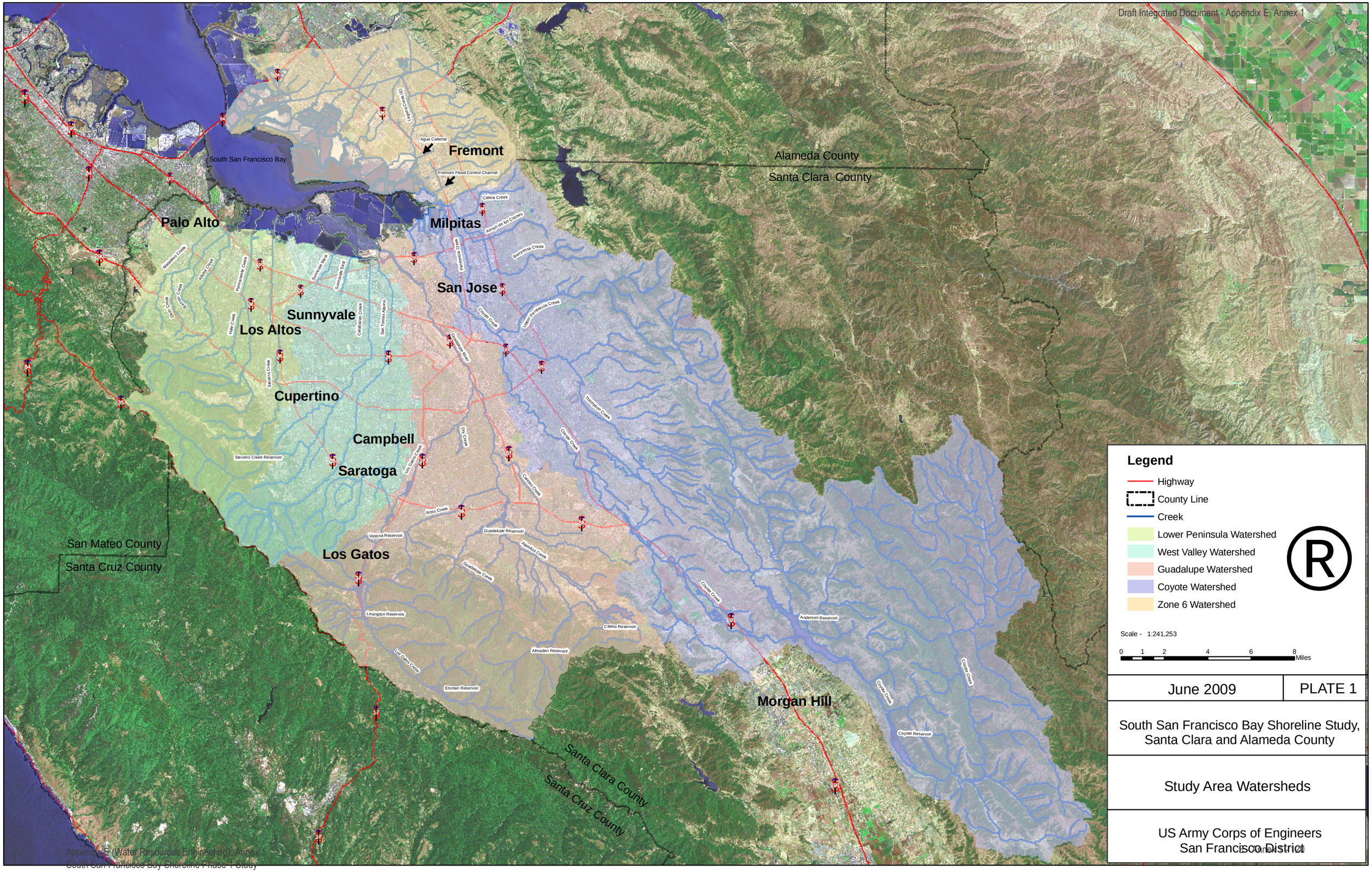
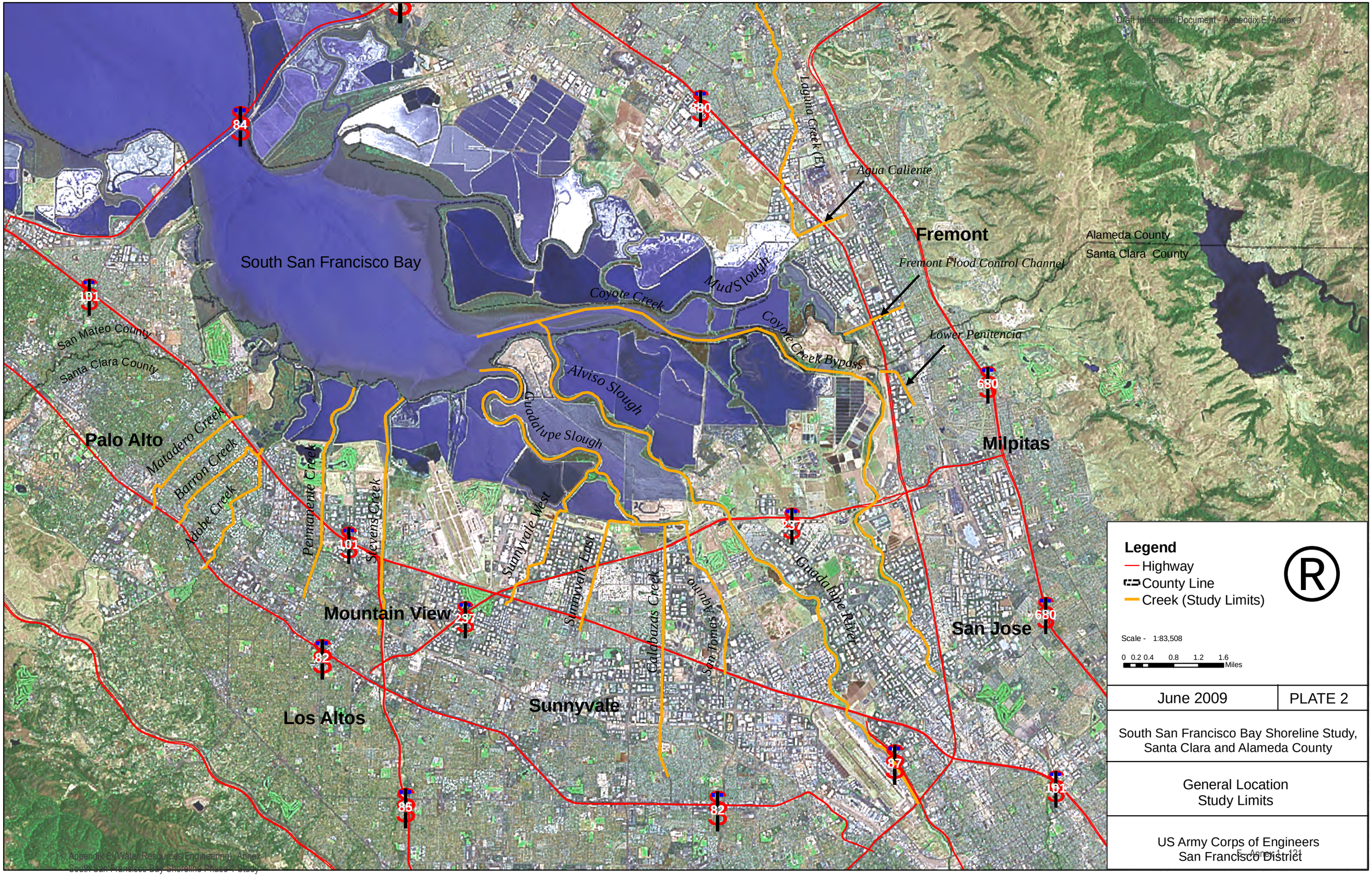



June 2009 | PLATE 1

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

Study Area Watersheds

US Army Corps of Engineers
San Francisco District


South San Francisco Bay
Palo Alto
Mountain View
Los Altos
Sunnyvale
Fremont
Milpitas
San Jose
San Mateo County
Santa Clara County
Alameda County
Santa Clara County
Matadero Creek
Barron Creek
Adobe Creek
Permanente Creek
Stevens Creek
Sunnyvale West
Sunnyvale East
Calabazas Creek
San Tomas Aquino
Guadalupe River
Guadalupe Slough
Alviso Slough
Coyote Creek
Mud Slough
Coyote Creek Bypass
Laguna Creek (E)
Agua Caliente
Fremont Flood Control Channel
Lower Penitencia
84
880
101
237
82
85
87
680
Legend
Highway
County Line
Creek (Study Limits)
Scale - 1:83,508
0 0.2 0.4 0.8 1.2 1.6 Miles
June 2009
PLATE 2
South San Francisco Bay Shoreline Study, Santa Clara and Alameda County
General Location Study Limits
US Army Corps of Engineers San Francisco District

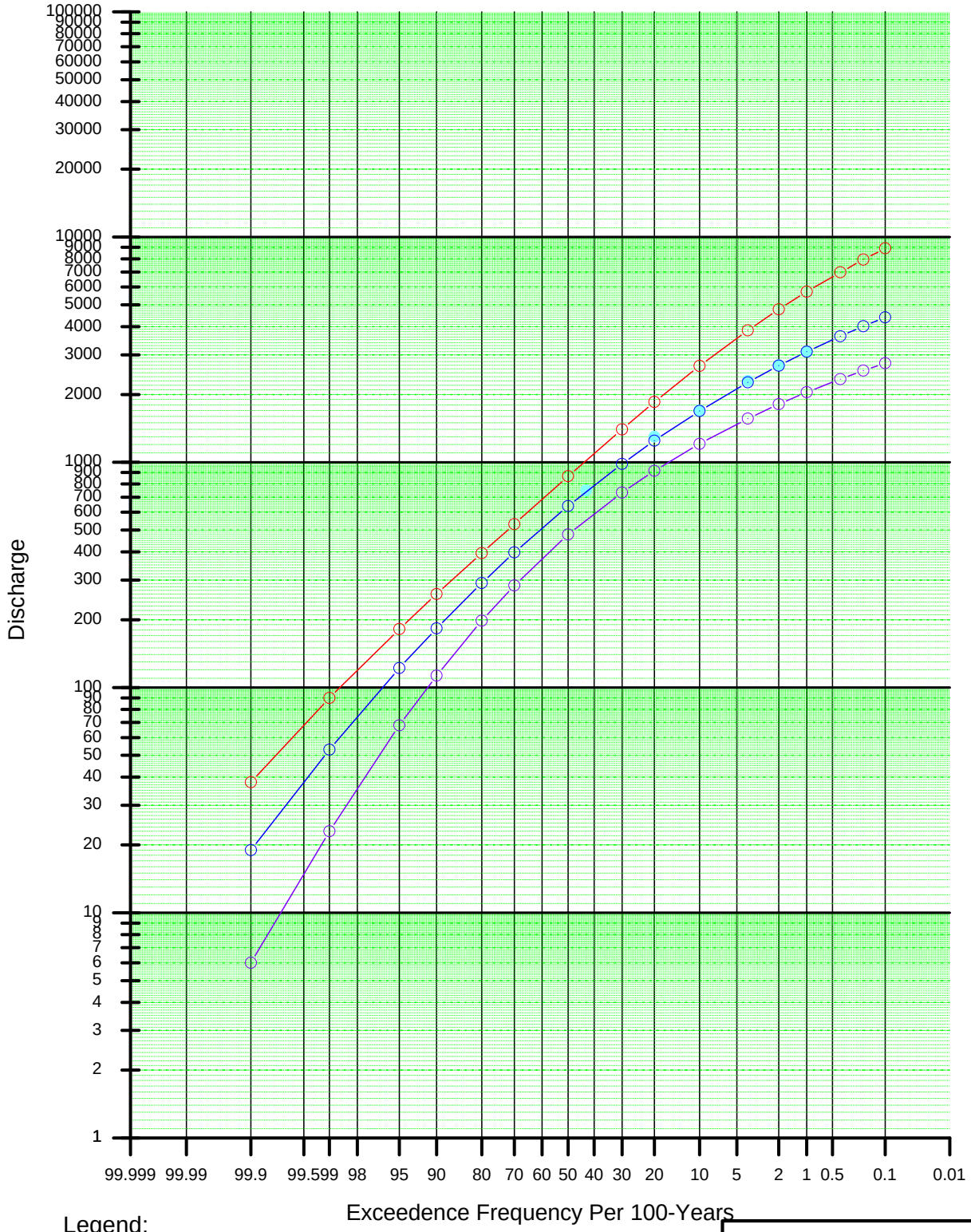



Plate 3

Legend:

- SCVWD Adobe Ck (u/s Barron Ck)
- USACE Adobe Creek flow (upstream of Barron Creek)
- USACE Adobe 0.95 Confidence Limits (upstream of Barron Creek)
- USACE Adobe 0.05 Confidence Limits (upstream of Barron Creek)

Adobe Creek,
Santa Clara County, CA

Flow Frequency Curve
Adobe Creek
upstream of Barron Creek

US Army Corps of Engineers
San Francisco District

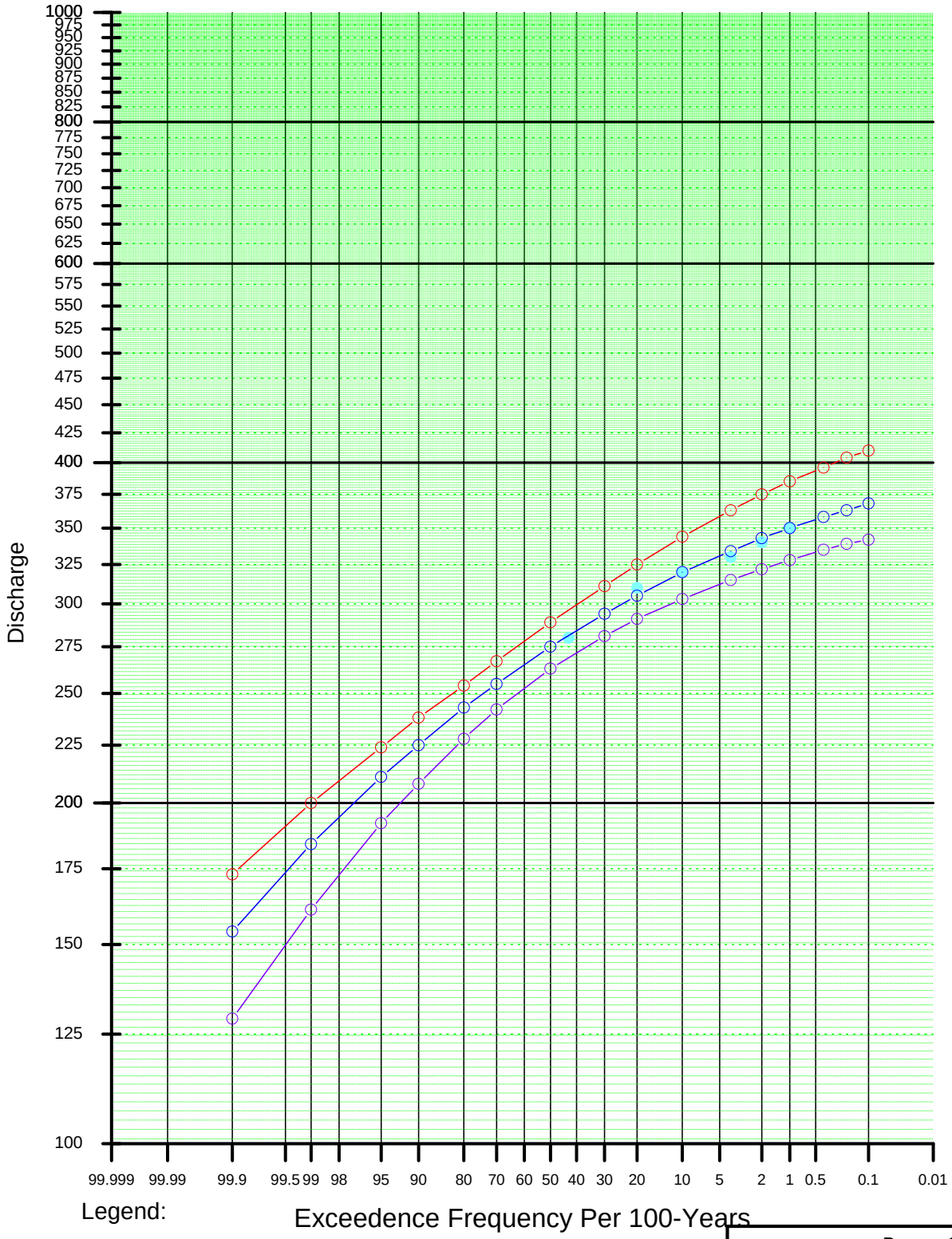



Plate 4

Legend:

- SCVWD Barron Ck (at Hwy 101)
- USACE Barron Creek flow (at Hwy 101)
- USACE Barron 0.95 Confidence Limits (at Hwy 101)
- USACE Barron 0.05 Confidence Limits (at Hwy 101)

Barron Creek,
Santa Clara County, CA

Flow Frequency Curve
Barron Creek at
Highway 101

US Army Corps of Engineers
San Francisco District

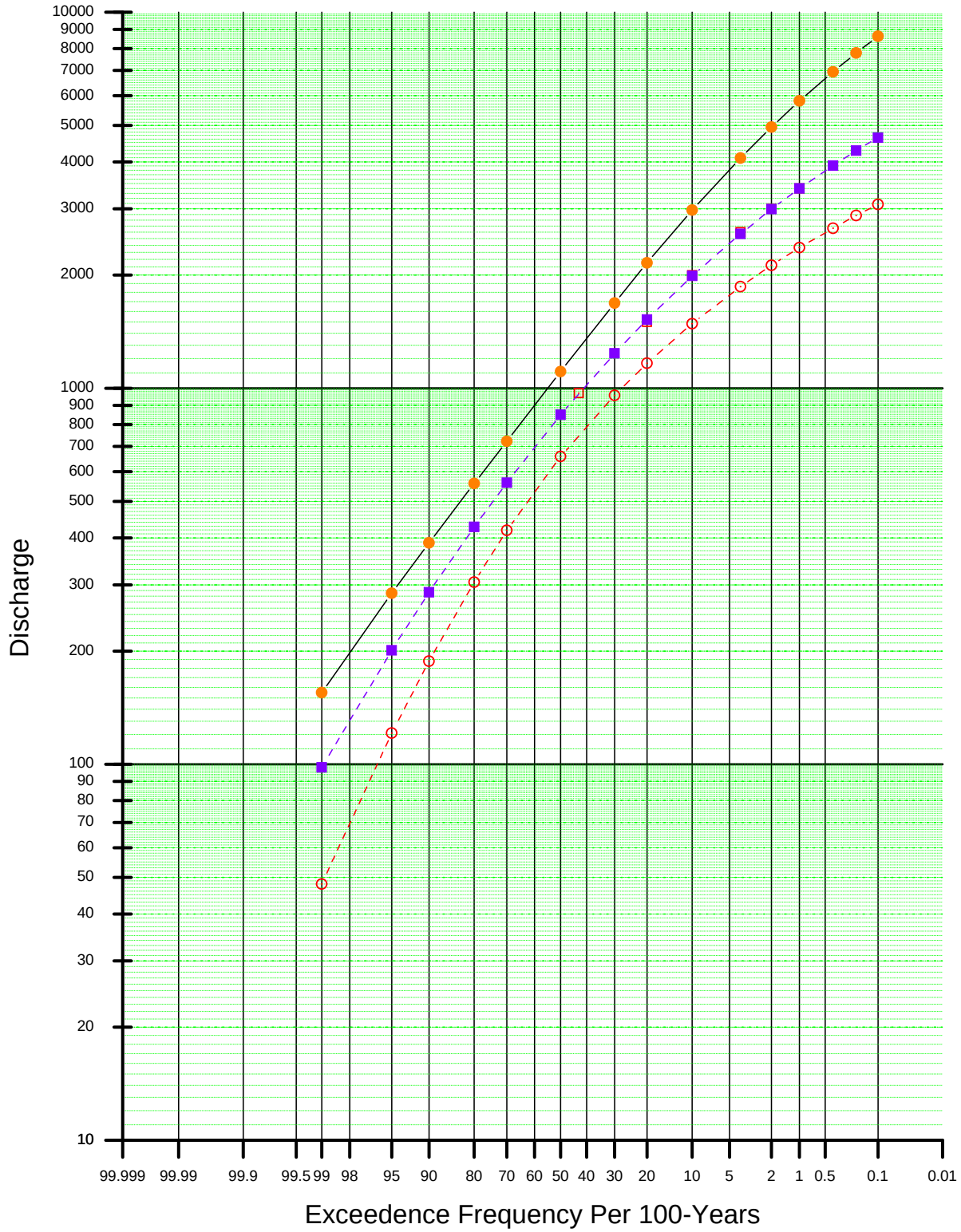



Plate 5

Legend:

- SCVWD Adobe - Barron Ck (at Hwy 101)
- USACE Adobe-Barron flow (ds of Hwy 101)

Adobe - Barron Creeks,
Santa Clara County, CA

Flow Frequency Curve
Confluence of
Adobe-Barron Cks

US Army Corps of Engineers
San Francisco District

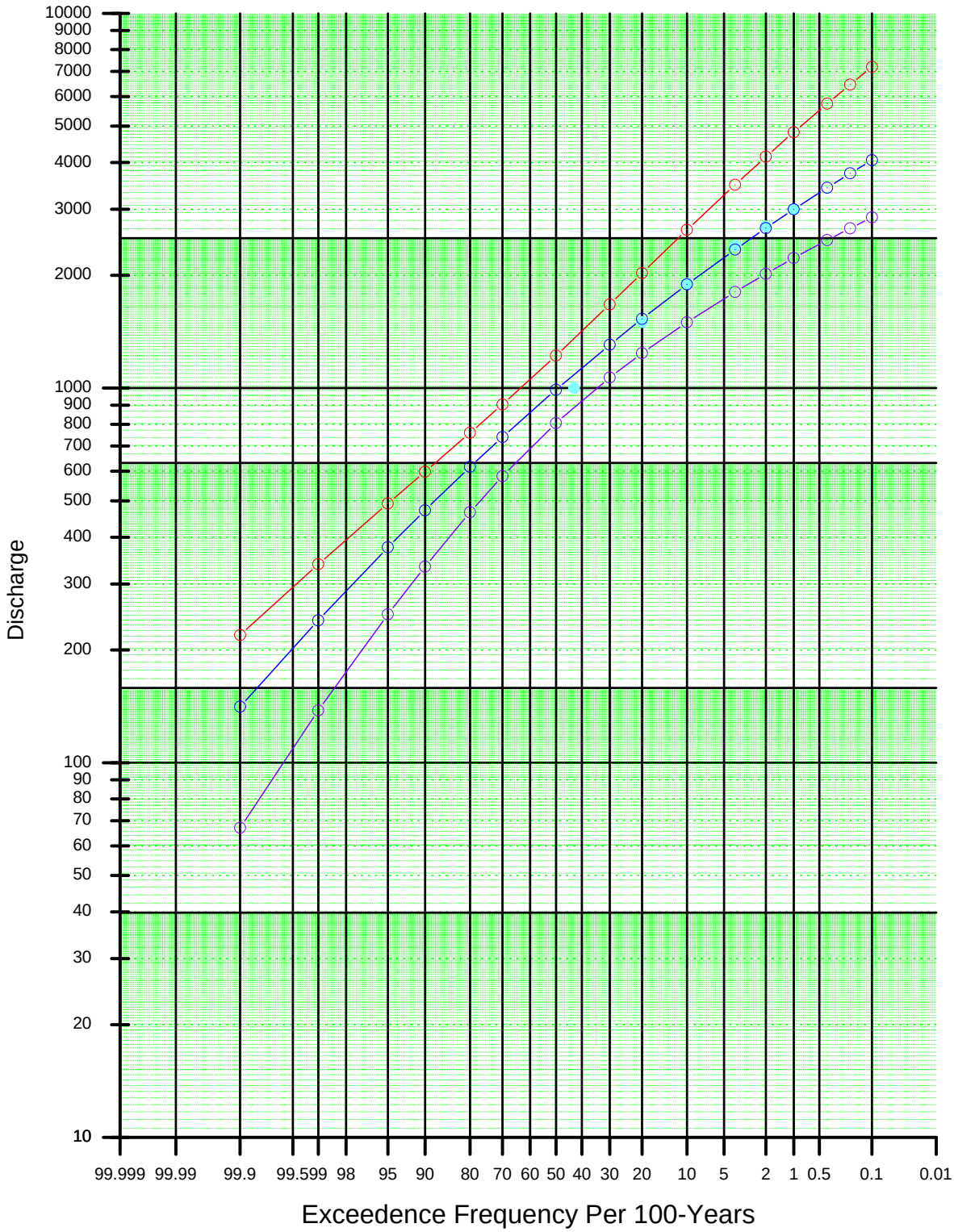



Plate 6

Legend:

- SCVWD Matadero Ck (at Hwy 101)
- USACE Matadero Ck flow (at Hwy 101)
- USACE Matadero 0.95 Confidence (at Hwy 101)
- USACE Matadero 0.05 Confidence (at Hwy 101)

Matadero Creek
Santa Clara County, CA

Flow Frequency Curve
Matadero Creek
at Highway 101

US Army Corps of Engineers
San Francisco District

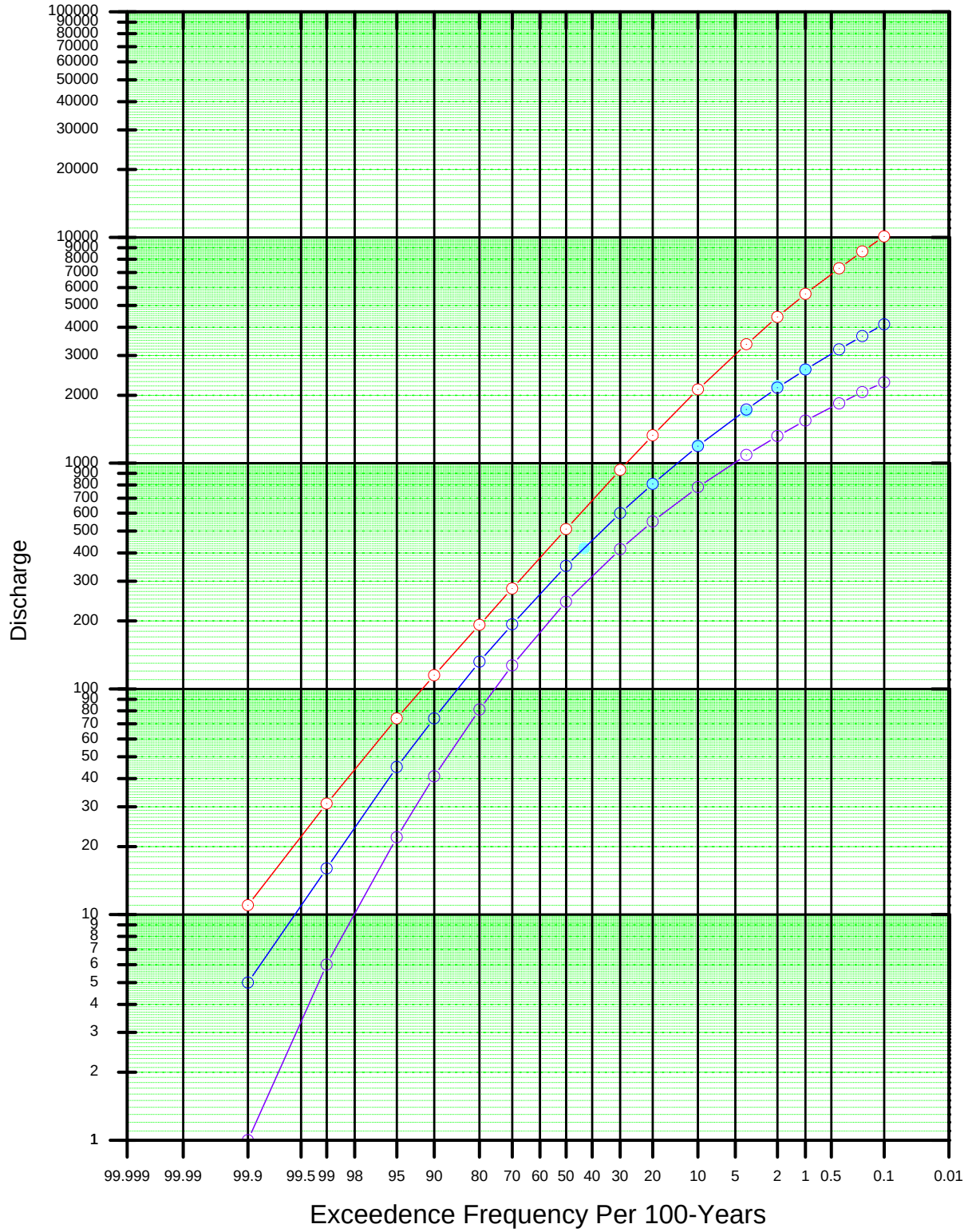



Plate 7

Legend:

- SCVWD Permanente Ck (at Hwy 101)
- USACE Permanente Ck flow (at Hwy 101)
- USACE Permanente 0.95 Confidence Limits (at Hwy 101)
- USACE Permanente 0.05 Confidence Limits (at Hwy 101)

Permanente Creek,
Santa Clara County, CA

Flow Frequency Curve
Permanente Creek
at Highway 101

US Army Corps of Engineers
San Francisco District

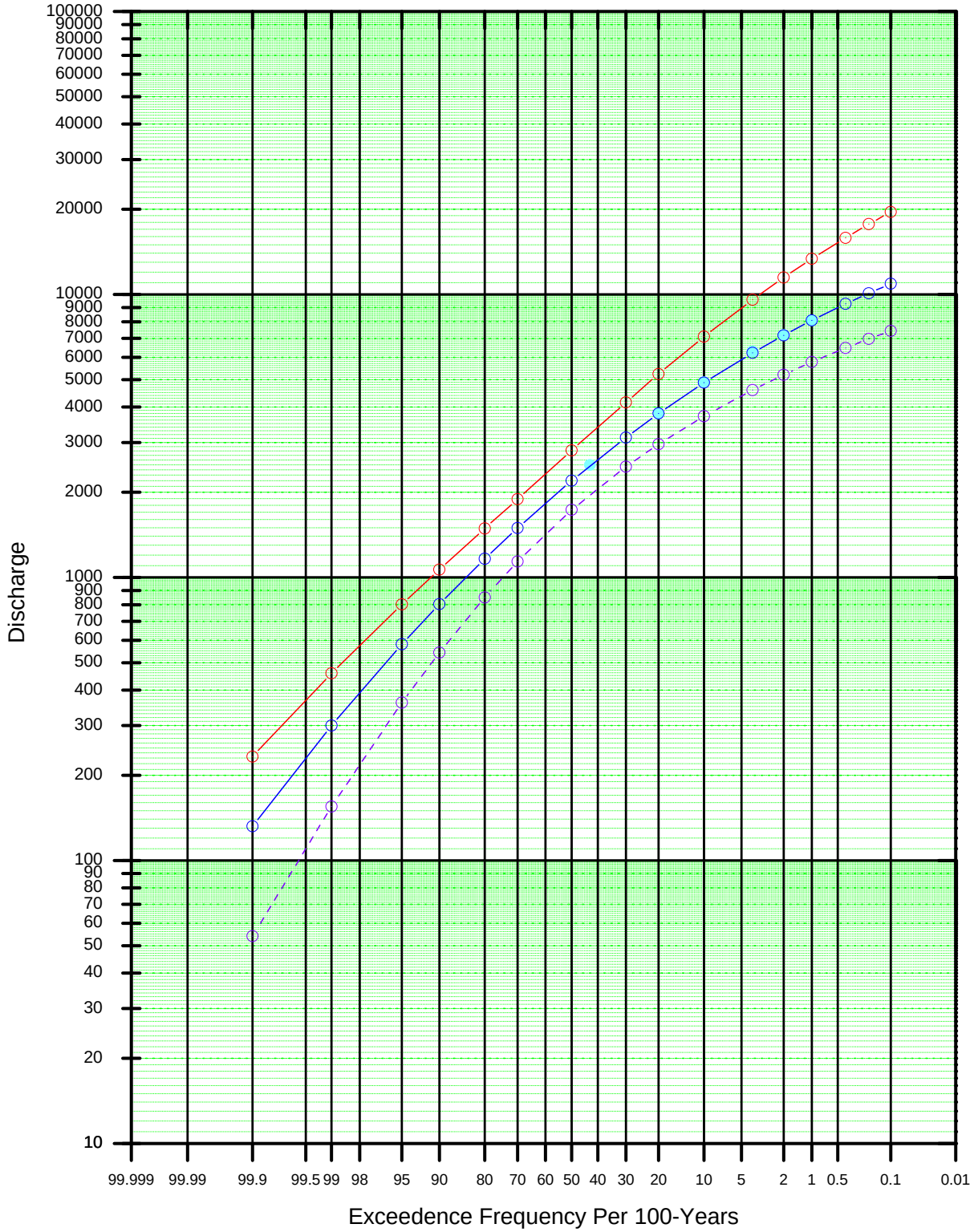



Plate 8

Legend:

- SCVWD Stevens Ck (at Hwy 101)
- USACE Stevens Ck flow (at Hwy 101)
- USACE Stevens 0.95 Confidence Limits (at Hwy 101)
- USACE Stevens 0.05 Confidence Limits (at Hwy 101)

Stevens Creek,
Santa Clara County, CA

Flow Frequency Curve
Stevens Creek
at Highway 101

US Army Corps of Engineers
San Francisco District

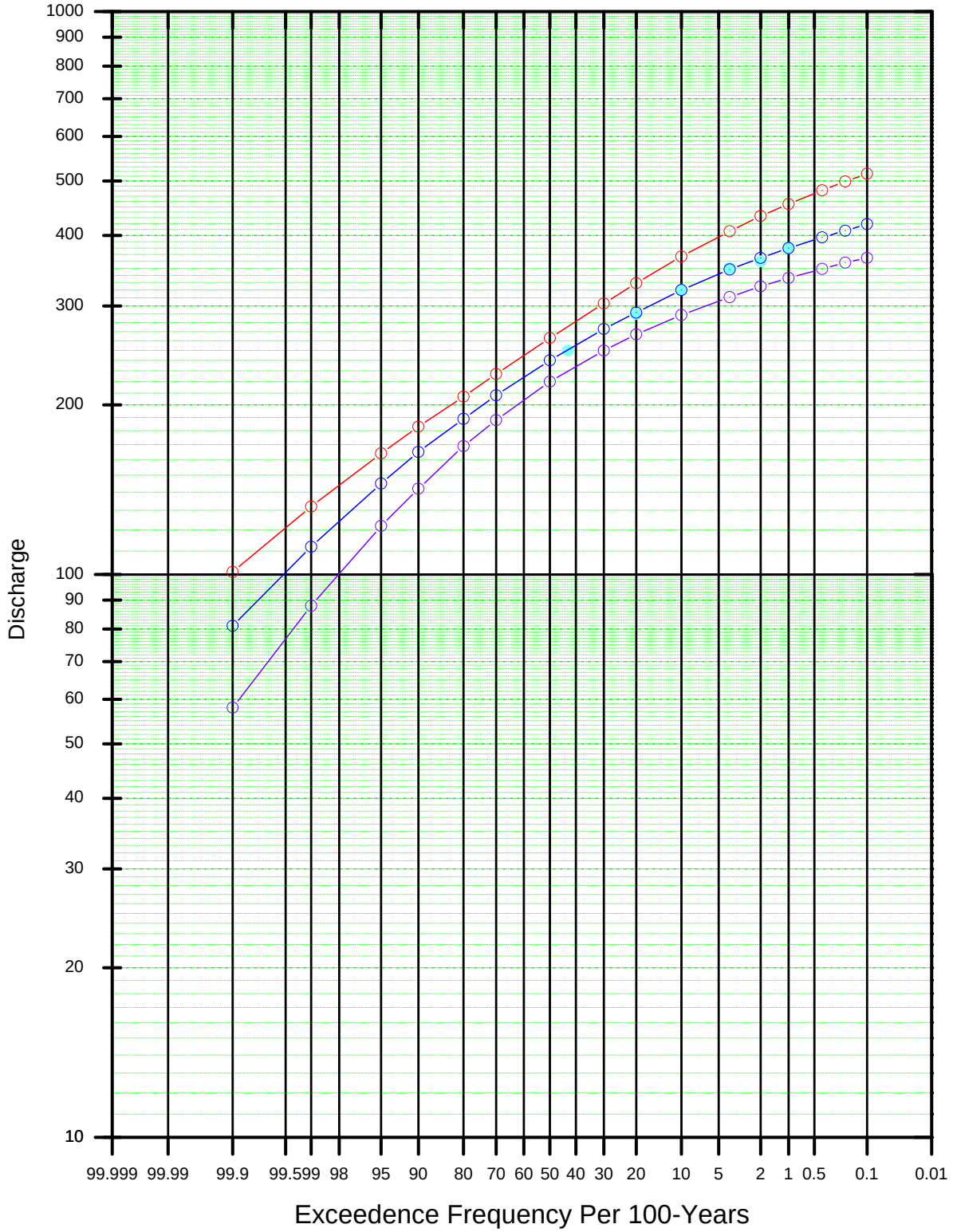



Plate 9

Legend:

- SCVWD Sunnyvale West Channel (d/s Hwy 237)
- USACE Sunnyvale West flow (at Hwy 237)
- USACE Sunnyvale W 0.95 Confidence Limits (at Hwy 237)
- USACE Sunnyvale W 0.05 Confidence Limits (at Hwy 237)

Sunnyvale West Channel,
Santa Clara County, CA

Flow Frequency Curve
Sunnyvale West Channel
at Highway 237

US Army Corps of Engineers
San Francisco District

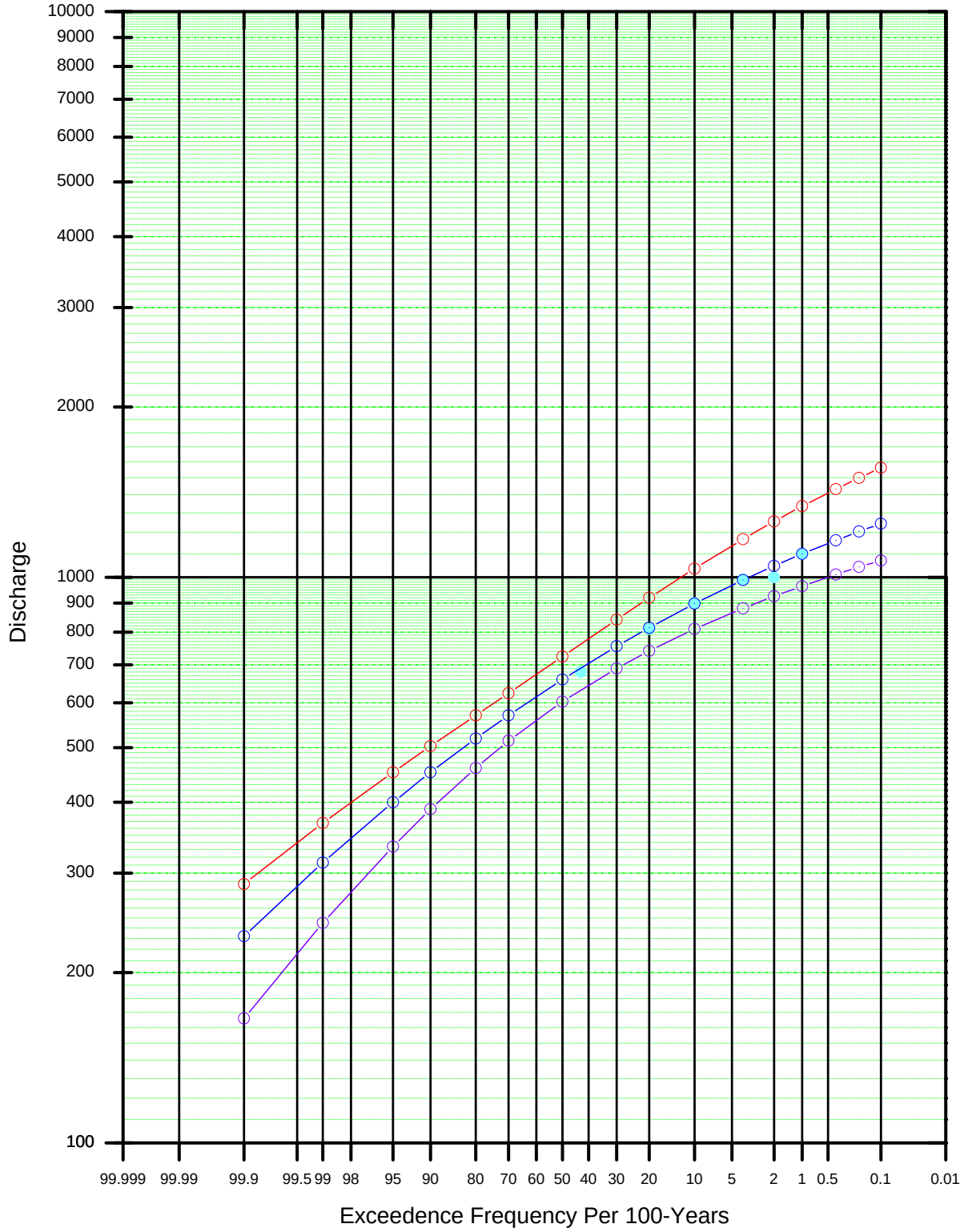



Plate 10

Legend:

- SCVWD Sunnyvale East Channel (d/s Caribbean Drive)
- USACE Sunnyvale East flow (at Caribbean)
- USACE Sunnyvale E. 0.95 Confidence Limits (at Caribbean)
- USACE Sunnyvale E. 0.05 Confidence Limits (at Caribbean)

Sunnyvale East Channel,
Santa Clara County, CA

Flow Frequency Curve
Sunnyvale East Channel
at Carribean St

US Army Corps of Engineers
San Francisco District

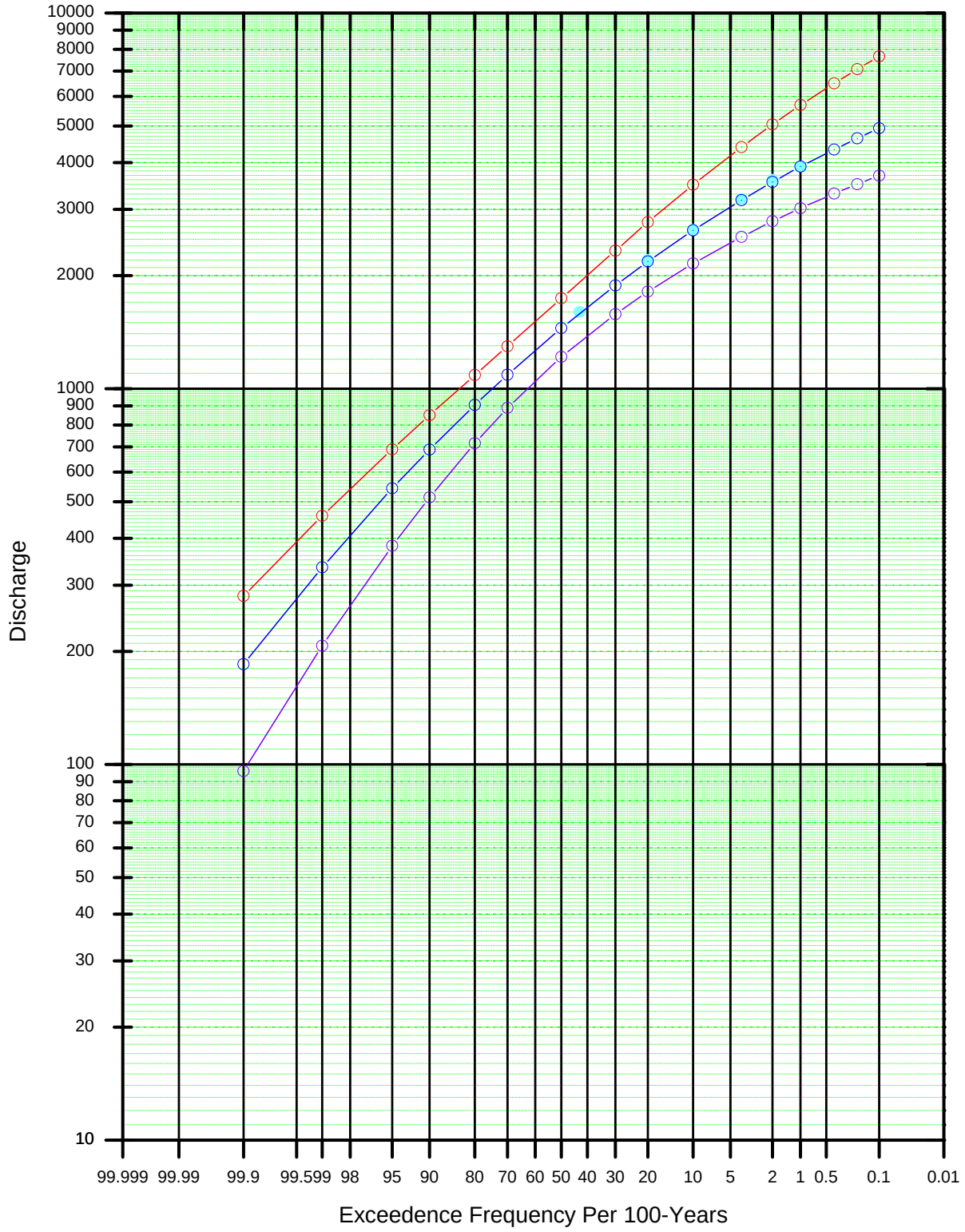



Plate 11

Legend:

- SCVWD Calabazas Ck (d/s Hwy 237)
- USACE Calabazas Crk flow (at Hwy 237)
- USACE Calabazas 0.95 Confidence Limits (at Hwy 237)
- USACE Calabazas 0.05 Confidence Limits (at Hwy 237)

Calabazas Creek,
Santa Clara County, CA

Flow Frequency Curve
Calabazas Creek
at Highway 237

US Army Corps of Engineers
San Francisco District

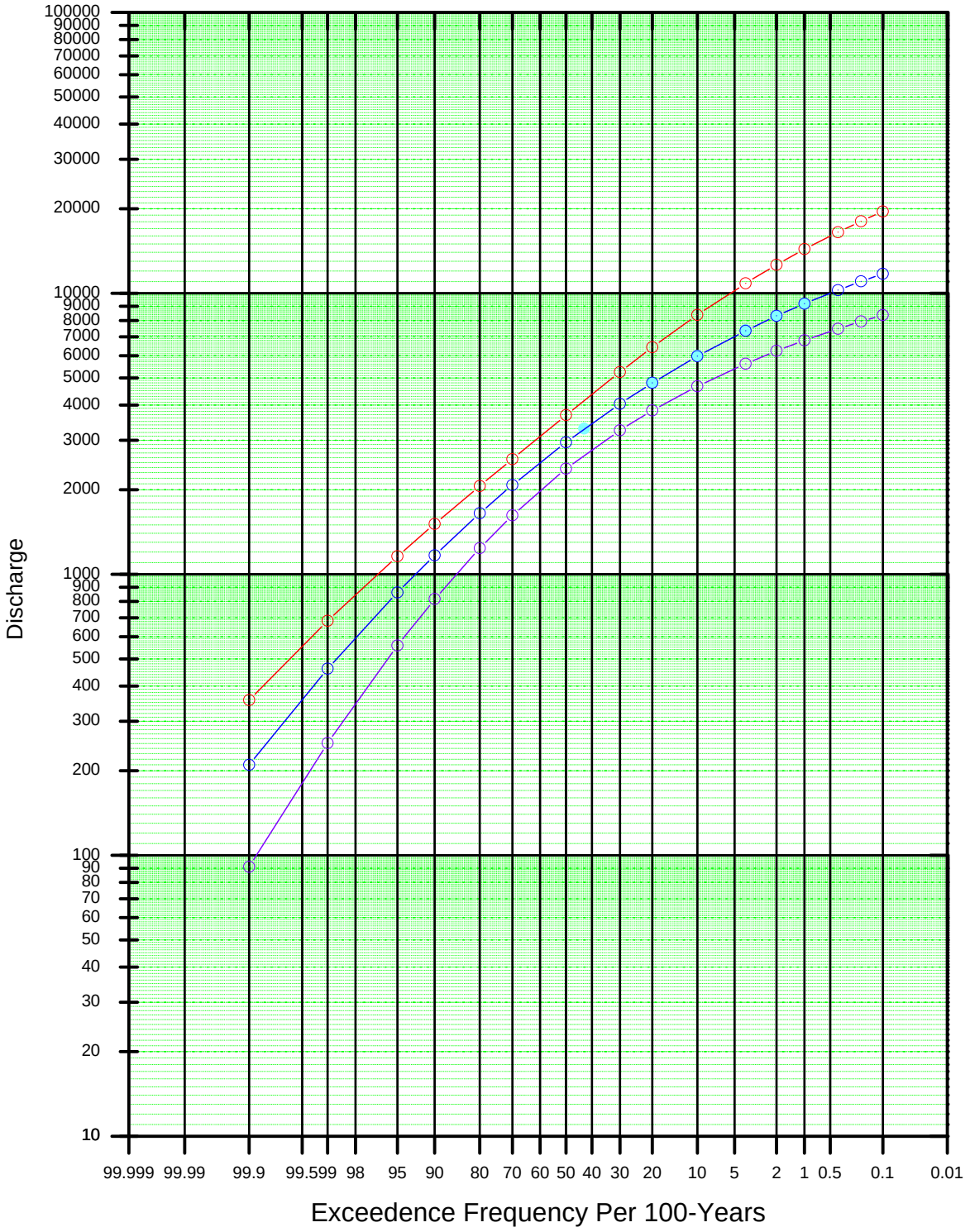



Plate 12

Legend:

- SCVWD San Tomas Aquino (at Hwy 237)
- USACE San Tomas Aquino flow (at Hwy 237)
- USACE San Tomas Aquino 0.95 Confidence Limits (at Hwy 237)
- USACE San Tomas Aquino 0.05 Confidence Limits (at Hwy 237)

San Tomas Aquino Creek,
Santa Clara County, CA

Flow Frequency Curve
San Tomas Aquino Creek
at Highway 237

US Army Corps of Engineers
San Francisco District

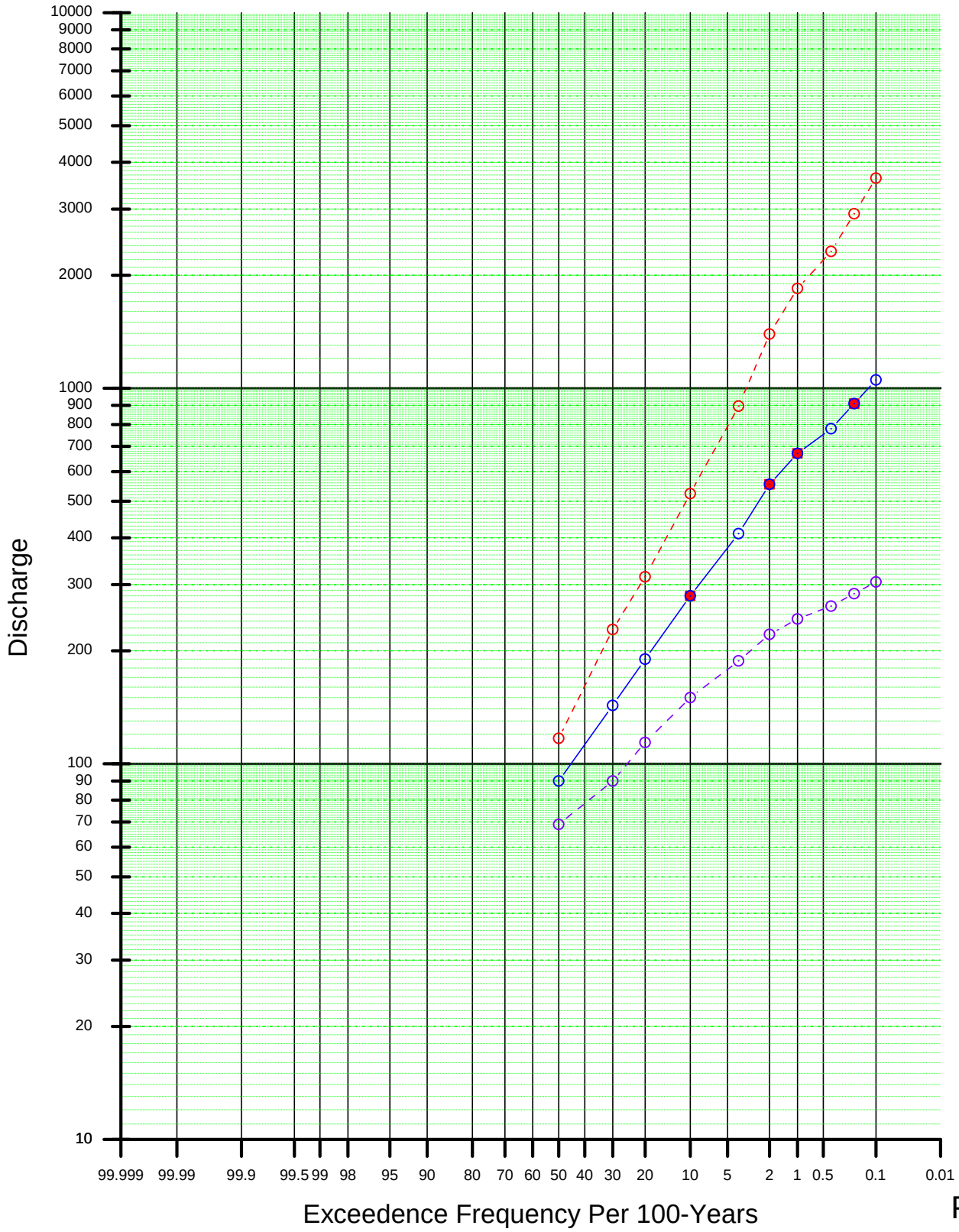



Plate 13

Legend:

- Fremont Flood Control Channel (at Hwy 880)
- USACE Fremont FCC (line B) flow (at Hwy 880)
- USACE Fremont (line B) 0.95 Confidence Limits (at Hwy 880)
- USACE Fremont (line B) 0.05 Confidence Limits (at Hwy 880)

Fremont Flood Control Channel, Alameda County, CA

Flow Frequency Curve
Fremont Flood Control Channel
at Highway 880

US Army Corps of Engineers
San Francisco District

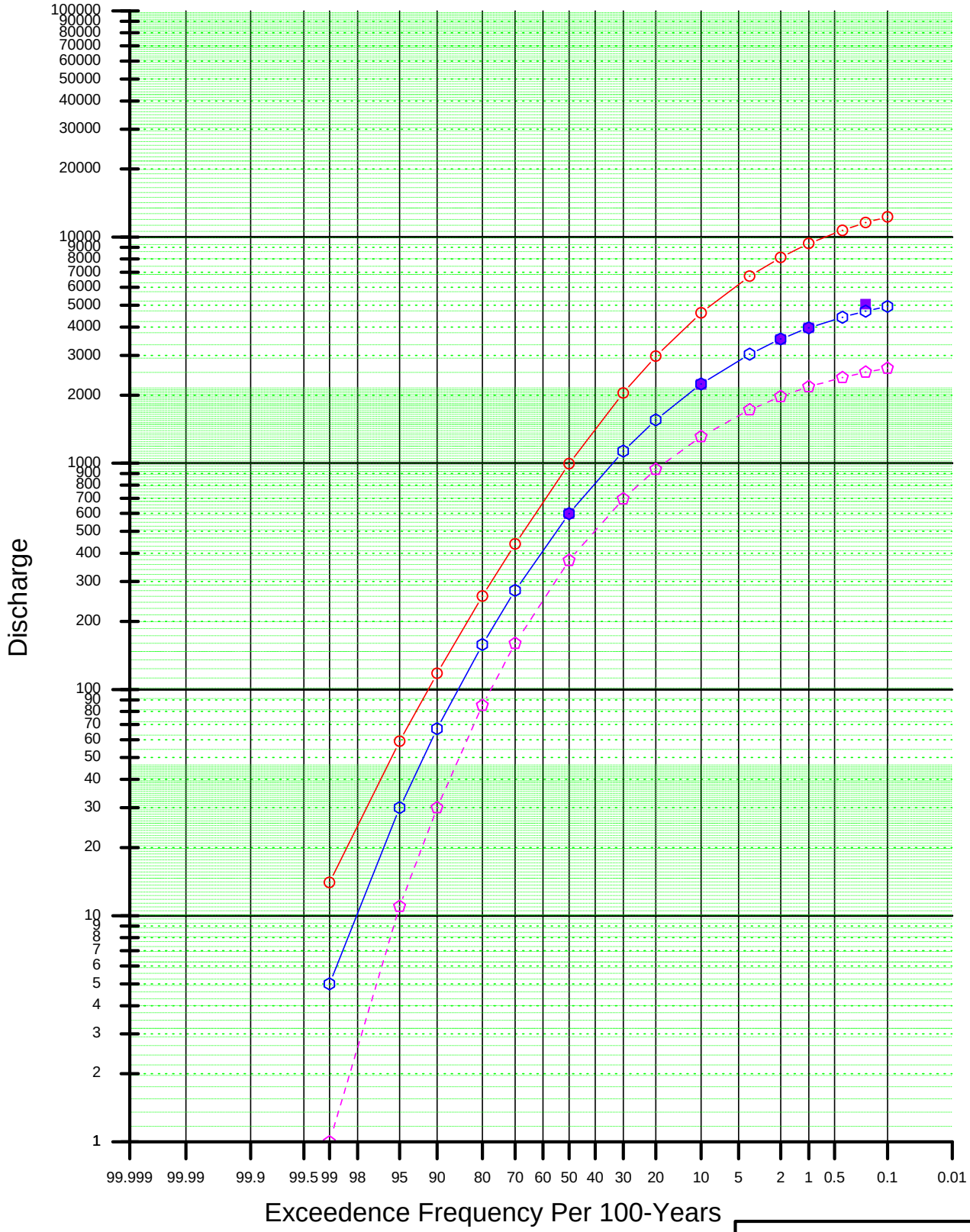



Plate 14

Legend:

- Laguna Creek (ds of Agua Caliente)
- USACE Laguna Creek flow (ds of Agua Caliente)
- USACE Laguna Creek 0.95 Confidence Limits (ds of Agua Caliente)
- USACE Laguna Creek 0.05 Confidence Limits (ds of Agua Caliente)

Laguna Creek,
Alameda County, CA

Flow Frequency Curve
Laguna Creek
downstream of confluence
with Agua Caliente Creek

US Army Corps of Engineers
San Francisco District

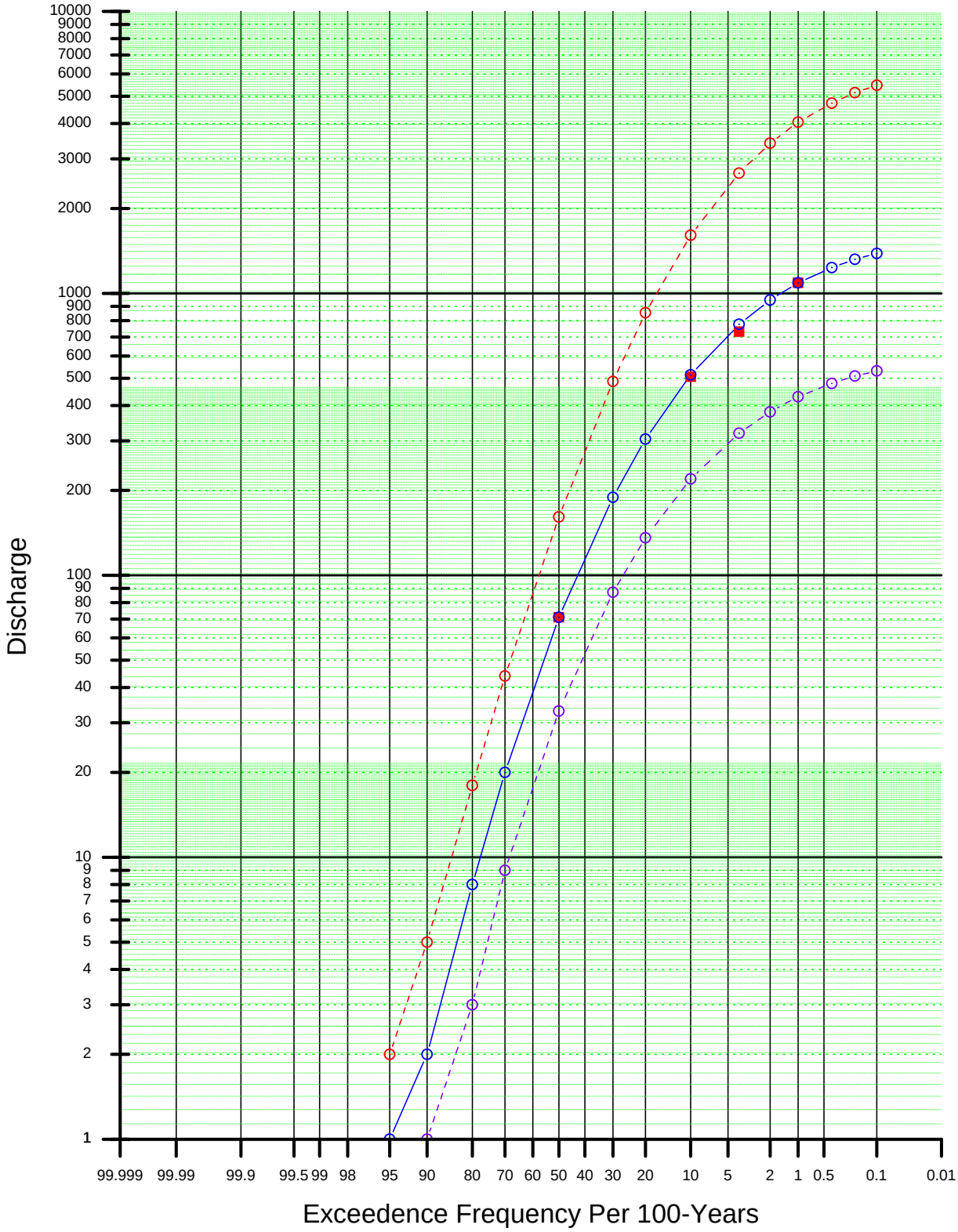



Plate 15

Legend:

- Agua Caliente (at Laguna)
- USACE Agua Caliente flow (at Laguna Creek)
- USACE Agua Caliente 0.95 Confidence Limits (at Laguna Creek)
- USACE Agua Caliente 0.05 Confidence Limits (at Laguna Creek)

Agua Caliente Creek,
Alameda County, CA

Flow Frequency Curve
Agua Caliente Creek
at Laguna Creek

US Army Corps of Engineers
San Francisco District

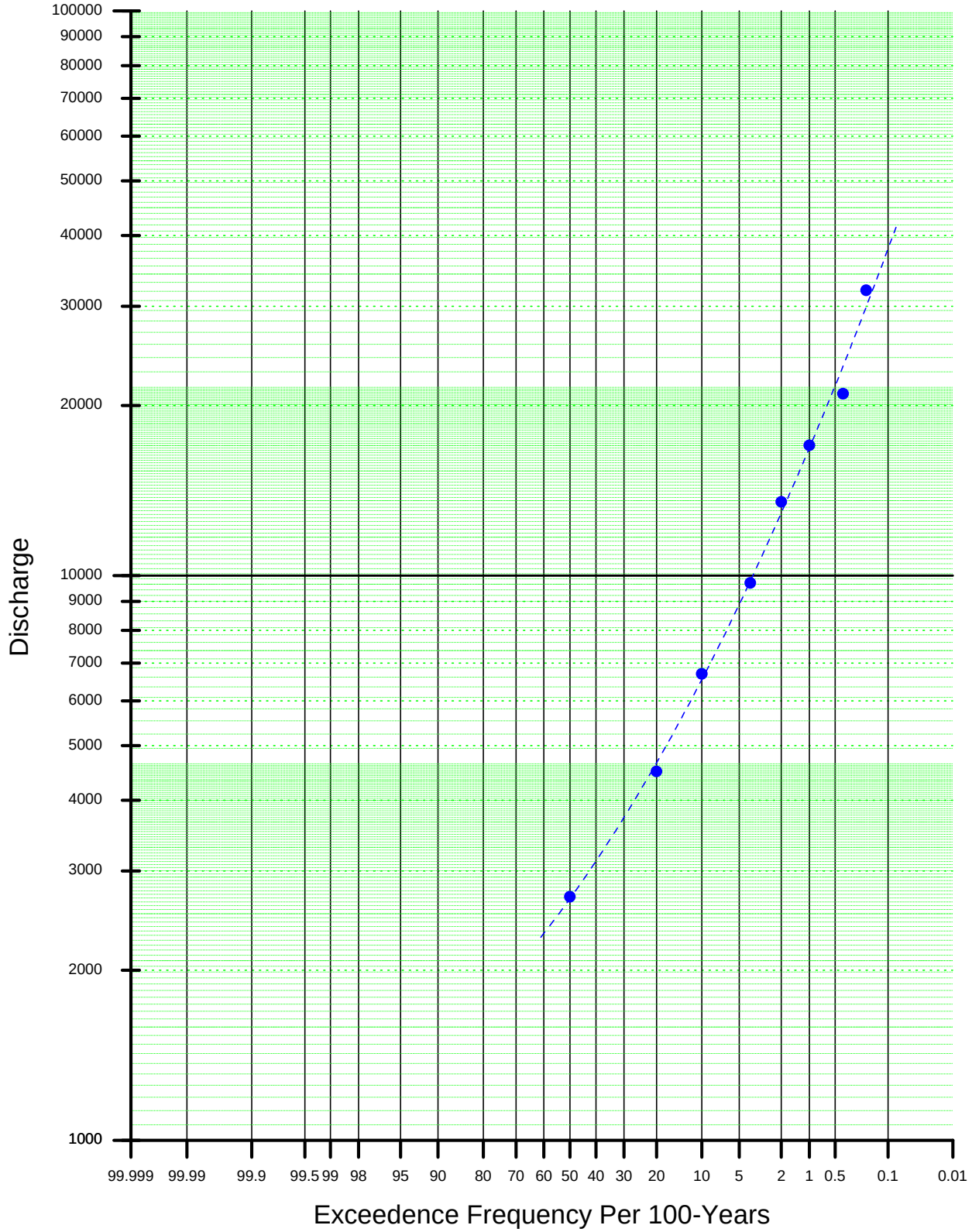



Plate 16

Legend:

- USACE Guadalupe flow (at San Jose)

Guadalupe River,
US Army Corps of Engineers

Flow Frequency Curve
Guadalupe River
at San Jose

US Army Corps of Engineers
San Francisco District

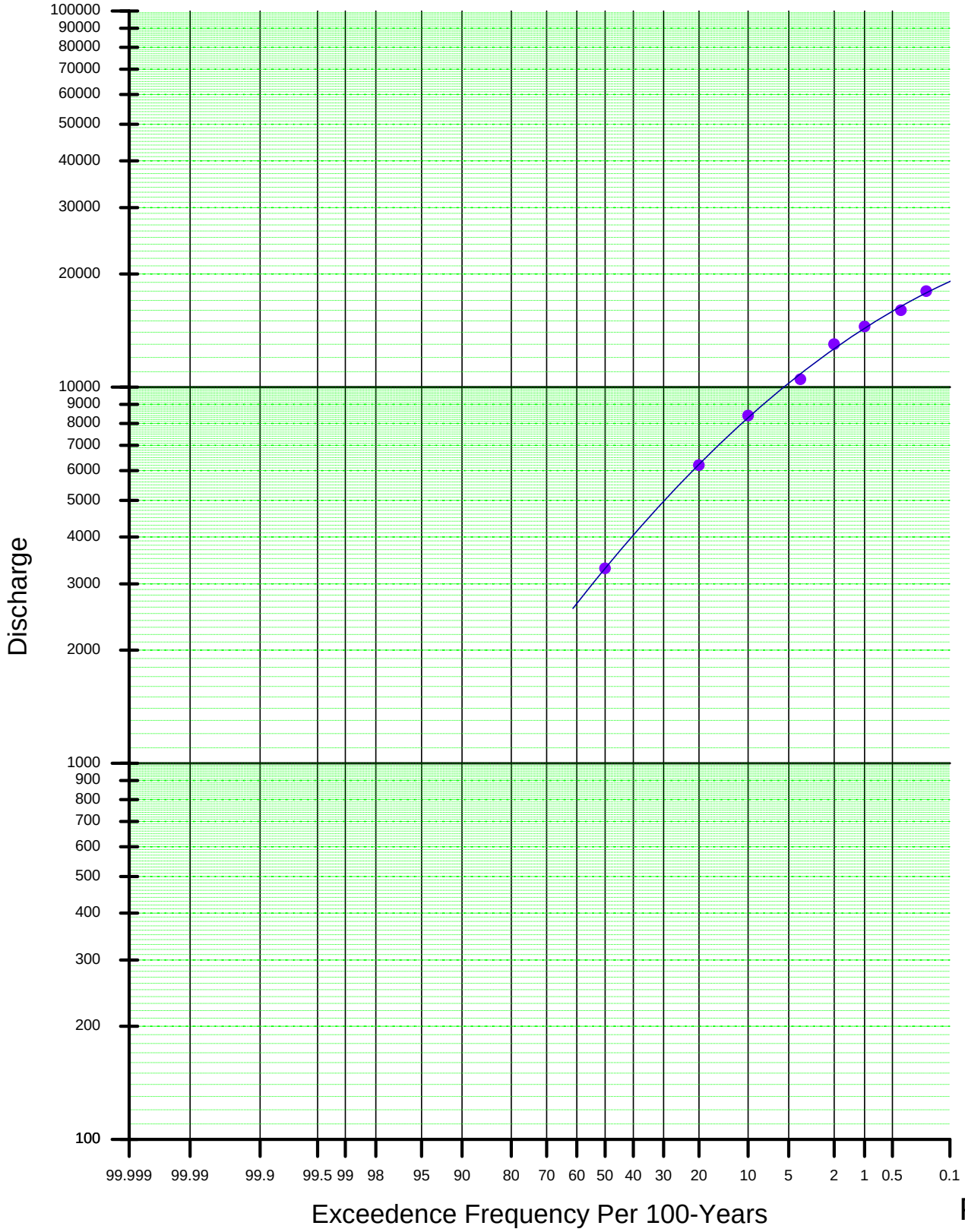



Plate 17

Legend:

- USACE Coyote flow (at Hwy 237)

| |
|---|
| Coyote Creek,<br>US Army Corps of Engineers |
| Flow Frequency Curve<br>Coyote Creek<br>at Highway 237 |
| US Army Corps of Engineers<br>San Francisco District |

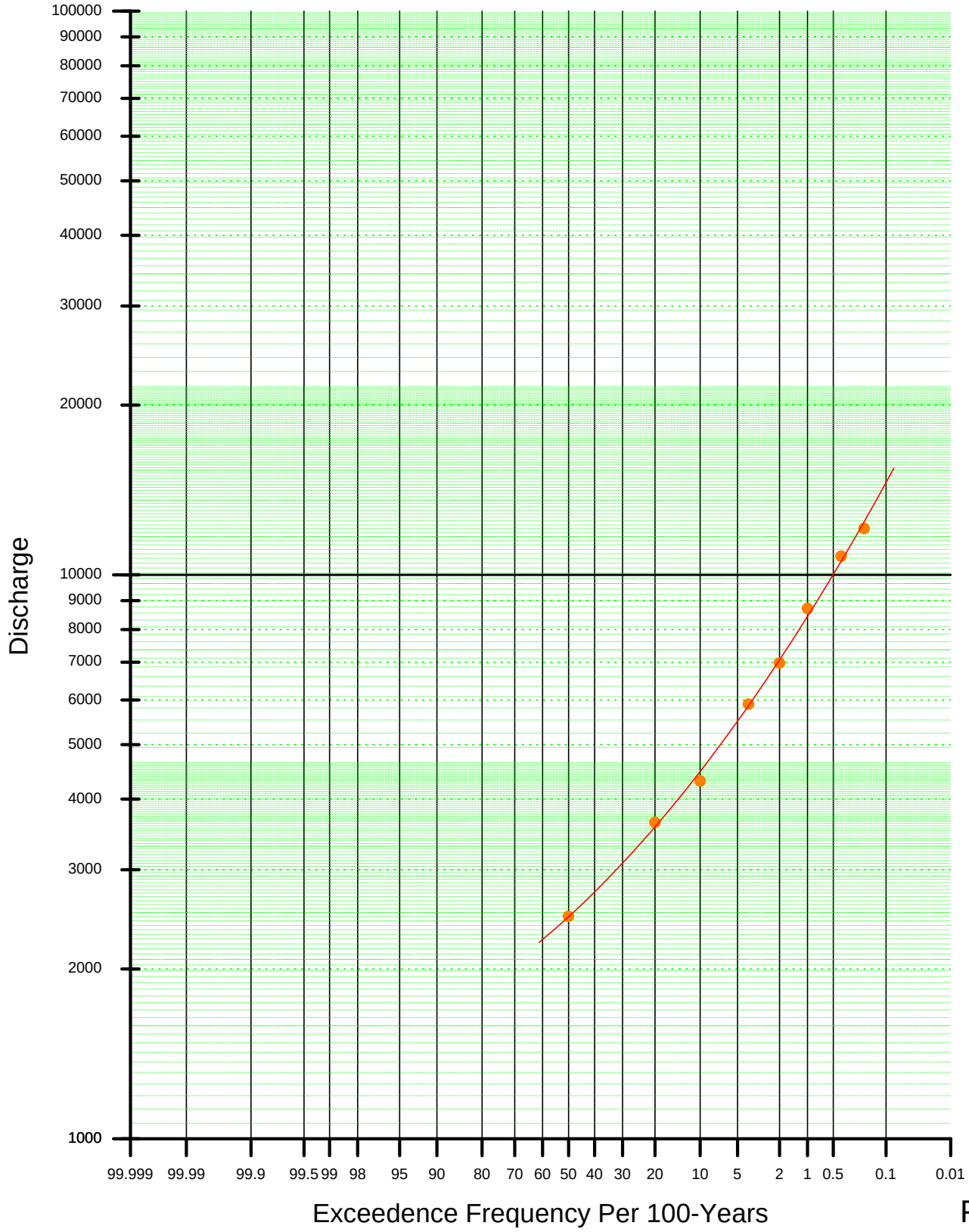



Plate 18

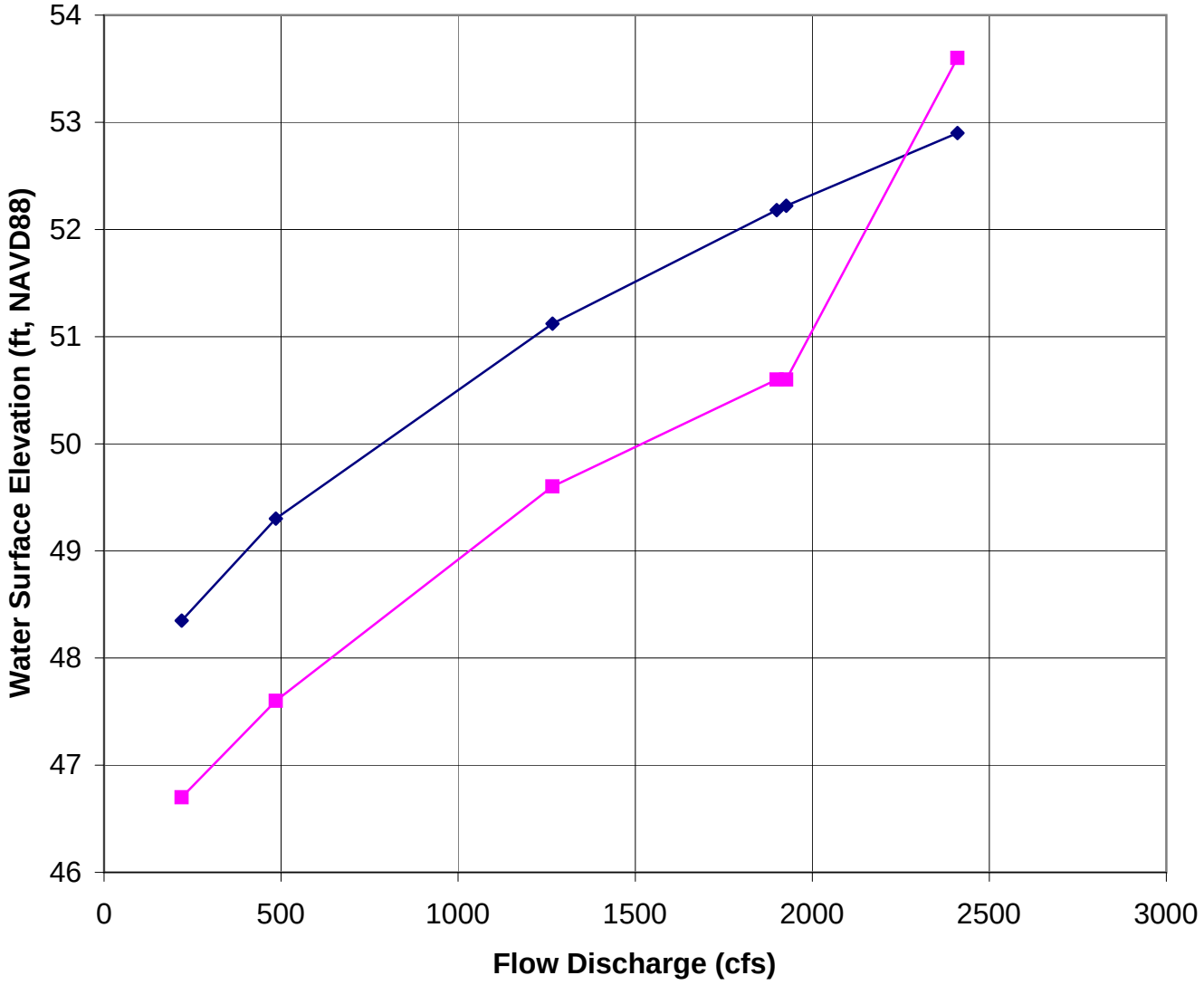
Legend:

- USACE Lower Penitencia flow (at Coyote Creek)

Lower Penitencia Creek,
Santa Clara County, CA

Flow Frequency Curve
Lower Penitencia Creek
at Coyote Creek

US Army Corps of Engineers
San Francisco District




Legend:

Observed, Downstream Monroe Ave

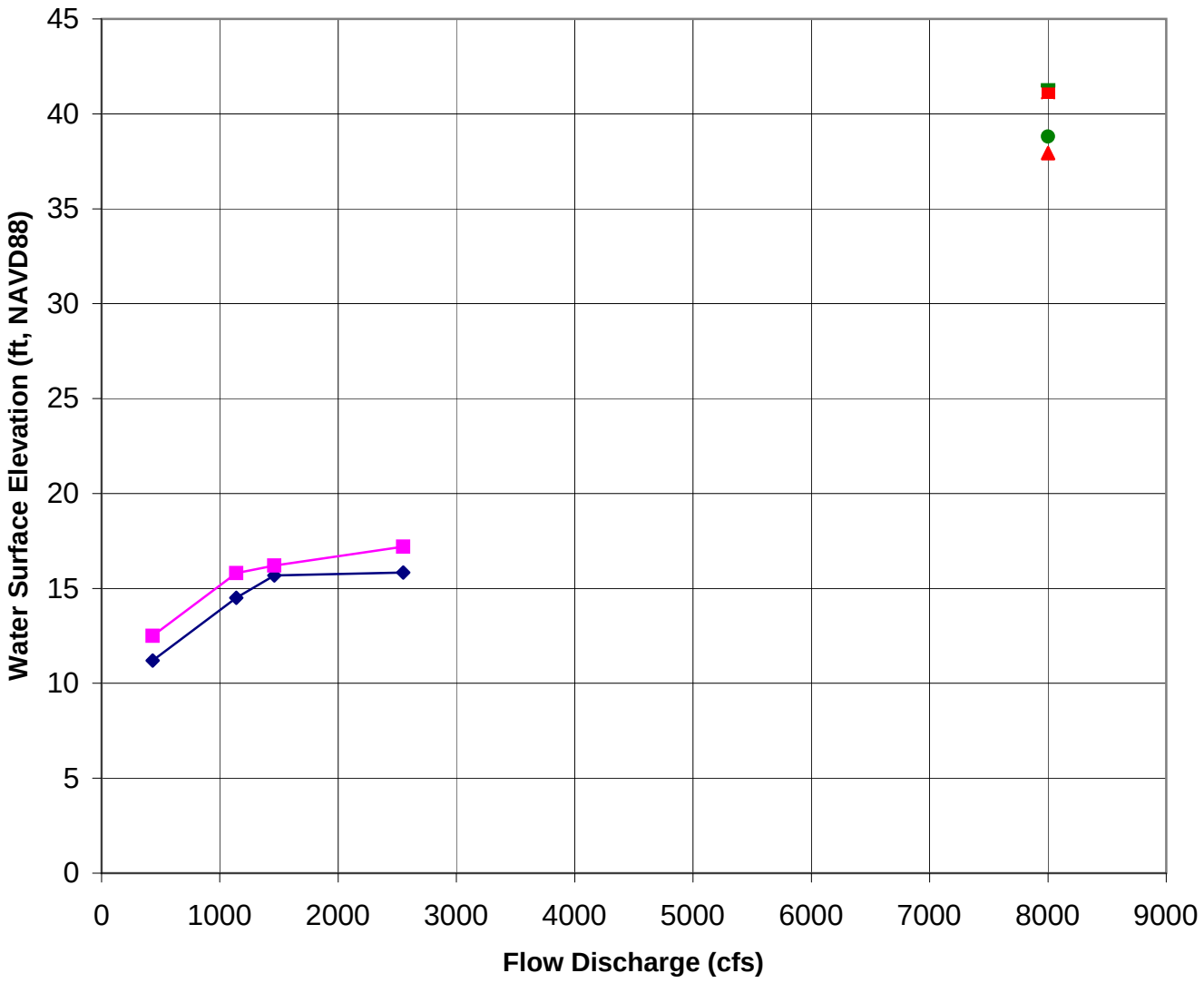
Model, Downstream Monroe Ave

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**Calabazas Creek**
**Downstream Monroe Ave**
**Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 19**




Legend:

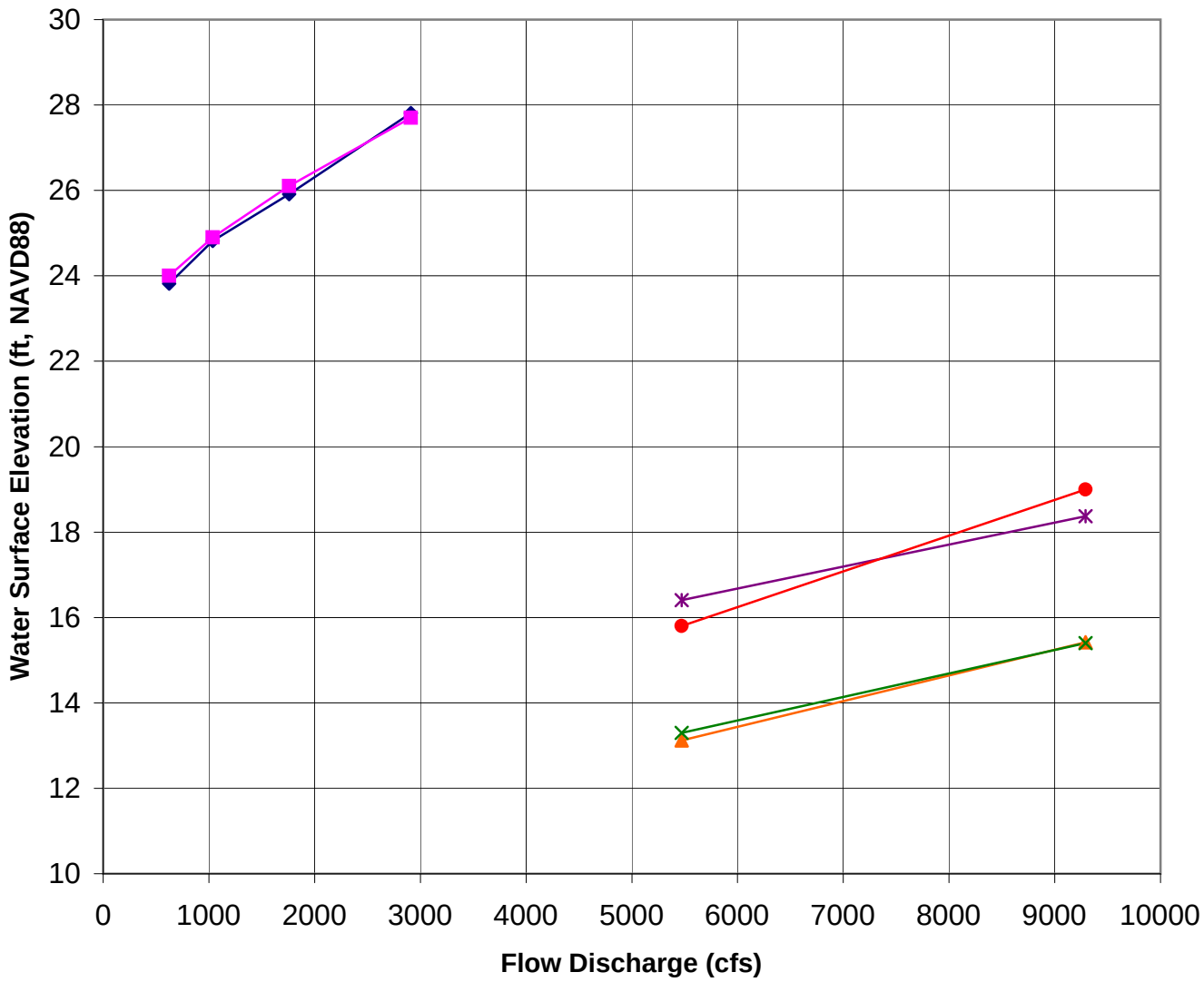
- Observed, Upstream Hwy 237
- Model, Upstream Hwy 237
- Observed, Upstream Charcot Ave
- Model, Upstream Charcot Ave
- Observed, Downstream Charcot Ave
- Model, Downstream Charcot Ave

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**Coyote Creek**
**Hwy 237 and Charcot Ave**
**Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 20**




Legend:

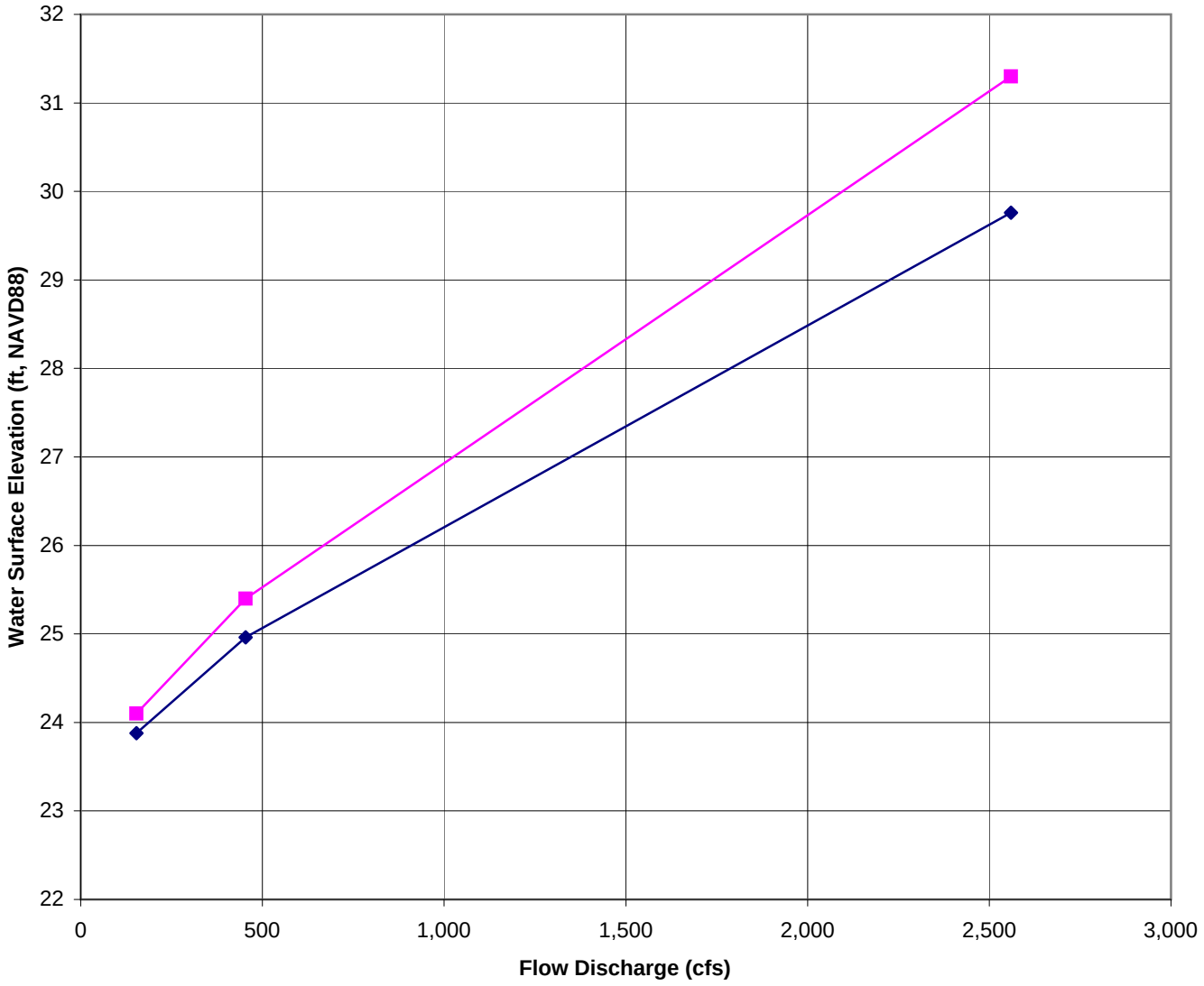
- Observed, Hwy 101
- Model, Hwy 101
- Observed, Upstream Hwy 237
- Model, Upstream Hwy 237
- Observed, Upstream Tasman Dr
- Model, Upstream Tasman Dr

South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**Guadalupe River**
**At Hwy101, Hwy 237, & Tasman Dr**
**Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 21**




Legend:

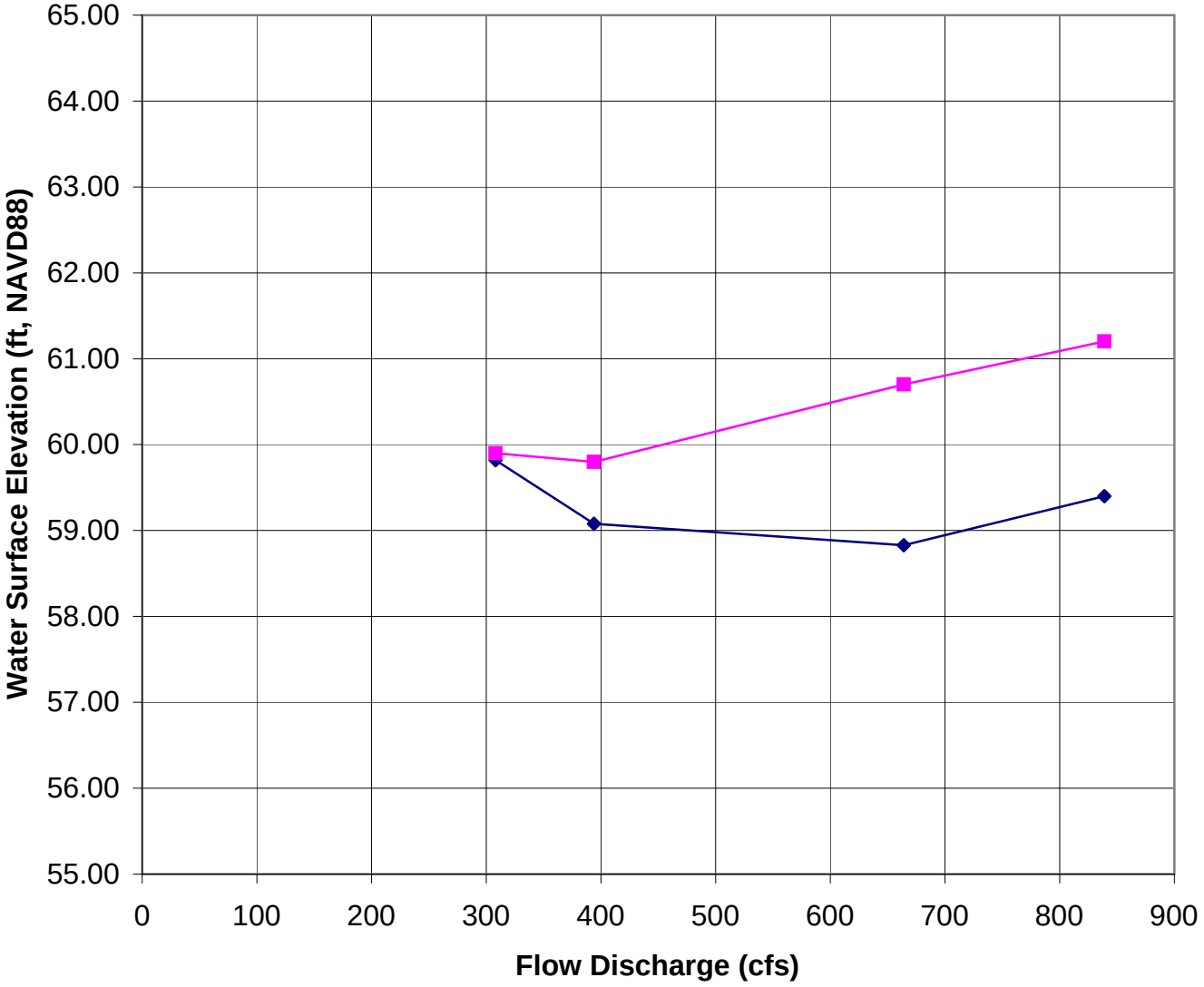
- Observed, Downstream El Camino Real
- Model, Downstream El Camino Real

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**Matadero Creek At El Camino Real Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 22**




Legend:

Observed, Downstream Central Ave

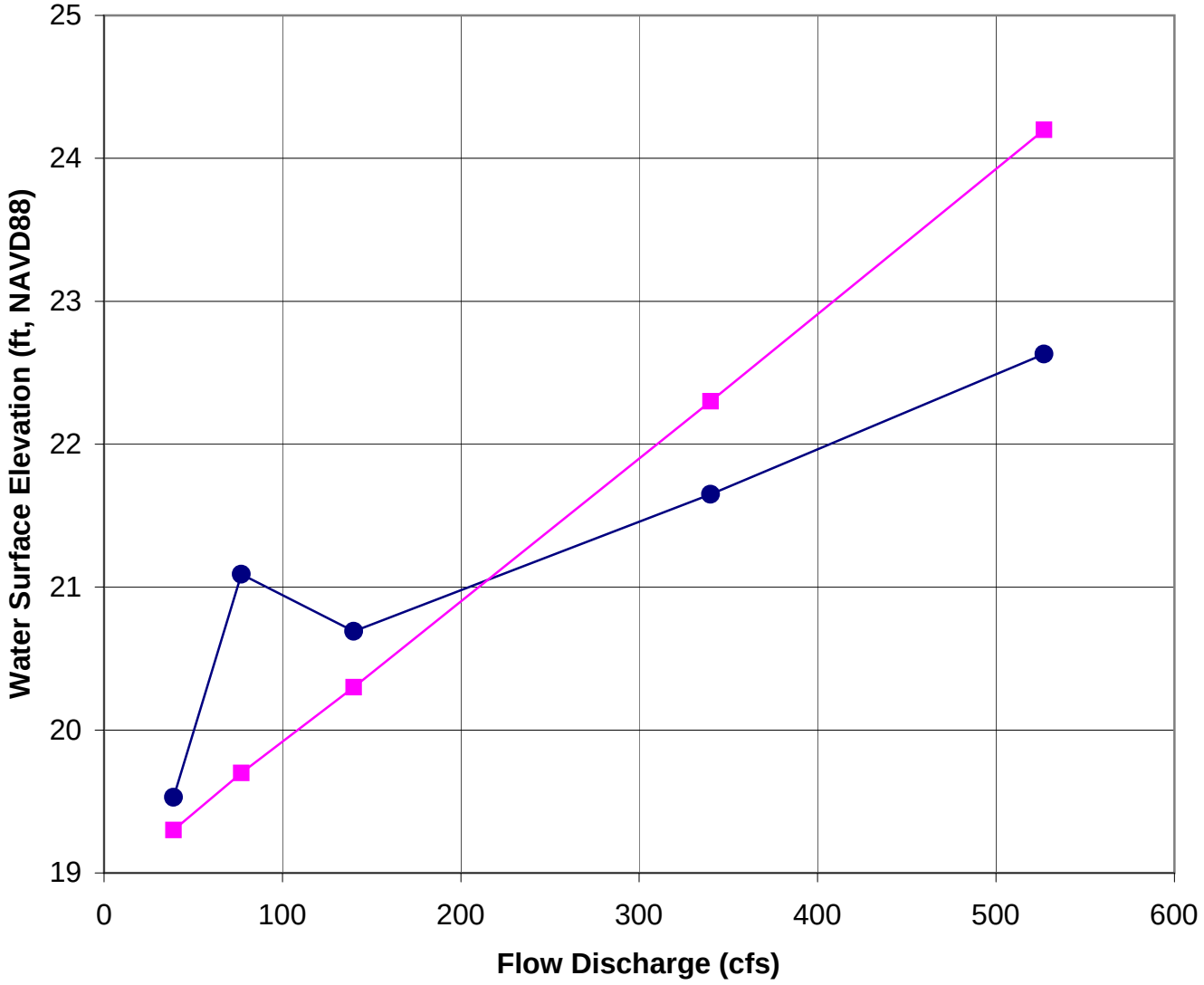
Model, Downstream Central Ave

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**Stevens Creek**
**Downstream Central Ave**
**Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 23**




Legend:

Observed, Upstream Hwy 101

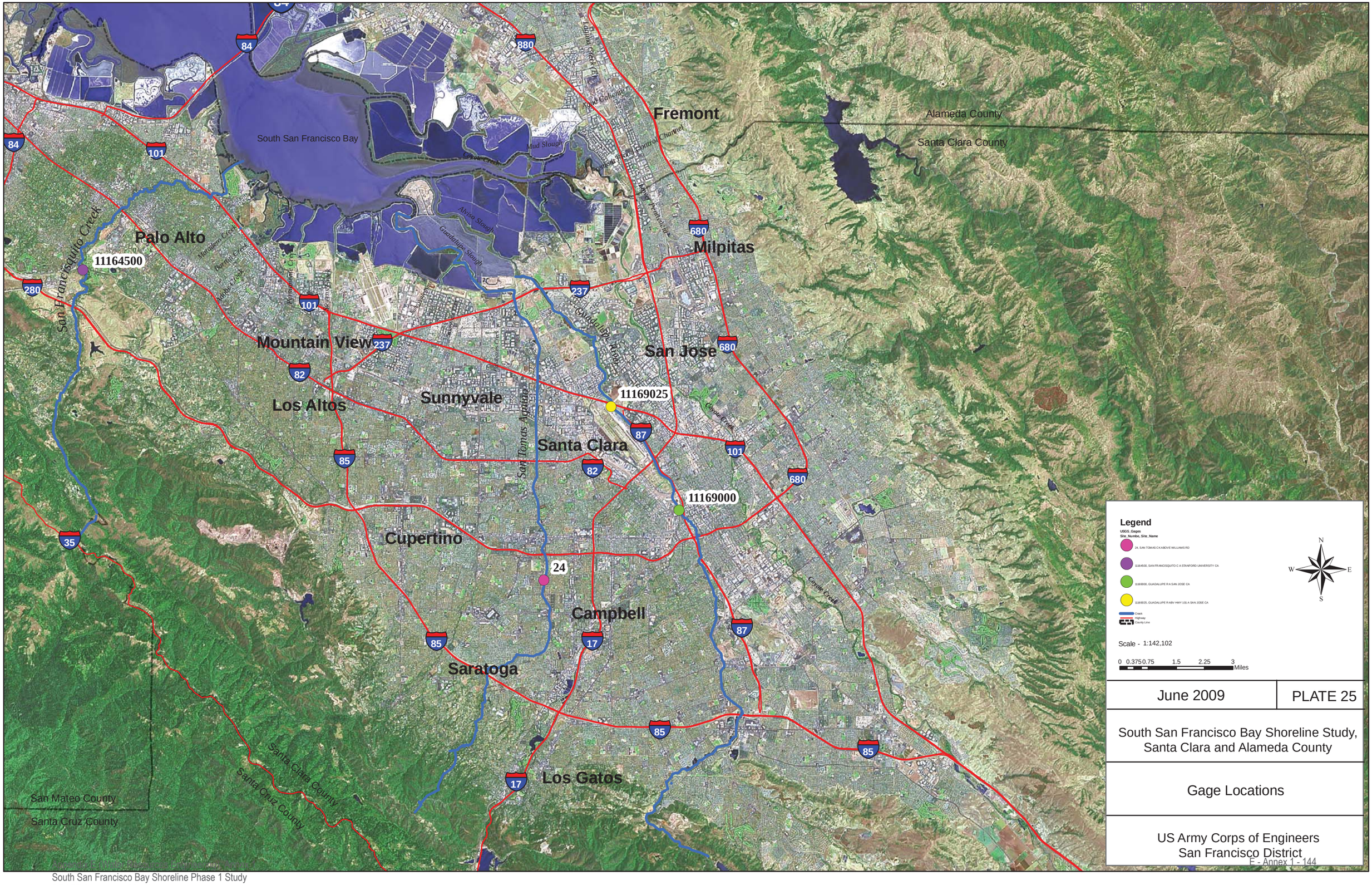
Model, Upstream Hwy 101

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**Sunnyvale East Channel Upstream Hwy 101 Calibration Results**

US Army Corps of Engineers
San Francisco District

**PLATE 24**

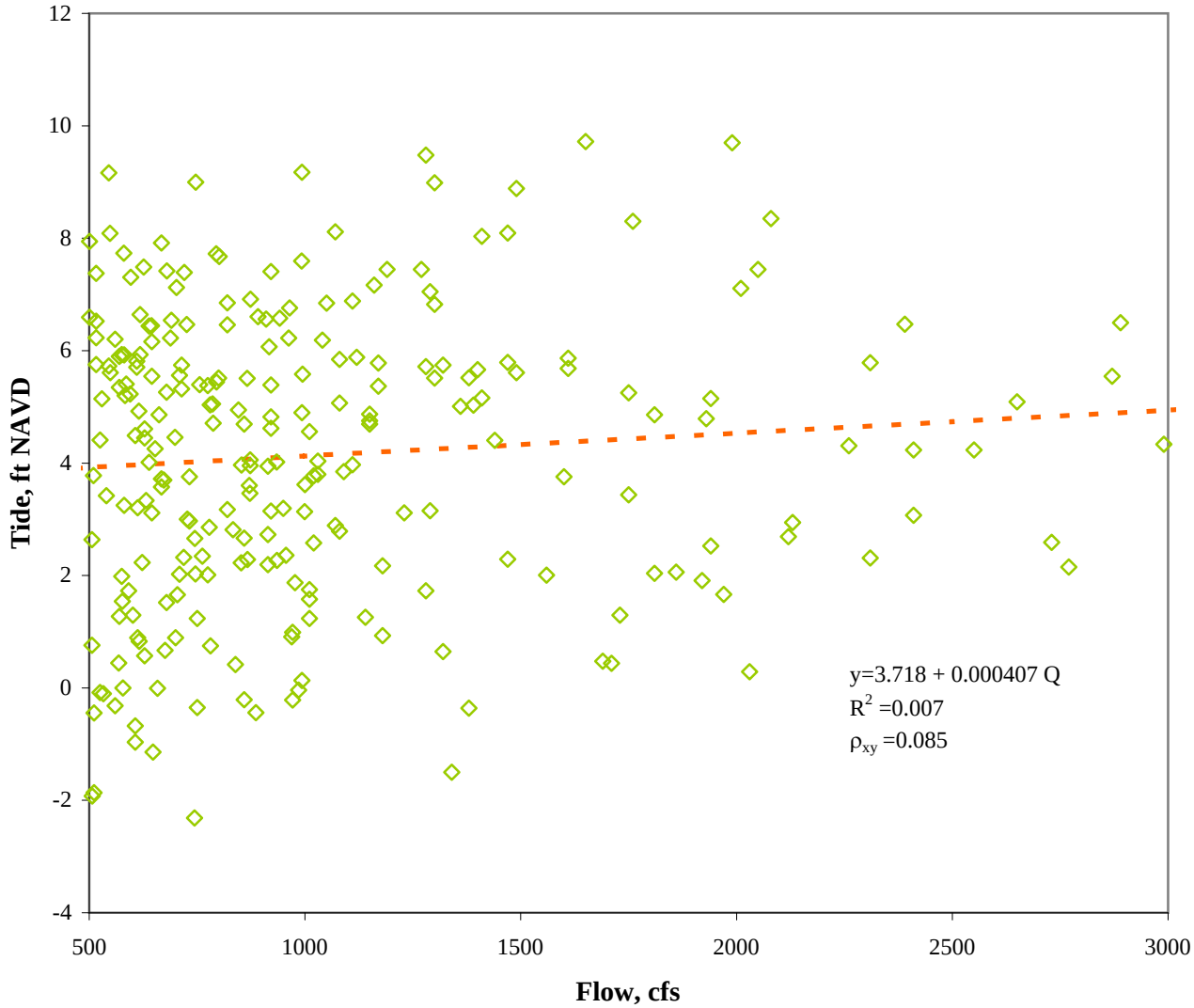



June 2009 | PLATE 25

South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

Gage Locations

US Army Corps of Engineers
San Francisco District

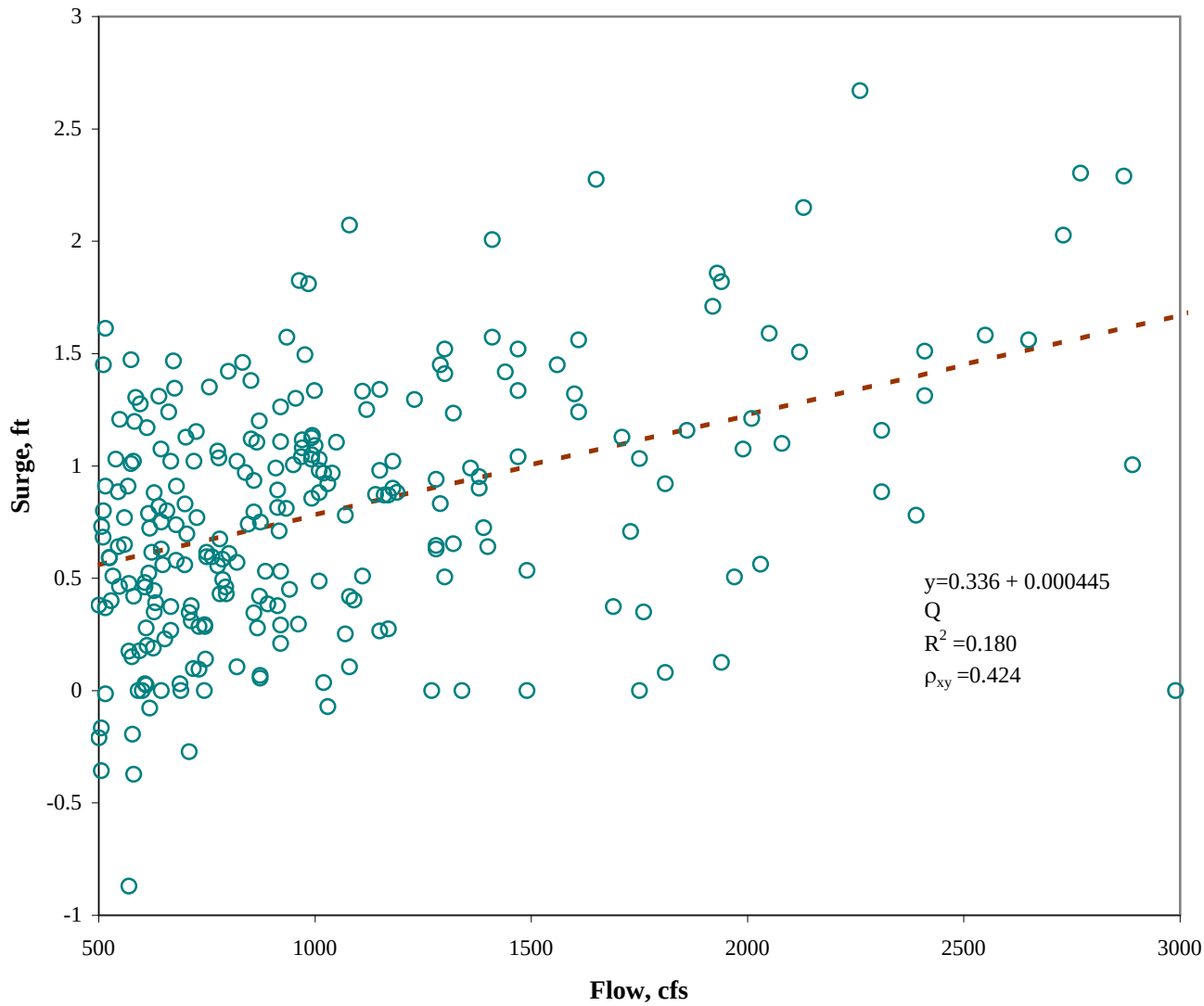



South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**San Thomas Aquino**
**Tide vs Peak Flow**
**Correlation Analysis**

US Army Corps of Engineers
San Francisco District

**Plate 26**

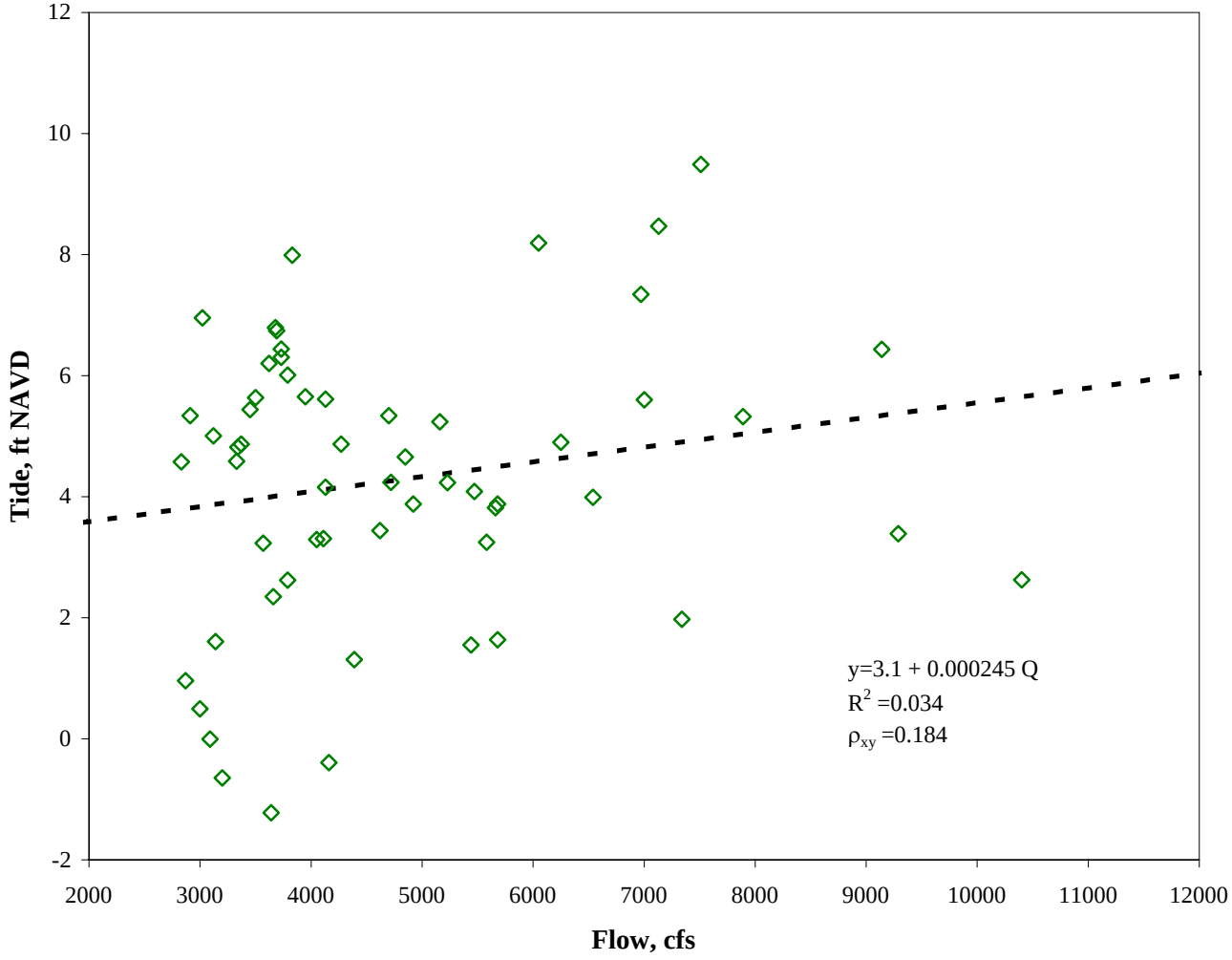



South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**San Thomas Aquino**
**Surge vs Peak Flow**
**Correlation Analysis**

US Army Corps of Engineers
San Francisco District

**Plate 27**

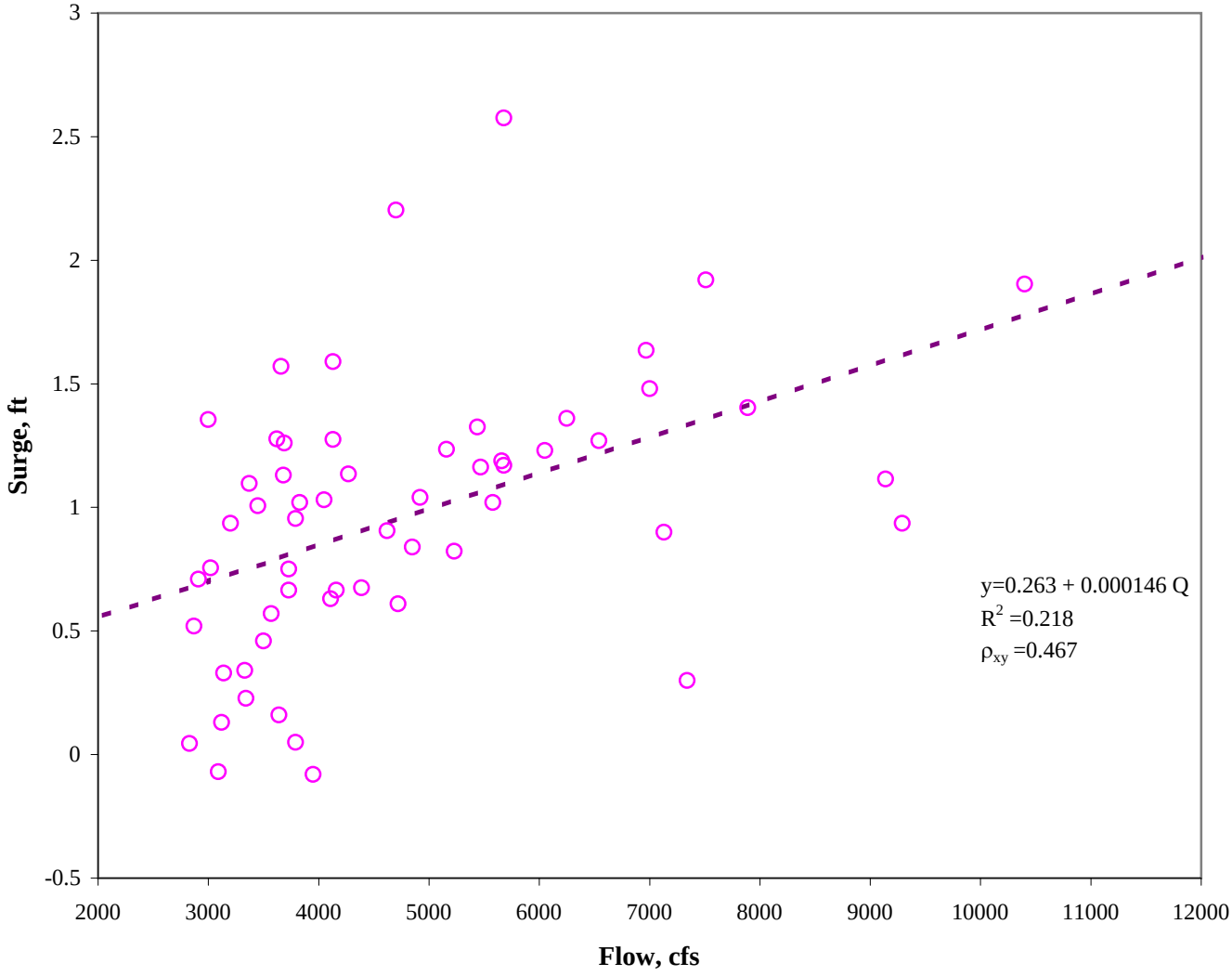



South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**Guadalupe River**
**Tide vs. Peak Flow**
**Correlation Analysis**

US Army Corps of Engineers
San Francisco District

**PLATE 28**

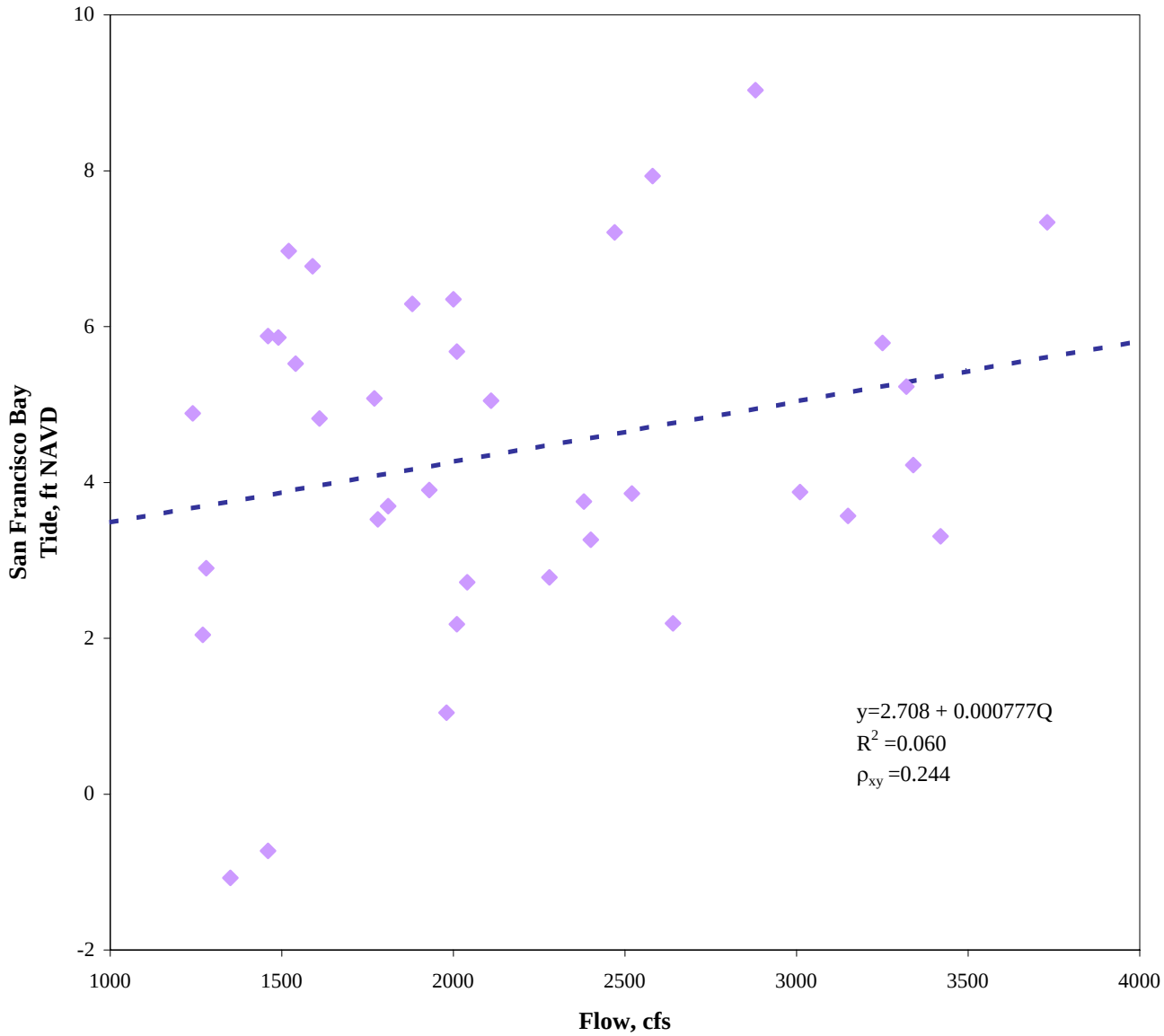



South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**Guadalupe River**
**Surge vs. Peak Flow**
**Correlation Analysis**

US Army Corps of Engineers
San Francisco District

**PLATE 29**

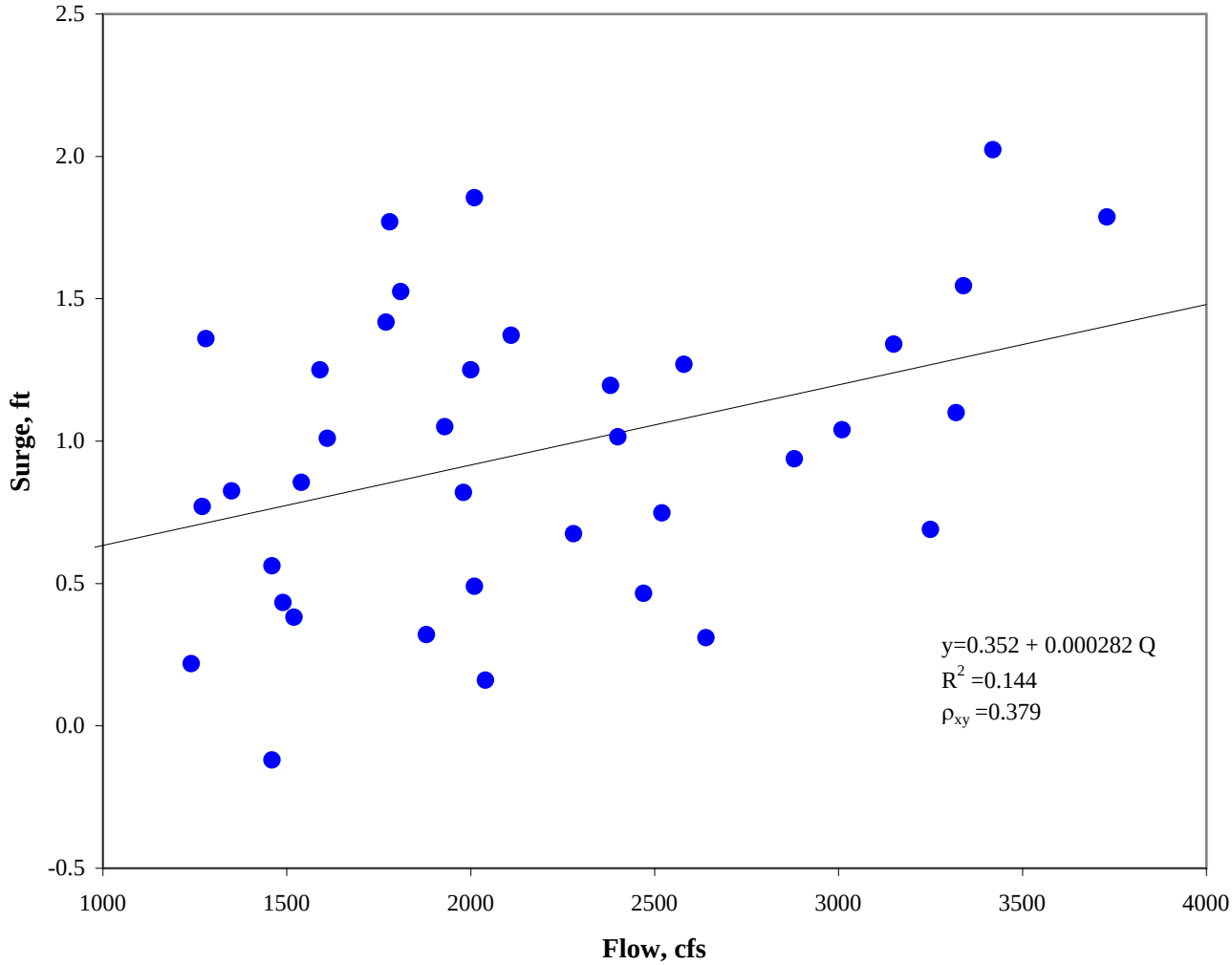



South San Francisco Bay Shoreline Study, Santa Clara and Alameda County

**San Francisquito Creek Tide vs. Peak Flow Correlation Analysis**

US Army Corps of Engineers
San Francisco District

**PLATE 30**

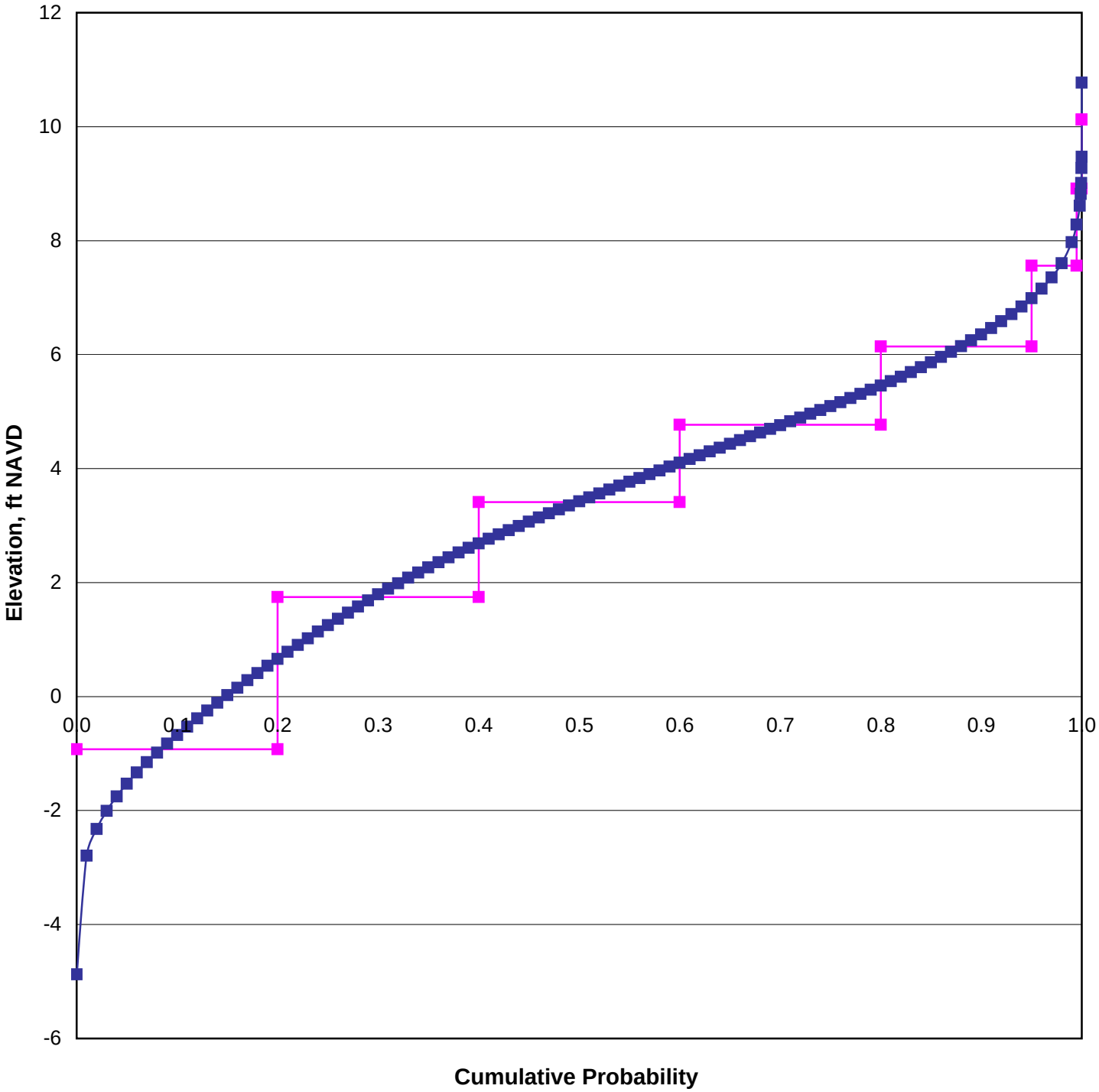



South San Francisco Bay Shoreline Study,
Santa Clara and Alameda County

**San Francisquito Creek**
**Surge vs. Peak Flow**
**Correlation Analysis**

US Army Corps of Engineers
San Francisco District

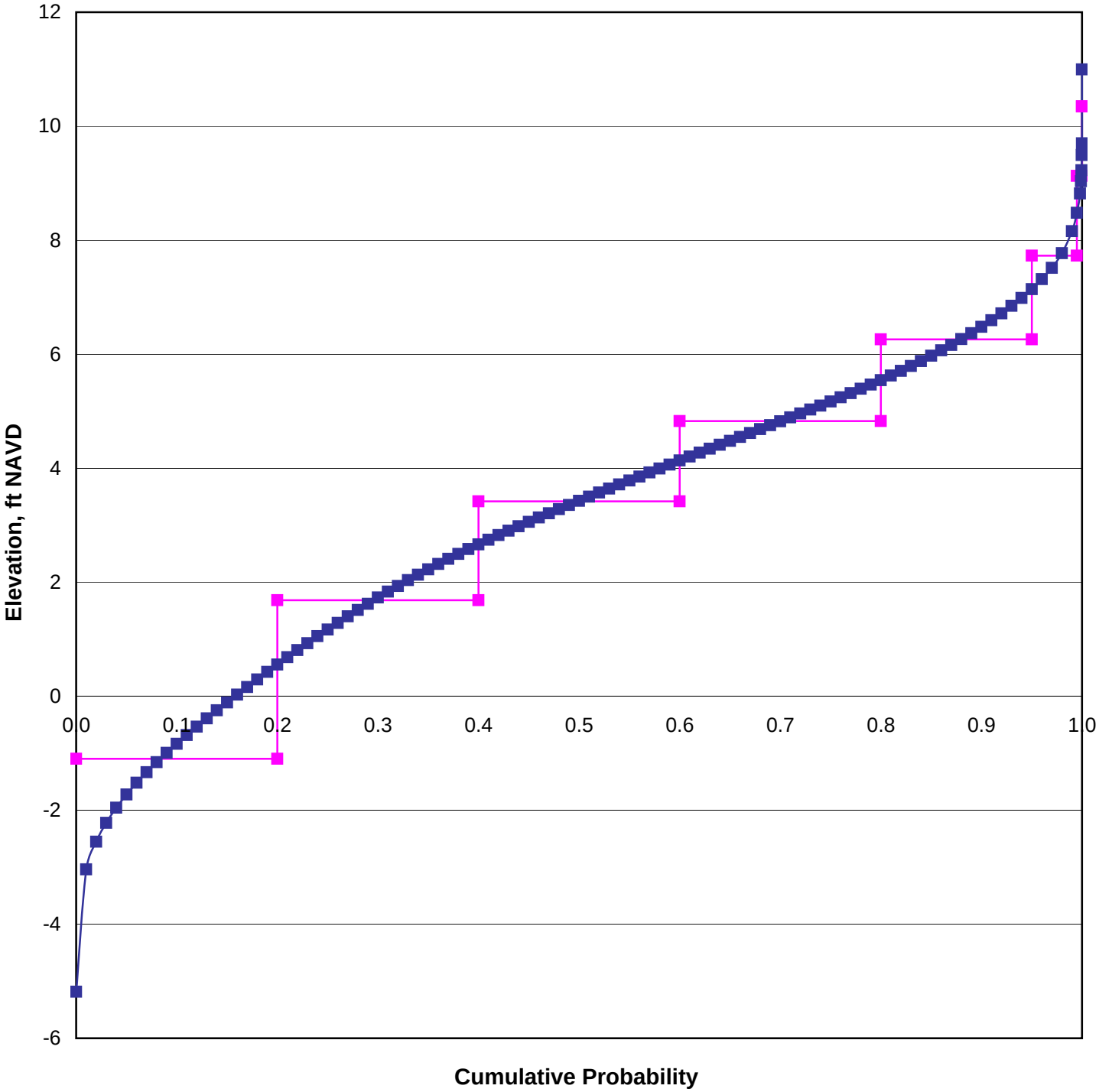
**PLATE 31**




**Legend:**

- **Year 0 Discretizations**
- **Year 0 Tides**

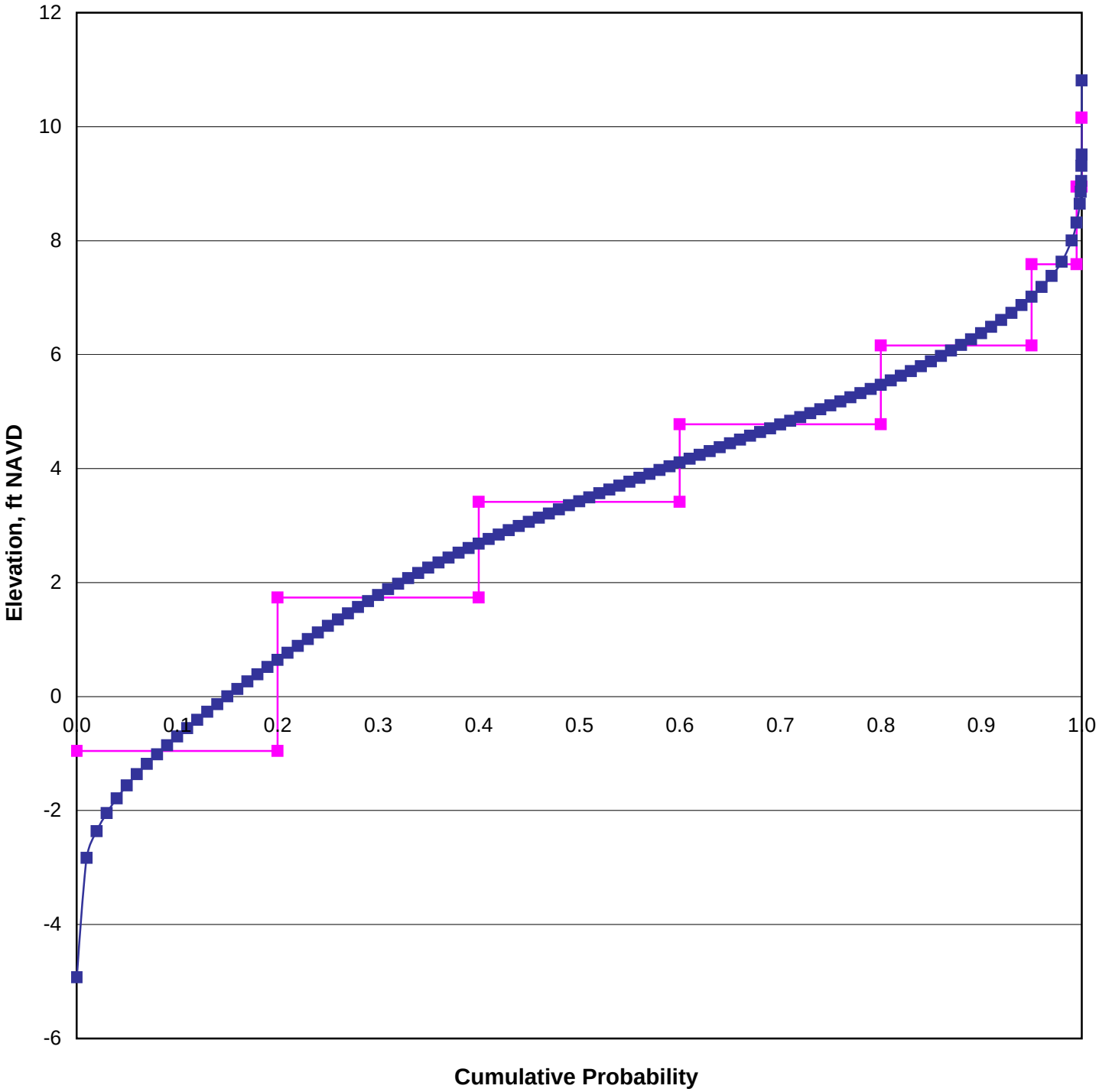
| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Adobe, Barron & Matadero Creeks DS Boundary Conditions, Year 0 Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |




**Legend:**

- **Year 0 Discretizations**
- **Year 0 Tides**

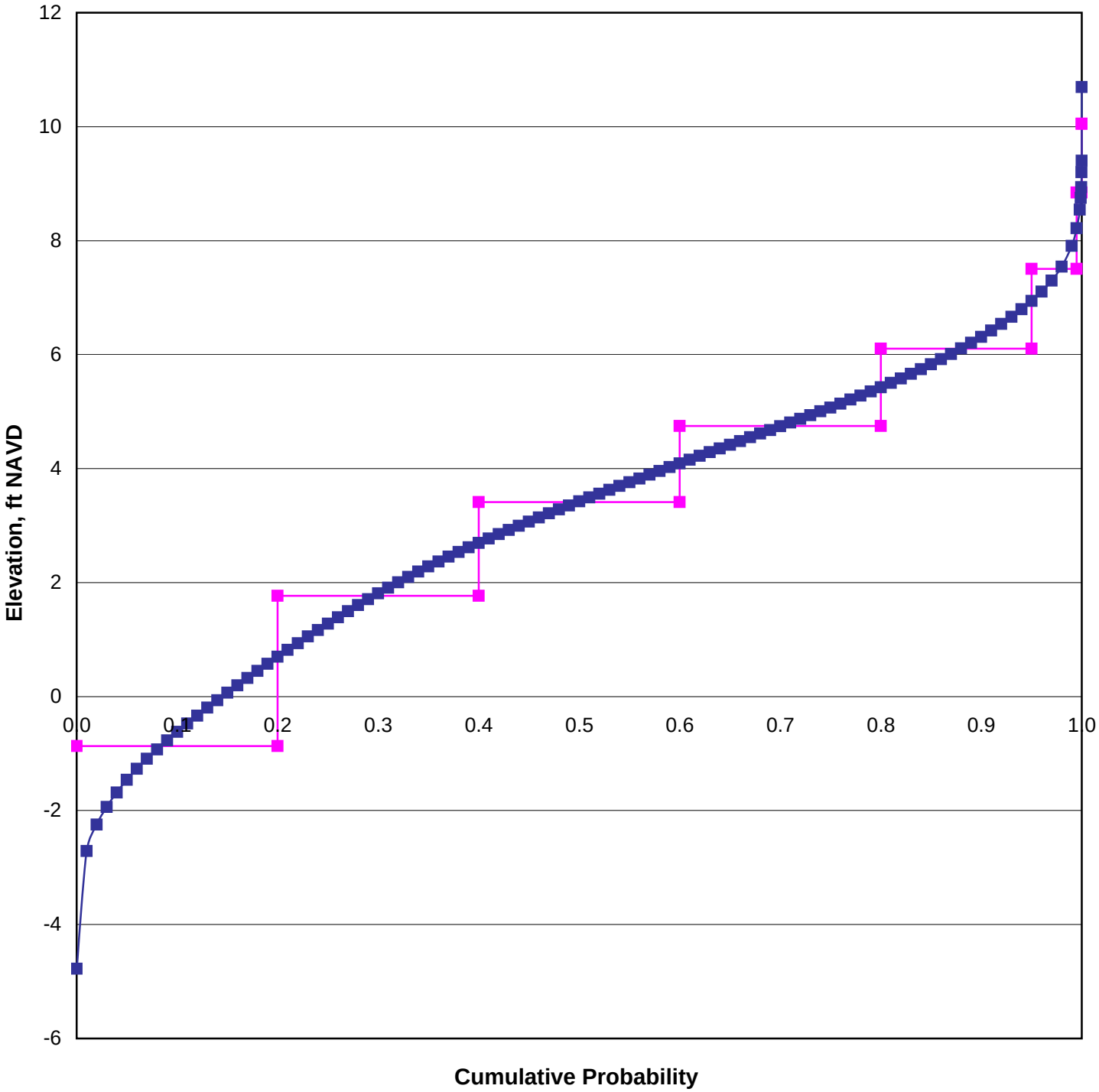
| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Coyote, Fremont, Laguna/Aqua Caliente, Guadalupe & Lower Penitencia Creeks DS Boundary Conditions, Year 0 Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |




**Legend:**

- **Year 0 Discretizations**
- **Year 0 Tides**

| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Permanente & Stevens Creeks, DS Boundary Conditions, Year 0 Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |

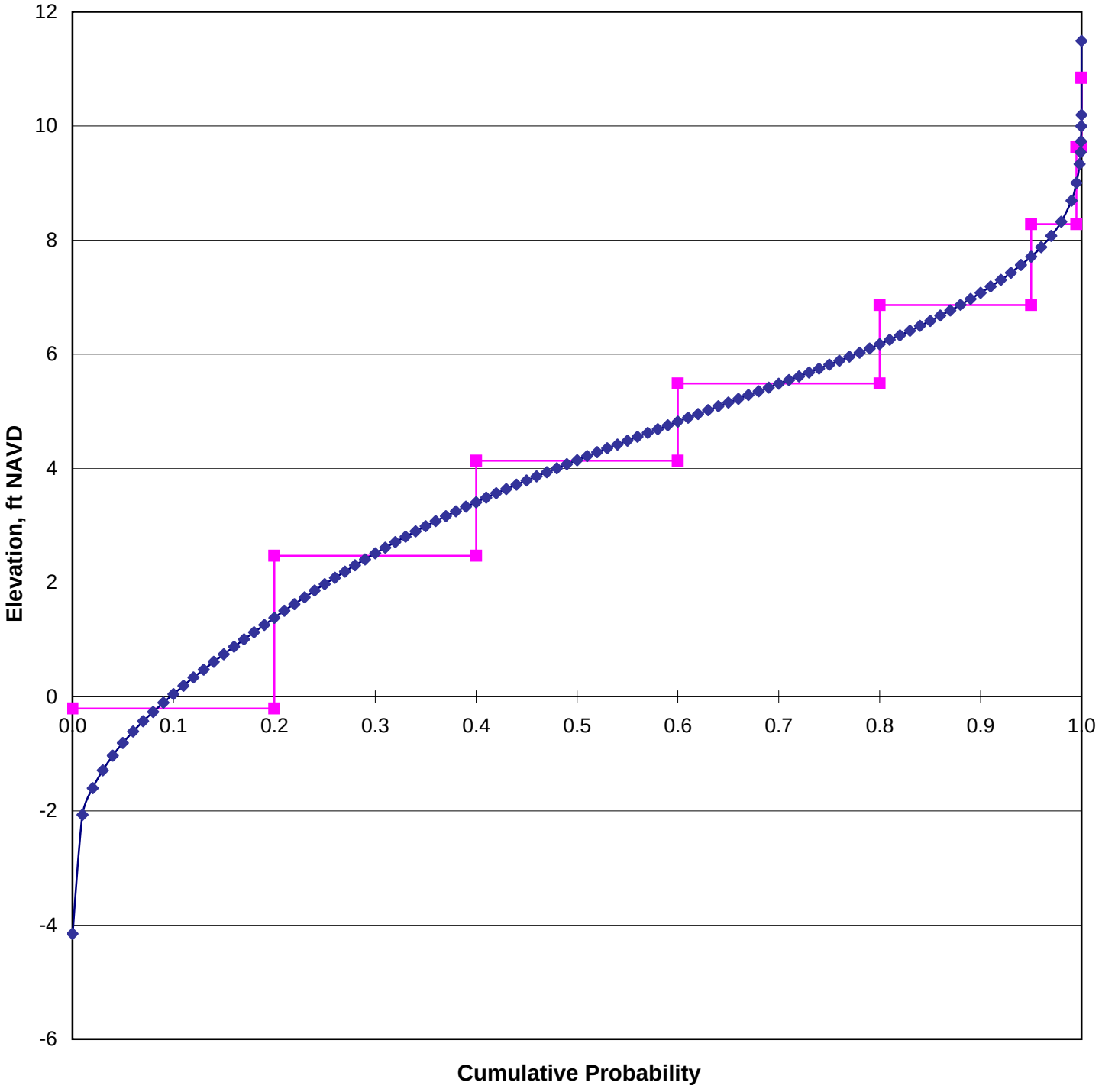



**Legend:**

**Year 0 Discretizations**

**Year 0 Tides**

| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Guadalupe Slough & Sunnyvale West Channel,**<br>**DS Boundary Conditions, Year 0**<br>**Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |



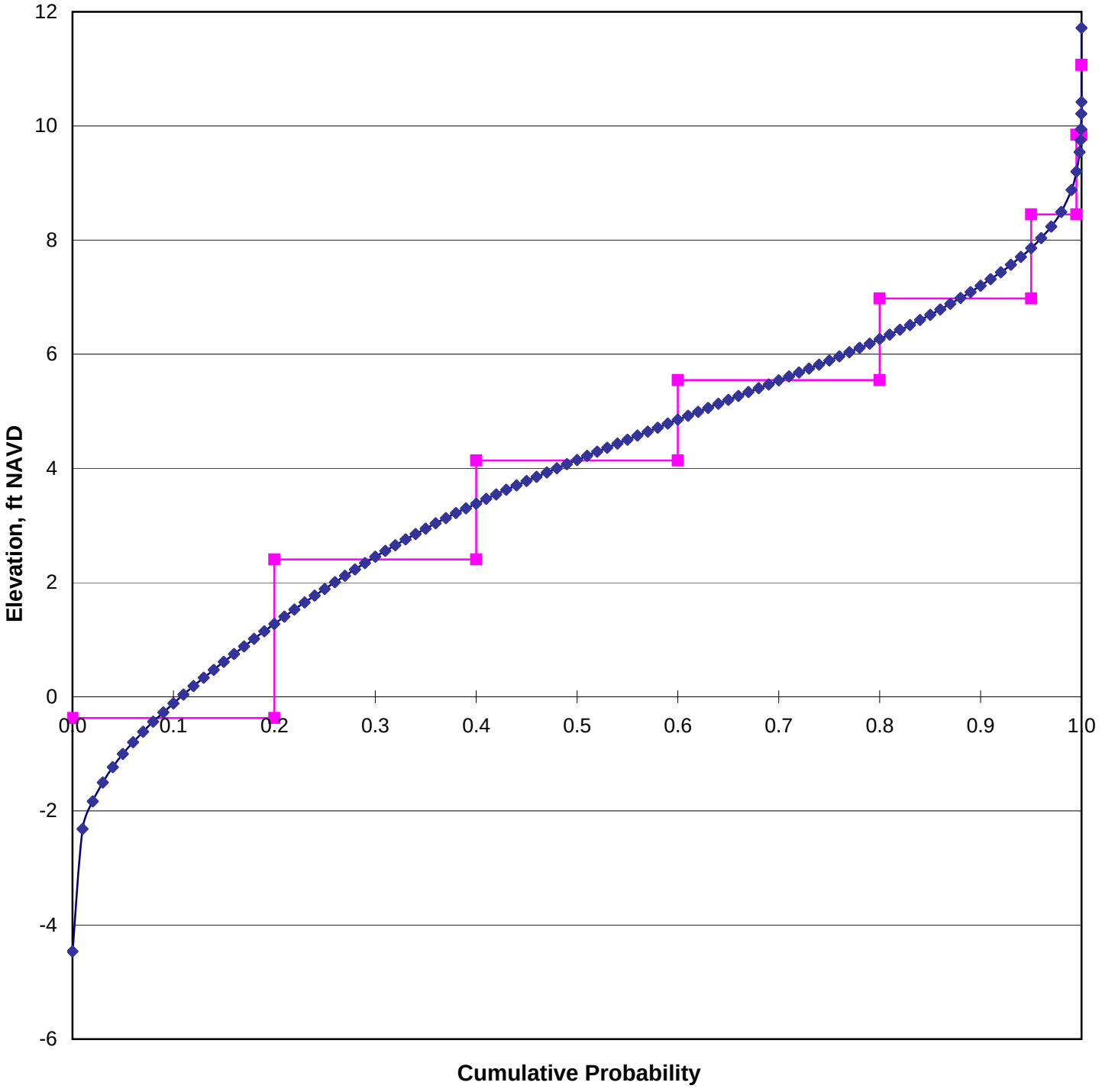

**Legend:**

- **Year 50 Discretizations**
- **Year 50 Tides with 0.72 ft of Sea Level Rise**

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Adobe, Barron & Matadero Creeks DS Boundary Conditions, Year 50 Tide Discretizations**

US Army Corps of Engineers
San Francisco District

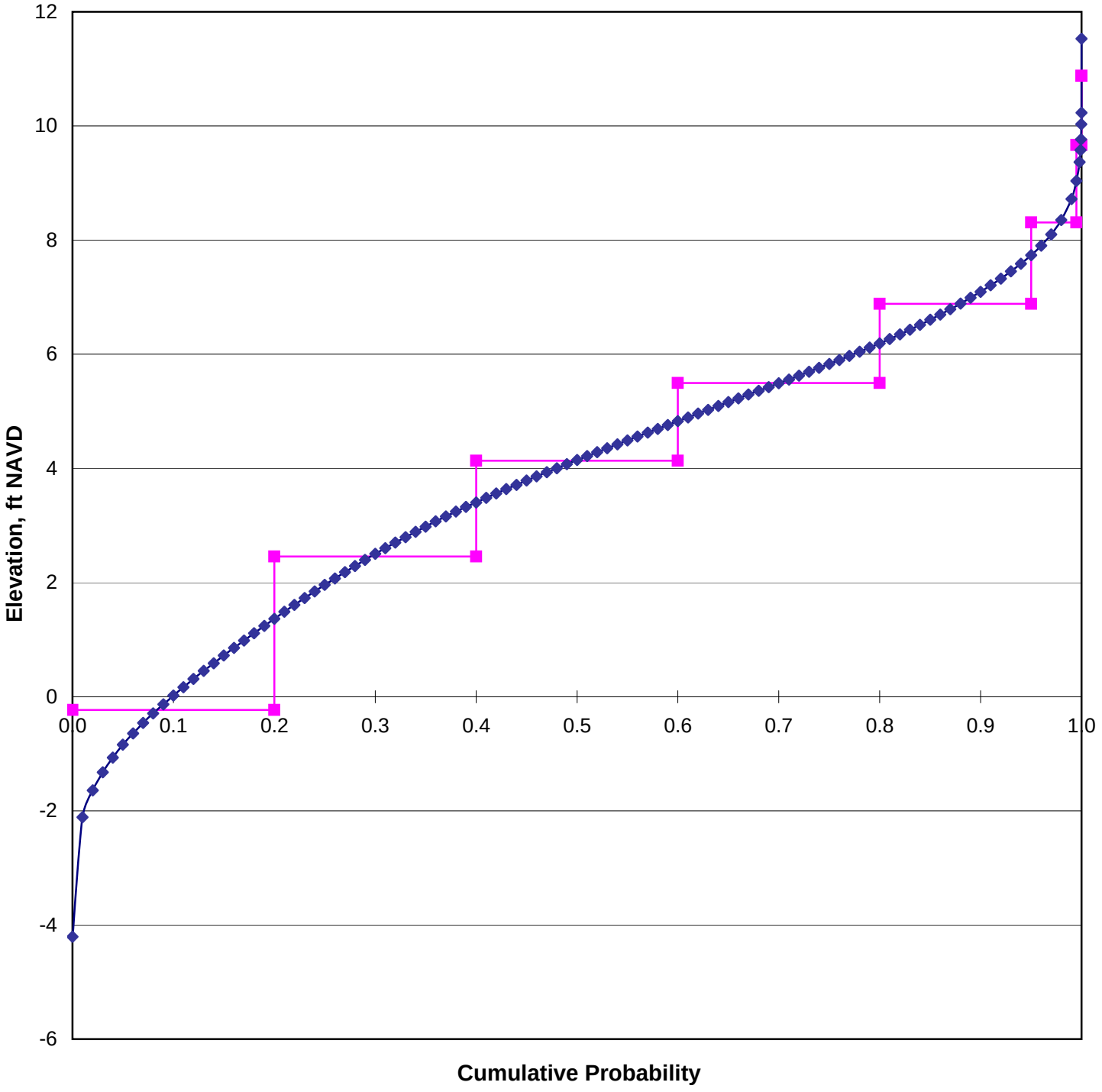



**Legend:**

**Year 50 Discretizations**

**Year 50 Tides with 0.72 ft of Sea Level Rise**

| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Coyote, Fremont, Laguna/Aqua Caliente, Guadalupe & Lower Penitencia Creeks DS Boundary Conditions, Year 50 Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |



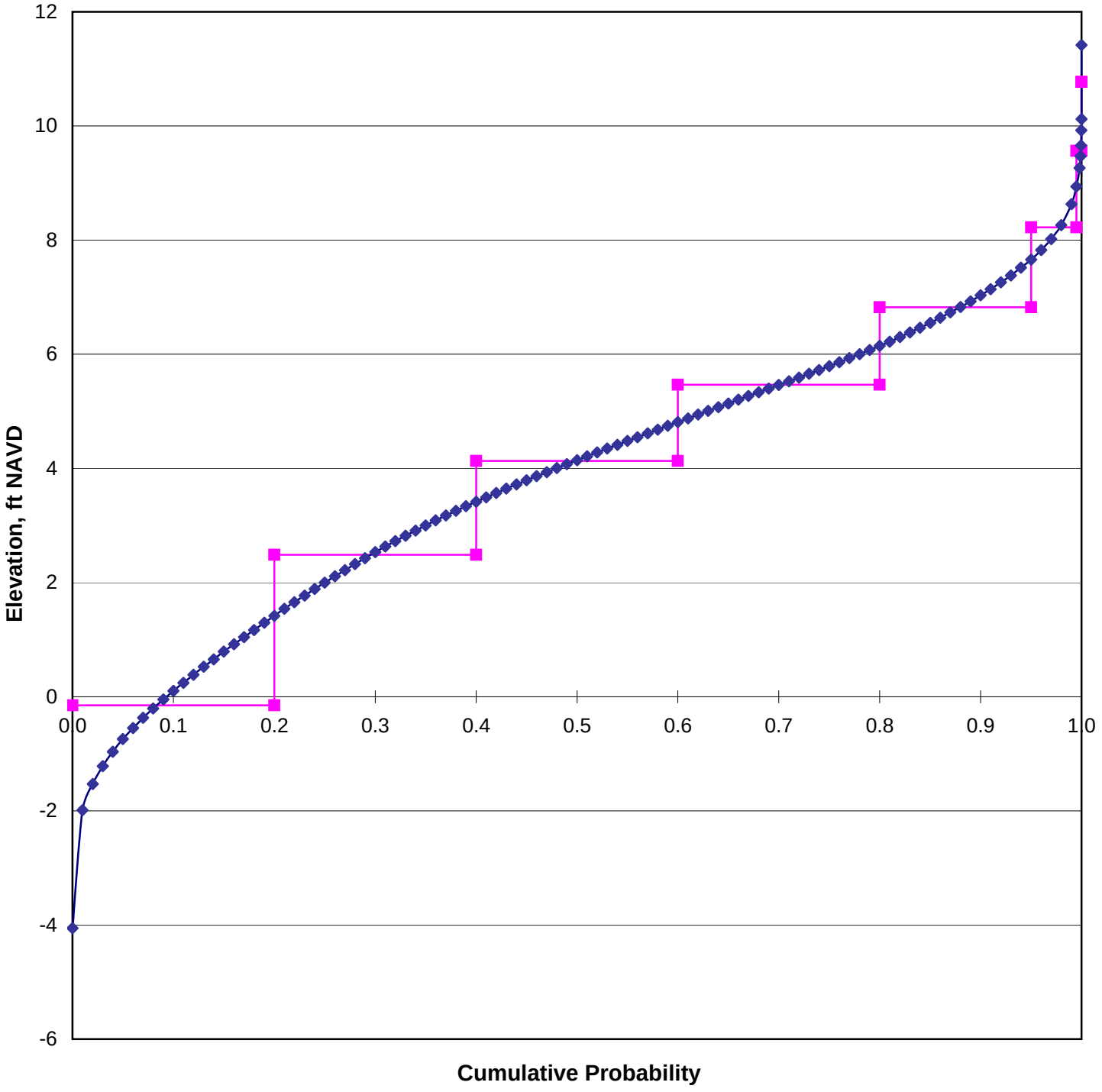

**Legend:**

- **Year 50 Discretizations**
- **Year 50 Tides with 0.72 ft of Sea Level Rise**

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Permanente & Stevens Creeks, DS Boundary Conditions, Year 50 Tide Discretizations**

US Army Corps of Engineers
San Francisco District

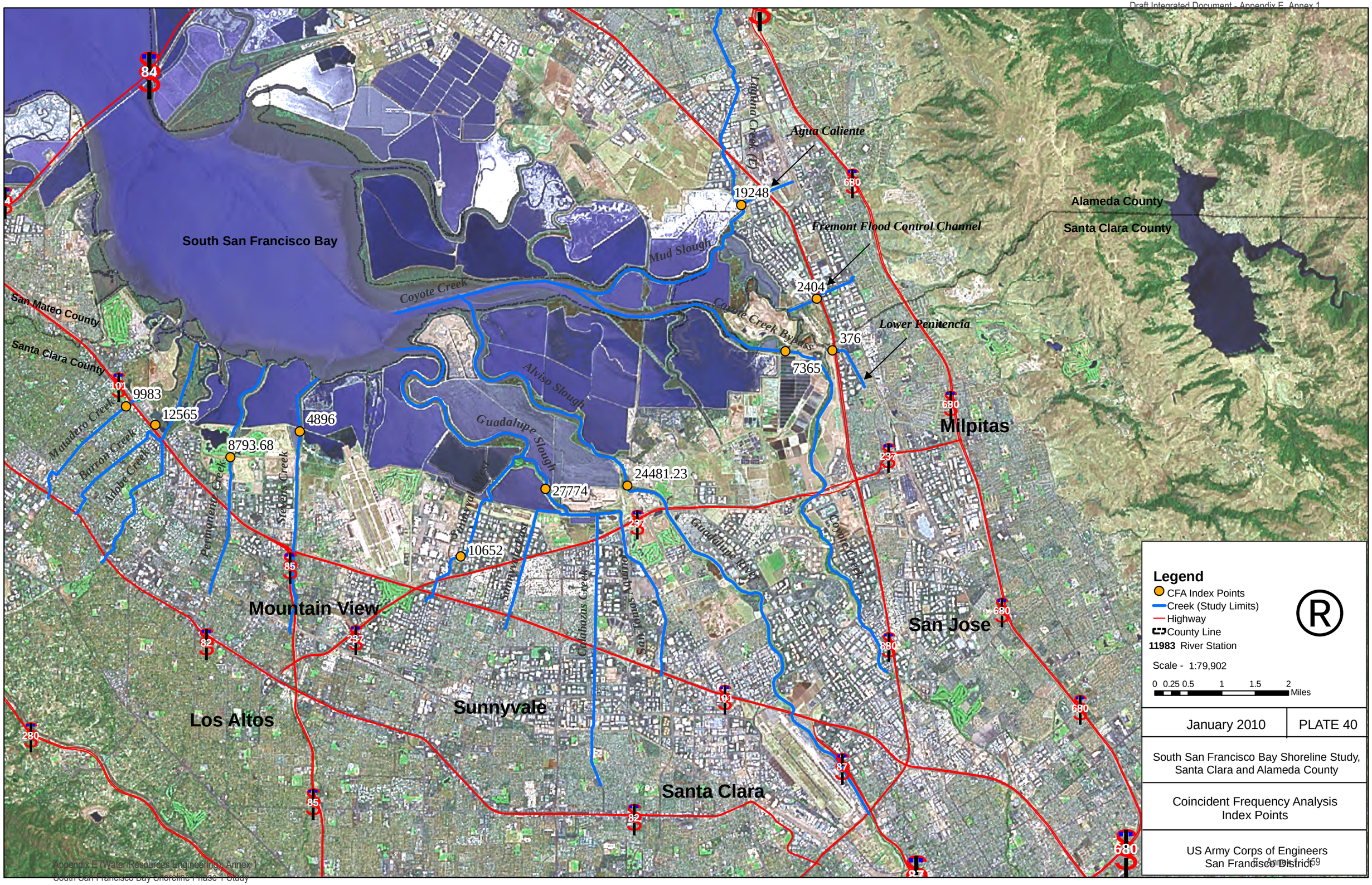


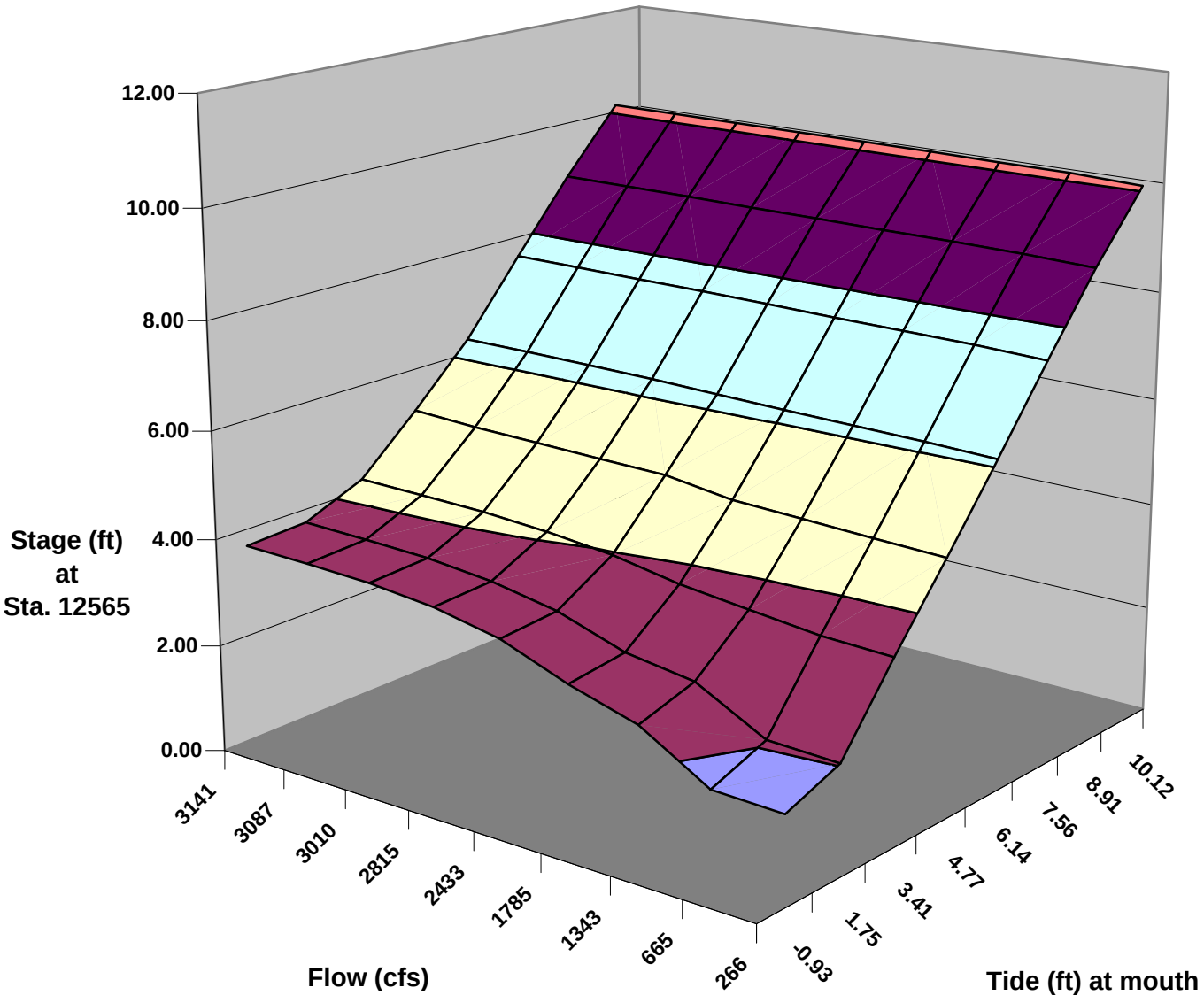

**Legend:**

**Year 50 Discretizations**

**Year 50 Tides with 0.72 ft of Sea Level Rise**

| |
|---|
| South San Francisco Bay Shoreline Study<br>Alameda and Santa Clara Counties |
| **Guadalupe Slough & Sunnyvale West Channel,<br>DS Boundary Conditions, Year 50 Tide Discretizations** |
| US Army Corps of Engineers<br>San Francisco District |


South San Francisco Bay
Agua Caliente
Fremont Flood Control Channel
Lower Penitencia
Alameda County
Santa Clara County
San Mateo County
Santa Clara County
Coyote Creek
Mud Slough
Coyote Creek Bypass
Alviso Slough
Guadalupe Slough
Guadalupe River
Coyote Creek
Calabazas Creek
San Tomas Aquino
Sunnyvale West
Sunnyvale East
Stevens Creek
Permanente Creek
Matadero Creek
Barron Creek
Adobe Creek
19248
2404
376
7365
9983
12565
4896
8793.68
27774
24481.23
10652
Milpitas
Mountain View
San Jose
Los Altos
Sunnyvale
Santa Clara
Legend
CFA Index Points
Creek (Study Limits)
Highway
County Line
11983 River Station
Scale - 1:79,902
0 0.25 0.5 1 1.5 2 Miles
January 2010
PLATE 40
South San Francisco Bay Shoreline Study, Santa Clara and Alameda County
Coincident Frequency Analysis Index Points
US Army Corps of Engineers San Francisco District



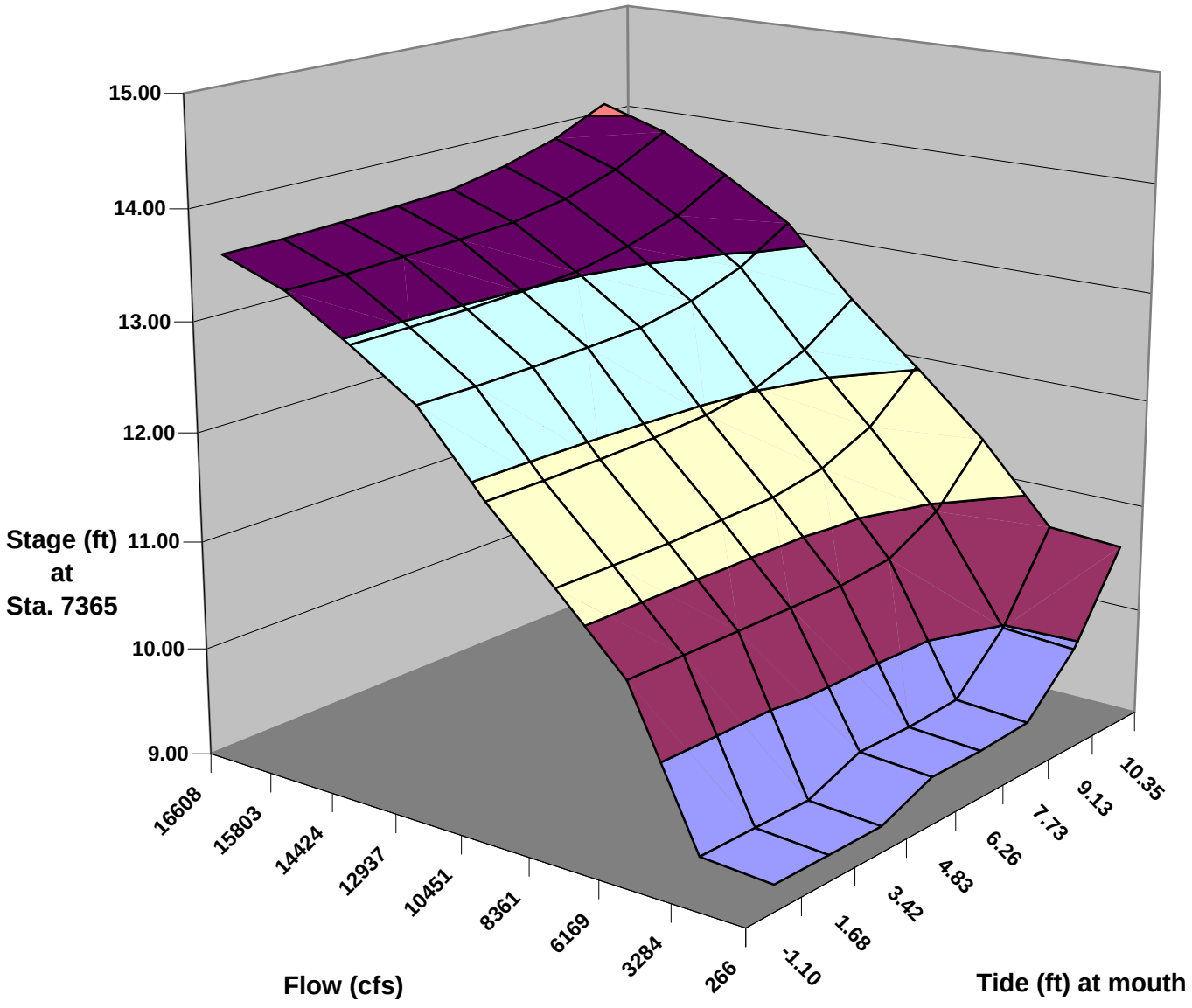

**Legend:**
**Stage in feet, NAVD**

- 10.00-12.00
- 8.00-10.00
- 6.00-8.00
- 4.00-6.00
- 2.00-4.00
- 0.00-2.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Adobe & Barron Creeks,**
**River Station 12565, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



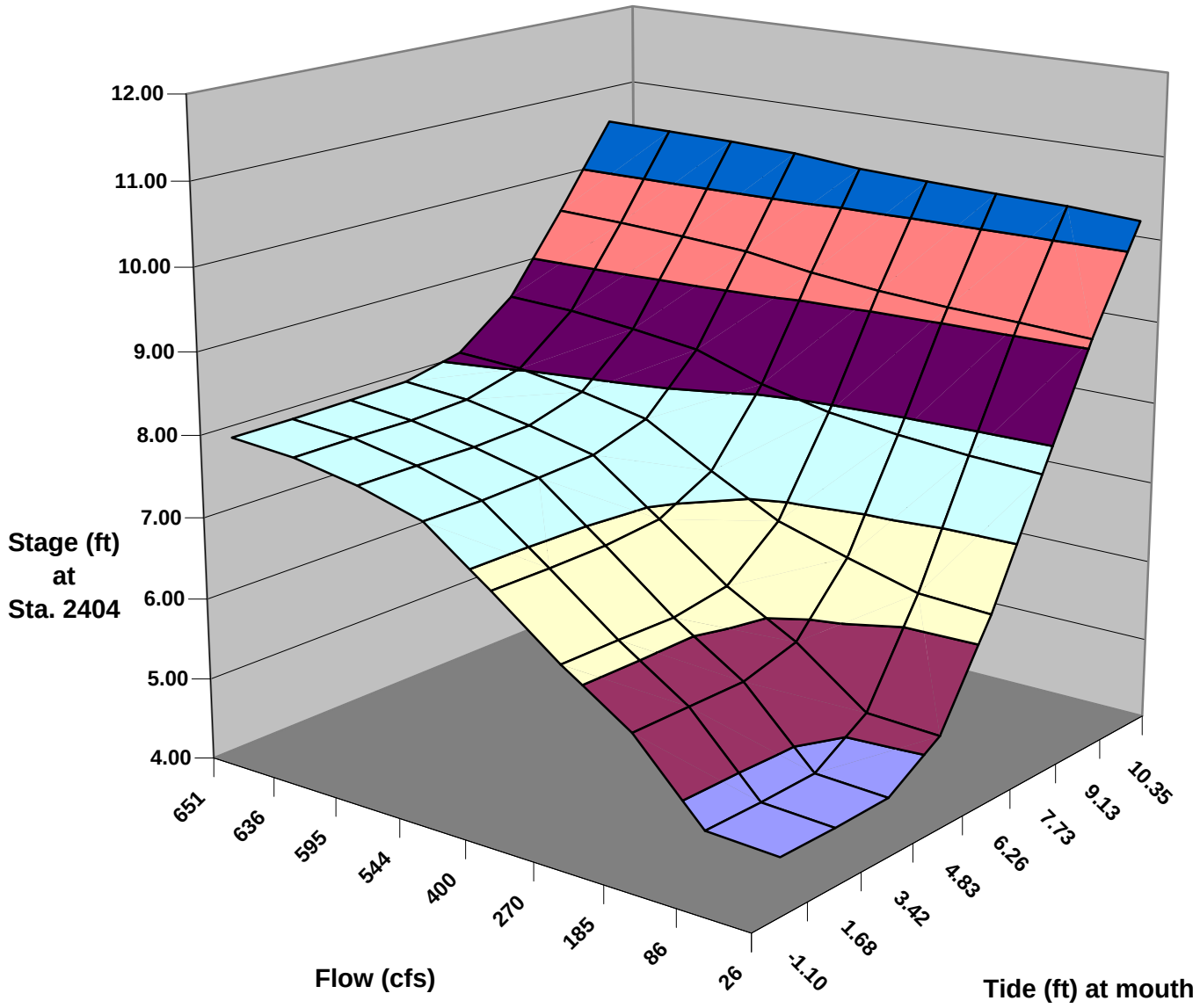

**Legend:**
**Stage in feet, NAVD**

- 14.00-15.00
- 13.00-14.00
- 12.00-13.00
- 11.00-12.00
- 10.00-11.00
- 9.00-10.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Coyote Creek,**
**River Station 7365, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



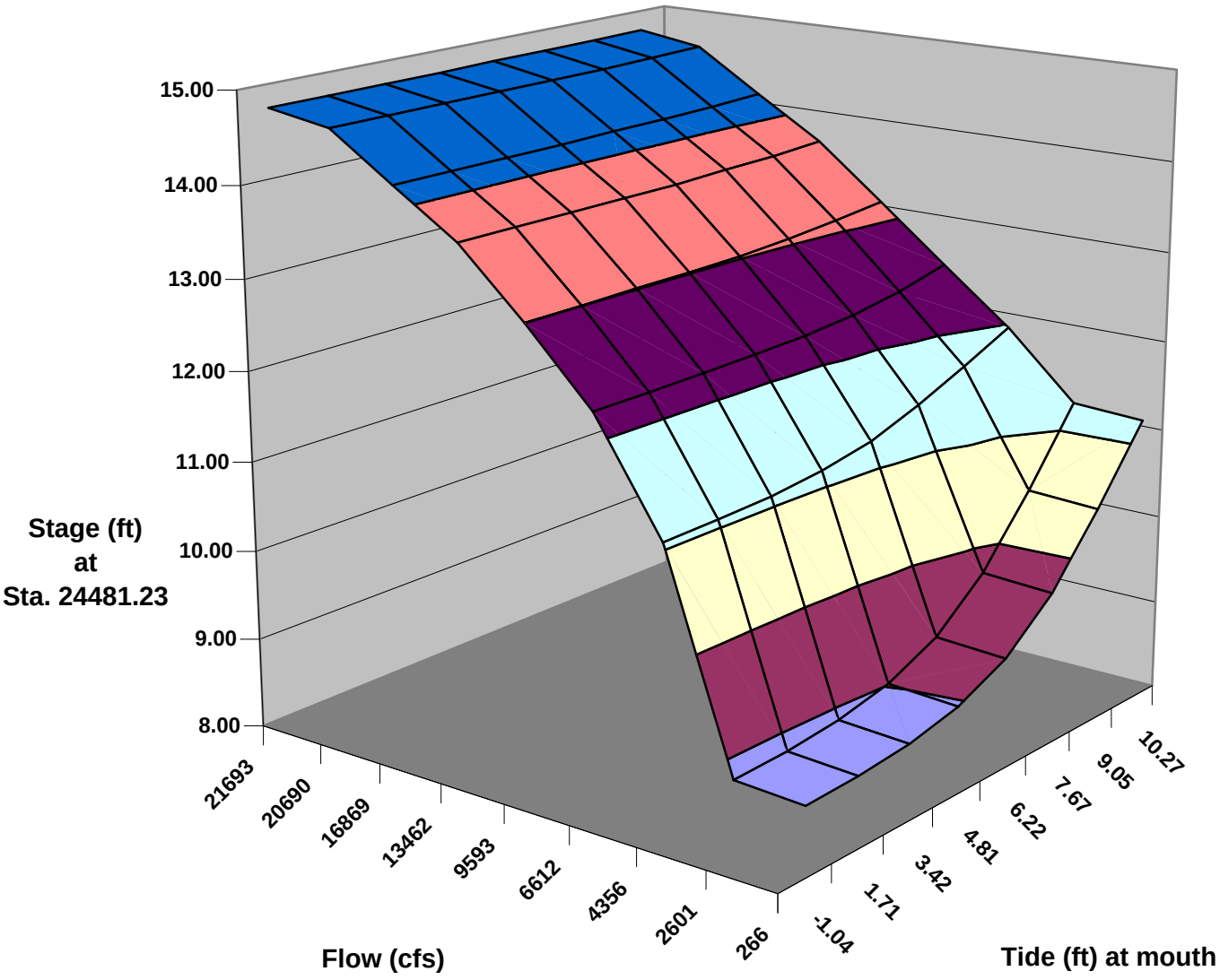

**Legend:**
**Stage in feet, NAVD**

- 11.00-12.00
- 10.00-11.00
- 9.00-10.00
- 8.00-9.00
- 7.00-8.00
- 6.00-7.00
- 5.00-6.00
- 4.00-5.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Fremont Flood Control Channel,**
**River Station 2404, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



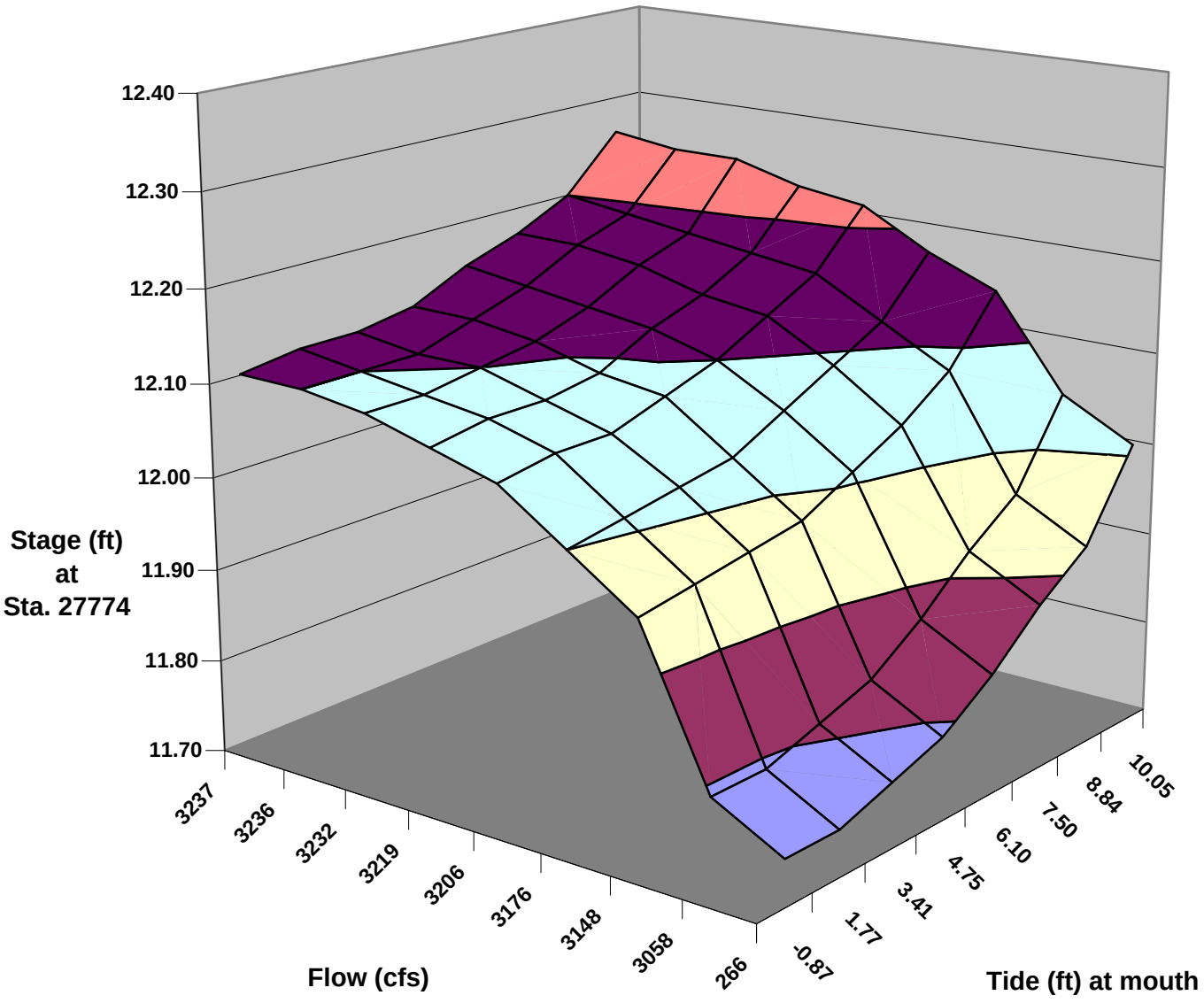

**Legend:**
**Stage in feet, NAVD**

- **14.00-15.00**
- **13.00-14.00**
- **12.00-13.00**
- **11.00-12.00**
- **10.00-11.00**
- **9.00-10.00**
- **8.00-9.00**

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Guadalupe River,**
**River Station 24481.23, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



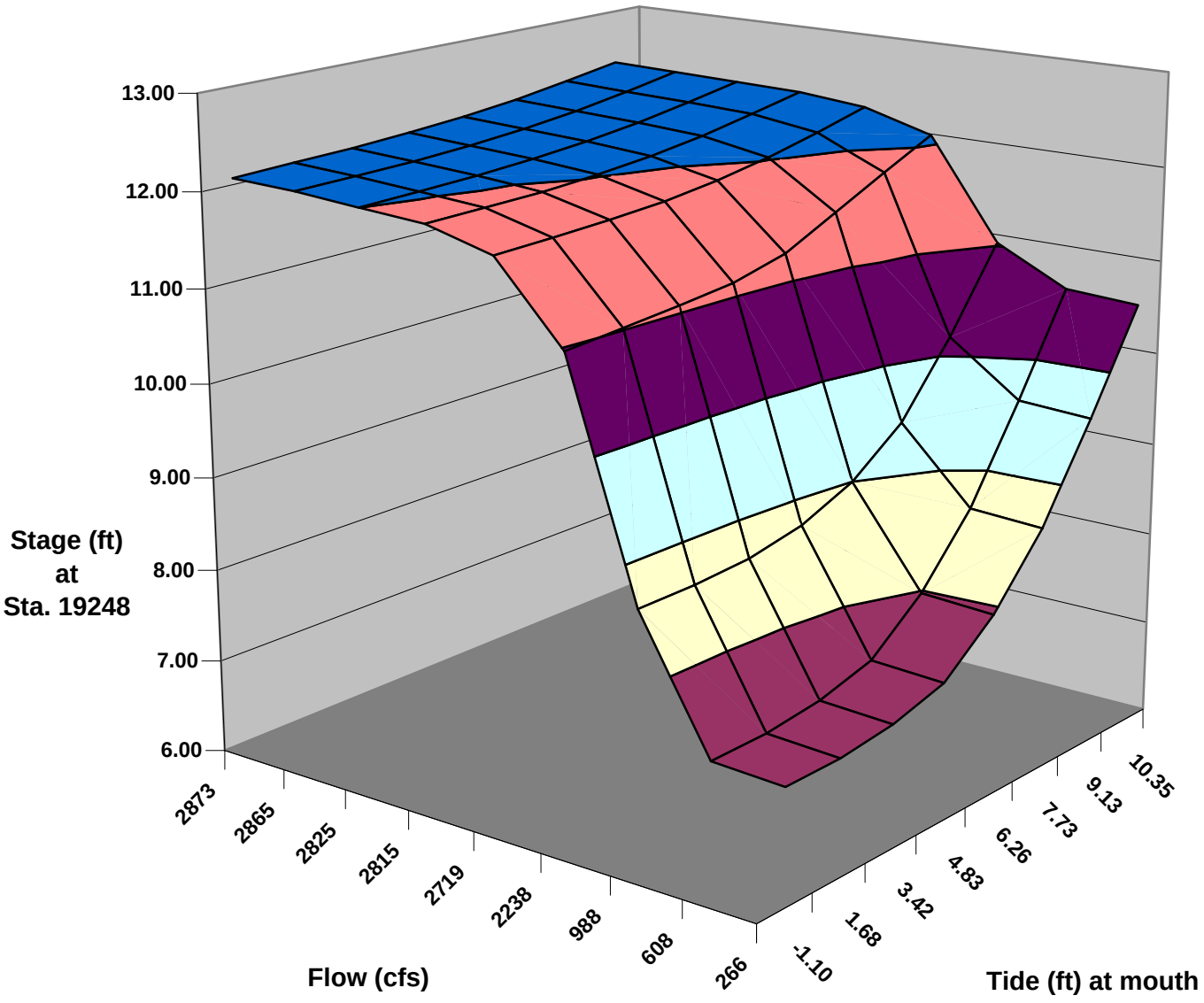

**Legend:**
**Stage in feet, NAVD**

- 12.30-12.40
- 12.20-12.30
- 12.10-12.20
- 12.00-12.10
- 11.90-12.00
- 11.80-11.90
- 11.70-11.80

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Guadalupe Slough,**
**River Station 27774, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



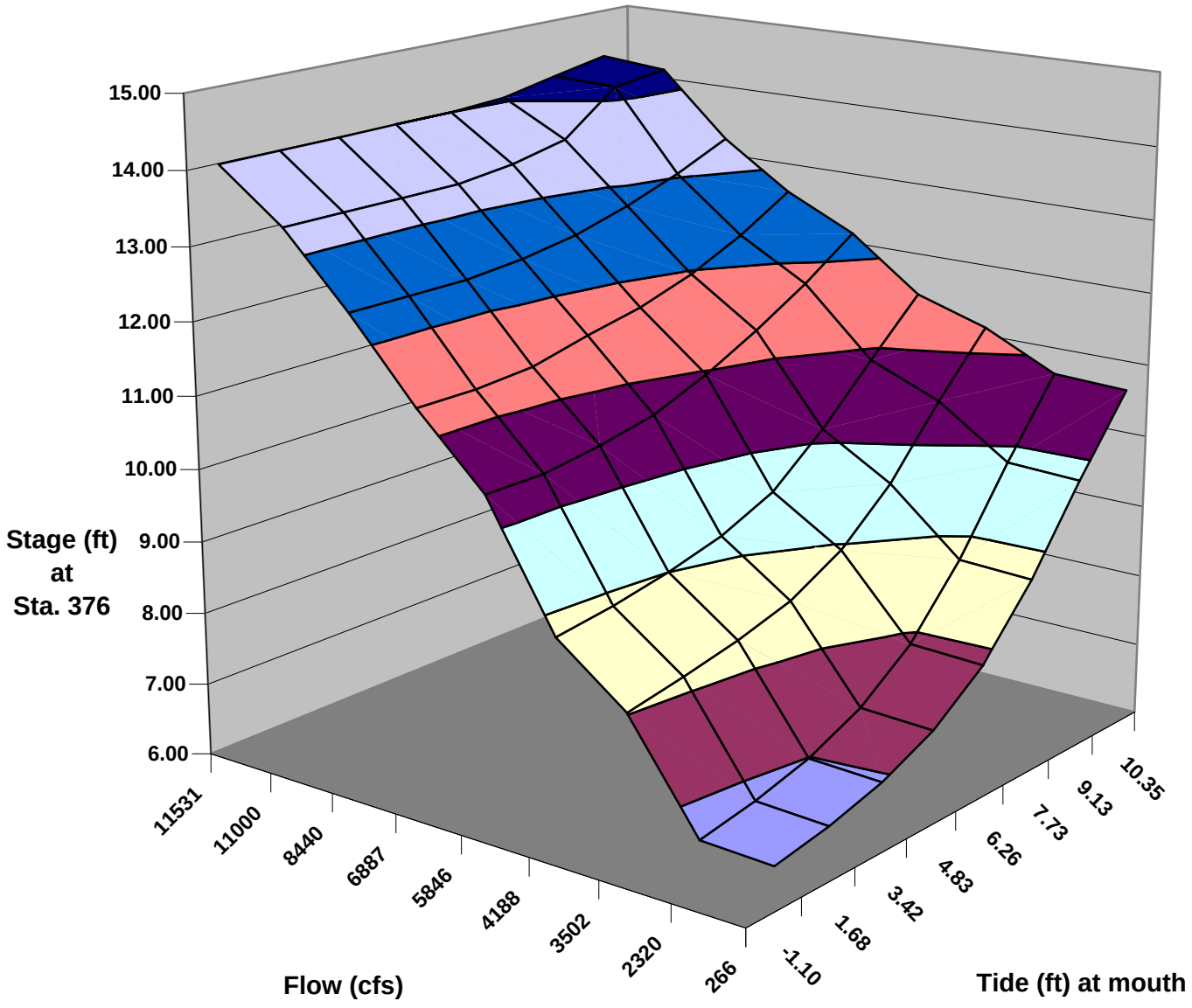

**Legend:**
**Stage in feet, NAVD**

- 12.00-13.00
- 11.00-12.00
- 10.00-11.00
- 9.00-10.00
- 8.00-9.00
- 7.00-8.00
- 6.00-7.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Laguna Creek,**
**River Station 19248, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



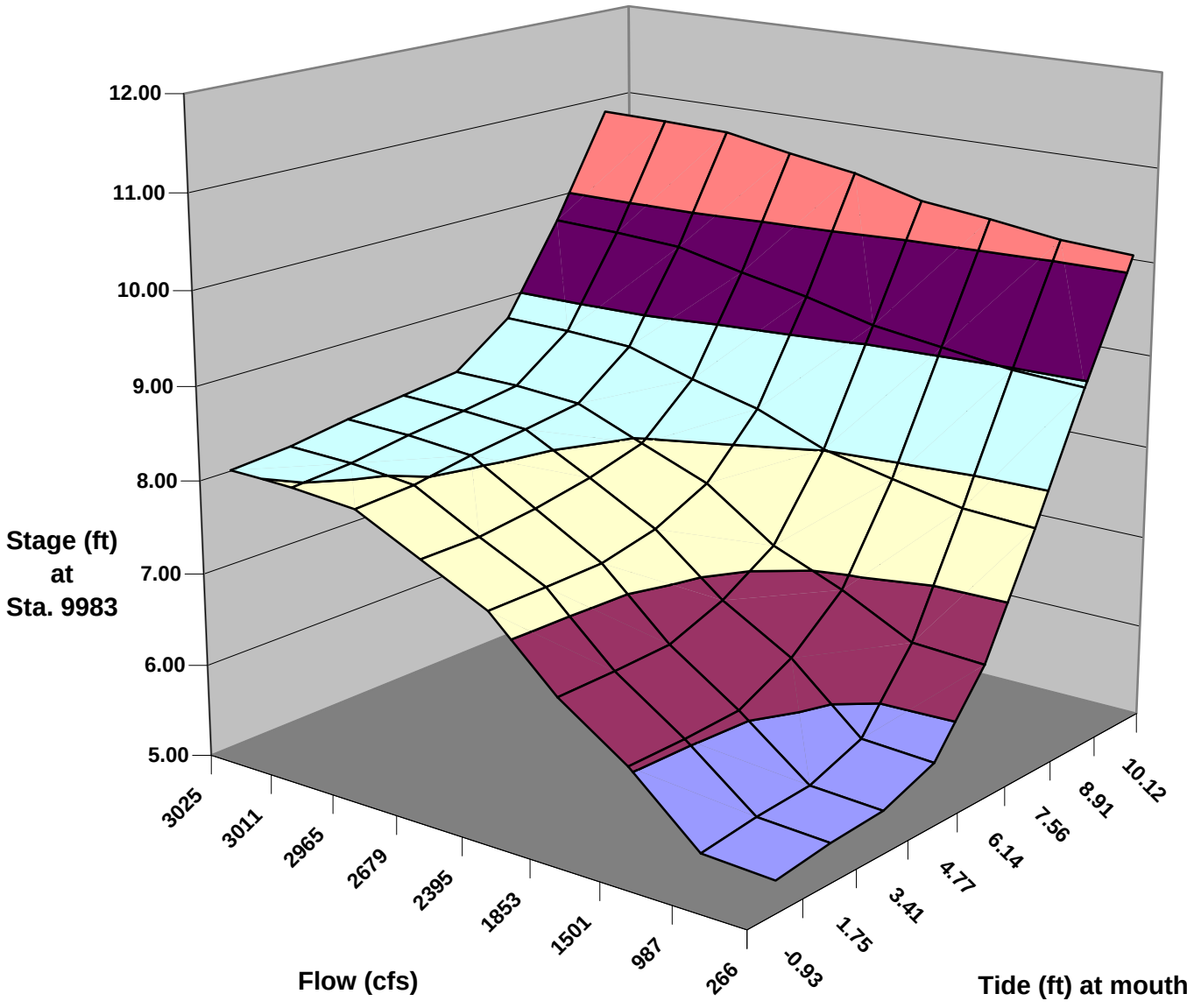

**Legend:**
**Stage in feet, NAVD**

- 14.00-15.00
- 13.00-14.00
- 12.00-13.00
- 11.00-12.00
- 10.00-11.00
- 9.00-10.00
- 8.00-9.00
- 7.00-8.00
- 6.00-7.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Lower Penitencia Creek,**
**River Station 376, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



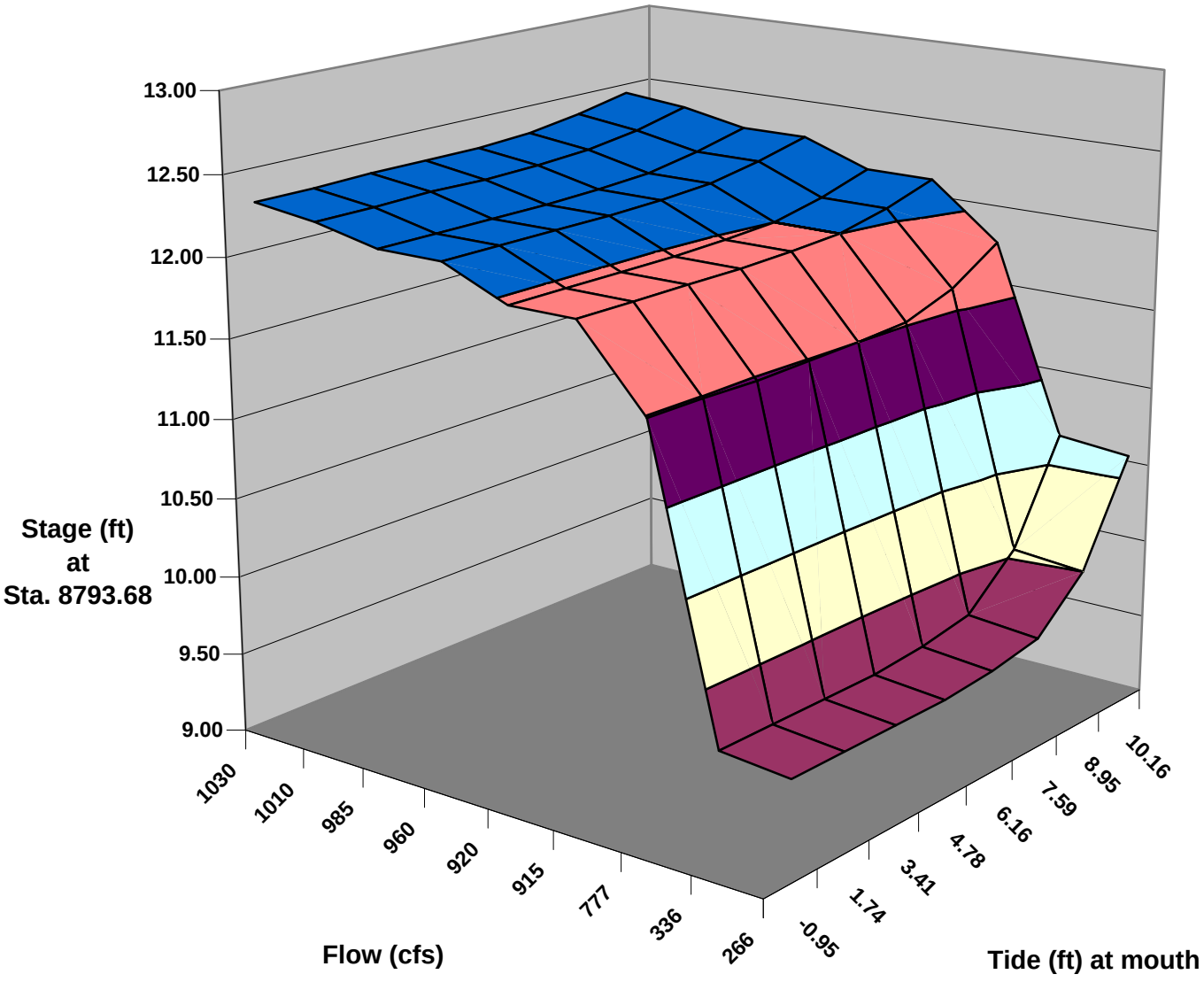

**Legend:**
**Stage in feet, NAVD**

- 11.00-12.00
- 10.00-11.00
- 9.00-10.00
- 8.00-9.00
- 7.00-8.00
- 6.00-7.00
- 5.00-6.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Matadero Creek,**
**River Station 9983, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



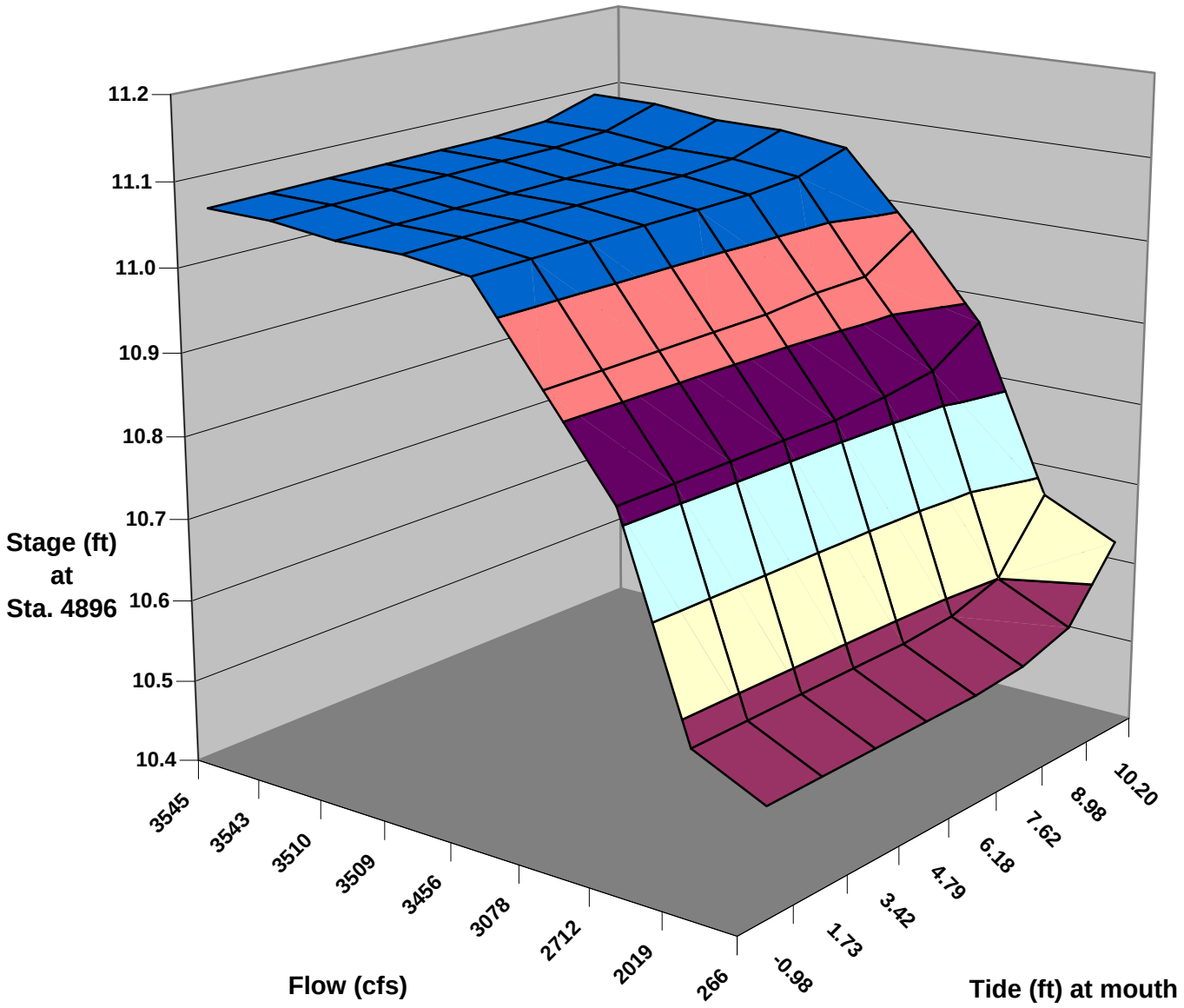

**Legend:**
**Stage in feet, NAVD**

- 12.50-13.00
- 12.00-12.50
- 11.50-12.00
- 11.00-11.50
- 10.50-11.00
- 10.00-10.50
- 9.50-10.00
- 9.00-9.50

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Permanente Creek,**
**River Station 8793.68, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



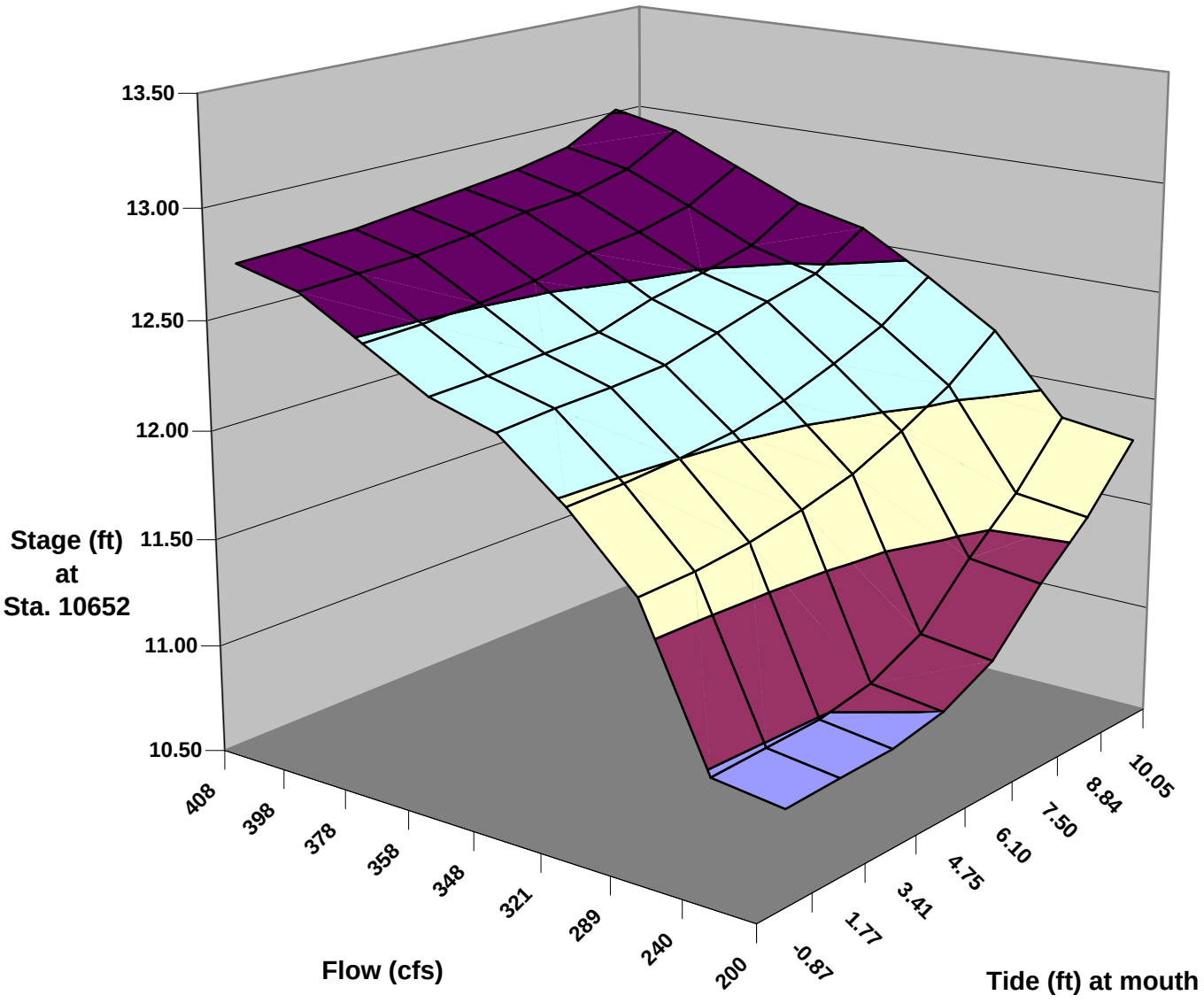

**Legend:**
**Stage in feet, NAVD**

- 11.100-11.200
- 11.000-11.100
- 10.900-11.000
- 10.800-10.900
- 10.700-10.800
- 10.600-10.700
- 10.500-10.600
- 10.400-10.500

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Stevens Creek,**
**River Station 4896, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



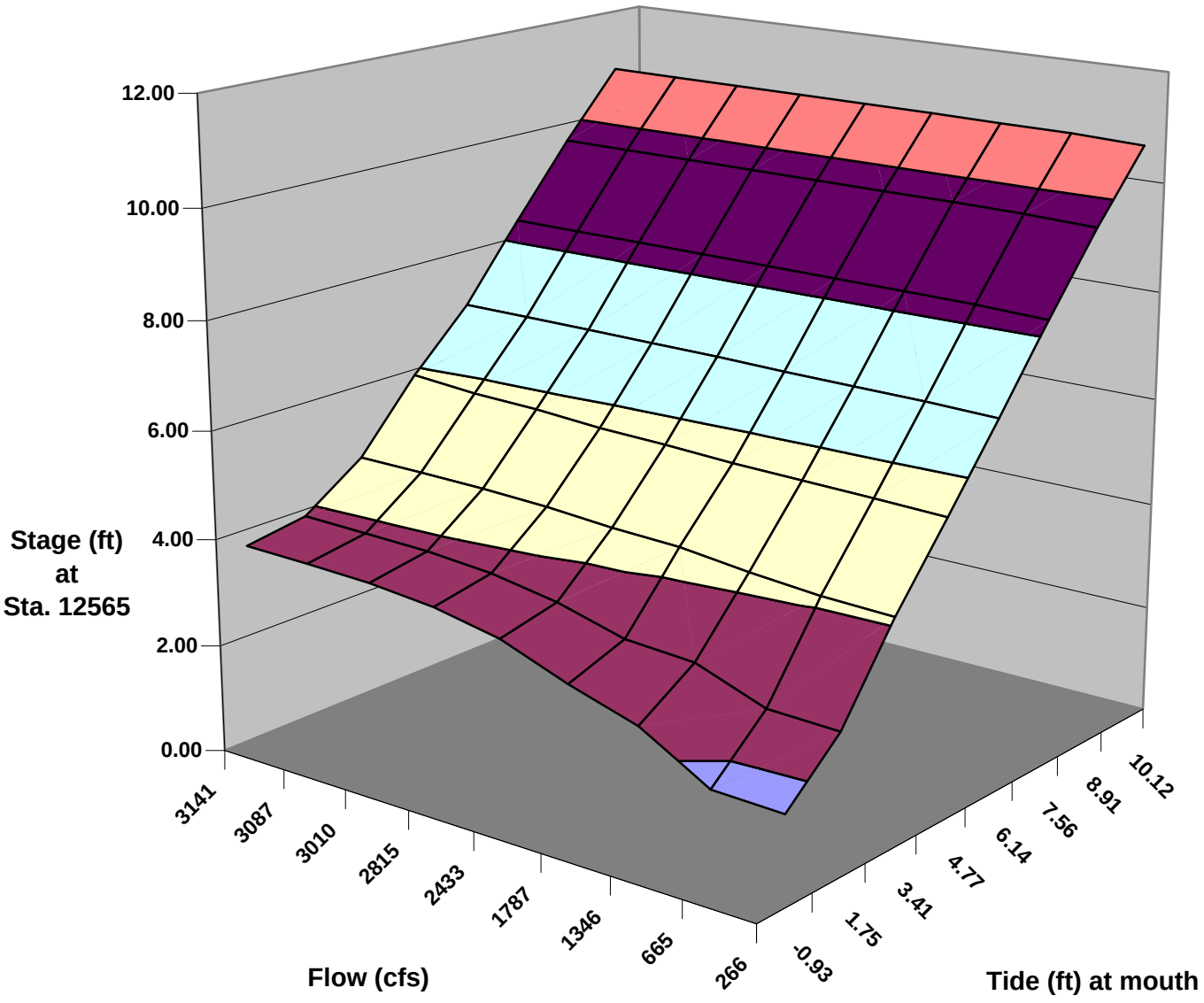

**Legend:**
**Stage in feet, NAVD**

- 13.00-13.50
- 12.50-13.00
- 12.00-12.50
- 11.50-12.00
- 11.00-11.50
- 10.50-11.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Sunnyvale West Channel,**
**River Station 10652, YEAR 0**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



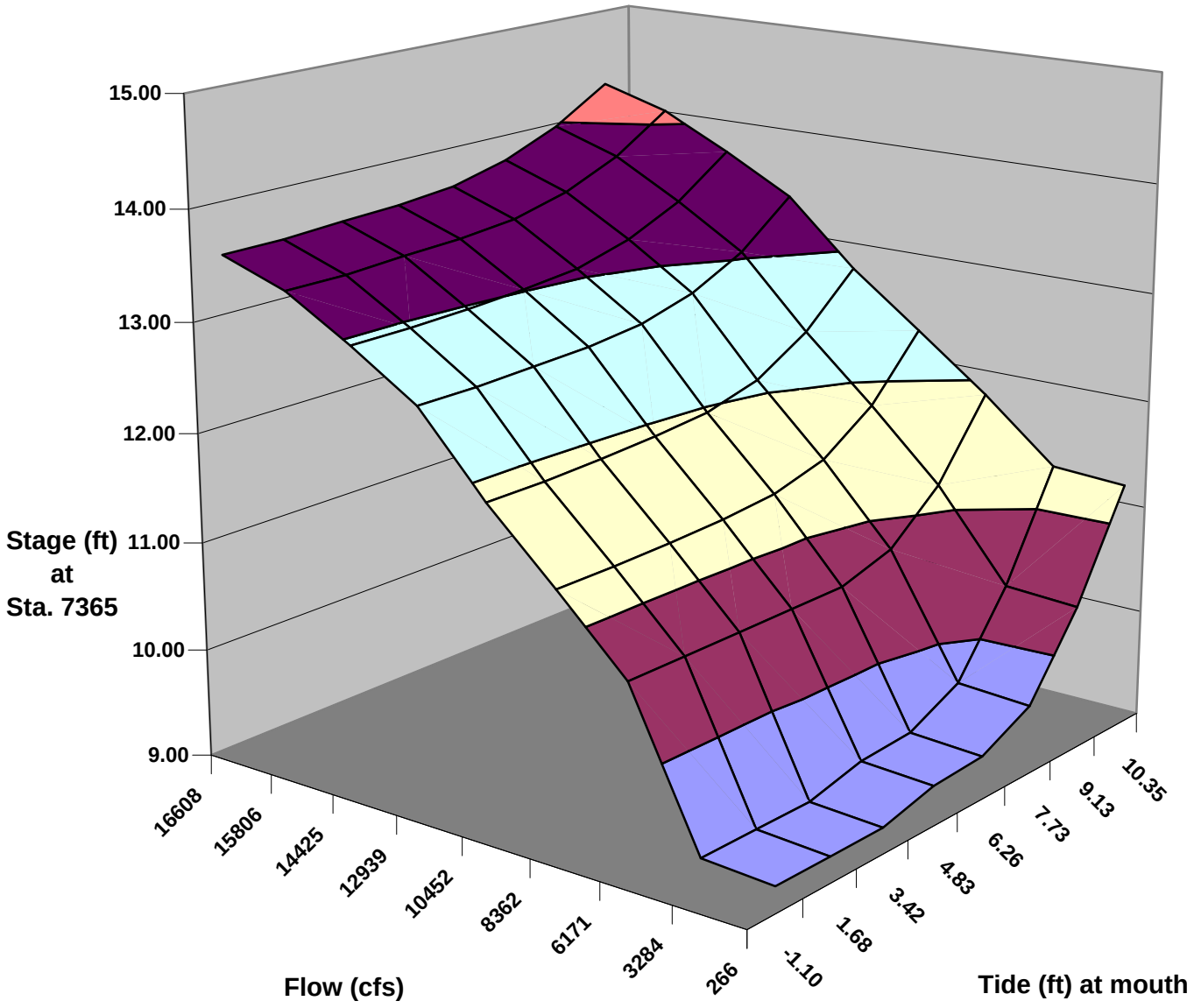

**Legend:**
**Stage in feet, NAVD**

- 10.00-12.00
- 8.00-10.00
- 6.00-8.00
- 4.00-6.00
- 2.00-4.00
- 0.00-2.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Adobe & Barron Creeks,**
**River Station 12565, YEAR 50**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District



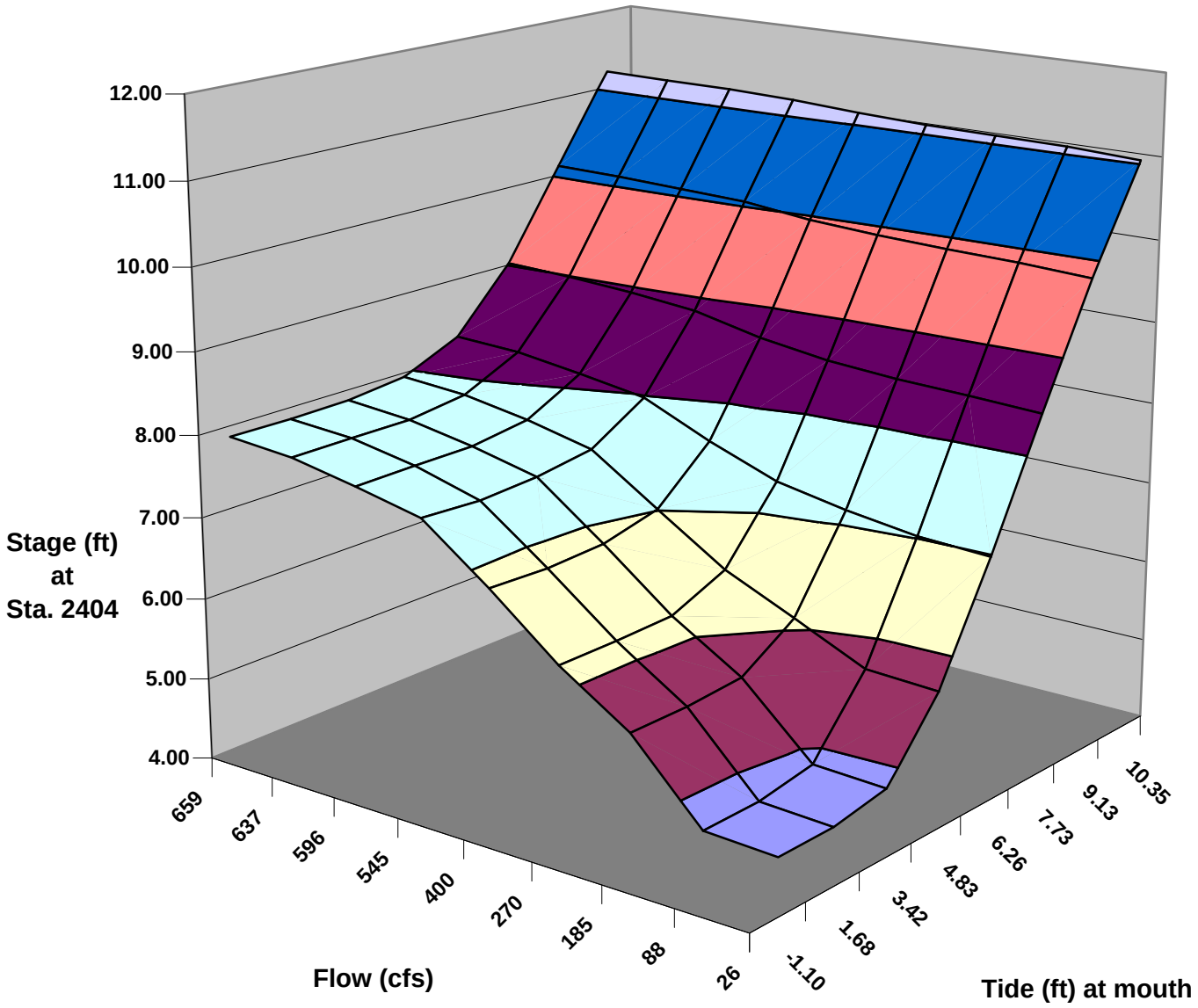

**Legend:**
**Stage in feet, NAVD**

- **14.00-15.00**
- **13.00-14.00**
- **12.00-13.00**
- **11.00-12.00**
- **10.00-11.00**
- **9.00-10.00**

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Coyote Creek,**
**River Station 7365, YEAR 50**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District




**Legend:**
**Stage in feet, NAVD**

- 11.00-12.00
- 10.00-11.00
- 9.00-10.00
- 8.00-9.00
- 7.00-8.00
- 6.00-7.00
- 5.00-6.00
- 4.00-5.00

South San Francisco Bay Shoreline Study
Alameda and Santa Clara Counties

**Fremont Flood Control Channel,**
**River Station 2404, YEAR 50**
**Stage as a Function of Flow & Tide**

US Army Corps of Engineers
San Francisco District