COUNTY OF MARIN
DEPARTMENT OF PUBLIC WORKS

PARADISE CAY - COUNTY SERVICE AREA NO. 29
2020 MAINTENANCE DREDGING
TIBURON, CALIFORNIA
PROJECT # 2018-14
PLAN # CSA 29-18-01

DREDGING MUST BE COMPLETED BY NOVEMBER 30, 2020.
REFER TO SPECIFICATION PACKAGE FOR EEL GRASS EXTENTS AS WELL AS DETAILS OF AND EXTENTS OF DATUM ADJUSTMENTS.
ENGINEER PROVISIONS FOR THIS PROJECT.
LOCATION OF WATERWAY/CHANNEL BOTTOM IS DEPICTED ON PLAN SHEETS 2, 3, & 4.
CONDITION SURVEY SOUNDINGS BASED ON THE DATUM OF MEAN LOWER LOW WATER (MLLW).
CONDITION SURVEY HORIZONTAL POSITIONING DATA ACQUIRED BY TRIMBLE SP461 WITH USCG VERTICAL CONTROL FOR CONDITION SURVEY SOUNDINGS ACHIEVED WITH A LOCAL TIDAL BENCHMARK (TBM) ESTABLISHED WITH A 1.5 INCH BRASS CAP STAMPED "96", ELEVATION 10.43" MLLW ('83-'01 EPOCH).
LEAST 48 HOURS BEFORE DIGGING. PHONE 1-800-642-2444.
94114837, LOCATED AT POINT CHAUNCEY, AND IS DERIVED USING RTK METHODOLOGY AND VERTICAL ZONE III (NAD83).
NOTE:
The contractor shall possess Class "A" license.

CALE USA NORTH UNDERGROUND SERVICE ALERT AT LEAST 48 HRS IN ADVANCE OF WORK - 1-800-642-2444.
NOTES

1. BATHYMETRY SURVEYED BY WAKAMATSU & BRYANT ASSOCIATES, INC. ON APRIL 16, 2020.

2. SOUNDINGS ARE BASED ON MAIN LOWER LOW WATER VERTICAL DATUM.

3. PLAN ITEMS MARKED AND COORDINATES ARE BASED ON THE CALIFORNIA CONFORMAL SYSTEM - LAMBERT CONFORMAL PROJECTION, ZONE 15 (NAD83) AS DEFINED IN SPECIFIC PUBLICATION NO. 253 PUBLISHED BY THE NATIONAL NORADCON SURVEY.

4. SOUNDINGS WERE ACQUIRED BY A 10 CONDUIT MULTIBEAM TRANSDUCER OR MANUALLY WITH A POLE. SOUNDINGS ARE SHOWN TO THE NEAREST TENTH OF A FOOT. VERTICAL CONTROLS ARE A LOCAL TIDE BASED 1.3 NAVIGATION CHART. THE NAVIGATION CHART IS RELIABLE TO SPOT.

5. BEGINNING SOUNDER LOCATED ON A STONE CRUZ CASTLE MINE IN THE EASTERN CHANNEL NEAR THE NORTHERN END OF THE DREDGING AREA. THE SOUNDER ON THE WEST END IS BASED ON THE COAST CHART BOUNDARY AT "TIDE 11" MARK ADOPTED IN 1962. LOCATIONS OF POINT CHANGES, AND OTHER DETAILS OF GENERAL DEFAULGANCE ARE APPROPRIATE.

6. MULTIBEAM DATA, HOVERING POINTS ACQUIRED BY TRIMBLE SURVEY WITH U.S. COAST GUARD DREPUBLICAL NAVIGATION AND HARDS TO THE POINTS ON THE NAVIGATION CHART. LOCATIONS ARE APPROPRIATE.

7. ALL MULTIBEAM SURVEY DATA ACQUIRED WITH POLE SOUNDER. POLE SOUNDER ARE SHOWN ON DRAWING WITH SYMBOLIZED TEXT.

8. THE NAVIGATION INFORMATION SHOWN ON THIS DRAWING IS BASED ON SURVEYS MADE ON THE ENTIRE AREA INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME.

9. THE SOUNDINGS ARE PROVIDED IN FEET BOLUS MAIN LOWER LOW WATER DATUM.

10. LOCATIONS OF PARSE, SOCIAL, SURVEY IN AND OTHER PLAN ITEMS ARE APPROXIMATIONS IN NAVIGATION AND ARE BASED ON NAVIGATION SHOWN ON SURVEY PLANS, ALTHOUGH BASED ON BOLUS DATA AND AREA. NAVIGATION PROVIDED BY WAKAMATSU & BRYANT ASSOCIATES, INC.

SOUNDINGS LEGEND

OUTER CHANNEL DESIGN DREDGE ELEVATION (Fe) (SOUTH ENTRANCE CHANNEL)
INNER CHANNELS DESIGN DREDGE ELEVATION (Fe) (SOUTH WATERWAY)

PAVILION CAY - CSA NO. 29
COUNTY OF MARIN
DEPARTMENT OF PUBLIC WORKS

2020 MAINTENANCE DREDGING
TIBURON, CALIFORNIA

PLAN VIEW SOUTH ENTRANCE CHANNEL CONDITION SURVEY

APPROVED

HALEY AND AIKEN

ENGINEERS-OF-RECORD
### Dredge Quantities Summary

<table>
<thead>
<tr>
<th>Channel</th>
<th>Dredge Elevation (MLLW)</th>
<th>Square Footage (SF)</th>
<th>Volume (Yards)</th>
<th>Paid Overdredge @ 0.5 FT</th>
<th>Unpaid Overdredge @ 0.5 FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Entrance Channel</td>
<td>-8.5</td>
<td>536</td>
<td>2.94</td>
<td>-</td>
<td>536</td>
</tr>
<tr>
<td>North Channel</td>
<td>-8.5</td>
<td>536</td>
<td>2.94</td>
<td>-</td>
<td>536</td>
</tr>
<tr>
<td>Channel A</td>
<td>-7.5</td>
<td>193</td>
<td>1.06</td>
<td>-</td>
<td>193</td>
</tr>
<tr>
<td>Channel B</td>
<td>-7.5</td>
<td>136</td>
<td>0.76</td>
<td>-</td>
<td>136</td>
</tr>
<tr>
<td>Channel C</td>
<td>-7.5</td>
<td>136</td>
<td>0.76</td>
<td>-</td>
<td>136</td>
</tr>
<tr>
<td>Channel D</td>
<td>-7.5</td>
<td>136</td>
<td>0.76</td>
<td>-</td>
<td>136</td>
</tr>
<tr>
<td>Channel E</td>
<td>-8.5</td>
<td>536</td>
<td>2.94</td>
<td>-</td>
<td>536</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>390,064</td>
<td>23,487</td>
<td></td>
<td>18,722</td>
</tr>
</tbody>
</table>

**Notes:**
1. Haley & Aldrich, Inc. (H&A) has computed the estimated volumes presented in the table. Volume calculations are based on surveys performed by engineers of record associated with H&A, and assumed dredge prism.
3. Overdepth assumptions for inside waterways and channels a; 0.5-foot overdepth calculated on transition prism at dock face, 2h:1v or vertical prism at dock face.
4. Overdepth assumptions for channel E; 0.5-foot overdepth calculated between channel toes.
5. Quantities were calculated using the Surface Differencing Triangular Irregular Network (TIN) method.
6. Notes: If above bar not 2 inches, scale is not accurate.

### Diagram

- **True Heading for Entrance is North 082.5 East**
- **South Channel**
- **North Channel**
- **Entrance Channels, TYP. SECTION**
- **Inside Waterways/Channels, TYP. SECTION**