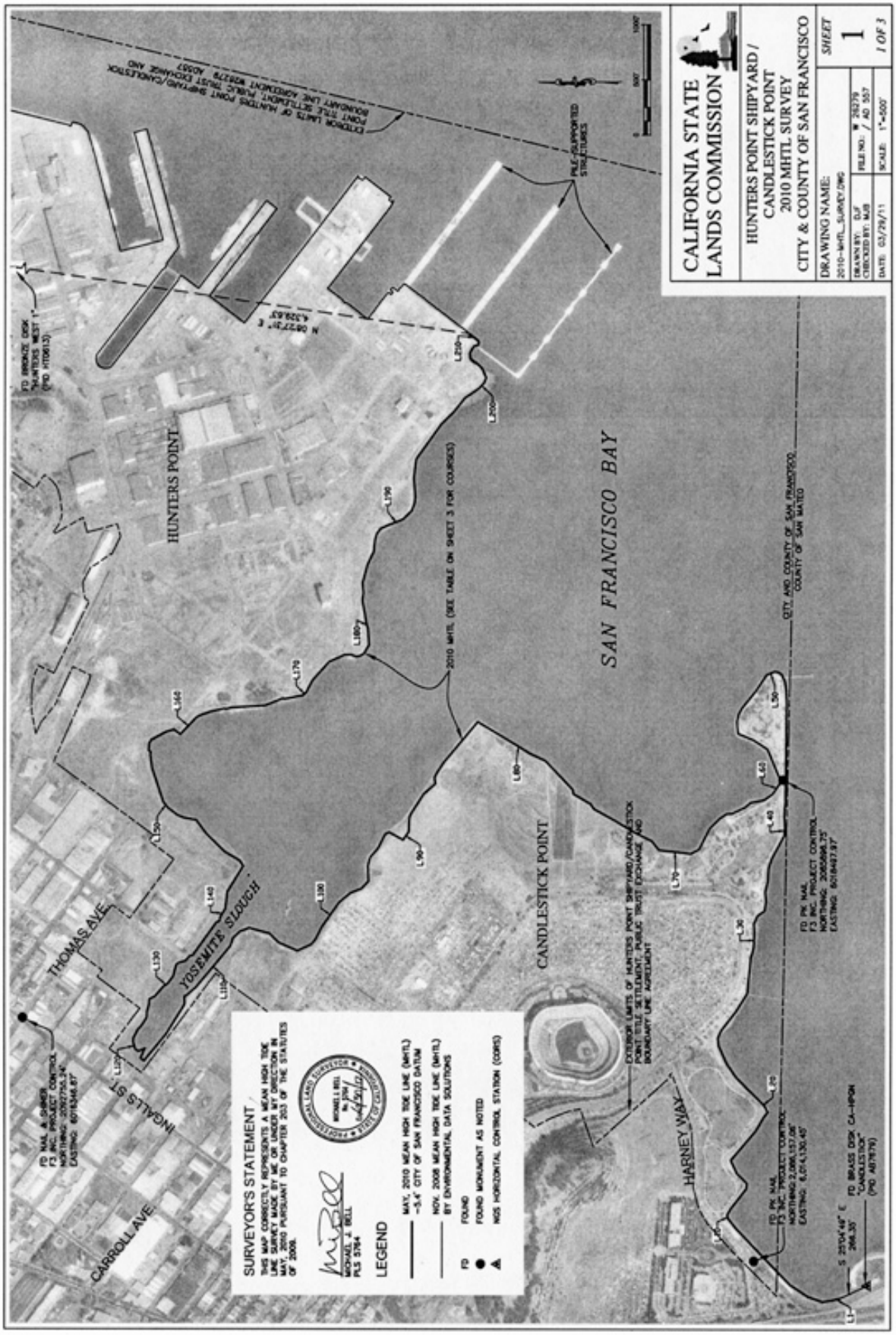
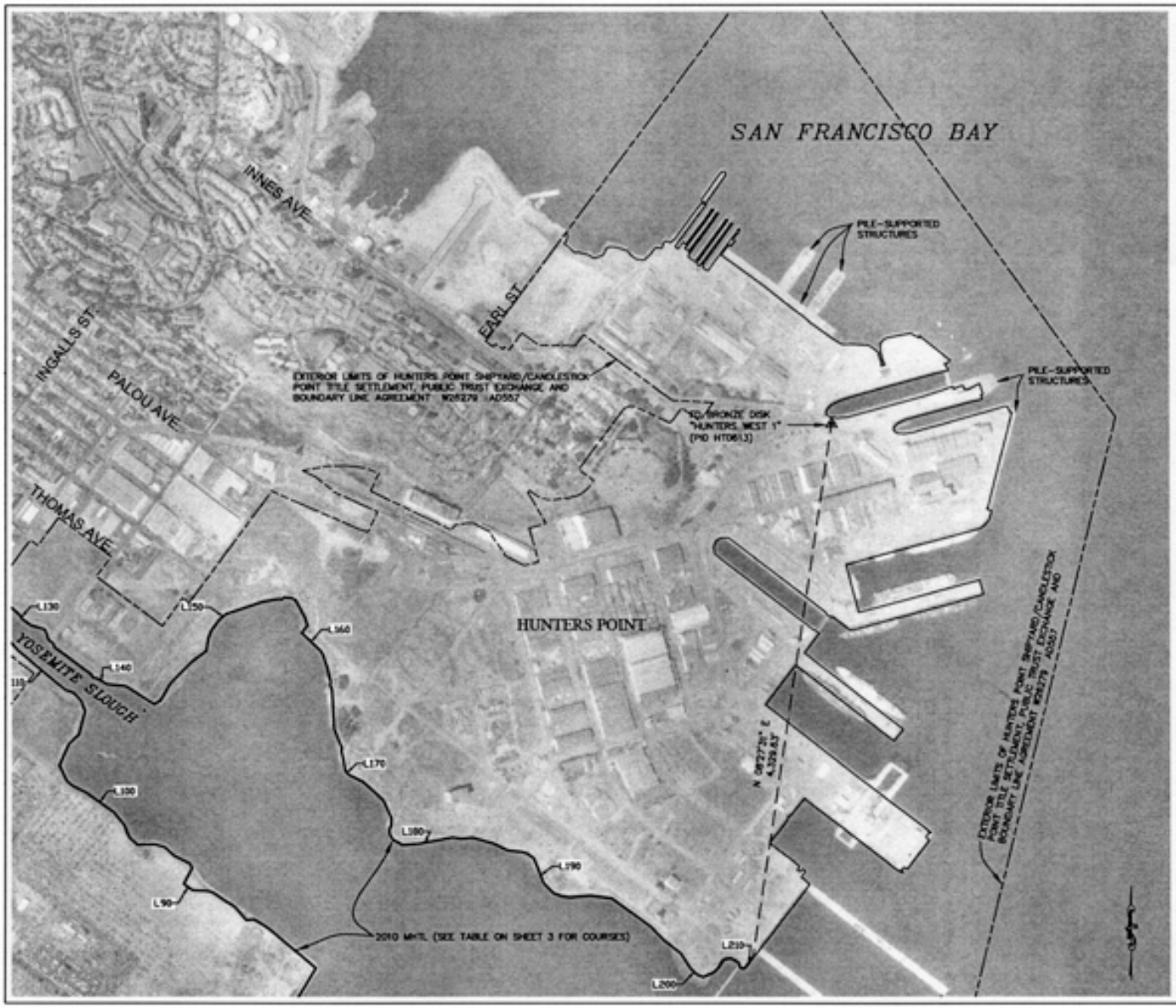

CALIFORNIA STATE LANDS COMMISSION
HUNTERS POINT SHIPYARD / CANDLESTICK POINT 2010 MHTL SURVEY
CITY & COUNTY OF SAN FRANCISCO
DRAWING NAME: 2010-MHTL_SURVEY.DWG
DRAWN BY: DJF
CHECKED BY: MJB
FILE NO.: W 26279 / AD 557
DATE: 03/29/11
SCALE: 1"=500'
SHEET 1 1 OF 3
SAN FRANCISCO BAY
HUNTERS POINT
CANDLESTICK POINT
YOSEMITE SLOUGH
THOMAS AVE
INGALLS ST
CARROLL AVE
HARNEY WAY
2010 MHTL (SEE TABLE ON SHEET 3 FOR COURSES)
PILE-SUPPORTED STRUCTURES
SURVEYOR'S STATEMENT
THIS MAP CORRECTLY REPRESENTS A MEAN HIGH TIDE LINE SURVEY MADE BY ME OR UNDER MY DIRECTION IN MAY, 2010 PURSUANT TO CHAPTER 253 OF THE STATUTES OF 2009.
MICHAEL J. BELL
PLS 5764
LEGEND
MAY, 2010 MEAN HIGH TIDE LINE (MHTL)
~5.4' CITY OF SAN FRANCISCO DATUM
NOV. 2008 MEAN HIGH TIDE LINE (MHTL)
BY ENVIRONMENTAL DATA SOLUTIONS
FD FOUND
FOUND MONUMENT AS NOTED
NGS HORIZONTAL CONTROL STATION (CORS)



BASIS OF BEARINGS

THE BASIS OF BEARINGS OF THIS SURVEY IS PER PROJECT CONTROL PROVIDED BY F-3 INC. AND BASED UPON BOOK AA OF MAPS AT PAGES 49 – 58, OFFICIAL RECORDS OF THE CITY AND COUNTY OF SAN FRANCISCO. THE BEARING IS COMPUTED AS N 49°33'40" E BETWEEN FOUND MONUMENTS "CANDLESTICK", AS SHOWN ON SAID MAP, BEING NATIONAL GEODETIC SURVEY PID AB7679, AND NATIONAL GEODETIC SURVEY "HUNTER WEST 1", PID HT0613.

HUNTER WEST 1 – N: 2093015.80' E: 6023166.76'

CANDLESTICK – N: 2085127.77' E: 6013911.05'

BENCH MARK

THE BENCHMARK FOR THIS SURVEY IS NATIONAL GEODETIC SURVEY STATION "HUNTER WEST 1", PID HT0613, BEING A 3.5" BRASS DISK STAMPED "HUNTER WEST 1 1941" IN A MONUMENT WELL AT HUNTERS POINT SHIPYARD. THE ELEVATION OF THIS POINT TAKEN TO BE –0.33 FEET, CITY OF SAN FRANCISCO DATUM.

MEAN HIGH TIDE LINE STATEMENT

THE ELEVATION OF THE MEAN HIGH TIDE LINE (1983 – 2001 TIDAL EPOCH) IS TAKEN TO BE –5.4 FEET CITY OF SAN FRANCISCO (CCSF) DATUM FOR THE PURPOSE OF THIS SURVEY.

THIS ELEVATION WAS DETERMINED WITH THE AID OF N.O.S. BENCH MARK SHEETS FOR STATIONS "HUNTERS POINT, SAN FRANCISCO BAY", STATION ID 9414358, AND "ALAMEDA, CA", STATION ID 9414750. THE EPOCH DIFFERENCE OF 0.16 FEET AT "ALAMEDA, CA" WAS APPLIED TO THE 1960 – 1978 TIDAL EPOCH FOR "HUNTERS POINT, SAN FRANCISCO BAY" TO CALCULATE A MHW ELEVATION OF –5.4 FEET CCSF DATUM.

SURVEY PROCEDURE

THE 2010 MHTL SURVEY WAS PERFORMED BY HJW GEOSPATIAL, INC. USING PHOTOGRAMMETRIC METHODS CONSISTENT WITH A 1"=20', 0.5' CONTOUR INTERVAL SURVEY, BASED ON GROUND CONTROL PROVIDED BY STATE LANDS SURVEY CREWS USING LEICA AT502 ANTENNAS AND LEICA SR530 GPS RECEIVERS, EMPLOYING RTK GPS PROCEDURES.

SURVEY CREWS PERFORMING THE 2010 MHTL SURVEY WERE DENIED ACCESS TO THE IMPROVED SHORELINE OF THE SHIPYARD DUE TO DANGEROUS CONDITIONS. THE RELIABILITY OF THE NOV. 2008 MHTL SHOWN HEREON WAS CHECKED USING ORTHORECTIFIED DIGITAL ORTHO QUARTER QUAD IMAGERY AND ORIGINAL CONSTRUCTION DRAWINGS FOR THE HUNTERS POINT NAVAL SHIPYARD.

BASE IMAGERY

DOQQ IMAGE (37122F3–NW, 37122F4–NE);
OBTAINED FROM CAL-ATLAS : http://www.atlas.ca.gov/
REPRODUCTION DATE 5/16/1995

CALIFORNIA STATE LANDS COMMISSION

HUNTERS POINT SHIPYARD / CANDLESTICK POINT
2010 MHTL SURVEY
CITY & COUNTY OF SAN FRANCISCO

DRAWING NAME: 2010-MHTL_SURVEY.DWG		SHEET 2
DRAWN BY: DJF CHECKED BY: MJB	FILE NO.: W 25279 / AD 557	
DATE: 03/29/11	SCALE: 1"=500'	2 OF 3

EXHIBIT P, PG 2 OF 3

Line Table		
Line #	Length	Direction
N: 2,085,369.01' E: 6,013,795.15'		
L1	83.516	N19° 09' 34.28"W
L2	88.840	N07° 20' 52.77"W
L3	137.522	N19° 15' 58.03"E
L4	191.955	N33° 24' 19.51"E
L5	258.590	N46° 10' 49.74"E
L6	191.929	N46° 03' 46.09"E
L7	178.118	N47° 01' 46.88"E
L8	93.405	N46° 53' 36.10"E
L9	131.495	N51° 58' 44.75"E
N: 2,086,387.89' E: 6,014,518.54'		
L10	34.016	N68° 55' 33.83"E
L11	66.812	S50° 14' 55.23"E
L12	232.907	S51° 55' 01.59"E
L13	47.139	S86° 36' 38.50"E
L14	126.715	N44° 36' 46.84"E
L15	130.449	N65° 11' 24.95"E
L16	353.041	S49° 51' 20.93"E
L17	148.899	S60° 21' 52.91"E
L18	50.102	S50° 56' 46.67"E
L19	57.915	N65° 50' 39.53"E
N: 2,086,056.36' E: 6,015,537.12'		
L20	45.029	N47° 25' 29.41"E
L21	328.246	N45° 19' 05.43"E
L22	148.001	N55° 59' 34.73"E
L23	181.817	N65° 04' 42.55"E
L24	67.657	N83° 04' 32.66"E
L25	74.540	S66° 02' 19.60"E
L26	227.733	S52° 17' 31.18"E
L27	184.092	S58° 46' 27.38"E
L28	321.079	S84° 03' 33.40"E
L29	100.898	S74° 29' 13.10"E
N: 2,086,160.75 E: 6,016,980.37		
L30	39.234	S87° 34' 47.75"E
L31	73.223	N86° 16' 16.90"E
L32	82.030	S66° 25' 42.67"E
L33	74.900	S33° 06' 54.63"E
L34	88.864	S80° 49' 36.93"E
L35	84.799	N84° 12' 37.19"E
L36	109.127	S78° 21' 28.69"E
L37	116.944	S86° 45' 38.96"E
L38	85.754	S71° 03' 40.57"E
L39	243.241	S61° 42' 54.15"E
N: 2,085,883.07 E: 6,017,998.86		

Line Table		
Line #	Length	Direction
L40	90.188	S89° 15' 47.60"E
L41	60.681	N86° 33' 04.18"E
L42	136.967	S84° 48' 47.44"E
L43	143.745	N89° 52' 49.61"E
L44	258.103	S89° 15' 04.86"E
L45	93.568	N87° 32' 08.70"E
L46	75.249	N81° 53' 11.42"E
L47	76.595	N67° 47' 31.37"E
L48	37.637	N37° 00' 51.37"E
L49	36.535	N12° 02' 10.62"E
N: 2,085,974.12' E: 6,019,477.11'		
L50	80.475	N23° 49' 36.68"W
L51	170.646	N56° 46' 44.14"W
L52	202.517	N50° 52' 56.69"W
L53	68.322	N60° 30' 40.10"W
L54	66.852	N79° 51' 13.28"W
L55	103.946	S84° 45' 31.23"W
L56	147.552	S22° 43' 30.00"W
L57	148.787	S37° 24' 36.70"W
L58	35.705	S60° 42' 06.32"W
L59	285.596	S67° 37' 56.06"W
N: 2,085,915.63' E: 6,018,481.46'		
L60	133.660	N56° 40' 18.65"W
L61	96.915	N33° 54' 57.59"W
L62	170.665	N40° 35' 03.42"W
L63	70.057	N39° 45' 24.21"W
L64	128.719	N25° 21' 30.61"W
L65	45.969	N02° 39' 23.30"W
L66	74.939	N33° 46' 16.43"W
L67	131.538	N44° 37' 42.60"W
L68	214.054	N63° 00' 08.39"W
L69	82.792	N25° 57' 18.26"W
N: 2,086,731.61' E: 6,017,830.46'		
L70	287.559	N06° 18' 57.12"E
L71	105.709	N51° 46' 29.71"E
L72	170.451	N26° 49' 58.95"E
L73	271.378	N30° 41' 17.41"E
L74	205.381	N29° 06' 53.00"E
L75	52.949	N57° 10' 11.80"E
L76	185.710	N31° 03' 38.83"E
L77	35.138	N86° 16' 50.44"E
L78	361.955	N46° 41' 43.14"E
L79	191.845	N24° 30' 36.43"E
N: 2,088,179.96' E: 6,018,735.00'		

Line Table		
Line #	Length	Direction
L80	249.061	N31° 48' 30.01"E
L81	304.127	N31° 03' 55.70"E
L82	471.993	N49° 57' 14.00"W
L83	132.369	N56° 40' 45.50"W
L84	34.353	N63° 27' 30.61"W
L85	58.653	S80° 58' 13.03"W
L86	145.160	N41° 06' 20.51"W
L87	217.851	N57° 38' 11.25"W
L88	41.788	N76° 02' 27.27"W
L89	118.052	N87° 21' 20.57"W
N: 2,089,276.19' E: 6,018,024.69'		
L90	86.206	N54° 08' 16.81"W
L91	143.371	N28° 07' 01.66"E
L92	38.105	N23° 50' 03.70"W
L93	147.719	N63° 18' 09.28"W
L94	102.442	N48° 45' 36.32"W
L95	82.967	N73° 45' 56.83"W
L96	142.017	S87° 57' 00.88"W
L97	88.350	N47° 27' 44.34"W
L98	105.849	N21° 06' 18.68"W
L99	133.668	N39° 25' 26.92"W
N: 2,089,902.05' E: 6,017,388.46'		
L100	278.798	N54° 40' 10.84"W
L101	118.720	N63° 28' 51.84"W
L102	58.301	N50° 11' 27.49"W
L103	139.043	N24° 39' 37.61"W
L104	185.938	N23° 33' 09.85"E
L105	114.080	N45° 46' 50.81"E
L106	189.612	N15° 08' 46.33"E
L107	90.446	N20° 43' 25.46"W
L108	85.499	N45° 34' 37.38"W
L109	72.872	N71° 40' 08.25"W
N: 2,090,882.46' E: 6,016,997.46'		
L110	493.584	N50° 16' 35.08"W
L111	104.065	N41° 10' 22.38"W
L112	21.562	N20° 00' 11.74"W
L113	74.791	N89° 26' 18.81"W
L114	319.312	N58° 35' 07.20"W
L115	320.192	N50° 32' 43.14"W
L116	39.277	N38° 53' 46.84"E
L117	95.978	S65° 51' 01.20"E
L118	51.809	N22° 12' 36.92"W
L119	32.697	N23° 18' 53.29"E
N: 2,091,742.16' E: 6,016,055.06'		

Line Table		
Line #	Length	Direction
L120	70.324	N74° 37' 34.36"E
L121	36.835	S86° 25' 22.43"E
L122	87.303	S67° 53' 30.61"E
L123	52.658	S46° 15' 39.75"E
L124	80.763	S57° 58' 22.58"E
L125	54.967	S87° 26' 29.98"E
L126	73.010	S72° 50' 03.60"E
L127	46.428	S86° 32' 52.98"E
L128	52.733	S24° 42' 58.37"E
L129	128.863	S46° 30' 11.92"E
N: 2,091,481.20' E: 6,016,633.28'		
L130	39.410	S33° 29' 39.50"E
L131	80.725	S57° 56' 25.01"E
L132	109.313	S75° 14' 25.68"E
L133	20.055	S45° 43' 06.28"E
L134	76.456	S17° 32' 57.20"E
L135	52.100	S5° 30' 05.24"E
L136	30.824	S17° 16' 08.15"E
L137	366.344	S55° 56' 09.01"E
L138	29.703	S22° 10' 48.13"E
L139	28.357	S86° 14' 07.69"E
N: 2,090,978.04' E: 6,017,248.14'		
L140	92.165	S58° 56' 51.17"E
L141	154.513	S83° 27' 11.11"E
L142	275.349	S58° 17' 52.10"E
L143	58.292	N58° 03' 25.76"E
L144	162.233	N30° 56' 24.39"E
L145	232.911	N44° 56' 03.66"E
L146	151.836	N53° 18' 14.85"E
L147	117.895	N10° 47' 19.97"E
L148	82.519	N22° 11' 51.74"E
L149	108.884	N37° 37' 20.28"E
N: 2,091,447.03' E: 6,018,243.84'		
L150	71.982	N51° 42' 05.35"E
L151	311.714	N71° 32' 35.70"E
L152	131.944	N81° 06' 19.89"E
L153	19.431	S73° 48' 50.51"E
L154	26.737	N47° 25' 33.77"E
L155	67.312	S84° 46' 50.82"E
L156	32.356	S60° 21' 50.86"E
L157	155.078	S78° 46' 47.08"E
L158	69.711	S17° 14' 00.28"E
L159	73.439	S36° 35' 51.15"W
N: 2,091,339.81' E: 6,018,911.41'		

Line Table		
Line #	Length	Direction
L160	210.630	S46° 19' 23.55"E
L161	33.644	S29° 50' 20.15"E
L162	100.655	S18° 29' 15.93"E
L163	123.003	S15° 03' 02.53"E
L164	31.217	S01° 40' 10.15"W
L165	51.312	S14° 34' 05.48"E
L166	295.898	S03° 08' 28.07"E
L167	173.895	S22° 00' 26.99"E
L168	12.638	S32° 52' 13.75"W
L169	168.908	S11° 17' 11.36"E
N: 2,090,236.66' E: 6,019,261.41'		
L170	40.973	S39° 15' 32.23"E
L171	122.786	S62° 56' 20.69"E
L172	223.690	S48° 07' 43.61"E
L173	154.492	S24° 24' 18.33"E
L174	54.157	S01° 19' 45.28"E
L175	49.644	S20° 12' 02.27"W
L176	35.355	S07° 00' 01.29"E
L177	45.852	S29° 39' 05.07"E
L178	91.031	S60° 50' 45.09"E
L179	144.73'	N85° 33' 41.01"E
N: 2,089,650.25' E: 6,019,861.99'		
L180	67.861	N77° 07' 42.65"E
L181	186.977	N79° 50' 39.34"E
L182	63.338	S80° 23' 19.16"E
L183	91.206	N84° 10' 51.24"E
L184	173.869	S74° 40' 04.80"E
L185	132.866	S64° 10' 08.14"E
L186	104.747	S84° 52' 14.73"E
L187	55.663	S73° 30' 24.93"E
L188	60.404	S53° 19' 12.13"E
L189	82.231	S24° 08' 06.94"E
N: 2,089,458.93' E: 6,020,804.75'		
L190	135.370	S21° 36' 40.82"E
L191	112.961	S44° 26' 42.24"E
L192	74.999	S70° 06' 48.40"E
L193	60.805	S83° 17' 58.59"E
L194	163.894	N85° 00' 37.98"E
L195	175.130	S82° 54' 02.45"E
L196	388.101	S55° 41' 38.63"E
L197	158.962	S44° 19' 32.11"E
L198	156.308	S51° 43' 21.38"E
L199	151.738	S33° 39' 10.23"E
N: 2,088,645.97' E: 6,022,031.52'		

Line Table		
Line #	Length	Direction
L200	74.265	S47° 44' 33.45"E
L201	48.089	S69° 43' 43.32"E
L202	91.517	N65° 55' 26.86"E
L203	61.467	N45° 10' 18.47"E
L204	69.973	N33° 50' 21.15"E
L205	56.484	N78° 42' 37.63"E
L206	76.125	S59° 39' 24.83"E
L207	36.817	S12° 47' 03.56"E
L208	23.614	S68° 39' 55.36"E
L209	20.348	N68° 13' 55.40"E
L210	100.845	N38° 13' 33.14"E
N: 2,088,733.76' E: 6,022,525.90'		

SOURCE OF MHTL DATA

THE 2010 MHTL SHOWN ON THIS MAP IS A GENERALIZED VERSION OF MORE DETAILED DATA AVAILABLE IN DIGITAL FORM FROM THE CALIFORNIA STATE LANDS COMMISSION.

CALIFORNIA STATE LANDS COMMISSION

HUNTERS POINT SHIPYARD / CANDLESTICK POINT
2010 MHTL SURVEY
CITY & COUNTY OF SAN FRANCISCO

DRAWING NAME: 2010 MHTL SURVEY.DWG		SHEET 3
DRAWN BY: DHF CHECKED BY: MJB	FILE NO.: W 26279 / AD 557	
DATE: 06/29/11	SCALE: N/A	3 OF 3

EXHIBIT P, PG 3 OF 3