

Contract Title: Design and Construction of Redevelopment of Queen Mary Hospital,

Phase 1 Main Works at Pok Fu Lam Road, Hong Kong

## **Green Contractor Award 2021**

Date: 29August 2022



PAUL Y. - ABLE JOINT VENTURE



- 1. Project Introduction
- 2. Site-Specific Constraints
- 3. Environmental Management System
- 4. Mitigation Measures
  - 4.1 Noise Pollution Mitigation
  - 4.2 Air Pollution Mitigation
  - 4.3 Waste Mitigation
  - 4.4 Environmental Provision for Worker Well-being

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## 1.1 Project Information

- Contract No.: SS F501
- Contract Title: Design and Construction of Redevelopment of Queen Mary Hospital, Phase 1 Main Works at Pok Fu Lam Road, Hong Kong

Nature: Design and Build Project

Scope of works :

- Demolition of 3 nos. of buildings
- Site formation works
- Construction of a new 34-storey block
  - Superstructure Construction



## **1.2 Bird View Photo – January 2021**



## **1.3 Bird View Photo – December 2021**



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## **2.0 Constraint – Extremely Close Proximity to Operating Hospital**



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## 3.1 Risk-Oriented Site Planning for Safety *Environmental* Concern



Risk-oriented site planning is adopted in order to identify the potential hazards and the

correspondence safety and environmental working procedures.

## 3.1 Risk-Oriented Site Planning for Safety *Environmental* Concern



Environmental Hazard Identifications

#### 3.2 Workplace Hazard i-Mgt System (WHiMS) regarding the Environmental Concern



#### **Construction Supervisor Inspection**

Even though the work has not yet commenced, photo record of the condition must still be taken and uploaded.

Reporting time is automatically generated, i.e. Real Time

### 3.3 Care & Control Centre for Environmental monitoring and supervision



- 1. CCTV Monitoring System;
- Data Centre for IoT Sensors
  (Incl. Dust, Noise, Water
  Quality, Water Level Sensors to be illustrated in Section 5);
- 3. Tower Crane Safety Monitoring System;
- Workplace Hazard i-Mgt System (*WHIMS*);
- 5. Vibration Monitoring System;

## **3.4 Planning for the Works avoid abortive work** by Utilization of BIM Model – Planning of Building Services Works



BIM Model is utilized to plan and budget the building services materials accurately. The advantages are as follow:

#### 1. Conflict of each trade of building services work is avoided;

- Optimum effort is achieved provision and maneuvering of plant can be minimized and thus energy consumption is substantially reduced.
- All <u>duct and pipe accessories and joints</u> are presented in the true model and thus material wastage can be minimized.

## 3.5 Planning for the Works <u>avoid abortive work</u> by 4D Animation at Plant Rooms for Coordination with EMSD

BIM Walkthrough Animation at Plant Rooms for Coordination with EMSD to clearly simulate the completion stage of plant rooms which avoid any production of construction waste due to the in-situ modification works



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### 4.1 Noise Mitigation Measures



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#### 4.2 Wide Adoption of Dust-Free Appliance During Dusty Works



#### 4.2 Handheld Tools with Vacuum Cleaner



## Wireless and dust-free electrical appliances, i.e. connected to Vacuum Cleaner, are widely adopted on site and <u>must be used for dusty</u> works, e.g. wall grinding.



## 4.3 Monitoring – Considerate Environmental System (dust and Noise)



exceed the preset standards.

in

feedback

and

in air would be full-time monitored at cloud-based platform

**Center**. Alert would be issued if any detected figures

are

ana

control

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**4.3** Aluminium formwork to reduce use of timber formwork



Expect the Non-typical area, Fully application of aluminium formwork to greatly reduce the waste of timber.

## 4.3 Sorting and Timber Recycling

#### From Superstructure Works



Unusable Timber is collected and recycled for using e.g. fuel, recycle wooden floor tile, of other sustainable projects

## 4.3 Sorting and Timber Recycling



九龍環境處理發展有限公司

Kowloon Environmental Development Limited

#### Timber Recycling Report For Dec 2021

Client: Able Building Construction Limited Type of Waste Collected: Timber Waste Pick-Up Location / Project : Construction Site at Queen Mary Hospital

Service Date		Weight of Timber Collected (Tonnes)
17-12-2021		4.060
18-12-2021		4.710
20-12-2021		4.460
30-12-2021		4.200
31-12-2021		4.030
	Total:	21.46 Tonnes (5 times)

#### Application of Waste Collected:

We declare that timber waste collected from Construction Site at Queen Mary Hospital is re-used in our project - *"Fish Feed from Food Wastes for Sustainable Fish Farming"* (collaborated with *The Education University of Hong Kong*). The project is funded by *Sustainable Agricultural Development Fund* of Agriculture, Fisheries and Conservation Department.



Biomass - fuel supply to the local and overseas market e.g. Japan, Korea, etc. to produce heat energy **(Zero Carbon Emissions)** 

Unusable Timber is collected and recycled for further production e.g. fuel- Biomass (生物質) to the local market and overseas e.g. Japan, Korea.

## 4.3 Sorting and Timber Recycling



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## 4.4 Provision of Water to Workers by in Environmentally

Save 2,400 plastic bottle; 43,200L water

## **Pure Water Station**

SuperiorOsmosis<sup>™</sup> 瑞典專利淨水技術 健康

冰涼

Outdoor water station, which provides <u>cool and purified water</u> (i.e. reduced <u>99% contaminants</u>) to the workers, has been installed and operated on-site. It also effectively <u>avoids the using of 90% of plastic bottles</u>! Sustainability Save over 1,400 18L plastic bottles since August 2021 !

## 4.4 Provision of Water to Workers by in Environmentally

#### Aim: AVOIDANCE of using



#### Stage 2: Indoor Station

Indoor water station would be installed at N-3 floor, canteen and other workers' facilities.

#### Arrangement at Working Floor



#### Stage 1: Bluewater Outdoor Station

Statistics:

Operation Period: 26/7/2021 to 31/8/2021 Consumption of Water: Approx. 2,800L Consumption of CO<sub>2</sub> GAS: 1 Cylinder (*Remarks: Filters have to be inspected / renewed for 7,000L water*)



Cool water contained by a dispenser bucket would be delivered to the working floor.

## **Eliminate 90% of Plastic Bottles!**

## 4.4 Reusable Lunch Box and Tableware



# Reusable Lunch Box and Tableware



In 2021, approx. 70,000 nos. of Styrofoam boxes (200 nos./day) are avoided.

### Environmental Protection + Worker Well-being

Reusable lunch boxes and tableware are provided to workers and site personnel.

All reusable lunch boxes would be collected for cleaning after lunch everyday.

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## end | thank you