



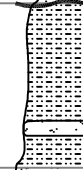

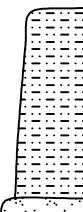





ERA	PERIOD	SERIES	FORMATION	LITHOLOGY	THICKNESS (feet)	DESCRIPTION
CENOZOIC	QUATERNARY	PLEISTOCENE-HOLOCENE	Terrace Alluvium		<50	Terrace deposits are weakly consolidated, poorly sorted sandy gravel to medium sands. Alluvium consists of unconsolidated, moderately sorted silt, sand and gravel along respective streams
			Purisma Formation		500+	Very thick bedded yellowish-gray tuffaceous and diatomaceous siltstone with thick interbeds of bluish-gray semifriable andesitic sandstone
	TERTIARY	PLIOCENE	—Unconformity—			
			Santa Cruz Mudstone		0-200	Medium- to thick-bedded and faintly laminated pale yellowish-brown siliceous mudstone with scattered speroidal dolomite concretions; locally grades to sandy siltstone
		MIOCENE	Santa Margarita Sandstone		0-450	Very thick bedded and thickly crossbedded yellowish-gray to white friable arkosic sandstone
			—Unconformity—			
			Monterey Formation		0-2,000	Medium- to thick-bedded and laminated olive-gray subsiliceous organic mudstone and sandy siltstone with few thick dolomite interbeds
			Lompico Sandstone		200-350	Thick-bedded to massive yellowish-gray arkosic sandstone
			—Unconformity—			
		EOCENE	Butano Sandstone	Upper Sandstone Member	3,000	Thin- to very thick-bedded medium gray arkosic sandstone with thin interbeds of medium-gray siltstone
				Middle Sandstone Mem.	250-750	Thin- to medium-bedded nodular olive-gray pyritic siltstone
				Lower Sandstone Member Unconformity	1,500	Very thick bedded to massive yellowish-gray arkosic sandstone with thick to very thick interbeds of sandy pebble conglomerate in lower part
MESOZOIC	CRETACEOUS		Not in contact within area			
			Locatelli Formation		800	Nodular olive-gray to pale-yellowish-brown micaceous siltstone; massive arkosic sandstone locally at base
			Non-conformable on crystalline complex of Ben Lomond Mountain			Primary quartz diorite, light gray, medium gravel, plagioclase, and quartz with lesser amounts of feldspar, biotite, and hornblende

**COMPOSITE STRATIGRAPHIC SECTION  
OF SANTA MARGARITA GROUNDWATER BASIN**

Modified from Clarke (1981)

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE

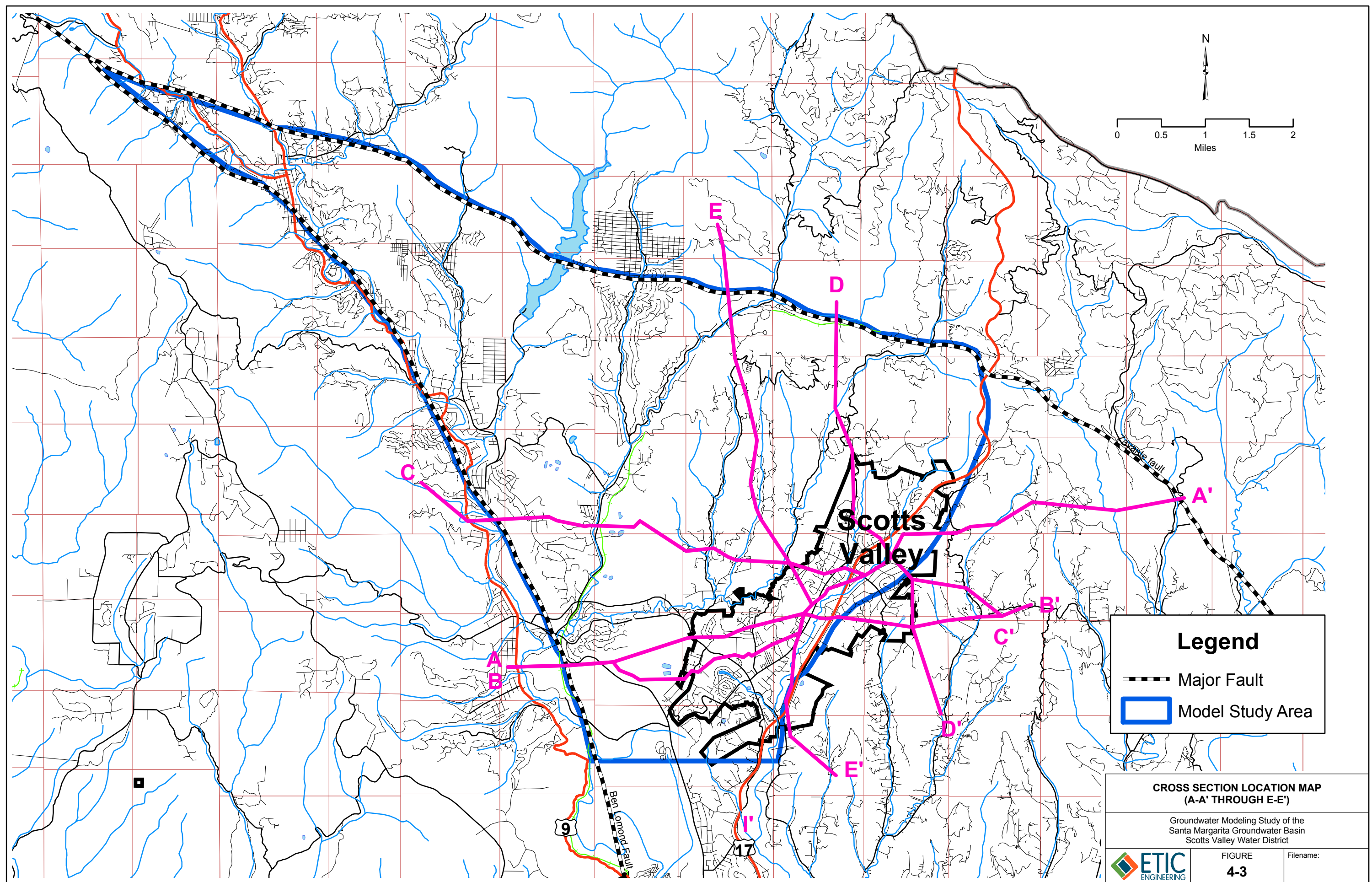
**4-1**

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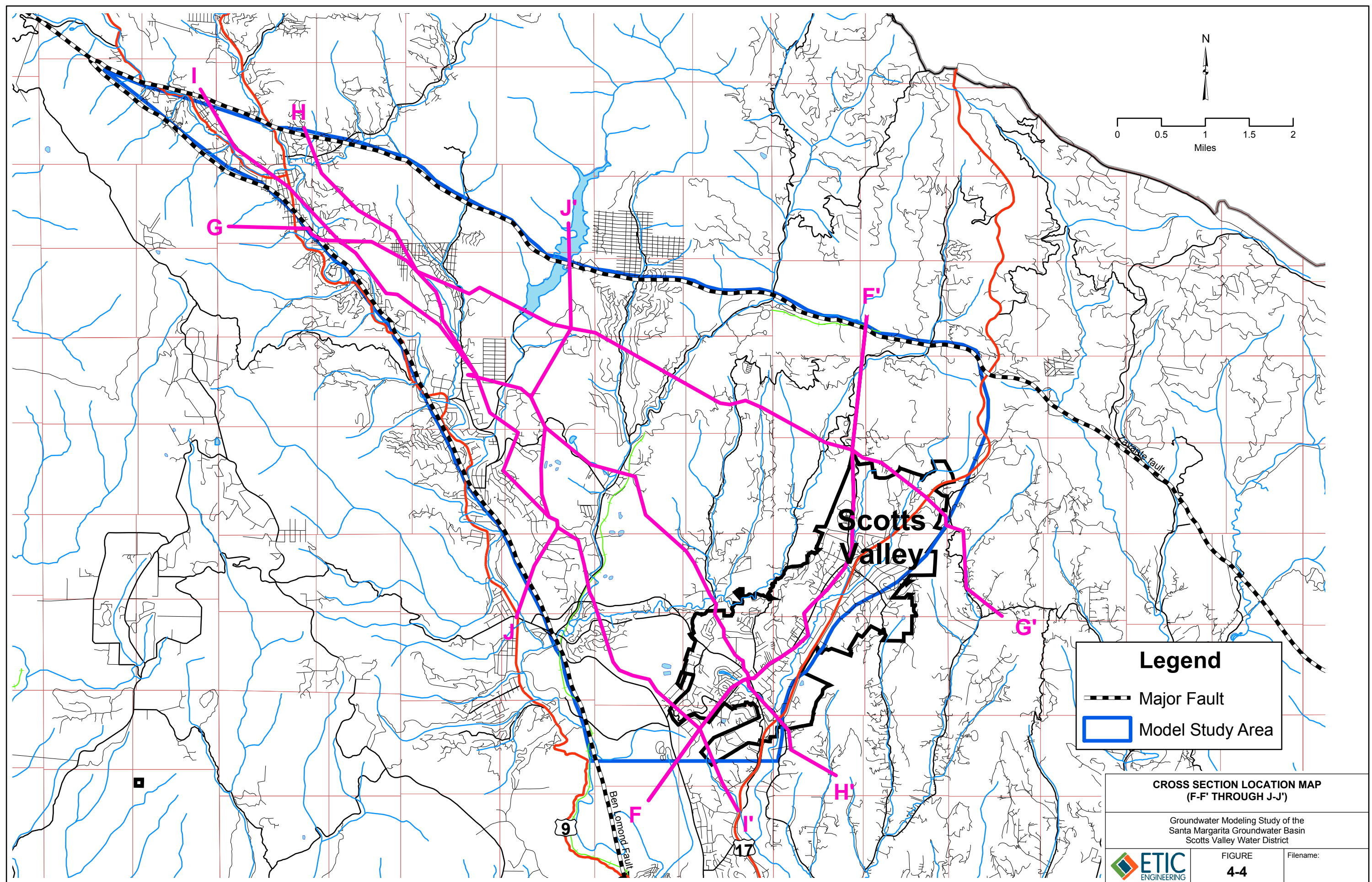














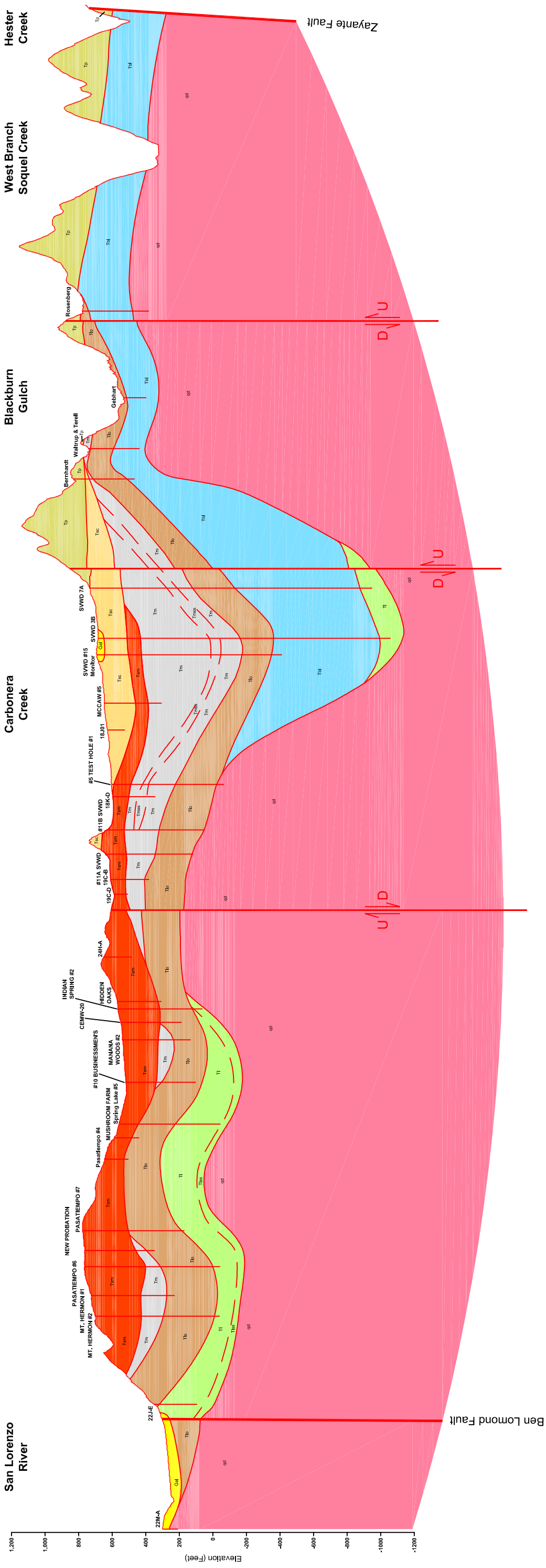
A

Southwest

Scotts Valley Water District

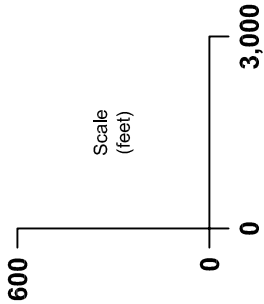
A'

Northeast



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- Tl Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION A-A'

ACROSS THE SCOTTS VALLEY AREA

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE

4-5

Filename:

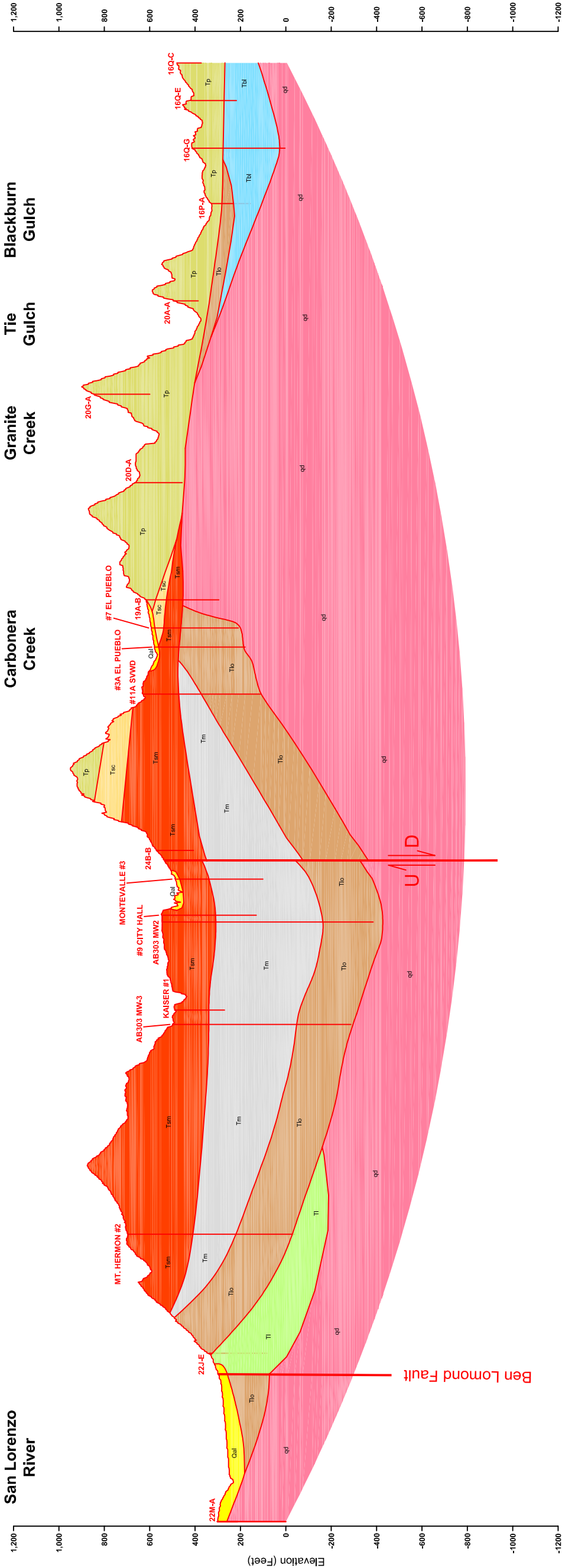


B

West

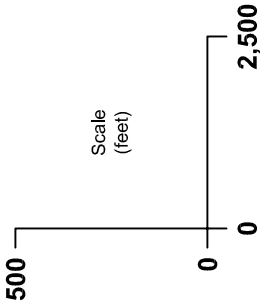
B'

East



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbi Butano
- Ti Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION B-B'

ACROSS THE SCOTTS VALLEY AREA

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE  
4-6

Filename:

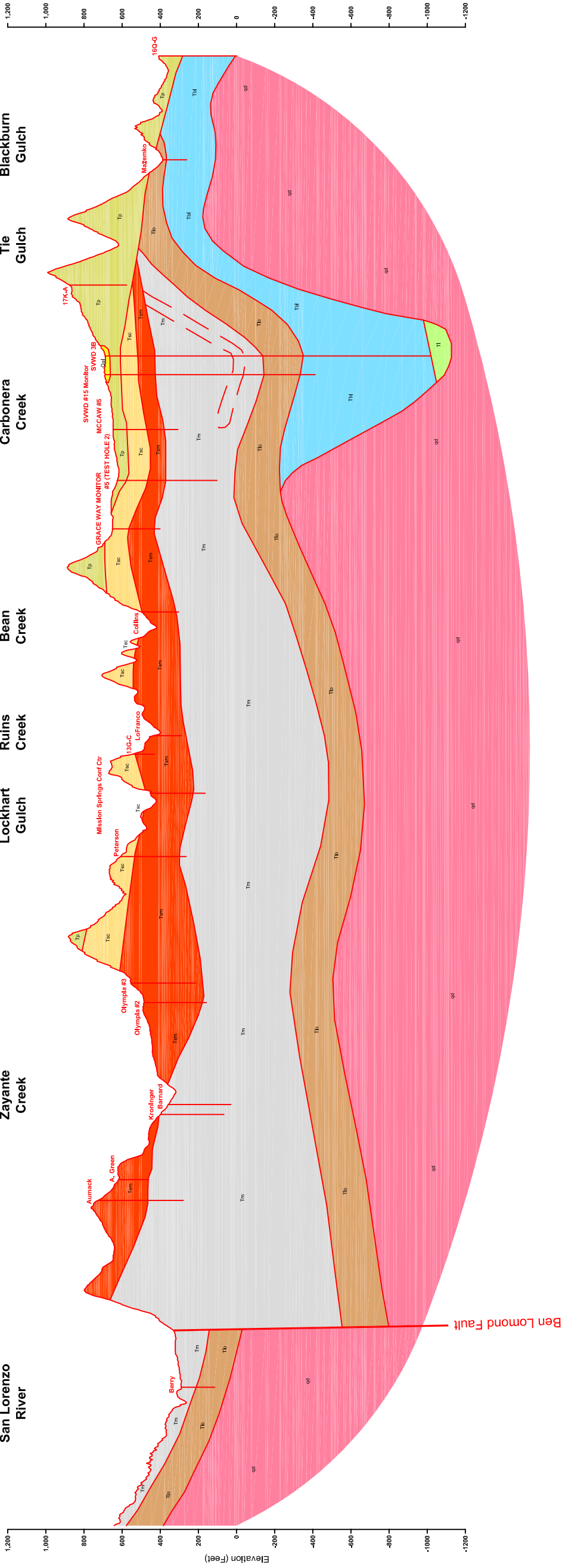


C

West

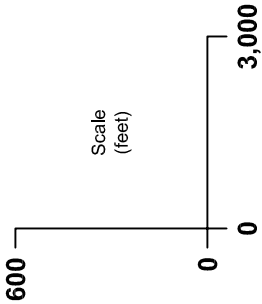
C'

East



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- Tl Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION C-C'  
ACROSS THE SCOTTS VALLEY AREA

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE

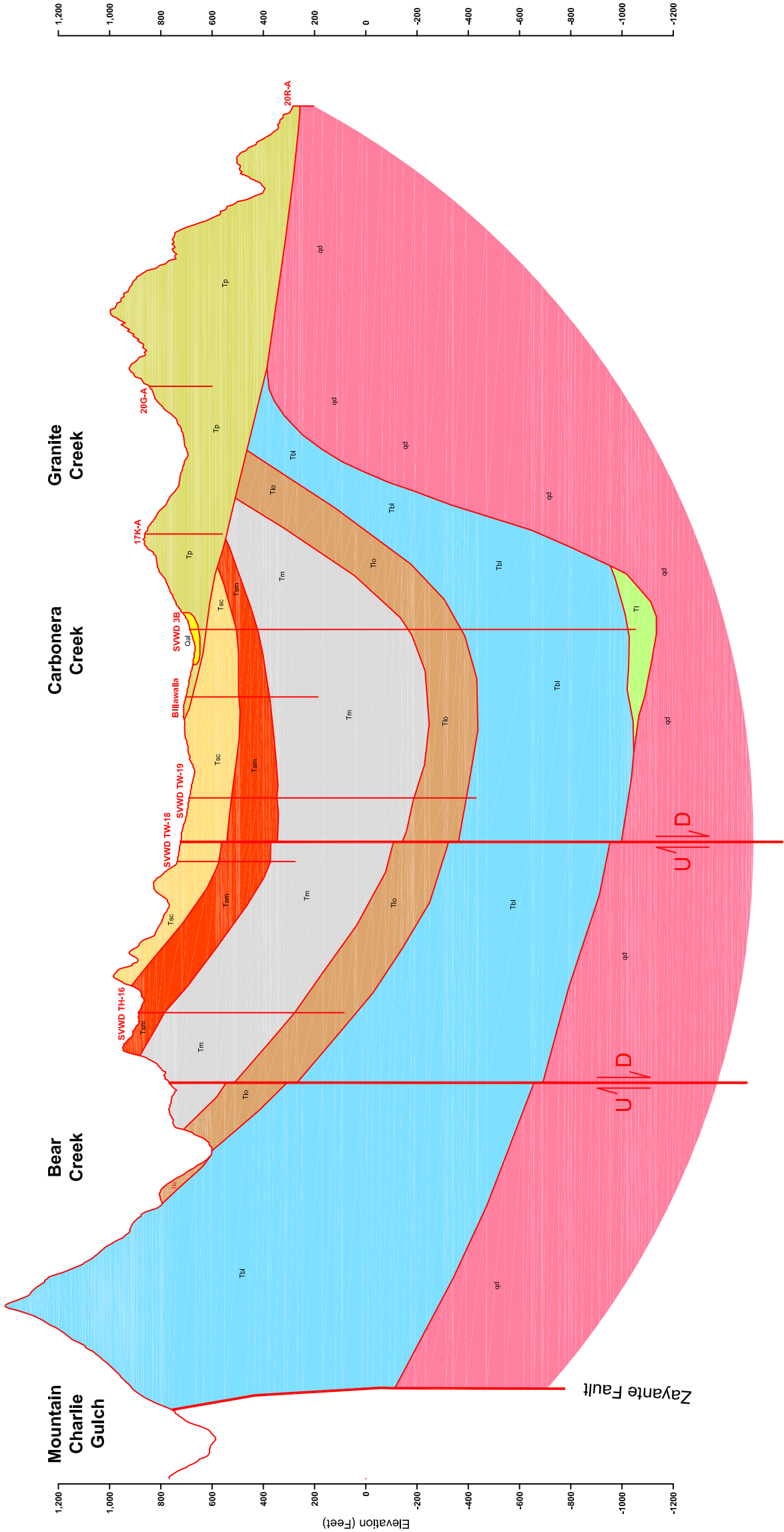
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Filename:



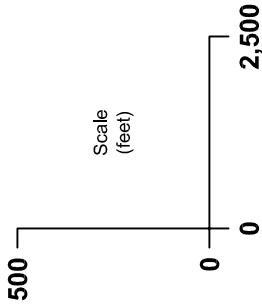
D  
North

D'  
South



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- TI Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION D-D' ACROSS THE SCOTTS VALLEY AREA		
Groundwater Modeling Study of the Santa Margarita Groundwater Basin Scotts Valley Water District		
ETIC ENGINEERING	FIGURE 4-8	Filename:







F  
South

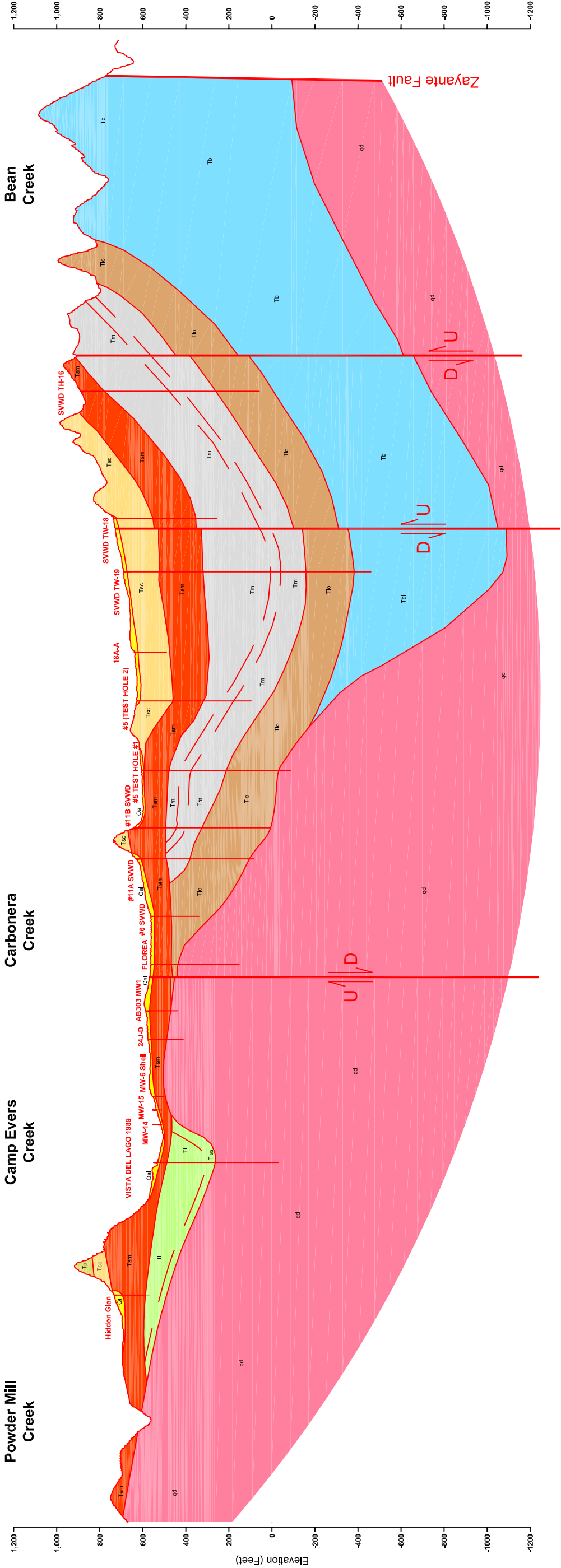
Powder Mill  
Creek

Camp Evers  
Creek

Carbonera  
Creek

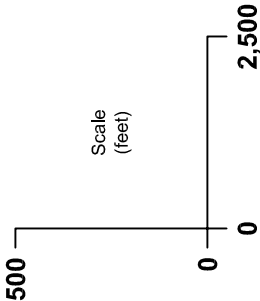
Bean  
Creek

F'  
North



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- Tl Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION F-F' ACROSS THE SCOTTS VALLEY AREA		
Groundwater Modeling Study of the Santa Margarita Groundwater Basin Scotts Valley Water District		
ETIC ENGINEERING	FIGURE 4-10	Filename:

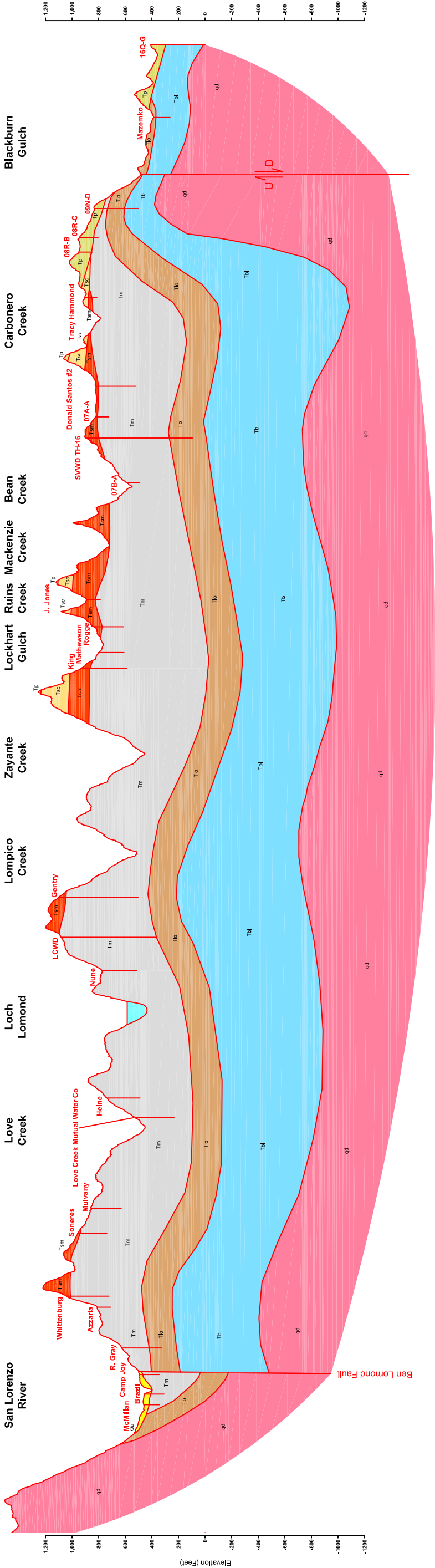


G

Northwest

G'

Southeast



Legend

- Alluvium
- Purisima
- Santa Cruz Mudstone
- Santa Margarita
- Monterey
- Lompico
- Butano
- Locatelli
- Granite

GEOLOGIC CROSS-SECTION G-G'  
ACROSS THE SCOTTS VALLEY AREA

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



Filename:

FIGURE  
4-11

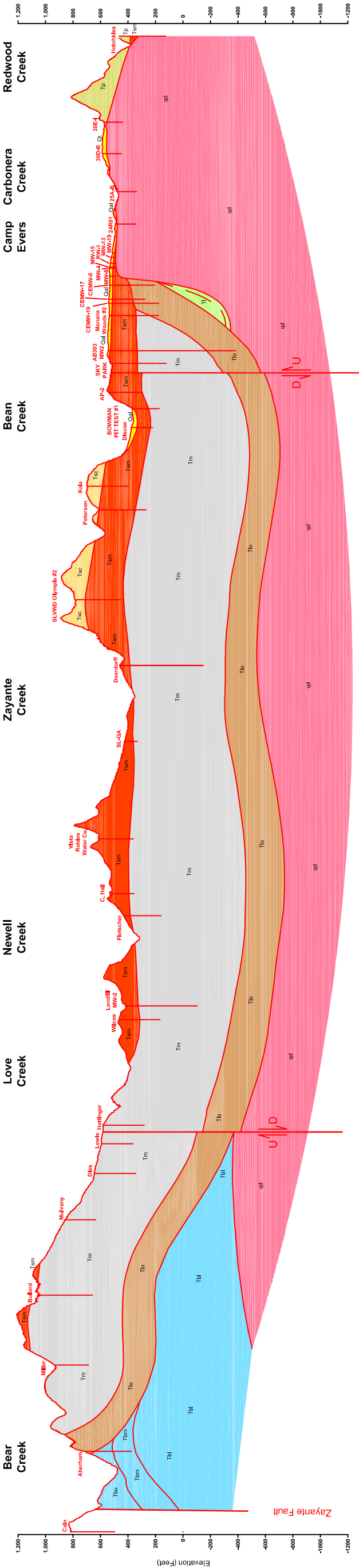


H

Northwest

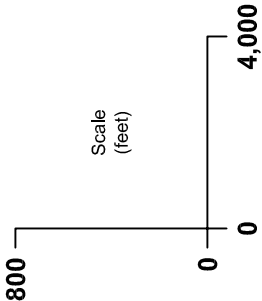
H'

Southeast



Legend

- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- Ti Locatelli
- qd Granite



GEOLOGIC CROSS-SECTION H-H' ACROSS THE SCOTTS VALLEY AREA	
Groundwater Modeling Study of the Santa Margarita Groundwater Basin Scotts Valley Water District	
ETIC ENGINEERING	FIGURE 4-12 Filename:

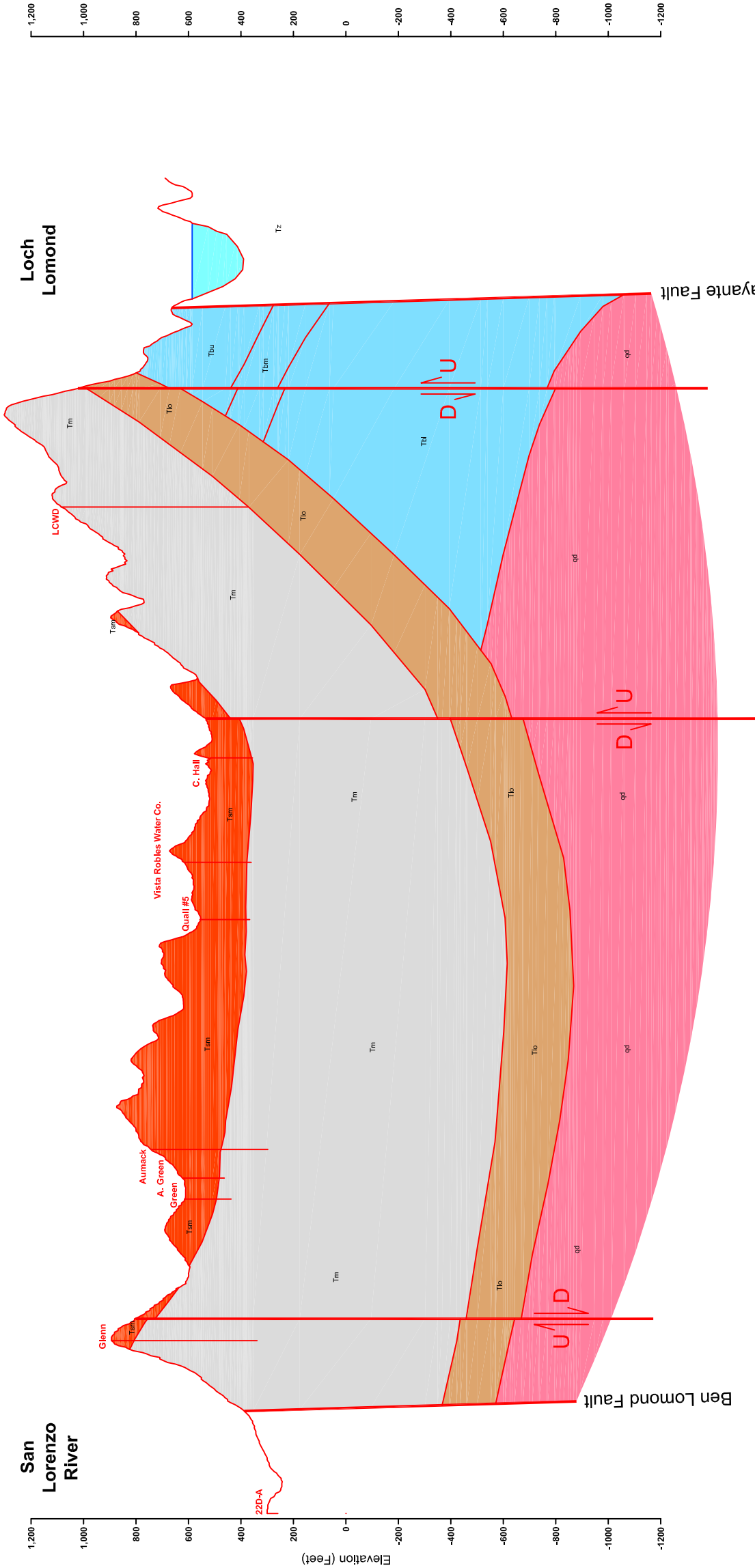






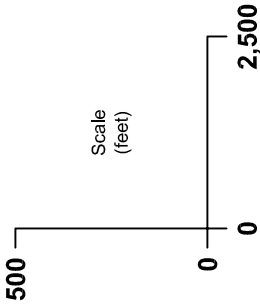
J  
South

J'  
North

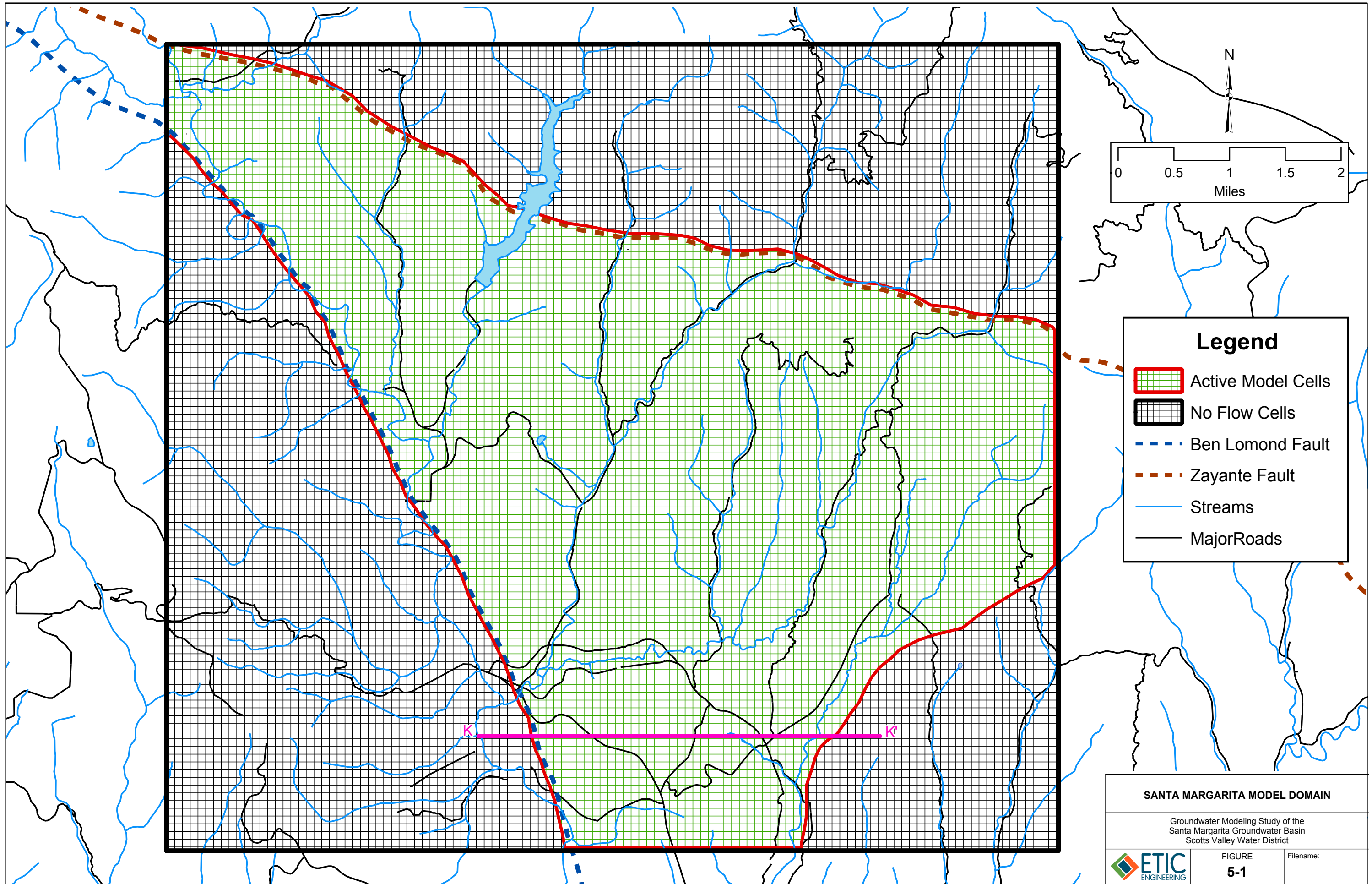


Legend

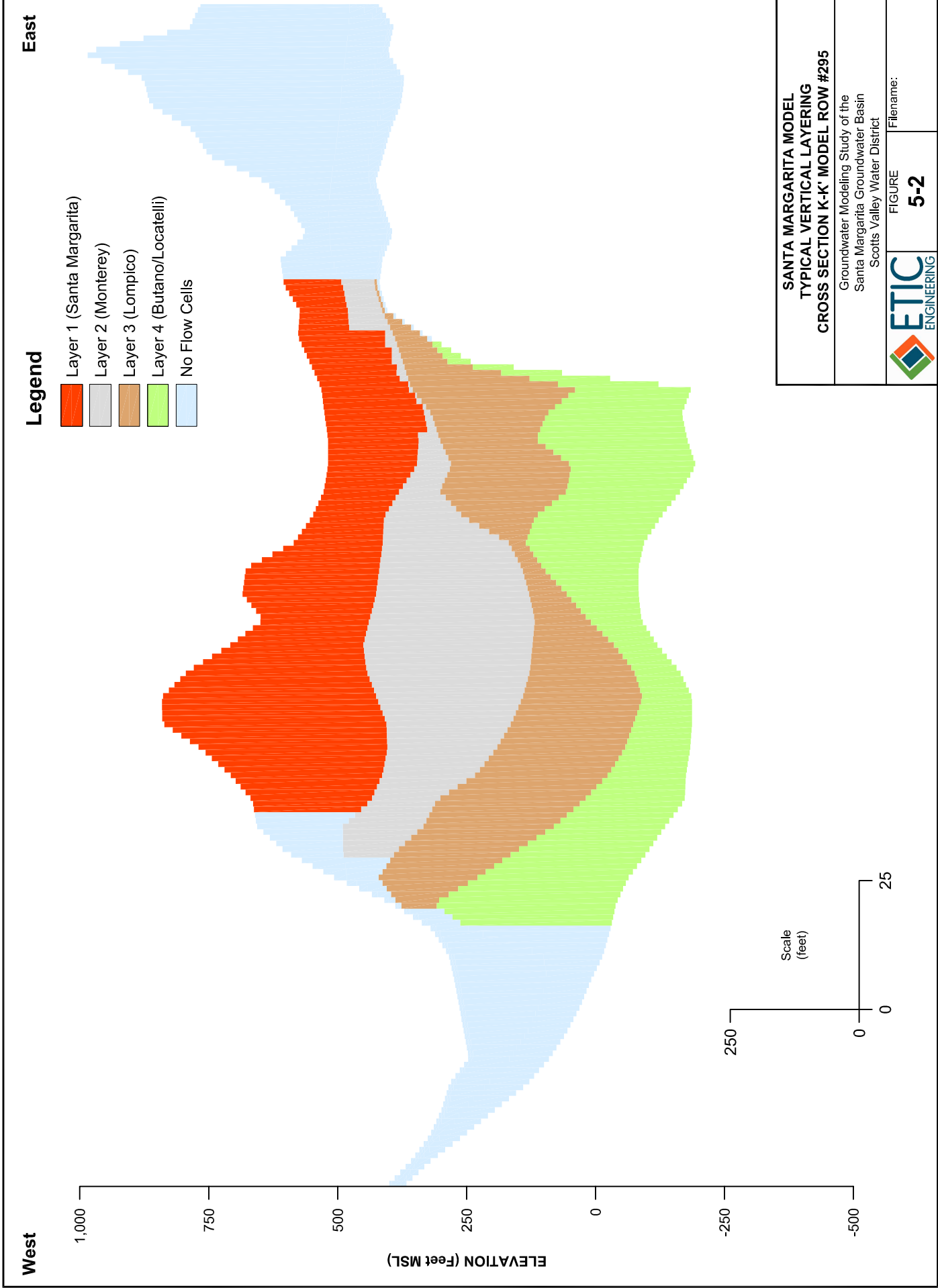
- Qal Alluvium
- Tp Purisima
- Tsc Santa Cruz Mudstone
- Tsm Santa Margarita
- Tm Monterey
- Tlo Lompico
- Tbl Butano
- Tl Locatelli
- qd Granite

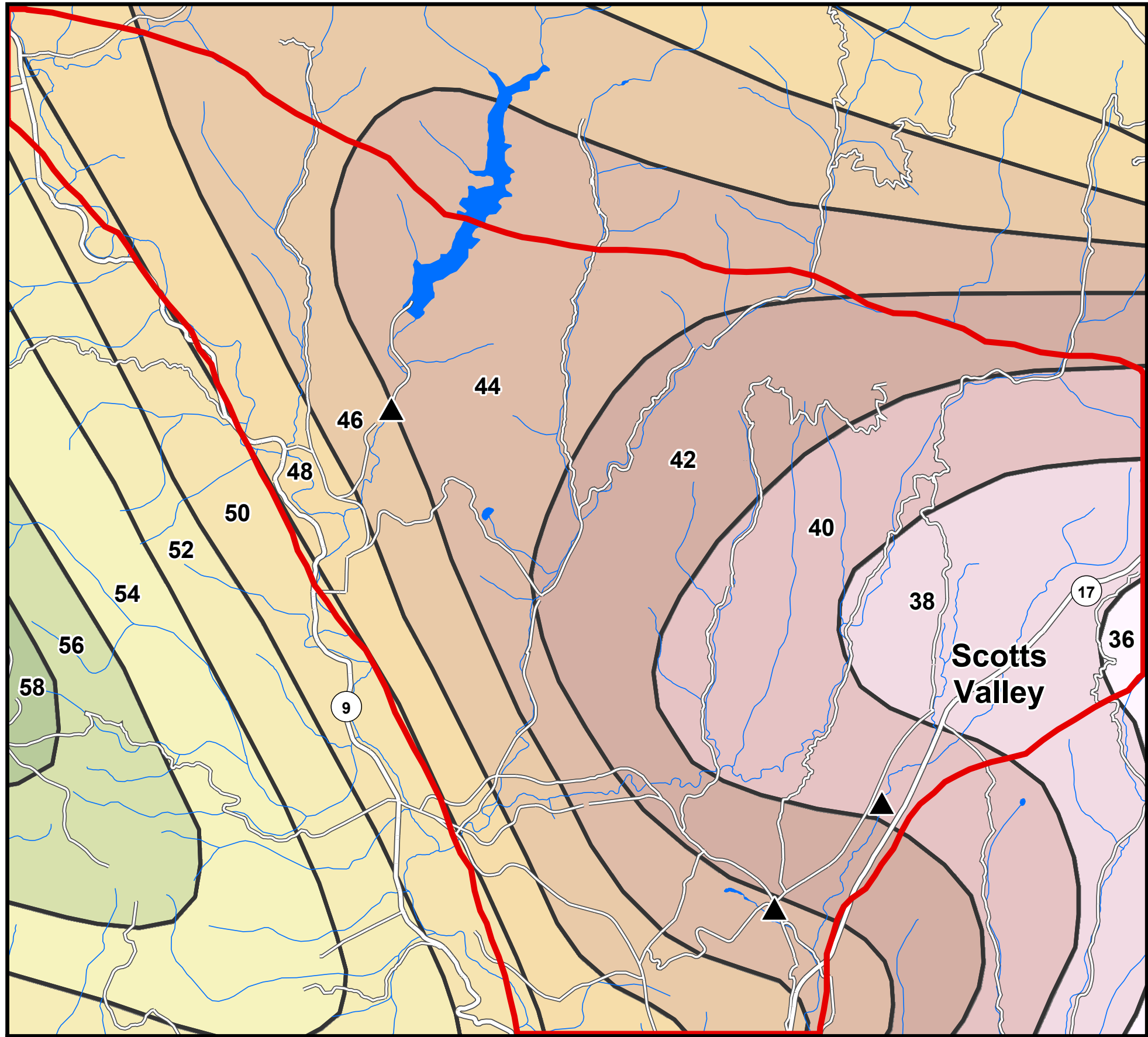


GEOLOGIC CROSS-SECTION J-J' ACROSS THE SCOTTS VALLEY AREA	
Groundwater Modeling Study of the Santa Margarita Groundwater Basin Scotts Valley Water District	
ETIC ENGINEERING	FIGURE 4-14 Filename:



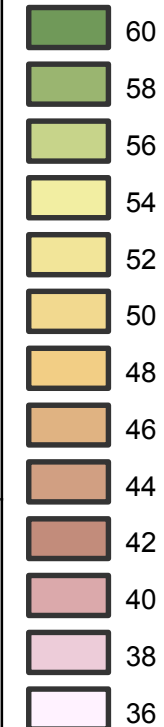






### Average Annual Rainfall

inches per year



Model Domain Boundary

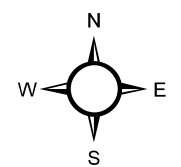
State Highways

Major Roads

Streams

Lakes

Precipitation Gauges



1  
Miles

### SANTA MARGARITA MODEL ESTIMATED AVERAGE ANNUAL RAINFALL DSIRIBUTION

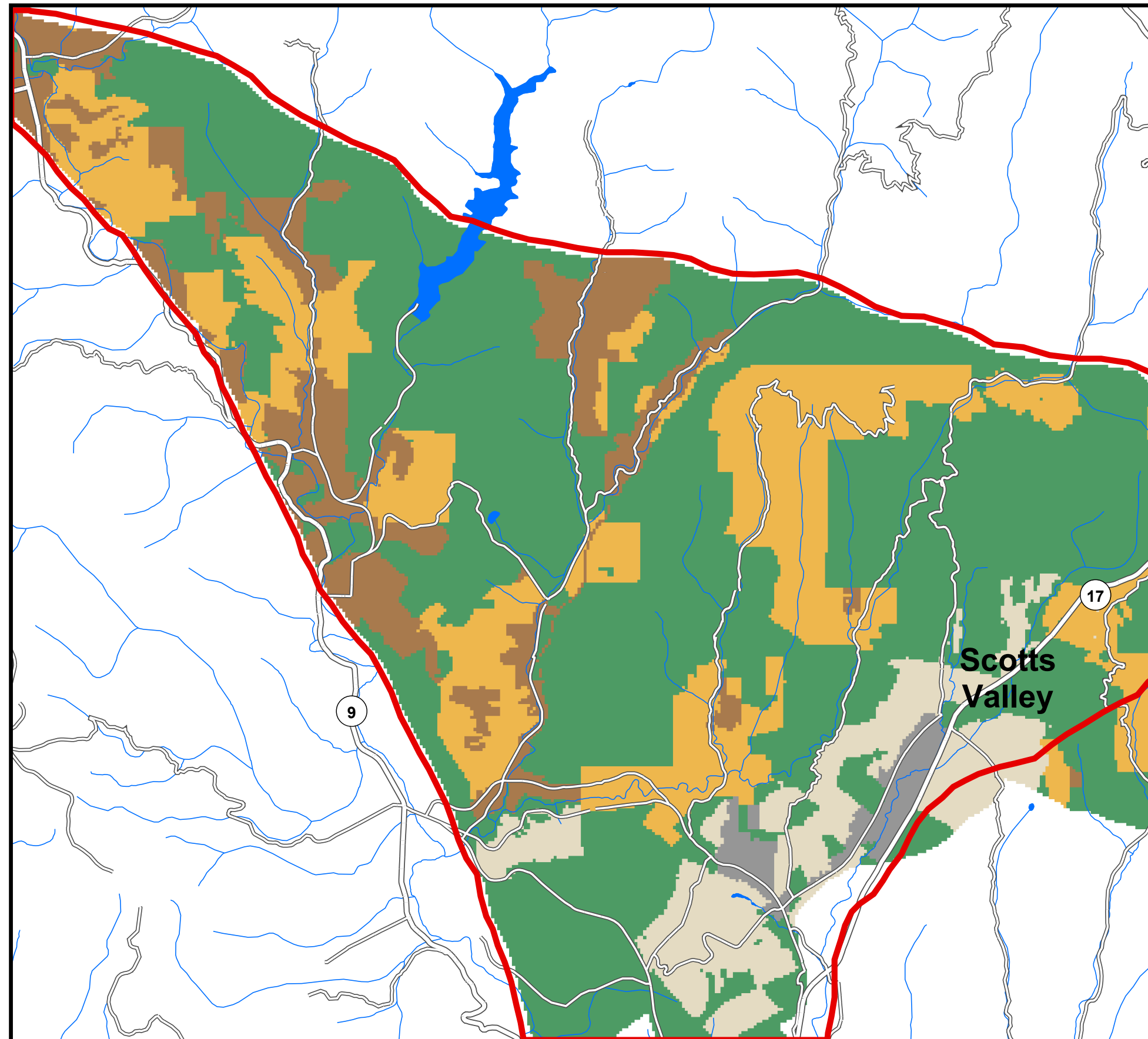
Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE  
5-3

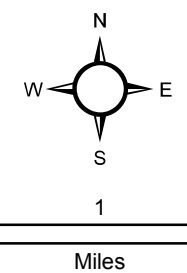
Filename:





#### Land Use (% reduction in rainfall recharge)

- Commercial/Industrial (90%)
- Rural Domestic (10%)
- Rural/Native/Undeveloped (0%)
- Small Community (40%)
- Suburban (75%)
- Model Domain Boundary
- State Highways
- Major Roads
- Streams
- Lakes



#### SANTA MARGARITA MODEL LAND USE AND ASSOCIATED REDUCTIONS IN RECHARGE FROM RAINFALL

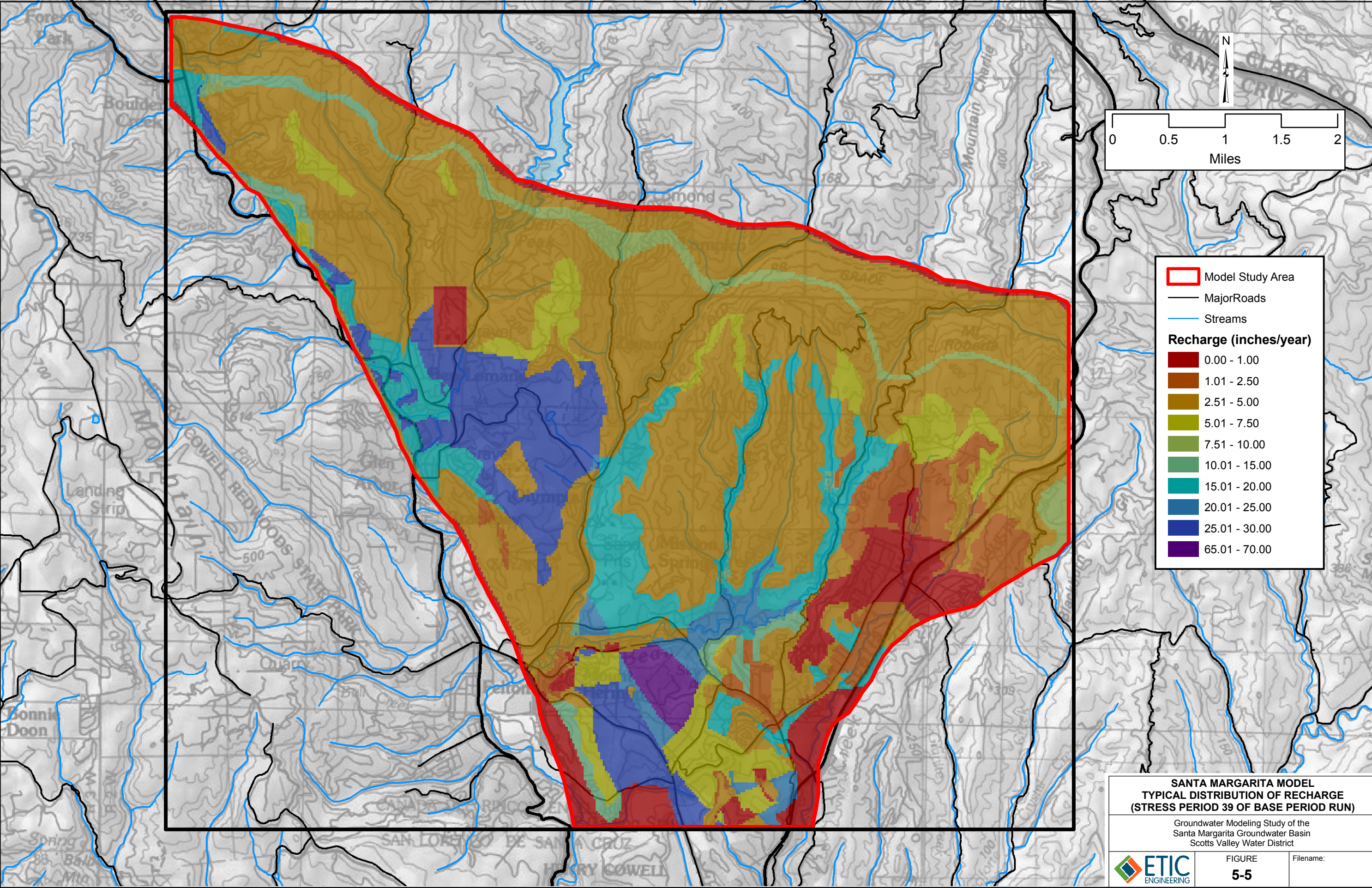
Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



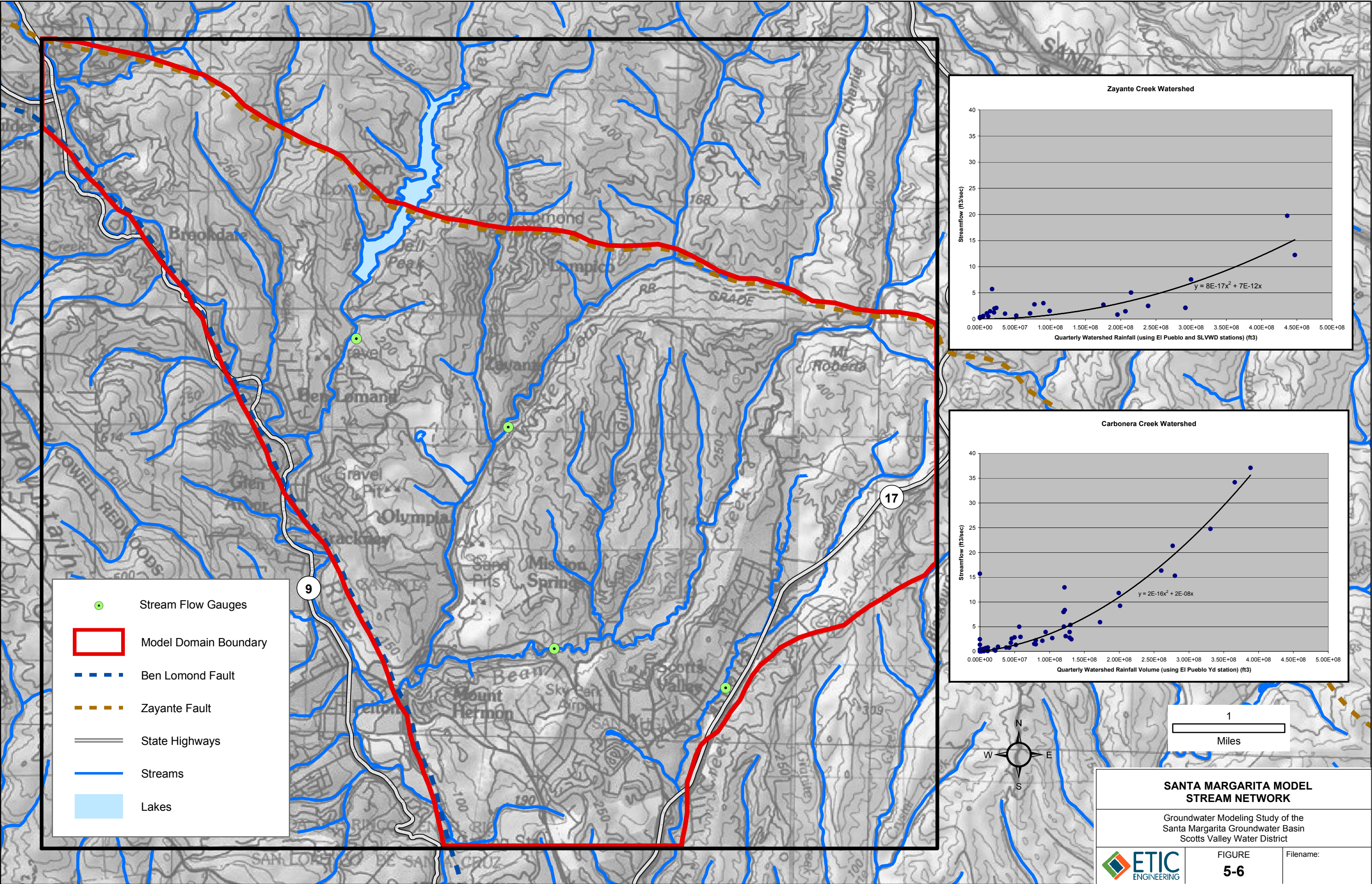
FIGURE  
**5-4**

Filename:

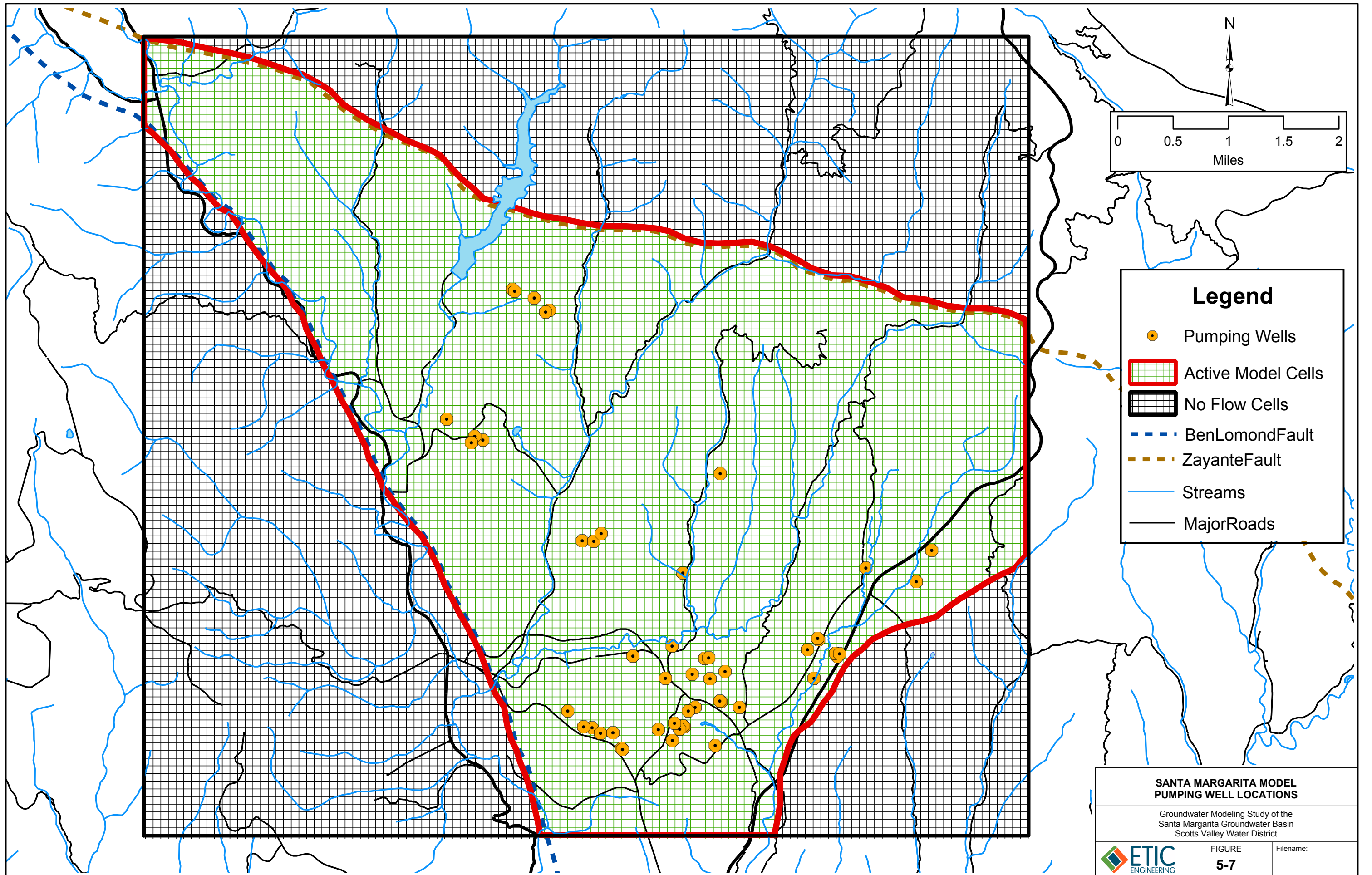




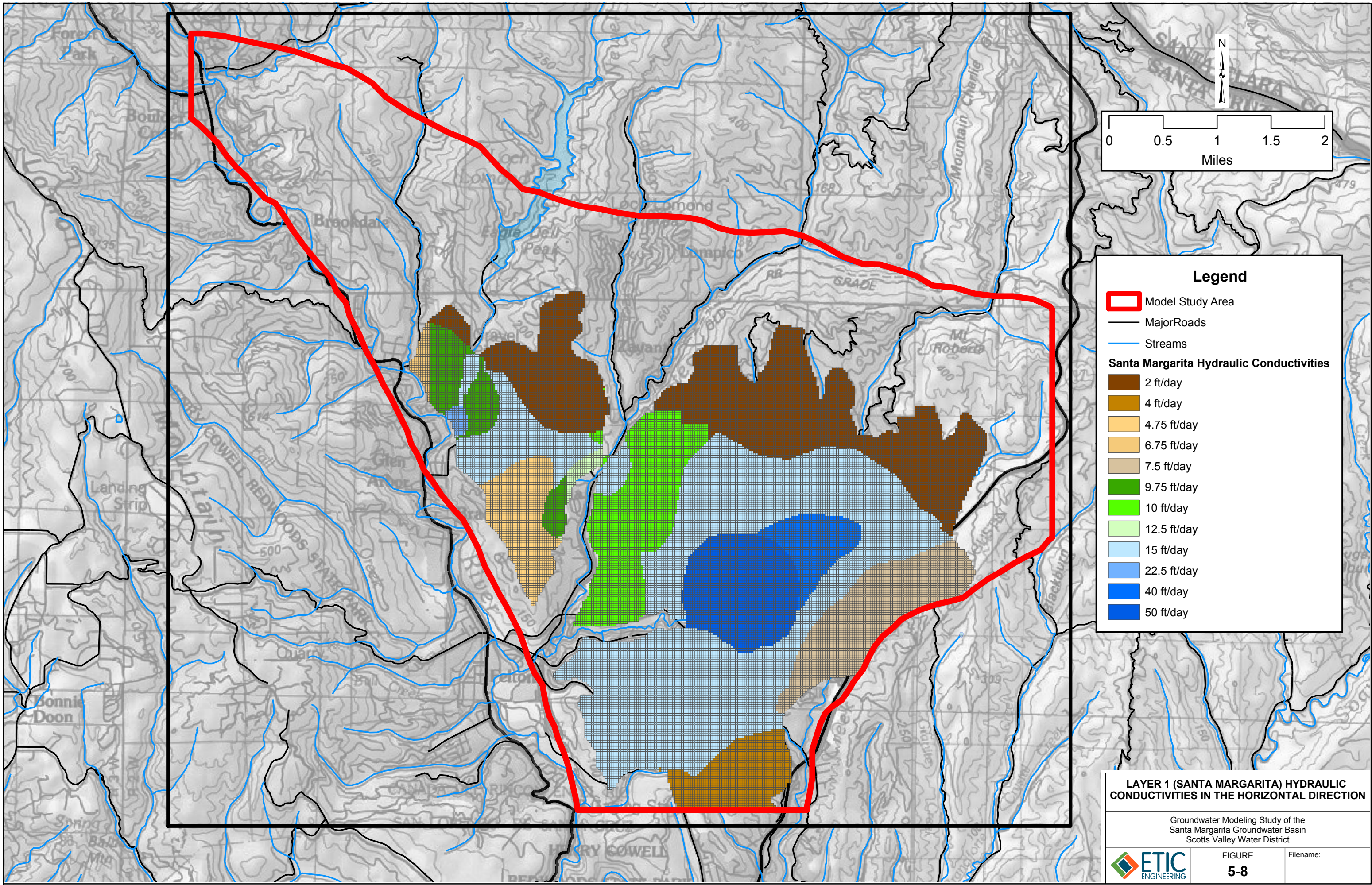




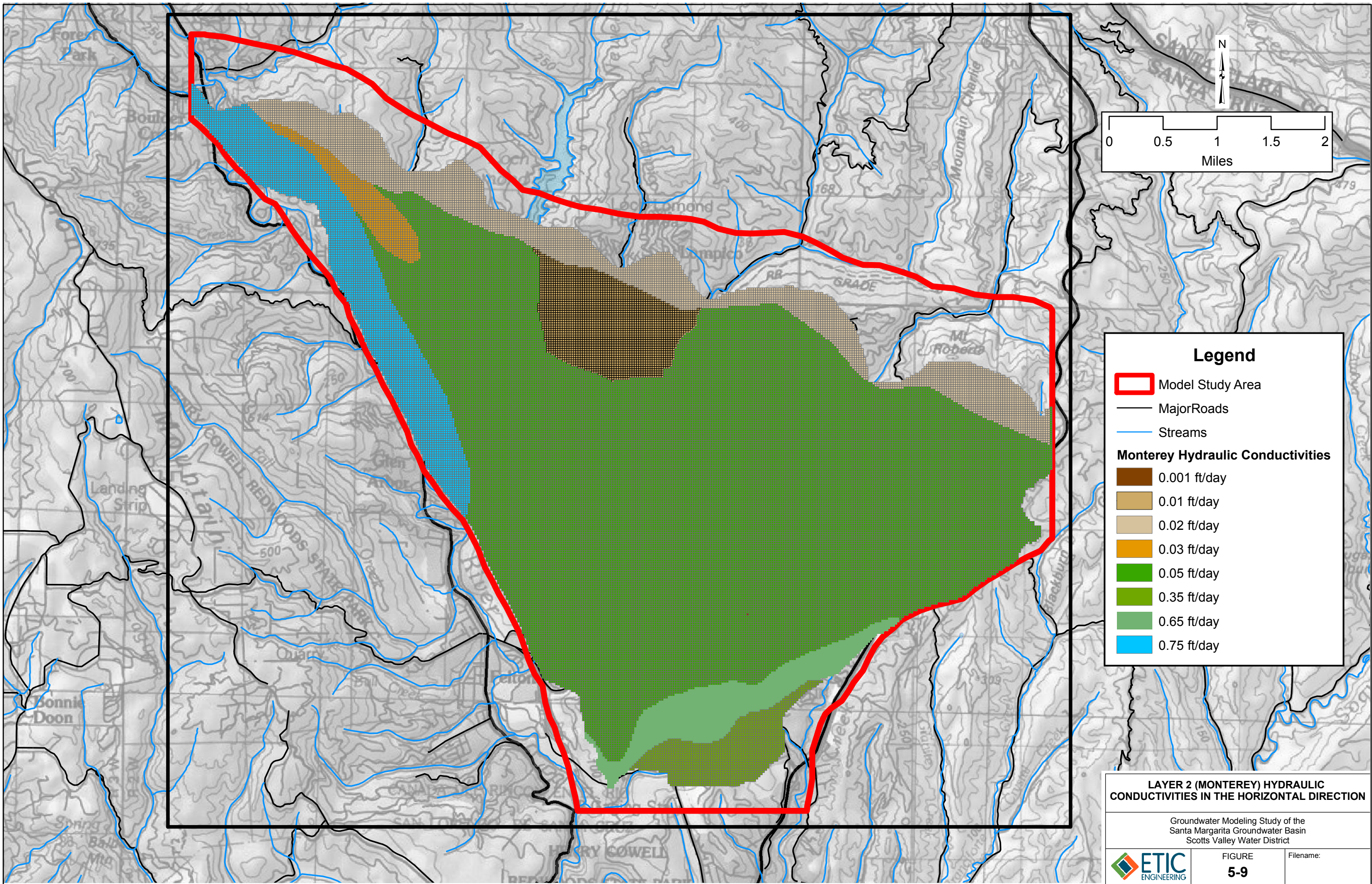




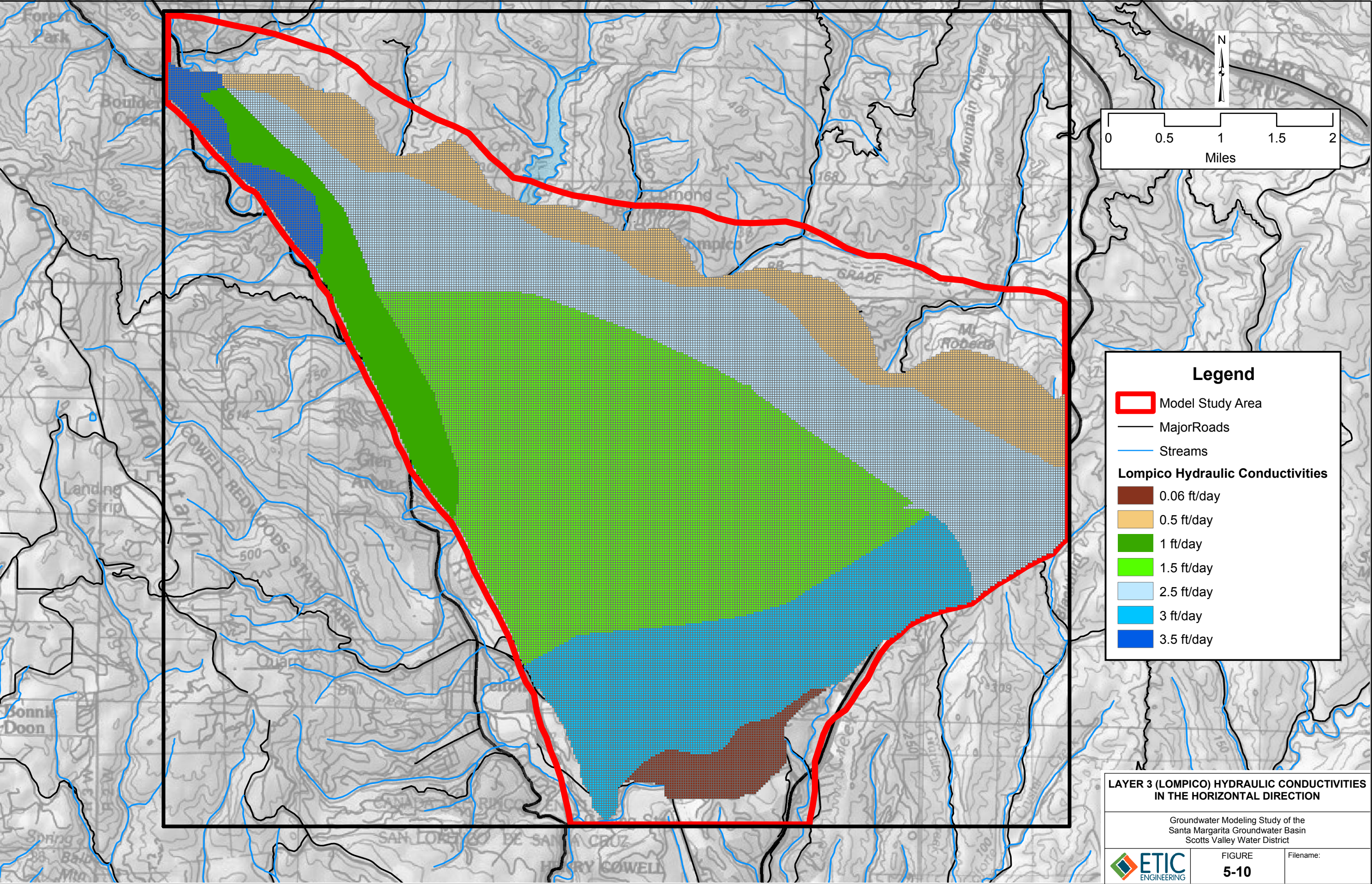




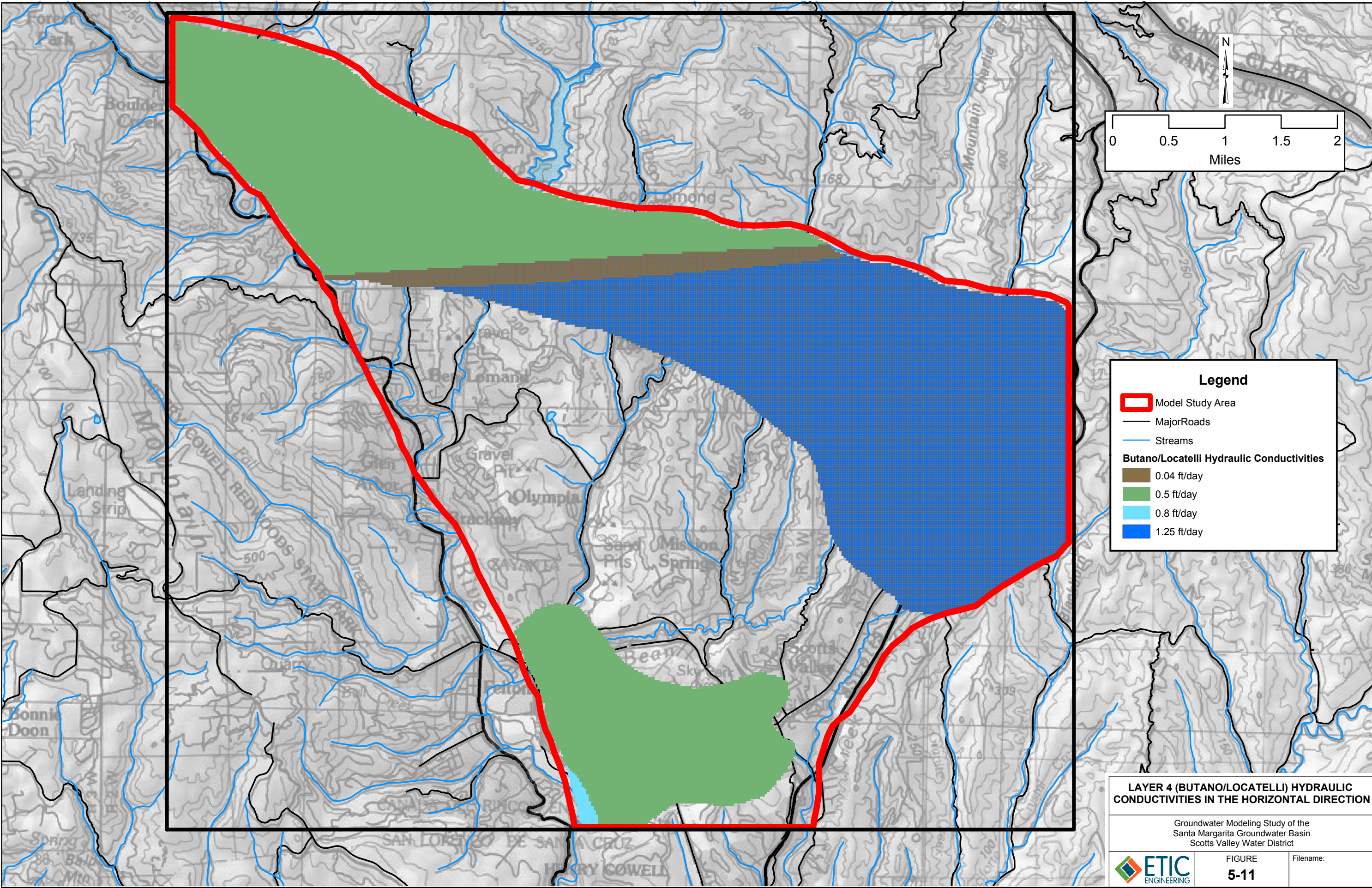




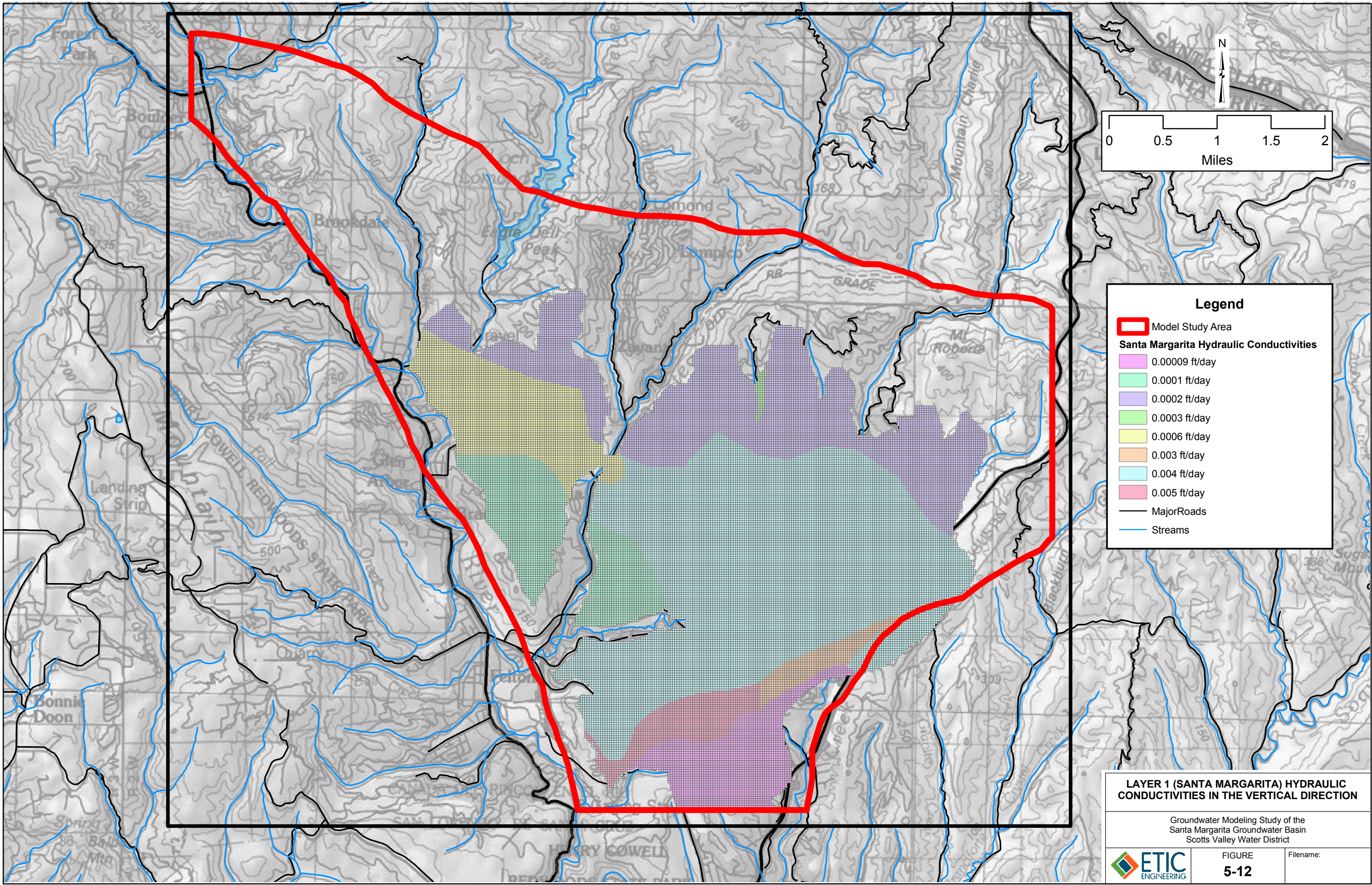




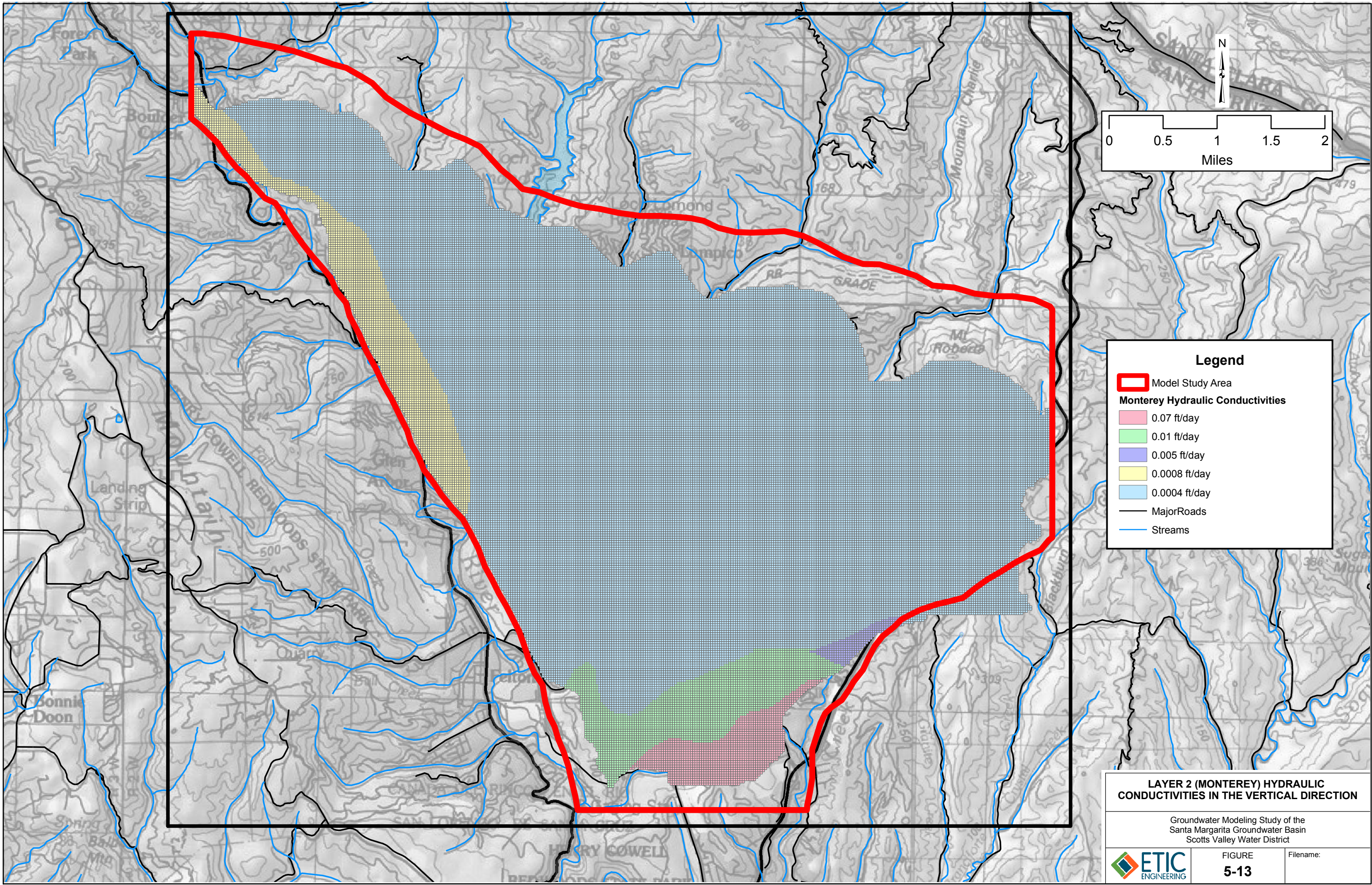




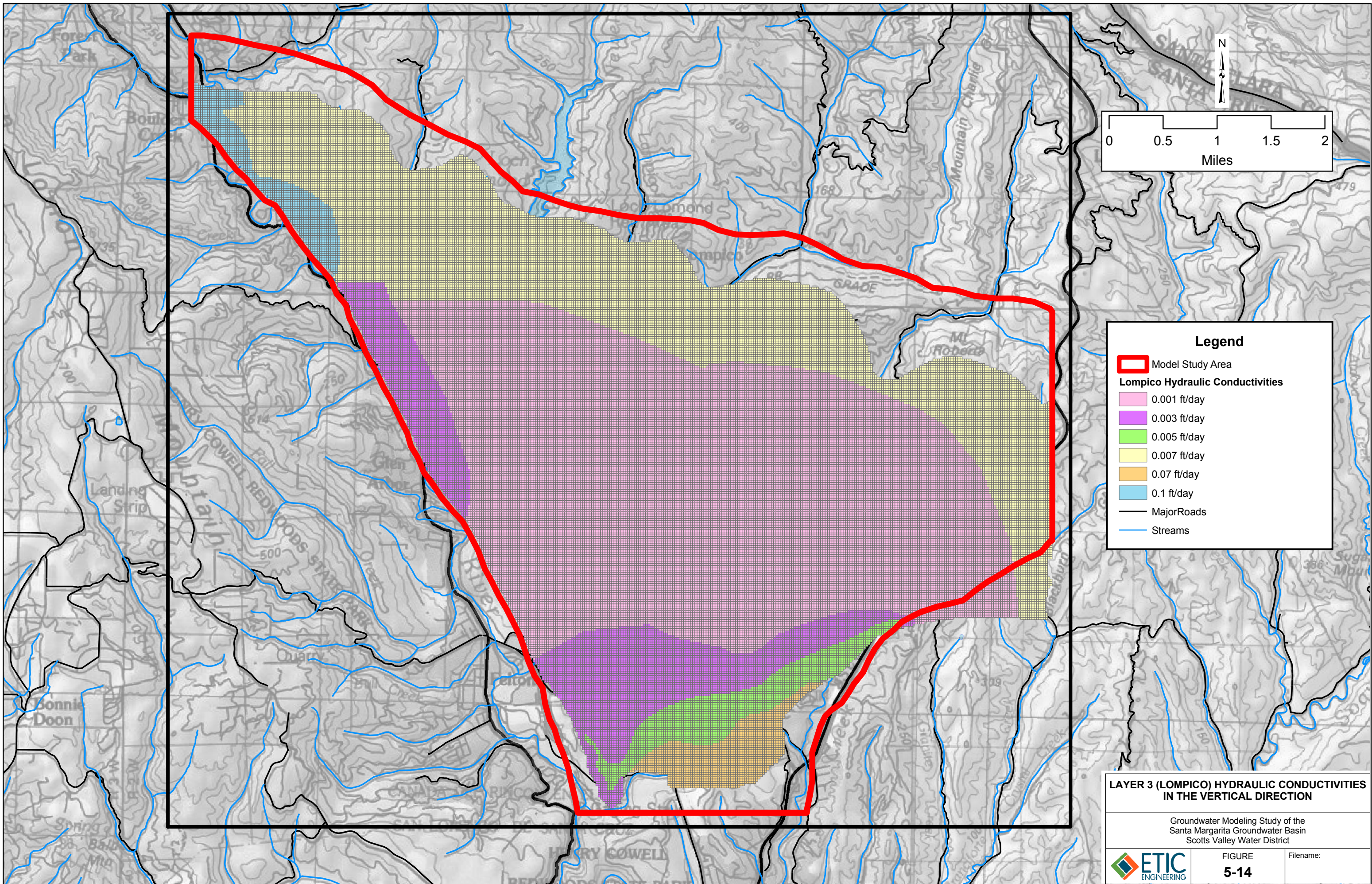




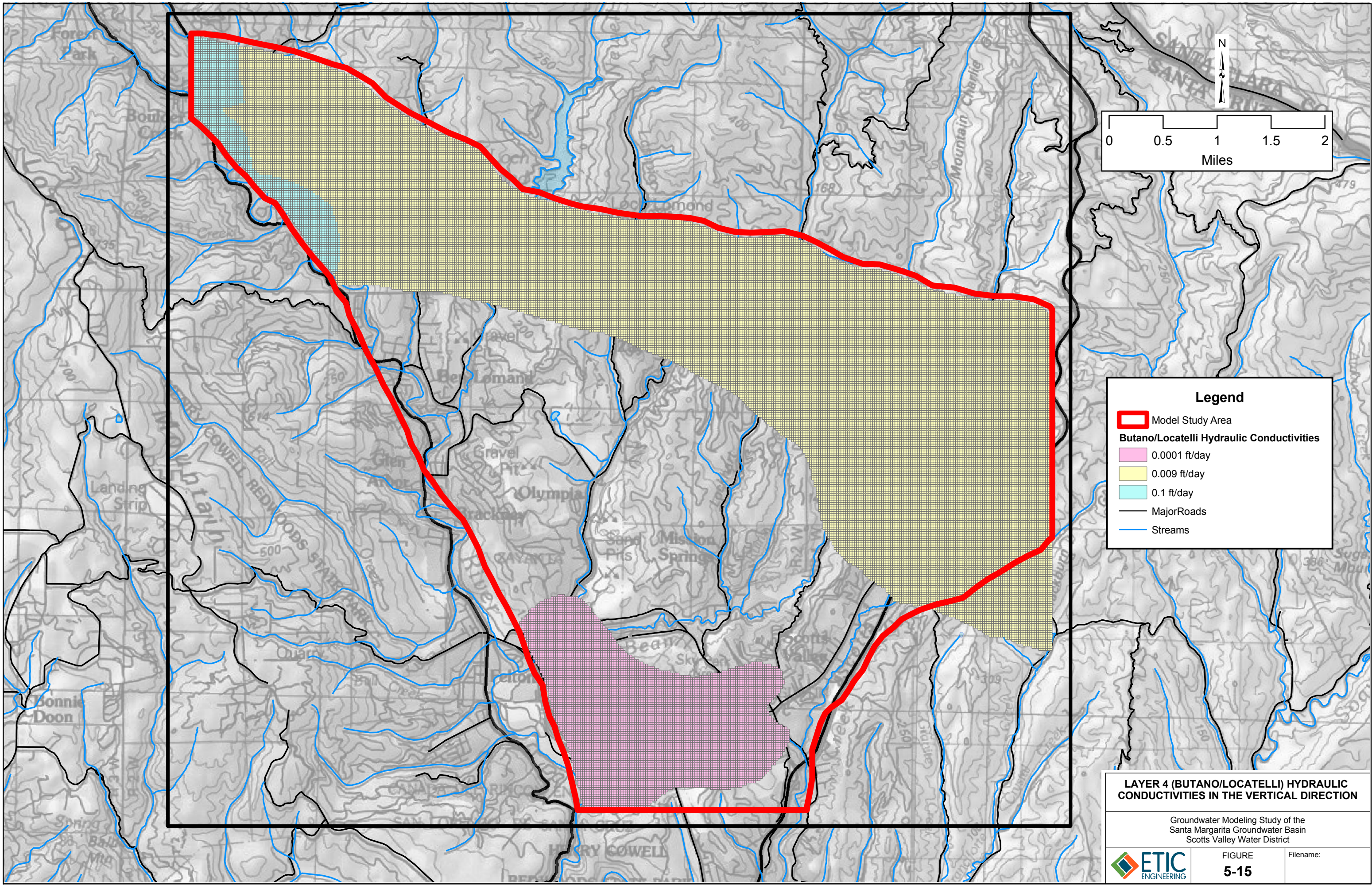




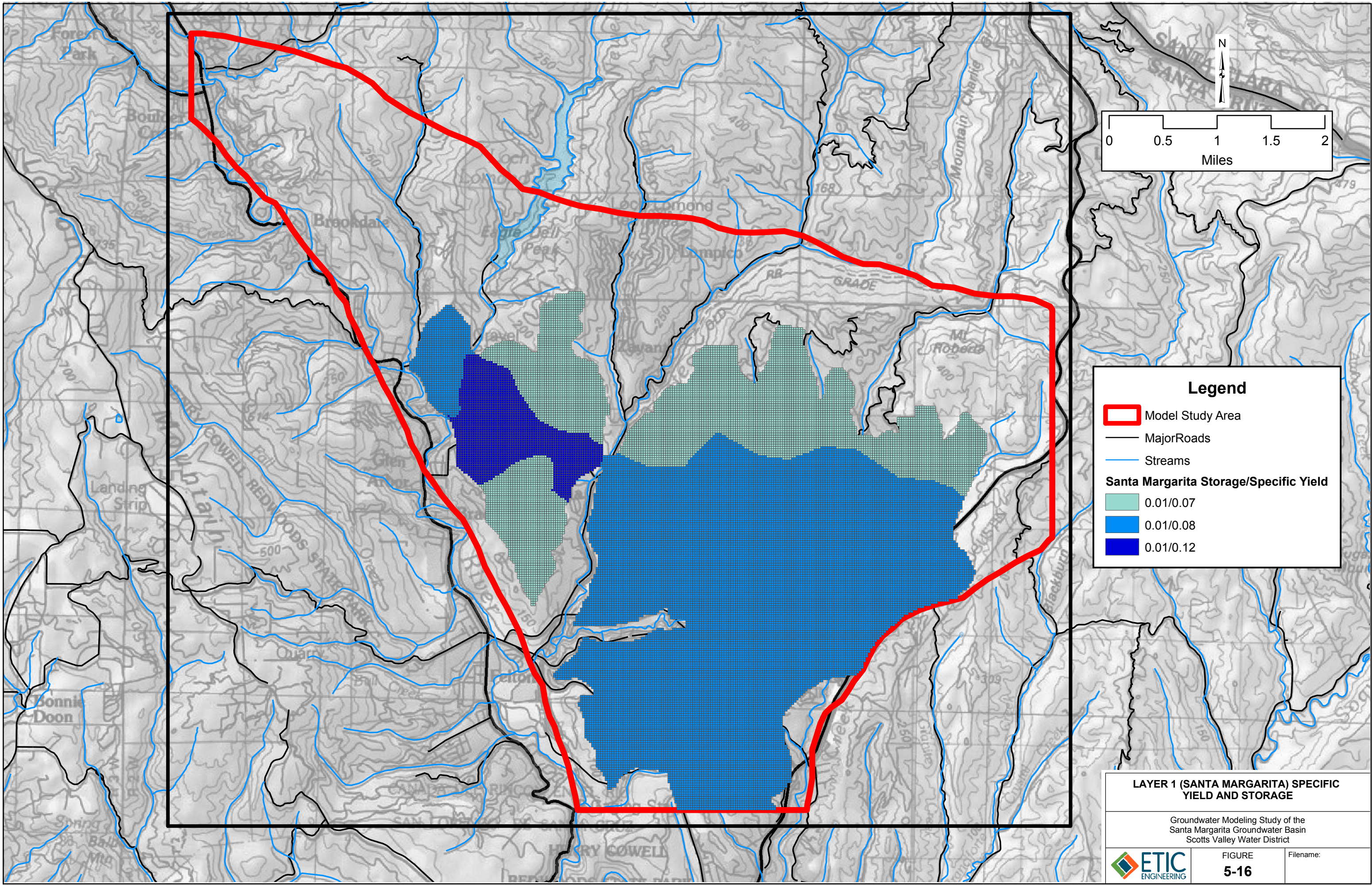








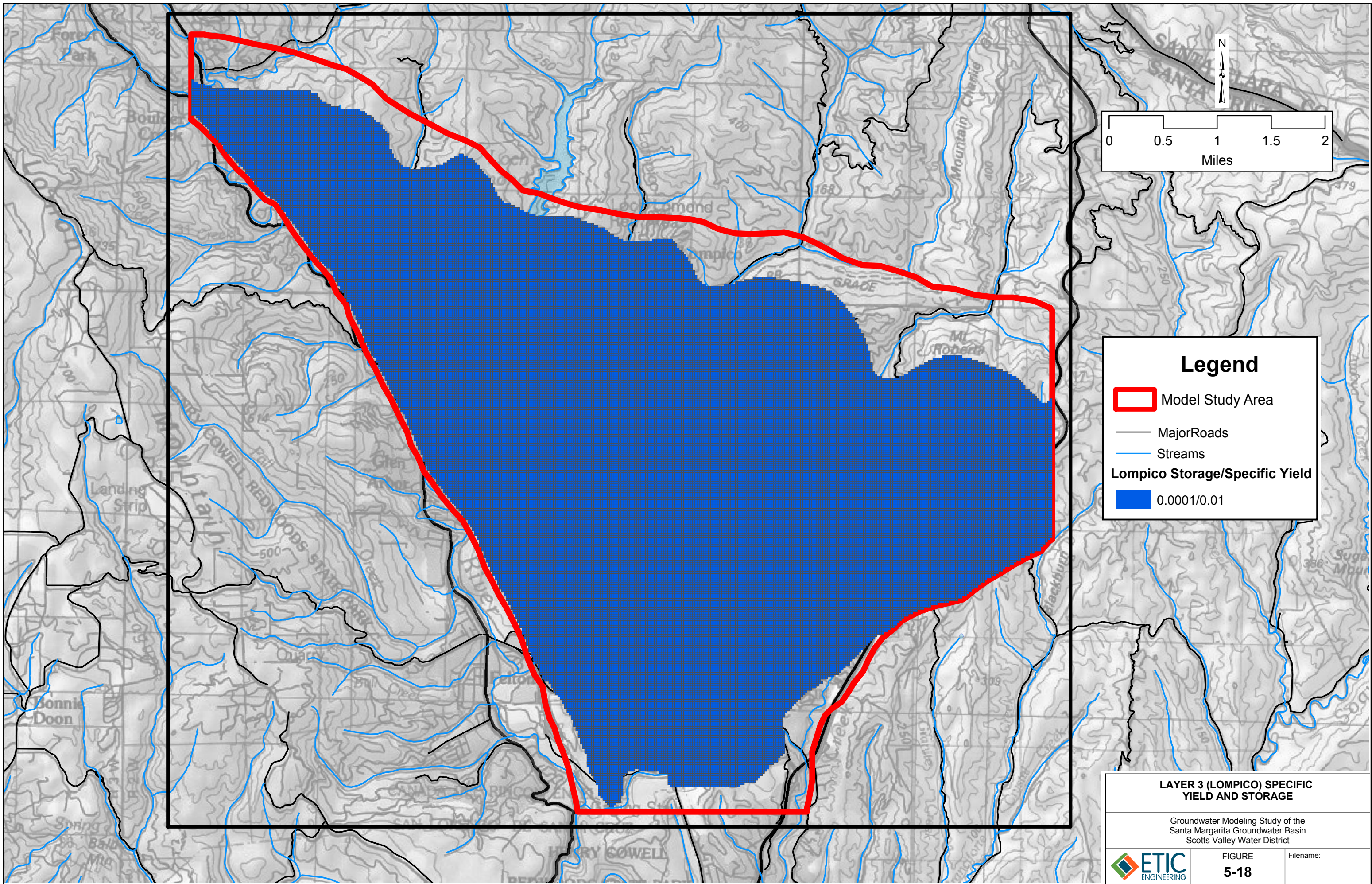




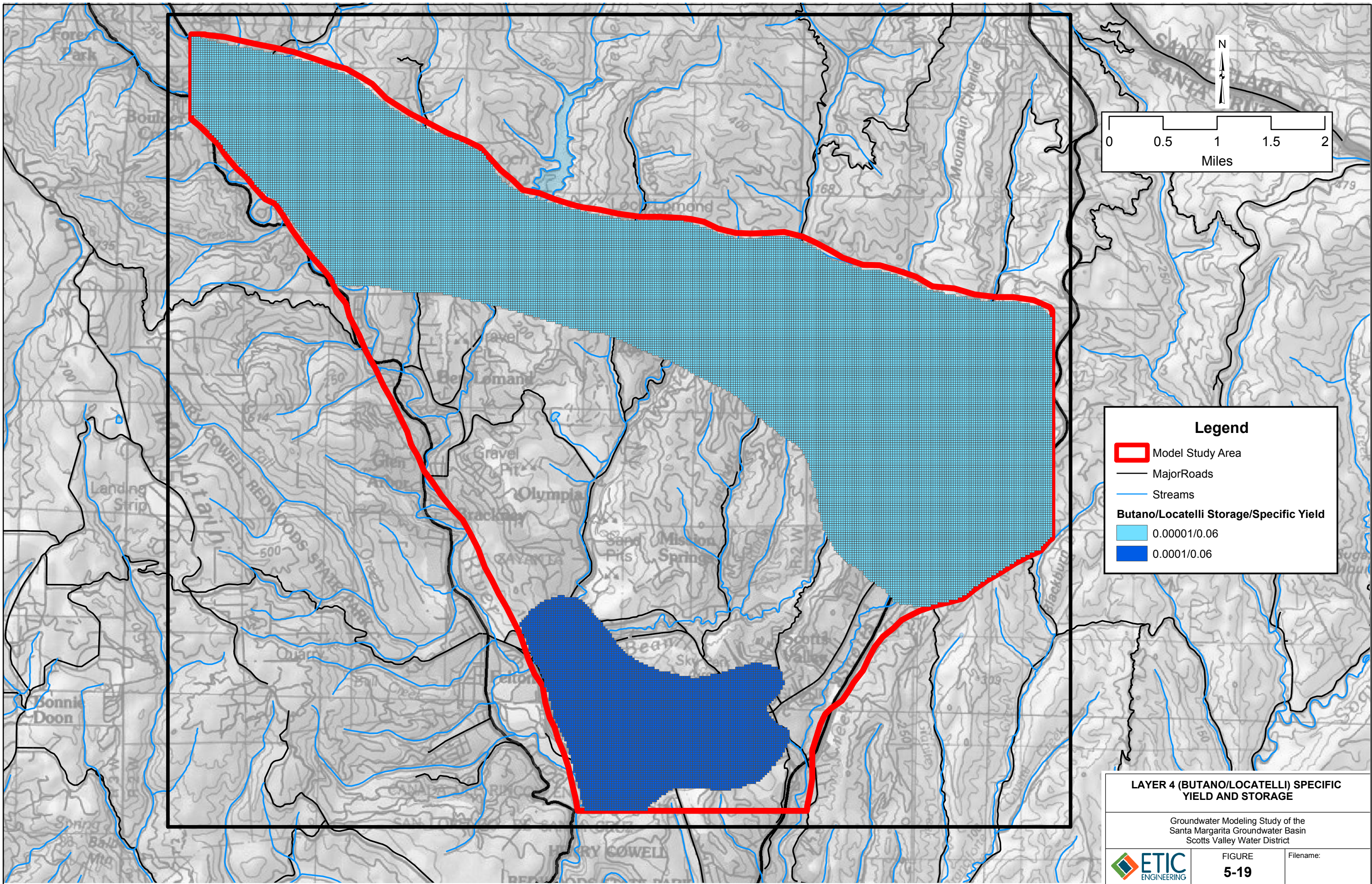




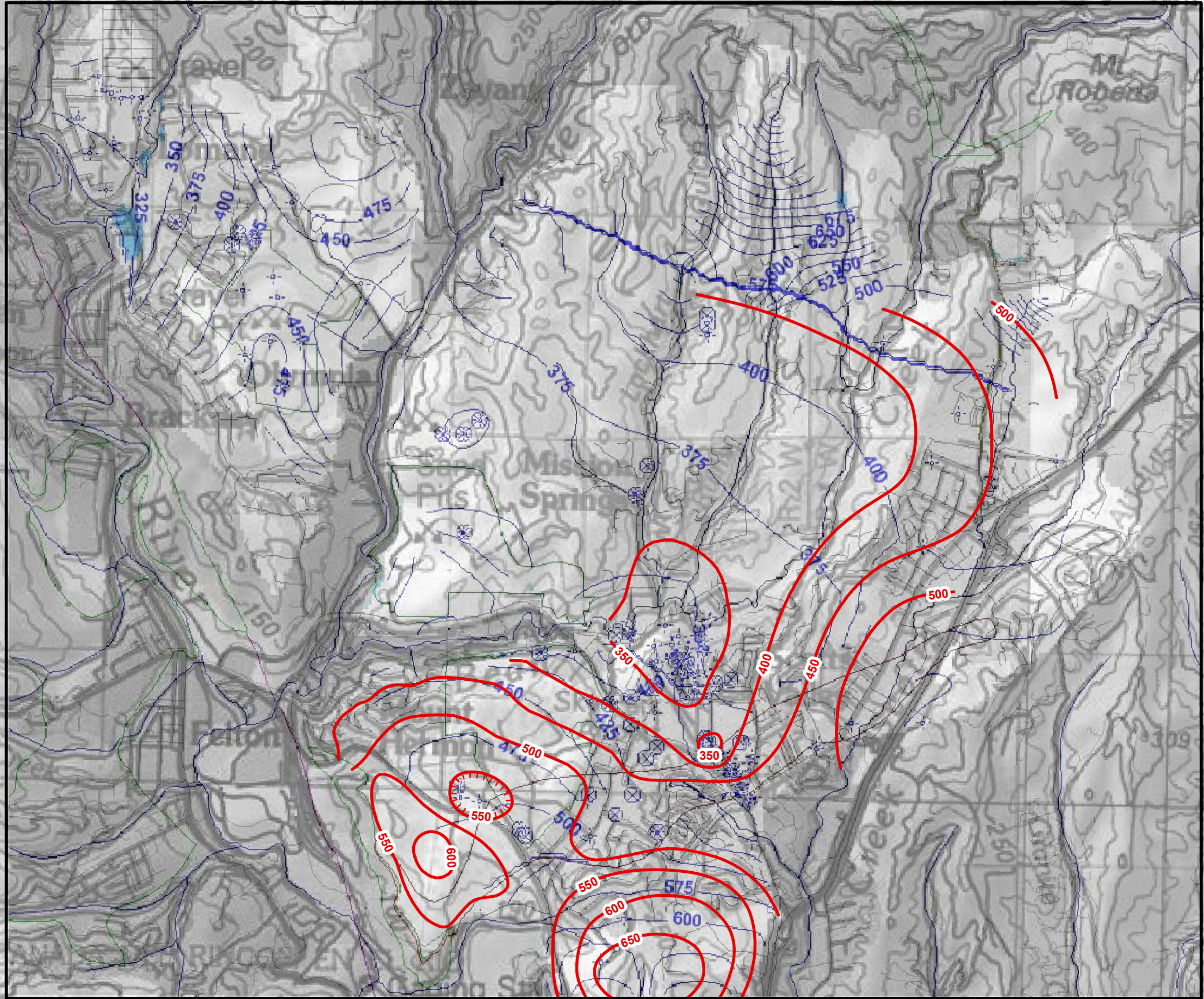










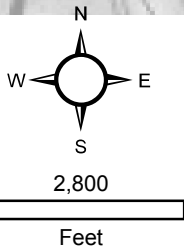


Legend

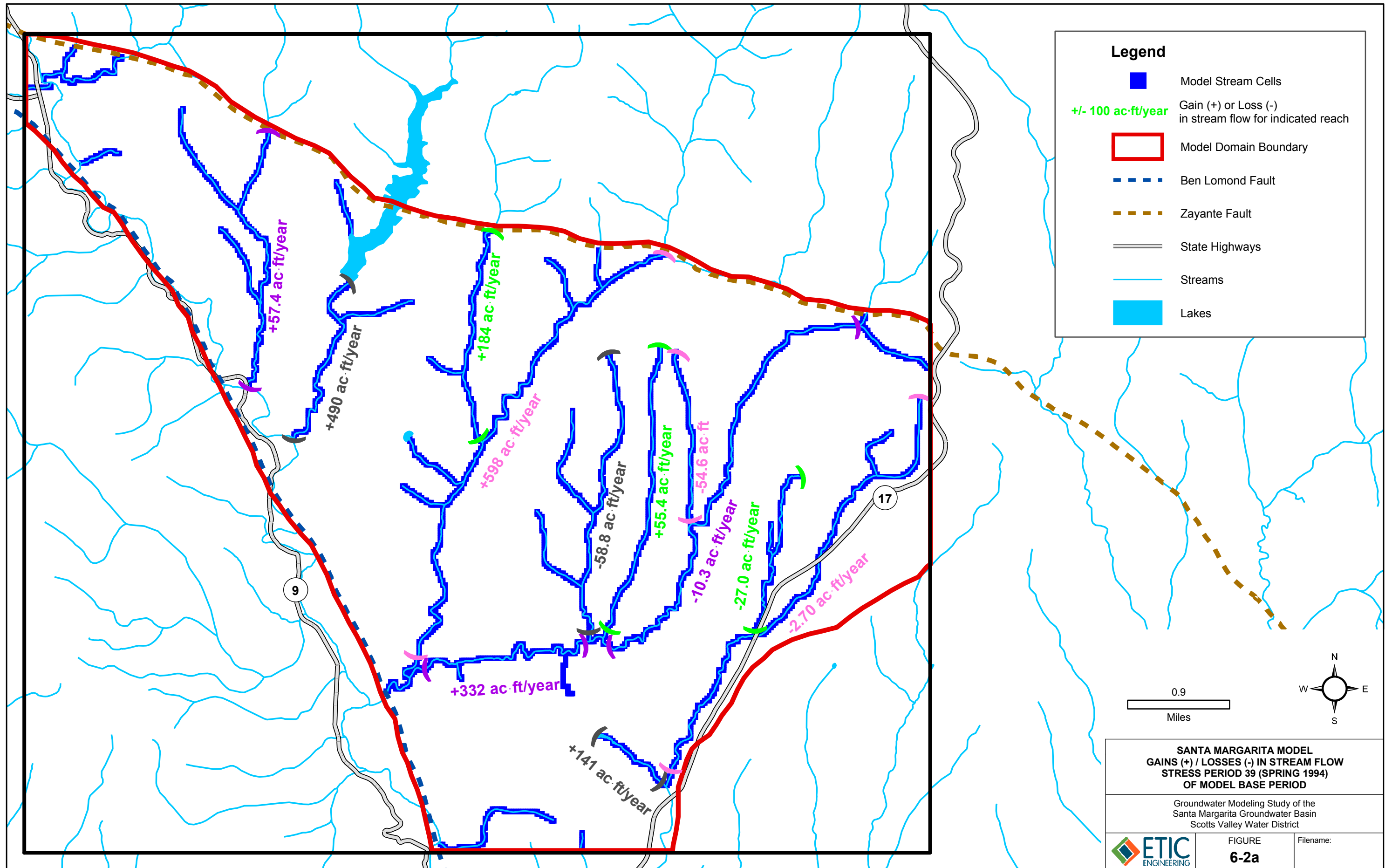
Model Predicted Groundwater Elevation

Field Measured Groundwater Elevation

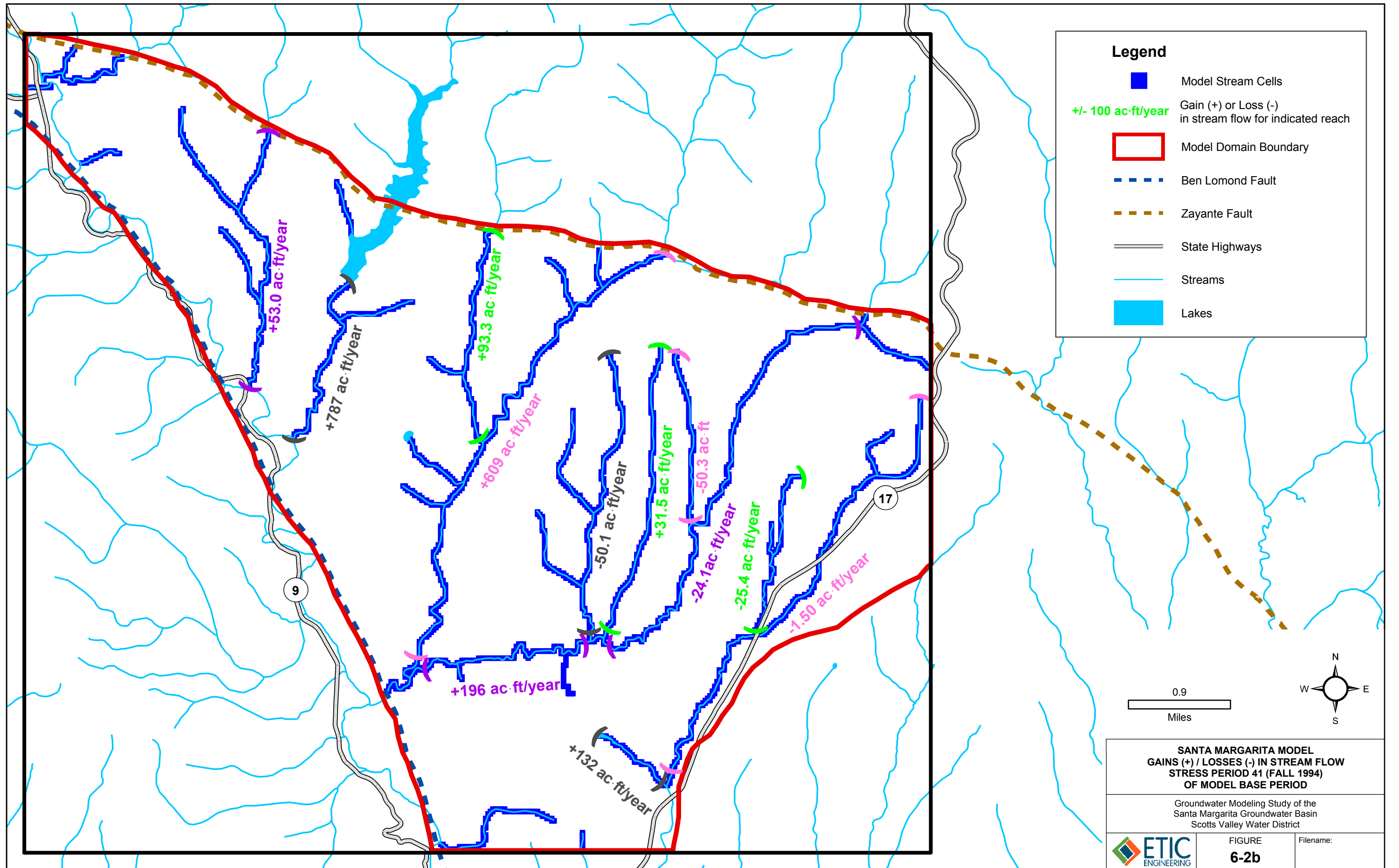
Groundwater Elevation Contours in feet ams.





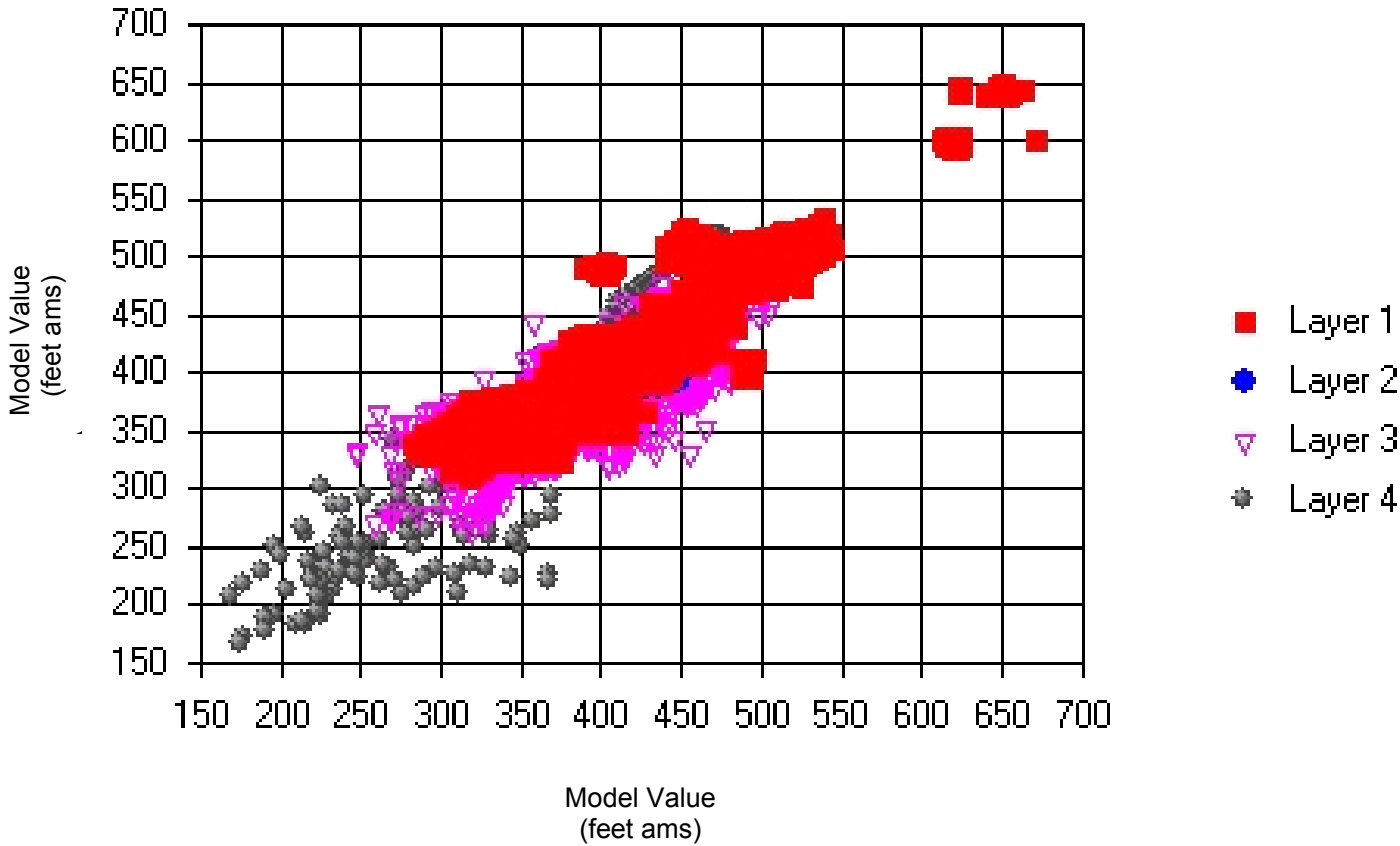








Observed vs. Computed Target Values



**SANTA MARGARITA MODEL  
TRANSIENT CALIBRATION STATISTICS**

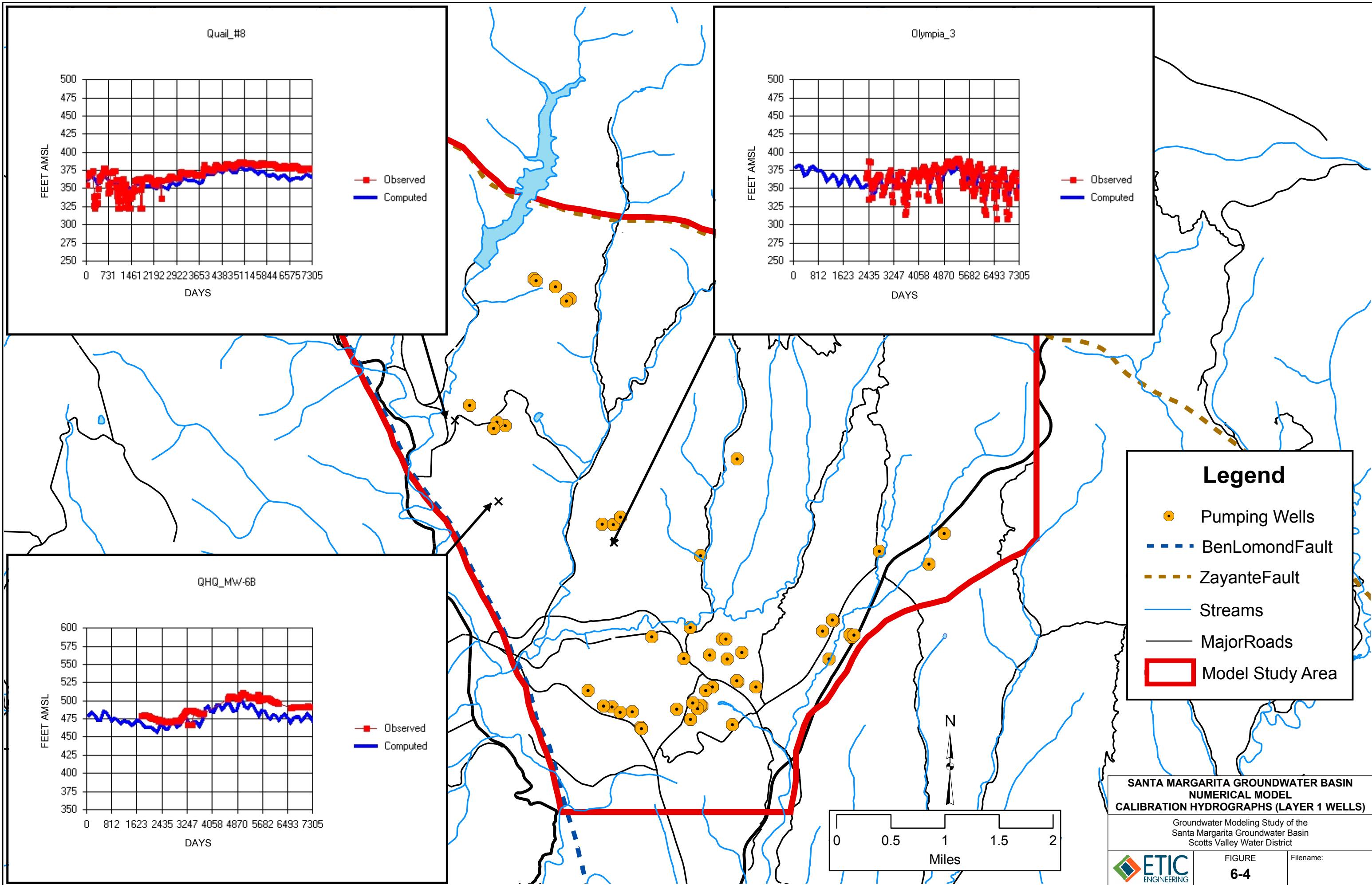
Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE  
**6-3**

Filename:





**SANTA MARGARITA GROUNDWATER BASIN  
NUMERICAL MODEL  
CALIBRATION HYDROGRAPHS (LAYER 1 WELLS)**

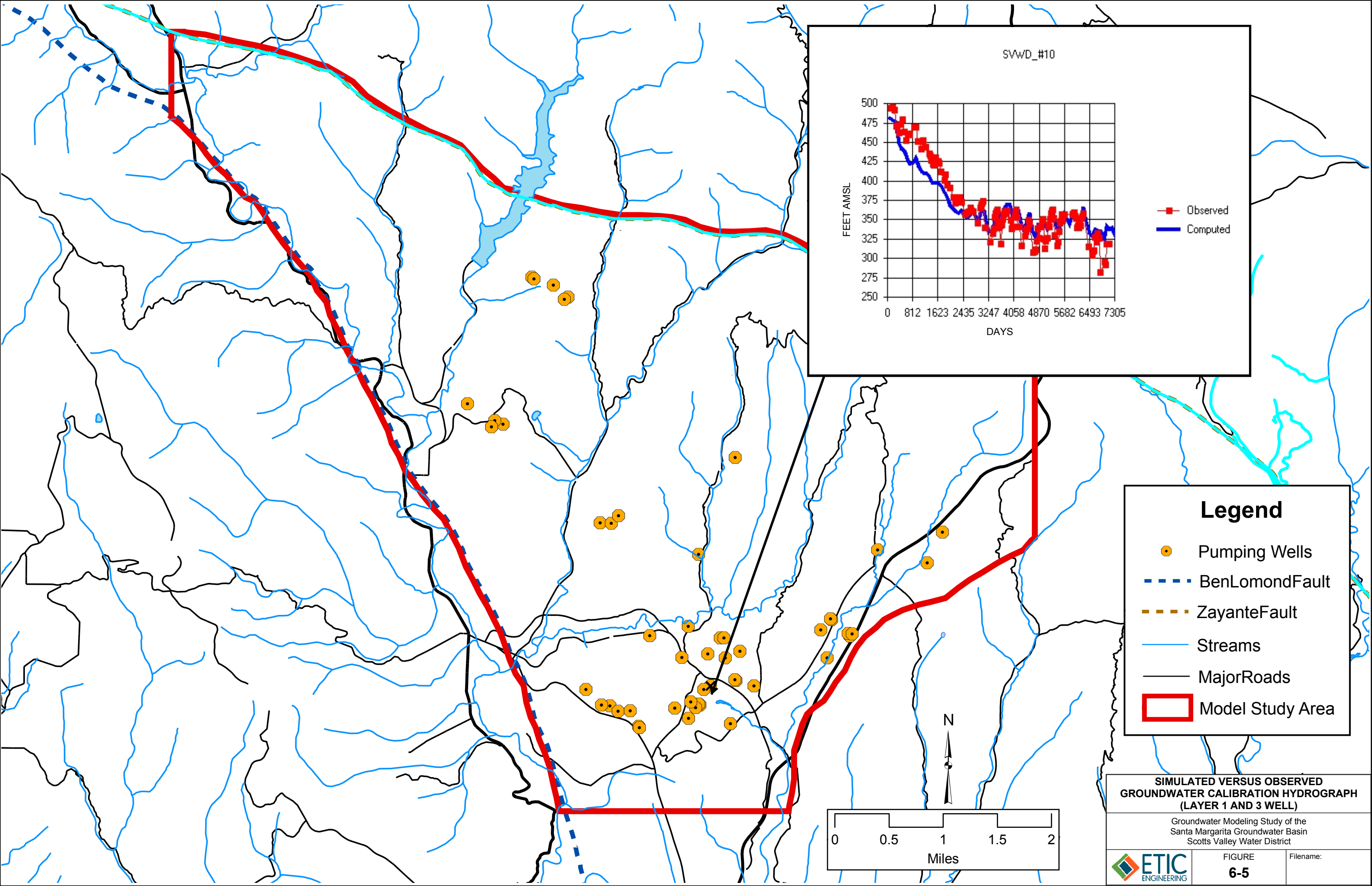
Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



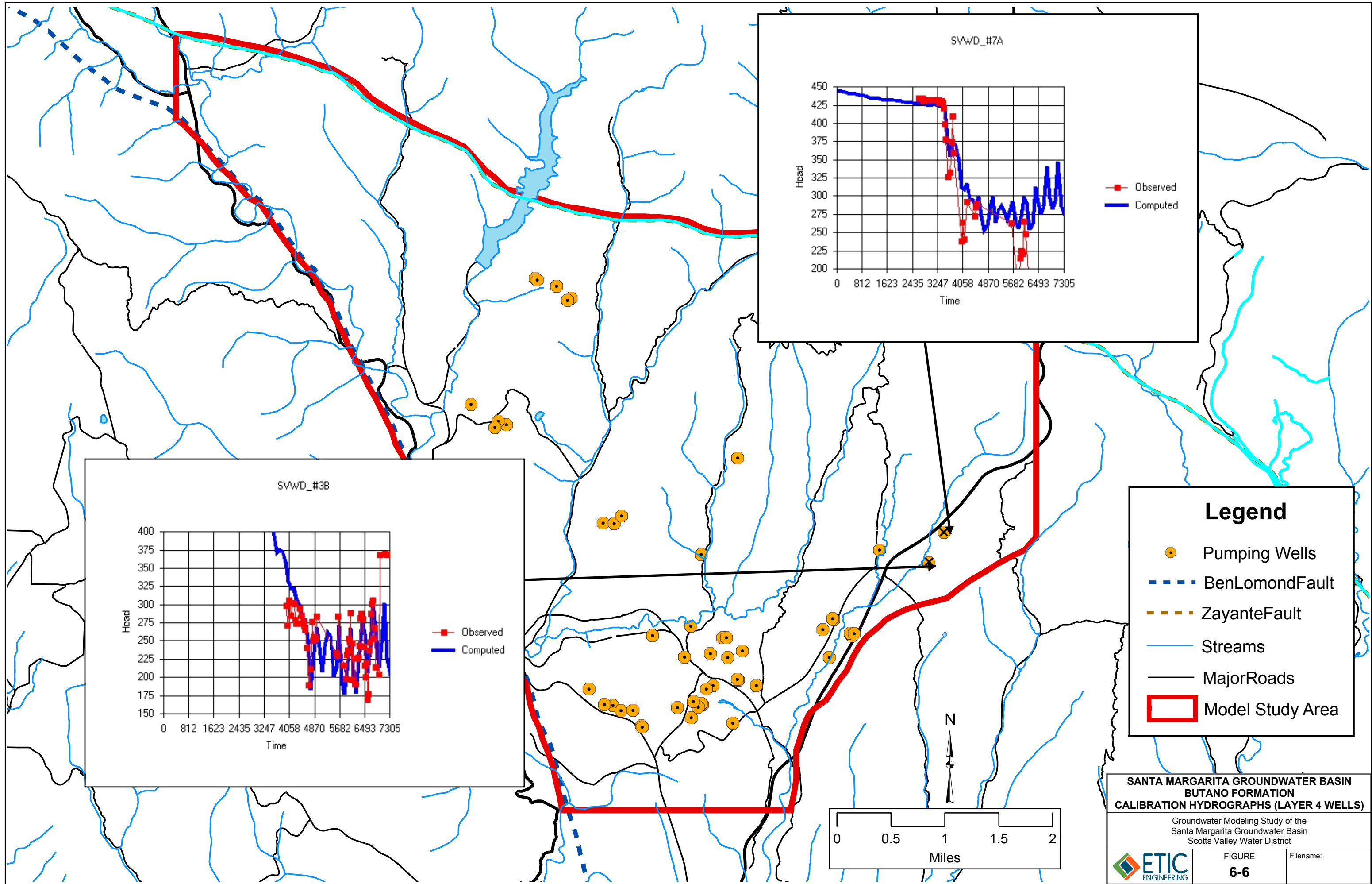
FIGURE  
**6-4**

Filename:

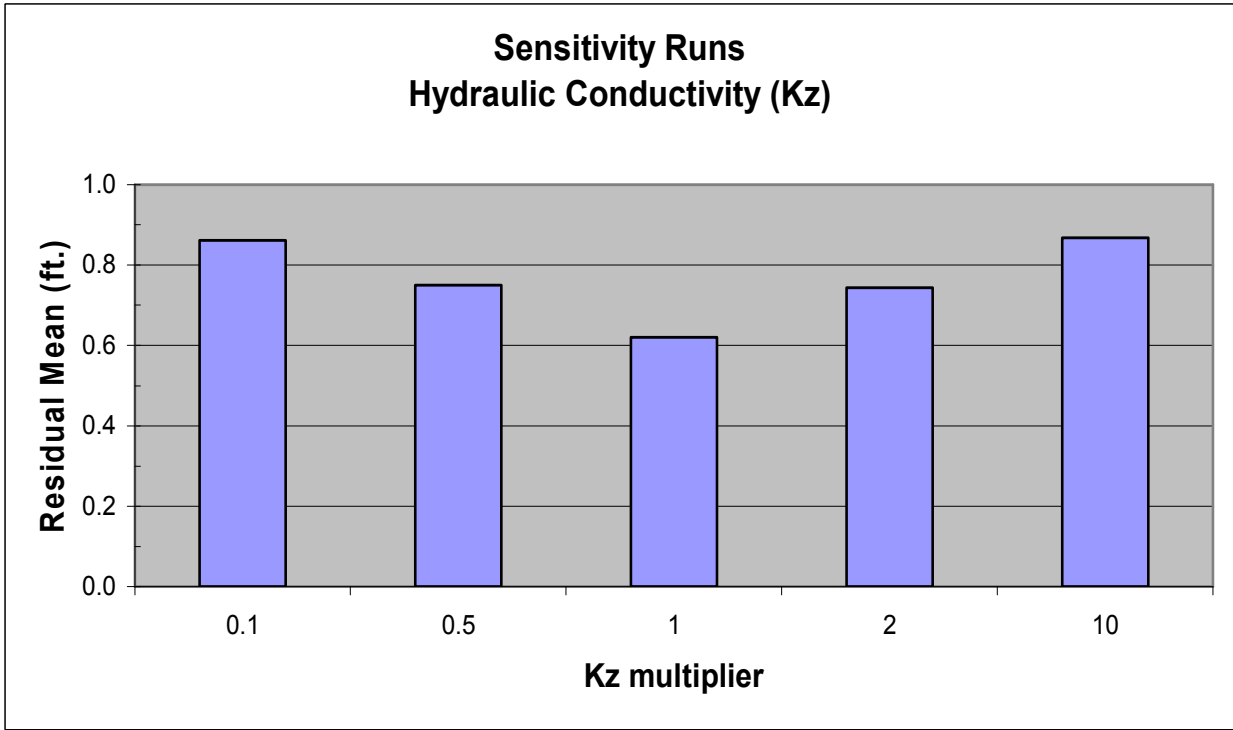
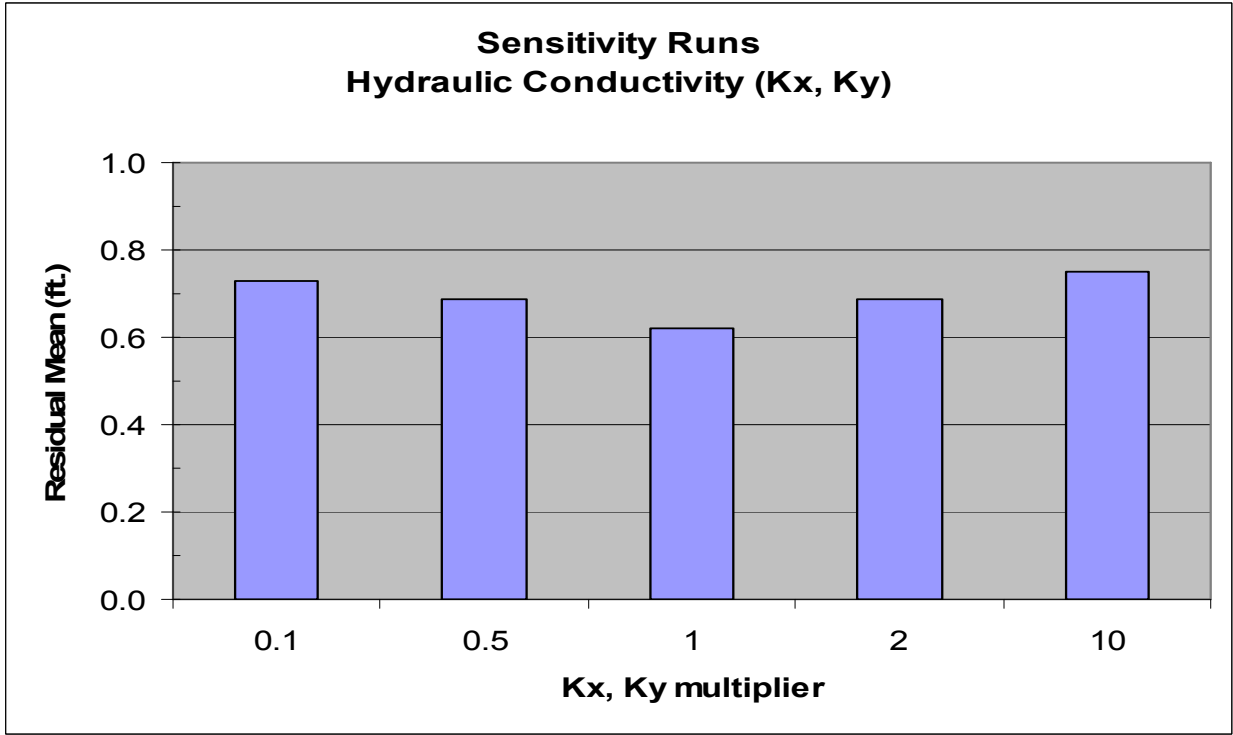












**SANTA MARGARITA MODEL  
SENSITIVITY ANALYSIS  
HORIZONTAL AND VERTICAL CONDUCTIVITY**

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District

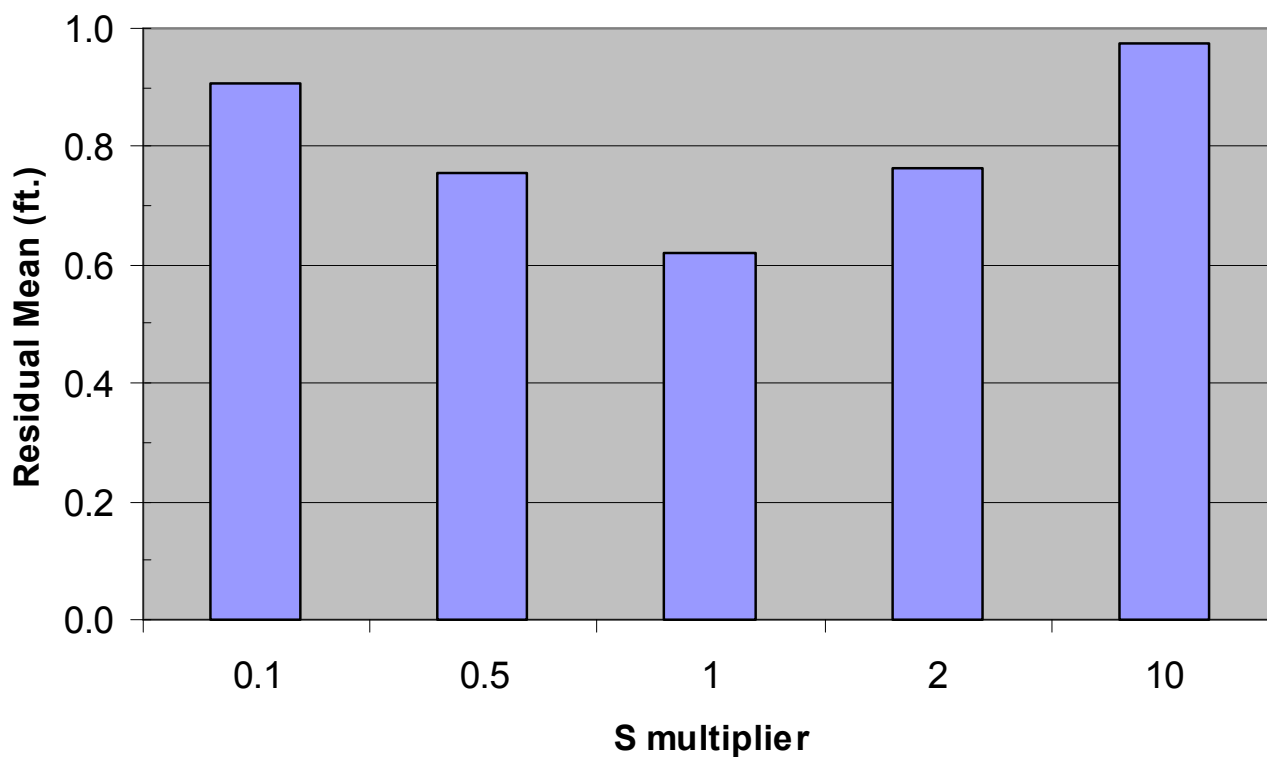


FIGURE  
**7-1**

Filename:



## Sensitivity Runs Storage Coefficient (S)



### SANTA MARGARITA MODEL SENSITIVITY ANALYSIS STORAGE COEFFICIENT

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District

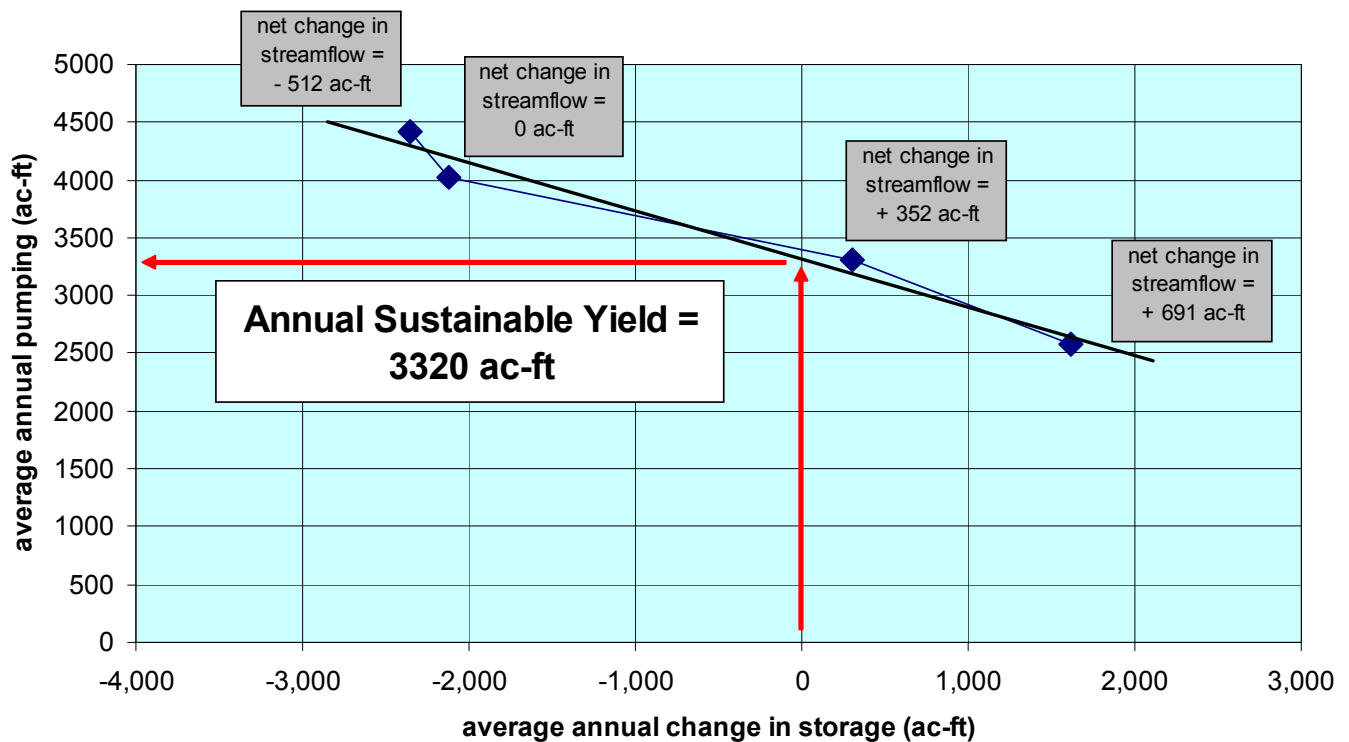


FIGURE  
**7-2**

Filename:



### Santa Margarita Groundwater Basin Sustainable Yield Estimate / Net Change in Annual Streamflow



#### Model-Based Sustainable Yield and Net Change in Average Annual Streamflow

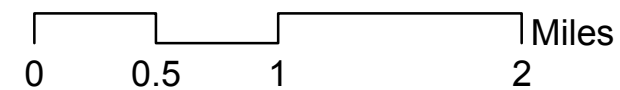
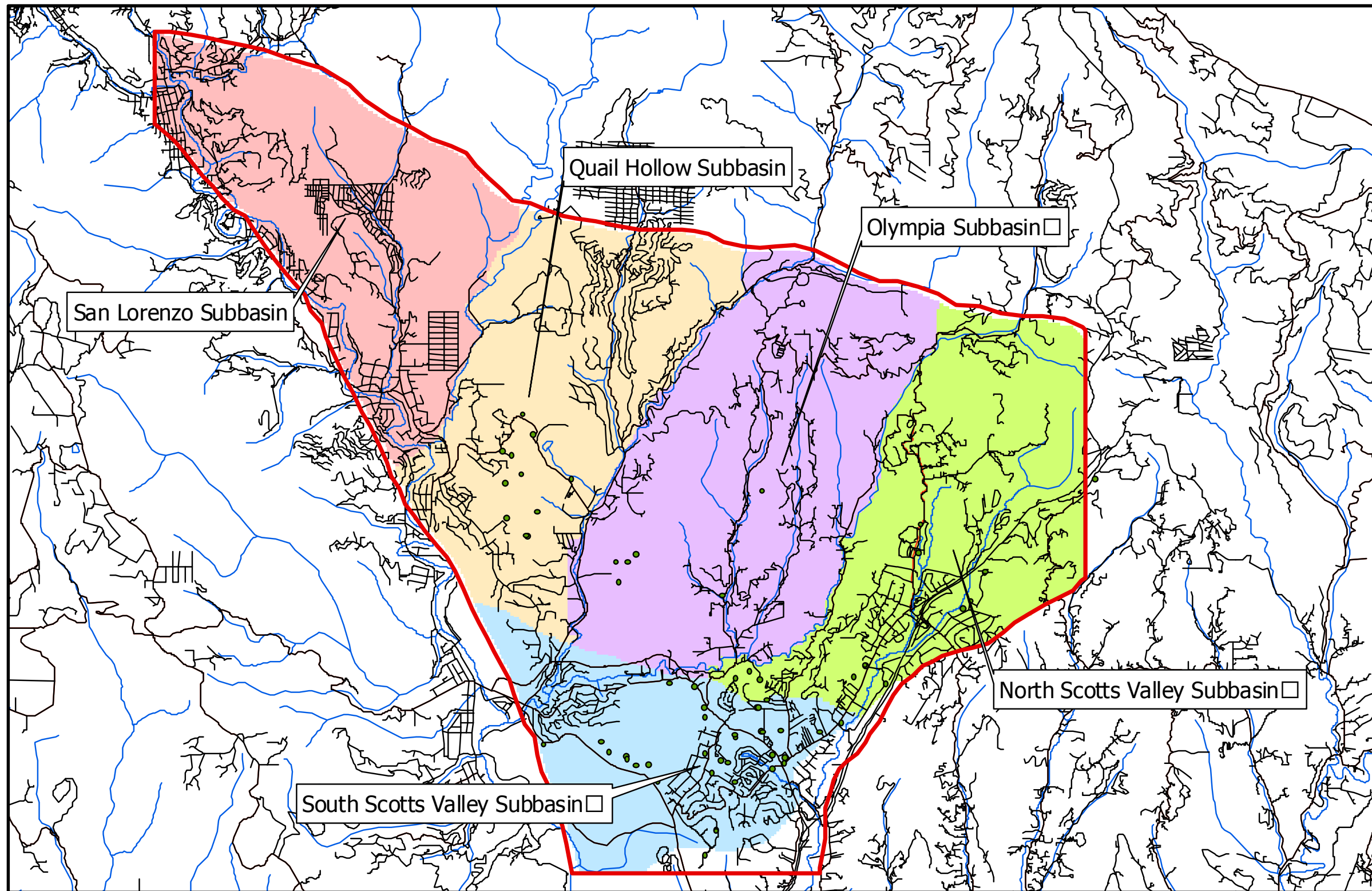
Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE  
**8-1**

Filename:





**Santa Margarita Groundwater Basin  
Sustainable Yield Subbasins**

Groundwater Modeling Study of the  
Santa Margarita Groundwater Basin  
Scotts Valley Water District



FIGURE  
**8-2**

Filename: