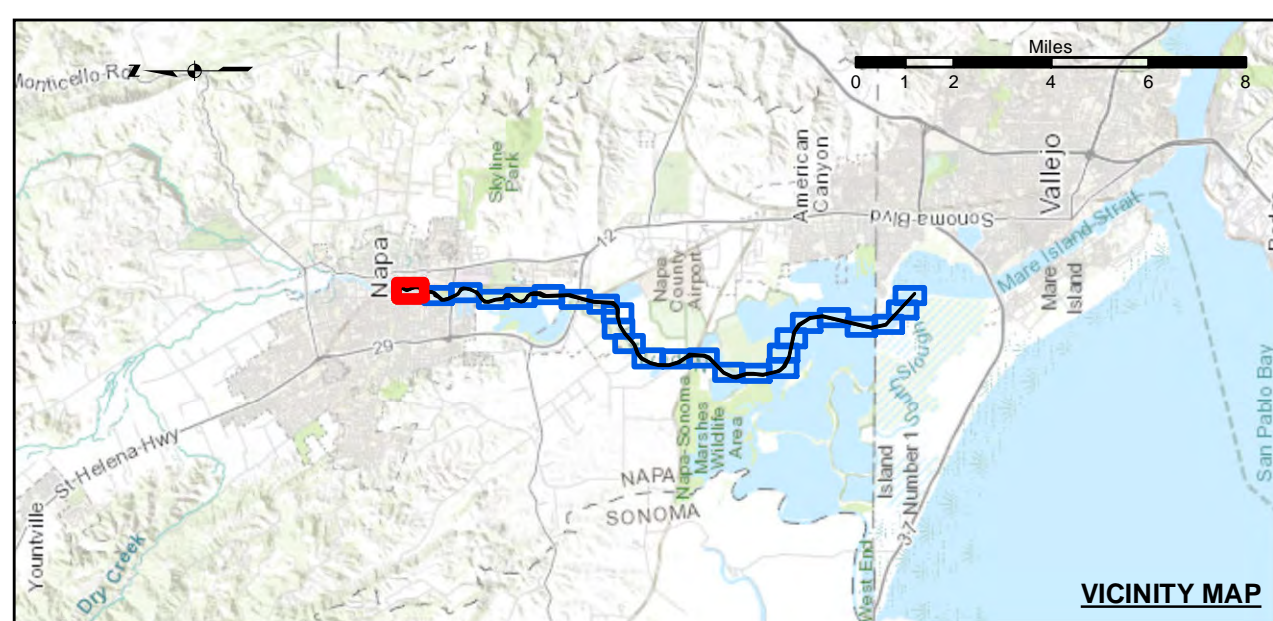


### NAD 83 CHANNEL ANGLE POINTS

Δ PT	X	Y	Δ PT	X	Y	Δ PT	X	Y	Δ PT	X	Y
1	6048873.57	2300046.64	47	6048523.47	2285146.44	83	6048298.27	2255227.24	139	6048190.67	2287801.84
2	6050024.67	2298956.64	48	6048530.77	2284491.14	84	6048574.57	2256380.54	140	6049243.67	2287705.64
3	6050021.27	2298629.34	49	6048226.77	2283841.64	85	6048420.57	2256914.24	141	6049210.67	2288166.64
4	6050030.17	2299201.14	50	6048268.97	2281248.54	86	6041981.27	2257566.34	142	6049322.87	2288516.44
5	6050350.27	2299393.74	51	6048202.67	2279884.34	87	6041162.17	2258023.54	143	6049831.47	2289301.14
6	6050326.57	2299292.84	52	6048508.87	2278592.34	88	6040597.87	2258659.04	144	6048602.27	2290109.14
7	6050223.27	2299176.84	53	6048391.87	2277596.34	89	6040716.47	2260379.94	145	6048661.57	2290447.34
8	6050162.57	2299074.94	54	6048224.67	2276357.34	90	6040339.47	2261458.94	146	6048756.57	2290261.34
9	6050130.67	2298957.84	55	6047934.67	2275096.34	91	6040309.17	2262182.24	147	6048887.57	2290758.24
10	6050155.87	2298894.34	56	6047896.87	2274999.34	92	6040088.17	2263335.04	148	6049021.67	2290872.64
11	6050374.67	2298200.34	57	6048816.67	2276013.34	93	6040056.67	2263787.24	149	6049362.87	2291081.64
12	6050438.67	2297901.34	58	6048585.67	2275808.34	94	6040535.87	2264731.14	150	6049682.67	2291392.64
13	6050402.87	2297791.34	59	6048747.67	2275932.34	95	6040392.17	2265018.54	151	6049759.87	2291553.64
14	6049965.67	2298886.34	60	6044027.67	2274440.34	106	6042363.87	2266814.94	152	6049888.27	2292043.64
15	6049892.97	2298190.84	61	6043887.87	2274244.34	107	6042461.77	2268207.44	153	6050071.17	2292414.14
16	6049747.87	2298376.34	62	6043971.87	2273871.34	108	6042711.07	2268696.74	154	6050078.67	2292731.34
17	6049027.87	2295116.54	63	6042289.87	2273516.34	109	6041765.47	2268501.94	155	6049997.67	2292940.64
18	6049027.87	2294825.54	64	6041777.87	2273546.34	110	6041426.07	2269068.74	156	6049759.87	2293176.34
19	6049130.67	2294461.04	65	6041569.67	2271791.34	111	6041470.17	2271806.74	157	6049616.67	2293271.34
20	6049535.47	2293521.84	66	6041526.67	2270640.34	112	6041684.17	2272583.44	158	6049492.27	2293419.64
21	6049575.87	2293266.34	67	6041655.57	2269548.54	113	6042028.87	2273068.14	159	6049399.87	2293470.34
22	6050093.67	2293038.34	68	6042372.87	2268924.04	114	6042778.37	2274060.64	160	6049937.67	2293483.64
23	6050217.67	2292725.34	69	6042636.67	2268399.34	115	6043647.07	2274336.34	161	6049837.67	2293581.34
24	6049406.27	2291022.14	70	6042521.47	2268775.44	116	6043968.57	2274621.74	162	6049736.17	2293698.64
25	6049827.47	2291521.44	71	6042935.47	2268266.44	117	6044915.47	2275373.54	163	6049392.27	2293857.64
26	6049743.97	2291348.14	72	6043617.87	2267471.34	118	6044882.07	2275900.74	164	6049695.67	2294011.34
27	6049406.27	2291022.14	73	6043601.67	2267101.34	119	6045161.87	2276482.34	165	6049778.67	2294201.34
28	6049065.77	2290811.74	74	6043114.97	2266317.64	120	6045748.97	2277101.64	166	6049874.47	2294388.14
29	6049399.07	2290703.64	75	6043408.67	2265796.34	121	6047853.87	2278225.44	167	6050330.17	2294716.74
30	6049811.67	2290776.74	76	6043430.67	2265455.34	122	6048114.07	2278499.64	168	6050363.67	2294984.34
31	6049373.37	2290422.44	77	6043017.67	2265084.34	123	6048226.67	2278626.34	169	6050302.97	2295176.94
32	6048670.07	2290113.14	78	6043060.67	2264893.34	124	6048279.57	2278834.64	170	6050302.97	2295176.94
33	6048905.17	2289816.14	79	6043060.67	2264893.34	125	6048409.67	2279071.84	171	6050302.97	2295176.94
34	6048982.87	2289887.44	80	6041115.47	2264519.34	126	6048724.37	2279391.74	172	6050302.97	2295176.94
35	6049000.67	2289543.84	81	6042227.87	2263762.54	127	6049106.27	2281073.74	173	6050168.77	2295221.54
36	6049320.77	2289276.54	82	6044872.97	2263700.94	128	6049165.47	2281483.74	174	6050272.17	2295327.74
37	6049392.87	2289149.34	83	6045649.57	2263449.54	129	6049122.77	2281892.54	175	6050272.17	2295327.74
38	6049394.67	2288936.34	84	6045922.27	2263284.34	130	6049364.97	2281819.74	176	6050237.87	2295486.04
39	6049251.67	2288756.34	85	6045955.17	2263182.84	131	6049371.87	2281854.34	177	6050237.87	2295486.04
40	6049494.67	2288726.34	86	6045207.27	2262859.84	132	6049230.87	2281973.34	178	6049867.47	2295807.94
41	6049702.87	2288771.34	87	6045556.47	2262742.94	133	6048975.07	2282099.14	179	6049899.17	2296007.14
42	6049675.67	2288525.34	88	6048864.47	2262583.94	134	6048967.47	2282024.44	179	6049899.17	2296007.14
43	6049736.67	2288239.34	89	6048776.47	2262480.14	135	6048999.77	2282521.54	180	6049899.17	2296007.14
44	6049924.87	2288028.34	90	6048685.77	2262399.64	136	6048963.57	2282782.74	180	6049899.17	2296007.14
45	6049286.67	2287883.34	91	6048510.57	2262461.14	137	6048979.77	2282788.14	180	6049899.17	2296007.14
46	6049459.67	2288526.34	92	6048463.57	2262889.24	138	6048886.47	2282731.64	180	6049899.17	2296007.14

### NAD 83 CENTERLINE ANGLE POINTS

Δ PT	X	Y	Δ PT	X	Y
1	6049841.27	2300026.94	49	6049415.67	2285525.34
2	6049996.07	2299832.24	50	6049450.57	2285335.44
3	6050201.77	2299606.14	51	6049447.87	2284552.54
4	6050271.37	2299603.84	52	6049174.77	2283987.14
5	6050311.17	2299391.54	53	6049217.17	2283156.14
6	6050292.17	2299310.24	54	6049197.67	2282116.14
7	6050197.07	2299199.14	55	6048772.57	2280989.04
8	6050127.97	2299090.24	56	6048459.07	2279660.14
9	6050092.67	2298961.04	57	6048330.67	2278710.44
10	6050118.87	2298894.74	58	6048294.17	2278068.34
11	6050338.87	2298188.84	59	6048169.37	2276408.44
12	6050401.67	2297999.54	60	6047894.27	2276169.84
13	6050367.87	2297903.34	61	6047622.37	2275659.44
14	6049910.47	2296968.44	62	6046811.77	2275063.44
15	6049815.77	2296196.14	63	6045839.37	2274585.34
16	6049676.67	2295683.84	64	6044945.07	2274332.94
17	6049882.67	2295148.94	65	6043998.17	2273481.04
18	6049882.67	2294828.44	66	6043667.37	2272490.34
19	6049095.27	2294466.14	67	6042802.97	22714015.64
20	6049513.87	2293470.84	68	6042249.97	2270548.24
21	6049887.17	2292828.84	69	6041519.97	2270199.04
22	6049758.67	2292321.34	70	6041475.37	2270633.54
23	6050063.67	2292089.34	71	6041810.47	2269524.24
24	6050148.17	2292278.04	72	6042317.97	2268710.14
25	6050106.67	2292401.94	73	6042546.77	2268303.34
26	6050023.97	2292331.54	74	6042442.97	2268252.44
27	6049793.57	2291537.54	75	6042192.87	2266237.24
28	6049713.07	2291370.44	76	6040576.77	2264701.24
29	6049396.07	2291051.84	77	6041081.87	2263779.14
30	6049403.67	2290942.14	78	6040061.57	2263326.34
31	6049813.27	2290730.94	79	6040358.97	2262189.24
32	6049870.07	2290599.94	80	6040389.57	2261457.14
33	6049897.47	2290534.94	81	6040291.07	2260362.14
34	6049640.67	2290111.14	82	6040584.77	2258826.14
35	6048868.27	2289308.84	83	6040714.27	2258575.64
36	6049344.67	2288695.24	84	6041158.77	2258117.14
37	6048961.77	2288259.24	85	6042103.77	2257586.34
38	6048265.67	2288221.44	86	6044851.27	2256990.04
39	6049301.67	2288140.84	87	6045612.07	2256415.04
40	6049313.67	2287847.84	88	6046343.47	2255244.34
41	6049319.17	2287770.94	89	6046514.37	2253886.04
42	6049221.17	2287579.34	90	6046515.37	2248630.64
43	6048913.67	2287282.24	91	6045511.07	2247016.84
44	6048666.17	2286782.04	92	6048819.87	2243829.54
45	6048657.77	2286524.34			
46	6048702.07	2285997.74			
47	6048899.87	2285997.74			
48	6049258.67	2285762.84			

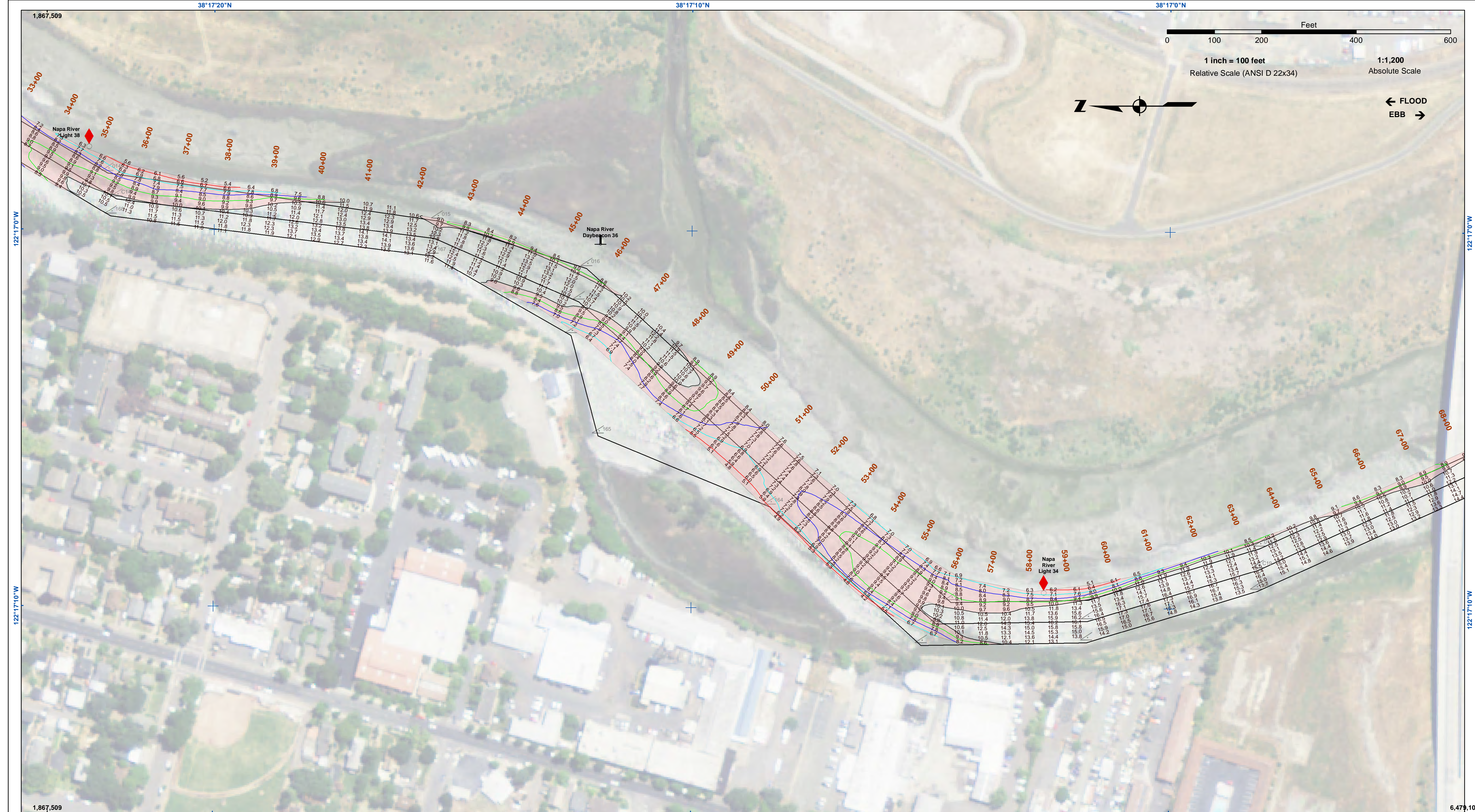


- |  |                            |  |                 |
|--|----------------------------|--|-----------------|
|  | Federal Navigation Channel |  | <b>Contours</b> |
|  | Shoaling Area              |  | -10             |
|  | Placement Area             |  | -9              |
|  | Anchorage Area             |  | -8              |
|  | Wreck Area                 |  | -7              |
|  | Submerged Wreck            |  | -6              |
|  | Angle Point                |  |                 |
|  | Beacon, General            |  |                 |
|  | Obstruction Point          |  |                 |
|  | Navigation Buoy            |  |                 |
|  | Navigation Buoy            |  |                 |
|  | Shoalest Sounding*         |  |                 |

**NOTES:**  
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON THE HORIZONTAL COORDINATE SYSTEM:  
 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.  
 VERTICAL DATUM:  
 SOUNDINGS ARE SHOWN IN FEET AND INDICATE DEPTHS BELOW MEAN LOWER LOW WATER.  
 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY CONDUCTED ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED TO REPRESENT THE GENERAL CONDITION EXISTING AT THAT TIME.  
 PLANE GRID, BEARING AND COORDINATES ARE BASED ON THE STATE OF CALIFORNIA COORDINATE SYSTEM.  
 LAMBERT CONFORMAL PROJECTION, ZONE II NAD 83,  
 CALIFORNIA, AS DESCRIBED IN SPECIAL PUBLICATION NO. 235, PUBLISHED BY NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE.  
 BASE MAPS ARE USDA NAIP 2010.  
 \*SHOALEST SOUNDING PER QUARTER PER REACH

DRAWING NOT TO BE USED FOR NAVIGATION. ONLY CHANNEL CONDITION AT DATE OF SURVEY.  
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON THE HORIZONTAL COORDINATE SYSTEM:  
 NORTH

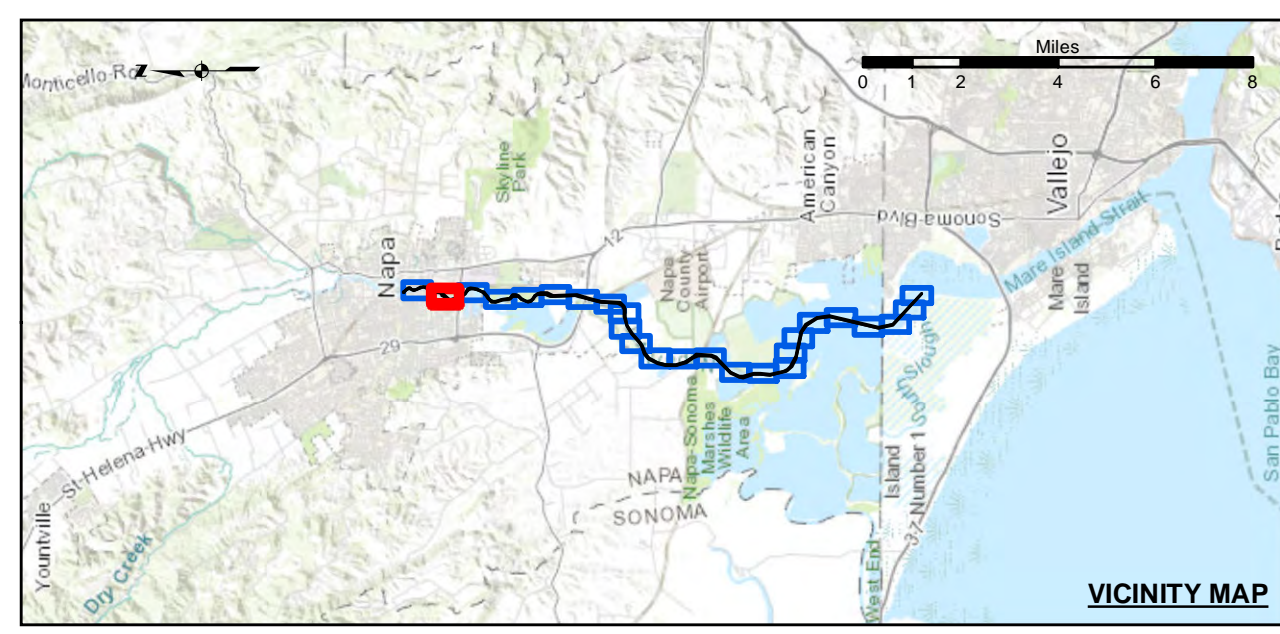




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 San Francisco District  
 450 Market Street  
 San Francisco, CA 94102

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Chart Date:	Aug 28, 2022
Designed by:	PDT
Surveyed By:	KEVIN P. ARNETT
Plotted By:	PDT
Checked By:	PDT
Drawn by:	PDT



Federal Navigation Channel	Beacon, General	<b>Contours</b>
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		
Angle Point		-10
		-9
		-8
		-7
		-6

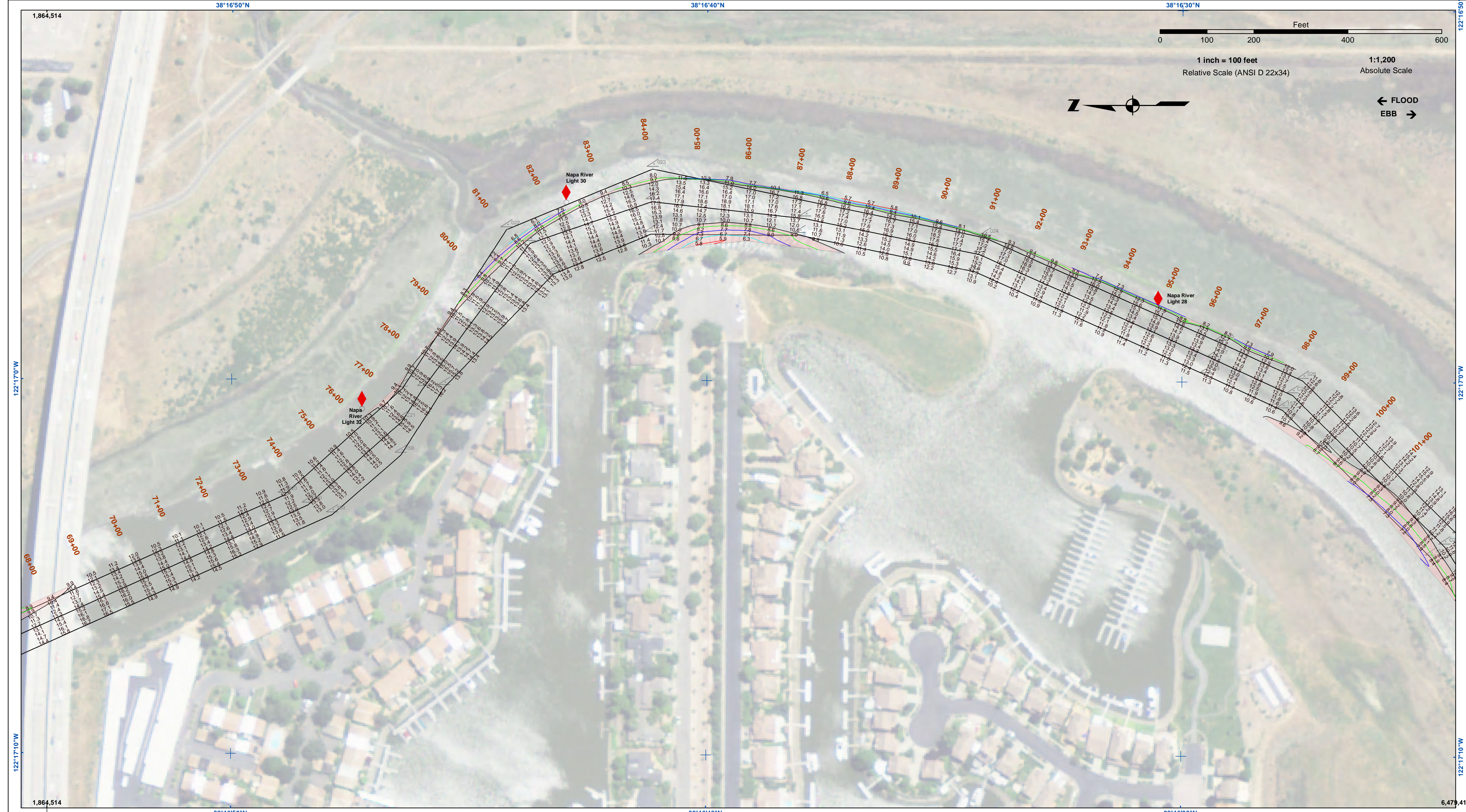
**NOTES:**  
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 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.  
 VERTICAL DATUM:  
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 \*SHOALEST SOUNDING PER QUARTER PER REACH

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 SOUNDINGS FOR THE OUTSIDE CHANNEL (100 FT. WIDE) TAKEN BY FATHOMETER. THE INSIDE CHANNEL (60 FT. WIDE) TAKEN BY LEADLINE, AND ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.  
 SOUNDINGS ARE BASED ON THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY.  
 THE PROJECT DEPTH IS 15 FEET FROM ENTRANCE AT THE MARE ISLAND CAUSEWAY TO ASYLUM SLOUGH, THENCE 10 FEET TO HEAD OF NAVIGATION.  
 VERTICAL CONTROLS:  
 0+00 TO 175+00 - NRFP4 - 30.54ft - USACE - RTK BASE STATION TRANSECT 11 - 6.593m MLLW - USACE - MLLW LEVELED FROM 20 AND TIDAL 5 FROM TIDE STATION 941 5623 ON 3/29/2012.  
 176+00 TO 224+00 - NAPA01 - 2.652m MLLW - 29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.  
 225+00 TO 640+00 - NAPA02 - 3.653m MLLW - 28.241m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.  
 641+00 TO 692+00 - NAPA03 - 3.553m MLLW - 28.416m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. TRANSFERRED FROM BM 5218 J 1976 VIA RTK ON 4/10/2012 PID PENDING.

CALIFORNIA  
 NAPA COUNTY  
**NAPA RIVER  
 UPPER NAPA  
 CONDITION SURVEY  
 09 AUGUST 2022**

**Sheet  
 Reference  
 Number  
 2 of 25**





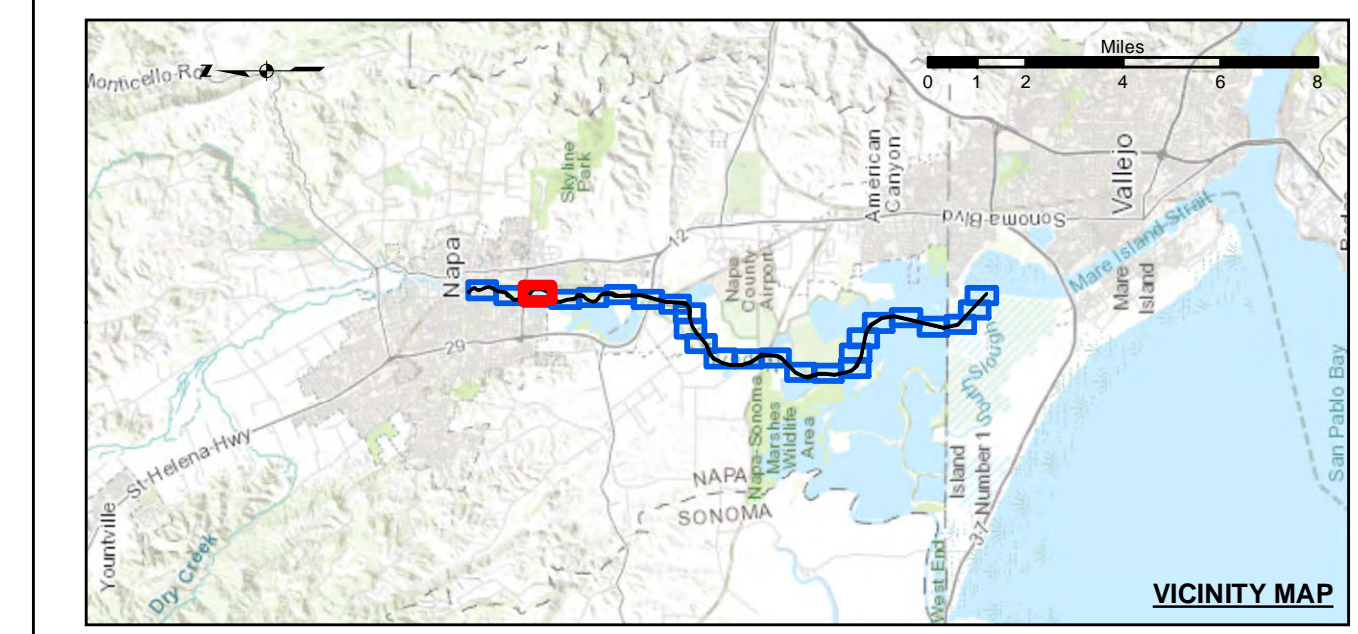
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 San Francisco District  
 450 Market Street  
 San Francisco, CA 94102

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Chart Date:	Aug 28, 2022
Designed by:	PDT
Drawn by:	PDT
Checked by:	PDT
Approved:	Chief, Construction Branch

CALIFORNIA  
 NAPA COUNTY  
**NAPA RIVER  
 UPPER NAPA  
 CONDITION SURVEY  
 09 AUGUST 2022**

**Sheet  
 Reference  
 Number  
 3 of 25**

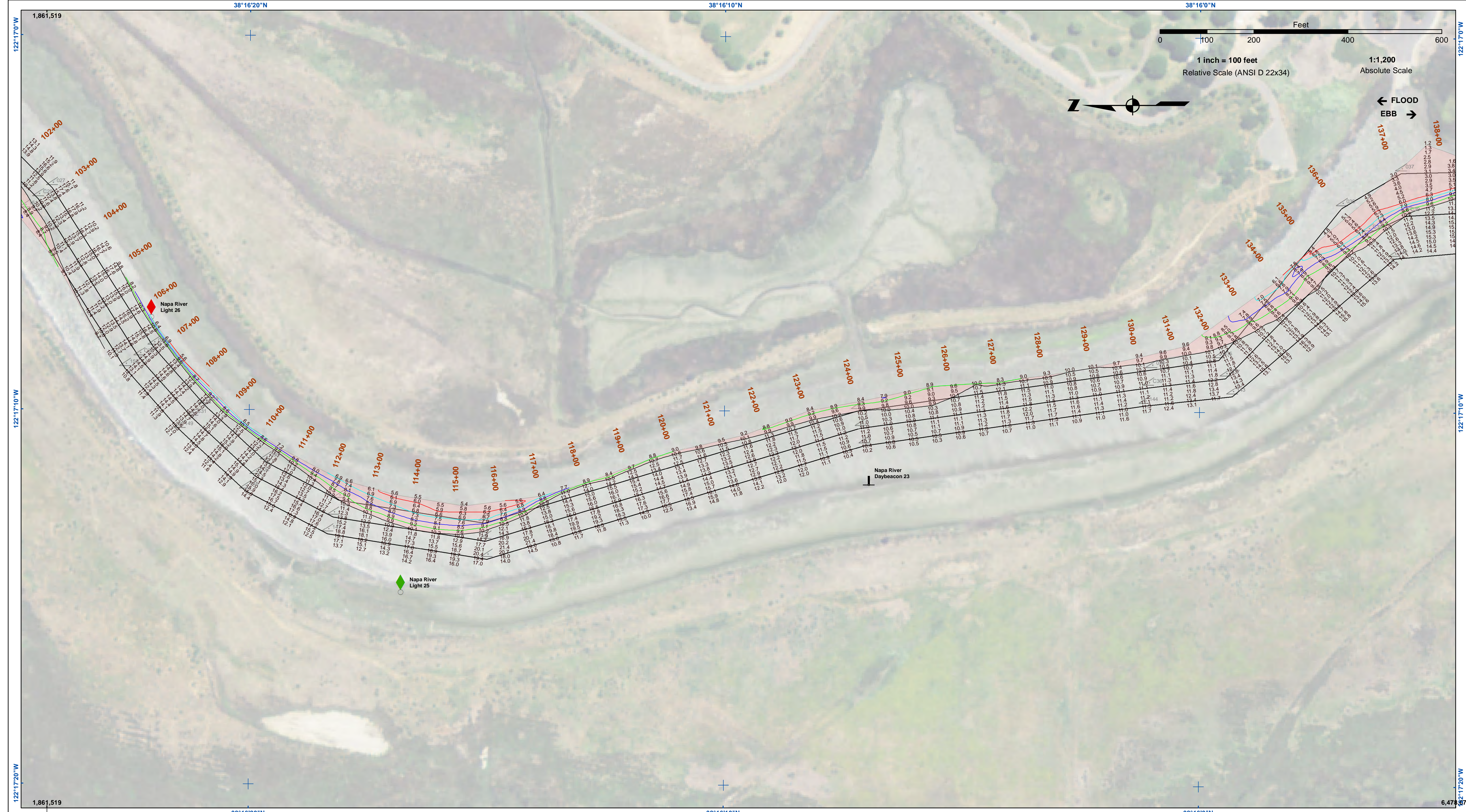


Federal Navigation Channel	Beacon, General	<b>Contours</b>
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		
Angle Point		-10
		-9
		-8
		-7
		-6

**NOTES:**  
 HORIZONTAL COORDINATE SYSTEM:  
 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.  
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 176+00 TO 224+00 - NAPA01 - 2.652m MLLW - 29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED FROM TRANSECT 11 AND NRFP4 USING RTK OBSERVATIONS PID PENDING.  
 225+00 TO 640+00 - NAPA02 - 3.653m MLLW - 28.241m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.  
 641+00 TO 692+00 - NAPA03 - 3.553m MLLW - 28.416m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. TRANSFERRED FROM BM 5218 J 1976 VIA RTK ON 4/10/2012 PID PENDING.





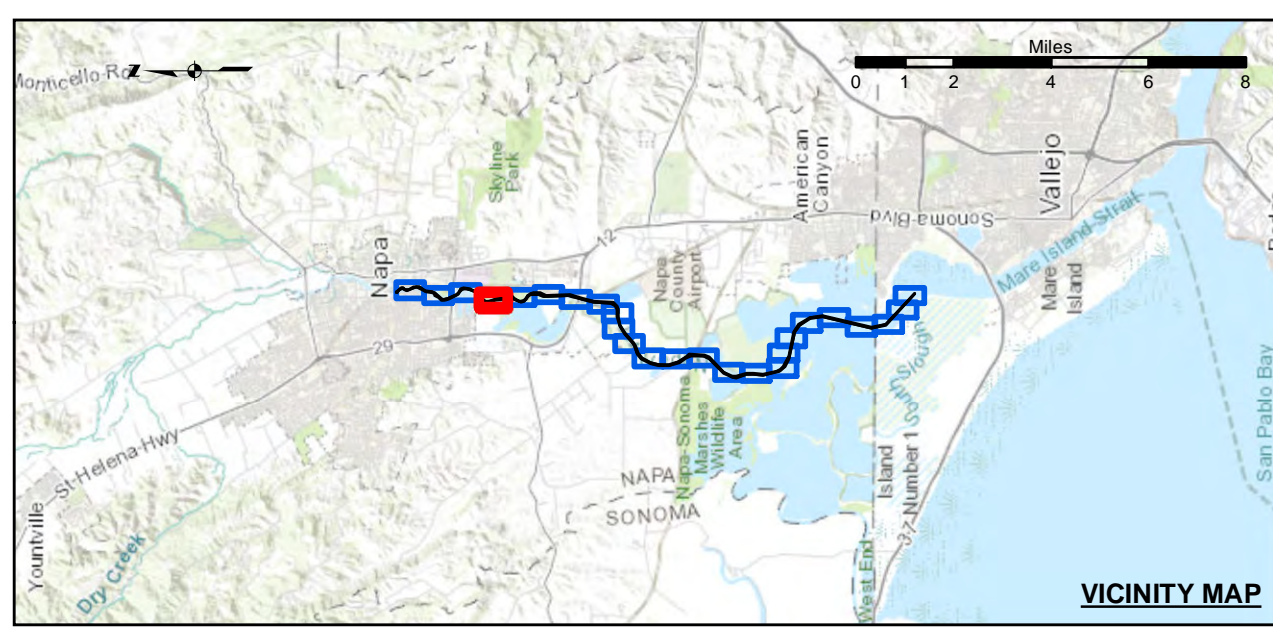
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Prepared Under the Direction of	Chart Date:
LT COLONEL C.E. ARNETT	Aug 26, 2022
Submitted:	Plotted By:
Hydro Survey Team Leader	PDT
Recommended:	Checked By:
Chief, Hydro Survey Section	PDT
Approved:	Drawn by:
Chief, Construction Branch	PDT

CALIFORNIA  
 NAPA COUNTY  
**NAPA RIVER**  
 UPPER NAPA  
 CONDITION SURVEY  
 09 AUGUST 2022

**Sheet**  
**Number**  
**4 of 25**



Federal Navigation Channel	Beacon, General	<b>Contours</b>
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
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Wreck Area	Shoalest Sounding*	
Submerged Wreck		
Angle Point		-10
		-9
		-8
		-7
		-6

**NOTES:**  
 HORIZONTAL COORDINATE SYSTEM:  
 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.  
 VERTICAL DATUM:  
 SOUNDINGS ARE SHOWN IN FEET AND INDICATE DEPTHS BELOW MEAN LOWER LOW WATER.  
 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY CONDUCTED ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED TO REPRESENT THE GENERAL CONDITION EXISTING AT THAT TIME.  
 PLANE GRID, BEARING AND COORDINATES ARE BASED ON THE STATE OF CALIFORNIA COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE II NAD 83, CALIFORNIA, AS DESCRIBED IN SPECIAL PUBLICATION NO. 235, PUBLISHED BY NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE, WASHINGTON, D.C. 20543.  
 \*SHOALEST SOUNDING PER QUARTER PER REACH

DRAWING NOT TO BE USED FOR NAVIGATION. ONLY CHANNEL CONDITION AT DATE OF SURVEY.  
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON INFORMATION PROVIDED BY THE U.S. COAST GUARD. BUOY LOCATIONS REPRESENT THE POSITION OF THE SINKER ONLY. SOUNDINGS FOR THE OUTSIDE CHANNEL (10 FT. WIDE) TAKEN BY FATHOMETER. THE INSIDE CHANNEL (60 FT. WIDE) TAKEN BY LEADLINE, AND ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT. SOUNDINGS ARE BASED ON THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY.  
 THE PROJECT DEPTH IS 15 FEET FROM ENTRANCE AT THE MARE ISLAND CAUSEWAY TO ASYLUM SLOUGH, THENCE 10 FEET TO HEAD OF NAVIGATION.  
 VERTICAL CONTROLS:  
 0+00 TO 175+00 - NRFP4 - 30.54ft - USACE - RTK BASE STATION TRANSECT 11 - 6.593m MLLW - USACE - MLLW LEVELED FROM 20 AND TIDAL 5 FROM TIDE STATION 941 5623 ON 3/29/2012.  
 176+00 TO 224+00 - NAPA01 - 2.652m MLLW - 29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED FROM TRANSECT 11 AND NRFP4 USING RTK OBSERVATIONS PID PENDING.  
 225+00 TO 640+00 - NAPA02 - 3.653m MLLW - 28.241m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED BY INTERPOLATING ELEVATIONS BETWEEN NOAA TIDE STATIONS 941 5623 AND 941 5218 PID PENDING.  
 641+00 TO 692+00 - NAPA03 - 3.553m MLLW - 28.416m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. TRANSFERRED FROM BM 5218 J 1976 VIA RTK ON 4/10/2012 PID PENDING.

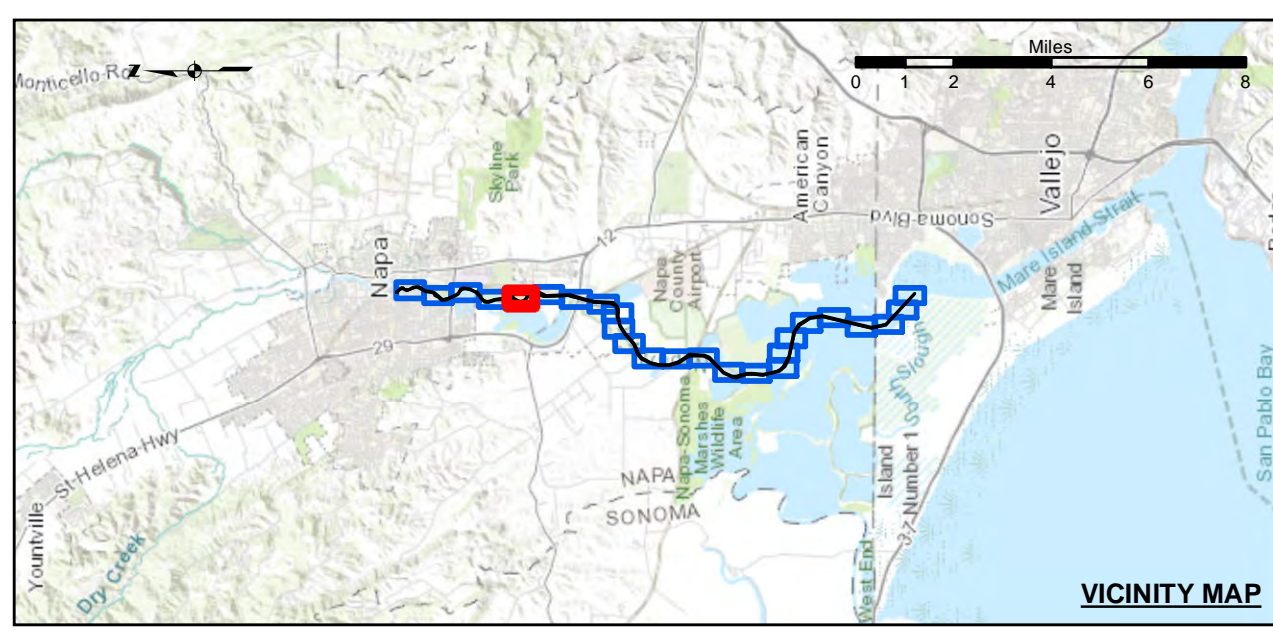




**US Army Corps of Engineers**  
 San Francisco District  
 450 Market Street  
 San Francisco, CA 94102

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Prepared Under the Direction of:	Chart Date:
KEVIN P. ARNETT	Aug 26, 2022
Submittal:	Plotted By:
Hydro Survey Team Leader	PDT
Recommended:	Checked By:
Chief, Hydro Survey Section	PDT
Approved:	Drawn by:
Chief, Construction Branch	PDT



Federal Navigation Channel	Beacon, General	<b>Contours</b>
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		
Angle Point		-10
		-9
		-8
		-7
		-6

**NOTES:**  
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CALIFORNIA  
 NAPA COUNTY  
 NAPA RIVER  
 UPPER NAPA  
 CONDITION SURVEY  
 09 AUGUST 2022

**Sheet Number**  
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