



THS-09042H

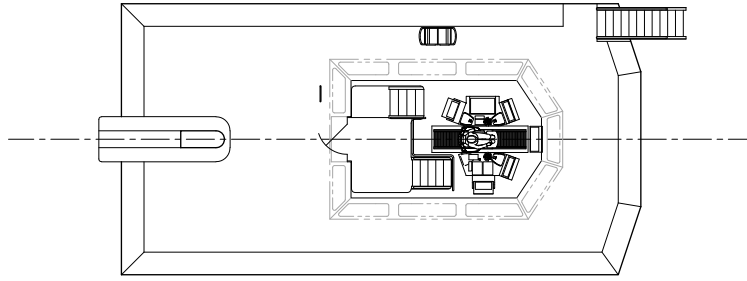
# 90' x 42' HyZET Ship Assist Tug

Crowley worked with a team of industry experts to develop this fully liquid hydrogen-powered tugboat. The expert team led by CALSTAR includes Crowley, CABB, DNV, Chart Industries, Ballard Fuel Cell Systems, and the Port of Los Angeles. This tug is estimated to realize, in operation, approximately 476 million metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) savings per year.

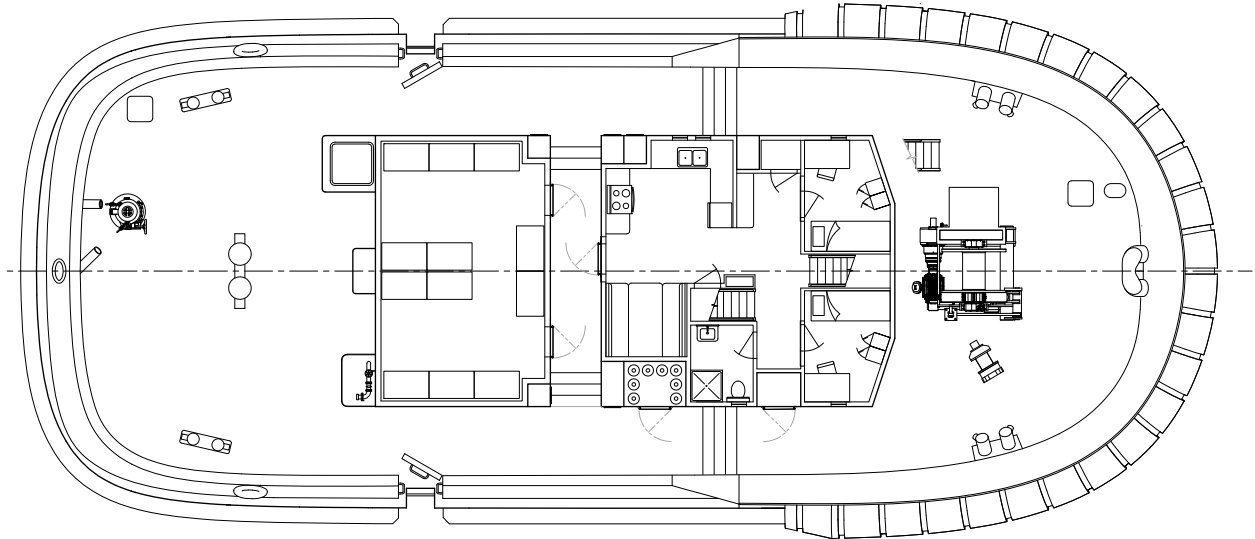
This fully liquid hydrogen-powered tugboat has escort capabilities, with a hull designed for traveling astern without seas coming over the transom. For mooring and towing capabilities, there is a simple aft winch with brake SWL for bollard pull and 8" HMPE line (450') installed. Full 360-degree visibility from the helm is assured with windows all around. There are berths for 8 crew, though the tug may be operated with a crew of 2 in certain operations.

## Overall Dimensions

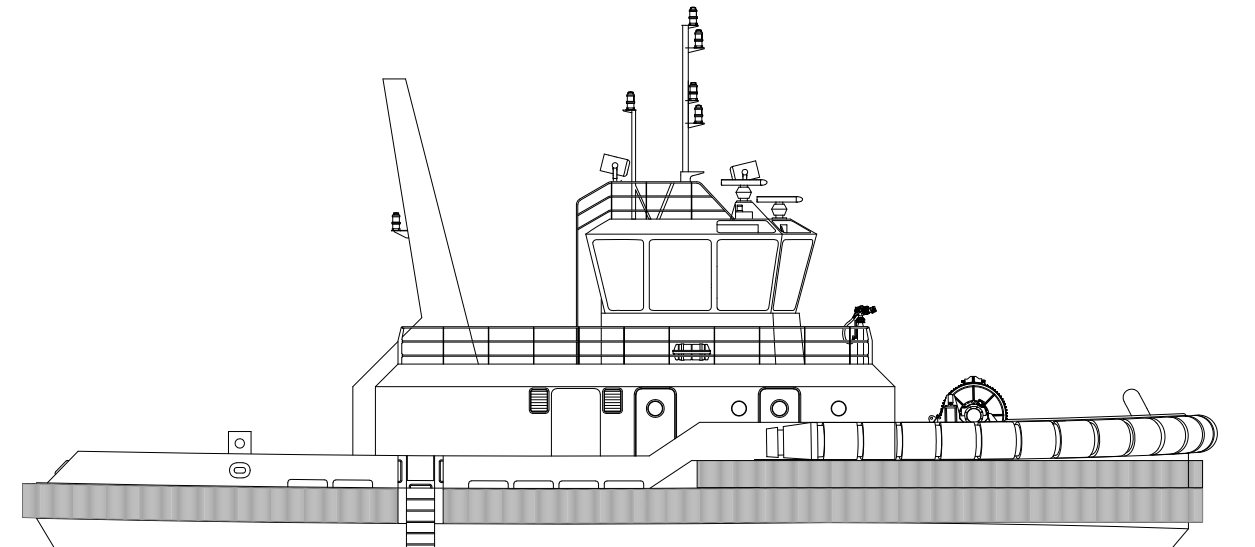
Length Overall.....	90'	Propulsors .....	5.0MW total installed ABB Azipod or L-Drive
Molded Beam .....	42'	Power (kw).....	ABB Onboard DC Grid™ fully electrified propulsion integrating ~6 x Ballard FCwave @200 kW. 2 x battery sized for bollard pull test (est. 800kWh with high C-rate)
Bollard Pull .....	90 ST		
Berths .....	8		
Energy Storage/Peak Shaving .....	1.2MW FC power + 3.6MW ESS power		



BRIDGE DECK



MAIN DECK



OUTBOARD PROFILE