

US Army Corps of Engineers
 San Francisco District
 1455 Market Street
 San Francisco, CA 94103

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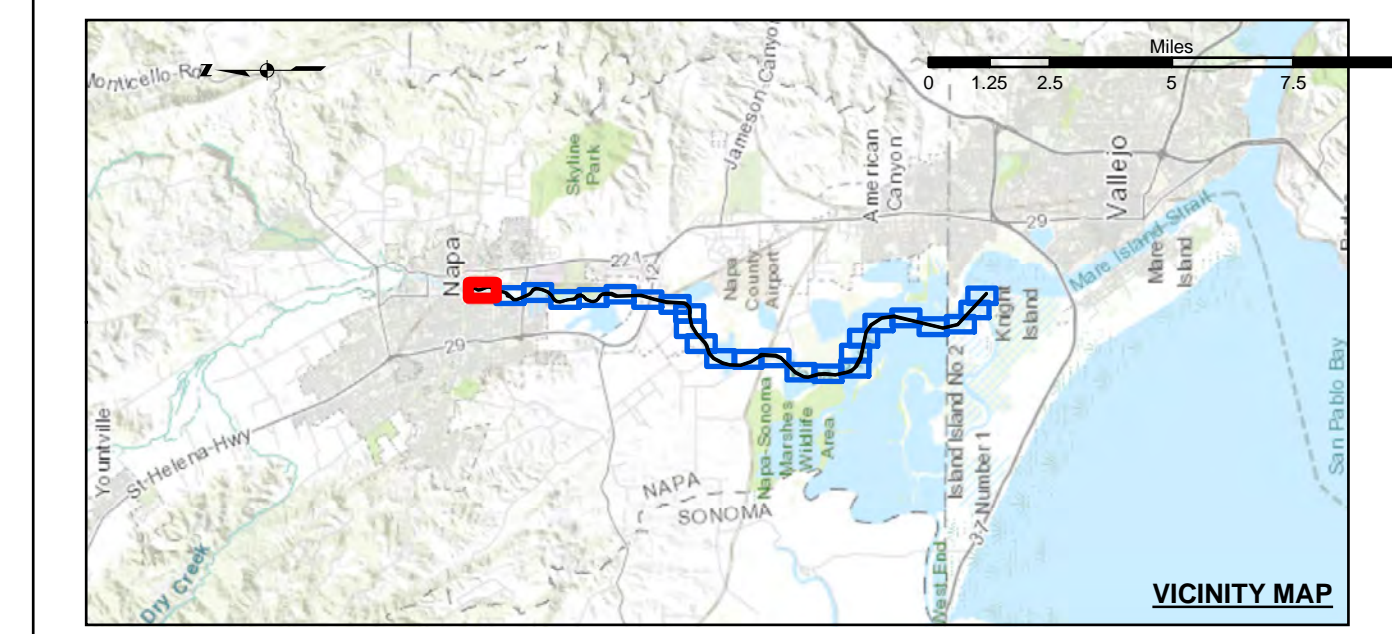
Chart Date: May 15, 2018
Designed by: [Name]
Plotted by: [Name]
Checked by: [Name]
Drawn by: [Name]
PDT

NAD 83 CHANNEL ANGLE POINTS

Δ PT	X	Y	Δ PT	X	Y	Δ PT	X	Y
1	6048873.57	2300464.64	47	6048520.47	2285146.44	83	6048298.27	2255227.24
2	6050024.67	2298956.64	48	6048530.77	2284491.14	84	6048298.27	2255227.24
3	6050023.27	2298929.34	49	6048528.77	2284491.14	85	6048298.27	2255227.24
4	6050030.17	2299203.14	50	6048528.77	2284491.14	86	6048298.27	2255227.24
5	6050350.27	2299393.14	51	6048528.77	2284491.14	87	6048298.27	2255227.24
6	6050326.57	2299292.84	52	6048528.77	2284491.14	88	6048298.27	2255227.24
7	6050223.27	2299176.84	53	6048528.77	2284491.14	89	6048298.27	2255227.24
8	6050162.57	2299074.94	54	6048528.77	2284491.14	90	6048298.27	2255227.24
9	6050130.67	2298957.84	55	6048528.77	2284491.14	91	6048298.27	2255227.24
10	6050155.67	2298964.34	56	6048528.77	2284491.14	92	6048298.27	2255227.24
11	6050374.67	2298200.34	57	6048528.77	2284491.14	93	6048298.27	2255227.24
12	6050438.67	2297901.34	58	6048528.77	2284491.14	94	6048298.27	2255227.24
13	6050400.67	2297791.34	59	6048528.77	2284491.14	95	6048298.27	2255227.24
14	6049956.67	2298886.34	60	6048528.77	2284491.14	96	6048298.27	2255227.24
15	6049852.97	2298190.84	61	6048528.77	2284491.14	97	6048298.27	2255227.24
16	6049747.67	2297876.34	62	6048528.77	2284491.14	98	6048298.27	2255227.24
17	6049207.67	2295116.54	63	6048528.77	2284491.14	99	6048298.27	2255227.24
18	6049027.67	2294825.54	64	6048528.77	2284491.14	100	6048298.27	2255227.24
19	6049193.67	2294461.94	65	6048528.77	2284491.14	101	6048298.27	2255227.24
20	6049335.67	2293521.84	66	6048528.77	2284491.14	102	6048298.27	2255227.24
21	6049375.67	2293266.34	67	6048528.77	2284491.14	103	6048298.27	2255227.24
22	6050093.67	2293038.34	68	6048528.77	2284491.14	104	6048298.27	2255227.24
23	6050217.67	2292725.34	69	6048528.77	2284491.14	105	6048298.27	2255227.24
24	6049409.27	2291022.14	70	6048528.77	2284491.14	106	6048298.27	2255227.24
25	6049065.77	2291124.14	71	6048528.77	2284491.14	107	6048298.27	2255227.24
26	6049743.97	2291348.14	72	6048528.77	2284491.14	108	6048298.27	2255227.24
27	6049817.67	2291022.14	73	6048528.77	2284491.14	109	6048298.27	2255227.24
28	6049065.77	2290811.74	74	6048528.77	2284491.14	110	6048298.27	2255227.24
29	6049399.07	2290703.64	75	6048528.77	2284491.14	111	6048298.27	2255227.24
30	6049817.67	2290767.74	76	6048528.77	2284491.14	112	6048298.27	2255227.24
31	6049817.67	2290767.74	77	6048528.77	2284491.14	113	6048298.27	2255227.24
32	6049817.67	2290767.74	78	6048528.77	2284491.14	114	6048298.27	2255227.24
33	6049817.67	2290767.74	79	6048528.77	2284491.14	115	6048298.27	2255227.24
34	6049817.67	2290767.74	80	6048528.77	2284491.14	116	6048298.27	2255227.24
35	6049817.67	2290767.74	81	6048528.77	2284491.14	117	6048298.27	2255227.24
36	6049817.67	2290767.74	82	6048528.77	2284491.14	118	6048298.27	2255227.24
37	6049817.67	2290767.74	83	6048528.77	2284491.14	119	6048298.27	2255227.24
38	6049817.67	2290767.74	84	6048528.77	2284491.14	120	6048298.27	2255227.24
39	6049817.67	2290767.74	85	6048528.77	2284491.14	121	6048298.27	2255227.24
40	6049817.67	2290767.74	86	6048528.77	2284491.14	122	6048298.27	2255227.24
41	6049817.67	2290767.74	87	6048528.77	2284491.14	123	6048298.27	2255227.24
42	6049817.67	2290767.74	88	6048528.77	2284491.14	124	6048298.27	2255227.24
43	6049817.67	2290767.74	89	6048528.77	2284491.14	125	6048298.27	2255227.24
44	6049817.67	2290767.74	90	6048528.77	2284491.14	126	6048298.27	2255227.24
45	6049817.67	2290767.74	91	6048528.77	2284491.14	127	6048298.27	2255227.24
46	6049817.67	2290767.74	92	6048528.77	2284491.14	128	6048298.27	2255227.24
47	6049817.67	2290767.74	93	6048528.77	2284491.14	129	6048298.27	2255227.24
48	6049817.67	2290767.74	94	6048528.77	2284491.14	130	6048298.27	2255227.24

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	2284522.54
4	6050271.37	2299503.04	52	6049174.77	2283897.14
5	6050311.17	2299391.54	53	6049217.17	2283556.14
6	6050292.17	2299310.24	54	6049197.67	2283111.14
7	6050197.07	2299199.14	55	6048772.57	2278989.04
8	6050127.97	2299090.24	56	6048459.07	2276600.14
9	6050092.67	2298961.04	57	6048330.67	2276710.44
10	6050118.97	2298894.14	58	6048294.17	2276638.34
11	6050338.87	2298188.64	59	6048169.37	2276408.44
12	6050401.67	2297999.54	60	6047894.27	2276160.84
13	6050367.67	2297903.34	61	6047623.37	2276056.44
14	6049910.47	2296588.44	62	6046811.77	2276063.44
15	6049815.77	2296196.14	63	6046539.37	2275853.54
16	6049676.67	2295893.84	64	6046485.07	2275332.84
17	6049882.67	2295148.04	65	6046398.17	2274481.04
18	6049882.67	2294828.44	66	6046367.37	2274290.34
19	6049086.27	2294466.14	67	6046262.97	2274015.64
20	6049513.87	2294370.84	68	6046224.97	2273548.24
21	6049887.17	2293288.84	69	6046159.97	2271799.04
22	6049758.67	2293221.34	70	6046147.37	2270633.54
23	6050063.67	2292349.34	71	60461810.47	2269525.54
24	6050148.17	2292728.04	72	6046231.97	2268710.44
25	6050106.67	2292401.94	73	60462548.77	2268303.34
26	6050023.67	2292331.54	74	6046244.67	2268252.54
27	6049793.57	2291537.54	75	60462192.87	2266237.54
28	6049713.07	2291370.44	76	60460576.77	2264701.24
29	6049396.07	2291051.84	77	6046108.67	2263779.14
30	6049403.67	2290942.14	78	6046006.57	2263326.34
31	6048913.27	2290730.74	79	6046038.97	2262189.24
32	6048787.07	2290599.04	80	6046389.57	2261457.14
33	6048680.67	2290434.04	81	6046281.07	2260362.14
34	6048680.67	2290111.84	82	60460584.77	2258826.14
35	6048688.27	2289308.54	83	6046071.47	2258575.64
36	6048944.07	2288695.24	84	60461138.77	2258117.74
37	6048961.77	2288529.24	85	60462103.77	2257586.34
38	6048625.67	2288221.44	86	6046485.17	2256990.04
39	6049301.07	2288140.84	87	6046612.07	2256415.04
40	6049313.67	2287847.84	88	6046343.47	2255244.34
41	6049319.17	2287770.74	89	6046451.47	2253886.04
42	6049221.17	2287579.04	90	6046515.57	2248600.64
43	6048813.67	2287282.24	91	6046551.07	2247016.84
44	6048666.17	2286782.04	92	6046819.87	2243829.54
45	6048637.77	2286523.44			
46	6048702.07	2286224.34			
47	6048999.87	2285997.74			
48	6049258.67	2285762.84			



Legend

- Federal Navigation Channel
- Shoaling Area
- Placement Area
- Anchorage Area
- Wreck Area
- Submerged Wreck
- Angle Point
- Beacon, General
- Obstruction Point
- Navigation Buoy
- Navigation Buoy
- Navigation Buoy
- Shoalest Sounding*

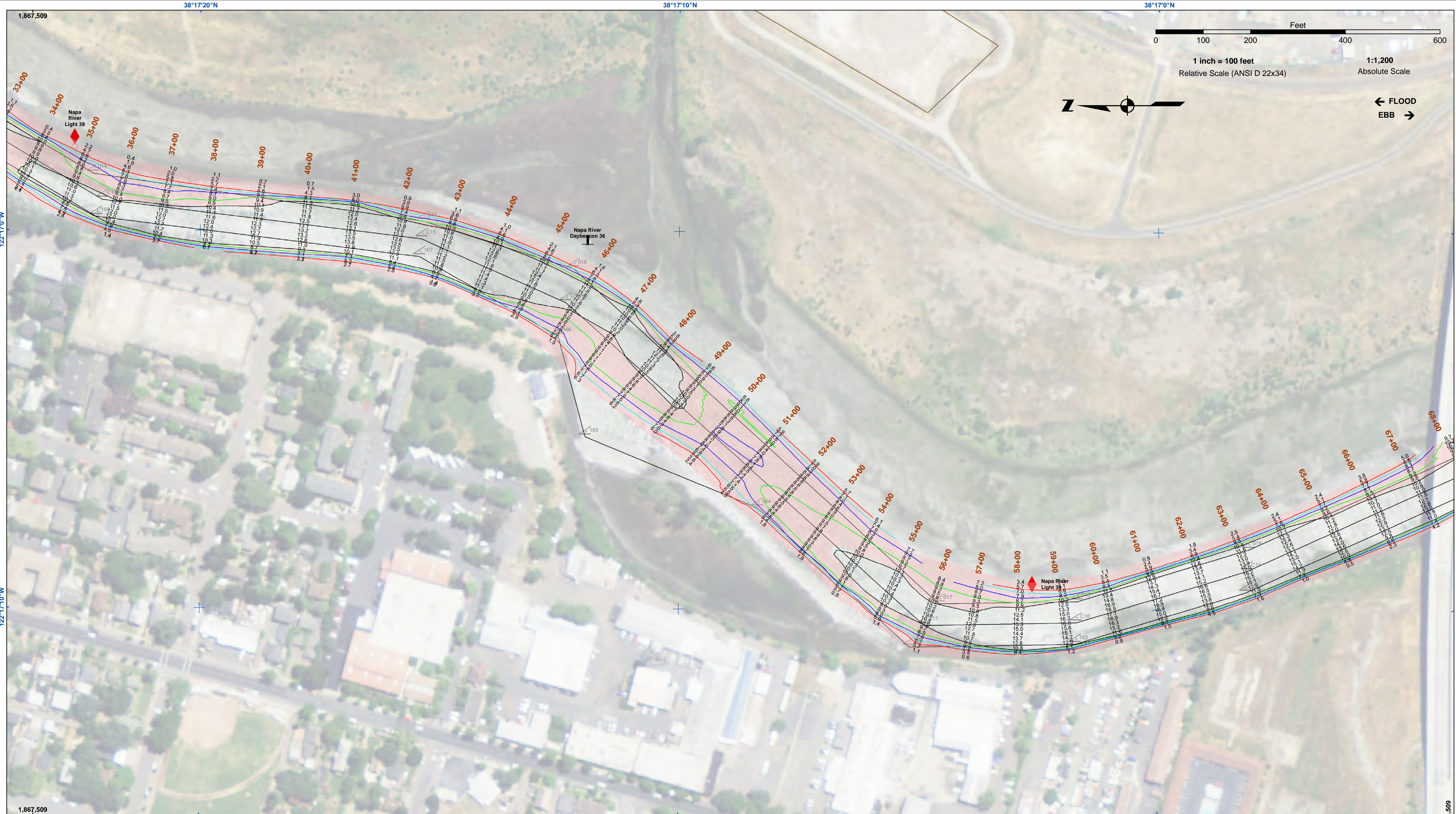
Contours

- 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. 20541.
 *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 LEAD, 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, NAVD 88.
 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 17+00 - NRRP4 - 30.54ft NAVD88 - 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.
 1760+00 TO 224+00 - NAPA001 - 2.652m MLLW, -29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED FROM TRANSECT 11 AND NRRP4 USING RTK OBSERVATIONS PID PENDING.
 225+00 TO 640+00 - NAPA002 - 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 - NAPA003 - 3.553m MLLW -28.161m 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 CHANNEL
 CONDITION SURVEY
 9-10 MAY 2018
Sheet Reference Number
 1 of 25

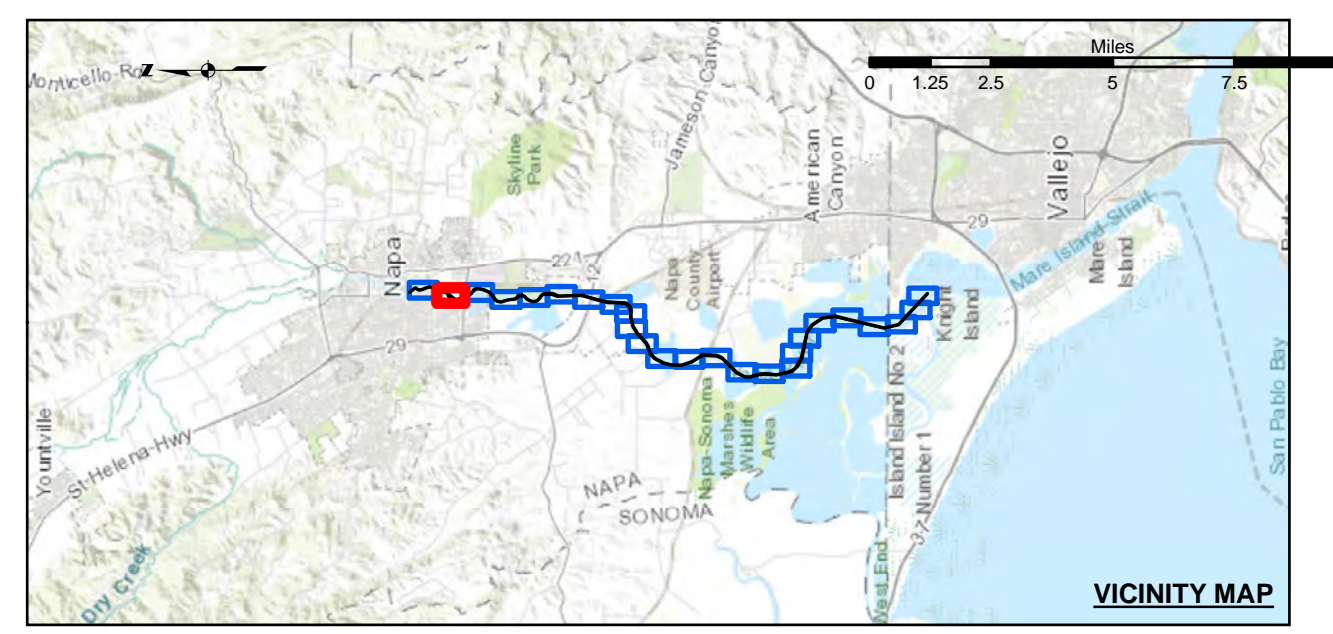


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Prepared Under the Direction of	Chart Date:	May 15, 2018
LT COLONEL C.E. DISTRICT ENGINEER	Designed by:	
Subplot:	Plotted by:	PDT
Hydro Survey Team Leader	Checked by:	PDT
Chief, Hydro Survey Section	Drawn by:	PDT
Approved:		
Chief, Construction Branch		

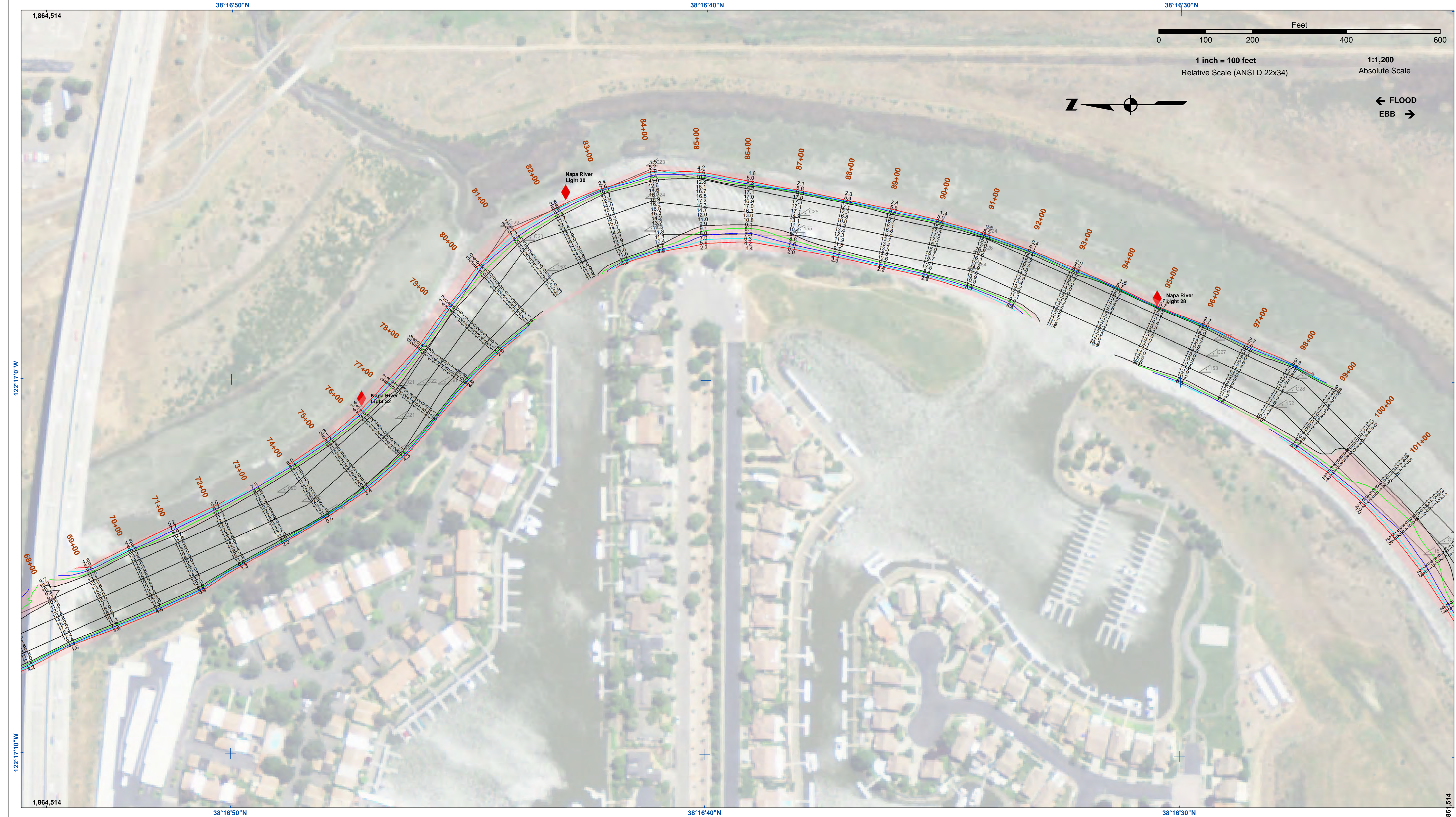
CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER CHANNEL
 CONDITION SURVEY**
 9-10 MAY 2018



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

NOTES:
 HORIZONTAL COORDINATE SYSTEM:
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 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 NAVD88 - 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.
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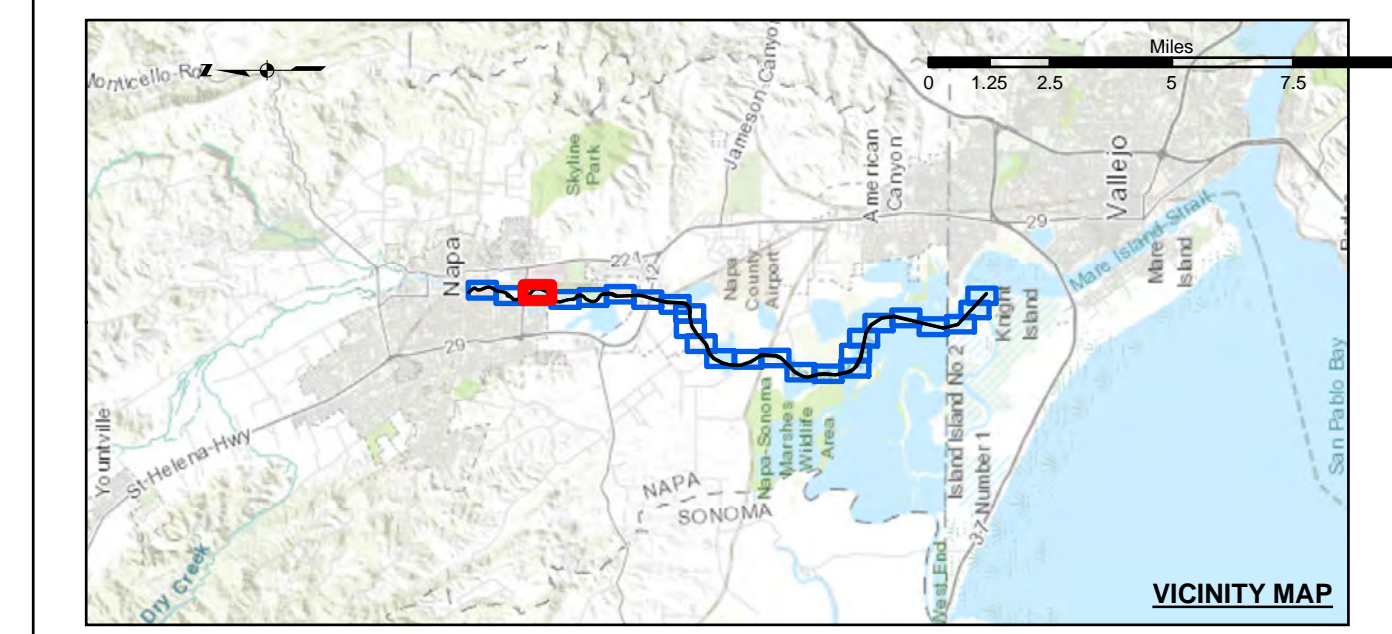
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Prepared Under the Direction of	Chart Date:	May 15, 2018
LT. COLONEL, C.E. DISTRICT ENGINEER	Surveyed By:	PDT
Subproject: Hydro Survey Team Leader	Plotted By:	PDT
Recommended: Chief, Hydro Survey Section	Checked By:	PDT
Approved: Chief, Construction Branch	Drawn by:	PDT

CALIFORNIA
NAPA RIVER
UPPER CHANNEL
CONDITION SURVEY
 9-10 MAY 2018

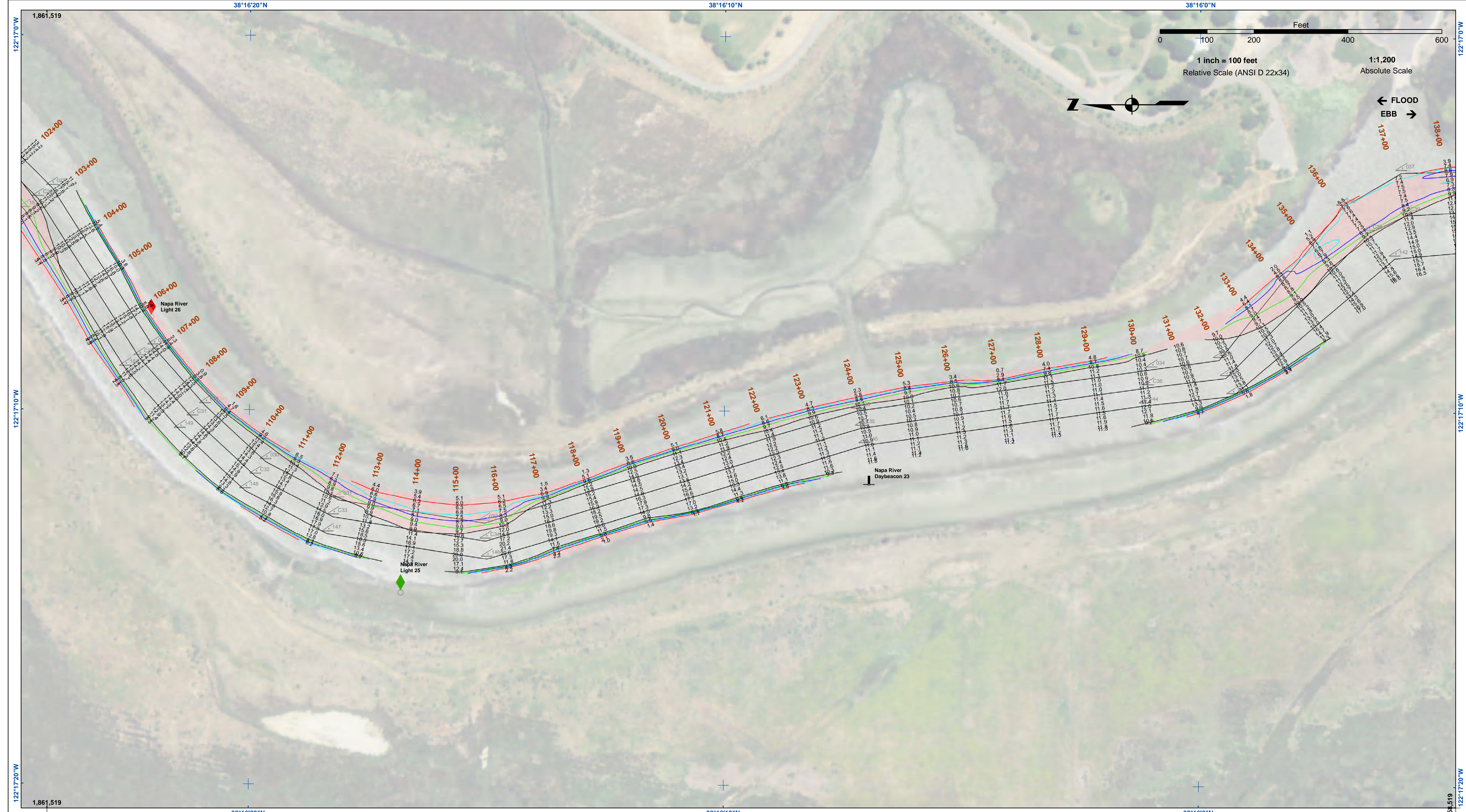
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Reference
Number
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Federal Navigation Channel	Beacon, General	-10
Shoaling Area	Obstruction Point	-9
Placement Area	Navigation Buoy	-8
Anchorage Area	Navigation Buoy	-7
Wreck Area	Shoalest Sounding*	-6
Submerged Wreck		
Angle Point		

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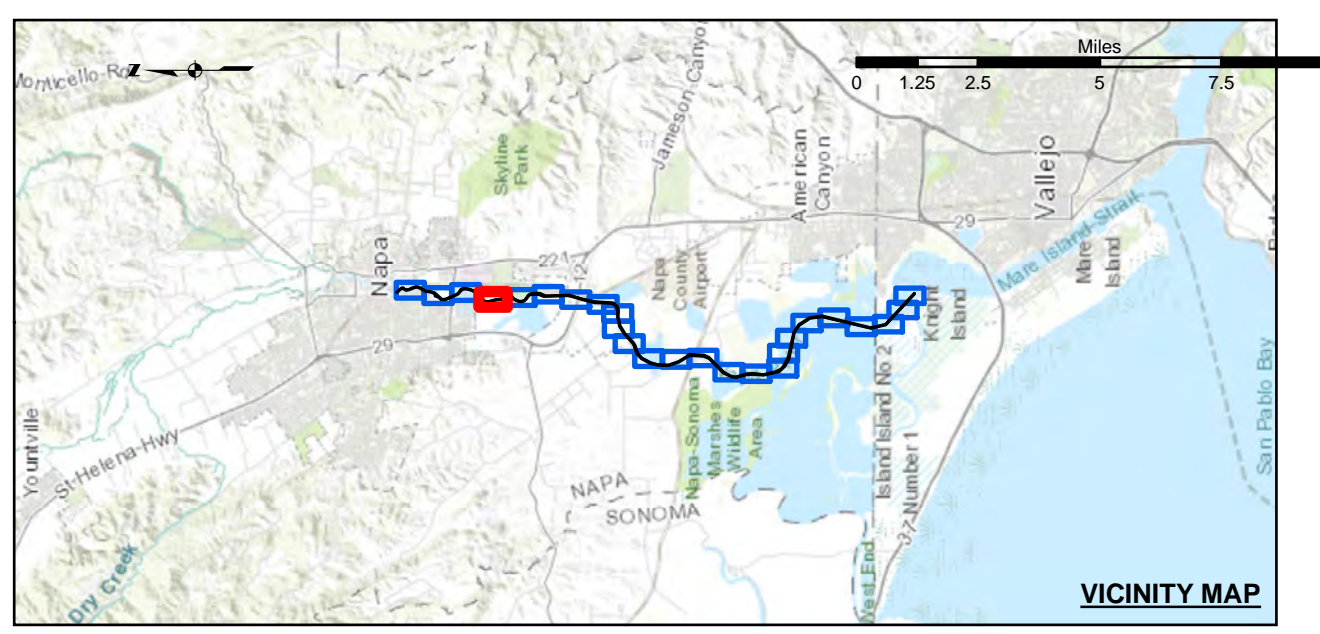
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LT COLONEL C.E. DISTRICT ENGINEER	May 15, 2018
Submitted	Designed by:
Hydro Survey Team Leader	PDT
Recommended	Checked by:
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Approved	Drawn by:
Chief, Construction Branch	PDT

CALIFORNIA
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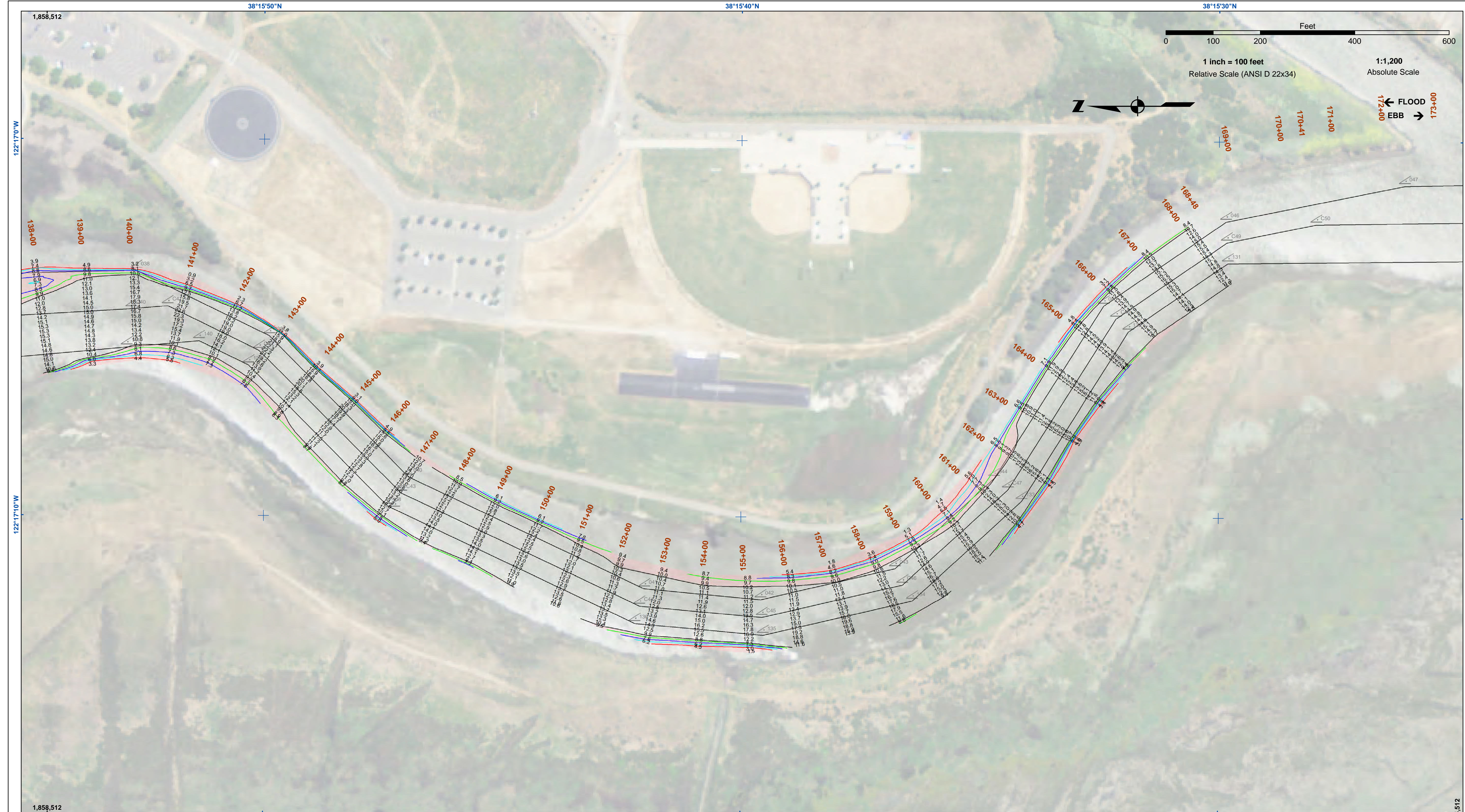
Sheet Reference Number
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 NORTH AMERICAN DATUM OF 1983 (NAD83), PROJECTED TO THE STATE PLANE COORDINATE SYSTEM (SPCS), CALIFORNIA ZONE II. DISTANCE UNITS IN U.S. SURVEY FEET.
 VERTICAL DATUM:
 SOUNDINGS ARE SHOWN IN FEET AND INDICATE DEPTHS BELOW MEAN 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 OCEAN SURVEY. 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 LOCATION PROVIDED BY THE U.S. COAST GUARD. BUOY LOCATIONS REPRESENT THE POSITION OF THE SINKER ONLY. 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, NAVD 88.
 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 - NRRFP4 - 30.54ft NAVD88 - 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 - NAPAR01 - 2.652m MLLW, -29.111m WGS-84 - USACE - RTK BASE STATION WGS-84 ELEVATION FROM OPUS SOLUTION MLLW ELEV. CALCULATED FROM TRANSECT 11 AND NRRFP4 USING RTK OBSERVATIONS PID PENDING.
 225+00 TO 640+00 - NAPAR02 - 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 - NAPAR03 - 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.



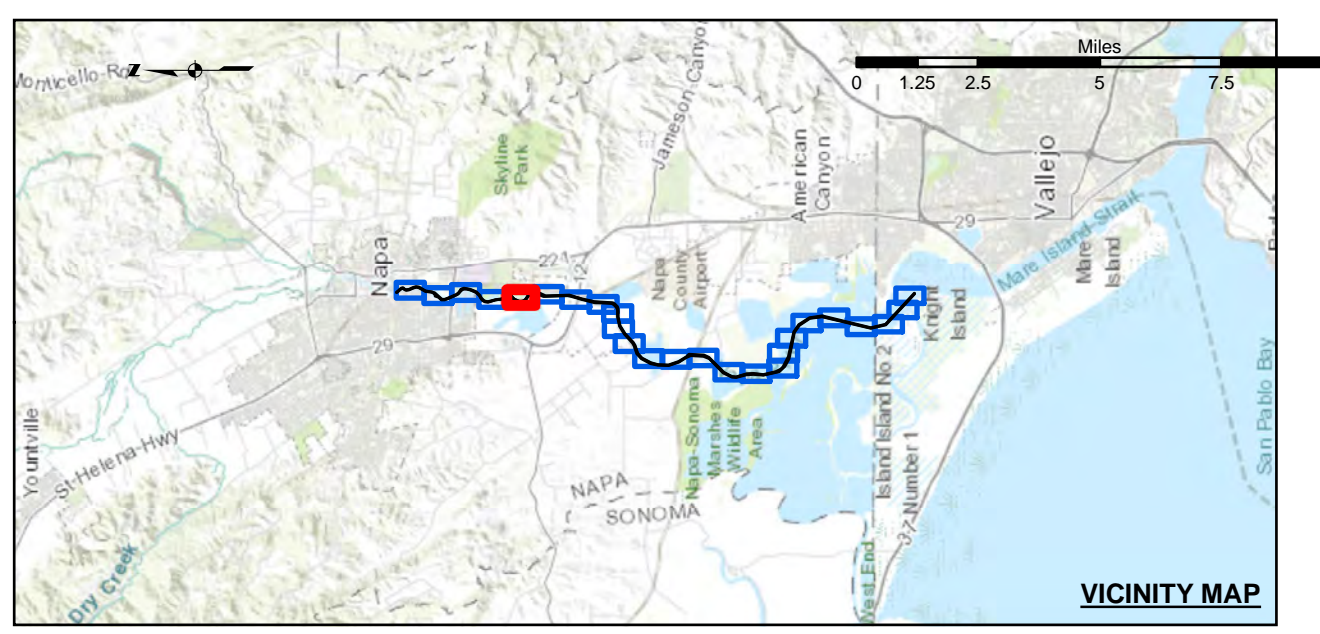
US Army Corps of Engineers
 San Francisco District
 1455 Market Street
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Prepared Under the Direction of	Chart Date
LT COLONEL J. RAYFIELD	May 15, 2018
Subject	Plotted By
Hydro Survey Team Leader	PDT
Recommended	Checked By
Chief, Hydro Survey Section	PDT
Approved	Drawn by
Chief, Construction Branch	PDT

CALIFORNIA
 NAPA COUNTY
**NAPA RIVER
 UPPER CHANNEL
 CONDITION SURVEY**
 9-10 MAY 2018

**Sheet
 Reference
 Number**
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- | | | |
|----------------------------|--------------------|-----|
| Federal Navigation Channel | Beacon, General | -10 |
| Shoaling Area | Obstruction Point | -9 |
| Placement Area | Navigation Buoy | -8 |
| Anchorage Area | Navigation Buoy | -7 |
| Wreck Area | Shoalest Sounding* | -6 |
| Submerged Wreck | | |
| Angle Point | | |

NOTES:
 HORIZONTAL COORDINATE SYSTEM:
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