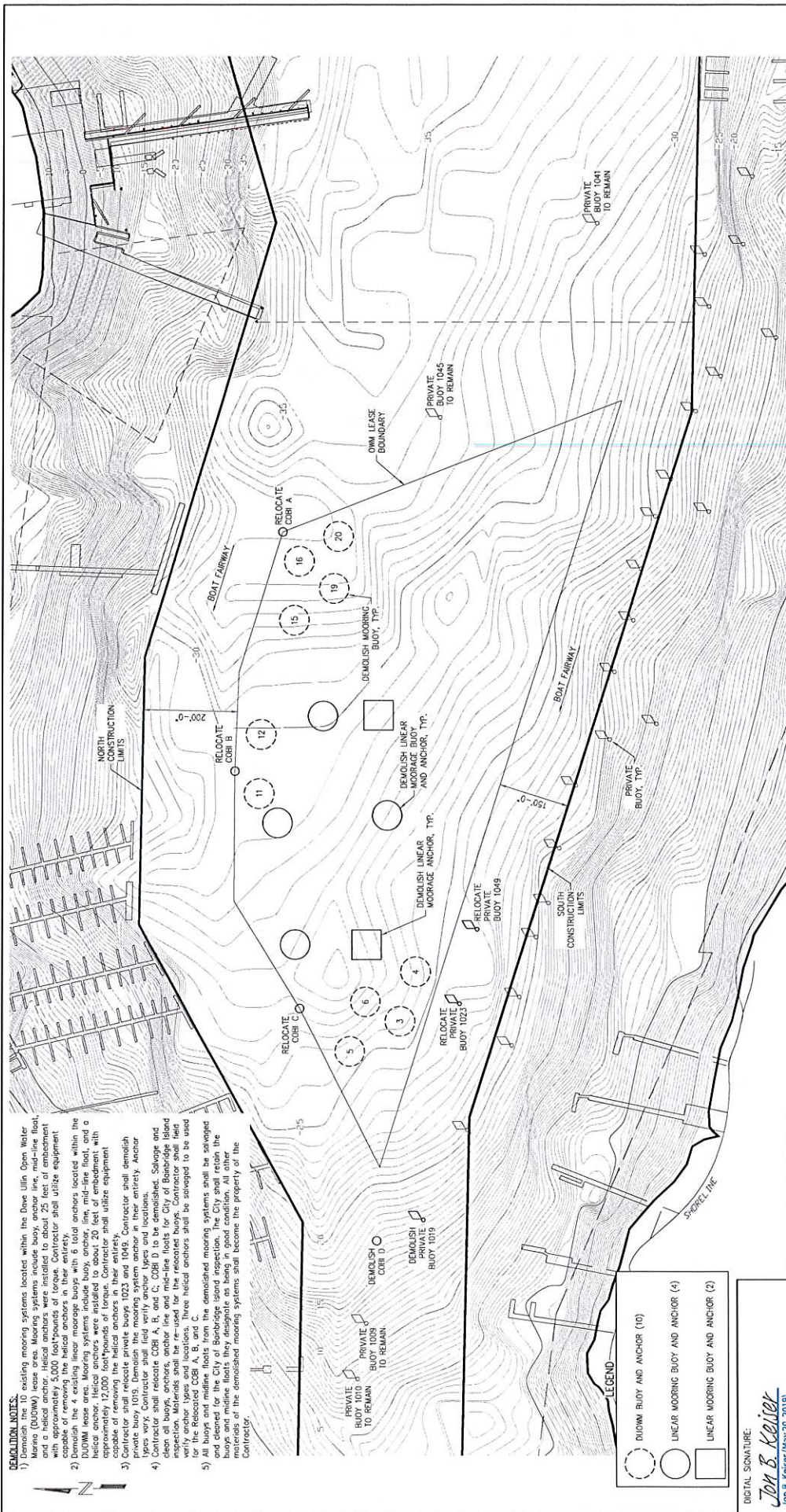




PLAN



- DEMOLITION NOTES:**
- 1) Demolish the 10 existing mooring systems located within the Dave Ullin Open Water Marina (DUOWM) lease area. Mooring systems include buoy, anchor line, mid-line float, and a helical anchor. Helical anchors are installed to about 25 feet of embedment with approximately 5000 foot-pounds of torque. Contractor shall utilize equipment capable of removing the helical anchors with 8 foot anchors located within the DUOWM lease area. Mooring systems include buoy, anchor, line, mid-line float, and a helical anchor. Helical anchors are installed to about 20 feet of embedment with approximately 12,000 foot-pounds of torque. Contractor shall utilize equipment capable of removing the helical anchors 1023 and 1049. Contractor shall demolish private buoy 1015. Demolish the mooring system and anchor in their entirety. Anchor types vary. Contractor shall field verify anchor types and locations. Salvage and clean all buoys, anchors, anchor line and mid-line floats for City of Bainbridge Island. Contractor shall field verify anchor types and locations. Three helical anchors shall be salvaged for the Relocated COBI A, B, and C.
 - 2) All buoys and midline floats from the demolished mooring systems shall be salvaged and cleared for the City of Bainbridge Island. Contractor shall retain the materials of the demolished mooring systems shall become the property of the Contractor.

- LEGEND**
- DUOWM BUOY AND ANCHOR (10)
 - LINEAR MOORING BUOY AND ANCHOR (4)
 - LINEAR MOORING BUOY AND ANCHOR (2)

DIGITAL SIGNATURE:

Jon B. Keiser
Jon B. Keiser (May 20, 2019)

THIS DRAWING SET WAS CREATED AS AN ELECTRONIC DOCUMENT. IF THE ELECTRONIC DOCUMENT DOES NOT INCLUDE A VERIFIABLE DIGITAL SIGNATURE IN THE BOX ABOVE, PLEASE CONTACT THE ENGINEER OF RECORD FOR THE ORIGINAL CERTIFIED ELECTRONIC DOCUMENT.

NOTE:
ALL EXISTING PIERS ALONG THE SOUTH SHORELINE ARE NOT INCLUDED IN CITY PROVIDED SURVEY. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.

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REV	DATE	DESCRIPTION
1	5/20/19	

PROJECT:	BAINBRIDGE ISLAND
TITLE:	DAVE ULLIN OPEN WATER MARINA
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
DATE:	
SCALE:	
PROJECT NO.:	
REVISION NO.:	
1 OF 3	

- 1) The maximum allowable line tension, working load, is 6.0 kips for all components along the load path of mooring system, above the anchor.
- 2) The helix mooring anchor is designed to resist a lateral load of 3.8 kip, corresponding to a 60 foot vessel with a 110 mph wind. Loads exceeding this amount may rotate the helix anchor, resulting in possible damage. Annual inspection of the anchor system are recommended.

- 3) Layout is based off the DUOWM lease area survey provided by the City of Bainbridge Island.
- 4) Buoy locations are approximate and are shown in the same coordinate system as the City provided survey.
- 5) Contractor shall coordinate with the City of Bainbridge Island to field locate buoy.

- 1) All materials for mooring buoy in the DUOWM lease area shall be new and free from defects.
- 2) North and East Coordinates are taken from AutoCAD drawings provided by the City of Bainbridge Island.
- 3) The contractor shall field verify the seafloor elevations listed in the Mooring Schedule before installing anchors. If the measured elevation is more than 2 feet different from those listed in the Mooring Schedule then notify the Engineer before proceeding with installation.

- 4) The total anchor line length in the Mooring Schedule is the distance from the anchor termination to the bottom of the mooring buoy, and does not include the length of chain above the water surface from the float.
- 5) The anchor line termination is to be terminated by a minimum of 10' of chain and a 10' of approved equalizer. The total anchor line termination shall be terminated by 14' of chain and a 10' of approved equalizer.
- 6) The total anchor load capacity shall be determined by the Engineer. The mooring and dynamic load capacity may be adjusted with the approval of the Engineer in order to achieve adequate penetration and load capacity. High extension shifts may be required in soft soils to achieve adequate load capacity.
- 7) Each anchor shall include a shear vane assembly to resist lateral loads, as indicated on the drawings. The anchor shall be installed in the soil at the correct depth and orientation. The anchor shall be installed at the correct termination. Shear vane assembly shall be below sea floor in its entirety.
- 8) The Contractor shall screw each anchor into the sea bottom until a minimum torque of 3,000 foot pounds is reached. The Contractor shall have a minimum embedment of 10 times the diameter of the top helix on the screw anchor. The Contractor shall have a minimum embedment of 10 times the diameter of the top helix on a screw anchor. The Contractor shall have a minimum embedment of 10 times the diameter of the top helix on a psi gauge on the installation equipment that has been calibrated to foot pounds of torque by the anchor manufacturer. Before construction, the Contractor shall supply the Engineer with a letter from the Manufacturer certifying the installation and describing the calibration methods for the specific equipment being used, and a calibration chart.
- 9) All helix anchors shall be proof loaded to 10,000 pounds vertical, static load. The static load shall be held constant for a minimum of 60 seconds, with no slippage or vertical movement of the anchor. Proof loads shall be applied to the anchor using a minimum of 10' of chain and a 10' of approved equalizer. Other mooring system components, if failure occurs, the Contractor shall remedy at no additional cost.
- 10) Each helix anchor marine termination shall be not more than 2 inch above the existing sea floor.
- 11) Secure all pinned hardware and shackles with stainless steel seizing wire. Nylon ties shall not be used. Strands will be used. Seizing wire shall be wrapped tight at all times, using min. 8 wraps with a systematic pattern so that all loads are shared.
- 12) After installation, the Contractor shall submit a record of installation that lists the psi, torque, embedment depth and proof load applied for each anchor along with as-built drawings that show the actual locations where the anchors are installed. The Contractor shall submit a copy of the record of installation and as-built drawings to the Engineer.
- 13) DUOM Mooring buoys shall be labeled as follows:

Label for buoy B-10 shown as example. Buoy identification and vessel length to match the Mooring Schedule. Buoy labels shall be painted for paint suitable for the marine environment. Submit paint data sheet and stencil to the City for approval. Coordinate paint color with the City.

MOORING BUOY SECTION

1. 1 1/8" GROSSBY G-209 ANCHOR SHACKLE WITH SPOKE W/ 1/2" MINOR DIA. OR APPROVED EQUAL

2" MAX.

MINIMUM OF DE VARIES, SEE

ELEV. VARIES

SHEAR VANE ASSEMBLY

NOT TO SCALE

46"

18"

5 1/16"

(4) VANES 1 1/2" GALV.

NOT TO SCALE



BUOY SECTION AND INSTALLATION NOTES

PROJECT NO:	CF PROJECT NO:	184094	SHEET NO:	3 OF 3
DATE:	GRD DATE:	MARCH 2019		
SCALE:		NOTED		

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