine to medium grained; gravel to ½".
388	391	3	**Clay with Sand;** yellowish brown (10YR 5/4); soft; fine to medium sand, lesser medium.
391	430	39	**Clay with Sand;** brown (10YR 5/3); soft; fine to medium grained, mostly fine.
430	450	20	**Clayey Sand;** trace gravel; brown (10YR 5/3); fine to coarse grained; porcelaneous shale gravel to ½".
450	480	30	**Clay;** trace sand; grayish brown (10YR 5/2); soft; fine to medium grained sand.
480	490	10	**Clay;** grayish brown (10YR 5/2); soft, plastic.
490	510	20	**Clay with Sand;** grayish brown (10YR 5/2); soft; fine to medium grained sand.
510	578	68	**Clay;** trace sand; grayish brown (10YR 5/2), soft, mottled yellowish brown (10YR 5/4); fine grained sand.
578	590	12	**Sandy Clay;** brown; (10YR 5/3); soft; fine to medium grained sand.
590	595	5	**Clayey Sand with Gravel;** yellowish brown (10YR 5/4); fine to coarse grained sand; gravel to ½", subrounded porcelaneous shale gravel.
595	610	15	**Clayey, Gravelly Sand;** yellowish brown (10YR 5/4); fine to coarse grained sand; porcelaneous shale gravel to ¾".
610	620	10	**Clay with sand;** grayish brown (10YR 5/2); soft to medium consistency; fine grained sand.
620	625	5	**Sandy Clay;** trace gravel; yellowish brown (10YR 5/4); soft; fine to medium grained sand; gravel to ½".
625	630	5	**Clay with Sand;** grayish brown (10YR 5/2); soft to medium consistency; fine grained sand.

Los Alamos CSD St. Joseph Street Well (Well #5); (Continued)

Top	Bottom	Thickness	Description
630	638	8	**Clay with Sand;** trace gravel; yellowish brown (10YR 5/4); soft to medium consistency; fine to coarse grained sand; gravel to ½".
638	660	22	**Gravelly Sand with Clay;** yellowish brown (10YR 5/4); fine to coarse grained; siliceous and cherty gravel to ¾".
660	664	4	**Gravelly Sand;** thinly interbedded with clay; yellowish brown (10YR 5/4); fine to coarse grained sand; gravel to ¾".
664	675	11	**Clay;** grayish brown (10YR 5/2); soft, sticky.
675	690	15	**Clay;** dark greenish gray (5GY 4/1); stiff.
690	698	8	**Clayey Sand;** trace gravel; dark greenish gray (5GY 4/1); fine to medium grained; shale and mudstone gravel to ½".
698	722	24	**Clay with Sand;** trace gravel; dark greenish gray (10Y 4/1); stiff clay; fine grained sand; gravel to ½".
722	725	3	**Clay;** trace sand; dark greenish gray (10Y 4/1); stiff clay; fine grained sand.
725	740	15	**Sandy Clay;** trace gravel; greenish gray (10Y 5/1); stiff clay; fine to medium grained sand; gravel to ½".
740	750	10	**Clay with Sand;** greenish gray (10Y 5/1); soft clay; fine to medium grained sand.
750	765	15	**Sandy Clay;** trace gravel; greenish gray (10Y 5/1); soft clay; fine to medium grained sand; gravel to ¾".
765	772	7	**Clay with Sand;** greenish gray (10Y 5/1); soft clay; fine to medium grained sand.
772	790	18	**Clay;** trace sand; dark greenish gray (10Y 4/1); stiff; fine to medium grained sand.
790	805	15	**Clay;** trace sand; olive (5Y 5/3); soft; fine grained sand.
805	810	5	**Clay with Sand;** olive (5Y 5/3); soft; fine to medium grained sand.
810	824	14	**Sandy Clay;** olive (5Y 5/3); soft; mostly fine grained sand, lesser medium to coarse.
824	835	11	**Clay;** trace sand; yellowish brown (10YR 5/4); stiff; fine grained sand.
835	852	17	**Clayey Sand;** yellowish brown (10YR 5/4); sand mostly fine grained, lesser medium to coarse.
852	880	28	**Clay with Sand;** yellowish brown (10YR 5/4); soft clay; fine grained sand.
880	898	18	**Sandy Clay;** yellowish brown (10YR 5/4); soft; fine grained sand.

Los Alamos CSD St. Joseph Street Well (Well #5); (Continued)

Top	Bottom	Thickness	Description
898	910	12	**Clayey Sand with Gravel;** yellowish brown (10YR 5/4); fine to coarse grained sand; porcelaneous shale gravel to ½".
910	925	15	**Gravelly Sand;** yellowish brown (10YR 5/4); fine to coarse grained sand; subrounded porcelaneous shale gravel to ¾".
925	930	5	**Clayey Sand with Gravel;** light brownish gray (10YR 6/2); fine to coarse grained; gravel to ½".
930	950	20	**Sand and Gravel with Clay;** grayish brown (10YR 5/2); fine to coarse grained sand; porcelaneous shale gravel to 1".
950	960	10	**Sand with Gravel;** trace clay; light brownish gray (10YR 6/2); fine to coarse grained sand; gravel to ½".
960	970	10	**Sand and Gravel;** grayish brown (10YR 5/2); medium to coarse grained; porcelaneous shale gravel to ¾".
970	980	10	**Sandy, Gravelly Clay;** gray (10YR 6/1); fine to coarse grained sand; gravel to 1".
980	990	10	**Clay with Sand and Gravel;** gray (10YR 6/1); fine grained sand; gravel to 1".
990	1000	10	**Clay;** gray (10YR 6/1).
1000	1010	10	**Clay with Sand;** trace gravel; gray (10YR 6/1); fine grained sand; gravel to ½".

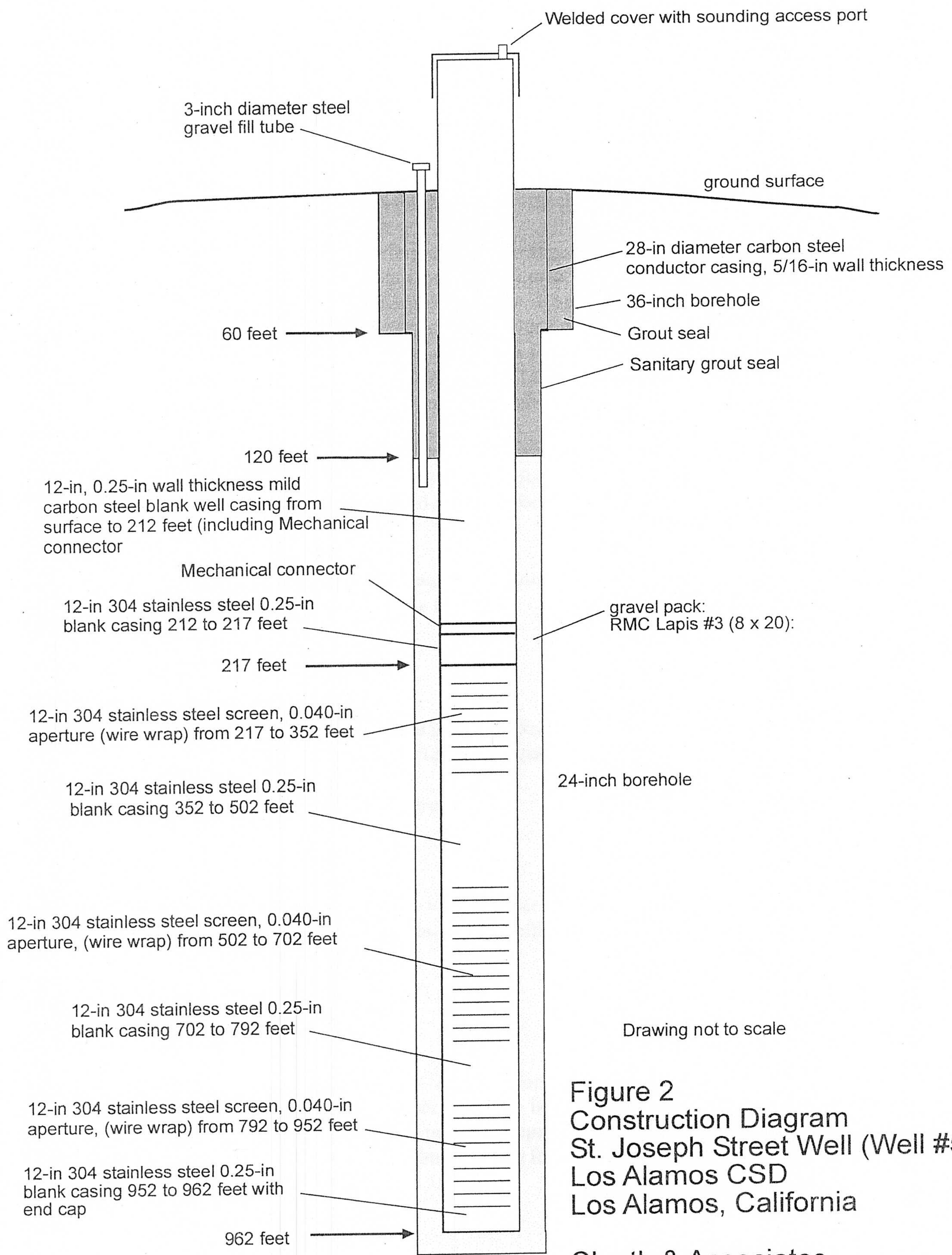
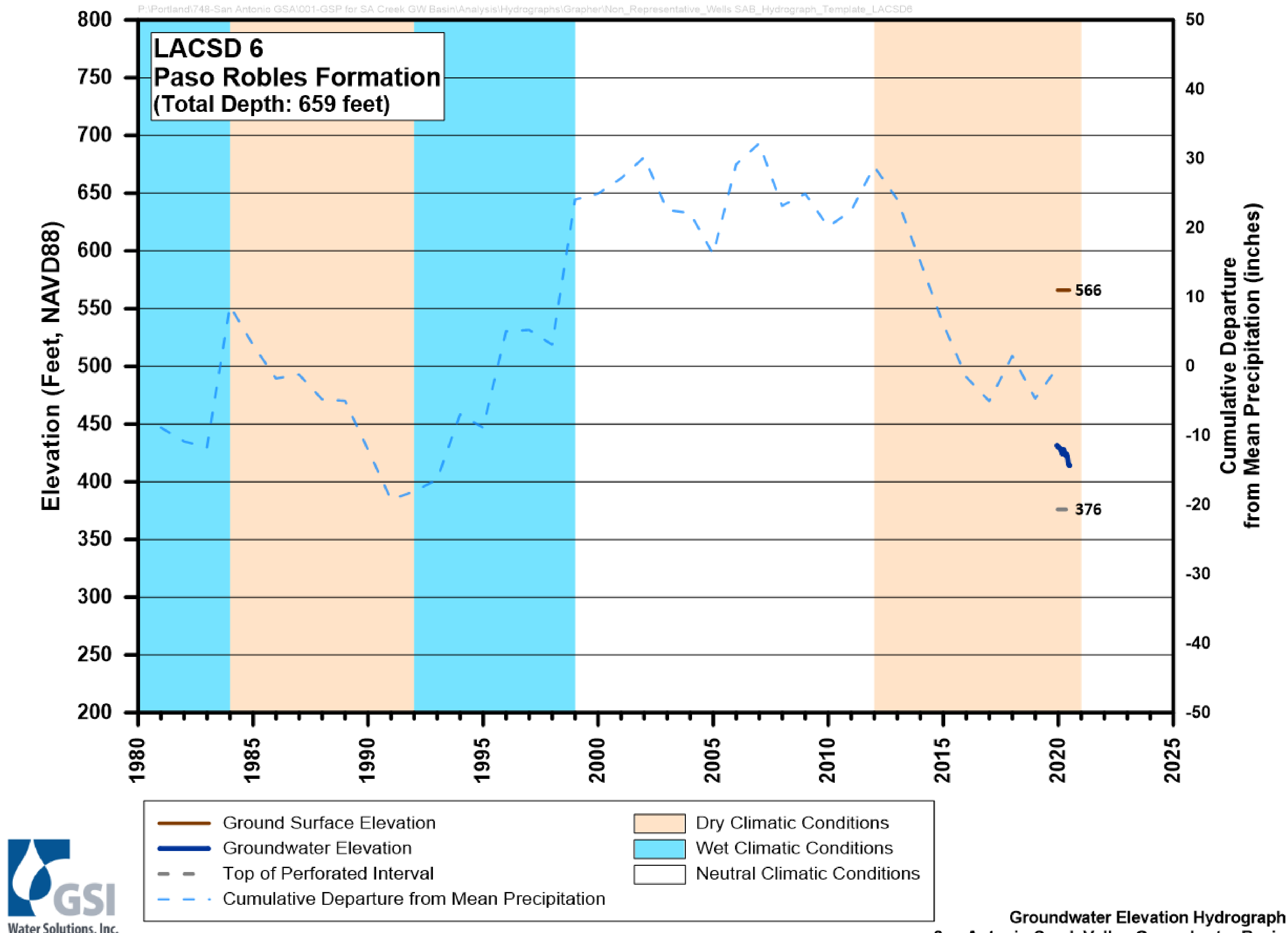


Figure 2
Construction Diagram
St. Joseph Street Well (Well #5)
Los Alamos CSD
Los Alamos, California

Cleath & Associates



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

State of California

Well Completion Report

Form DWR 188 In Review 4/3/2018
WCR2017-005628

Owner's Well Number: WELL #6 | Date Work Began: 10/23/2017 | Date Work Ended: 11/08/2017

Local Permit Agency: Santa Barbara County Environmental Health Services

Secondary Permit Agency: | Permit Number: 0002481 | Permit Date: 10/23/2017

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: LOS ALAMOS COMMUNITY SERVICES,

Mailing Address: PO BOX 675

City: LOS ALAMOS | State: CA | Zip: 93440

Planned Use and Activity

Activity: New Well

Planned Use: Water Supply Public

Well Location

Address: 175 BELL ST

City: LOS ALAMOS | Zip: 93440 | County: Santa Barbara

Latitude: 34 Deg. 44 Min. 40.95 Sec. N | Longitude: -120 Deg. 16 Min. 47.23 Sec. W

Dec. Lat.: 34.7447083 | Dec. Long.: -120.2797861

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: | Location Determination Method:

APN: 101-152-008

Township: 08 N

Range: 32 W

Section: 30

Baseline Meridian: San Bernardino

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Direct Rotary | Drilling Fluid: Bentonite

Total Depth of Boring: 1005 Feet

Total Depth of Completed Well: 959 Feet

Water Level and Yield of Completed Well

Depth to first water: (Feet below surface)

Depth to Static Water Level: 140 (Feet) | Date Measured: 11/08/2017

Estimated Yield*: 600 (GPM) | Test Type: Air Lift

Test Length: 12 (Hours) | Total Drawdown: (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	42	DARK BROWN CLAY
42	54	SAND & GRAVEL
54	71	BROWN SANDY CLAY
71	126	SAND & GRAVEL
126	143	BROWN CLAY
143	152	SAND & GRAVEL
152	157	BROWN CLAY
157	173	SAND & GRAVEL
173	179	BROWN CLAY & GRAVEL LAYERS
179	267	SAND & GRAVEL
267	272	BROWN CLAY
272	281	SAND & GRAVEL
281	293	BROWN CLAY
293	303	SAND & GRAVEL
303	308	BROWN CLAY & HARD LAYERS

308	317	SAND & GRAVEL
317	321	BROWN CLAY
321	348	SAND & GRAVEL
348	364	SAND W/ CLAY LAYERS
364	428	BROWN CLAY
428	437	SAND
437	463	GREY / BROWN CLAY
463	478	GRAVEL LAYERS
478	564	BROWN CLAY
564	570	SAND & GRAVEL
570	637	BROWN CLAY W/ SAND LAYERS
637	648	SAND & THIN GRAVEL ZONES
648	654	BROWN CLAY
654	665	SAND & THIN GRAVEL ZONES
665	677	BROWN CLAY
677	685	SAND & GRAVEL
685	732	BLUE CLAY W/ GRAVEL LAYERS
732	743	SAND & GRAVEL
743	757	BLUE CLAY
757	763	SAND & GRAVEL
763	768	BLUE CLAY
768	782	SAND & GRAVEL
782	836	BLUE CLAY
836	864	SAND
864	902	BLUE CLAY & SAND
902	935	SAND & GRAVEL
935	951	CLAY
951	958	SAND & GRAVEL
958	1005	BROWN CLAY

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	58	Conductor or Fill Pipe	Low Carbon Steel	Grade: ASTM A53	0.25	24			
2	0	196	Blank	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75			
2	196	296	Screen	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75	Milled Slots	0.04	
2	296	338	Blank	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75			
2	338	700	Screen	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75	Milled Slots	0.04	
2	700	823	Blank	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75			
2	823	959	Screen	PVC	OD: 12.750 in. | SDR: 17 | Thickness: 0.750 in.	0.75	12.75	Milled Slots	0.04	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	1005	Filter Pack	Other Gravel Pack		LAPIS #3

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	58	30
58	1005	22

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FILIPPONI-THOMPSON DRILLING INC
Person, Firm or Corporation

P O BOX 845	ATASCADERO	CA	93423
Address	City	State	Zip

Signed

electronic signature received	11/30/2017	432680
C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N **Latitude Deg/Min/Sec**

W **Longitude Deg/Min/Sec**

TRS: 08N32W30H

APN:

ELECTRIC - GAMMA RAY-TEMPERATURE LOG

Reamed Borehole

· Phone: (888) 908-5226 Fax: (661) 505-6561 · Web: www.boredata.com Email: ccorbell@boredata.com

Filing No.

COMPANY **Filipponi and Thompson Drilling**

WELL **LACSD No 6**

FIELD **Los Alamos**

STATE **California** COUNTY **Santa Barbara**

LOCATION:
Corner of Leslie St and Centennial St

OTHER SERVICES:
None

Job No.
2447

SEC: ____ TWP: ____ RGE: ____ LAT.: **34.74476** LONG.: **-120.27983**

Permanent Datum: **Ground Level** Elev.: ____ Ft. Elevs.: K.B. ____ Ft.

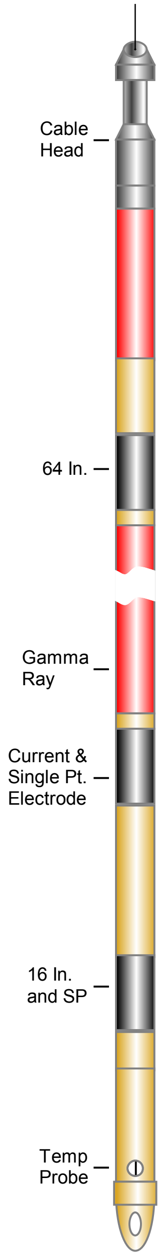
Log Measured From: **Ground Level** , **0** Ft. Above Perm. Datum D.F. ____ Ft.

Drilling Measured From: **Kelly Bushing** G.L. ____ Ft.

Run	**One**			
Date	**Nov 01, 2017**			
Depth-Driller	**1000** Ft	Ft	Ft	Ft
Depth-Logger	**1005** Ft	Ft	Ft	Ft
Top Logged Interval	**6** Ft	Ft	Ft	Ft
Btm Logged Interval	**1005** Ft	Ft	Ft	Ft
Casing-Driller	**24** In @ **55** Ft	In @ Ft	In @ Ft	In @ Ft
Casing - Logger In@Ft	In @ Ft	In @ Ft	In @ Ft	In @ Ft
Bit Size	**22** In @ **1003** Ft	In @ Ft	In @ Ft	In @ Ft
Time On Bottom	**18:00**			
Type Fluid in Hole	**Bentonite**			
Density / Viscosity				
pH / Fluid Loss	ml	ml	ml	ml
Source of Sample	**Circ**			
Rm @ Mea. Temp	**5.8** @ **68.3** °F	@ °F	@ °F	@ °F
Rmf @ Mea. Temp	**5.6** @ **68.3** °F	@ °F	@ °F	@ °F
Rmc @ Mea. Temp	@ °F	@ °F	@ °F	@ °F
Source Rmf / Rmc	**Meas**			
Rm @ BHT	@ °F	@ °F	@ °F	@ °F
Time Since Circ.	**1** Hr	Hr	Hr	Hr
Max. Rec. Temp.	**77.6** °F	°F	°F	°F
Van No. / Location	**BD-1** / **VTU**			
Recorded By	**Craig Corbell**			
Witnessed By				

This Eagle Plot Heading Conforms To API RP 31A

ELECTRIC - GAMMA RAY-TEMPERATURE LOG TOOL



SPONTANEOUS POTENTIAL LOGS:
SP Logs record potentials or voltages developed between the borehole fluid and the surrounding formation and are representations of lithology and water quality. Recording of SP logs are limited to water-filled or mud-filled open holes.

NORMAL RESISTIIVITY LOGS:
Normal Resistivity Logs record the electrical resistivity of the borehole environment with lower resistivities indicative of clays and higher resistivities being sands and gravels. Normal resistivity logs are affected by bed thickness, Borehole diameter and borehole fluid.

SINGLE POINT RESISTIVITY LOGS:
Single Point Resistivity Logs record the electrical resistance from points within the borehole to an electrical ground at land surface. Single-point resistance logs are useful in the determination of lithology, water quality, and location of fracture zones.

GAMMA RAY LOGS:
Gamma Ray Logs record the amount of natural gamma radiation emitted by the rocks surrounding the borehole. The most significant naturally occurring sources of gamma radiation are potassium 40 and daughter products of the uranium and thorium decay series. Clay and shale bearing rocks commonly emit relatively high gamma radiation because they include weathering products of potassium feldspar and mica and tend to concentrate uranium and thorium by ion absorption and exchange.

TEMPERATURE LOGS:
Temperature Logs record the water temperature in the borehole. Temperature logs are useful for delineating water-bearing zones and identifying vertical flow in the borehole between zones of differing hydraulic head penetrated by wells. Borehole flow between zones is indicated by temperature gradients that are less than the regional geothermal gradient.

ELECTRIC LOG SPECIFICATIONS:

Diameter	1.73 Inches
Length	8.37 Feet
Weight	21.7 Lbs.
Max. Temp	158° F
Resist. Range	0 - 10,000 ohm-m
Gamma Ray	1.97 inches long x .98 inches diameter Scintillation crystal

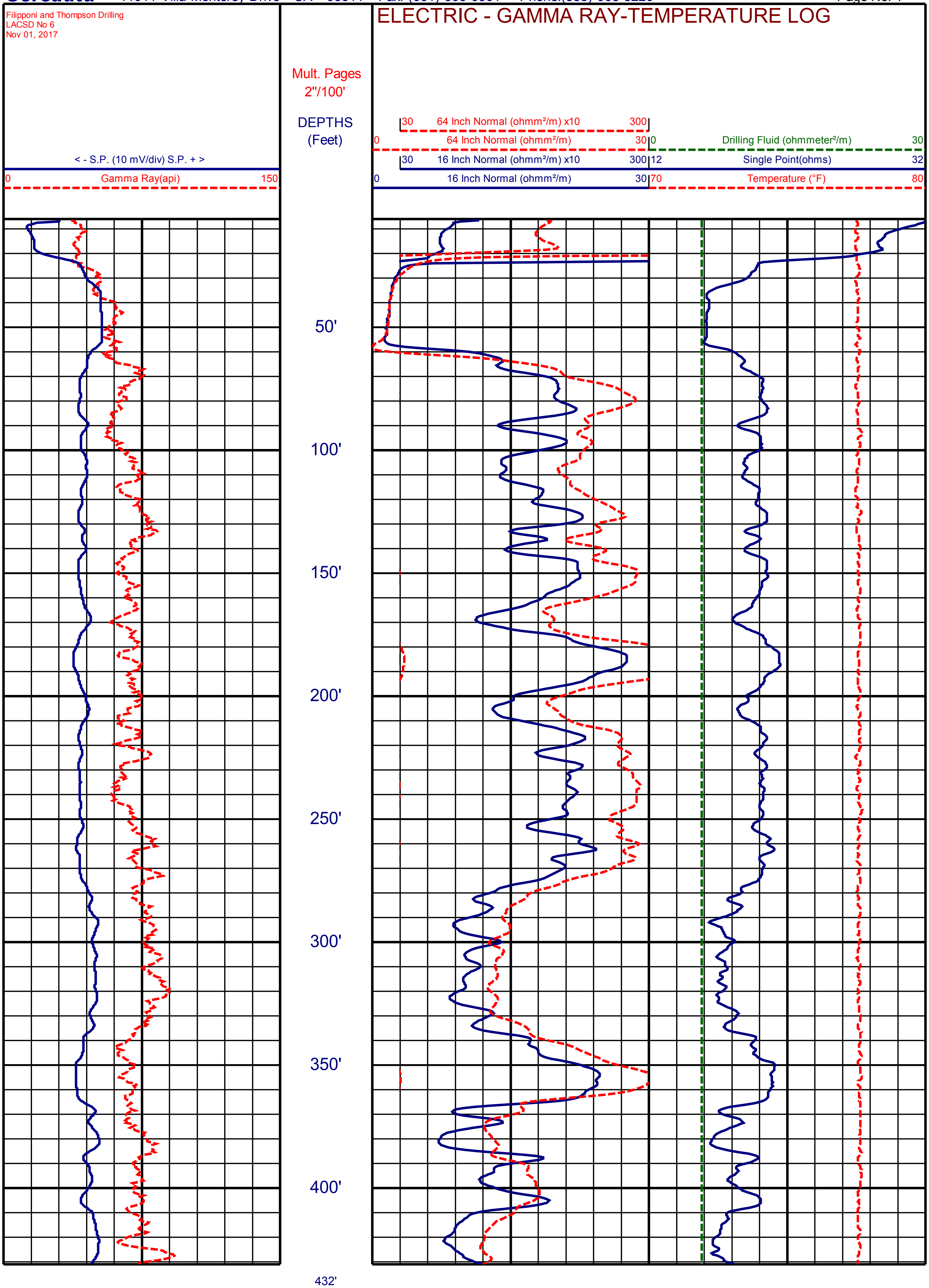
NOTICE

All interpretations are opinions based on inferences from electrical and other measurements and we do not guarantee the accuracy or correctness of any verbal or written interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by one of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.

REMARKS

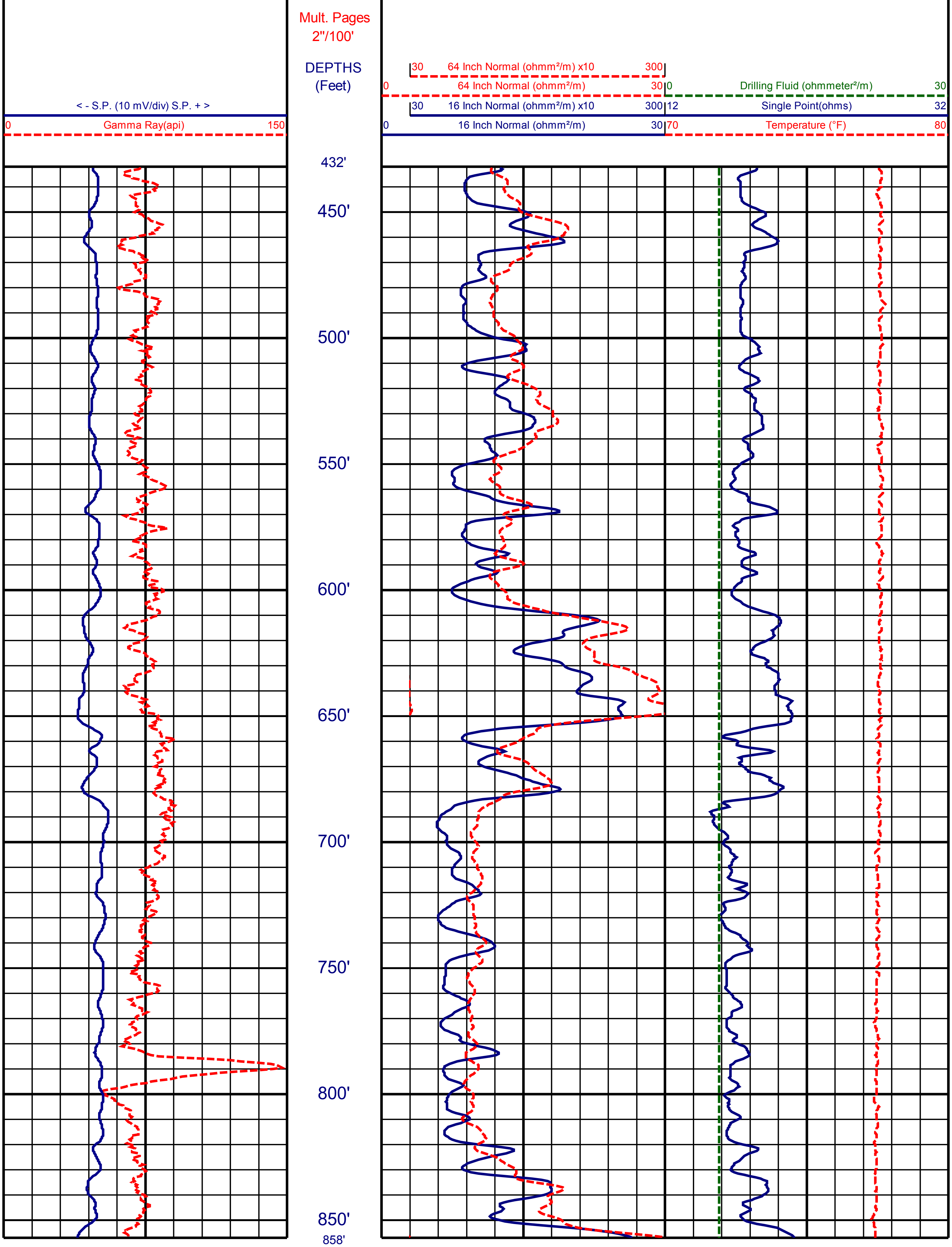
Filipponi and Thompson Drilling
LACSD No 6
Nov 01, 2017

ELECTRIC - GAMMA RAY-TEMPERATURE LOG



Filipponi and Thompson Drilling
LACSD No 6
Nov 01, 2017

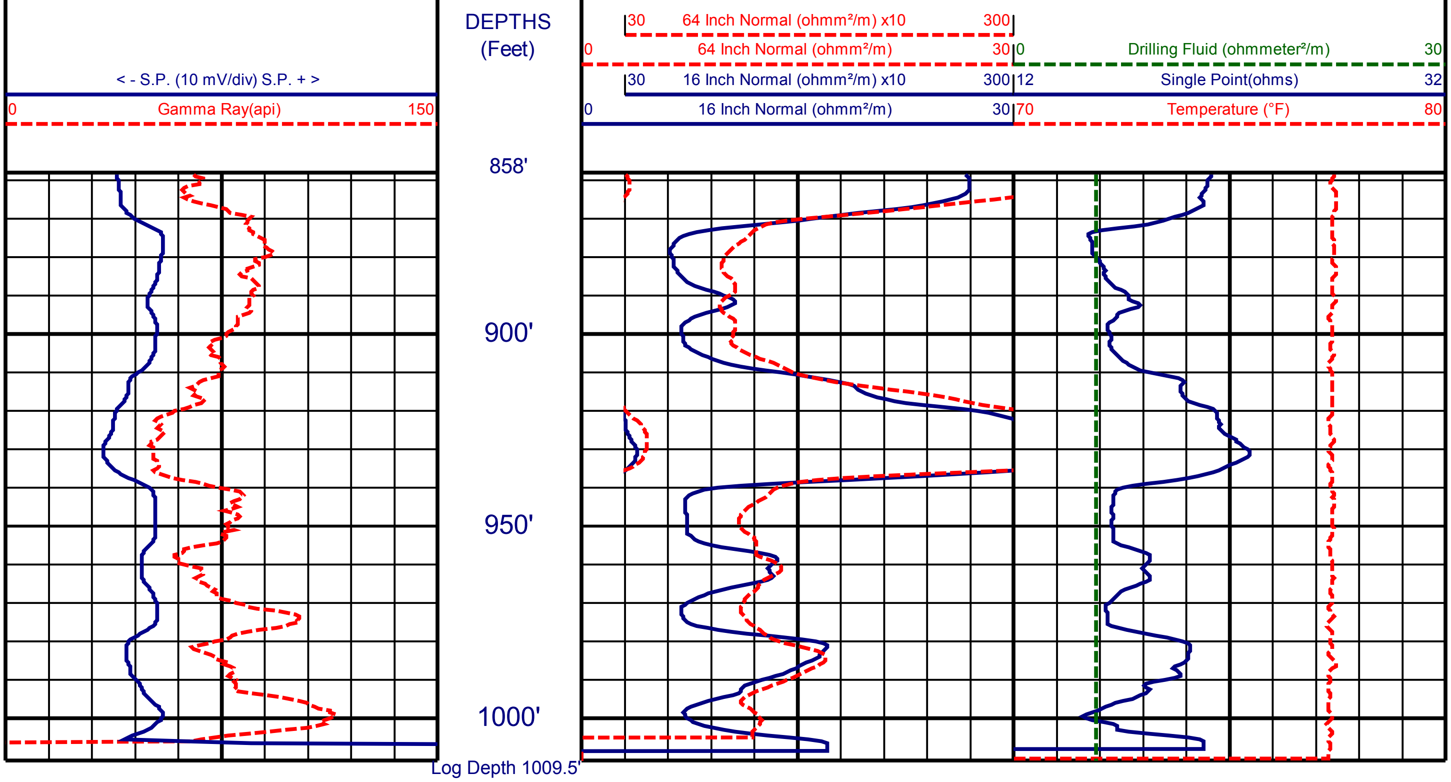
ELECTRIC - GAMMA RAY-TEMPERATURE LOG

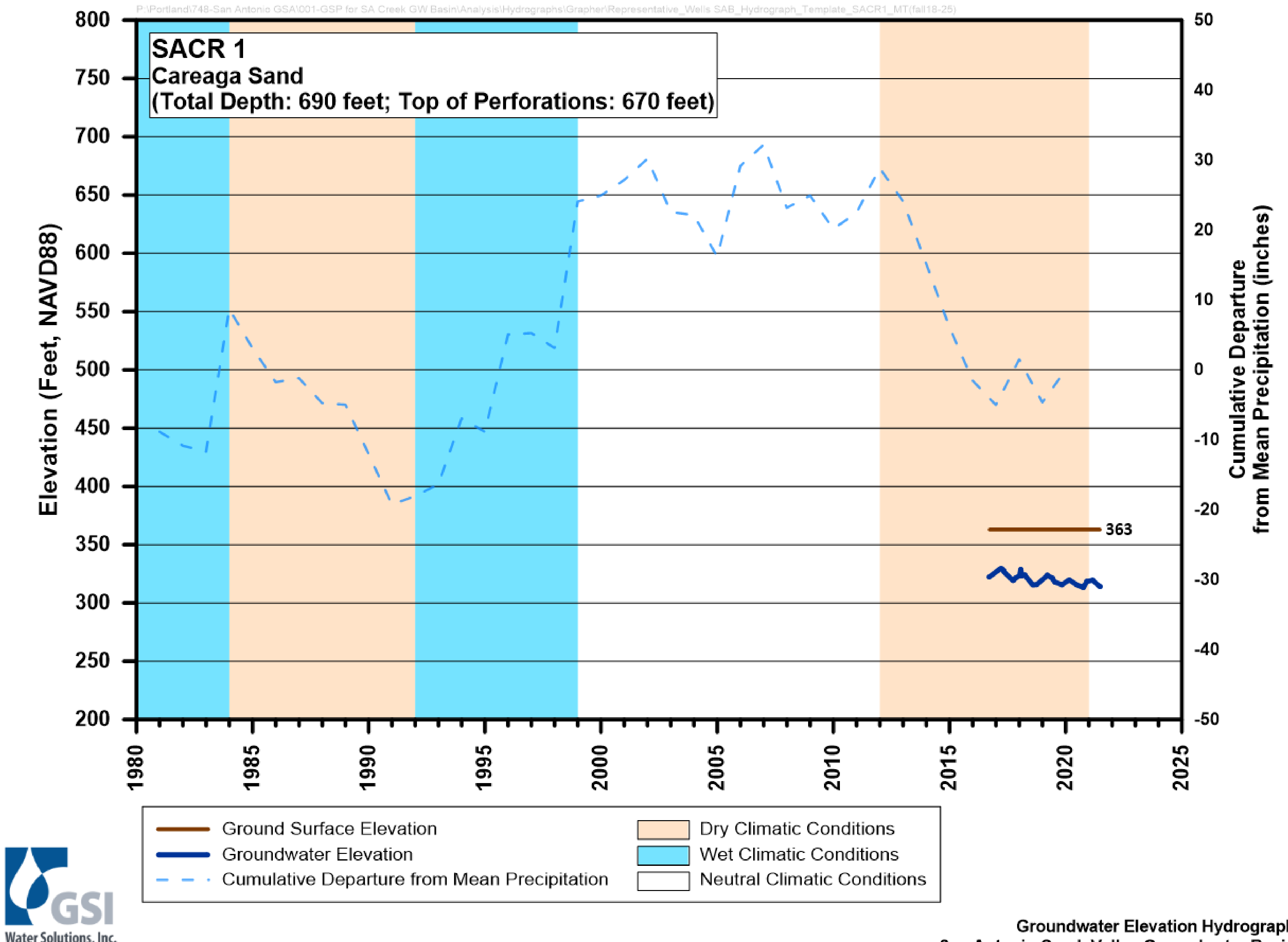


Filipponi and Thompson Drilling
LACSD No 6
Nov 01, 2017

ELECTRIC - GAMMA RAY-TEMPERATURE LOG

Mult. Pages
2"/100'





Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

USGS MONITORING WELL DRILLING AND LITHOLOGIC LOG

COMMON WELL NAME: SACR 325 PROJECT: GC16ZG00FUVS300 PROJECT CHIEF: David O'Leary

ELEV: 361' LOCATION: [redacted]CA-135, Los Alamos, CA 93455, N34°45'32" W120°23'39" LOGGED BY: Anthony Brown Adam Kjos

DRILLED BY: USGS RDP RIG TYPE: Mud Rotary- TH60 LAG METHOD: Rice (mud)

Date	Depth	Time (min)	Rig noise etc.	Color (Munsell - soil)	Cones / EC	Graphic	Description and other observations	Bit size, &Rice time	Date
	0				EC 4780				
7/30	20	1514 1543 1614		2.5y 3/2 2.5y 5/3	VHvy / 3950		0-1 - wood 1-2 - RIPRAP - cement/asphalt 2-3 soil - silty clay 3-4 silty clay 4-14 sand (gr-mp)(vf-vc) 14-16 sl(vf-vc) g (gr-mp) 16-17 clayey 17-20 = 14-16	20" HOLE Opener	7/30
7/31	40	0944 0949 0959	33'	2.5y 6/3	VHvy / m / 3080		SANDy (vf-vc) gravel (gran-md peb) Gravelly (gran-md peb) SAND (vf-vc)	9 7/8" longtooth tricone	7/31
	60	1132 1137 1142		2.5y 6/3	VHvy / 3050		slightly Gravelly (gran-sm peb) sand (vf-vc)		
	80	1153 1209 1219	68' slow 71' FAST	2.5y 4/2 2.5y 5/3	Hvy / 3010		64'-65' soil hor 65'-68' silty sand (vf-vc) w/ gravel (gran-md peb) 68'-71' clayey silt w/ md peb 71-80' - mainly (vf-m) w/ (vc) + gran		
	100	1229 1232 1236	81'	2.5y 5/3	mod / 2920		SANDy (vf-vc) gravel (gran-md peb)		
	120	1332 1337 1347	108' 117'	2.5y 6/3 2.5y 4/3	Hvy/lt / m / 3310		Gravelly (md peb) sand (vf-m) Lost Circ. clayey silt		
	140	1437 1447 1455	128' 138'		VHvy / m / 3240		clayey silt sandy (vf-vc) gravel (gran-lg peb) sand (vf-m)		
	160	1504 1510 1519	152' 158'		VHvy / m / 3330		SAND (vf-m) SAND (vf-vc) SAND (m-vc) Abundant wood + Peat	Rice Time 2 MIN	
	180	1544 1552 1622	161' 168' color 171' 173' FAST 177' slow		VHvy / m / 3160		Gray SAND (vf-m) Green SAND (vf-m) clay SAND (vf-m) clay (silty)		
	200	1637 1659 1727	182' 190' 195'		VHvy lt / m / 2960		SAND (vf-m) silty clay SAND (vf-m)		
7/31	220	1736 1739 1752	216' slow		Hvy / 2950		SAND (vf-m) SAND (vf-vc)		7/31
8/1	240	1801 1843 0844 0848	225' slow 230'		H/vHvy / m / 2830		silty clay SAND (vf-vc)	Rice Time 3 MIN	8/1
	260	0900 0908 0949	241' 257' slow		mod / m / 2850		SAndy (vf-m) silt clay		
	280	1208 1326 1402	274' FAST		lt / m / 2950		clay		
	300	1419 1439 1447	288' FAST		Mod / m / 2640		silt		
	320	1500 1506 1511			VHvy / 2630		SAND (vf-vc) upper - gray mid - green bottom - brown	Rice Time 3 MIN	
	340	1530 1536 1543			vHvy / m / 2640		SAND (vf-m)		
	360	1602 1611 1619			vHvy / M / 2690				
8/1	380	1629 1634 1656	374' slow		VHvy / m / 2820				8/1
8/2	400	1755 1845 0856 0908	383' slow		lt / M / 2540		clay	7 7/8 tricone	8/2

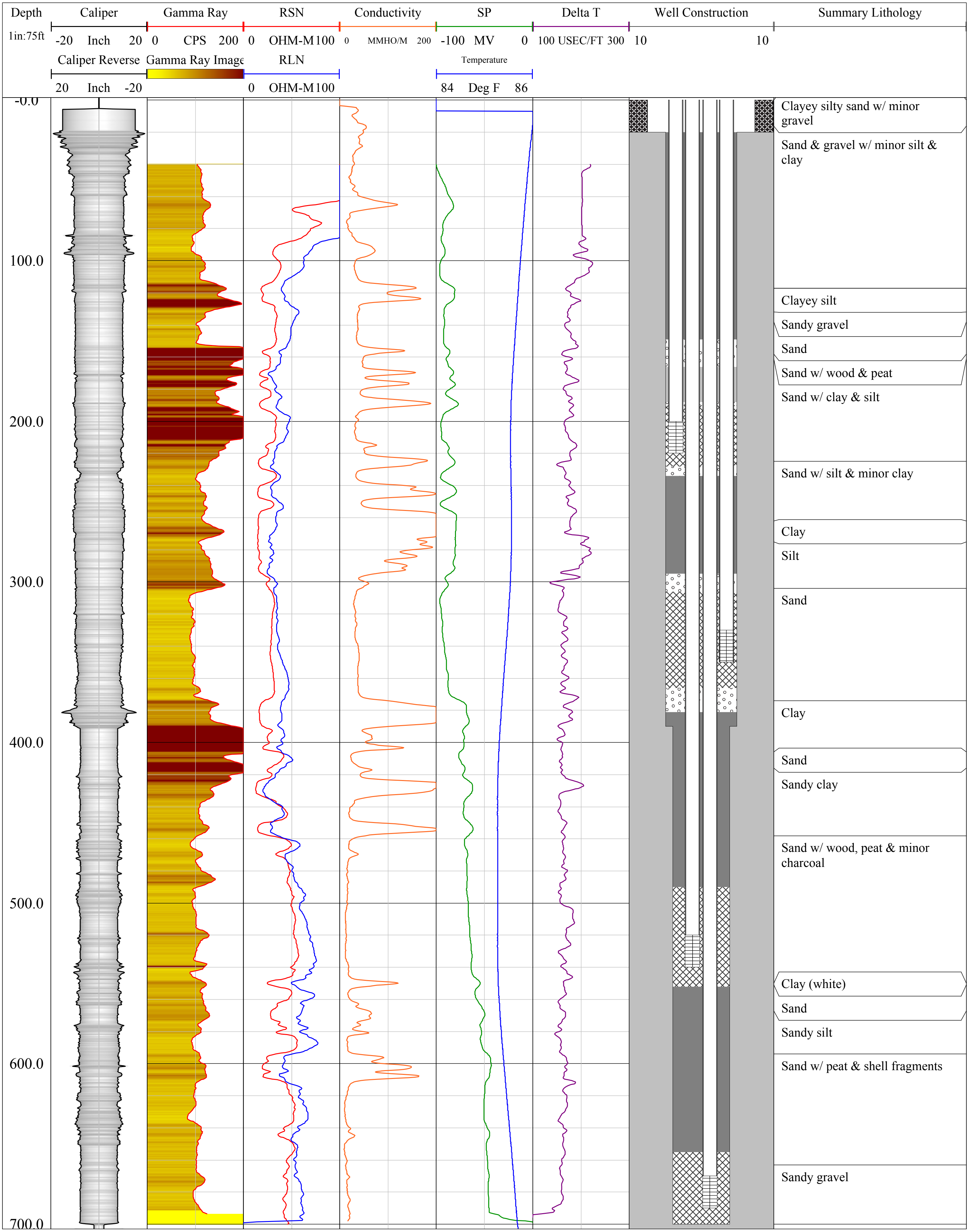
USGS MONITORING WELL DRILLING AND LITHOLOGIC LOG

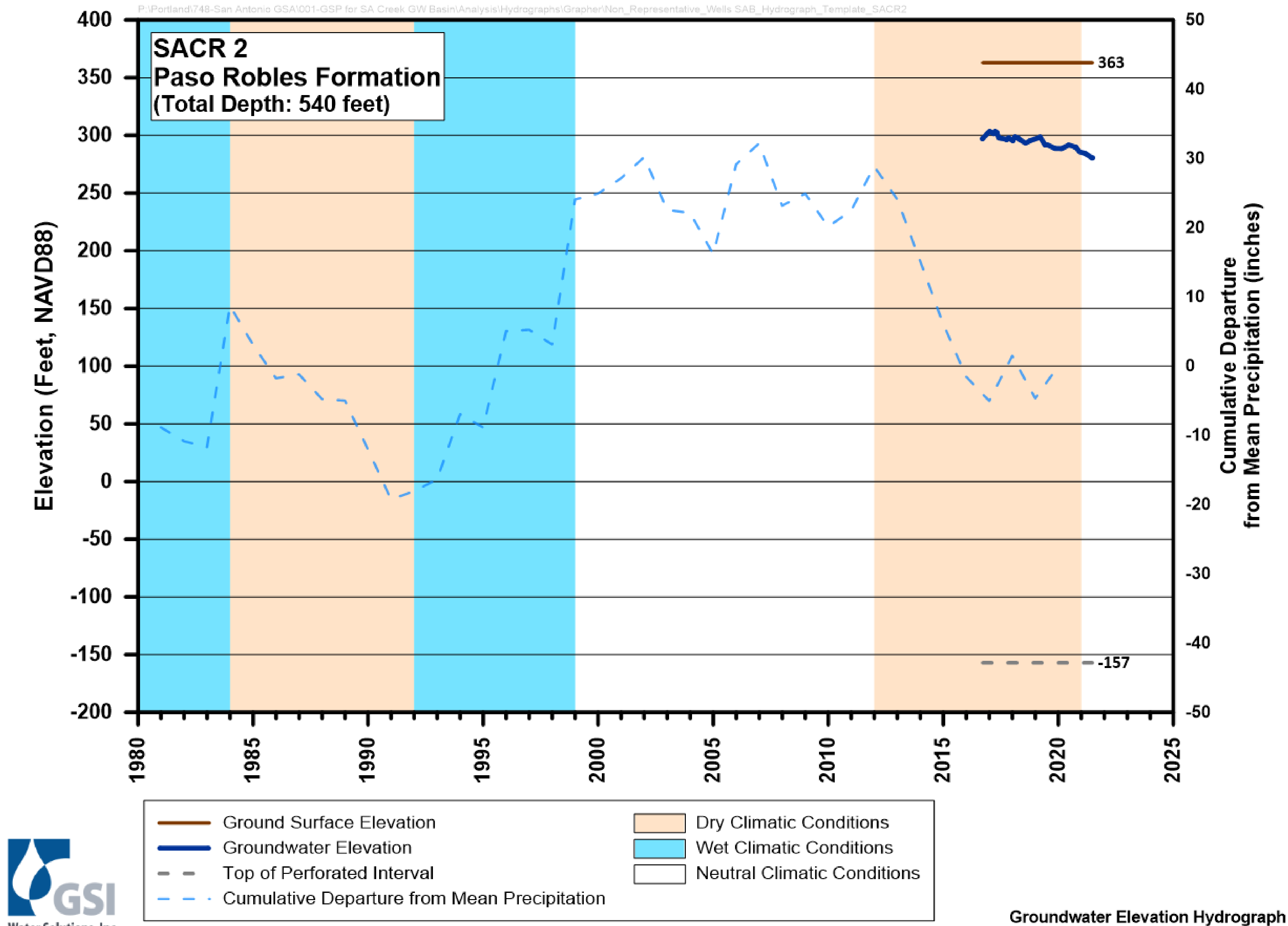
COMMON WELL NAME: SACR	PROJECT: GC16ZG00FUVS300	PROJECT CHIEF: David O'Leary
ELEV: 361'	LOCATION: 1098 CA-135, Los Alamos, CA 93455, N34°45'32" W120°23'39"	LOGGED BY: Anthony Brown Adam Kjos
DRILLED BY: USGS RDP	RIG TYPE: Mud Rotary- TH60	LAG METHOD: Rice (mud)

8/2

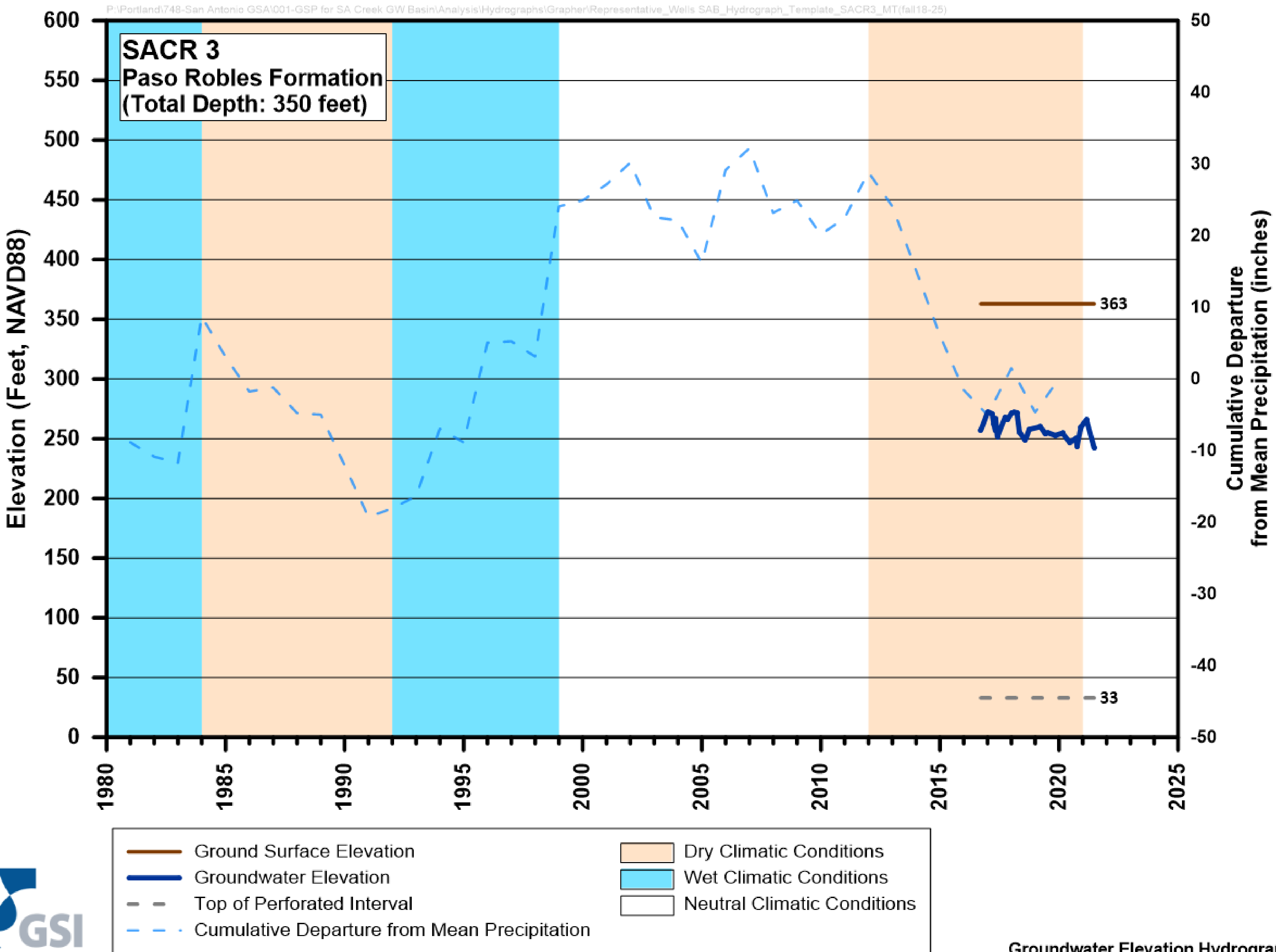
Depth	Time (min)	Rig noise etc.	Color (Munsell – soil)	Cones / EC	Graphic	Description and other observations	Bit size, &Rice time
400							7 7/8" longtooth tricone
420	0919 0928 0934	407'		Hvy M / 2600		clay SAND (vf-m) w/ SAND (c-vc) w/mafics	Rice Time 4 1/2 min
440	1003 1038 1101	425' slow 434' Fast		lt / 2420		SANDY (vf-m) clay	
460	1114 1119 1141	443' Fast 454' slow 457' Fast		mod / 2440		SAND (vf-m) w/ small wood chips	
480	1155 1158 1202			vHvy / 2470		SAND (vf-m) w/ small wood chips	
500	1215 1218 1220			vHvy M / 2390		SAND (vf-m) w/ v sm wood chips	
520	1258 1301 1303			VHvy / 2470		SAND (vf-m) w/ v sm wood chips	Rice Time 5 min
540	1319 1321 1323	539'		vHvy / 2270		SAND (vf-m) w/ v sm wood chips some charcoal SAND (vf-m) w/ Peat and wood chips	
560	1340 1343 1346	550'		Hvy / 2170		SAND (vf-m)	
580	1400 1407 1409	567' slow - Fast		vHvy M / 2260		SANDY (vf-m) silt	
600	1422 1423 1438	594' slow/fast		lt / 2310		Peat SAND (vf-vc) w/ shell fragments	
620	1451 1516 1518	601' slow 604' Fast 607' slow/Fast		mod / 2290			Rice Time 6 min
640	1531 1532 1533			Hvy / 2300		SAND (vf-m) w/ Peat + Shells @ 631'-640'	
660	1555 1558 1601			Mod / 2370		SAND (vf-m) w/ Peat + Shells	
680	1613 1616 1620	663' chatter		v Hvy m / 2360		SANDY (vf-vc) gravel (gran-sm peb) rounded	
TO 700	1633 1637 1643			vHvy / 2370		sandy (vf-vc) gravel (gran-sm peb)	

8/2


Depth
1in:75ft
Caliper
-20 Inch 20
Caliper Reverse
20 Inch -20
Gamma Ray
0 CPS 200
Gamma Ray Image
RSN
0 OHM-M 100
RLN
0 OHM-M 100
Conductivity
0 MMHO/M 200
SP
-100 MV 0
Temperature
84 Deg F 86
Delta T
100 USEC/FT 300
Well Construction
10 10
Summary Lithology
-0.0
100.0
200.0
300.0
400.0
500.0
600.0
700.0
Clayey silty sand w/ minor gravel
Sand & gravel w/ minor silt & clay
Clayey silt
Sandy gravel
Sand
Sand w/ wood & peat
Sand w/ clay & silt
Sand w/ silt & minor clay
Clay
Silt
Sand
Clay
Sand
Sandy clay
Sand w/ wood, peat & minor charcoal
Clay (white)
Sand
Sandy silt
Sand w/ peat & shell fragments
Sandy gravel

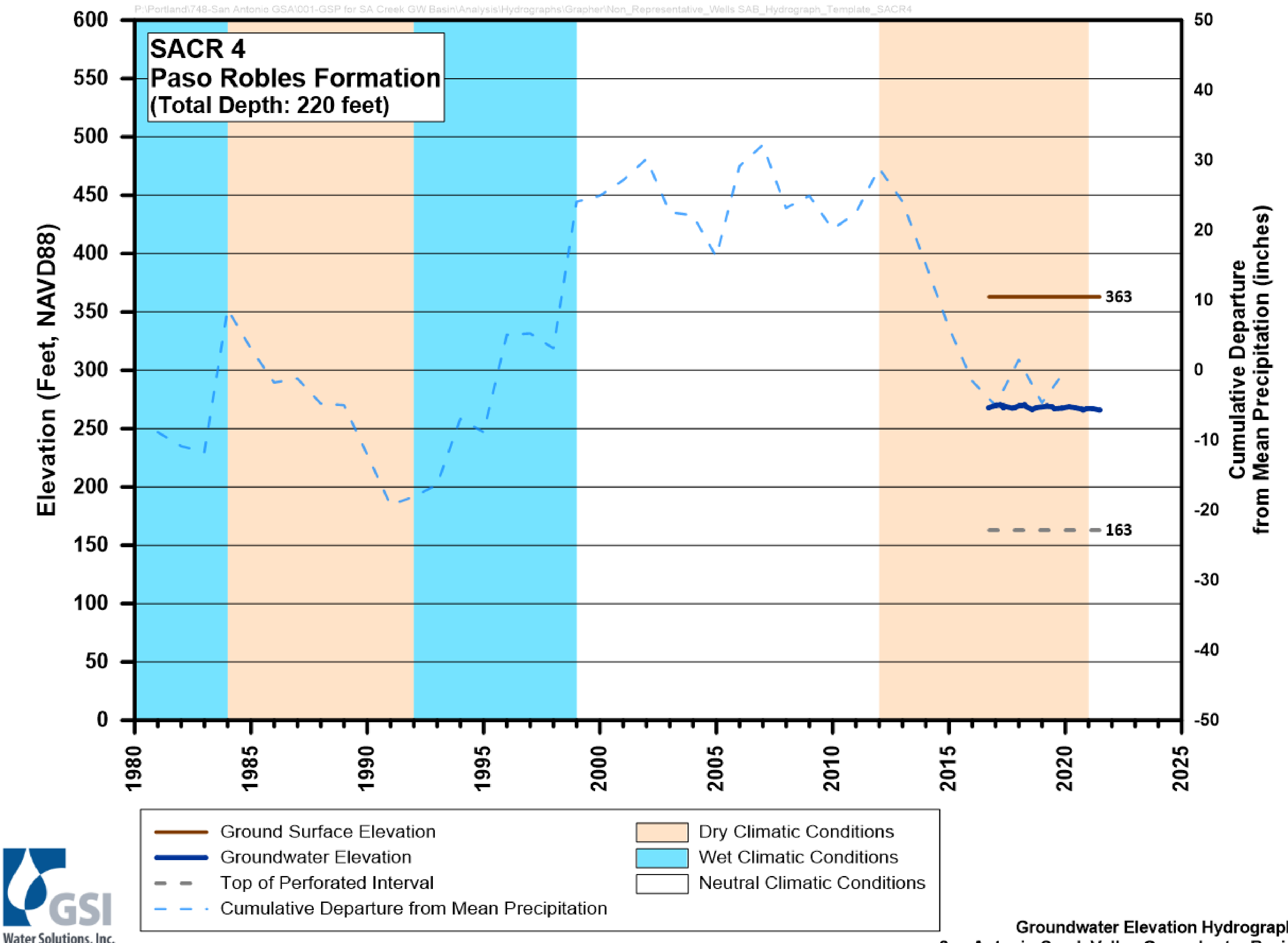


Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

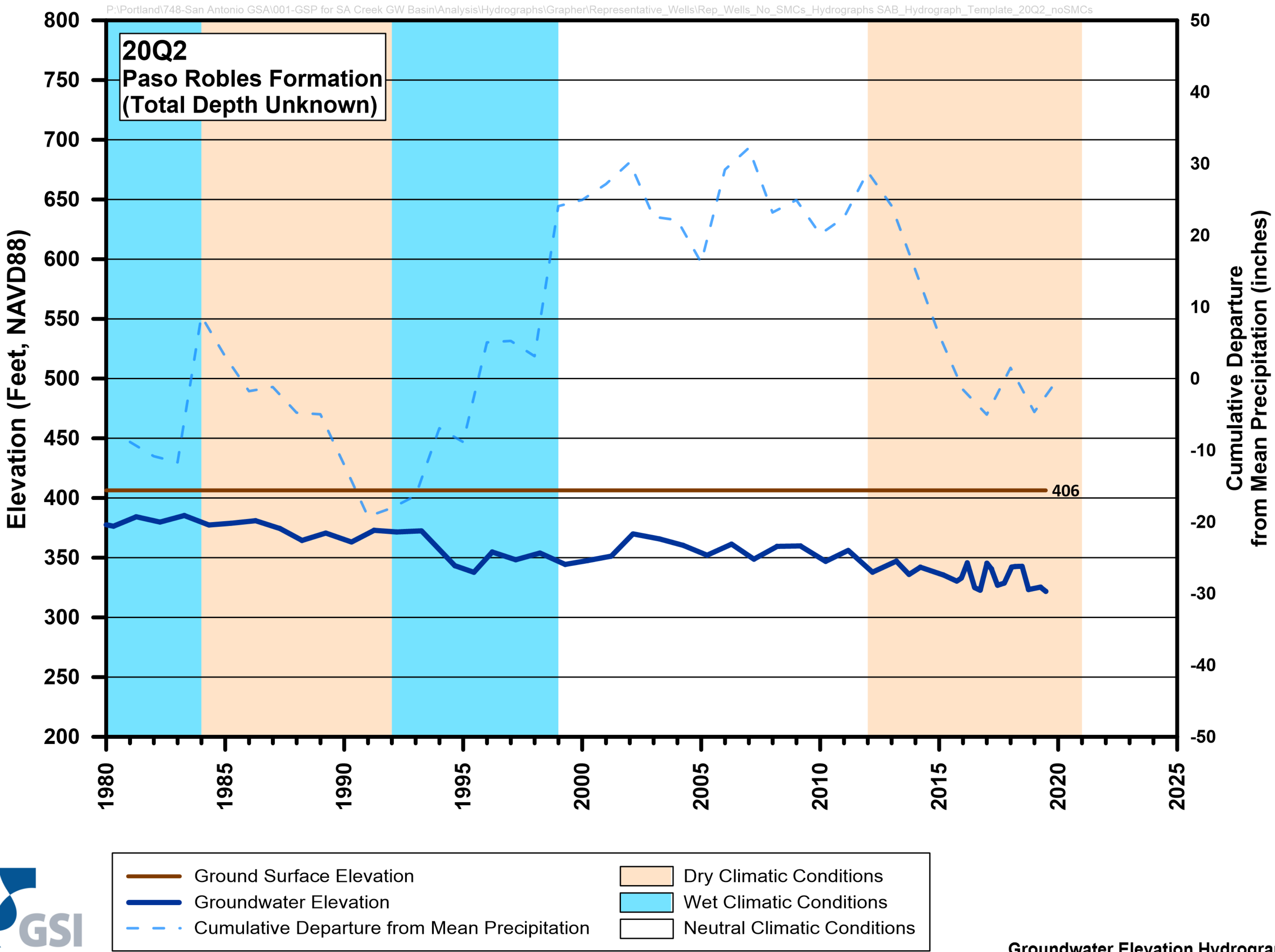


GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin



GSI Water Solutions, Inc.

Groundwater Elevation Hydrograph
San Antonio Creek Valley Groundwater Basin

APPENDIX D-7

Calculations for Surface and Groundwater Discharge in Barka Slough

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Surface and Groundwater Discharge to Barka Slough in Acre-Feet per Year (AFY)

Water Type	Discharge Type	Discharge Volume (AFY)
Surface Water	Streamflow	1,006
Groundwater	Alluvium	1,877
Groundwater	Vertical Flux	221
Total		**3,104**

Notes:

AFY: Acre feet per year

Average annual surface water discharge volume was calculated using reported flow rate measurements for calendar years 2017 and 2018 from the United States Geological Survey (USGS) surface water gage 11136040 located east of the Barka Slough.

Groundwater baseflow discharge volume was calculated using the following:
- A transmissivity value of 1,600 square-feet per day;
- An aquifer thickness of 50 feet (Hutchinson, 1980);
- A hydraulic gradient of 0.04. The hydraulic gradient was calculated using the average San Antonio Creek bed gradient from the Barka Slough to 1/2-mile east of the Barka Slough; and,
- A cross-sectional area of 175,000 square-feet. The cross-sectional area was calculated by measuring the north-south lateral extent of the Barka Slough, multiplied by an aquifer thickness of 50 feet (Hutchinson, 1980).

Groundwater vertical flux was calculated using the following:
- A hydraulic conductivity of 0.045 feet per day (Martin, 1985);
- A hydraulic gradient of 0.02. The hydraulic gradient was calculated using total well depth elevation and groundwater elevation of nested groundwater wells 16C2 and 16C4 screened in the Careaga Formation Aquifer; and,
- A Barka Slough cross-sectional area of 660 acres (Martin, 1985).

References:

Muir, K. S., (1964). *Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California.*

Hutchinson, C. B., (1980). *Appraisal of Ground-Water Resources in the San Antonio Creek Valley, Santa Barbara County, California* , August.

Martin, P., (1985). *Development and Calibration of a Two-Dimensional Digital Model for the Analysis of the Ground-Water Flow System in the San Antonio Creek Valley, Santa Barbara County, California* , August.

Driscoll, F. G., (1986). *Groundwater and Wells, Second Edition, A comprehensive study of groundwater and the technologies used to locate, extract, treat, and protect this resource* .

Baseflow Discharge to Barka Slough in Acre-Feet per Year (AFY)

Water Type	Discharge Type	Hydraulic Conductivity (feet per day)	Hydraulic Gradient	Area (square feet)	Discharge Volume (AFY)
Groundwater	Alluvium	32	0.04	175,000	1,877

Notes:

AFY: Acre feet per year

Groundwater baseflow discharge volume was calculated using the following:

- A transmissivity value of 1,600 square-feet per day;
- An aquifer thickness of 50 feet (Hutchinson, 1980);
- A hydraulic gradient of 0.04. The hydraulic gradient was calculated using the average San Antonio Creek bed gradient from the Barka Slough to 1/2-mile east of the Barka Slough;
- A cross-sectional area of 175,000 square-feet. The cross-sectional area was calculated by measuring the north-south lateral extent of the Barka Slough, multiplied by an aquifer thickness of 50 feet (Hutchinson, 1980);
- A conversion factor of 365 days = 1 year; and,
- A conversion factor of 43,560 cubic feet = 1 acre-foot.

References:

Hutchinson, C. B., (1980). *Appraisal of Ground-Water Resources in the San Antonio Creek Valley, Santa Barbara County, California* , August.

Transmissivity Calculation from Alluvial Pumping Data

Well Location(s)	Formation	Specific Yield (gallons per minute per foot)[1]	Transmissivity (square feet per day)
Between Los Alamos and Harris Canyon	Alluvium	8	1,604

Notes:

[1] - Value for specific yield for wells completed in the alluvium of Santa Antonio Creek Valley between the town of Los Alamos and Harris Canyon (Muir, 1964).

Transmissivity was calculated using the modified Cooper-Jacob Equation (Driscoll, 1986):

T = [(Q/s) x 1,500] / 7.48;

T = Transmissivity (square-feet per day);

Q/s = Specific Yield (gallons per minute per foot);

1,500 = Constant for Unconfined Aquifers; and,

7.48 = Constant to covert from gallons per day per foot to square-feet per day.

References:

Muir, K. S., (1964). Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California.

Driscoll, F. G., (1986). *Groundwater and Wells, Second Edition, A comprehensive study of groundwater and the technologies used to locate, extract, treat, and protect this resource.*

Vertical Flux Groundwater Discharge to Barka Slough in Acre-Feet per Year (AFY)

Water Type	Discharge Type	Hydraulic Conductivity (feet per day)	Hydraulic Gradient	Area (square feet)	Discharge Volume (AFY)
Groundwater	Vertical Flux	0.045	0.02	28,749,600	221
Groundwater	Vertical Flux	0.054	0.02	28,749,600	265

Notes:

AFY: Acre feet per year

Groundwater vertical flux was calculated using the following:

- A hydraulic conductivity of 0.045 and 0.054 feet per day (Martin, 1985);
- A hydraulic gradient of 0.02. The hydraulic gradient was calculated using total well depth elevation and groundwater elevation of nested groundwater wells 16C2 and 16C4 screened in the Careaga Formation Aquifer;
- A Barka Slough cross-sectional area of 660 acres (Martin, 1985);
- A conversion factor of 365 days = 1 year;
- A conversion factor of 43,560 square feet = 1 acre; and

References:

Martin, P., (1985). *Development and Calibration of a Two-Dimensional Digital Model for the Analysis of the Ground-Water Flow System in the San Antonio Creek Valley, Santa Barbara County, California* , August.

Hydraulic Gradient Calculation from Nested Wells 16C2 and 16C4

Well	Surface Elevation (feet msl)	Bottom of Well (feet bgs)	Groundwater Elevation (feet msl)	Hydraulic Gradient
16C2	328.59	169	256.97	0.02
16C4	328.59	560	264.93	

Notes:

bgs: below ground surface

msl: above mean seal level

Groundwater elevations were measured on October 2, 2018.

The vertical flux of groundwater leaking into the Barka Slough was calcuated at 0.018 feet per day in 1985 (Martin, 1985).

APPENDIX E

Water Budget Documentation

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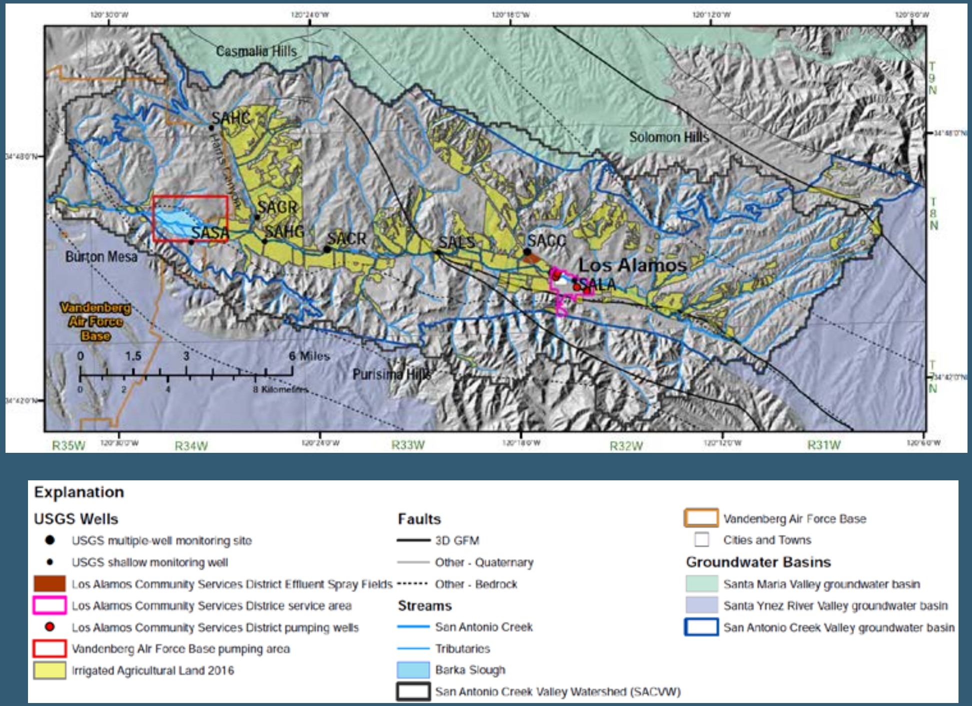
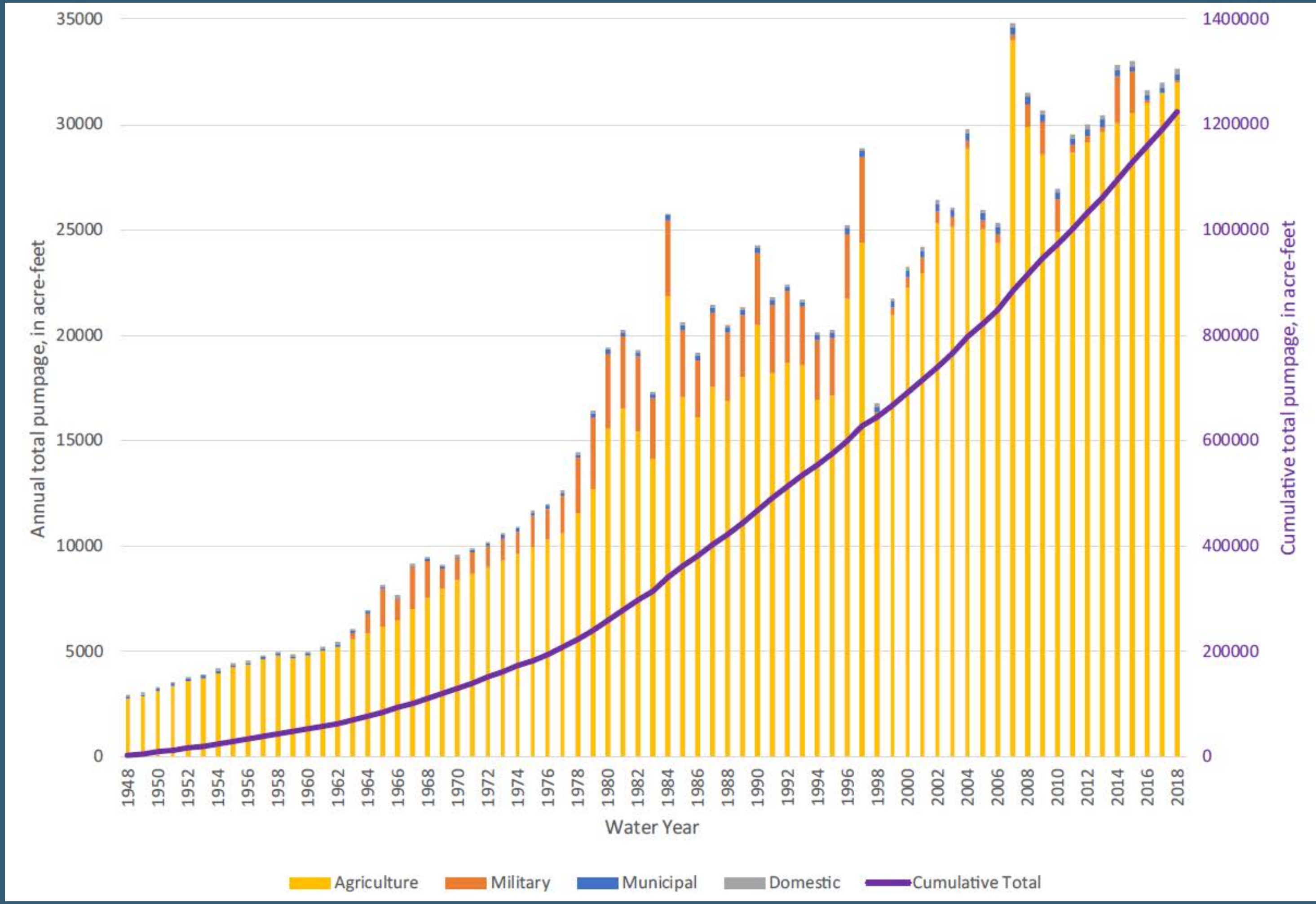
Estimates of Groundwater Discharge



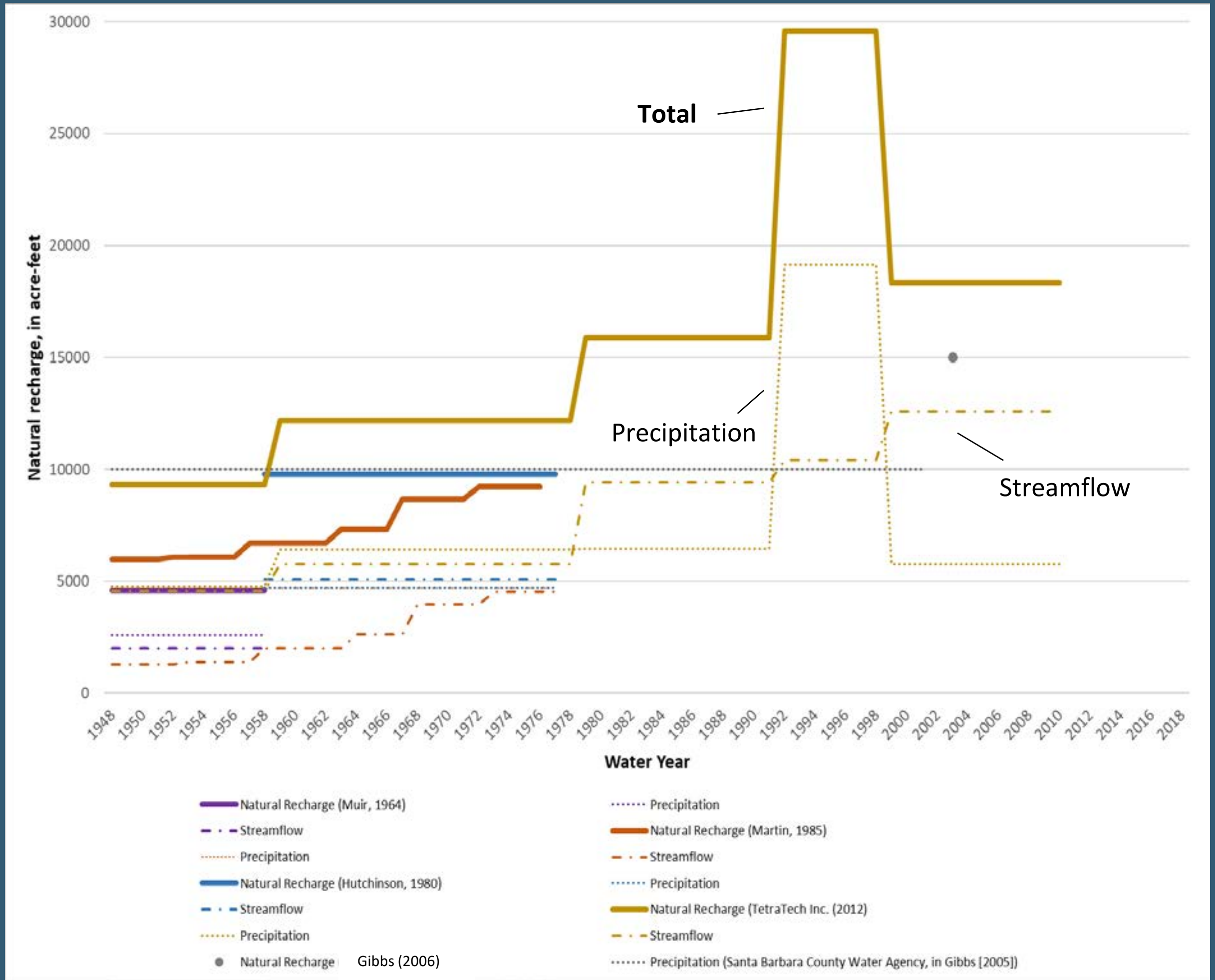
Estimated annual and cumulative pumpage



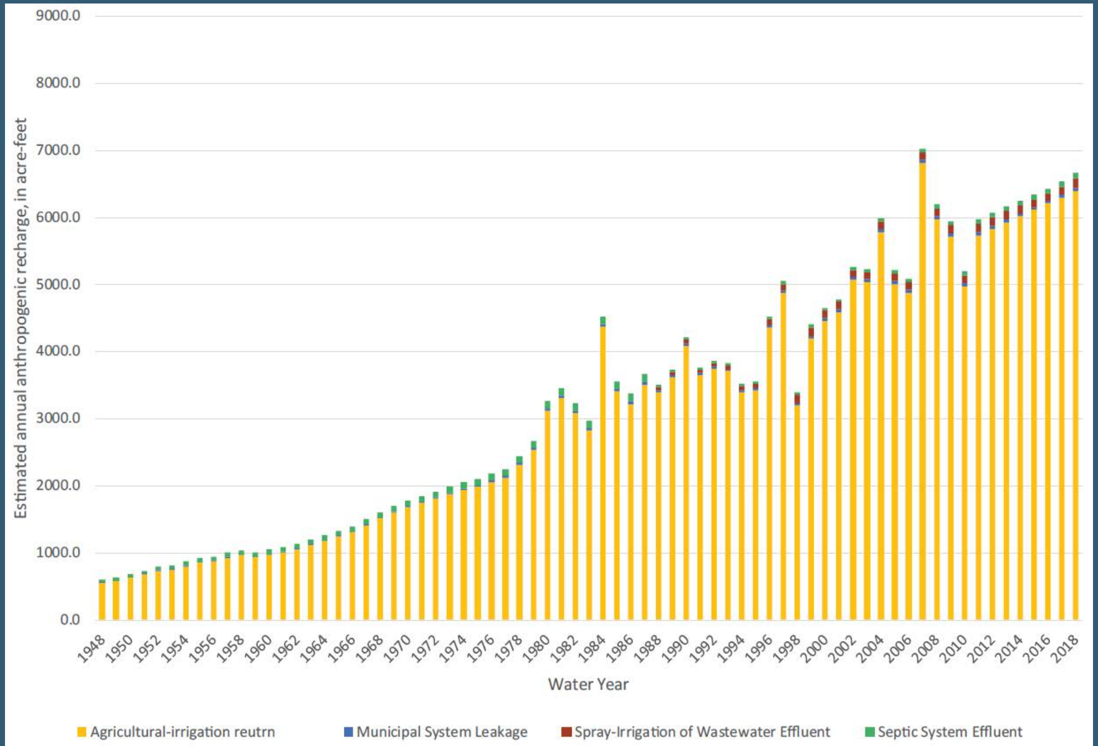
- Reported pumping from:
  - Muir (1964), Hutchinson (1980), Martin (1985), TetraTech Inc. (2012)
  - Vandenberg Air Force Base, Los Alamos Community Services District

Estimates of Groundwater Recharge

Natural

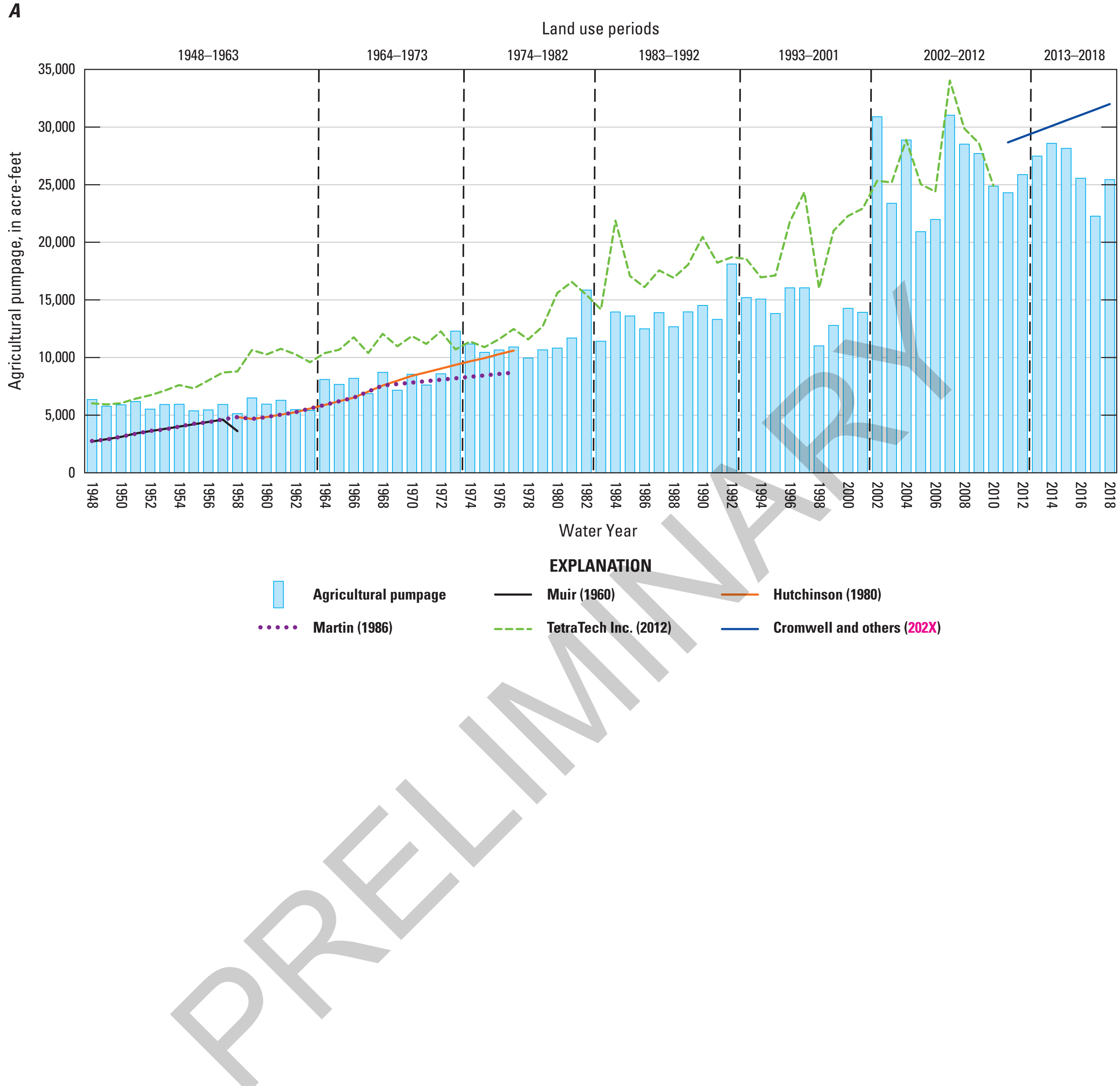


Anthropogenic



Preliminary, subject to revision

A



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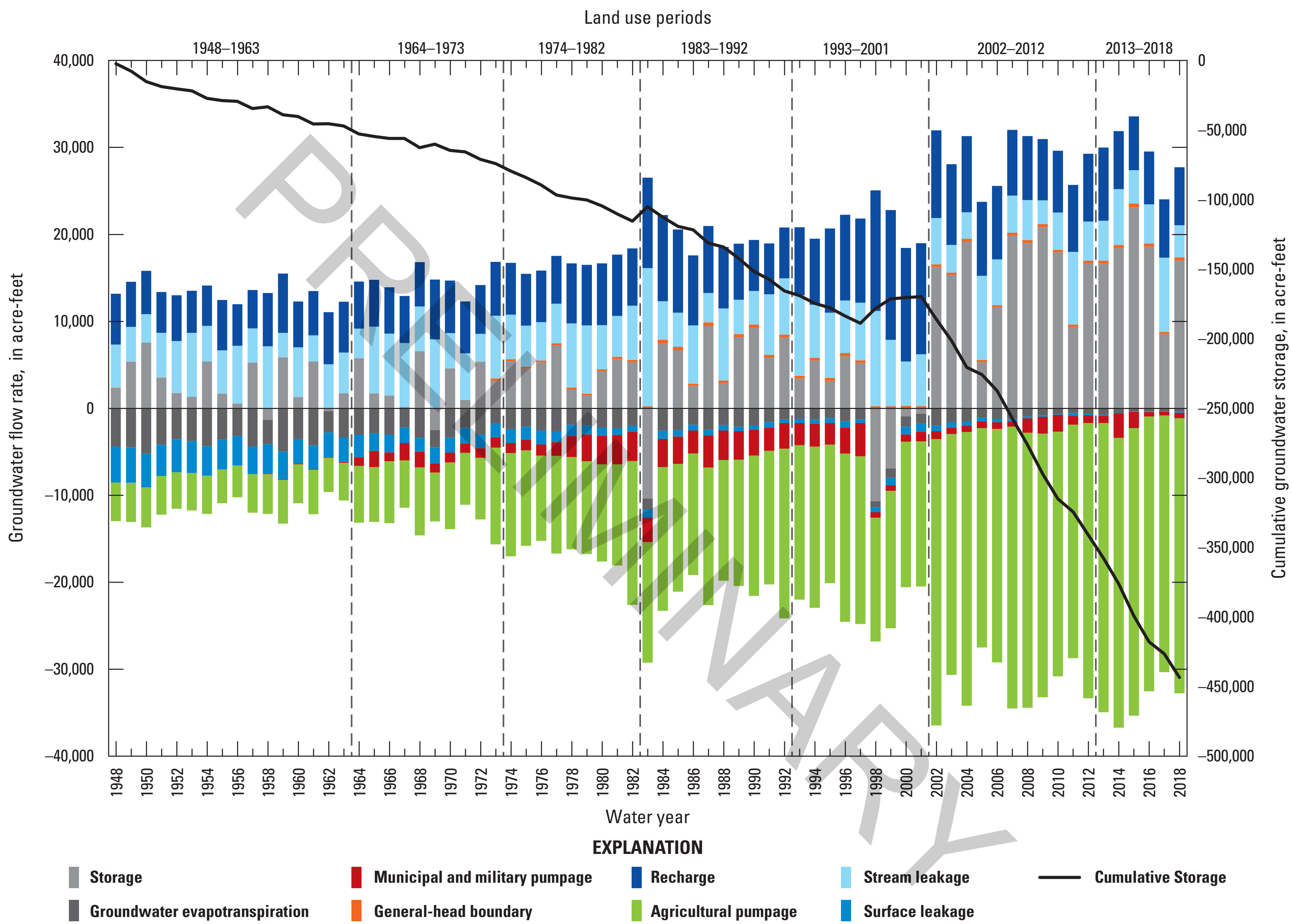

sac21-0754_fig 28

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Technical Memorandum

To:	Jeff Barry, Principal Hydrogeologist
Company:	GSI Water Solutions
Subject:	Application of Basin Characterization Model Data to Water Budget Modeling for San Antonio Creek Basin
CC:	Michael McAlpin, GSI Water Solutions
From:	Jim McCord, PhD, PE (Principal Hydrogeologist)
Date:	09 August 2021

Contents

1 INTRODUCTION

IRP Water Resources Consulting (IRP Water) has been contracted by GSI Water Solutions (GSI) to provide technical support and senior review of the development and application of a spreadsheet water budget tool developed for the San Antonio Creek Valley Groundwater Basin (Basin) Groundwater Sustainability Plan. As part of that scope, IRP Water worked with GSI to acquire, compile, and process modeling data from the United State Geological Survey's (USGS) Basin Characterization Model (BCM) that was used for key components of the water budget, specifically precipitation, areal precipitation recharge, mountain-front recharge, evapotranspiration, and surface runoff.

2 BCM DATASETS USED IN WATER BUDGET MODEL

One of the most important inflows to the groundwater system occurs due to deep percolation of precipitation. When precipitation falls on the ground surface, part of that water will infiltrate into the soils and part will runoff the surface when the near-surface soils become saturated and/or when the rainfall intensity exceeds the soil's infiltration capacity. Infiltrated water within the plant root zone can subsequently be removed from the soil profile by plant uptake and evapotranspiration as described above. Once the infiltrated water percolates to depths beyond the rooting zone, it will become groundwater recharge, eventually accreting to the uppermost groundwater table it encounters.

Various techniques are available to estimate recharge, including:

- environmental tracer profiles in the vadose zone,
- environmental tracer concentrations in groundwater,
- streamflow analysis (hydrograph separation and recession-curve displacement) methods for estimating baseflow and groundwater recharge, and
- numerical model calibration parameter.

Scanlon et al. (2002) provide a summary and comparative evaluation of a range of methods to estimate recharge, including those listed above, citing the advantages and disadvantages of each. Results from recent studies show that distributed parameter hydrological modeling can provide better recharge estimates (LBG-Guyton, 2005; Dietsch and Wehmeyer, 2012; Ehtiat and others 2016) than some of the competing.

2.1 BCM Background

The USGS's BCM (Flint et al., 2021) is a recently developed distributed parameter hydrologic model. In concept, the BCM computes a hydrologic water balance on a raster map over the landscape, with a hydrologic water balance computed for each raster as shown in **Figure 1**, with the inflows of precipitation, and outflows of evapotranspiration, recharge (deep percolation to groundwater), and runoff.

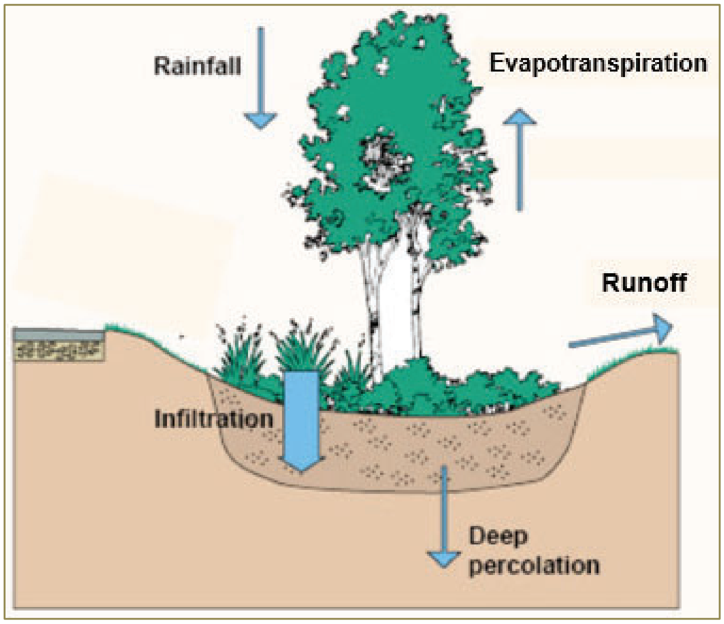

Figure 1. Simplified schematic diagram of parcel water balance conducted in BCM distributed parameter model.

It is a distributed parameter model in the sense that for each 270 meter (m) x 270 m raster of the landscape:

- The input of rainfall and evapotranspiration are obtained from processing of re-gridded Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate data.
- Similarly, the land response (runoff, infiltration, and deep percolation) for each parcel is computed using spatially distributed physical parameters relevant to simulation of those hydrologic processes, such as soil permeability, runoff, and storage characteristics parameter available as part of the SSURGO[1] dataset.

The BCM has been applied across the entire state of California on a grid of 270 m x 270 m (886 feet [ft] x 886 ft, approximately 16-acre) land parcels on monthly time steps for the period from 1951 to 2019. For the Basin's water budget modeling tool, the BCM model results[2] were downloaded for the historical period of record and were utilized for a variety of inputs, specifically: Precipitation, Areal Recharge, Mountain-Front Recharge, Evapotranspiration, and Surface Runoff.

2.2 Clip to Area of Interest

The downloaded data covers the entire state of California. The dataset was clipped to an area of interest (AOI extending from the headwaters of the Santa Ynez River on the east to

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[1] Soil Survey Geographic Database (SSURGO) developed by USDA Natural Resources Conservation Service and available online
[2] Flint, L.E., Flint, A.L., and Stern, M.A., 2021, The Basin Characterization Model - A regional water balance software package (BCMv8) data release and model archive for hydrologic California, water years 1896-2020, U.S. Geological Survey data release, https://doi.org/10.5066/P9PT36UI

Vandenberg Space Force Base on the west, and from the southern Santa Maria Valley and Sisquoc River headwaters on the north down to the southern slopes of the Santa Ynez Mountains on the south. This larger area encompasses both the Basin and Santa Ynez River Groundwater Basin. This area was selected since GSI has been developing GSPs for both the Basin's Groundwater Sustainability Agency (GSA) and the Santa Ynez River Basin Eastern Management Area (EMA) GSA, and clipping the data to this area allowed GSI efficiently process all the data for both study areas in one pass.

2.3 Comparison and Correction to Local Weather Stations

For the AOI, the monthly BCM precipitation data was compared to monthly total precipitation for all weather stations located across the region. The overall annual values and long-term values were quite close, with the BCM annual total exhibiting an approximate 2% overestimation bias compared to the weather station data. Discrete monthly values at the individual station locations, however, could exhibit larger errors. We employed a simple conditional simulation approach to correct for the monthly errors (Sidler, 2003; Wang and Zhang, 2008). For each weather station *i* located at (x_i, y_i) for each monthly time *t* , we define the monthly precipitation error P_{error} for that station as:

$$P_{error}(x_i, y_i, t) = P_{BCM}(x_i, y_i, t) - P_{station,i}(t) \quad (1)$$

Then, for each timestep the precipitation error point values $P_{error,i}(t)$ are interpolated onto the BCM grid over the AOI to yield a continuous field of $P_{error}(x,y,t)$. That continuous precipitation error field is then subtracted from the original BCM data, finally yielding a continuous smoothly varying precipitation field adjusted to exactly match recorded precipitation at each weather station location (*x,y*) data each month *t*, $P_{corr}(x,y,t)$.

Figure 2 illustrates how this procedure is applied to the AOI around the Basin and the EMA for the month of January 1981. The top image shows the raw BCM precipitation data for the AOI. The middle image shows the gridded precipitation error for that month, where one can see that both the Solvang and San Marcos Pass precipitation gages recorded considerably more precipitation than the raw BCM data at those locations. The bottom image shows the "corrected" BCM precipitation, where one can see that the corrected precipitation pattern looks similar to the raw BCM field, but with higher precipitation in the areas about the two stations with large errors for that month.

2.4 Adjusting Recharge and Runoff by the Corrected Precipitation

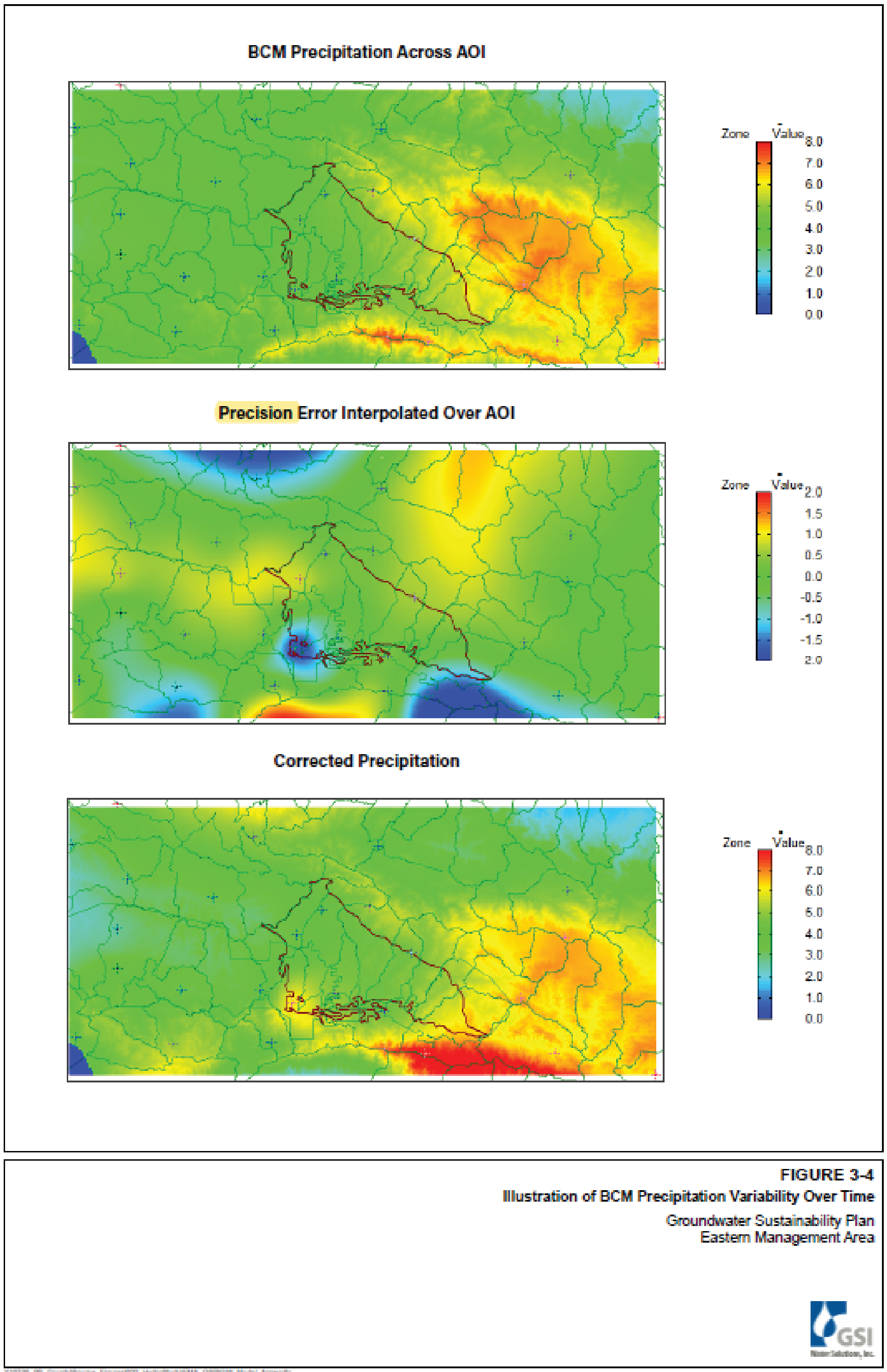
Note that the BCM precipitation was not used directly in the model, rather the BCM recharge and runoff from the BCM dataset were used in the Basin's water budget tool. To account for the adjustments to the BCM precipitation data, the raw BCM recharge and runoff were adjusted by scaling it by the precipitation ratio P_{corr} / P_{BCM}. For example, for the adjusted recharge for each parcel located at *x,y* for time *t* would be computed as :

$$RCH_{adjusted}(x, y, t) = RCH_{BCM}(x, y, t) * \frac{P_{corr}(x,y,t)}{P_{BCM}(x,y,t)} \quad (2)$$

Figure 3 shows how the recharge can significantly vary over space and time, showing the both the raw and adjusted BCM rechange for the months of January, February, and March

1981 for the large AOI including the Basin and the EMA. The same precipitation-scaling approach is used to adjust the runoff, and is illustrated in **Figure 4.**

Figure 2. Illustration of approach to adjust gridded precipitation to match values at weather stations located in region



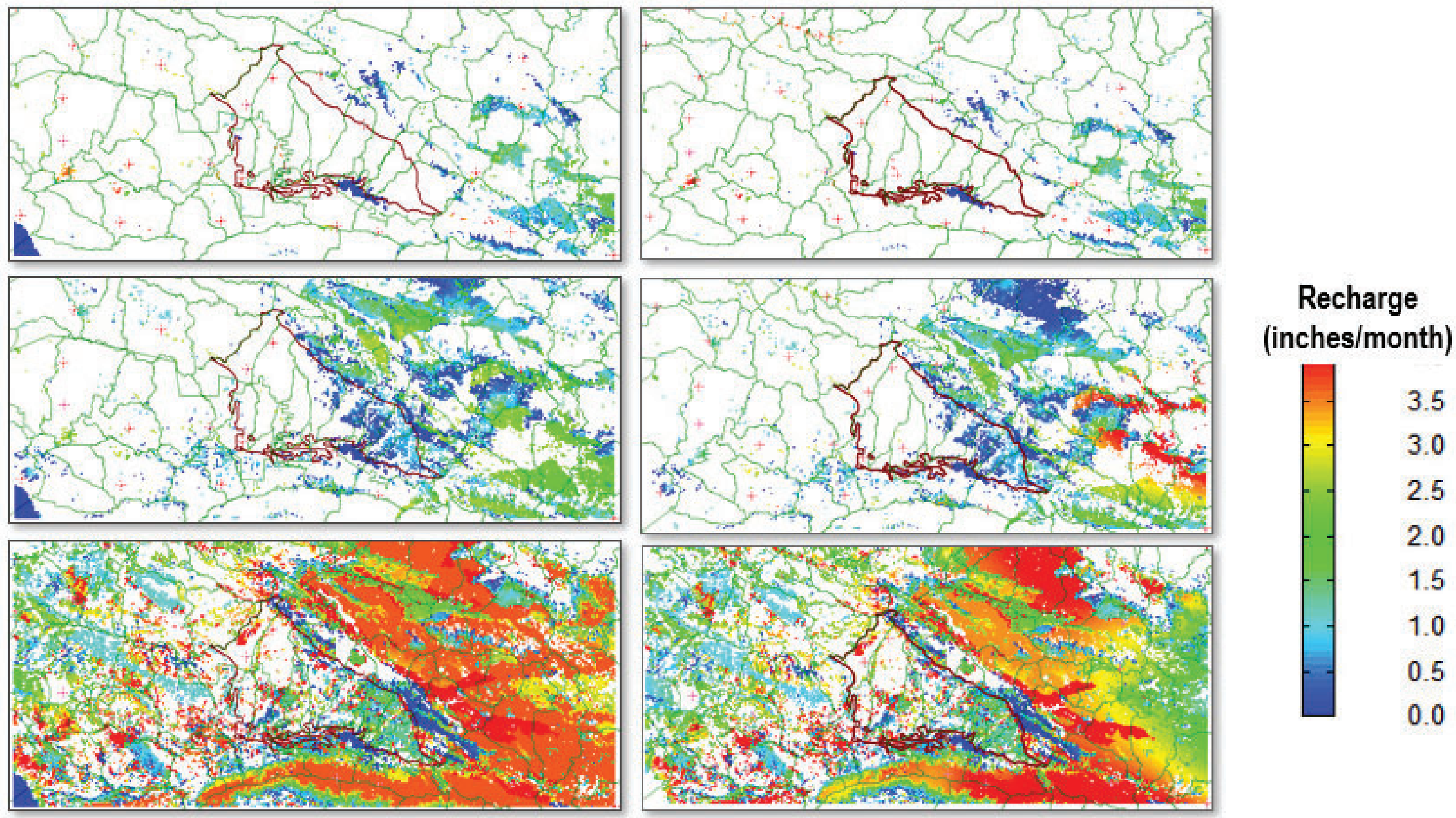


Figure 3. Illustration of temporal and spatial variability in BCM gridded recharge, for the months of January, February, and March 1981. Raw BCM data on left and adjusted based on precipitation correction on the right.

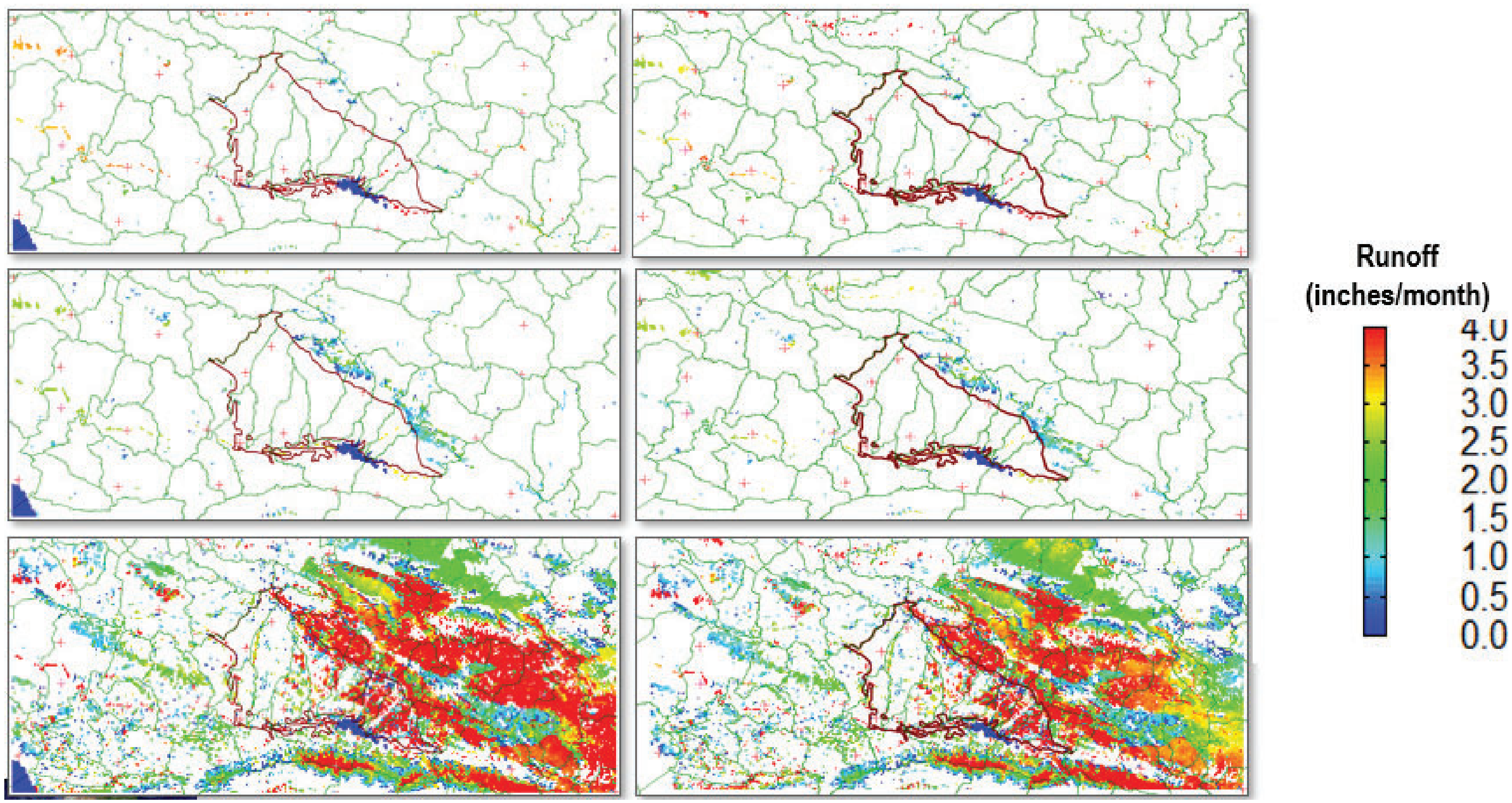


Figure 4. Illustration of temporal and spatial variability in BCM gridded runoff, for the months of January, February, and March 1981. Raw BCM data on left and adjusted based on precipitation correction on the right.

3 STREAMBED PERCOLATION OF RUNOFF AND REJECTED RECHARGE

The distinct hydrology and hydrogeology of the Basin dictates that two additional hydrologic processes should be considered when applying the BCM data to the project water budget. Those processes are the infiltration of runoff into the sediments below the stream channel and the rejected recharge, and each is addressed in separate subsections below. After considering these various hydrologic processes, a practical and mass-conservative procedure is developed to adjust and calibrate the BCM runoff and recharge based on comparisons to independent estimates of streambed percolation and surface flows into Barka Slough.

3.1 BCM Runoff and Streambed Percolation

When reviewing the BCM runoff data and comparing it to gaged and estimated surface water inflows into Barka Slough, it is notable that the total BCM runoff is much larger than the surface water inflows into Barka Slough.

Specifically highlighted in the BCM technical report (Flint et al., 2021) is that the runoff (and recharge) calculated by the BCM should be considered as "unimpaired." This means they do not account for what happens to the runoff that is generated on each parcel along its flow path: (i) from that parcel to the nearest stream channel, and (ii) along the stream channel to its outflow point at a gauged location.

3.1.1 Surface Runoff to Nearest Stream Channel

Figure 5 addresses the first leg of the flow path of a molecule of runoff water, from the point where runoff is generated at the ground surface to the point that it enters the nearest stream channel. One can see that the runoff generated at one location may infiltrate at another location downslope where it crosses an area with more permeable surface soils. Or it may accumulate in a local small swale and infiltrate at that point. Water infiltrated as such would collect with the water infiltrated in the parcel itself. That combined flow can continue to percolate downward to become enhanced groundwater recharge in some areas, while in other areas it may hit a lower permeability layer and at that point flow laterally to daylight again as interflow discharging to shallow surface water downslope.

3.1.2 Stream Channel Percolation

San Antonio Creek is classified as an intermittent stream along nearly its entire length until it arrives to Barka Slough, which is located at the downstream end of the Basin. This means that the stream channel is typically dry most of the year, only conveying surface flows during a wet winter season. In the period that GSI has been working on this GSP project, flow has rarely been observed in San Antonio Creek. This also means that when the creek is flowing, water is likely infiltrating into the streambed sediments and recharging the aquifer, a condition known as a "losing stream," as illustrated in **Figure 6**.

3.1.3 Adjustment to BCM Runoff

Based on this discussion, and the fact that Barka Slough receives surface inflows only during the wet season, it is clear that some large fraction of the runoff generated locally (and calculated in the BCM model) actually never makes it to Barka Slough. This "surface water

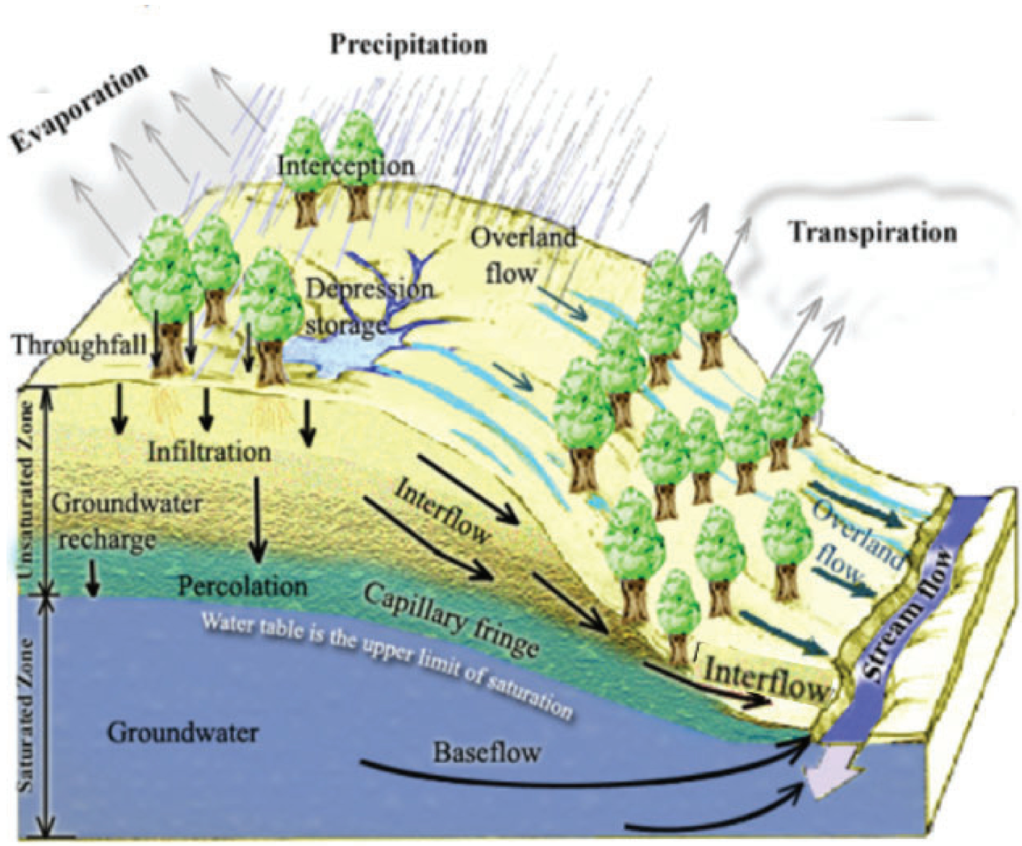


Figure 5. Hillslope hydrologic processes, showing overland flow (runoff), and infiltration and recharge, interflow, groundwater flow, and the interactions between these processes

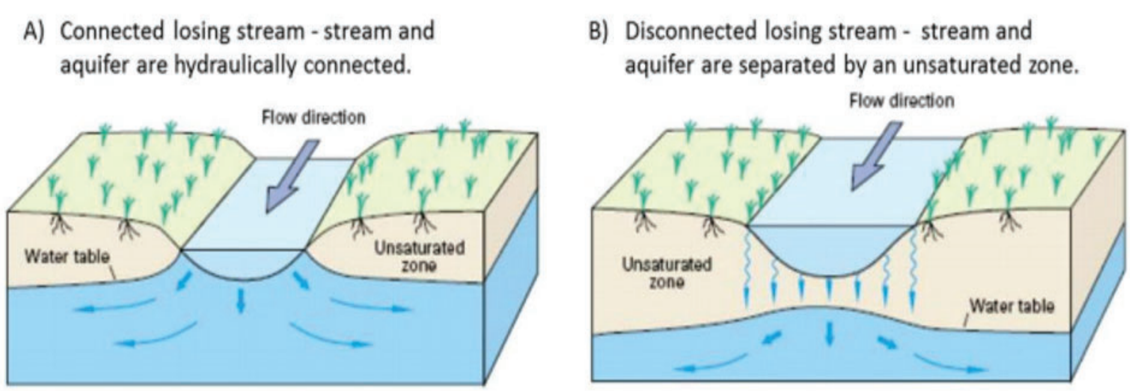


Figure 6. Generalized surface water - groundwater interactions between an unconfined aquifer and a losing stream (adapted from Alley et al., 1999)

What is Rejected Recharge

loss" instead infiltrates at some point along its flow path to the basin outlet, and thus contributes to groundwater recharge. Flint et al. (2021) address this type of behavior in *Figure 18* and associated text of their report, and they offer a suggested approach to determine these runoff losses via comparison to stream gage data. Given the limitations of the streamflow data available for the study area, surface flow into Barka Slough needed to be estimated from Casmalia gage flows adjusted to account for gains and losses between the slough and the gage (see section 3.3.3.1.2). With this estimated surface water inflow to the slough as a calibration target, a simple mass conservative method was developed to adjust the BCM runoff values.

The BCM runoff adjustment procedure is based on the concept that in drier years essentially all of the locally generated runoff infiltrates and recharges the groundwater system before it can reach the slough, while in very wet years most of the runoff eventually arrives to the slough as surface water inflow. And between these two limiting conditions, the fraction of runoff that arrives to the slough and the balance to recharge varies. We can thus define the recharge due to streambed percolation RCH_{SB} as:

$$RCH_{SB} = RUNOFF_{BCM} * FACTOR_{RCH} \quad (3)$$

To simulate this behavior, we first developed the probability exceedance curve of annual BCM Runoff, shown as the red curve in **Figure 7**. Based on anecdotal information, we assumed that in 50% of the years, no sufficient runoff was generated to result in surface flows into Barka Slough. Thus, all runoff for those years with annual discharge less than the 50% exceedance value was calculated to recharge the groundwater system as streambed percolation, and $FACTOR_{RCH}$ = 1. For wetter years beyond that point, $FACTOR_{RCH}$ was calculated to drop off at a steady rate, as shown by the blue symbols in **Figure 7**. Using this procedure, one can calculate the fraction of BCM runoff that results in streambed percolation recharge and the remaining fraction that results as surface flows into Barka Slough.

As described previously, this adjustment procedure was applied in a mass-conservative way for the water balance. This was accomplished in the surface budget by counting all BCM runoff as surface water inflow, and the streambed percolation was counted as surface water outflow to groundwater, and the balance was computed as surface water outflow to Barka Slough. The rate of drop of the recharge factor in **Figure 7** was adjusted so that the surface water inflow to Barka Slough computed by this method closely matched an independent estimate of surface water inflow to Barka Slough.

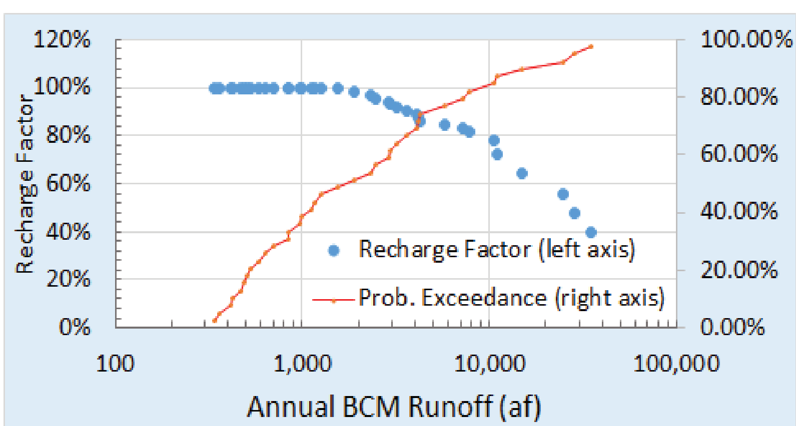


Figure 7. Estimating streambed percolation recharge from BCM runoff data for San Antonio Creek Basin.

3.2 BCM Recharge and Rejected Recharge

Similar to the concept that not all runoff generated in a parcel by BCM remains surface water along a flow path, not all recharge computed by BCM remains as groundwater along its flow path to the Basin discharge point. This is also illustrated in **Figure 5**, for example where subsurface interflow idaylights at the ground surface as a seep or spring near a stream channel, and where runoff collected in a depression storage may prevent BCM calculated recharge to infiltrate at that location. (This concept is also illustrated in Figure 8 of Flint et al., 2021.)

From the perspective of the groundwater budget, collectively these can be referred to as “rejected recharge.” The concept of rejected recharge was introduced by Theis (1940). When applying the BCM recharge to a Basin water budget, the rejected recharge can be treated in a similar fashion as the recharged runoff described above. In this case, it is assumed rejected recharge occurs only in the wetter years. Given the relative absence of surface water in the Basin, it was assumed that rejected recharge was negligible in this Basin. In the nearby EMA, however, the more frequent surface flows occurring in the major ephemeral and intermittent tributaries indicates rejected recharge can play an important role in the hydrologic system in very wet years. **Figure 8** shows the BCM recharge factor curve developed and employed to compute rejected recharge for the water balance in that study area.

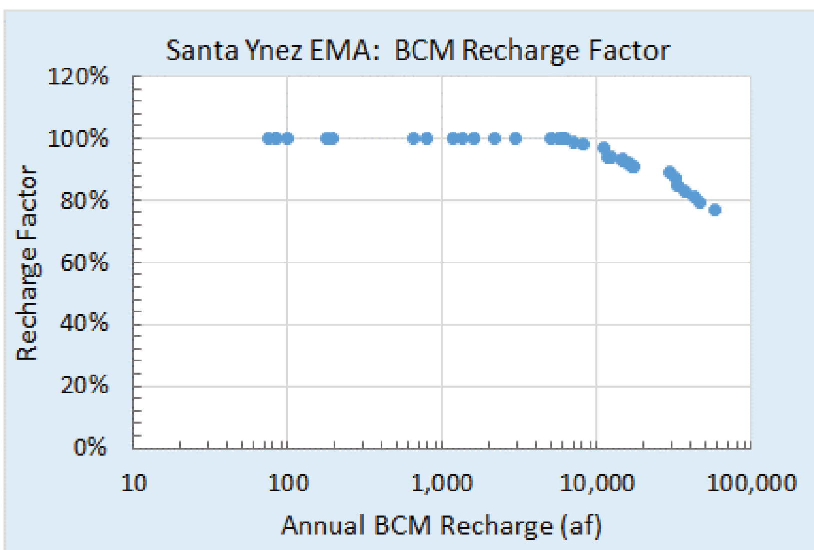


Figure 2. Estimating recharge and rejected recharge from BCM recharge data for Santa Ynez Basin Eastern Management Area.

4 SUMMARY

The BCM is a recently developed distributed parameter hydrologic model, which computes a hydrologic water balance on a raster map over the landscape, with a hydrologic water balance computed for each cell. For the Basin water budget modeling tool, the BCM model results were downloaded for the historical period of record and were utilized for a variety of inputs, specifically: Precipitation, Areal Recharge, Mountain-Front Recharge, Evapotranspiration, and Surface Runoff.

The BCM precipitation data was compared to local weather stations data for the area of interest, and it was corrected to exactly match the monthly weather station rainfall values using a conditional simulation procedure. The runoff, recharge, and streamflow data were subsequently adjusted by scaling each monthly value by the ratio of the corrected precipitation divided by the original BCM precipitation. Consistent with recommendations by Flint et al. (2021; pp. 31 – 33) for "calibrating" raw BCM output to better match gaged surface flows, a procedure was developed for computing streambed percolation recharge from the BCM runoff data, and computed rejected recharge from raw BCM recharge data. This procedure was mass conservative in the sense that all BCM inflow volumes (both runoff and recharge) are accounted for the surface water and groundwater budgets.

5 REFERENCES

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Flint, L.E., Flint, A.L., and Stern, M.A., 2021, The basin characterization model—A regional water balance software package: U.S. Geological Survey Techniques and Methods 6–H1, 85 p., https://doi.org/ 10.3133/ tm6H1.

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Wang, X., and Z.P. Zhang, 1999. A comparison of conditional simulation, kriging and trend surface analysis for soil heavy metal pollution pattern analysis, Journal of Environmental Science and Health, Part A, 34:1, 73-89, DOI: 10.1080/10934529909376824