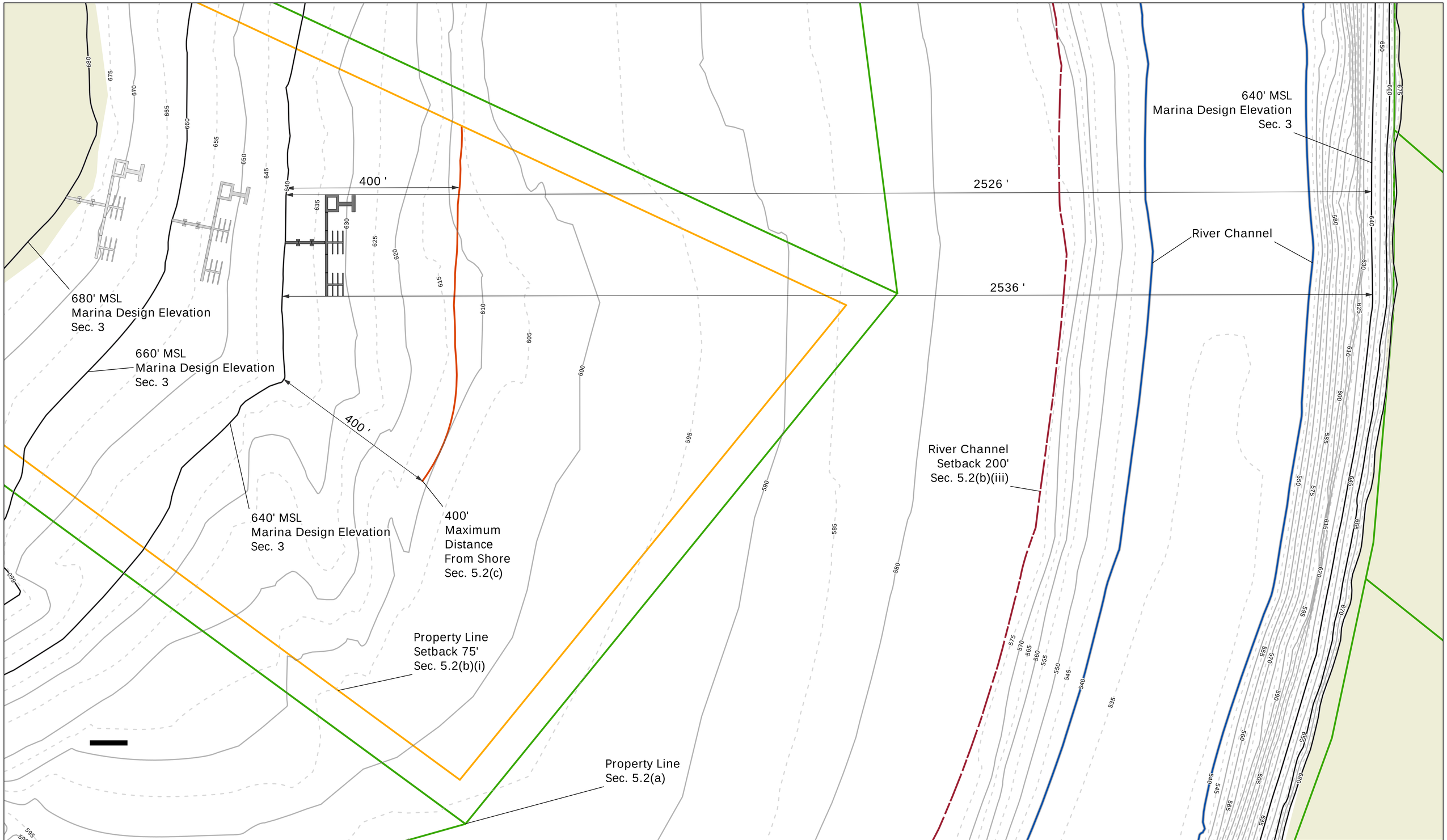

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED BY
1	For Illustrative Purposes Only		

Professional Engineer's seal

DWG No.

SHEET

ISSUE DATE | REV 1

SCALE 1" = 100' 0 50 100 200 Feet

Marina Name

Main Body Location & Configuration

680' MSL

660' MSL

640' MSL

Structure Located
on Opposite Shore
Sec. 5.2(h)

Cove Width
Sec. 5.2(h)

817 '

878 '

898 '

Property Line
Sec. 5.2(a)

Line is 10%
Width of Cove
Sec. 5.2(h)

Marina w/End Tie
at 640' MSL Marina
Design Location

Property Line
Setback 75'
Sec. 5.2(b)(i)

Property Line
Sec. 5.2(a)

640' MSL
Marina Design
Sec. 3

82 '

88 '

90 '

660' MSL

680' MSL

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ISSUE DATE | REV 1

SCALE 1" = 50' | 0 50 100 200 Feet

Marina Name

Cove Location & Configuration

Dock	No. Slips	Slip Size
A	6	10'X25'
A End Tie	1	16'X54'
B	6	10'X25'
B End Tie	1	8'X54'
Courtesy	4	10'X25'

140'

Breakwater

Breakwater
Entrance

44 '

Breakwater

140'

40 '

8 '

Dock A

Designated
End Tie Area
Sec. 3

Dock B

54 '

10'

25 '

Fairway =
44'>=1.75X25'
Sec. 5.2(d)

25 '

10'

42 '

44 '

32 '

Ship's
Store

6 '

Link

Link

Shore Link

Shoreline

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DWG No.

SHEET

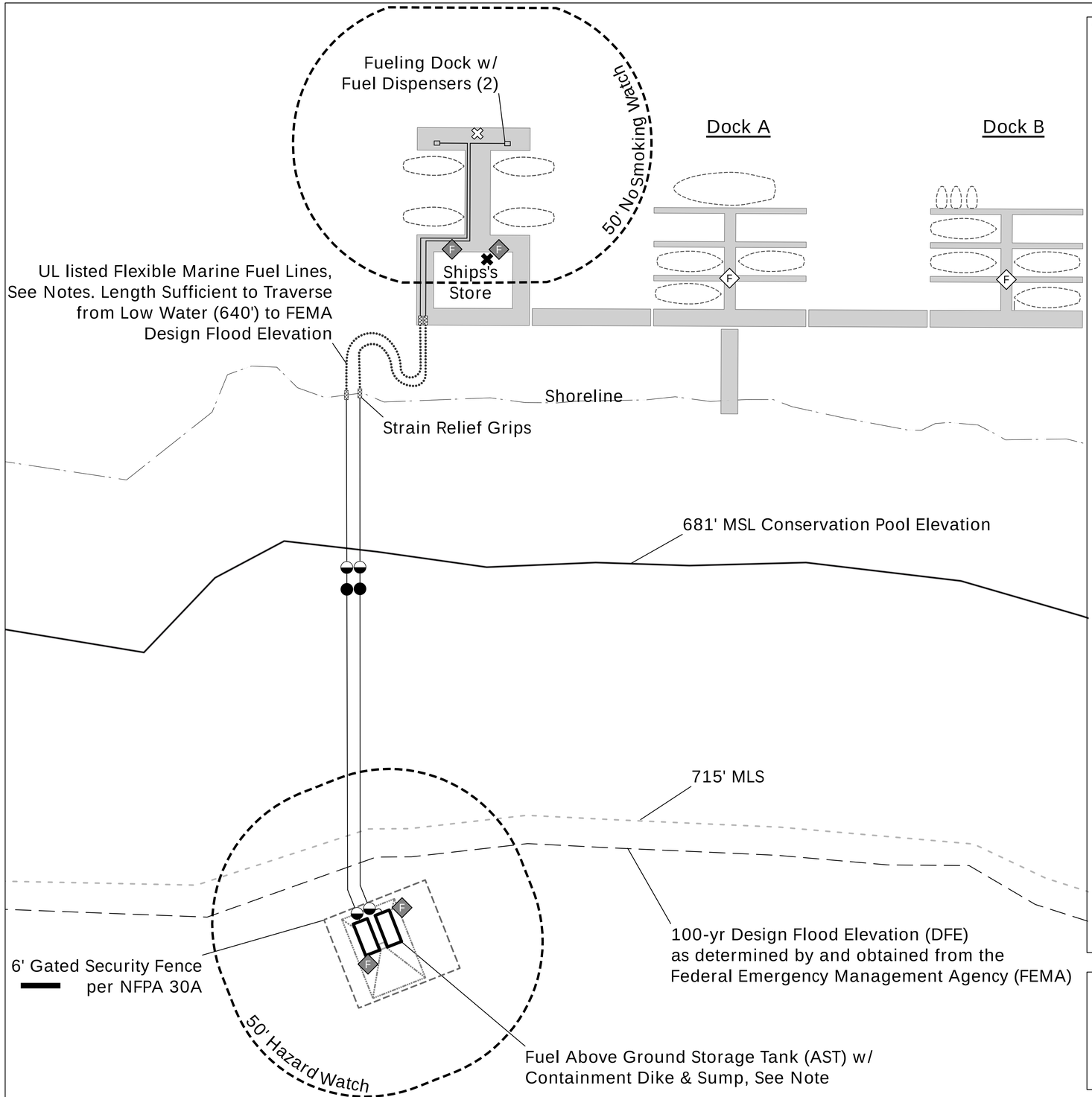
ISSUE DATE | REV 1

SCALE 1" = 10'

0 5 10 20 Feet

Marina Name

Marina Configuration



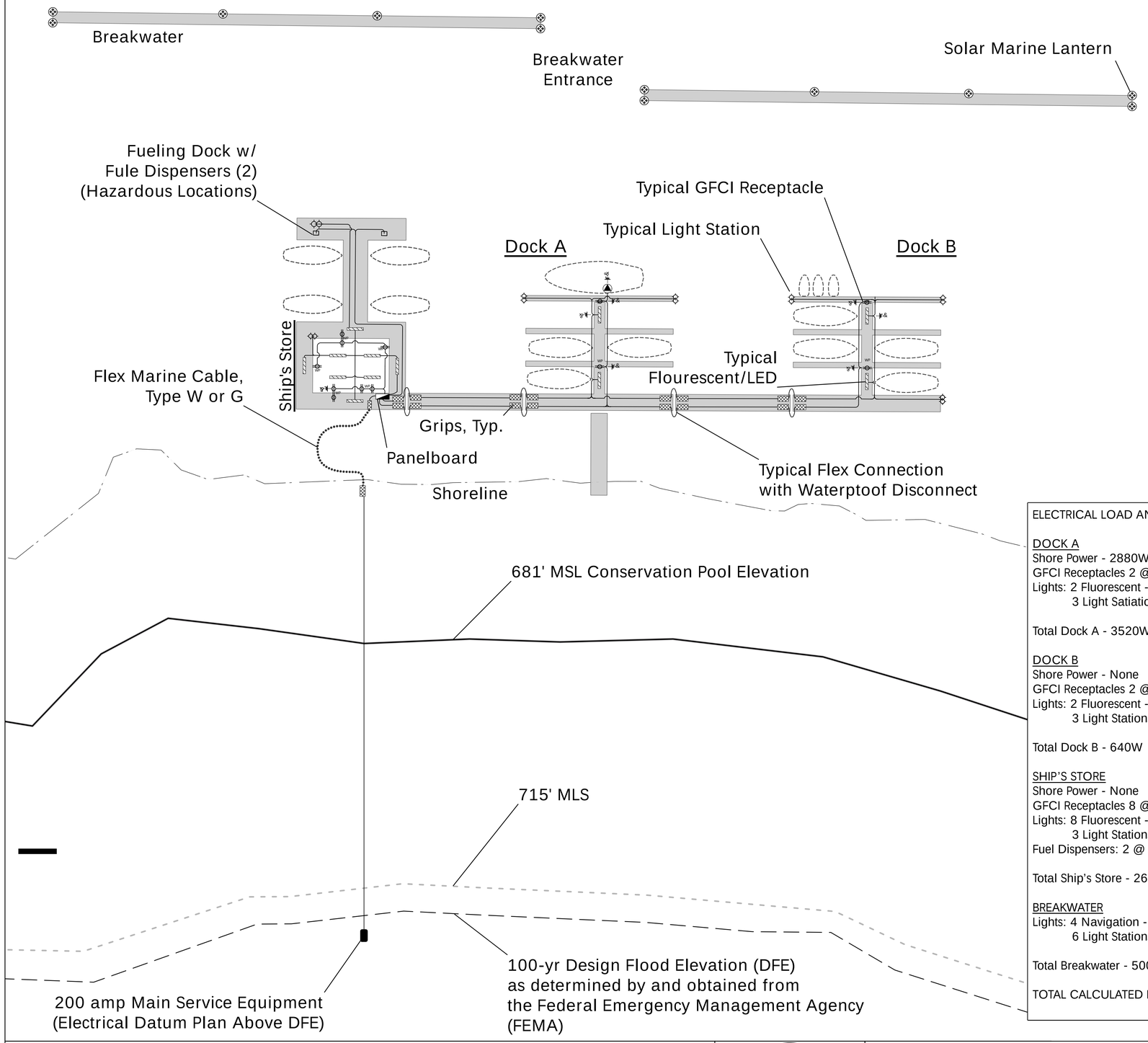
General Notes – Fuel System

1. All work, equipment, and components shall comply with the governing codes and regulation. Regulations include: Texas Natural Resources Conservation Commission, the Lower Colorado River Authority Highland Lakes Marina Ordinance (HLMO), NFPA 70, NFPA 30, and NFPA 30A-2000, Code for Motor Fuel Dispensing Facilities and Repair Garages.
2. If a regulation or restriction imposed by the HLMO is either more or less restrictive than those imposed by any other governmental authority having jurisdiction, the more restrictive regulation or restriction or those that impose a higher standard shall govern.
3. Above-ground fuel storage tanks (AST) shall consist of two (2) 2000 gallon, double-walled steel tanks in conformance with UL #142 suitable for the storage of Class I, flammable, motor-vehicle fuels. Factory fabricated AST systems shall be UL Subject 2244 Code Compliance Verification List (CCVL) listed documenting how the tank system complies with NFPA 30 and the International Fire Code (IFC). Tanks shall be elevated at least 12” above the supporting surface on saddles of a design and spacing as supplied by the manufacturer.
4. Each AST shall be labeled with durable, clearly visible lettering no less than 6” in height:
   DANGER!
   FLAMMABLE/COMBUSTABLE LIQUIDS –
   NO SMOKING WITHIN 50 FEET
5. Tank siting and spacing shall be in conformance with NFPA 30A and as shown on the plans. All tank openings shall be above the Design Flood Elevation, see plan.
6. The submersible pump for each tank shall be a ½-hp ‘extracta’ motor pump unit or alternate approved in writing by the Engineer.
7. Underground product piping consists of 2 product lines conforming to NFPA 30 & 30A. Piping is 1½” diameter galvanized steel pipe. Piping in contact with the ground shall be provided suitable corrosion protection and secondary containment with approved leak detection and alarm. Piping shall be grounded to control stray electrical currents.
8. All electrical components and work shall be installed in accordance with the National Electrical Code as defined in Article 501 for Hazardous locations and Article 555 for wet locations.
9. Underwriter’s Laboratory (UL #1114) approved flexible marine fuel lines used between the floating facility and the shore shall run independently of the marina structures. Flexible fuel lines shall be provided with strain-relief grips where they connect to rigid lines.
10. Quick-throw shut-off valves shall be installed on each product line prior to the connection to the flexible fuel lines. The location of the shutoff valves shall be as close as practicable to the normal pool shoreline. A fuel solenoid valve for each product line shall be located as indicated.
11. Dry-disconnect valves shall be provided at each end of the flexible product lines delivering product from shore to the floating facility.
12. Fuel Product lines located on the marina structure shall be 1½” grounded galvanized pipe suitable for the purpose. Lines shall be installed no closer than two (2) feet from the exposed edge of the docks, and shall be secured to prevent chaffing.
13. Product dispensing devices, hoses, and nozzles shall conform to NFPA 30A requirements. Latch Open Devices on the nozzles is prohibited.Product Dispensing devices shall in no case be located closer than two (2) feet from the exposed edge of a dock. Product dispensing hoses shall be of adequate length to supply fuel to craft likely to use the facility. In no case shall a hose be longer than 18 feet in length without the provision of a suitable hose reel device.
14. The fuel dock shall be capable of sustaining a collision with the largest motor craft likely to use the facility in a realistic accident scenario. In no case shall the fueling dock be designed for less than a 5000# boat impacting the dock at a 15° angle from the face traveling at a speed of 4 ft/sec or 3 knots. Protect the fuel lines and dispensing devices from impact energy and damage by the dock structure and fendering.
15. Fuel Docks shall be provided with no less than two widely spaced mooring cleats at each dispensing device.
16. Fuel Docks and their moorings shall be designed to sustain the same area, wind, and sea loading as the remainder of the marina.
17. A light shall be provided for each product storage tank and shall be illuminated whenever the submersible pump for that tank is running. Lights shall be visible both from the shore approach and from the dispenser locations.
18. Visible and accessible emergency pump shut-off switches and signs shall be placed 15 to 75 feet from the dispensers. Signs shall read EMERGENCY PUMP SHUTOFF in 3-inch letters.
19. Smoking or open-flames shall be prohibited within 50-feet of the fueling operations. NO SMOKING signs shall be posted conspicuously about the premises. Such signs shall have letters 4 inches in height on a background of a contrasting color.
20. At the face of the fueling Dock a sign shall be displayed at an elevation clearly visible from the decks of marine craft being fueled that bears the following or equivalent wording in letters not less than 3 inches in height on a background of contrasting color.
    WARNING
    No Smoking - Stop Engine while Fueling
    Shut Off Electricity
    Do Not Start Engine Until Below Deck Spaces are Ventilated
23. One or more fuel fire extinguishers (FF) shall be UL labeled 40-B:C in conformance with NFPA 10 extra (high) hazard type with an extinguishing agent suitable for exterior use.
24. Fuel Fire extinguishers shall be clearly marked and visible and readily available for use mounted at a height of 48 inches above the deck located no more than 50 feet from each pump, storage tank, and fuel dispensers in conformance with NFPA 30A.
25. Provide one (1) Marine Oil Spill Response Kit, accessible to the Fuel Dock and within 75’ of the dispensing devices. Standard kits shall be supplied in a covered nominal 50-gallon disposal container with an assortment of mops, sorbent pads, socks, pillows and wipes along with suitable protective gear.
26. On completion of the fuel system installation, the Contractor shall supply the Owner with at least one full set of as-built drawings, copies of all governing codes and ordinances, product data sheets, wiring diagrams, warranties, and specifications as well as a written operation, maintenance, inspection, and testing manual.

Fule Symbol Key

- Master Shut-off
- Pump Shut-off
- Manual Quick-throw Valve
- Solenoid Valve
- Fule Fire Extinguisher
- Fire Extinguisher, 2-A,20-B:C
- Strain Relief Grip

REVISIONS				Professional Engineer's seal	DWG No.		Marina Name
REV	DESCRIPTION	DATE	APPROVED BY		SHEET		
					ISSUE DATE	REV 1	Marina Service Station & Notes
1	For Illustrative Purposes Only				SCALE 1" = 20'	0 5 10 20 Feet	



General Notes – Electrical

1. All electrical work shall conform to the LCRA Highland Lakes Marina Ordinance, NFPA 303-2000 "Fire Protection Standard for Marinas and Boatyards", NFPA 70 National Electrical Code (NEC), and the National Electrical Safety Code (NESC) as adopted by Local Authorities.
2. If regulations or restrictions imposed by the HLMO are either more or less restrictive than those imposed by any other governmental authority having jurisdiction, the more restrictive regulations or restrictions or those that impose a higher standard shall govern.
3. Electrical Contractor shall verify and coordinate service and transformer location and all service requirements with the Power Company prior to any installations. Provide transformer pad, grounding, and metering per Power Company requirements.
4. Wire all Lights to 'A' Phase and all receptacles to 'B' Phase, for safety.
5. Shore Power receptacles shall be in conformance with NFPA 303 mounted no less than 12 " above the deck. Provide dedicated circuits to Shore Power receptacles.
6. Provide dedicated circuits to fuel dispensers.
7. Fifteen and twenty ampere, single-phase, 125-volt outdoor receptacles shall be protected by ground-fault interrupt circuit breakers (GFCI) per NFPA 303.
8. Safety Lighting shall be controlled through a Photocell. Each dock shall have Photocell wired to 'A' Phase.
9. All Wiring shall be Copper conductors with THHN/THWN insulation except where Type W cable is specified. Provide grounding conductor for all circuits.
10. All conduit shall be schedule 40 PVC or rigid galvanized steel, except where noted. Underground conduit shall be schedule 40 PVC. All conduit shall contain a green insulated copper grounding conductor sized as required by the N.E.C. Conduit size shall be ½" unless otherwise designated. Conduit shall be flexible where it crosses dock and walkway flex points.
11. Flexible conduit, where used, shall be liquid tight non-metallic to 2" and metallic above 2". Flexible conduit shall not exceed 6' in length with approved connections and shall not be used where subject to mechanical damage.
12. Branch circuit conductors shall be 2#12, #12G for homeruns less than 50' and 2#10,1#10G for homeruns more than 50' unless noted otherwise. A separate neutral shall be run with each branch circuit protected by a GFCI breaker.
13. Approved strain-relief grips shall be provided at all cable terminations.
14. Branch circuits shall be arranged for balanced phase loading on all panelboards.
15. Panels shall be mounted on racks/supports constructed of galvanized steel channel with cold-galvanizing applied to field cuts etc..

ELECTRICAL LOAD ANALYSIS

DOCK A
Shore Power - 2880W
GFCI Receptacles 2 @180W - 360W
Lights: 2 Fluorescent - 130W
3 Light Satiation - 150W

Total Dock A - 3520W

DOCK B
Shore Power - None
GFCI Receptacles 2 @180W - 360W
Lights: 2 Fluorescent - 130W
3 Light Stations - 150W

Total Dock B - 640W

SHIP'S STORE
Shore Power - None
GFCI Receptacles 8 @180W - 1440W
Lights: 8 Fluorescent - 520W
3 Light Stations - 150W
Fuel Dispensers: 2 @ 250W- 500W

Total Ship's Store - 2610W

BREAKWATER
Lights: 4 Navigation - 200W
6 Light Stations - 300W

Total Breakwater - 500W

TOTAL CALCULATED LOAD - 7270W

Electrical Equipment Schedule

A. Dock Panel – 100A 120/240V, 1 Phase, 3 Wire Panel board with 20A, 1 Pole, Ground-fault Circuit Interrupt (GFCI) Breakers and 30A, 1-pole breakers. Provide one circuit-breaker for each 'B' Phase of the docks.
B. Light Station – Each light station shall have two 15 to 25 watt light bulbs, no more than 24 inches apart, wired in parallel. The lamps or fixture globes shall be amber in color so that no white-light radiates from the fixture. The lamp holders, as well as the junction boxes, shall be waterproof.
C. Fluorescent Lights – Weatherproof, as specified by the Owner.
D. Receptacles – Weatherproof, as specified by the Owner with Ground Fault Circuit Interrupters 15-20 Amp/120V.
E. Shore Power Receptacles – 30 Amp/120V single locking and grounding type
F. Photocell – 2KW, 120V SPST, TORK #2101.

Plan Note:
Installation and Protection of all Wiring and Electrical Equipment in Hazardous Locations Shall comply with NEC, Articles. 501, 514, & 555

Electric Symbol Key

- Solar Marine Lantern
- Light Station
- WP – Weatherproof GFI Duplex Receptacle, 20A/120V
- Homerun w/Gnd, Neut, Hot
- Weatherproof Shore Power Receptacle
- Strain Relief Grip
- Panelboard
- Fluorescent/LED Ligth

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DWG No.
SHEET
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SCALE 1" = 20' 0 5 10 20 Feet

Marina Name

Electrical Plan & Notes