

Capability Statement

INTRODUCTION

Engineering Surveys Limited (ESL) are a single source provider of survey and geophysical services for both land and marine construction, covering the full life cycle of a project from feasibility to as-built Survey to commissioning. Operating from our base in Hong Kong we have had a peak workforce of over 200 staff and have been involved in some of the largest infrastructure and development projects undertaken in the Asian region over the past 20 years.

In addition to providing staff and services our vision is one of converging technologies where our teams provide an increasingly diverse range of products and deliverables driven by the huge increase in quality and quantity of spatial data being collected.

From geophysical to laser scanning surveys and from underwater ROV to Aerial UAV surveys the market for collecting and presenting spatial data has never been larger.

ESL Hong Kong are listed under the Government Approved Specialist Contractors for Public Works (Development Bureau, HKSAR Government) and Registers of Specialist Trade Contractors (Construction Industry Council (CIC)).

Please feel free to contact us with any request for quotation, professional advice or general enquiries.

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Capability Statement

COMPANY PROFILE INSHORE MARINE

ESL is committed to delivering high quality survey solutions for inshore marine construction and development. We have extensive local experience and offer a wide range of solutions including:

- Nearshore Geophysical Surveys
- Precise Positioning
- Marine Construction Support
- ROV / Diver Inspection Services
- MetOcean & Environmental Survey
- Geotechnical Investigation
- Land Survey

Our clients include Hong Kong Airport Authority, Hong Kong Government Departments and academic institutions, Mass Transit Railway Corporation and major engineering contractors.

SERVICES INSHORE MARINE

ESL provide support at every stage of marine construction including geophysical and geotechnical investigation, dredging, gravel spreading, reclamation, pipe and cable laying, barge positioning and ancillary nearshore civil works.

Our Geophysics team collect and interpret seismic records for Seabed Geology and Side-Scan Sonar/ magnetometer records are used to map seabed features that have been identified and located during these surveys. Soil and Water Sample collection and analysis completes the geophysical record.

METOcean readings including ADCP's, anemometers and both pressure and radar type tide gauges can be provided with tide readings available online in real time.

Our Survey teams provide the full range of seabed bathymetry utilizing both single-beam and multi-beam systems as well as seawall surveys using our USM mounted multi-beam transducer integrated with our boat mounted laser scanner. A full nearshore survey package can be provided delivering a 3D point cloud combining multi-beam/scanner and UAV photogrammetry from a single survey platform.

ESL provides precise positioning services for all marine survey activities such as geophysical and bathymetric surveys, platform and cable deployment and dredging We provide GNSS positioning systems for the highest accuracy. Our GNSS base station provide in support of MTRC's latest Immersed Tube Tunnel (IMT) provided horizontal and vertical accuracies within 10mm between Hung Hom and Causeway Bay.

Capability Statement

SERVICES SCOPE AND DETAIL

Nearshore Geophysical Surveys

- Bathymetric and Geophysical surveys
- High resolution seismic surveys
- Pipeline and cable route surveys
- Marine platform site surveys

Precise Positioning

- Marine Construction Unit Deployment (e.g. Immersed Tunnel Unit, Pipe Laying)
- Vessel / Barge positioning
- Positioning of Gravel Spreader systems
- ROV positioning
- Diver positioning

Marine Construction Support

- Survey support during Pipe Laying
- Survey support during Dredging and Reclamation
- Survey support during Marine Platform Installations

ROV / Diver Inspection Services

- Marine Outfall and Pipeline Inspection surveys
- GVI surveys
- CP surveys

MetOcean & Environmental

- Tide, current and wave observations and analysis
- Wind and Weather observations and analysis
- Physical and chemical composition of water samples

Geotechnical Investigation

- Grab Sampling
- Core Sampling
- PCPT Testing

Land Survey

- Topographic Survey
- Engineering Survey
- High-Resolution Laser Scanning
- Control Network Survey
- GNSS Survey

Capability Statement

ASSET PORTFOLIO

ESL currently operate two full time shallow draft survey catamarans in Hong Kong namely “ESLSurvey1” and “ESL Survey 2”. Both are licensed as Class 2 work boats and insured for Hydrographic Survey.

Both vessels are equipped with a full complement of bathymetric survey systems with ESL Survey 2 also acting as a survey platform where multiple systems are to be deployed together. It also carries a survey tender allowing ultra shallow operation.

ESL Survey 1 was purchased in 2014 from the UK and has been deployed primarily on MTRC contract 1121 Immersed Tube Construction and on HKAA 3rd Runway project supporting our role as Seabed and Geophysical Consultants. It has carried out some 500 high resolution multi beam surveys in this time.

ESL Survey 2 was designed in Hong Kong to provide a flexible survey platform where a larger boat was required. It was constructed in Guangzhou in 2019.

Both boats are operated by our own experienced, full time staff.

Personnel

We currently employ over 50 skilled personnel covering various specializations::

- Hydrographic Surveying
- Geophysics
- Geology
- Geodesy
- Meteorology
- Electronics
- Cartography & Modelling
- Land and Engineering Survey
- Mining and Tunneling

Marine Survey Systems

Marine Navigation, Positioning and Motion Sensor System

Coda Octopus	Coda F185R+
Applanix	POS MV 320
Trimble	SPS855 (Marine Version)
	SPS356
iXBlue	Octans 3000
TSS	DMS-H
Applied Acoustics	Easytrak Alpha USBL System

Capability Statement

Multibeam Swath Echosounder

R2Sonic	R2 Sonic 2024
	R2 Sonic 2022
Teledyne	SeaBat T50
	SeaBat T20

Singlebeam Echosounder

Kongsberg	EA440
	EA400
OHMEX	SonarMite BTX
Tritech	SeaKing SBP

Geophysical Survey System

Sub-Bottom Profiler	Innomar	SES-2000
	Edgetech	3200 SBP (SB216 / SB424)
Side Scan Sonar	Edgetech	4125
	Klein	3900
Magnetometer	Marine Magnetics	SeaSPY 2
	Geometrics	G-882

Geotechnical and Sampling Equipment (cooperate with Guangzhou Salvage Bureau HK Branch)

Vibro Corer	3m / 6m Barrel
Gravity Corer	6m Barrel
Cone Penetrometer	PeneVector-II

ROV

Inspection Class ROV	Seatronics Predator
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MetOcean Equipment

Tide Gauge	Valeport	TideMaster (Pressure Sensor)
		TideMaster (VRS-20 Radar Sensor)
Weather	Barani Design	MeteoTemp RHTP
		MeteoWind 2 Anemometer
		MetPak II TM Weather Station
		Windsonic Ultrasonic Anemometer
ADCP	Nortek	Signature 500
	Teledyne RDI	Sentinel Workhorse
CTD	Valeport	SWIFT SVP

Capability Statement

Marine Survey Vessels

ESL Survey 1



Owner	ESL
Port	Hong Kong
Date of Built / Rebuilt	Built in 2003, modified in 2015
Class	Class II Work Boat
Capacity	4
MMSI	477995991
Call Sign	VRS5301
Dimension	
Length (m)	8.2
Breadth (m)	2.7
Mean Draft (m)	0.7
Crusing Speed (knot)	8
Navigation and communication	
Radar	Raymarine
VHF Radio	Samyung
Primary Survey Equipment	
Positioning and Motion System	CODA F185R+
Multibeam Echosounder	R2 Sonic 2022
Singlebeam Echosounder	Kongsberg EA440
Side Scan Sonar	Edgetech 4125
Sub-bottom Profiler	Innomar 2000
Magnetometer	Sea SPY 2

Capability Statement

ESL Survey 2



Owner	ESL
Port	Hong Kong
Date of Built / Rebuilt	Built in 2019
Class	Class II Work Boat
Capacity	12
MMSI	477996482
Call Sign	VRS5729

Dimension

Length (m)	13.7
Breadth (m)	6.1
Mean Draft (m)	1.2
Crusing Speed (knot)	10

Navigation and communication










Radar	Garmin
VHF Radio	Samyung

Primary Survey Equipment

Positioning and Motion System	CODA F185R+
Multibeam Echosounder	R2 Sonic 2024
Singlebeam Echosounder	Kongsberg EA440
Side Scan Sonar	Edgetech 4125
Sub-bottom Profiler	Edgetech 3200 (SB216 / SB424)
Magnetometer	Geometrics G-882
USBL	Easytrak Alpha USBL System
ROV	Seatrionics Predator

Capability Statement

MAJOR PROJECTS INVOLVED

Client	Project	Location
 <p>The Hong Kong and China Gas Company Limited (Towngas)</p>  <p>Leighton Asia Limited</p>	<p>32km Twin Gas Pipeline Construction from Shenzhen to Tai Po</p> <p>Survey Support for</p> <ul style="list-style-type: none"> • Pipe Jetting • As-Built Position reporting <p>Year: 2004</p>	<p>Tai Po to Hong Kong Water Boundary</p>
 <p>ECO Aviation Fuel Development Limited</p>  <p>Leighton Asia Limited</p>	<p>Permanent Aviation Fuel Facility,</p> <p>Survey Support for</p> <ul style="list-style-type: none"> • Twin Berth Jetty Construction • 4.7km twin subsea Fuel Pipeline Laying <p>Year: 2006 - 2010</p>	<p>Urmston Road, Tuen Mun</p>
 <p>MTR Corporation Limited</p>  <p>Penta Ocean - China State Joint Venture</p>	<p>Cross Harbour Tunnel Construction</p> <p>Survey Support for</p> <ul style="list-style-type: none"> • Bulk Dredging and Gravel Spreading • 1.4 km 11 Sections Immersed Tube Tunnel Units Deployment • Backfilling • Temporary Marine Platform Construction <p>Year: 2014 - Current (2020)</p>	<p>Victoria Harbour</p>
 <p>AECOM</p>  <p>Build King Construction Limited</p>	<p>CEDD Contract No. NE/2015/02 "Tseung Kwan O - Lam Tin Tunnel - Road P2"</p> <p>Survey Support for</p> <ul style="list-style-type: none"> • Bulk Dredging & Backfilling <p>Year: 2016 - Current (2020)</p>	<p>Junk Bay</p>
 <p>ATL Logistics Centre Hong Kong Limited</p>	<p>Container Terminal Seabed Survey</p> <ul style="list-style-type: none"> • Seabed Condition Survey <p>Year: 2016</p>	<p>Kwai Chung</p>

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Client	Project	Location
 <p>香港 機場管理局 AIRPORT AUTHORITY HONG KONG</p> <p>Airport Authority Hong Kong</p>	<p>AA Third Runway Construction Contract No. 3117 - Independent Geophysical Seabed Survey Services</p> <ul style="list-style-type: none"> • Seabed Monitoring Survey • Bathymetric Survey • High Resolution Refraction Seismic Survey • Sidescan Sonar Survey • Magnetometer Survey <p>Year: 2017 - Current (2020)</p>	<p>Lantau Island</p>
 <p>AECOM</p> <p>Build King Construction Limited</p>	<p>CEDD Contract No. NE/2017/08 "Cross Bay Link, Tseung Kwan O - Road D9 and Associated Works"</p> <ul style="list-style-type: none"> • Seabed Condition Survey <p>Year: 2019 - Current (2020)</p>	<p>Junk Bay</p>
 <p>Ocean Park Hong Kong</p>	<p>Seawall and Sea Water Intake Reconstruction</p> <ul style="list-style-type: none"> • Seabed Condition Survey • Land-side Topographic Survey <p>Year: 2019 - Current (2020)</p>	<p>Aberdeen, Hong Kong Island</p>
 <p>香港科技大學 THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY</p> <p>ARUP ARUP Group Limited</p> <p>The Hong Kong University of Science and Technology</p>	<p>HKUST Seawall Reconstruction</p> <ul style="list-style-type: none"> • Seabed Condition Survey • Bathymetric Survey • High Resolution Refraction Seismic Survey • Sidescan Sonar Survey • Land-side Topographic Survey <p>Year: 2019</p>	<p>Sai Kung, New Territories</p>
 <p>ECO Aviation Fuel Development Limited</p>	<p>Permanent Aviation Fuel Facility Pipeline Routing Survey</p> <p>Year: 2019 & 2020</p>	<p>Urmston Road, Tuen Mun</p>
 <p>VTC Vocational Training Council (VTC)</p> <p>ARUP ARUP Group Limited</p>	<p>Tai Lam Chung Nullah Survey</p> <ul style="list-style-type: none"> • Bathymetric Survey • Geophysical Survey • MetOcean Survey • Soil and Water Sampling <p>Year: 2019 - Current (2020)</p>	<p>Tuen Mun, New Territories</p>

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