Newport Boom Proposed Action

NOAA's Marine Operations Center – Pacific (MOC-P) facility in Newport, Oregon has a proposed action to boom ships during operations where there is a risk of a release of oil into Yaquina Bay. The typical fuel transfer is 40,000 to 80,000 gallons. Booms are designed to prevent the migration of oil on the water. At present, it is anticipated that this proposed action will provide a level of protection for Yaquina Bay in the event of an unplanned release of oil from one of the berthed ships during fuel transfers. Booming during fuel transfers is an Office of Marine and Aviation Operations (OMAO) requirement. Since the boom will only be utilized during fuel transfer operations in the initial phase, only one ship at a time will have a boom around it, and for typically a period of less than 12 hours.

Although ship's crews are prepared to respond to small spills with sweeps, absorbent socks and booms, in the event of a spill beyond their control to contain, MOC-P would engage an oil spill response company from the U.S. Coast Guard (USCG) "basic ordering agreement" or BOA. A spill response contractor on the BOA list with the fastest response time has been identified by MOC-P as NWFF Environmental (NWFF).

Tidal currents may gain tremendous velocity up to 4 knots in Yaquina Bay, particularly when ebb current is augmented by Yaquina River runoff. Because of the tidal current consideration, additional boom shall be installed in phases so that proof of concept, ease of operation, reliability and safety of personnel are addressed before the rest of the system is installed. During the initial phase, 520 feet of permanent boom will be installed under the pier (supporting two berths/berths 4 and 5).

In June 2011, NOAA moved into the new MOC-P facility in Newport, Oregon. Figure 1 contains a map from the July 2009 Environmental Assessment that shows the approximately location of the site on Yaquina Bay. MOC-P has a custom-designed pier, 1300 foot in length. The pier runs approximately west to east and can accommodate up to six NOAA ships. There are five berths on the north side of the pier and berth six is on the south side. NOAA ships ranging from 209, 224, and 231 to 274 feet in length, and a maximum of 43 feet in width (beam) berth on the north side presently. Figure 2 is an artist's rendering of the MOC-P pier with all the north side berths occupied by ships.

At present, the pier surface is supported by 34 tiers spaced on 40 foot intervals. Each tier consists of three pilings with a concrete cap connecting them together at the top which supports the deck. The pier is open underneath between the south, center and north pilings. The pier has a unique floating fender (also known as a camel) system which includes 1300 foot length of floating camel sections which have periodic gaps Figures 3 and 4- photos show what the floating camel system looks like. The camel rises and falls with the tide and attached to camel pilings which are driven into the bottom and bolted onto the decking.

To successfully boom ships at this open pier, the boom's designer and fabricator, Kepner Plastics, developed a system that has two main components. The first component is a fast current permanent boom that is orange in color that will be clamped to and positioned behind the floating camel so that it is located under the pier. The fixed boom will not affect the outward appearance of the existing pier facility. Figure 5 shows a mock-up of how the permanent boom connects to the camel system through

use of clamps. Figure 6 shows how the second component, a fast current boom that is yellow in color, attaches to the orange permanent fast current boom when it is deployed during fuel transfer operations.

Other components of the boom system may include PVC standoffs that keep the fast current boom at a distance away from the hull of the ship on occasions when the fast current boom is deployed, so that any fluid escaping the ship will be enclosed by the boom.

Figure 7 presents a cross-section of the oil boom. According to Kepner Plastics, a 36-ounce polyurethane fabric is used in the permanent boom with a skirt length of 16 inches, and a 23-ounce polyurethane fabric is used in the fast current boom with a skirt length of 15 inches. According to Kepner Plastics' website, materials used in their booms are "…resistant to abrasion, UV, weather, hydrocarbons, marine growth, and most chemicals." According to Kepner Plastics, the polyurethane fabric is much more resistant to marine growth than the poly vinyl fabric. The float section of both booms is filled with polyethylene foam and sealed from contact with the water.

A 5/16 inch galvanized chain sealed into the skirt and attached to the end connectors serves as ballast by maintaining bottom tension and draft. According to Kepner Plastics, longevity of the polyurethane booms is approximately 7 to 10 years, depending on use and location.

This fast current boom combination has a proven track record of effective performance in high current (according to the manufacturer). The yellow fast current boom is intended to envelope around the ship and attach to the orange permanent boom installed under the pier. Figure 8- the Kepner Plastics Installation Drawing illustrates a bird's eye view of the entire boom system when it is fully deployed for one ship.

It is important to note that the yellow fast current boom is a temporary structure, and will be deployed and recovered through the use of a small boat. The U.S. Coast Guard will be notified when a boom is deployed. In addition, monitoring of the boom system will be conducted for accumulation of debris and wear and tear, and bird and marine mammal impacts.

A storage method for the fast current boom when not in use has yet to be determined. Options are:

- On a hydraulically powered boom reel mounted on a trailer, stored in the warehouse laydown area
- On a floating barge, moored at the small boat pier, in a tidy manner to avoid tangling when deployed
- On a flatbed trailer in the laydown area.

In the future, booming may be considered when transferring oily waste and any other operations where discharge of oil is evaluated as a risk, or when ships are berthed for 4 weeks or longer. Although very unlikely, it is possible in the future that the permanent boom will be installed under the entire pier, and the use of the boom expanded beyond fuel transfer operations and be fully deployed for every ship up to a total of six berthed ships. Figure 9- a concept sketch - provides a bird's eye view of the entire pier structure with all six ships berthed, and all booms fully deployed, including around a small boat pier.

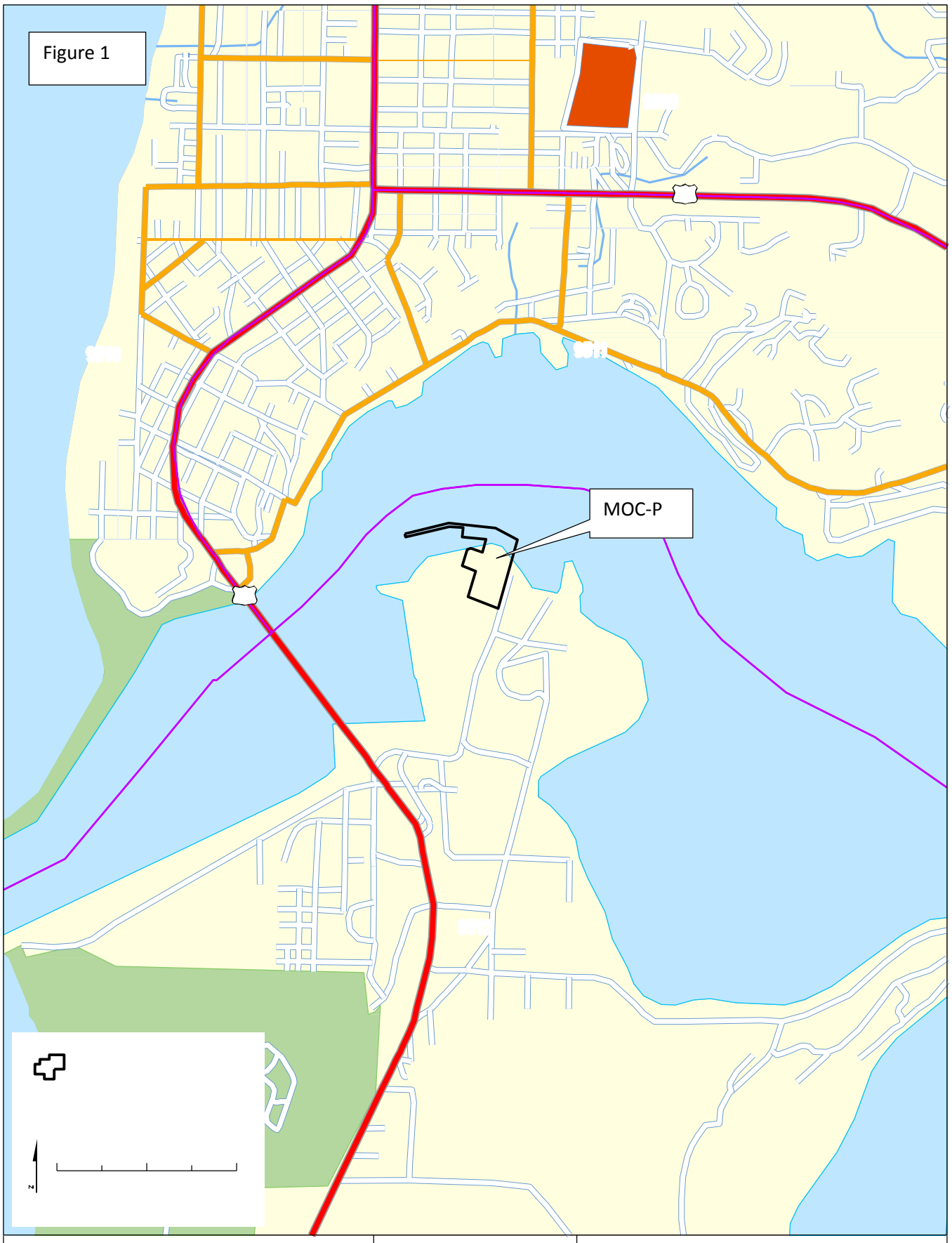


Figure 1
MOC-P

Map from July 2009 Final Environmental Assessment

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7: Schematic- Oil Boom

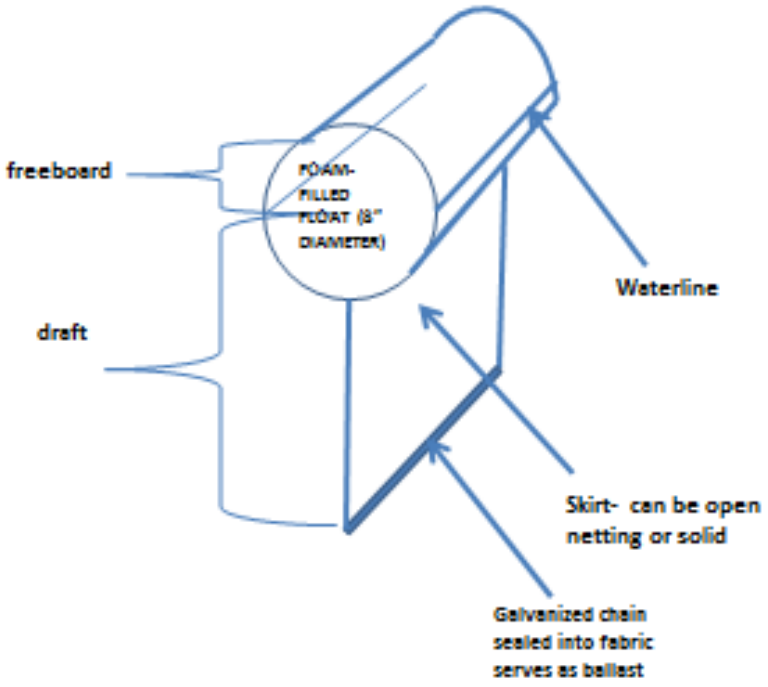


Figure 8

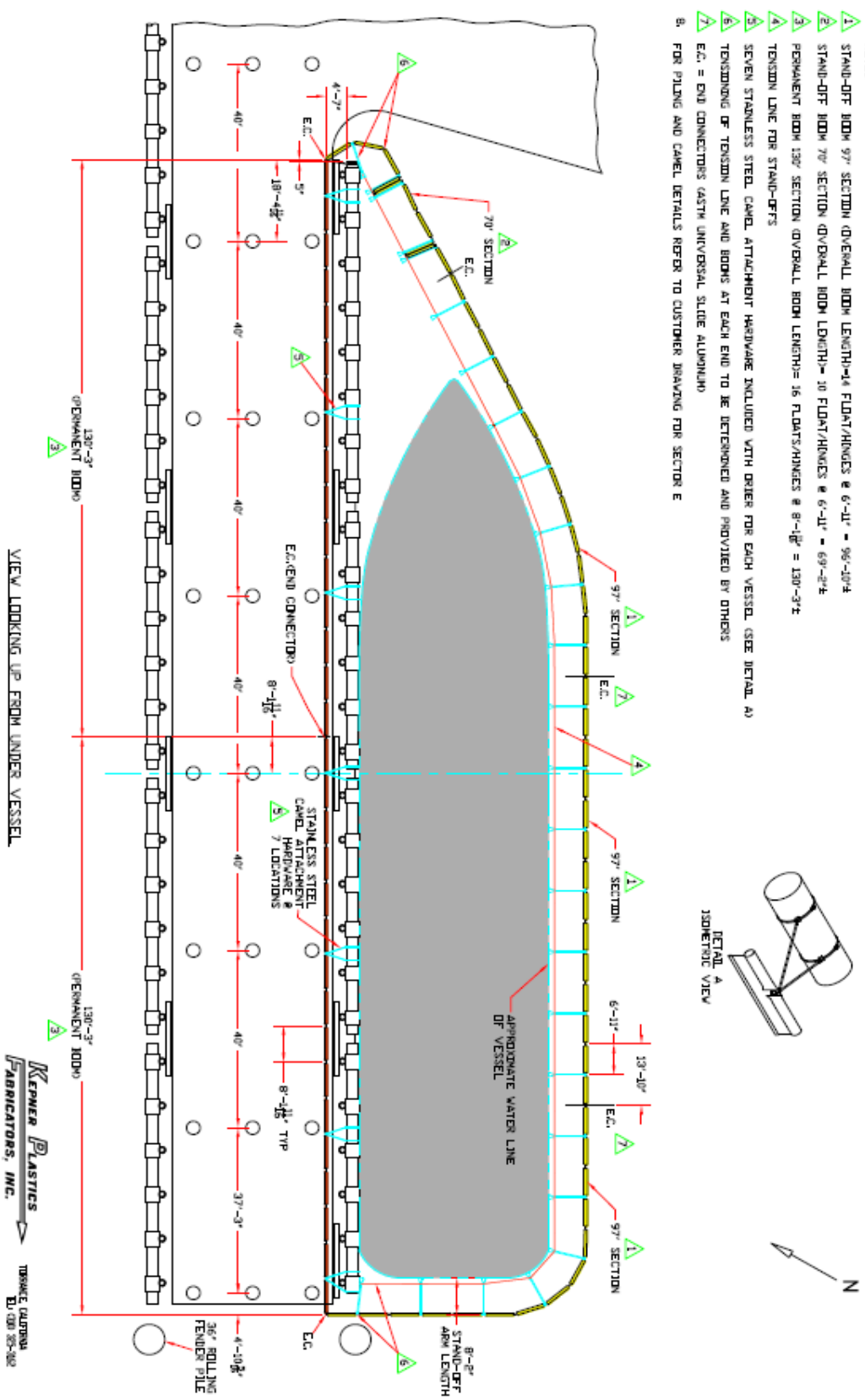
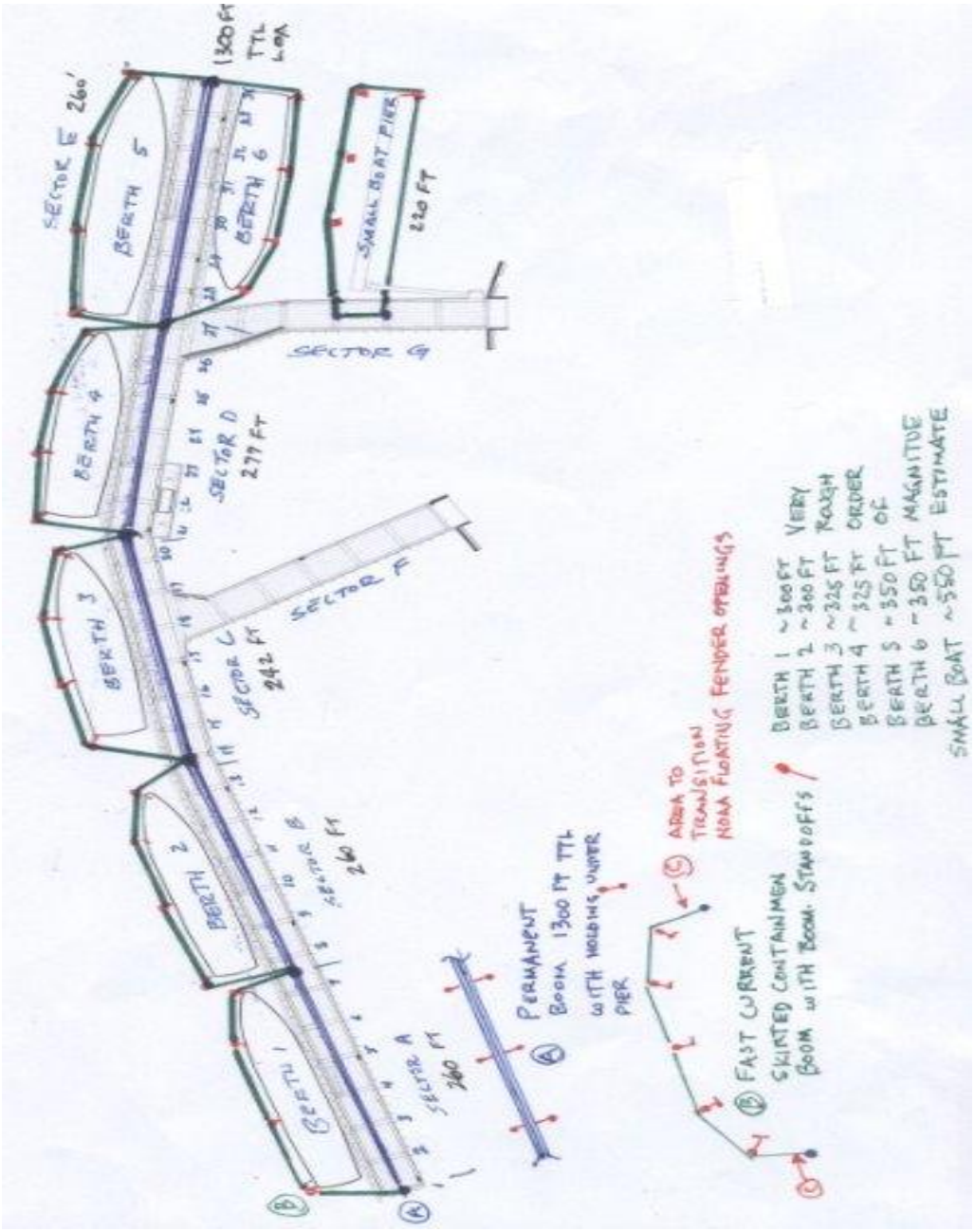

NOTES:
1. STAND-OFF BOOM 97' SECTION (OVERALL BOOM LENGTH)=14 FLOAT/HINGES @ 6'-11" = 96'-10"±
2. STAND-OFF BOOM 70' SECTION (OVERALL BOOM LENGTH)= 10 FLOAT/HINGES @ 6'-11" = 69'-2"±
3. PERMANENT BOOM 130' SECTION (OVERALL BOOM LENGTH)= 16 FLOATS/HINGES @ 8'-1⅛" = 130'-3"±
4. TENSION LINE FOR STAND-OFFS
5. SEVEN STAINLESS STEEL CAMEL ATTACHMENT HARDWARE INCLUDED WITH ORDER FOR EACH VESSEL (SEE DETAIL A)
6. TENSIONING OF TENSION LINE AND BOOMS AT EACH END TO BE DETERMINED AND PROVIDED BY OTHERS
7. E.C. = END CONNECTORS (ASTM UNIVERSAL SLIDE ALUMINUM)
8. FOR PILING AND CAMEL DETAILS REFER TO CUSTOMER DRAWING FOR SECTION E
DETAIL A
ISOMETRIC VIEW
N
97' SECTION
70' SECTION
E.C.
E.C./END CONNECTOR
130'-3" (PERMANENT BOOM)
APPROXIMATE WATER LINE OF VESSEL
STAINLESS STEEL CAMEL ATTACHMENT HARDWARE @ 7 LOCATIONS
8'-2" STAND-OFF ARM LENGTH
36" ROLLING FENDER PILE
VIEW LOOKING UP FROM UNDER VESSEL
KLEPNER PLASTICS FABRICATORS, INC.
TEHACHAPI, CALIFORNIA

Figure 9


SECTOR E 260'
BERTH 5
1300 FT TTL LOA
BERTH 6
SMALL BOAT PIER
220 FT
SECTOR G
BERTH 4
SECTOR D
279 FT
SECTOR F
BERTH 3
SECTOR C
242 FT
BERTH 2
260 FT
BERTH 1
SECTOR A
260 FT
PERMANENT
BOOM 1300 FT TTL
WITH HOLDING UNDER
PIER
AREA TO
TRANSITION
NOAA FLOATING FENDER OPENINGS
FAST CURRENT
SKIRTED CONTAINMENT
BOOM WITH BOOM STANDOFFS
BERTH 1 ~300FT VERY
BERTH 2 ~300 FT ROUGH
BERTH 3 ~325 FT ORDER
BERTH 4 ~325 FT OF
BERTH 5 ~350 FT
BERTH 6 ~350 FT MAGNITUDE
SMALL BOAT ~550 FT ESTIMATE