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香港 國際機場 HONG KONG INTERNATIONAL AIRPORT

Expansion of Hong Kong International Airport into a Three-Runway System

2nd Professional Liaison Group (PLG) Meeting

Airport Authority Hong Kong

11 April 2016

Agenda

- 3RS Project Update
- EM&A Update
- Deep Cement Mixing – 2nd Field Trial

3RS Project Update

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Latest Progress – Key Activities

Oct 2015	• 1st PLG Meeting
Nov 2015	• Commencement of Baseline EM&A Monitoring (Air Quality and Noise)

Dec 2015	• Consult ACE on 3 Proposals
	  • Marine Park Proposal (MPP)
	  • Marine Ecology Conservation Plan (MECP)
	  • Fisheries Management Plan (FMP)
	• Commencement of 6-month Baseline Chinese White Dolphin Monitoring
	• Commencement of 3RS Advance Works
	• Commencement of Construction Phase EM&A Monitoring (Air Quality and Noise)
	• Commencement of HSF Route Division and Speed Control

Jan 2016	• 3 Workshops with SkyPier HSF Operators • Green NGOs Roundtable
Feb 2016	• Meeting with Fishermen Representatives on Fisheries Enhancement Fund • LegCo 3RS Committee Meeting – Mitigation and Enhancement Measures in connection with the Conservation of Marine Ecology and Chinese White Dolphins
Apr 2016	• Commencement of Baseline Water Quality Monitoring

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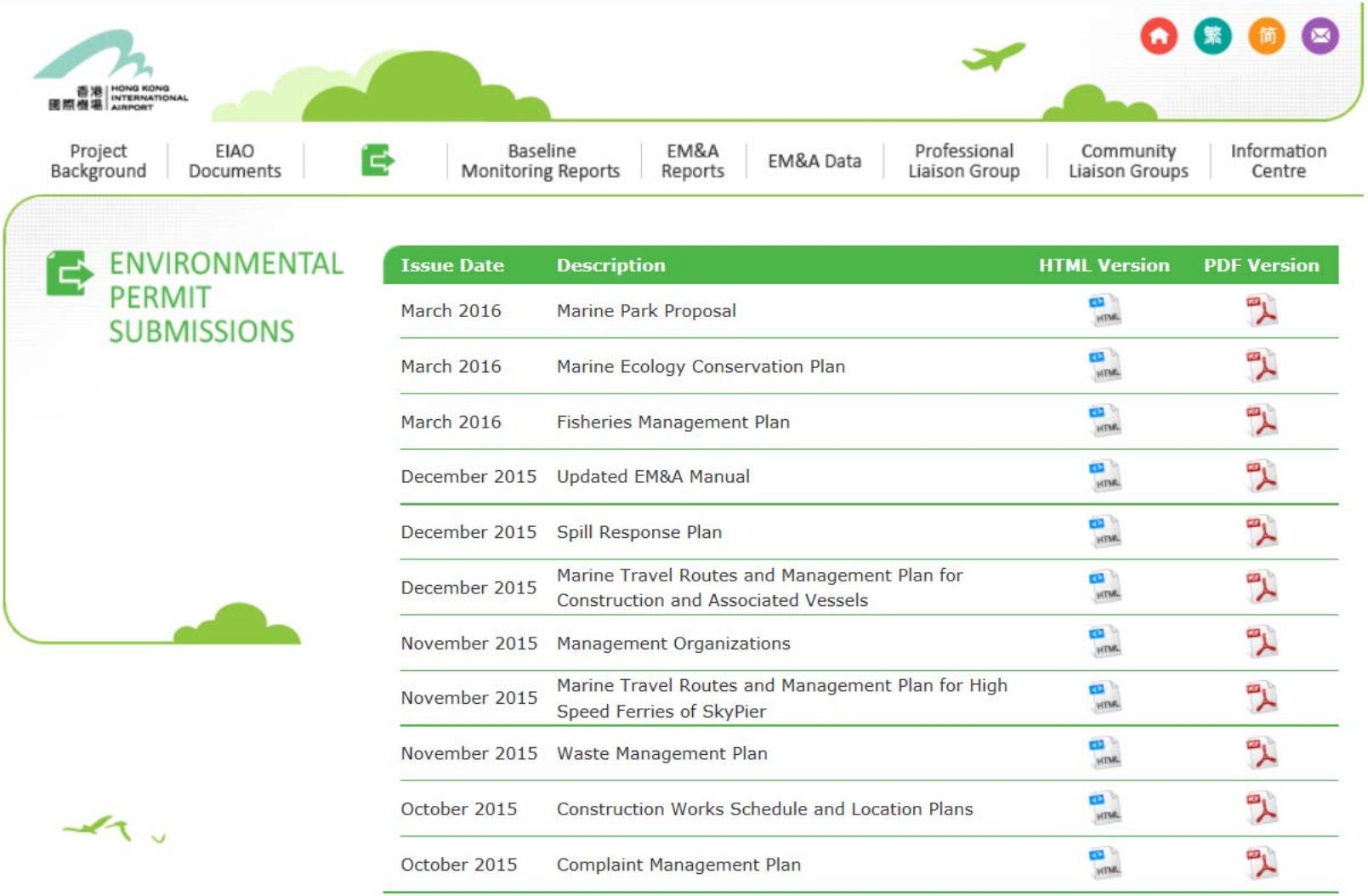
Approved EP Submissions are available on the 3RS Dedicated Website



Issue Date	Description	HTML Version	PDF Version
March 2016	Marine Park Proposal		
March 2016	Marine Ecology Conservation Plan		
March 2016	Fisheries Management Plan		
December 2015	Updated EM&A Manual		
December 2015	Spill Response Plan		
December 2015	Marine Travel Routes and Management Plan for Construction and Associated Vessels		
November 2015	Management Organizations		
November 2015	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier		
November 2015	Waste Management Plan		
October 2015	Construction Works Schedule and Location Plans		
October 2015	Complaint Management Plan		

Website address: http://env.threerunwaysystem.com

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EP Submissions – Under review by EPD

Marine Mammal Watching Plan

Egretry Survey Plan

Silt Curtain Deployment Plan

Detailed Plan on Deep Cement Mixing

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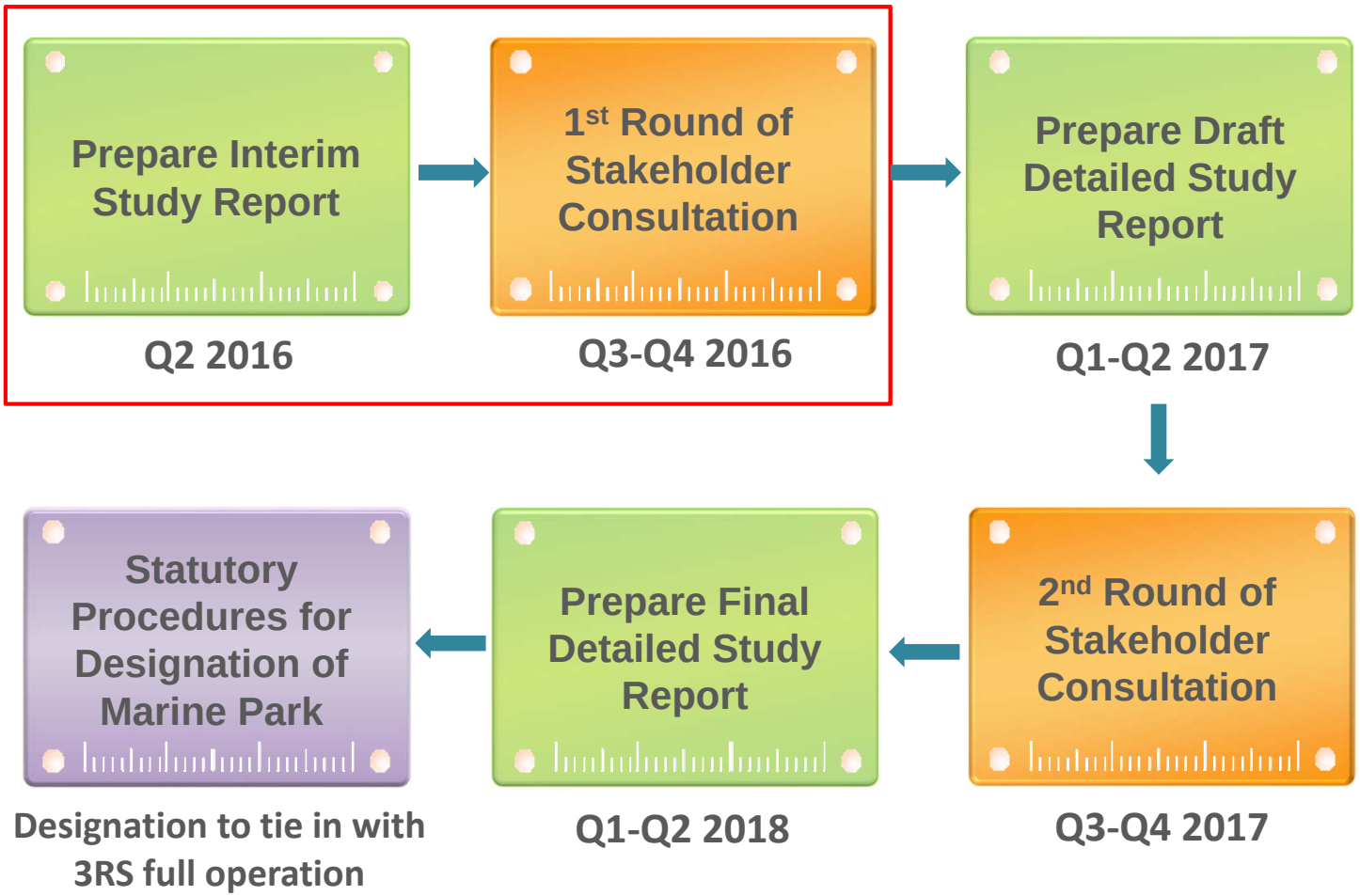
Marine Park Study – Tentative Timeline for Key Tasks



Upcoming Stakeholder Engagement – Q3-Q4 2016

Marine Operators

- High Speed Craft Consultative Committee
- Local Vessels Advisory Committee

Fishery Sector

- Major fishermen's organizations
- Affected fishermen

Local Communities

- District Councils
- Rural Committees
- CLG

Advisory / Statutory Committees, Government Departments

- Marine Parks Committee
- Capture Fisheries Subcommittee
- ACE
- PLG

Other Stakeholders

- Green groups
- Eco-tour operators
- Subsea utilities owners/ operators

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Potential Management Plan and Enhancement Measures

- Core area
- Integrated management

Zoning Scheme

- Artificial reef deployment
- Fish fry restocking
- Other measures

Enhancement Measures *

- Fishing moratorium
- Surveillance

Fisheries Management Measures

- Enforcement
- Boundary light buoys
- Information boards

Park Administration

- Education
- Eco-tourism

Public Uses

- Water quality
- Marine ecology
- Chinese White Dolphin
- Fisheries

Monitoring

*** Implementation would be subject to outcome of feasibility studies**

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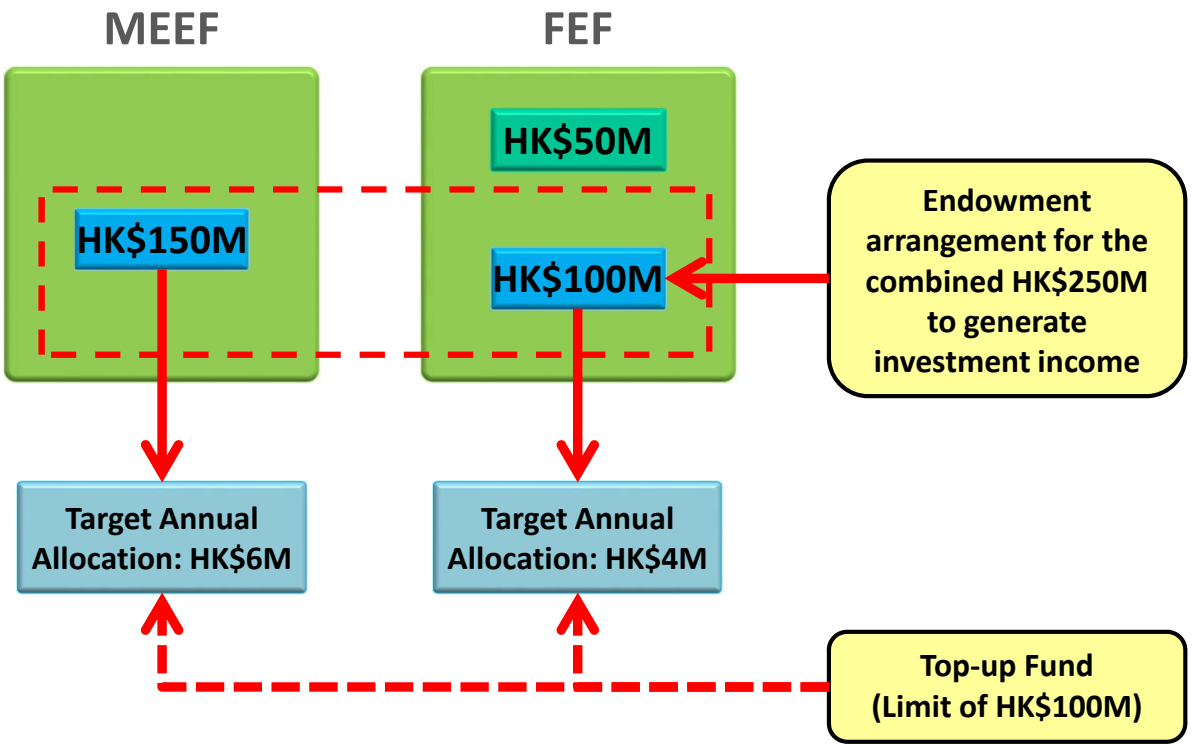
Updates on Marine Ecology Enhancement Fund (MEEF) and Fisheries Enhancement Fund (FEF) - Proposed Funding Arrangement

- To meet the conservation objectives in a **long-term and sustainable manner**



Proposed Fund Management Structure

Steering Committee

Chair – AAHK

Members

- MEEF Management Committee Chairperson
- FEF Management Committee Chairperson
- Other non-AAHK members in the environmental management, engineering, investment or financial areas

(Committee size: 7)

MEEF Management Committee

Chair – (Non-AAHK)

Members

- Academic(s)
- Dolphin expert(s)
- Green group rep(s)
- Relevant stakeholder(s)
- AAHK member(s)
- AAHK as Secretariat

(Committee size: 11 - 13)

FEF Management Committee

Chair – (Non-AAHK)

Members

- Fishermen's Association rep(s)
- Fisheries expert(s)
- Relevant stakeholder(s)
- AAHK member(s)
- AAHK as Secretariat

(Committee size: 11 - 13)

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Roles & Responsibilities

Steering Committee (SC)	• Provide overall directional guidance for the funding operation • Approve the funding budget to be allocated to the MCs • Oversee the use, allocation, and investment performance of the funds • Review the overall funding situation including the sufficiency and sustainability of the top-up fund arrangement
Management Committees (MCs)	• Manage and operate the funds to ensure funds are granted to studies that meet the fund objectives • Review, recommend and approve applications that are within the funding budget • Monitor and review the project outcomes
Secretariat	• Prepare meeting minutes and relevant materials • Prepare guidance notes and application forms for the funds • Collate progress reports submitted by funded projects • Provide summary of total applications received, successful applications, ongoing projects and completed projects for review and reference by the SC and the MCs

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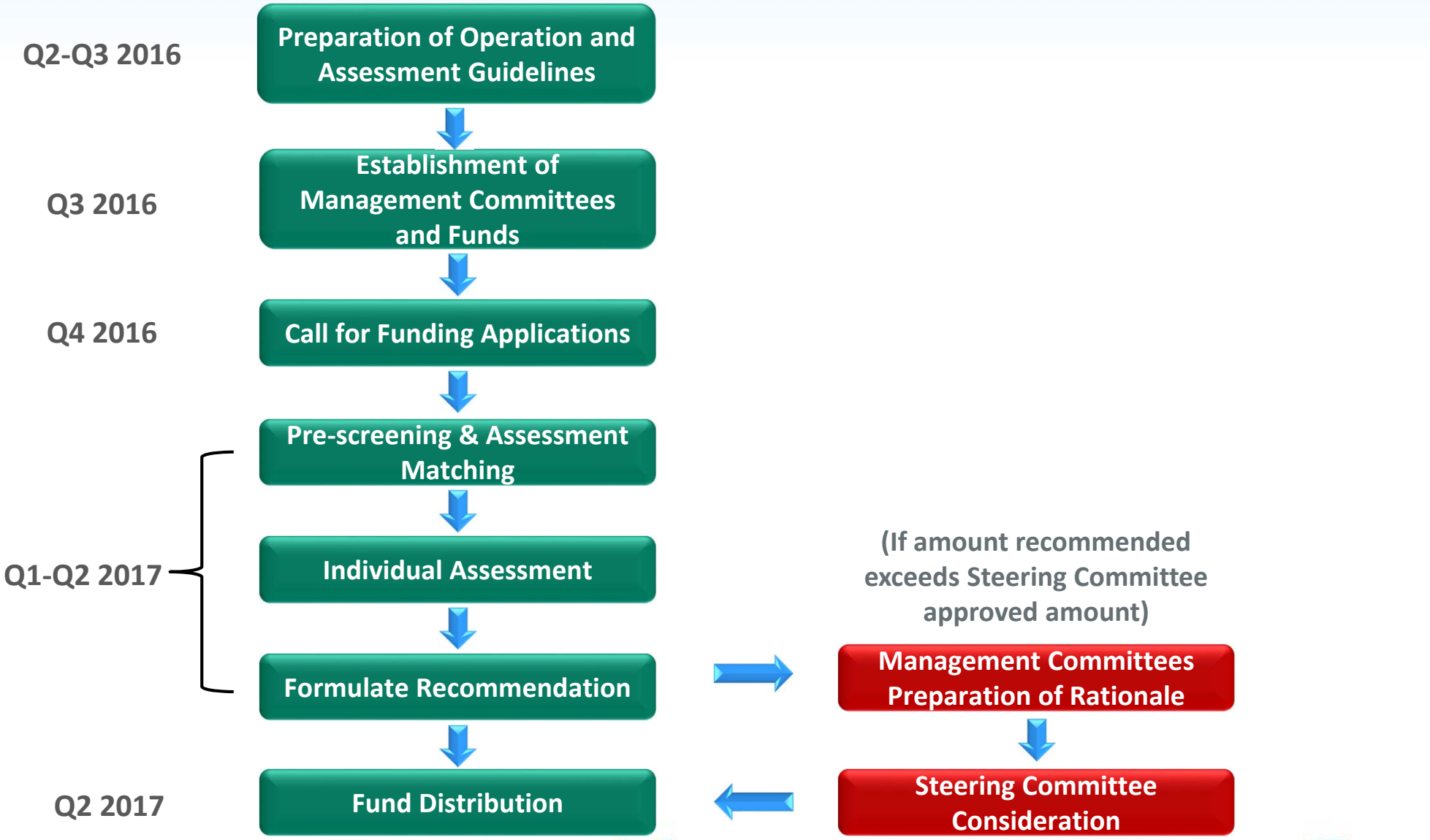
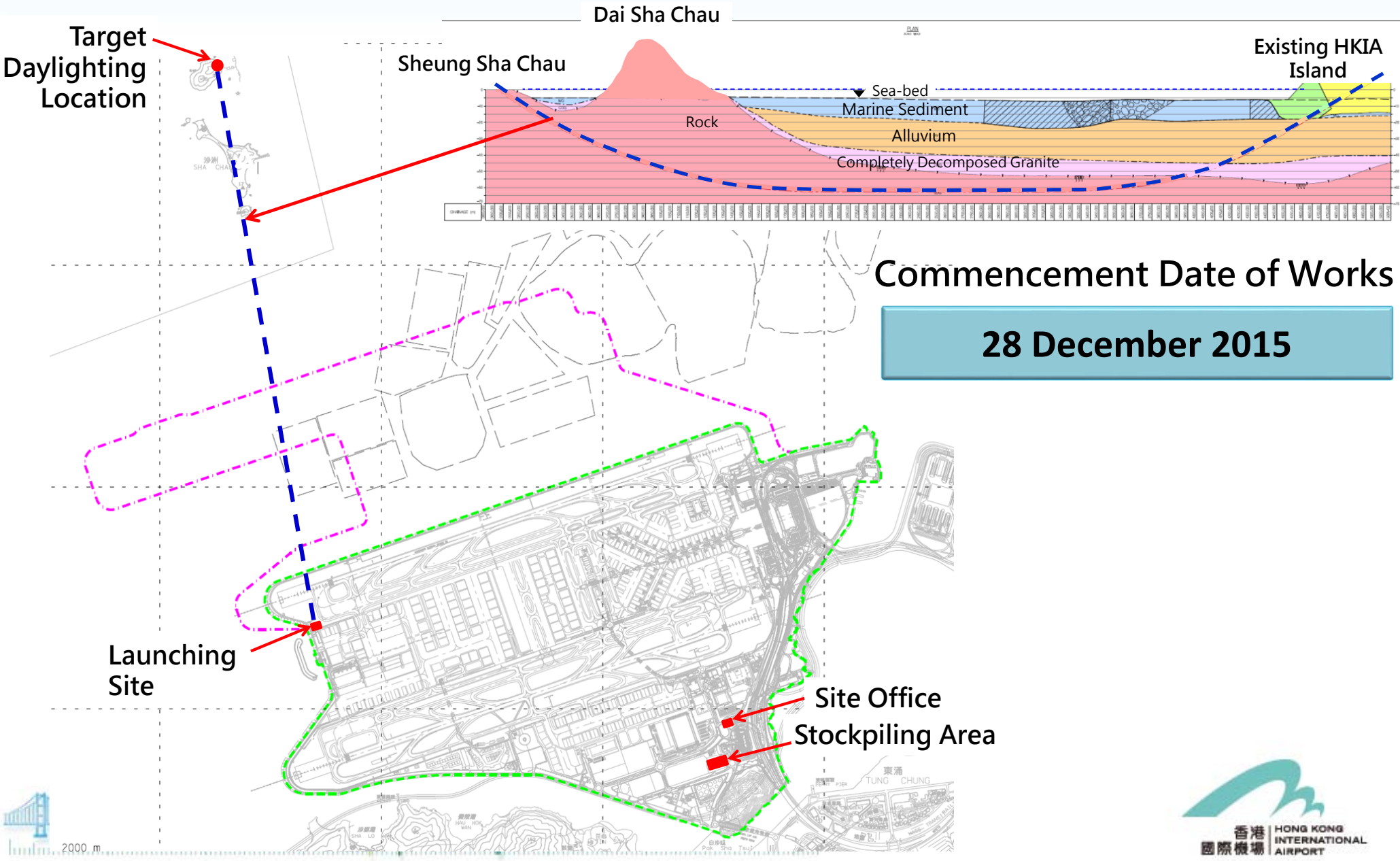
Operation of MEEF and FEF – Tentative Timeline



Aviation Fuel Pipeline Diversion Works
Horizontal Directional Drilling & Site Locations



Commencement Date of Works

28 December 2015

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Summary of Works and Progress on the Airport Island

Completed

- Construction of temporary concrete footing
- Implementation of dust suppression measures – installation of wheel washing facilities and establishment of site hoarding

In Progress

- Installation of U-channel along the site boundary
- Installation of wastewater treatment facilities
- Installation of HDD rigs

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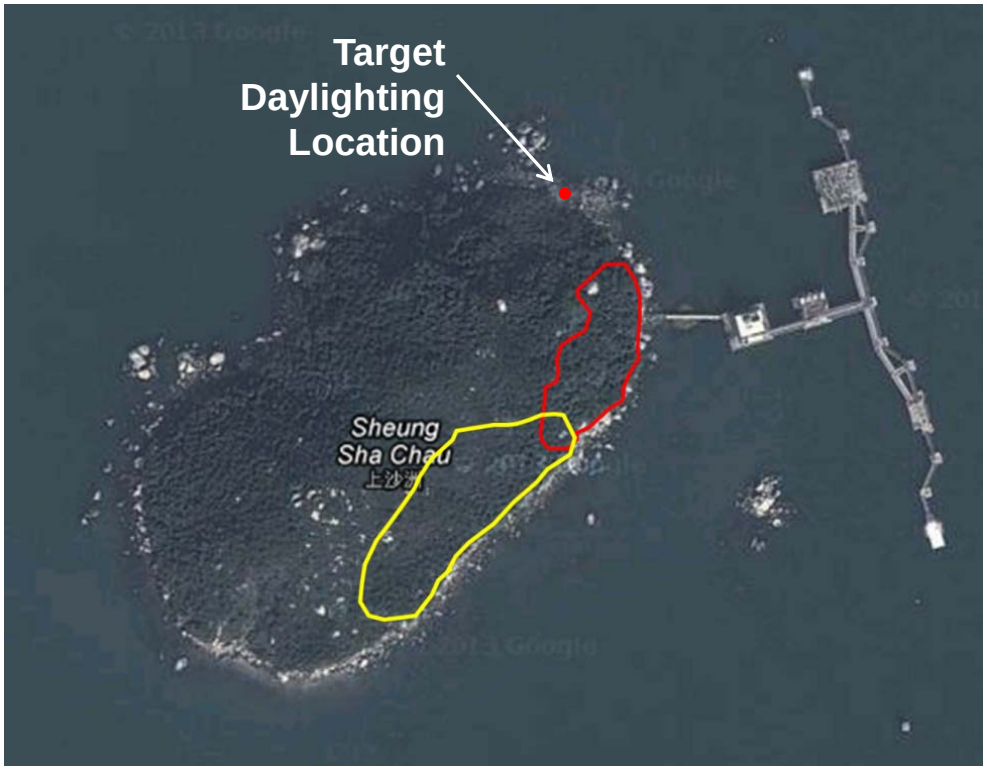
Summary of Works and Progress on the Sheung Sha Chau

Completed Surveys

- Egretry Survey
- Topographic Survey
- Tree Survey
- Boulder Survey

Works will be temporarily suspended during the ardeid breeding season from April to July



Approximate Boundary of Sha Chau Egretry in 2013

Approximate Boundary of Sha Chau Egretry in 2015

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EM&A Update

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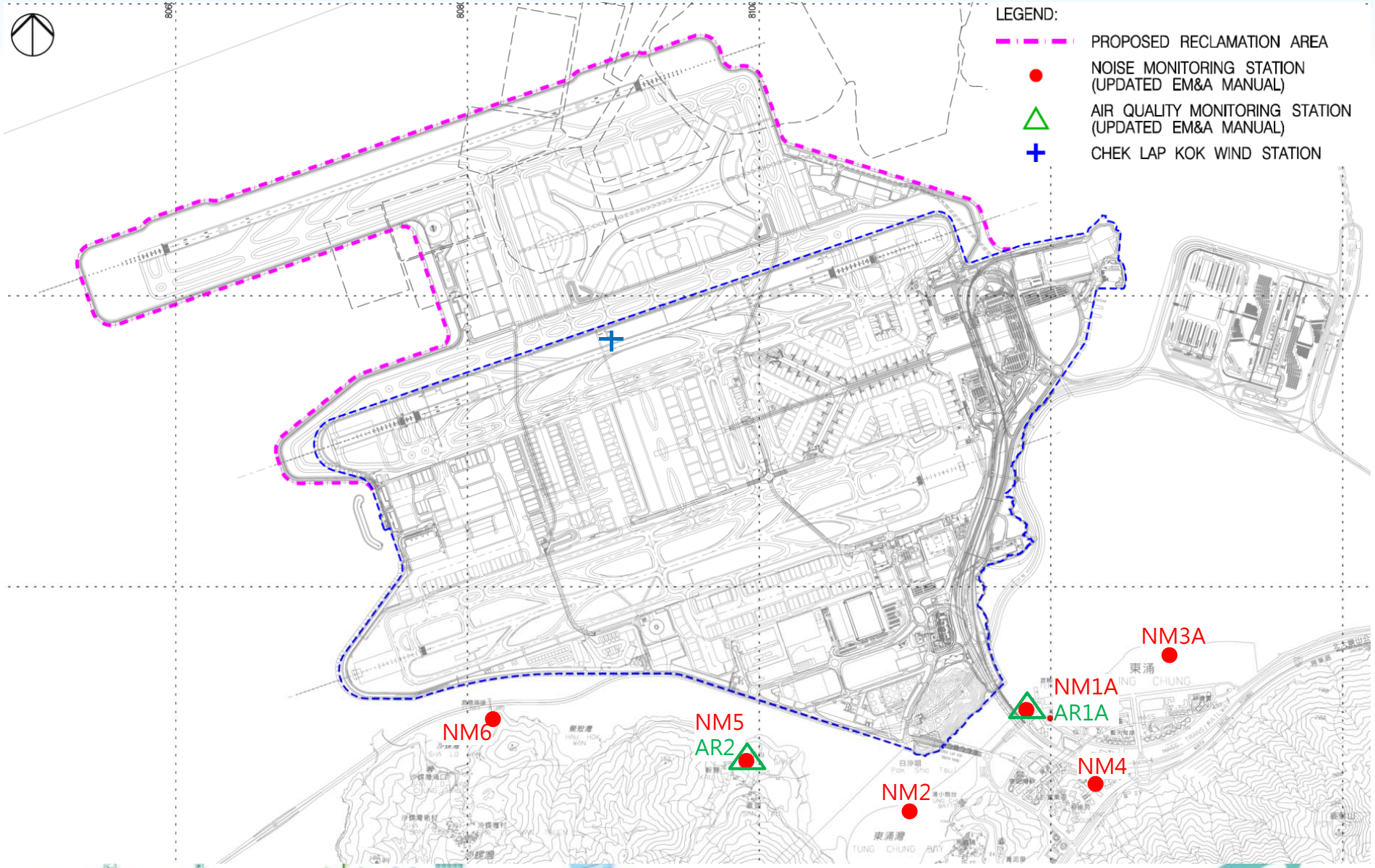
Air Quality and Noise Monitoring Stations During Construction Phase



Air Quality and Noise Monitoring During Construction Phase

- Baseline monitoring: completed in November 2015
- Impact monitoring: on-going

Impact Monitoring	Monitoring Stations	Frequency
Construction Dust	AR1A - Man Tung Road Park AR2 - Village House at Tin Sum	3 times every 6 days
Construction Noise	NM1A - Man Tung Road Park NM2 - Tung Chung West Development* NM3A - Site Office NM4 - Ching Chung Hau Po Woon Primary School NM 5 - Village House at Tin Sum NM6 - House No.1, Sha Lo Wan	Once every week

Remarks:
* NM2 monitoring will only commence after occupation of the future Tung Chung West Development

AR1A - Man Tung Road Park

AR2 & NM5 – Village House at Tin Sum

NM4-Ching Chung Hau Po Woon Primary School

CWD Monitoring During Construction Phase

- Baseline monitoring: on-going
  - Monitoring period: Dec 2015 to June 2016 (6 months)
- Monitoring scope
  - Vessel Line Transect Surveys
    - Provide data for density and abundance estimation
    - Identify photo of individual dolphins with the monitoring area (i.e. scratches, nick marks, cuts wounds and distinguished color patterns)
  - Land-based Theodolite Tracking
    - Record position of dolphin each time when it surfaces
    - Tracking continues until dolphins are lost from view, move beyond the range of reliable visibility or environmental conditions obstruct visibility
    - Behavioural descriptions and potential avoidance/ association by CWDs relative to vessels or other on-water anthropogenic activities recorded
  - Passive Acoustic Monitoring (PAM)
    - Track diurnal patterns of CWD presence and vocal activity
    - Coincide and supplement the data collected from the land-based monitoring Sha Chau station

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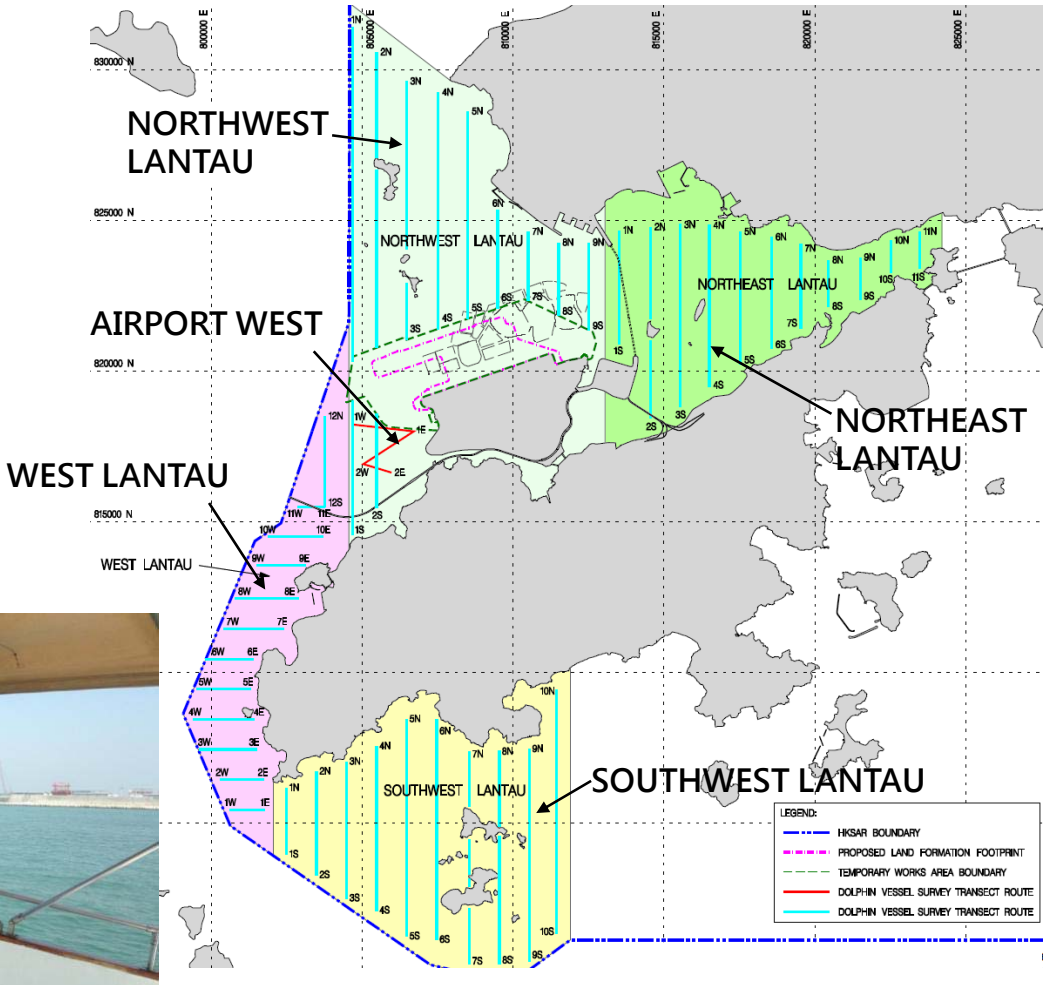
CWD Monitoring – Vessel Line Transect Surveys

- Frequency:
  - Two full surveys per month
- Locations:
  - Airport West (AW)
  - Northeast (NE) Lantau
  - Northwest (NW) Lantau
  - West (W) Lantau
  - Southwest (SW) Lantau



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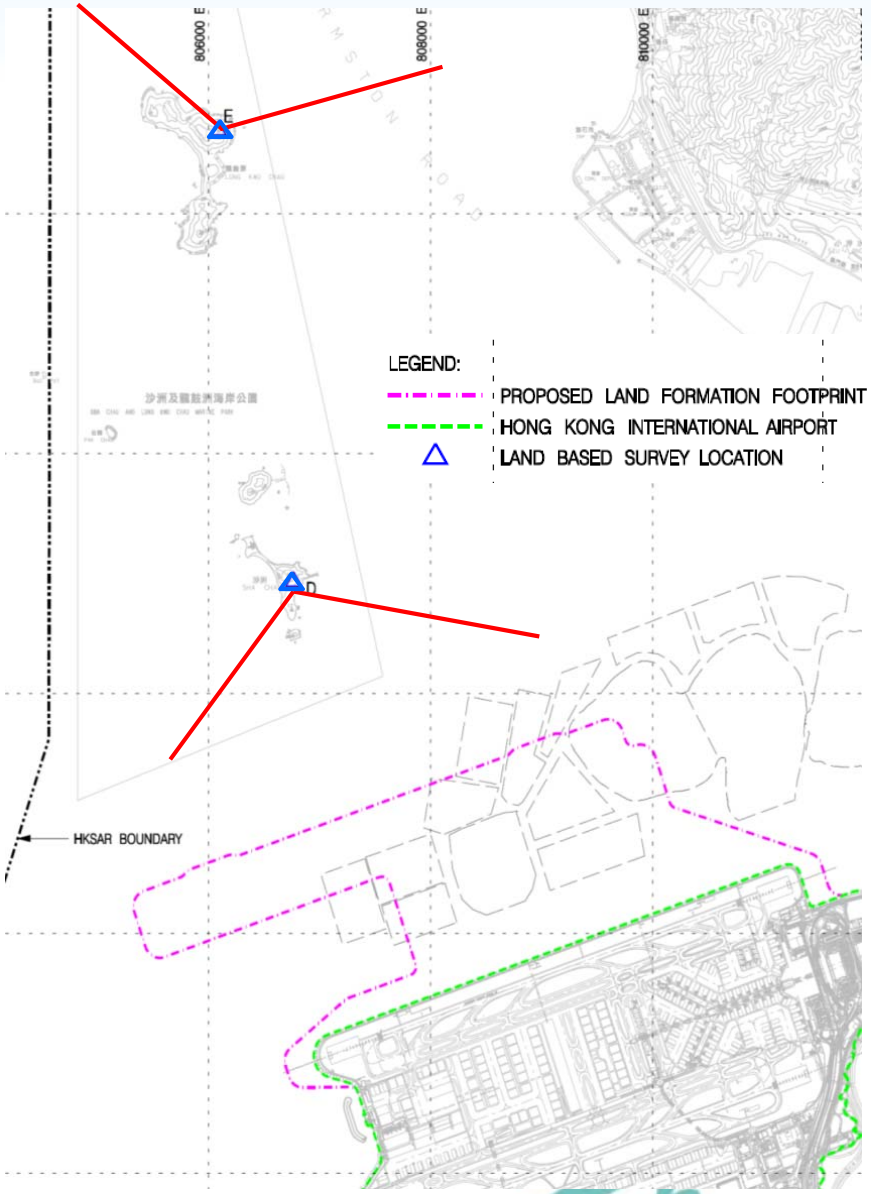
CWD Monitoring
– Land-based Theodolite Tracking

- Frequency & Location:
  - Two days at the Sha Chau per month
  - Three days at Lung Kwu Chau per month



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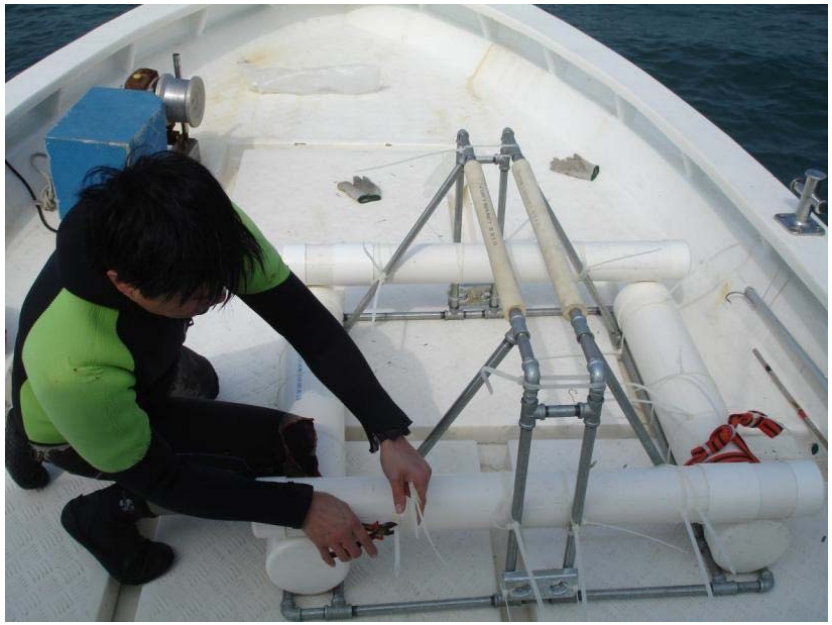
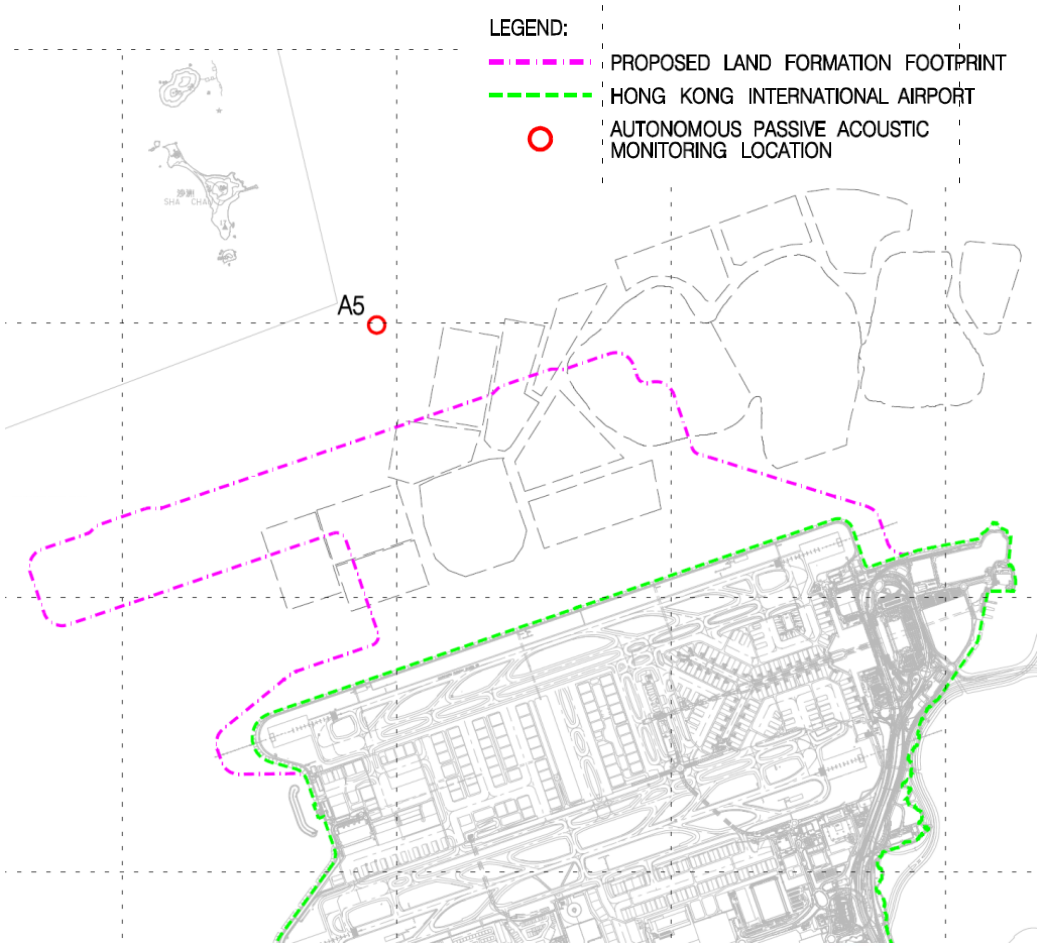
CWD Monitoring
– Passive Acoustic Monitoring (PAM)

- Location:
  - at the south of Sha Chau Island





Ecology (CWD) Monitoring
Survey on Fisheries Activities to Review the Potential Risk on CWDs

Propose to conduct literature review and survey on fisheries activities with the following aims:

- Develop baseline profile of fishing activities distribution in HK prior to the trawl ban by reviewing relevant EIA data, available information from AFCD and other literatures
- Conduct interviews with representatives of fishermen associations to understand their current fishing after trawl ban
- Conduct vessel survey in parallel to CWD monitoring to record the fishing activities in western Hong Kong waters for 12 months
- Analyse the collected information and compare with the baseline information to conduct qualitative review on the shift of fishing activities since the trawl ban and identify potential impacts on CWD

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Site Inspection at Launching Site – Implementation of Mitigation Measures

Erection of hoarding along site boundary

Wastewater treatment facility installed on-site

Provision of recycle bins to reduce waste generation

Installation of u-channel for site drainage

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Site Inspection at Stockpiling Area – Implementation of Mitigation Measures

Water spraying for active works area

Erection of hoarding along site boundary

Installation of u-channel for site drainage

Cover excavated materials by tarpaulin to prevent dust generation

Provide wheel washing facility to remove any dusty materials from vehicle body and wheels

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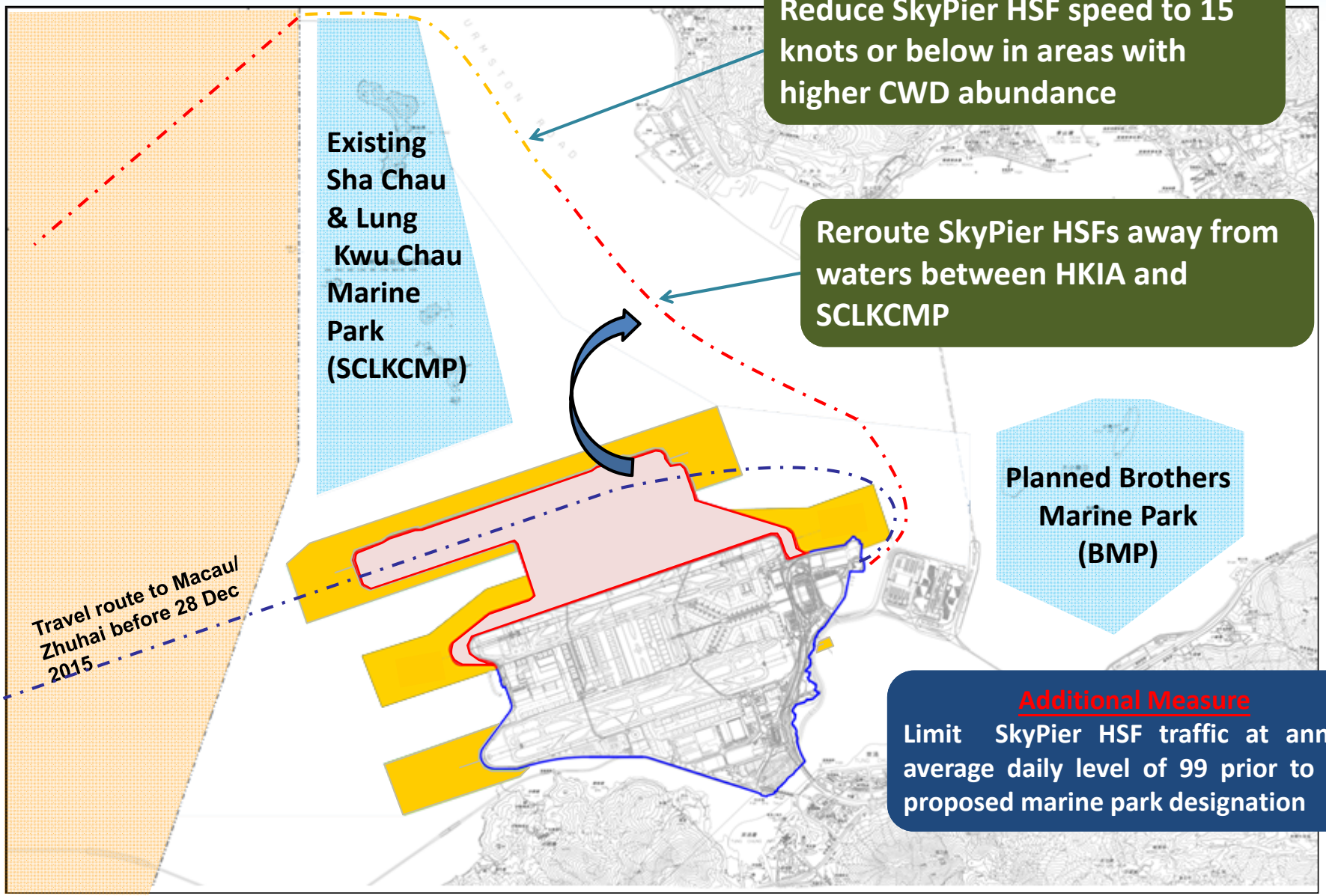
High-speed Ferry (HSF) – Marine Traffic Routes and Management Plan

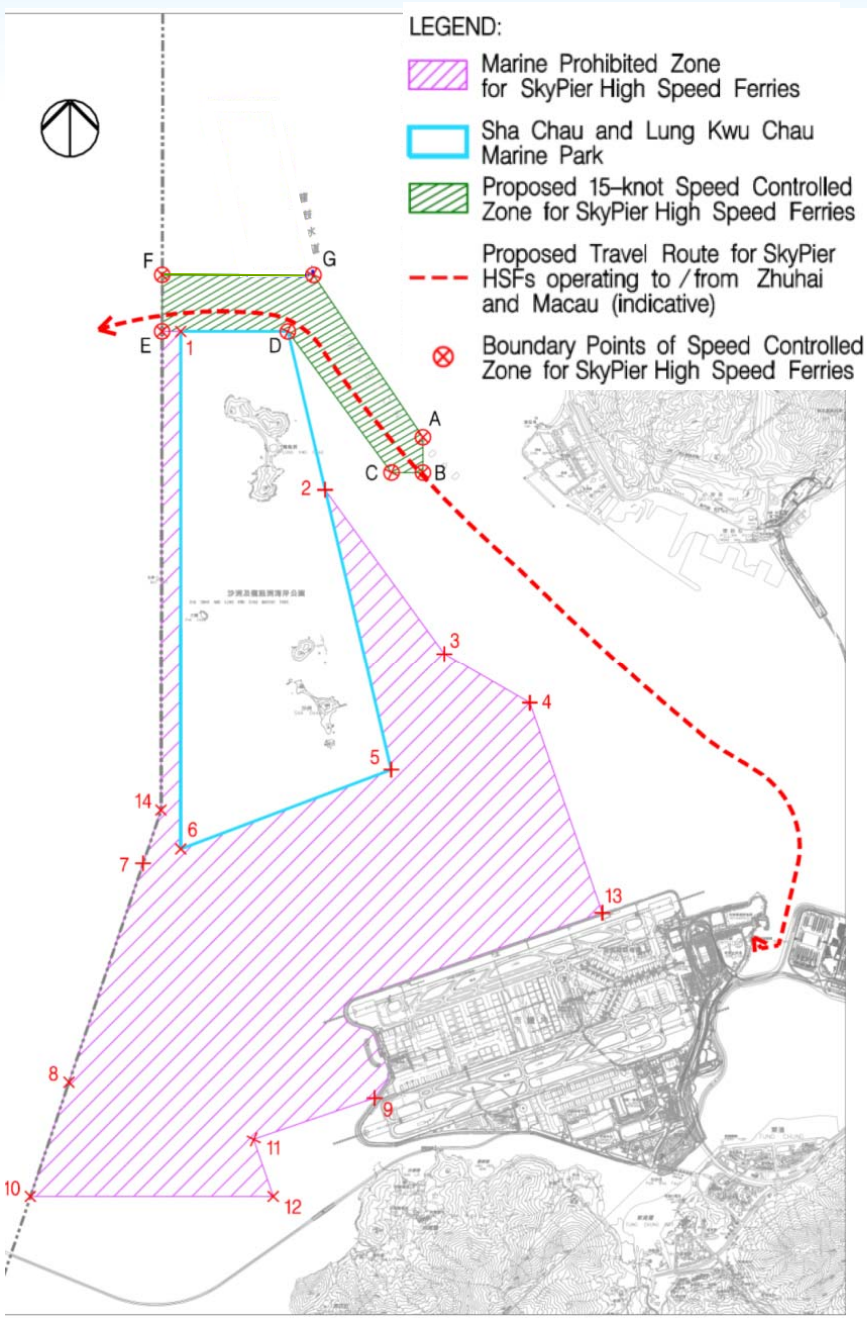


Have been implemented since 28 Dec 2015

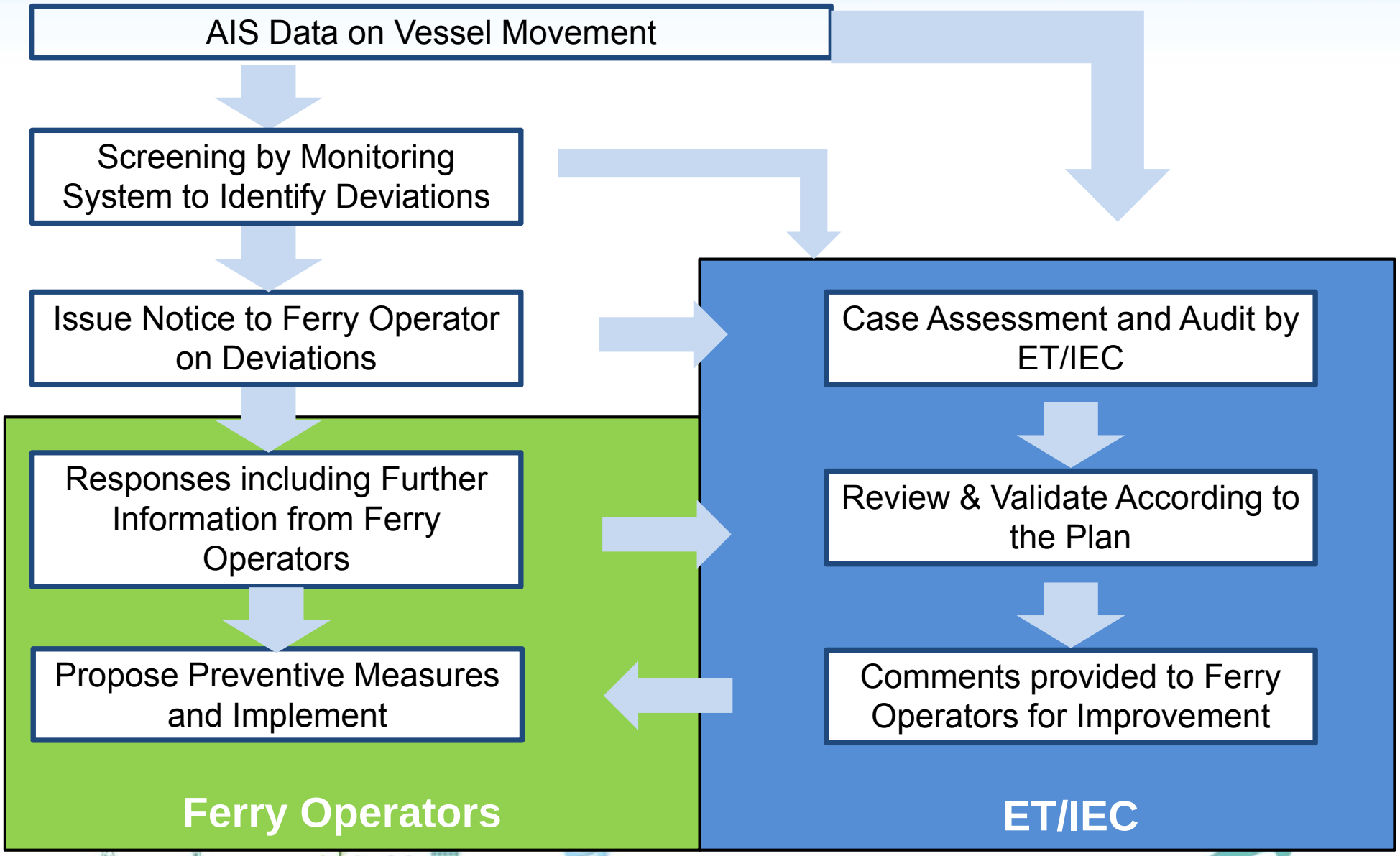
SkyPier HSF Route Diversion – Compliance Monitoring

The following cases might deviate from the plan and need detailed audit:

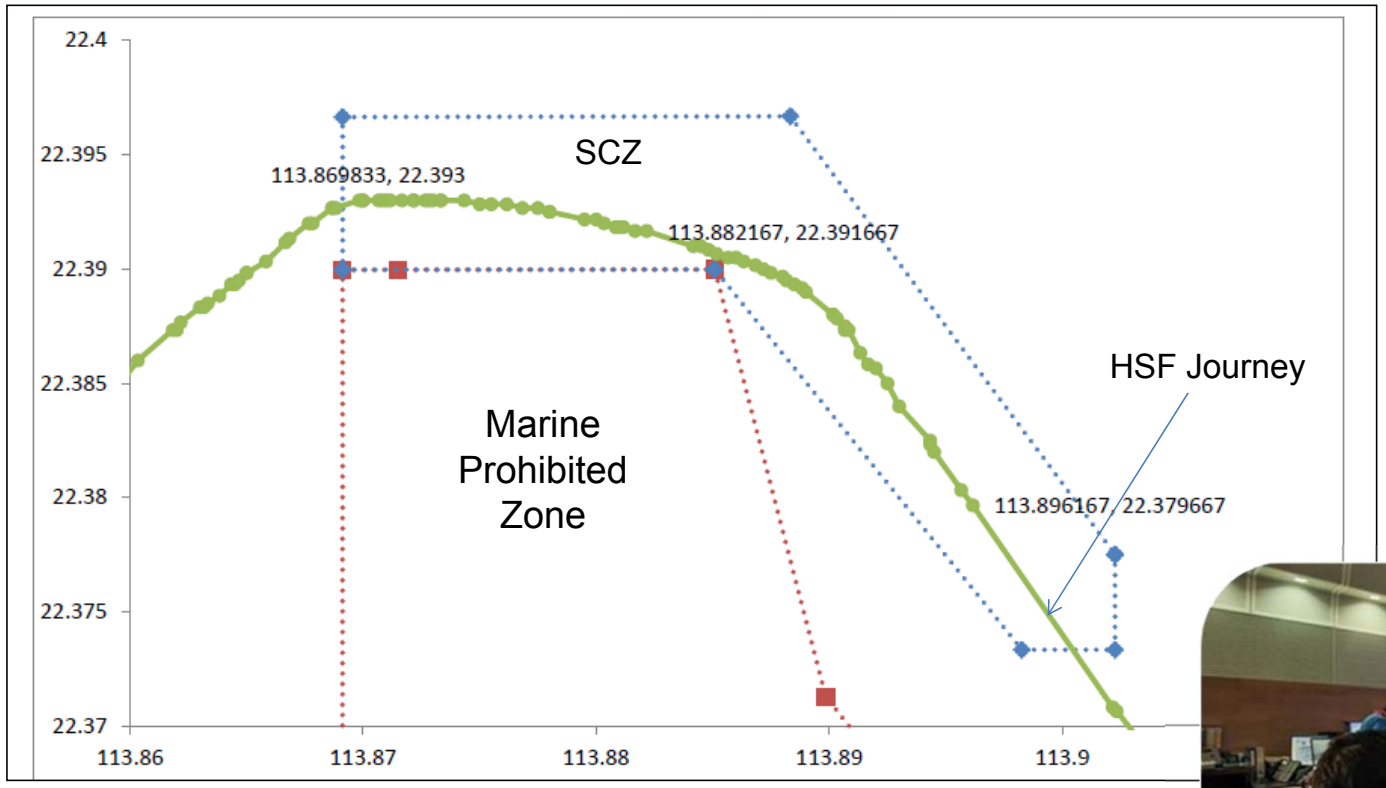
- Entering the Marine Prohibited Zone
- Not travelling within the Speed Controlled Zone (SCZ) corridor
- Not Entering / Leaving the SCZ through the Gate Assess Points
- Exceeding the 15 knots prevailing speed limit in the SCZ (any speed record of diverted ferries within SCZ above 15 knots/hr is the screening criteria)



SkyPier HSF Route Diversion – Work Flow



SkyPier HSF Route Diversion – Auditing System



SkyPier HSF Route Diversion – AIS Data Output

U	Date & Time(UTC)	Longitude	Latitude	Speed Over Ground	Course Over Ground	Heading	Date&Time (local)
4	03/06/2016 02:55	113.8745	22.3925	13.3	88	88	06/03/2016 10:55:36
4	03/06/2016 02:55	113.8752	22.3925	12.6	90	88	06/03/2016 10:55:48
4	03/06/2016 02:56	113.8763	22.3925	14.1	90	89	06/03/2016 10:56:05
4	03/06/2016 02:56	113.8768	22.3925	14.3	91	89	06/03/2016 10:56:12
4	03/06/2016 02:56	113.8772	22.3925	13.2	90	89	06/03/2016 10:56:16
4	03/06/2016 02:56	113.8778	22.3925	12.4	90	88	06/03/2016 10:56:28
4	03/06/2016 02:56	113.8782	22.3925	13.3	89	89	06/03/2016 10:56:32
4	03/06/2016 02:56	113.8795	22.3925	13.7	95	95	06/03/2016 10:56:52
4	03/06/2016 02:57	113.8802	22.39233	15.2	97	99	06/03/2016 10:57:00
4	03/06/2016 02:57	113.8805	22.39233	15.1	99	103	06/03/2016 10:57:04
4	03/06/2016 02:57	113.8823	22.39167	13.4	109	107	06/03/2016 10:57:32
4	03/06/2016 02:57	113.8837	22.3915	14.3	105	103	06/03/2016 10:57:52
4	03/06/2016 02:58	113.8845	22.39117	13.6	104	105	06/03/2016 10:58:04
4	03/06/2016 02:58	113.8852	22.391	12.1	113	114	06/03/2016 10:58:16
4	03/06/2016 02:58	113.8853	22.391	12.1	114	118	06/03/2016 10:58:20
4	03/06/2016 02:58	113.8857	22.39083	12.8	120	121	06/03/2016 10:58:24

Speed over 15 knots lasted for less than 1 minute

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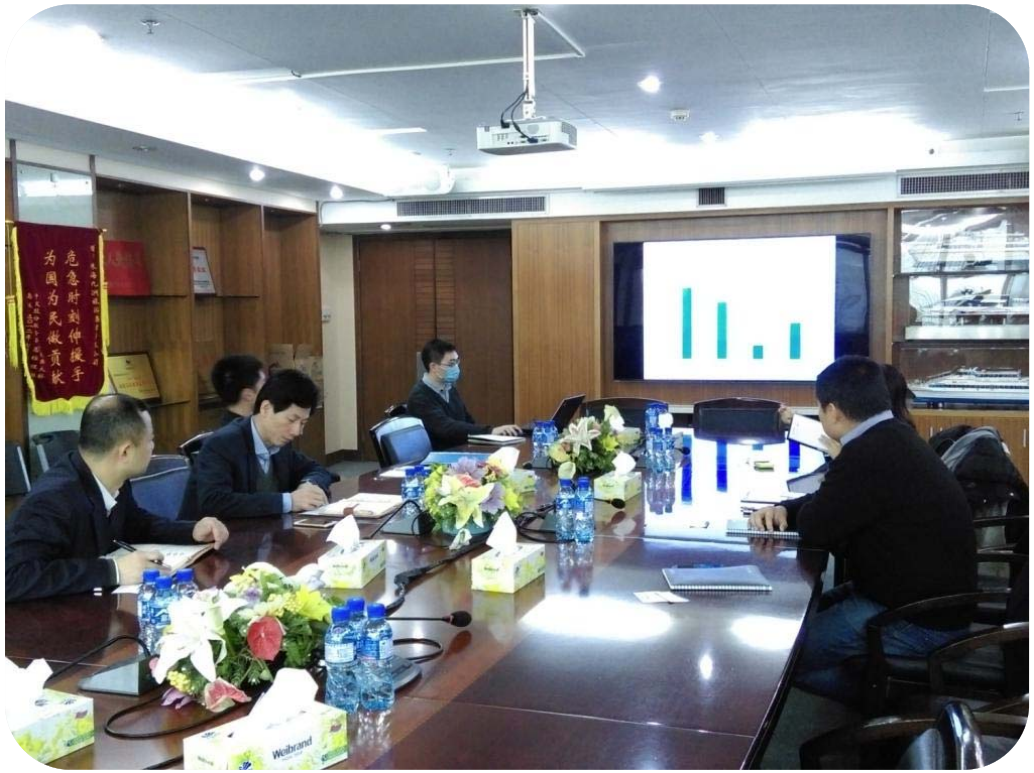
SkyPier HSF Route Diversion – Training Workshops for SkyPier Operators

- Training Workshops were held in December 2015, January and March 2016



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SkyPier HSF Route Diversion – No. of Notices Issued by AA to Ferry Operators

Period	No. of notices issued by AAHK to ferry operators related to instantaneous speeding across the SCZ	Prevailing Speed Below 15 knots
28 – 31 Dec 2015 (4 Days)	40	Yes (except 9 cases)
1 – 31 Jan 2016 (31 Days)	83	Yes (except 3 cases)
1 – 29 Feb 2016 (29 Days)	51	Yes

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Summary of SkyPier HSF Compliance

- Prevailing speed of HSF in the SCZ:
  - All within 15-knot in February 2016 and complied with the Plan's requirement
- Part of the journeys were found to have instantaneous speeding* during audit:
  - Local strong water current e.g. associated with head-on large vessels (container and ocean-going vessels) and anchored vessels
  - Speeding up or overtaking for a short duration was considered necessary for public safety
- The above reasons are all complied with the Plan that Captain carries out an action in response to an emergency and in the interests of public safety or public health
- Report to ACE on the effectiveness of the SkyPier Plan after the initial six-month of implementation

*Instantaneous speeding means the speed of HSF exceeds 15-knots for a short period of time

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Deep Cement Mixing
2nd Field Trial

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Video – 2nd DCM Field Trial

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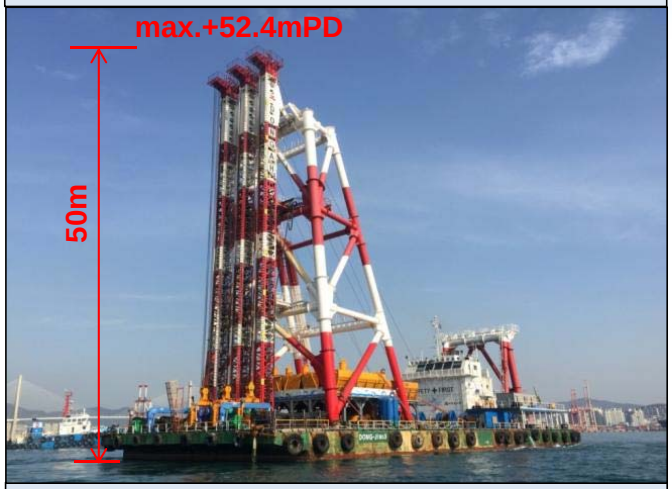
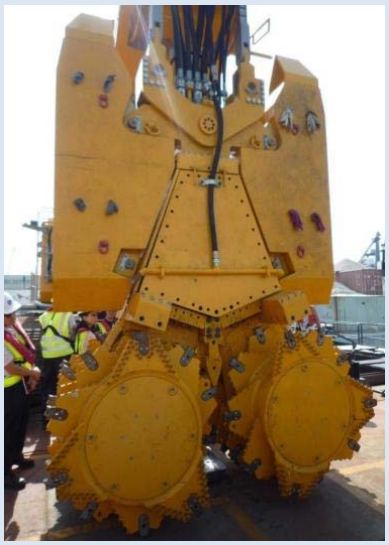
2nd DCM Field Trial

Single Rig
Japan

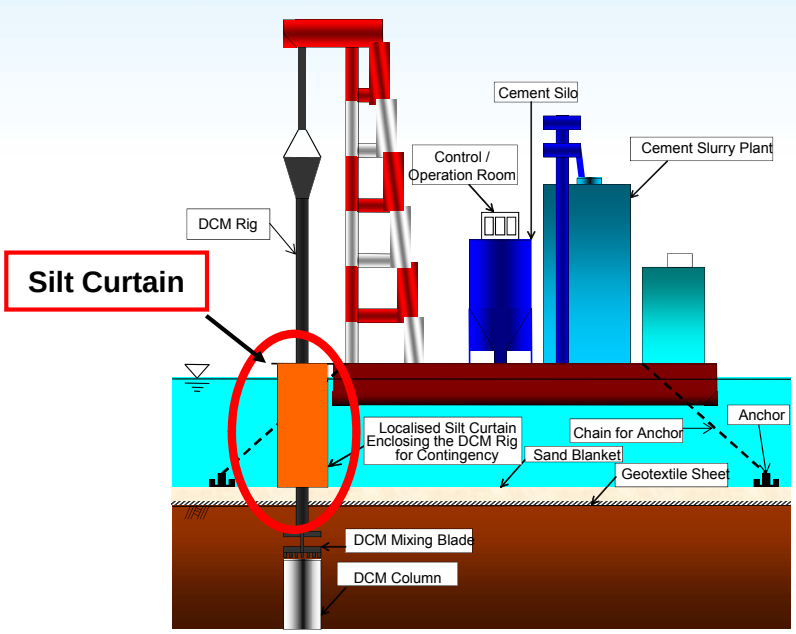
Multiple Rigs
Korea



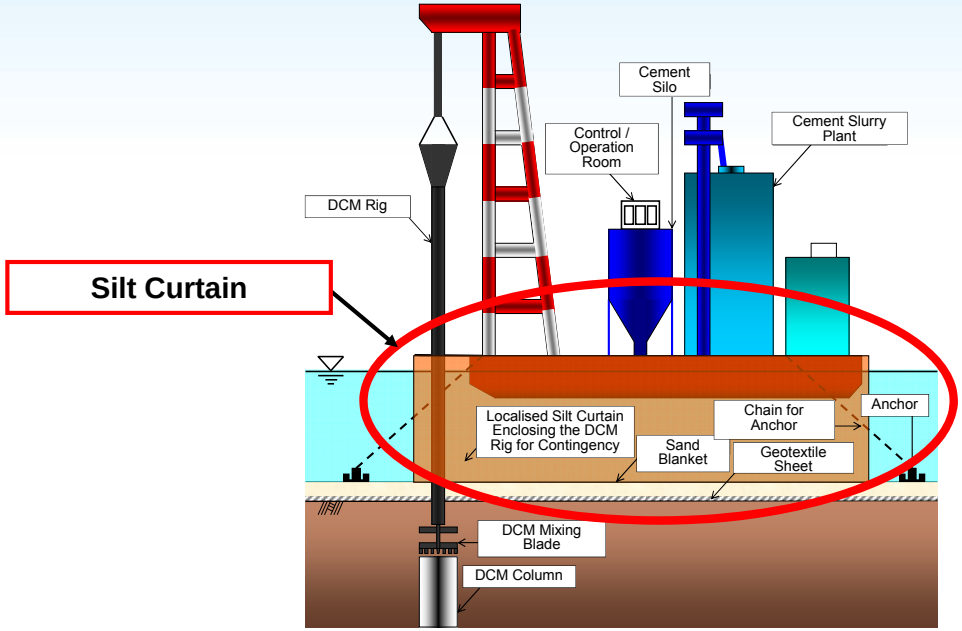
Low Head Room Rig
Europe



Silt Curtains



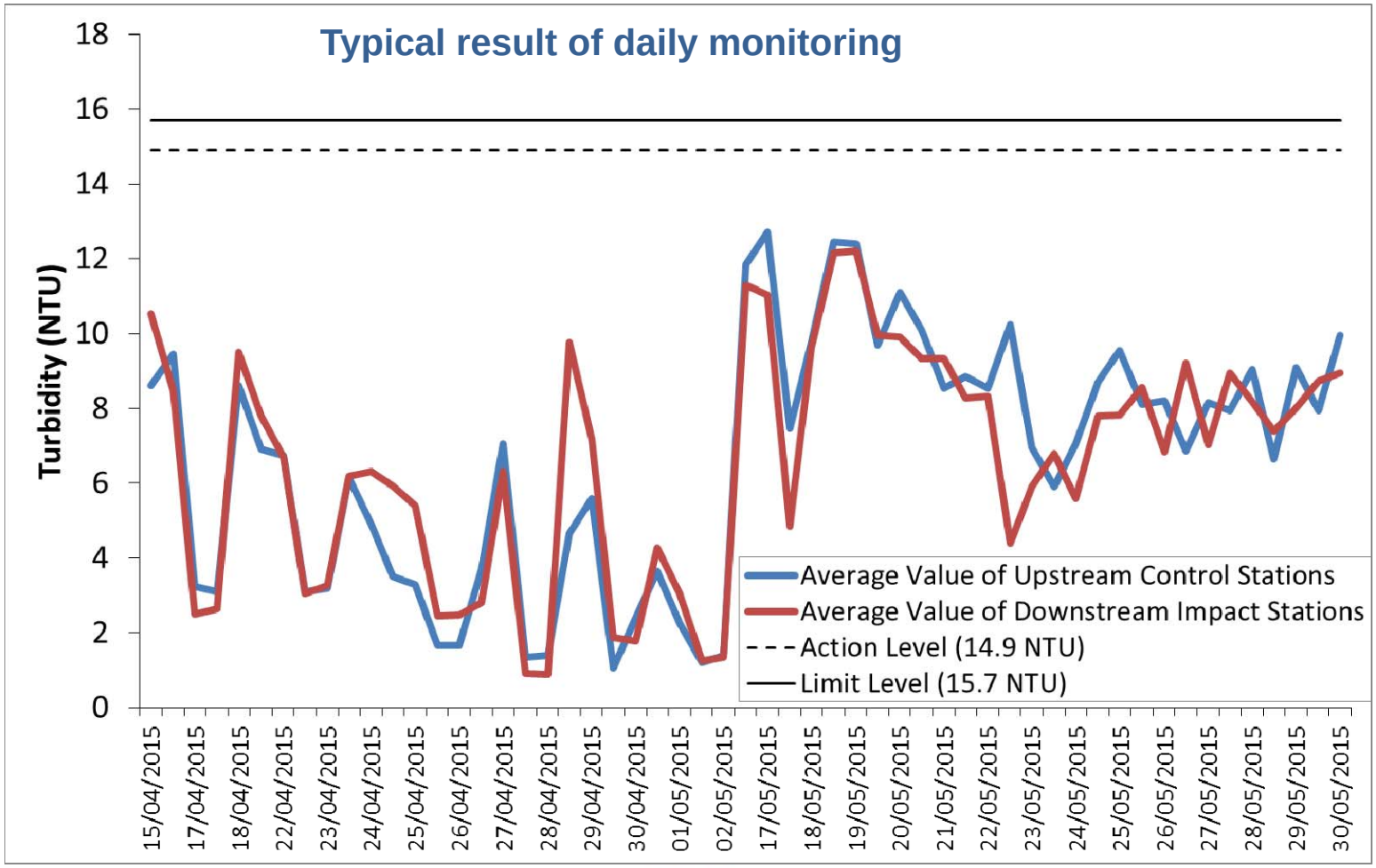
1. **Silt Curtain Surrounding DCM Mixing Shaft**



2. **Silt Curtain Surrounding DCM Barge / Works Area in case of emergency**

2nd DCM Field Trial – Water Quality Monitoring

- **Turbidity (no exceedance of action or limit levels)**



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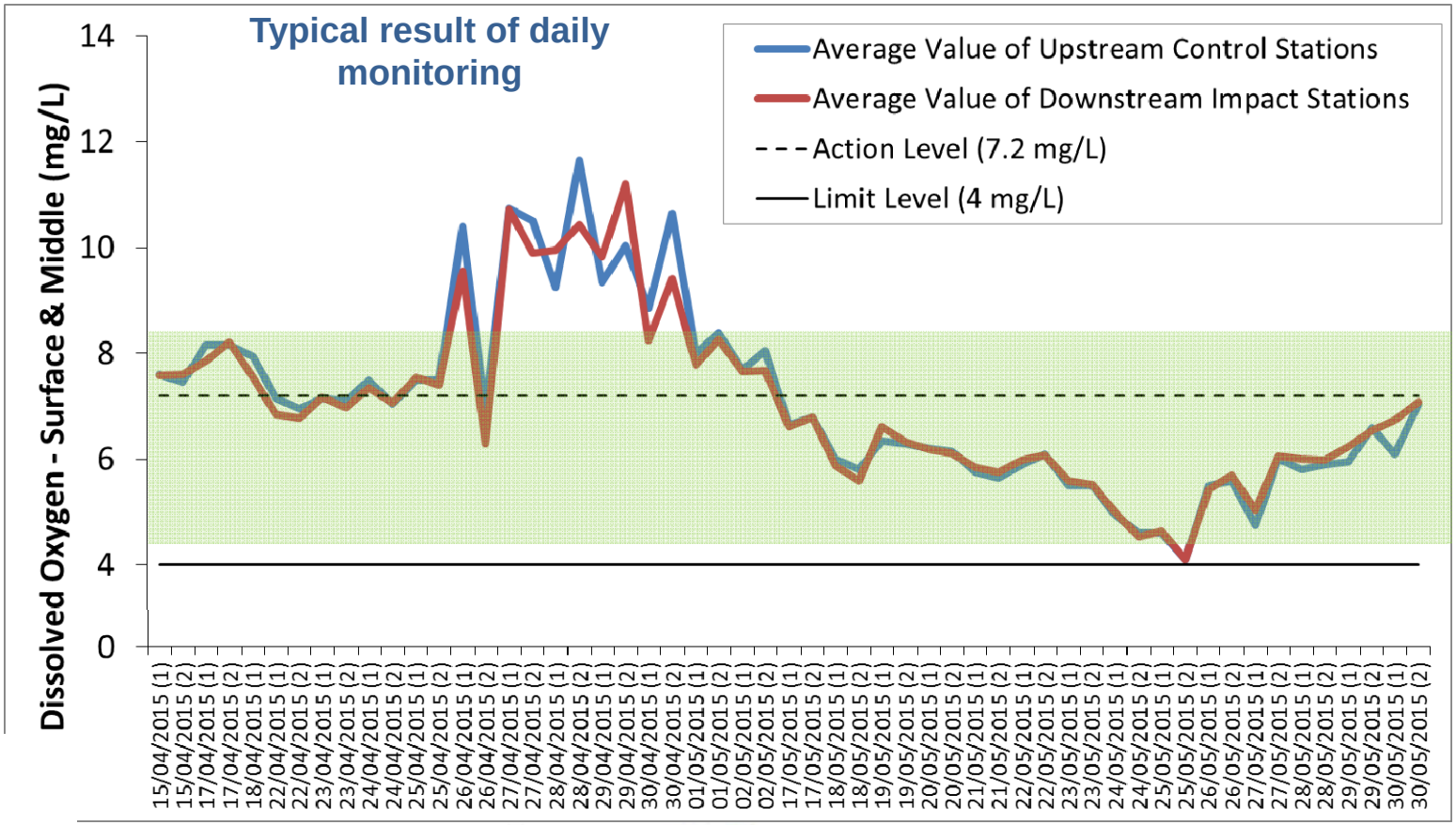
2nd DCM Field Trial – Water Quality Monitoring

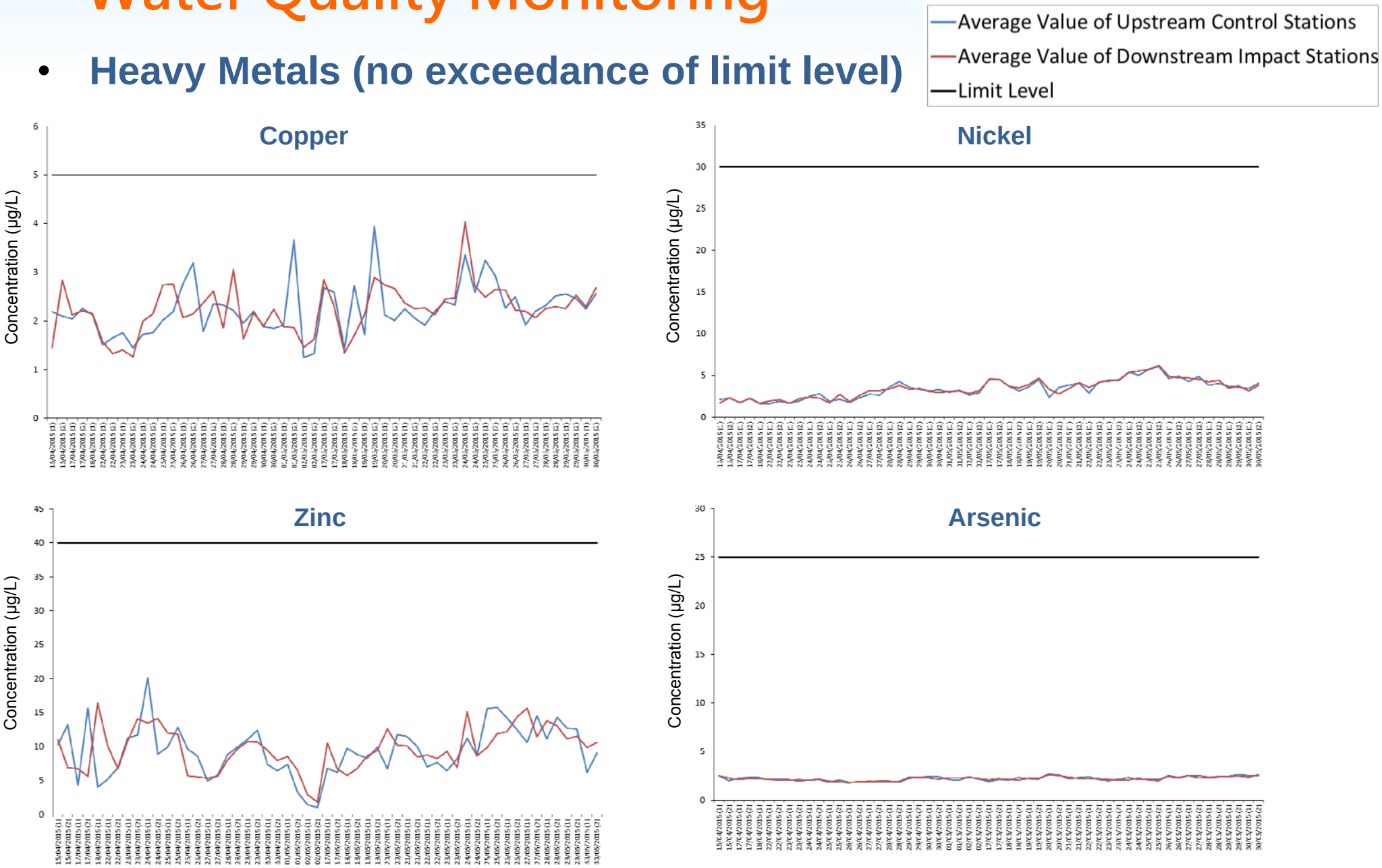
- **Dissolved Oxygen (non-project related non-compliances during daily monitoring at both upstream and downstream stations due to natural fluctuations in DO values)**



EPD's monitoring range in 2014

2nd DCM Field Trial – Water Quality Monitoring

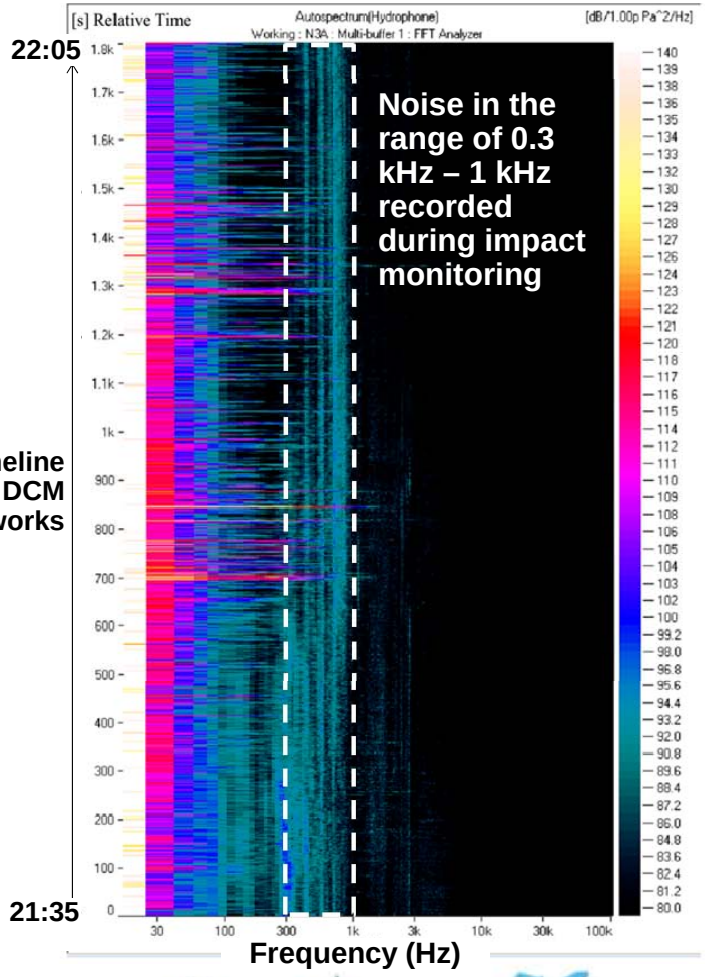
- **Heavy Metals (no exceedance of limit level)**



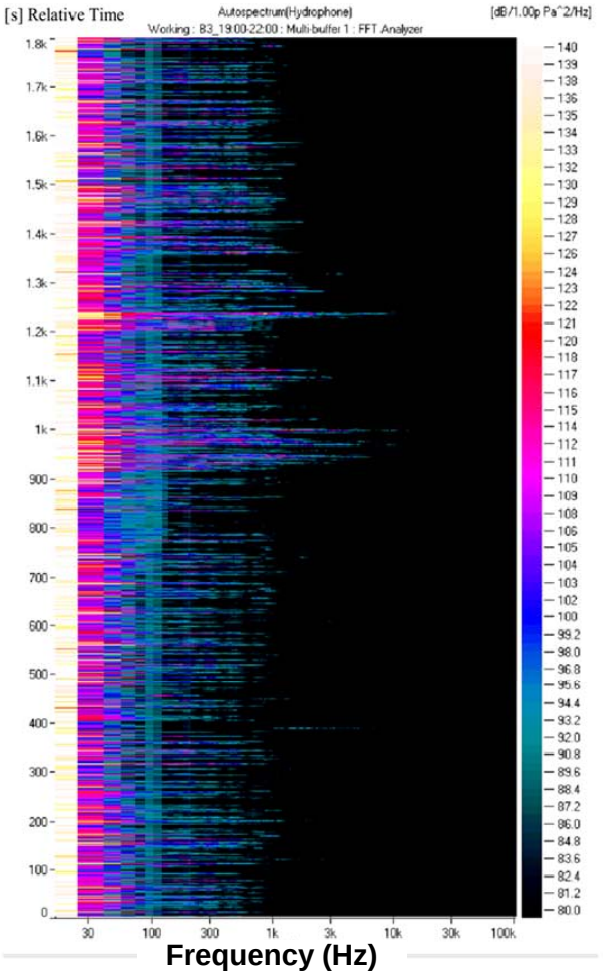
2nd DCM Field Trial – Underwater Noise Monitoring

Underwater Noise of DCM – Spectrograms
Concurrent DCM Installations by Single Rig and Multiple Rigs

Impact at 150m from DCM rigs on Sunday 21:35-22:05

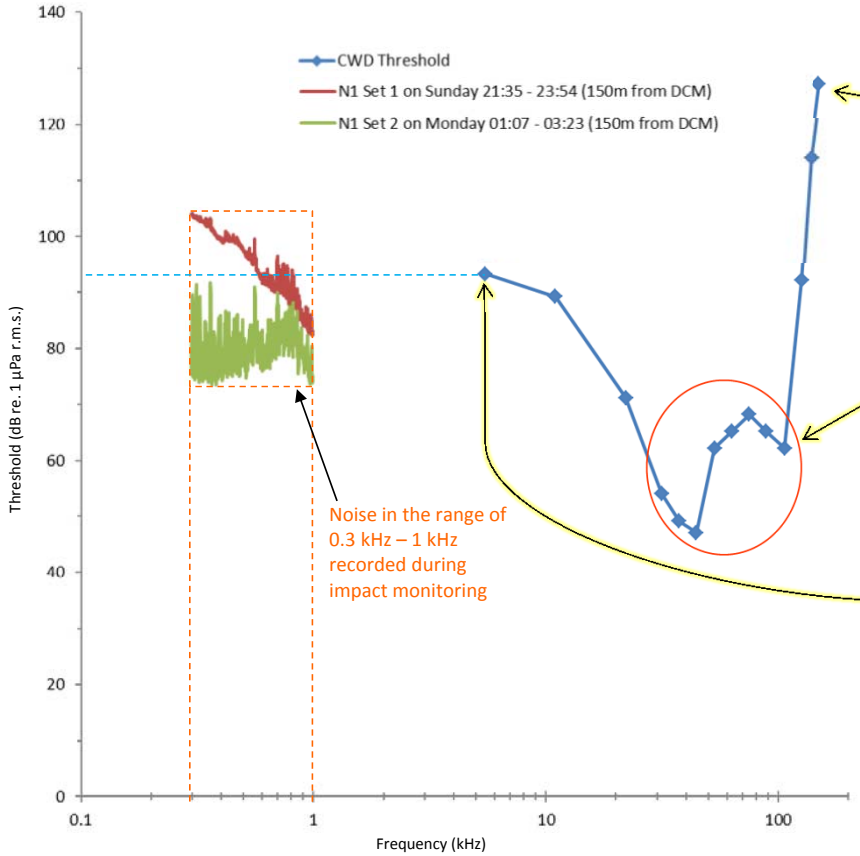


Baseline on Sunday 20:23-20:53



2nd DCM Field Trial – Underwater Noise Monitoring

Underwater Noise of DCM and Hearing Threshold of Chinese White Dolphin
Concurrent DCM Installations by Single Rig and Multiple Rigs



Source: Li S., Wang D. Wang K. et. al. 2012. Evoked-potential audiogram of an Indo-Pacific humpback dolphin (Sousa chinensis)

Audiograms for dolphins are typically V- or U-shaped – hearing sensitivity declines towards the edge of hearing range.

CWD's high hearing sensitivity region: about 20 kHz – 120 kHz.

No experimental information on hearing sensitivity of CWD below 5 kHz

Dolphins will be able to hear the low frequency (near the 1 kHz area), but the noise impact is unlikely to be harmful to them.

2nd DCM Field Trial – Summary of Environmental Monitoring

- Underwater noise from DCM works is outside the frequency range of CWD's high hearing sensitivity region
- Suspended solids recorded during the DCM works were low
- No adverse sediment plume from the DCM works
- No detected leakage of contaminants from the Contaminated Mud Pit

Thank You

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