Appendix 7.1 Contamination Assessment Plan (CAP)

Alternative Ground Decontamination Works at the Proposed Kennedy Town Comprehensive Development Area Site

Contamination Assessment Plan based on Risk-Based Remediation Goals

February 2013

Civil Engineering and Development Department

CEDD

Mott MacDonald

Alternative Ground Decontamination Works at the Proposed Kennedy Town Comprehensive Development Area Site

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Civil Engineering and Development Department

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Content

Figures

1. Introduction

1.1 Background

Mott MacDonald Hong Kong Limited (MMHK) has been commissioned by the Project Proponent – Civil and Engineering and Development Department (CEDD) – to undertake the detailed design of the ground decontamination works at the Proposed Kennedy Town Comprehensive Development Area (KTCDA) Site.

An Environmental Impact Assessment (EIA) study under Agreement No. CE15/99 was previously conducted for the demolition of buildings and structures in the proposed KTCDA site including the ground decontamination works. This study (hereafter referred to as the "original EIA study") included a Contamination Assessment Plan (CAP), which indicated the necessary site investigation to be taken. Subsequently, a Contamination Assessment Report and Remediation Action Plan (CAR/RAP) were submitted to and approved by the Environmental Protection Department (EPD). The EIA Report (hereafter referred to as the "approved EIA Report") was approved by the Director of Environmental Protection (DEP) on 16 April 2002 under the Environmental Impact Assessment Ordinance (EIAO) (EIA Register No. AEIAR-058/2002). An Environmental Permit (EP) was then issued and subsequently varied; the current version was issued by EPD on 15 November 2011 (Permit No. EP-136/2002/D). The recommendations of the CAR/RAP were incorporated into both the approved EIA Report and EP.

As per the EP requirements, a Contamination Confirmatory Investigation (CCI) Proposal was submitted to EPD in January 2003 to recommend further Site Investigation (SI) including soil sampling and laboratory analysis. In 2003, CCI and laboratory analysis were conducted in the Project site area to ascertain the extent of land contamination and volume of contaminated soil based on the CCI Proposal. The Final SI Report was submitted to EPD in May 2004. The CCI indicated that the amount of soil requiring remediation would be significantly larger than the quantity as predicted in the approved EIA Report. As such, the recommended land decontamination methods and related mitigation measures in the approved EIA Report are no longer applicable. Therefore, a supplementary EIA is required for the alternative ground decontamination works.

At the time of approval of the approved EIA Report and the CCI Proposal, Hong Kong was using the Dutch List "B" levels of the Netherlands (hereafter referred to as "Dutch B") which were referenced under the Practice Note for Professional Persons ProPECC PN3/94 "Contaminated Land Assessment and Remediation" (ProPECC PN3/94) issued by EPD in 1994 to interpret the levels of land contamination. In 2007, EPD promulgated the Risk-Based Remediation Goals (RBRGs) to replace Dutch B levels as the new land contamination assessment standards for Hong Kong.

After completion of the CCI, demolition of buildings, structures and chimneys at the KTIP and KTA sites (i.e. Phase 1 Part 1), these two sites were handed over to Mass Transit Railway Corporation Limited (MTRCL) in July 2009 and are presently used as works area for the West Island Line (WIL) construction (i.e. Phase 1 Part 2). Demolition of remaining structures and ground decontamination works (i.e. Phase 2) will commence when the WIL area and the adjoining areas are returned to Government.

In view that the temporary use by the WIL project might generate new potential land contamination, a CAP based on RBRGs has to be submitted to propose additional SI works necessary for the land contamination assessment at the Project site due to any new potential land contamination sources / activities after the previous SI to EPD for approval.

As far as the Project site is concerned, it is considered that the previous SI report or CCI proposal in fact serves the same purpose as the required CAP as part of the land contamination assessment process, and

therefore most of the previous SI data conducted in the "Desktop Study Report for Further Site Investigation at the Proposed Kennedy Town Comprehensive Development Area Site" is still valid for the contaminated land assessment and remediation either based on Dutch B levels or RBRGs. Most of its associated results to fulfil the purpose of the required submission of the CAP for this Project based on the new RBRGs. Details of previous SI data will be discussed in Section 2.

1.2 Objectives

The objectives of this CAP are to:
1. Summarise the findings of the previous SI works for this area based on RBRGs;
2. Identify potential locations of land contamination for the additional SI; and
3. Propose a sampling and testing strategy for the additional SI.

Upon EPD's endorsement of this CAP, the additional SI result will be assessed together with the previous SI. A revised Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) will be prepared to present the findings of the investigation and the strategy of the remedial measures according to the Risk-based Remediation Goals (RBRGs) standard.

1.3 Relevant Environmental Guidelines

On 15 August 2007, two new guidelines utilising Risk-based Remediation Goals (RBRGs) developed for Hong Kong and stipulated in the "Guidance Note for Contaminated Land Assessment and Remediation" (Guidance Note) and "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management" (Guidance Manual) were promulgated for use. The assessment will be carried out in accordance with the Guidance Manual and Guidance Note. In addition to the above, reference would also be made to the "Practice Guide for Investigation and Remediation of Contaminated Land" (Practice Guide).

2. Land Contamination Site Appraisal

2.1 General Site Context

The Kennedy Town Comprehensive Development Area (KTCDA) site is located in Kennedy Town at the north-western side of Hong Kong Island, surrounded by roads and developed areas (mostly industrial, residential and educational) to the west, south and east, and by the open waters of Victoria Harbour to the north, as shown in **Figure 2.1**.

The KTCDA site mainly includes the Kennedy Town Incineration Plant (KTIP), Kennedy Town Abattoir (KTA), Cadogan Street Temporary Garden, a public car park, a refuse collection point (RCP), a Highways Department maintenance depot and a bus depot. The major works involved are divided into the following phases, as presented in **Table 2.1**.

Table 2.1: Different Phases of the Major Works for this Project

Phase	Description	Status
Phase 1 Part 1	Demolition and clearance of all existing chimneys, buildings and ancillary structures above the existing concrete ground slab in the Phase 1 Site area where the former Kennedy Town Incinerator Plant (KTIP) and the Kennedy Town Abattoir (KTA) are located. The Phase 1 Part 1 also includes the removal of asbestos containing materials and dioxin/furan contaminated wastes within the Phase 1 Site.	Completed.
Phase 1 Part 2	Temporary use of the Phase 1 Site for the construction of the WIL as site office and for the storage of common construction materials.	Temporary Use in progress
Phase 2	Demolition of remaining structures and ground decontamination works within the Project site.	Design in progress

After completion of the demolition of buildings, structures and chimneys at the KTIP and KTA sites (i.e. Phase 1 Part 1), these two sites were handed over to Mass Transit Railway Corporation Limited (MTRCL) in July 2009 and are presently used as works area for the West Island Line (WIL) construction (i.e. Phase 1 Part 2). Demolition of remaining structures and ground decontamination works (i.e. Phase 2) will commence when the WIL area and the adjoining areas are returned to Government.

The Project site is currently zoned as mostly Undetermined ("U") – with the exception of the temporary garden as "Open Space" ("O") – in the most recent version of the Kennedy Town & Mount Davis OZP [No. S/H1/19], but in earlier versions has been previously zoned as "Government, Institution and Community" ("G/IC").

The past, current and future on-site land uses of the Project site are summarised in **Table 2.2**.

Table 2.2: Summary of On-Site Land Use

Property Name: Kennedy Town Comprehensive Development Area

Current Use

Type of facility / business	On-site property land use	Date began	Description of business process / primary products	Owner or Occupier	Approximate size of on-site property (m^2)	Off-site property affected? ___Yes ___No
Construction site	Phase 1 Part 2 of the Project: Temporary use of part of the Phase 1 Site for the construction of the WIL as site office and storage of common construction materials	10 July 2009	Not applicable	MTR Corporation Limited (MTRCL)	15,800	No
Depot	Temporary use of part of the Phase 1 Site as maintenance depot	29 May 2009	Not applicable	Highways Department (HyD)	2,300	No
Depot	Temporary use of part of the Project Site as bus depot	1 Sep 1998	Not applicable	New World First Bus (NWFB)	2,150	No
Car park	Temporary use of part of the Project Site as public car park	1 Sep 1994	Not applicable	Existing tenant: Wilson Parking (Holdings) Limited	2,610	No
Refuse collection	Temporary use of part of the Project Site as refuse collection point (RCP)	11 Oct 1999	Not applicable	Food and Environmental Hygiene Department (FEHD)	500	No
Public garden	Temporary use of part of the Project Site as Cadogan Street Temporary Garden	5 Oct 1998	Not applicable	Leisure and Cultural Services Department (LCSD) (former Urban Services Department (USD))	5,200	No

Past Use

Are past uses different from current uses? ✔ Yes _____ No If Yes, complete this section.

Complete this table with each different operation, use, or status of the on-site property. Include all operations back to pre-commercial or pre-industrial time if this information is necessary to characterize the site. Specify the status of the property at each stage, including times it may have been vacant. Start with the most recent use and list in chronological order backwards through time.

Type of facility / business	On-site property land use	Date began	Date ended	Description of business process / primary products	Owner or Occupier	Approximate size of on-site property (if different from current uses) (m^2)	Off-site property affected? ___Yes ___No
Construction site	Phase 1 Part 1 of the Project: Demolition and clearance of all existing chimneys, buildings and ancillary structures above the existing concrete ground slab in the Phase 1 Site area where the former Kennedy Town Incinerator Plant (KTIP) and the Kennedy Town Abattoir (KTA) are located. Also includes the removal of asbestos containing materials and dioxin/furan contaminated wastes within the Phase 1 Site	Oct 2007	Jun 2009	Demolition and clearance	CEDD	18,100	No
Industrial	Kennedy Town Abattoir: Incinerator for disposal of animal carcasses Kennedy Town Refuse Disposal Incinerator: Incinerator for disposal of waste	1963	Sep 2001	Slaughterhouse with incinerator for disposal of animal carcasses and incinerator for disposal of waste	Former USD	18,100	No
Depot	EMSD depot	16 Aug 1969	26 Jul 1993	Not applicable	EMSD	2,150	No
Depot	Bus depot and vehicle support area	26 Jul 1993	31 Aug 1998	Not applicable	China Motor Bus Co., Ltd. (CMB)	2,150	No
Commercial	Wholesale market	1953	20 Sep 1994*	Not applicable	Former USD	34,000	No

Remark: * Parts of the original wholesale market area were used for other purposes (i.e. Kennedy Town Abattoir, Kennedy Town Refuse Disposal Incinerator, EMSD Depot, bus depot and vehicle support area) during different stages of its land use period.

Future Use

Are future uses different from current uses? ✔ Yes _____ No If Yes, complete this section.

Type of facility / business	On-site property land use	Description of business process / primary products	Owner or Occupier	Approximate size of on-site property (m^2)
Construction site	Phase 2 of the Project: Demolition of remaining structures and ground decontamination works within the Project site	Demolition and decontamination works	CEDD	34,000
Future development	Under review by Planning Department (PlanD)	Under review by PlanD	Undetermined	34,000

2.2 Historical Information

2.2.1 Acquisition of Relevant Information from Government Departments

The Environmental Protection Department (EPD), Fire Services Department (FSD) and Lands Department (LandsD) have been contacted for the following information:

- Records on any chemicals and chemical waste releases within the Project site;
- Records of Dangerous Goods Producer(s) and reported accidents of spillage / leakage;
- Historical land uses of the Project site; and
- Records on any fire incident.

Information provided is summarised below in **Table 2.3**. Relevant supporting documentation from FSD is provided in **Appendix E**.

Table 2.3: Summary of Information Provided by Government Departments

Licensed Dangerous Good Storage		
Type of Dangerous Goods	**Quantity**	**Method of Storage**
Oxygen	18 cylinders	Inside an open ground dangerous goods store
Acetylene	18 cylinders	Inside an open ground dangerous goods store
Chemical Waste Producers		
Name of Chemical Waste Producer	**Business Nature**	**Premises Address**
China Motor Bus Co. Ltd. *	Bus parking and repairs	45 Victoria Road, Kennedy Town, Hong Kong
Electrical and Mechanical Services Department *	Provision of electrical and mechanical (E&M) services for Kennedy Town Abattoir	22 Cadogan Street, Kennedy Town
New World First Bus Service Ltd.	Bus depot	45 Victoria Road
Sun Fook Kong Construction Ltd.	Construction	Ex-Abattoir, Cadogan Street, Kennedy Town (WIL Contract No. 714)
Incident Records (i.e spillage/leakage/fire incident)		
Nil		

Remark: * This chemical waste producer has moved out (no longer valid).

2.2.2 Review of Aerial Photographs / Topographic Maps

A review of the historical maps of Hong Kong and aerial photographs has been undertaken. The aim of this review is to evaluate potential contamination implication associated with any land use changes within the Project site area. The development history of the Project site area is summarized below and a list of aerial photographs reviewed has been provided in **Table 2.4**. Selected aerial photographs at an interval of approximately 5-10 years have also been provided in **Appendix A** for reference.

Table 2.4: Review of Aerial Photographs

Year	Height (feet)	Photograph Reference Number
1967	-	Not available
1972	2500	1821
1976	4000	15508
1984	2000	53260
1986	2000	A04059
1987	2000	A08880
1991	1800	A25210
1993	4000	CN4727
1994	4000	CN7857
1995	3500	CN12595
1998	2500	CN20931

Year	Height (feet)	Photograph Reference Number
1999	2000	A49409
2000	2500	CN26311
2002	3500	CW39473

Source: Survey and Mapping Office, Lands Department

According to the aerial photographs and topography maps from Lands Department, the KTIP and KTA were in operation from 1967 to 1993 and from 1968 to 1999 respectively. Both facilities were decontaminated and demolished as part of Phase 1 Part 1 works which were completed in 2009. Since then, there has been no further change in land use.

The current temporary garden area was used as a market for several decades until 1994, then as a temporary car park before being converted to its current land use in about 2000. Since then, there has been no further change in the land use.

On the other hand, ongoing activities consisting of refilling of the above-ground oil tank, vehicle washing and parking are continuing within the bus depot area.

2.2.3 Review of Previous Site Investigations

Land contamination assessment was previously conducted in 2000 for the Project site under the approved EIA Study. Specifically, site inspections were carried out in October and November 1999 and February 2000 to identify the land uses of the Project site and spot out any potential contaminated areas due to past/existing land uses, followed by preliminary SI in May 2000 under EIA study, when a total of 31 boreholes (TB1 to TB30 and TB10A), as shown in **Figure 2.2**, were drilled and soil samples were extracted from various depths. The parameters of laboratory testing are summarised in **Appendix B**. No interviews with site staff were able to be conducted during the site inspection as all operations within the site had ceased and there were no site staff available.

Under special EP condition, CCI Proposal was submitted and approved by DEP on January 2003 after the EIA stage to confirm the extent of contamination at certain area of the proposed KTCDA site in addition to those identified in the approved EIA report. Borehole locations and sampling sequence for CCI was conducted based on the approach stipulated in the EP. Based on the ground investigation proposal presented in the CCI Proposal, testing of soil samples 5m away from the EIA boreholes with contamination in a North, East, South and West direction were examined (Tier 1) in the further SI. If contamination was found at Tier 1 borehole, further boreholes (Tier 2) would be taken 5m away from the Tier 1 borehole. The soil samples collections from the corresponding Tier 2 borehole were also examined. Soil samples were collected and analysed for a total of 119 Tier 1 / Tier 2 boreholes in the further SI, as shown in **Figure 2.2**. The parameters of laboratory testing are summarised in **Appendix B**.

For those areas that had not been investigated at the EIA stage, a “grid” approach was proposed in CCI Proposal. A grid size of 31m by 31m was adopted. The boreholes undertaken to cover these areas under the “grid” approach were referred as the “grid boreholes”. A total of 20 grids covered those areas that had not been investigated at the EIA stage. Soil samples from the grid boreholes were collected and analysed for the full suite of heavy metals and for petroleum carbon ranges, BTEX and PAH. Grid borehole locations are shown in **Figure 2.2** and parameters of laboratory testing are summarized in **Appendix B**.

In order to provide a more comprehensive picture on the extent of contamination, additional boreholes were undertaken for comprehensive testing. Soil samples collected from these “Boreholes for Comprehensive Testing” (BCTs, 19 no. in total) were analyzed for the full suite of heavy metals and for petroleum carbon ranges, BTEX and PAH. Borehole locations for BCTs are shown in **Figure 2.2** and parameters of laboratory testing are summarized in **Appendix B**.

The above SI results were reported to CEDD in the "Final Site Investigation Report for Kennedy Town Comprehensive Development Area" dated March 2004. These SIs are considered to be sufficiently and adequately performed for the relevant purposes at that time.

2.2.4 Review of Land Use Since Previous Site Investigation

No major site activities took place between the conclusion of the SI in 2003 and mid-2007.

Phase 1 Part 1 works commenced in September 2007 and were concluded in July 2009. Under the requirements of the EP (Permit No. EP-136/2002/D) and ongoing Environmental Monitoring and Audit (EM&A) Programme for the Project, an additional concrete ground slab was provided over the soil underneath and regular visual inspections were conducted to ensure the structural integrity of the concrete slab.

During Phase 1 Part 1, any observed deterioration in the condition of the concrete ground slab was recorded and followed-up as part of the weekly EM&A site inspections. A final inspection was conducted prior to the conclusion of Phase 1 Part 1 works and the minor additional repair works performed were deemed to have been satisfactorily completed. The record photos are presented in the Final EM&A Report for Phase 1 Part 1 of the Project.

As mentioned in **Section 2.1** above, the Project site was then handed over to MTRCL for Phase 1 Part 2 works. Additional concrete paving and a layer of general fill material was provided by MTRCL for site areas where temporary site office and storage of construction materials were to be located prior to their use, and regular visual inspections to ensure the structural integrity of the concrete paving are ongoing. Under the requirements of the EP of the WIL project (Permit No. EP-313/2008/F), a Removal Plan with proposed sampling points will be submitted to EPD before commencement of removal of the additional concrete paving and the layer of general fill material. In case of any land contamination occurs, the removal and treatment will be undertaken by the MTRCL before handing over the site. Therefore, this CAP will not include the SI works in this area.

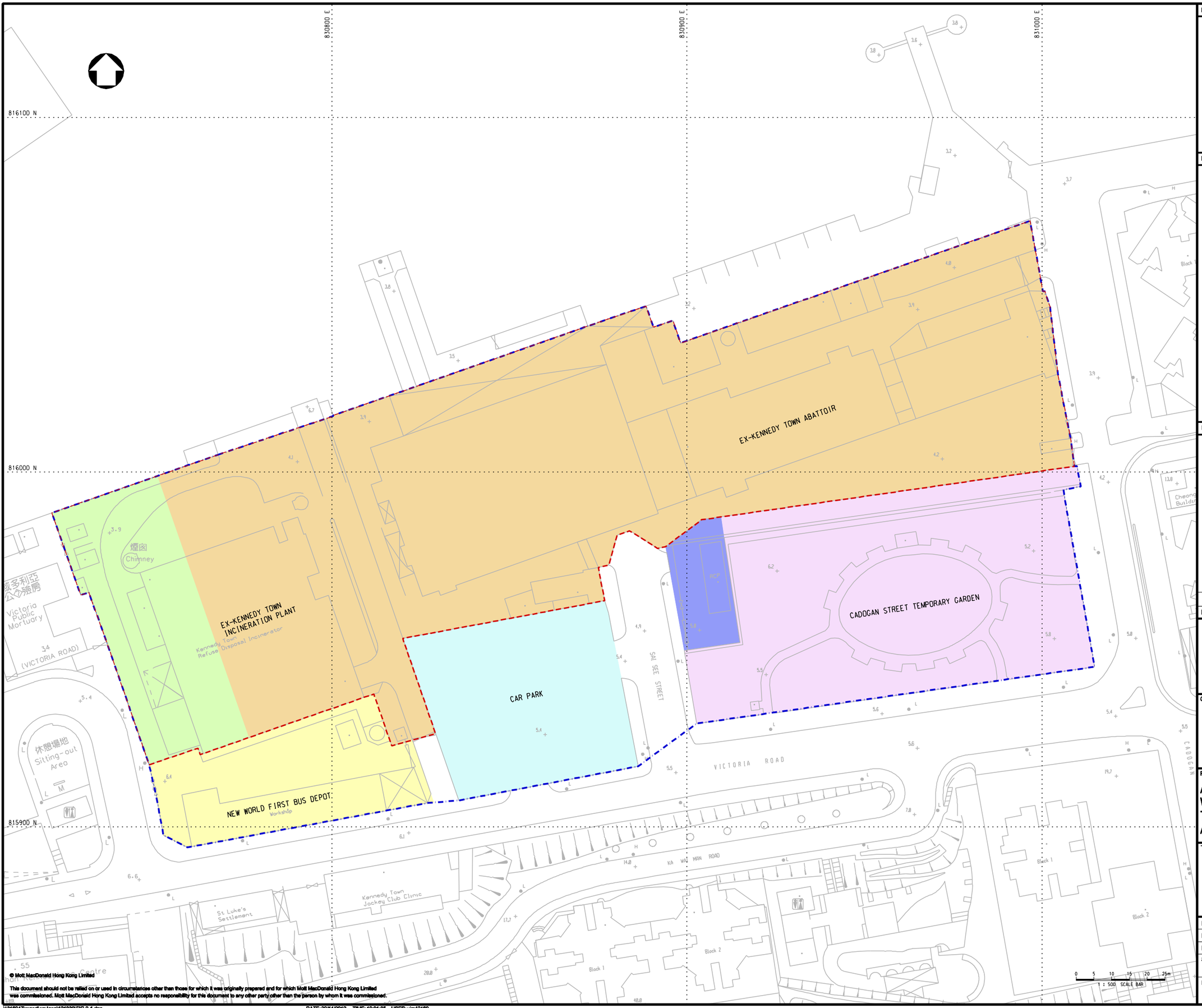
Currently, the HyD maintenance depot which is part of the Phase 1 area, as mentioned above, is covered with concrete layers having a minimum thickness as stipulated by the EP. The HyD maintenance depot is only used as temporary site office but not for maintenance purposes. Site inspection was performed in May 2012, none of the contaminated land types was identified as listed in Table 2.3 of Practice Guide. Therefore, no further contamination of the underground soil could have occurred and therefore no further SI is considered necessary for the Phase 1 site area.

There has also been no change in land use at the temporary garden, public car park, refuse collection point and existing roads since 2000 from now on. These areas are not regarded as potential sources of further contamination and therefore no further SI is considered necessary.

On the other hand, the bus depot remains in operation until now and may have been subjected to further contamination from ongoing vehicle support and activities involving an above-ground oil tank. Site inspection was carried out in May 2012 to identify the land uses of the New World First Bus Depot and spot out any potential contaminated site due to existing land uses. All operations at the New World First Bus Depot are remained the same. An aboveground fuel tank with capacity of approximately 3,000L was located. Oil stain was found near the tank during the site inspection in May 2012. The New World First Bus Depot consisted of vehicle washing area and washing liquid was stored within the site area. The vehicle washing area was fully paved with intact concrete with no apparent stains observed. Findings of the site inspection with photographic records and record of interview on site staff during site inspection are shown in **Appendix C**.

Therefore, additional SI is proposed to update the extent and nature of soil contamination and required decontamination at the bus depot. The sampling locations will be proposed in **Section 3** which are deemed close to where the use, handling and/or transfer of oils and fuels are likely to occur.

The analysis results on the boreholes and parameters from previous SI listed in **Table 3.1** will be compared with the findings from soil sampling and testing for heavy metals and/or hydrocarbons as part of the additional SI (i.e. bus depot area). The resulted SI with the highest contamination level will be undertaken. This will be further discussed in **Section 3**.



Notes

Key to symbols

- PROJECT SITE BOUNDARY
- PHASE 1 WORKS SITE BOUNDARY
- MTRCL WIL WORKS SITE
- HyD MAINTENANCE DEPOT
- EXISTING BUS DEPOT
- EXISTING CAR PARK
- EXISTING CADOGAN STREET TEMPORARY GARDEN
- EXISTING REFUSE COLLECTION POINT

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	OCT 12	MING	PRELIMINARY	AM	AFK

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Client

CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

ALTERNATIVE GROUND DECONTAMINATION WORKS AT THE PROPOSED KENNEDY TOWN COMPREHENSIVE DEVELOPMENT AREA SITE

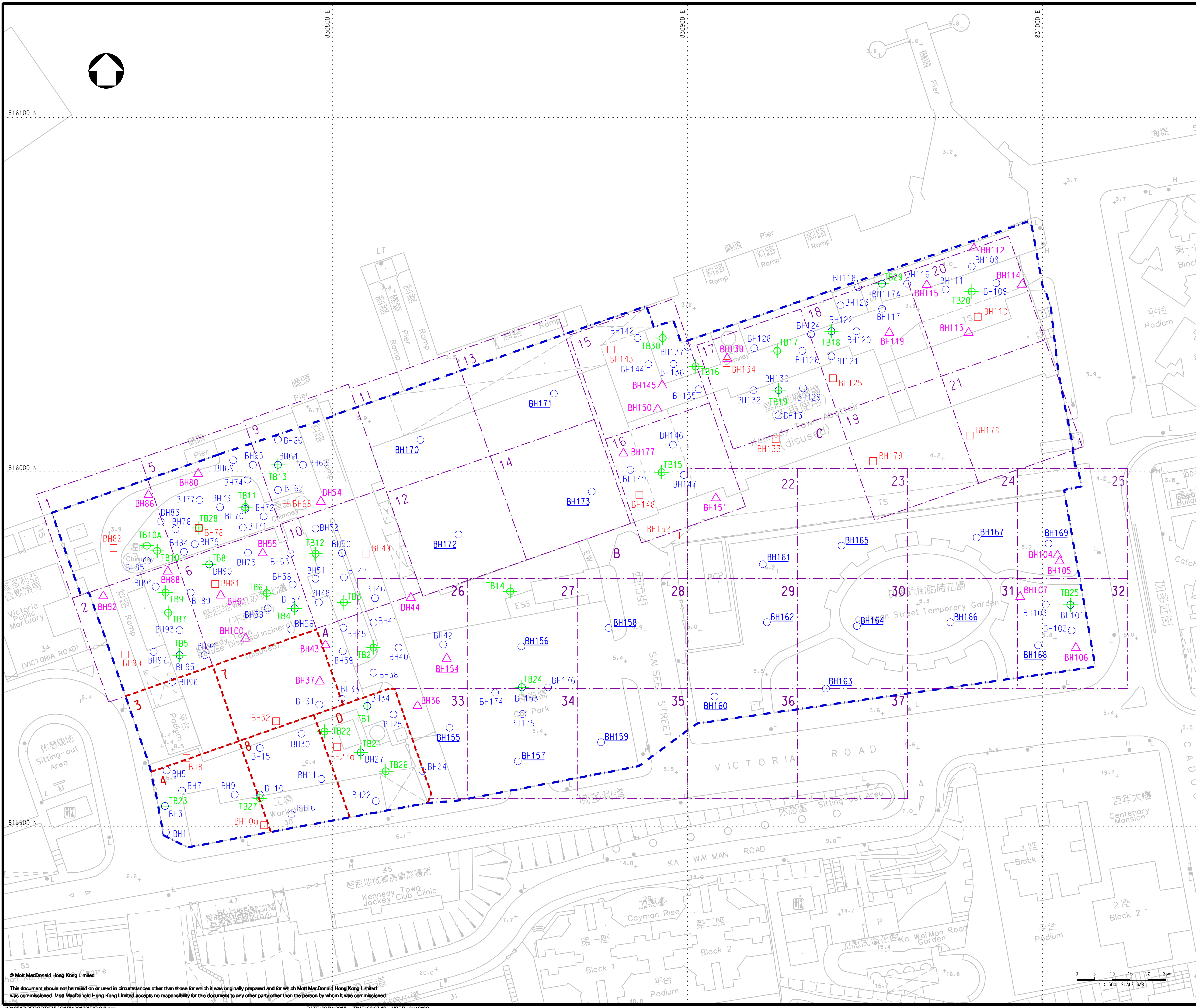
Title

PROJECT SITE PLAN

Designed	AM		Eng check	SMF	
Drawn	MING		Coordination	SMF	
Dwg check	AM		Approved	AFK	
Scale at A1	1:500	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.1



Notes

Key to symbols

PROJECT SITE BOUNDARY

PREVIOUS GRID

PROPOSED REVISED GRID

TB20 PREVIOUS SAMPLING BOREHOLES FOR EIA

BH16 BH6 PREVIOUS SAMPLING BOREHOLES FOR TIER 1 / TIER 2

BH155 BH154 PREVIOUS SAMPLING GRID BOREHOLES

BH8 PREVIOUS SAMPLING BOREHOLES FOR COMPREHENSIVE TESTING (BCT)

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	JAN 13	MING	GENERAL REVISION	BW	AFK
P2	NOV 12	MING	GENERAL REVISION	BW	AFK
P1	OCT 12	MING	PRELIMINARY	AM	AFK

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Client

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

ALTERNATIVE GROUND DECONTAMINATION WORKS AT THE PROPOSED KENNEDY TOWN COMPREHENSIVE DEVELOPMENT AREA SITE

Title

GRID SYSTEM FOR THE KTCDA SITE AND BOREHOLE LOCATIONS

Designed	AM	Eng check	SMF
Drawn	MING	Coordination	SMF
Dwg check	AM	Approved	AFK

Scale at A1	Status	Rev
1:500	PRE	P3

Drawing Number

FIGURE 2.2

J:\316047\REPORT\ENV\CAP\130122\FIG 2-2.dgn DATE: 22/01/2013 TIME: 09:27:16 USER: yim42169

3. Sampling and Testing Plan for Site Investigation

3.1 General

Based on the historical information reviewed in Section 2, it is concluded only the bus depot area is identified as potential locations of land contamination for additional SI.

The results of these historical assessments were reviewed and are briefly summarized below.

The whole KTCDA site is divided into a total of 41 grids, comprising:

- 33 square-shaped grids, each grid with dimensions of 31m x 31m (i.e. grid area of 961m^2);
- 3 irregular-shaped grids, A, B and C, with grid areas of about 183m^2, 575m^2 and 363m^2 respectively and
- 5 square-shaped grids located in the bus depot area, with various areas of about 581m^2, 686m^2, 692m^2, 642m^2 and 781m^2 respectively.

The grid locations are shown in **Figure 2.2**. The selection of grid areas was based on the grid system adopted in the "Final Site Investigation Report for Kennedy Town Comprehensive Development Area" dated March 2004. Since only the bus depot area is identified as potential locations of land contamination for additional SI, the dimension of grids is revised for this area to clearly show the investigation boundary in order to carry out the additional SI works.

The locations of boreholes at different grids are also as shown in **Figure 2.2**. The parameters analysed for samples collected from individual boreholes located in the bus depot area during the previous SI are summarised in **Table 3.1**.

Table 3.1: Boreholes and Parameters in Bus Depot Area Analysed during Previous Site Investigation

Grid[4]	Boreholes[4]	Depth of Samples Tested (m)								Parameters Provided[1]			
		0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5 – 21.0[6]	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]
3	#BH8	Y	Y	Y	Y	-	Y	-	-	√	√	√	√
4	BH1	Y	Y	Y	-	-	Y	-	-	-	-	-	Lead only
	BH3	Y	Y	Y	-	Δ	-	-	-	-	-	-	Copper and Lead only
	BH5	Y	Y	Y	-	Y	-	-	-	-	-	-	Lead only
	BH7	Y	Y	Y	Y	-	-	-	-	-	-	-	Copper and Lead only
	BH9	Y	Y	Y	Y	Δ	-	-	-	-	-	√	Copper and Lead only
	#BH10a	Y	Y	Y	Y	Y	-	-	-	√	√	√	√
8	BH10	Y	Y	Y	Y	-	-	-	-	-	-	√	Copper and Lead only
	BH11	Y	Y	Y	Y	Δ	-	-	-	√	-	√	Copper and Lead only
	BH15	Y	Y	Y	Y	-	-	-	-	-	-	√	Copper and Lead only
	BH16	Y	Y	Δ	Δ	-	-	-	-	√	√	√	Copper, Lead and Mercury only
	BH30	Y	Y	-	-	-	-	-	-	-	-	-	Lead only
D	BH22	Y	Y	Y	Δ	Δ	-	-	-	√	√	-	Copper, Lead, Mercury and Zinc only

	BH24	Y	Y	-	Y	Y	-	-	-	√	-	-	√
	BH25	-	-	-	Δ	Δ	Δ	-	-	√	-	√	Cadmium, Copper, Lead, Mercury and Zinc only
	BH27	Y	Y	Y	Y	Δ	-	Δ	-	√	-	-	Copper, Lead, Zinc and Mercury only
	#BH27a	Y	Y	Y	Y	Y	Y	-	-	√	√	√	√
	BH34	Y	Y	Y	Y	-	Y	-	-	√	-	-	Cadmium, Copper, Lead, Mercury and Zinc only

Remarks: 1. √ = parameters analysis carried out for the sampling borehole.
Y = analysis carried out for all selected parameters
Δ = analysis carried out only for Petroleum Carbon Ranges, PAH, BTEX and / or Heavy Metals.
= borehole for comprehensive testing (BCT).

2. BTEX include Benzene, Ethylbenzene, Toulene and Xylenes.
3. Heavy metals include Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Nickel, Tin and Zinc.
4. Please refer to **Figure 2.2** for grid and borehole locations.
5. The sampling borehole details are shown in **Appendix B**.
6. No sampling was conducted at the boreholes listed here for depths between 10.5m and 21.0m.

3.2 Selection of Proposed Borehole Locations at Bus Depot

Based on the historical information reviewed, a new site investigation (SI) is proposed for the bus depot area only.

A total of 4 boreholes are proposed for the purpose of initial screening at certain locations within the bus depot (e.g. vehicle washing pit and above-ground oil tank containing diesel fuel). The initial screening will be performed to assess the extent of contamination and the site condition in general at the bus depot. The locations have been proposed as they are deemed close to where the use, handling and/or transfer of oils and fuels are likely to occur. The tentative sampling locations are shown in **Figure 3.1**.

The selection of proposed sampling locations and potential chemicals of concern (COC) for laboratory analysis is made with reference to the nature of historical use of each area, Guidance Manual, Guidance Note and Practice Guide. The exact sampling quantity and locations are to be determined on site and subject to fine adjustment due to site specific conditions (e.g. locations, presence of foundations, underground utilities, delivery pipes and services). Based on the land use of the bus depot, petroleum carbon ranges, poly aromatic hydrocarbons (PAH) and volatile organic chemicals (VOCs) would be selected for potential petroleum contamination analysis and metals would be selected for assessing the concern of general inorganic contamination, as recommended in the Guidance Note. Parameters to be analysed will be discussed in Section 4. For better comparison purpose, the exact parameters to be analysed would be similar to those tested for borehole samples obtained within the bus depot area during the previous SI (see **Table 3.1**).

For the proposed new SI, a “grid” approach should be adopted in order to compare with the analytical results of previous SI, obtain information on background levels, and to aid in verifying the assumption mentioned in Section 3.1. The dimension of grids for the bus depot area is adjusted to clearly shown the investigation boundary in order to carry out the addition SI works.

3.3 Soil Sampling Method and Depth of Sampling

All soil boring / excavation and sampling should be supervised by a land contamination specialist.

Borehole should be undertaken by means of dry rotary drilling method, i.e. without the use of flushing medium, to prevent cross-contamination during sampling. For safety reasons, an inspection pit should be excavated down to 1.5m below ground surface (bgs) to inspect for underground utilities at the proposed borehole location. Disturbed soil samples should be collected at depth of 0.5m bgs. Soil boring using drill rigs should then be performed from depth of 1.5m bgs to the maximum boring depth. Undisturbed U100/U76 soil samples should be collected at 1.5m, 3.0m, 4.5m, 6.0m, 7.5m and 9.0m bgs as well as above groundwater level. Groundwater samples should be collected at the level of groundwater (if encountered). The maximum depth of soil sampling should be 9.0m below ground or 1.0m below the groundwater table, whichever is shallower.

Based on the previous site inspection, boreholes should be able to be drilled at all the proposed sampling locations. However, where borehole drilling is not possible due to site constraints (e.g. insufficient head room or accessibility of drilling rigs), sampling using trial pit methods will be adopted. For trial pit methods, disturbed soil samples, using stainless steel hand tools, will be taken at 0.5m, 1.5m and 3.0m below the prevailing ground level in order to delineate the vertical profile of contamination.

At each sampling location/depth, sufficient quantity of soil sample (as specified by the laboratory) should be taken. All soil samples should be uniquely labelled. Backup samples should be retained and stored at 0-4 ºC in laboratory.

3.4 Strata Logging

Strata logging for boreholes should be undertaken during the course of drilling/digging and sampling by a qualified geologist. The logs should include the general stratigraphic description, depth of soil sampling, sample notation and level of groundwater (if encountered). The presence of rocks/boulders/cobbles and foreign materials such as metals, wood and plastics should also be recorded.

3.5 Free Product and Groundwater Level Measurement

The thickness of any free product and ground water level (if present) at sampling locations should be measured with an interface probe. The free product (if encountered in sufficient amounts) should be collected for laboratory analysis to determine the composition.

3.6 Groundwater Sampling

It is proposed to collect groundwater samples if groundwater is encountered at the sampling locations.

For each proposed borehole sampling location, a groundwater sampling well should be installed into the boreholes if groundwater is encountered or agreed by the land contamination specialist. A typical configuration of a groundwater monitoring well is shown in **Appendix D**. After installation of the monitoring wells, the depth to water table at all monitoring wells should be measured at the same time with an interface probe in order to delineate the groundwater table contours at the subject site. Well developments (approximately five well volumes) should be carried out to remove silt and drilling fluid residue from the wells. The wells should then be allowed to stand for a day to permit groundwater conditions to equilibrate.

Groundwater level and thickness of free product layer, if present, should be measured at each well before groundwater samples are taken.

Prior to groundwater sampling, the monitoring wells should be purged (at least three well volumes) to remove fine-grained materials and to collect freshly refilled representative groundwater samples.

After purging, one groundwater sample should then be collected at each well using Teflon bailer and decanted into appropriate sample vials or bottles in a manner that minimizes agitation and volatilization of volatile organic chemicals (VOCs) from the samples. All samples should be uniquely labelled.

Immediately after collection, groundwater samples should be transferred to new, clean, laboratory-supplied glass jars for sample storage/transport. The sampling glass jars should be of "darkened" type. Groundwater samples should be placed in the glass jars with zero headspace and promptly sealed with a septum-lined cap. Immediately following collection, samples should be placed in ice chests, cooled and maintained at a temperature of about 4 ºC until delivered to the analytical laboratory.

3.7 Sample Size and Decontamination Procedures

All equipment in contact with the ground should be thoroughly decontaminated between each excavation, drilling and sampling event to minimise the potential for cross contamination. The equipment (including drilling pit, digging tools and soil/groundwater samplers) should be decontaminated by steam cleaning or high-pressure hot water jet, then washed by phosphate-free detergent and finally rinsed by distilled / deionised water.

Prior to sampling, the laboratory responsible for analysis should be consulted on the particular sample size and preservation procedures that are necessary for each chemical analysis.

The sample containers should be laboratory cleaned, sealable, water-tight, made of glass or other suitable materials with aluminium or Teflon-lined lids, so that the container surface will not react with the sample or adsorb contaminants. No headspace should be allowed in the containers which contain samples to be analysed for VOCs, Petroleum Hydrocarbon Ranges or other volatile chemicals.

The containers should be marked with the sampling location codes and the depths at which the samples were taken. If the contents are hazardous, this should be clearly marked on the container and precautions taken during transport. Samples should be stored at between 0-4 ºC but never frozen. Samples should be delivered to laboratory within 24 hours of the samples being collected and analysed within the respective retention period but should not be more than 10 days.

3.8 Quality Assurance / Quality Control Procedures

Quality Assurance / Quality Control (QA/QC) samples should be collected in the following frequency during the SI. Chain of Custody protocol should be adopted.

- 1 equipment blank per 20 samples for full suite analysis*;
- 1 field blank per 20 samples for full suite analysis*;
- 1 duplicate sample per 20 samples for full suite analysis*; and
- 1 trip blank per trip for the analysis of volatile parameters#.

Note:

* For the purposes of this Project, the following parameters would be tested in a 'full suite analysis' – (1) VOCs: Benzene; Ethylbenzene; Toluene; Xylenes (Total). (2) SVOCs: Acenaphthene; Acenaphthylene; Anthracene; Benzo(a)anthracene;

Benzo(a)pyrene; Benzo(b)fluoranthene; Benzo(k)fluoranthene; Benzo(g,h,i)perylene; Chrysene; Dibenzo(a,h)anthracene; Fluoranthene; Fluorene; Indeno(1,2,3-cd)pyrene; Naphthalene; Phenanthrene; Pyrene. (3) Metals: Chromium III; Chromium IV; Cadmium; Copper; Lead; Mercury; Zinc. (4) Petroleum Carbon Ranges: C6-C8; C9-C16; C17-C35.

For the purposes of this Project, the following parameters would be tested in the analysis of 'volatile parameters' – VOCs: Benzene; Ethylbenzene; Toluene; Xylenes (Total).

Based on the sampling and testing plan as outlined in **Table 3.2**, there would be at least 28 soil samples (4 sampling locations x 7 samples per location) and 4 groundwater samples (subject to site specific conditions). The total number of equipment blank, field blank and duplicate sample would therefore be approximately 2 each. There would also be one trip blank per trip, with approximately 2 trips for all samples. Therefore, two trip blanks would be collected.

3.9 Health and Safety

The specific safety measures to be taken depend on the nature and content of contamination, the site conditions and the regulations related to site safety requirements. Workers Compensation Insurance and third party insurance must be provided for the SI.

Extreme care should be exercised when toxic gases or other hazardous materials are encountered. Any abnormal conditions found shall be reported immediately to the safety officer and the land contamination specialist.

The SI contractor shall establish and maintain a Health and Safety Plan before commencement of the SI that will include the following:

1. Instruction of works on work procedures, safe practices, emergency duties, and applicable regulations;
2. Regularly scheduled meetings of the workers in which the possible hazards, problems of the job, and related safe practices are emphasized and discussed;
3. Good housekeeping practices; and
4. Availability of and instruction in the location, use and maintenance of personal protective equipment.

The SI Contractor shall maintain equipment and supplies reasonably required in an emergency, including lifesaving, evacuation, rescue and medical equipment in good working order and condition at all times. The SI Contractor shall use all reasonable means to control and prevent fires and explosions, injury to personnel and damage to equipment of property. Without limiting the foregoing, the SI Contractor shall:

1. Maintain proper safety devices and barriers to minimize hazards during performance of the work;
2. Prohibit smoking and open flames and the carrying of matches and lighters;
3. Develop and maintain a written emergency plan applicable to the work site;
4. Maintain equipment in good operating condition and have emergency and first aid equipment ready for immediate use, where applicable;
5. Conduct equipment tests to ensure that equipment is properly placed and in good operating condition, and that workers are able to respond to emergency situations;
6. Require all workers employed or retained by the Contractor, or a subcontractor, to at all time wear clothing suitable for existing work, weather and environmental conditions; and
7. Require the site personnel to wear respirator and gloves for vapour exposure protection, if necessary.
8. Ensure all site staff members wear safety helmet and protective boots.

Table 3.2: Sampling and Testing Plan for the Bus Depot

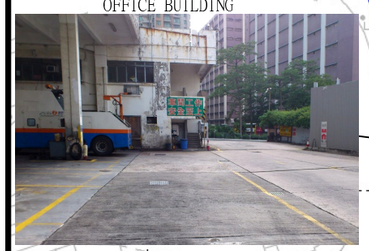
Proposed Sampling Locations[1]	Sampling Method	Sample Matrix[2]		Parameters to be Tested[3]				Rationale of Sampling
				Petroleum Carbon Ranges[4]	VOCs (BETX[5] only)	SVOCs (PAH[6] only)	Heavy Metals	
BD1 (near office building) BD2 (near vehicle washing pit) BD3 (near petrol filling station) BD4 (near above-ground oil tank)	Borehole to 9.0m bgs or 1.0m below groundwater table	Soil	0.5m bgs	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	BD1: Assess potential land contamination impacts from Grid 4 BD2: Assess potential land contamination impacts from Grid 8 BD3 & BD4: Assess potential land contamination impacts due to possible leakage/spillage from the petrol filling station and the above-ground oil tank respectively
		Soil	1.5m bgs	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		Soil	3.0m bgs	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		Soil	4.5m bgs#	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		Soil	6.0m bgs#	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		Soil	7.5m bgs#	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		Soil	9.0m bgs#	X	X	X	Cadmium, Copper, Lead, Mercury, Zinc and Chromium III & IV only	
		GW	If present^	X	X	X	Mercury only	

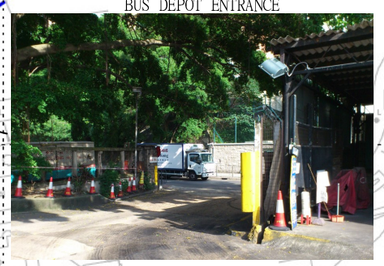
Remarks:

1. Please refer to **Figure 3.1** for locations.
2. bgs = Below Ground Surface; GW = groundwater.
3. X = testing proposed.
4. Petroleum carbon ranges = C6–C8, C9–C16 and C17–C35.
5. BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes (Total); PAH = Poly Aromatic Hydrocarbons.
   Since RBRG values of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis-(2-Ethylhexyl)phthalate, Dibenzo(a,h)anthracene, Indeno(1,2,3- cd)pyrene and Phenol were not available for groundwater, the captioned chemicals parameters would not be tested in groundwater sample.
6. PAH = Polyaromatic hydrocarbons (PAHs) include, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

\# If groundwater is not encountered during SI works, soil sample at 4.5m bgs, 6.0m bgs, 7.5m bgs and 9.0 bgs will be collected.

^ Samples will only be collected if groundwater is encountered during SI works.





Notes

1. THE GI WORK IS SCHEDULED TO COMMENCE IN MAY 2013.
2. TOTAL NO. OF GI IS 4 AND EACH REQUIRES 4 WORKING DAYS (TOTAL = 16 WORKING DAYS)

Key to symbols

- PROJECT SITE BOUNDARY
- PROPOSED REVISED GRID
- MTRCL WIL WORKS SITE
- HyD MAINTENANCE DEPOT
- EXISTING BUS DEPOT
- EXISTING CAR PARK
- EXISTING CADOGAN STREET TEMPORARY GARDEN
- EXISTING REFUSE COLLECTION POINT
- PROPOSED 4m x 4m WORK AREA FOR GI
- POTENTIAL CONTAMINTAED SOURCES / ACTIVITIES

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	OCT 12	MING	PRELIMINARY	AM	AFK

Mott MacDonald
20/F Tiwo Landmark East
100 How Ming Street
Kwun Tong, Kowloon
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T +852 2828 5757
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W www.mottmac.com.hk

Client

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

ALTERNATIVE GROUND DECONTAMINATION WORKS AT THE PROPOSED KENNEDY TOWN COMPREHENSIVE DEVELOPMENT AREA SITE

Title

PROPOSED SAMPLING PLAN

Designed	AM		Eng check	SMF	
Drawn	MING		Coordination	SMF	
Dwg check	AM		Approved	AFK	
Scale at A1 1:600		Status PRE		Rev P1	

Drawing Number

FIGURE 3.1

4. Laboratory Analysis for Bus Depot Area

Laboratory analysis is proposed in order to screen the presence of potential contaminants that are of concern at the Study Area. **Table 4.1** summarizes the potential parameters to be tested, the minimum requirement of the reporting limits and reference methods for the laboratory analyses of soil and groundwater samples for this land contamination study. For the purposes of this CAP, only those parameters specified in **Table 3.2** will be tested and compared with the previous SI. The worst case scenario (i.e. the SI result with the highest contamination level) will be considered.

Table 4.1: Parameters, Detection Limits and Reference Methods for Laboratory Analysis for Bus Depot Area

Parameter	Soil		Groundwater	
	Detection limits (mg/kg) or otherwise stated	Reference Method *	Detection limits (mg/L) or otherwise stated	Reference Method *
VOCs				
Benzene	0.2	USEPA 8260B or similar method*	0.005	USEPA 8260B or similar method*
Ethylbenzene	0.5		0.005	
Toluene	0.5		0.005	
Xylenes (Total)	1.5		0.015	
SVOCs				
Acenaphthene	0.5	USEPA 8270D or similar method*	0.002	USEPA 8270D or similar method*
Acenaphthylene	0.5		0.002	
Anthracene	0.5		0.002	
Benzo(a)anthracene	0.5		NA	
Benzo(a)pyrene	0.5		NA	
Benzo(b)fluoranthene	1.0		0.001	
Benzo(k)fluoranthene	0.5		NA	
Benzo(g,h,i)perylene	0.5		NA	
Chrysene	0.5		0.001	
Dibenzo(a,h)anthracene	0.5		NA	
Fluoranthene	0.5		0.002	
Fluorene	0.5		0.002	
Indeno(1,2,3-cd)pyrene	0.5		NA	
Naphthalene	0.5		0.002	
Phenanthrene	0.5		0.002	
Pyrene	0.5		0.002	
Metals				
Chromium III	2^^	APHA 3500Cr:B or similar method*	NA	APHA 3500Cr:B or similar method*
Chromium VI	2		NA	
Cadmium	0.4	USEPA 6020 or similar method*	NA	USEPA 6020 or similar method*
Copper	1		NA	
Lead	1		NA	
Mercury	0.4		0.001	
Zinc	1		NA	
Petroleum Carbon Ranges				
C6 - C8	5	USEPA 8260B/8015 or similar method*	0.02	USEPA 8260B/8015C or similar method*
C9 - C16	200		0.5	
C17 - C35	500		0.5	

Notes:

NA - Not Applicable

USEPA - United States Environmental Protection Authority

VOCs - Volatile Organic Chemicals

SVOCs - Semi-Volatile Organic Chemicals

^^ - Chromium III is quantified by calculation based on Chromium VI and Total Chromium measured under HOKLAS accredited methods.

* - Alternative testing methods with accreditation by HOKLAS or its Mutual Recognition Arrangement partners are also accepted.

For sampling and laboratory analyses, chain of custody procedure should be included as QA/QC procedure.

All laboratory analyses for soil and groundwater samples should be conducted by a Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory. In addition, all laboratory test methods should be accredited by HOKLAS or one of its Mutual Recognition Arrangement partners. In the event that accreditation by HOKLAS on the testing method is not available in Hong Kong for certain parameters, an agreement from Waste Management Section of Water Policy and Science Group / EPD for the proposed method should be obtained before undergoing laboratory testing.

Extra soil samples shall be stored at 0-4 ºC and tested for Toxicity Characteristics Leaching Procedure (TCLP) before submission of RAP if excavation and landfill disposal is identified as the last resort.

If contamination is found and landfill disposal is identified as the last resort to dispose of the contaminated soil. Acceptance of contaminated soil at a landfill requires an approval from EPD. Permission for disposal via an admission ticket system needs to be obtained from the EPD prior to the delivery of contaminated soil to a landfill. Waste for disposal to landfills is required to meet the Landfill Disposal Criteria for Contaminated Soil. Three impacted soil samples shall be conducted for TCLP test to determine whether they comply with the criteria for landfill disposal in accordance with the “Practice Guide for Investigation and Remediation of Contaminated Land” (Practice Guide). The appropriate action at each stage of assessment and remediation is summarised in Table 4.5 of the Practice Guide.

The criteria set primarily in terms of TCLP limits are shown in **Table 4.2**.

Table 4.2: Laboratory Testing Requirements for TCLP Analysis

Parameter	Test Methods*	Detection limit (mg/L)	Landfill Disposal Criteria TCLP Limit (ppm)
Antimony (Sb)	USEPA 1311 and 6020A	2	150
Arsenic (As)		2	50
Barium (Ba)		2	1000
Beryllium (Be)		1	10
Cadmium (Cd)		1	10
Chromium (Cr)		1	50
Copper (Cu)		2	250
Lead (Pb)		3	50
Nickel (Ni)		1.5	250
Selenium (Se)		0.2	1
Silver (Ag)		2	50
Thallium (Ti)		1	50

Parameter	Test Methods*	Detection limit (mg/L)	Landfill Disposal Criteria TCLP Limit (ppm)
Tin (Sn)		2.5	250
Vanadium (V)		4	250
Zinc (Zn)		10	250
Mercury (Hg)		0.2	1

Note: * Equivalent internationally recognized standard methods might also be used.

5. Land Contamination Assessment Methodology and Criteria

The corresponding references to be used for the subsequent land contamination assessment are as follows:

- "Guidance Note for Contaminated Land Assessment and Remediation" (Guidance Note); and
- "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management" (Guidance Manual)

The soil and groundwater samples collected the additional SI works will be compared with Risk-based Remediation Goals (RBRGs) as stipulated in Table 2.1 and Table 2.2 of the Guidance Manual.

The RBRGs are developed based on a risk assessment approach to suit the local environmental conditions and community needs in Hong Kong. Decisions on contaminated soil and groundwater remediation are based on the nature and extent of the potential risks that are posed to human receptors as a result of exposure to chemicals in the soil and/or groundwater. RBRGs are developed for four different land use scenarios reflecting the typical physical settings in Hong Kong under which people could be exposed to contaminated soil and groundwater. Each land use scenario is described below:

- **Urban Residential** – Sites located in an urban area where main activities involve habitation by individuals. The typical physical setting is a high rise residential building situated in a housing estate that has amenity facilities such as landscaped yards and children's playgrounds. The receptors are residents who stay indoors most of the time except for a short period each day, during which they are outdoors and have the chance of being in direct contact with soil at landscaping or play areas within the estate.
- **Rural Residential** – Sites located in a rural area where the main activities involve habitation by individuals. These sites typically have village-type houses or low rise residential blocks surrounded by open space. The receptors are rural residents who stay at home and spend some time each day outdoors on activities such as gardening or light sports. The degree of contact with the soil under the rural setting is more than that under the urban setting both in terms of intensity and frequency of contact.
- **Industrial** – Any site where activities involve manufacturing, chemical or petrochemical processing, storage of raw materials, transport operations, energy production or transmission, etc. Receptors include those at sites where part of the operation is carried out directly on land and the workers are more likely to be exposed to soil than those working in multi-storey factory buildings.
- **Public Parks** – Receptors include individuals and families who frequent parks and play areas where there is contact with soil present in lawns, walkways, gardens and play areas. Parks are considered to be predominantly hard covered with limited areas of predominantly landscaped soil. Furthermore, public parks are not considered to have buildings present on them.

In addition to the RBRGs, screening criteria (soil saturation limits, C_{sat}, developed for Non-aqueous Phase Liquid (NAPL) in soil and water solubility limits for NAPL in groundwater) for the more mobile organic chemicals must be considered to determine whether a site requires further action.

The proposed future land use of the Project site area is currently under review by PlanD. At this stage, it is proposed that one part of the area be designated as Public Parks with another part designated as Urban Residential / Rural Residential. On this basis, the corresponding Risk-based Remediation Goals (RBRGs) standard for Public Parks would be adopted as the cleanup standard for the former part, while the most stringent of the RBRGs for Urban Residential and Rural Residential would be adopted for the latter part, in accordance with the Guidance Manual. The relevant parameters and soil and groundwater RBRGs levels for the additional SI works are presented in **Table 5.1**. No groundwater RBRGs exist for public park land use. These

are subject to confirmation in a revised Contamination Assessment Report (CAR) and Remediation Action Plan (RAP).

The findings of the investigation and the strategy of the remedial measures according to the RBRGs standard, as well as any further information on the proposed future land use of the Project site area, will be incorporated into a revised CAP and RAP for the approval of EPD.

Table 5.1: Relevant RBRGs for Soil and Groundwater

Parameter	Soil RBRGs – Urban Residential / Rural Residential (mg/kg)	Soil RBRGs – Public Parks (mg/kg)	Soil Saturation Limit (C_{sat}) (mg/kg)	Groundwater RBRGs – Urban Residential / Rural Residential (mg/L)	Groundwater Solubility Limit (mg/L)
VOCs					
Benzene	0.279	42.2	336	1.49	1,750
Ethylbenzene	298	10,000*	138	391	169
Toluene	705	10,000*	235	1,970	526
Xylenes (Total)	36.8	10,000*	150	43.3	175
SVOCs					
Acenaphthene	3,280	10,000*	60.2	7,090	4.24
Acenaphthylene	1,510	10,000*	19.8	542	3.93
Anthracene	10,000*	10,000*	2.56	10,000*	0.0434
Benzo(a)anthracene	11.4	38.3	NA	NA	NA
Benzo(a)pyrene	1.14	3.83	NA	NA	NA
Benzo(b)fluoranthene	9.88	20.4	NA	0.203	0.00150
Benzo(k)fluoranthene	114	383	NA	NA	NA
Benzo(g,h,i)perylene	1,710	5,740	NA	NA	NA
Chrysene	871	1,540	NA	21.9	0.00160
Dibenzo(a,h)anthracene	1.14	3.83	NA	NA	NA
Fluoranthene	2,270	7,620	NA	10,000*	0.206
Fluorene	2,250	7,450	54.7	10,000*	1.98
Indeno(1,2,3-cd)pyrene	11.4	38.3	NA	NA	NA
Naphthalene	85.6	914	125	23.7	31.0
Phenanthrene	10,000*	10,000*	28.0	10,000*	1.00
Pyrene	1,710	5,720	NA	10,000*	0.135
Metals					
Chromium III	10,000*	10,000*	NA	NA	NA
Chromium VI	218	735	NA	NA	NA
Cadmium	72.8	245	NA	NA	NA
Copper	2,910	9,790	NA	NA	NA
Lead	255	857	NA	NA	NA
Mercury	6.52	45.6	NA	0.184	NA
Zinc	10,000*	10,000*	NA	NA	NA
Petroleum Carbon Ranges					
C6 - C8	545	10,000*	1,000	31.7	5.23
C9 - C16	1,330	10,000*	3,000	276	2.80
C17 - C35	10,000*	10,000*	5,000	4.93	2.80

Remark:

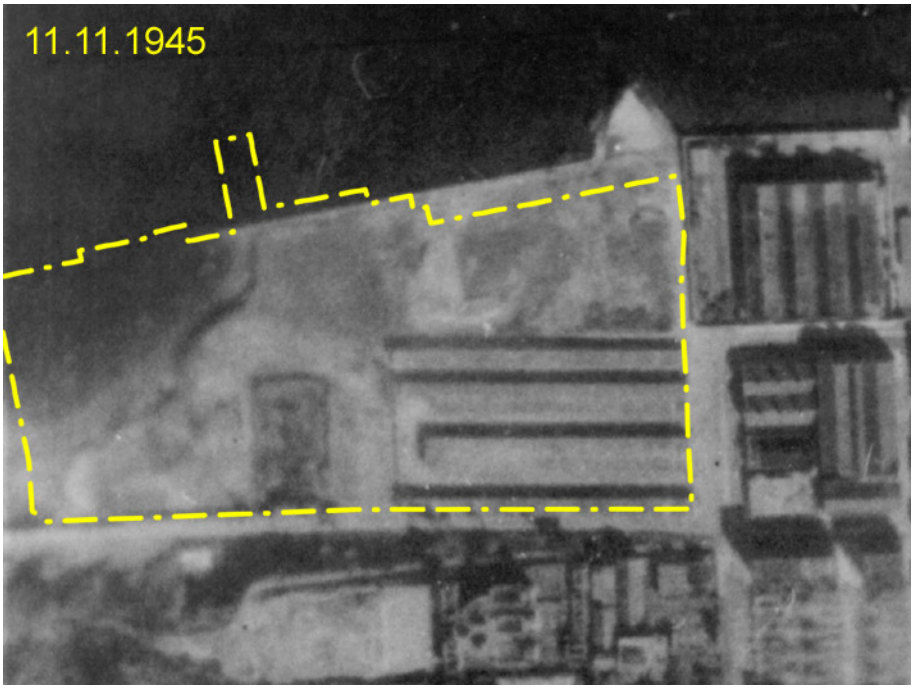
(1) Soil & Groundwater RBRGs for Urban Residential / Rural Residential presented in this table consist of the more stringent of the RBRGs for land uses of Urban Residential and Rural Residential.

(2) * - Indicates a 'ceiling limit' concentration.

(3) NA - Not Available.

Appendices

Appendix A. Aerial Photos



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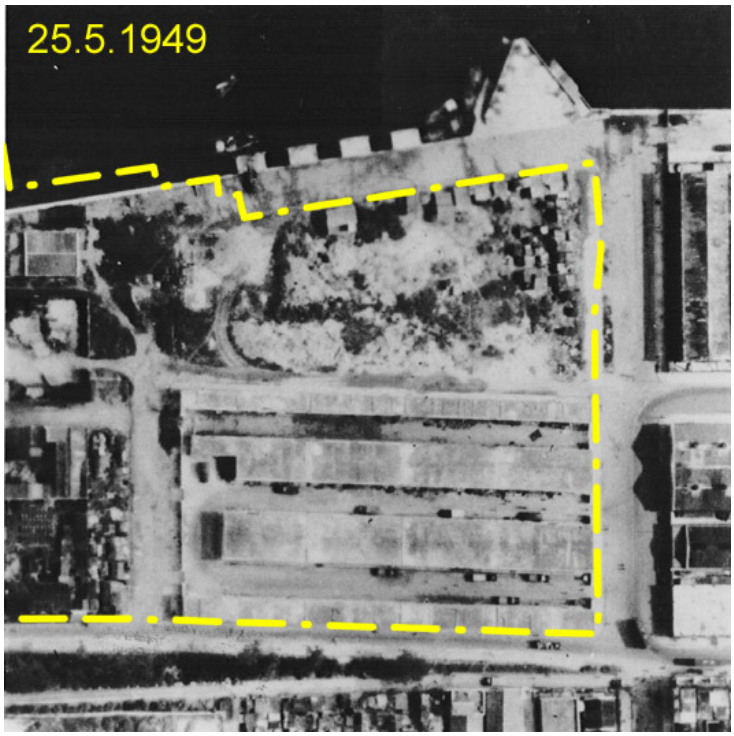


1949

Legend:

Project site area

Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

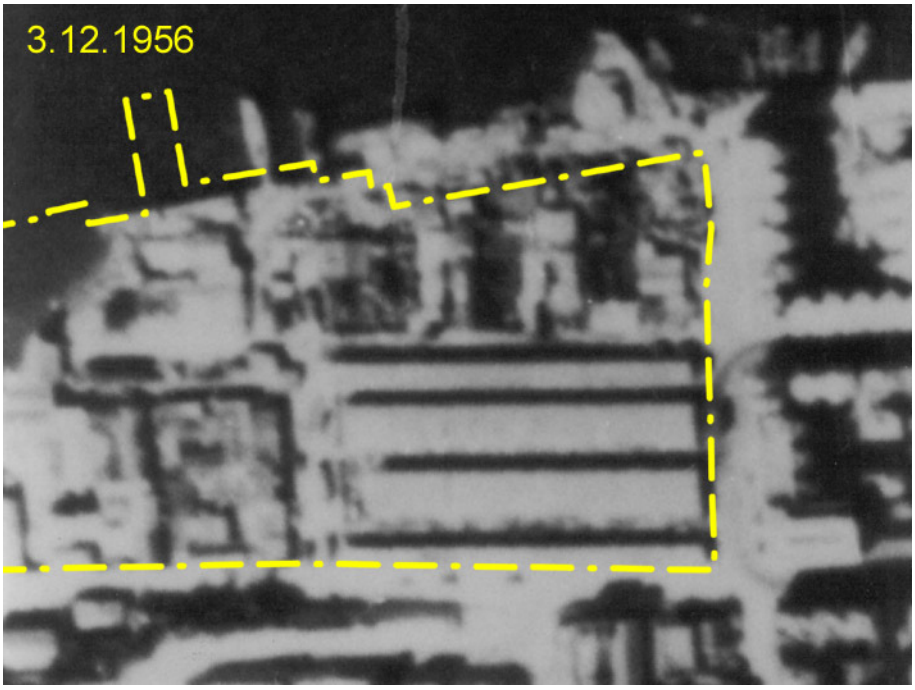
Environmental Permit No. EP-136/2002/D

Title:

Aerial Photos

(Sheet 1 of 10)

Appendix A



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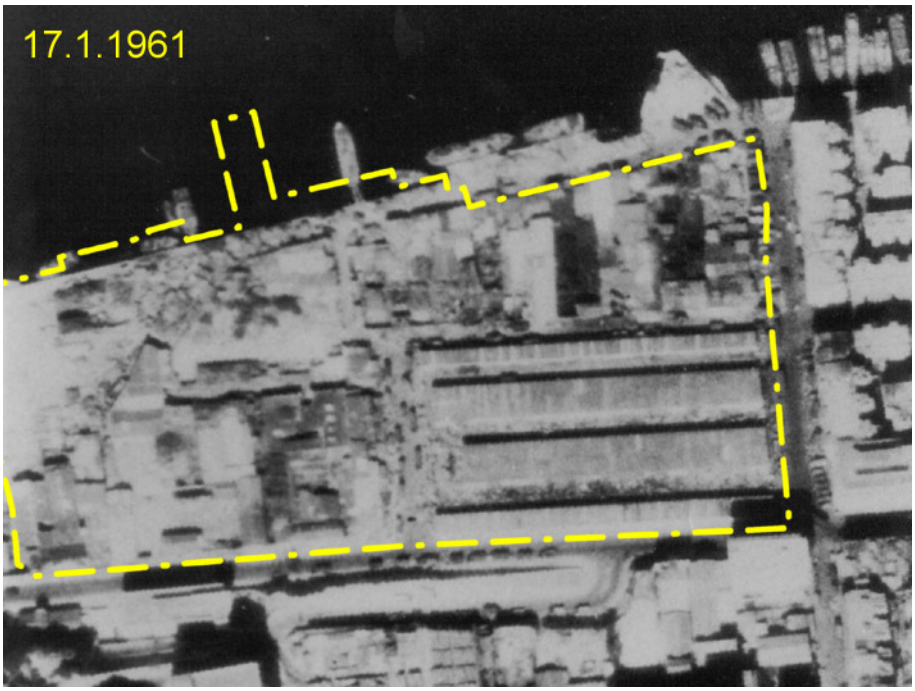


1961

Legend:

Project site area

Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

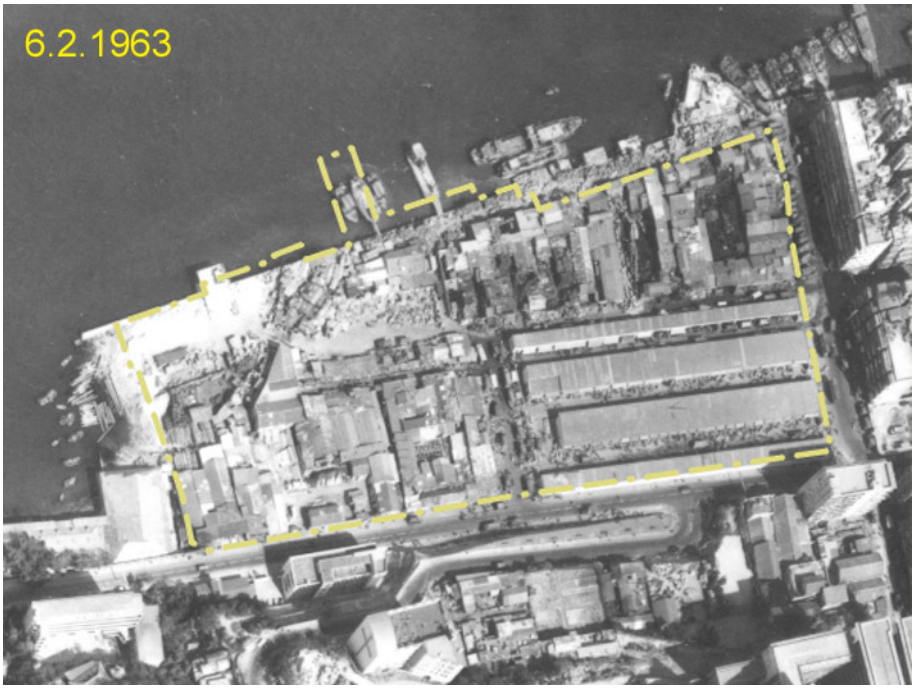
Environmental Permit No. EP-136/2002/D

Title:

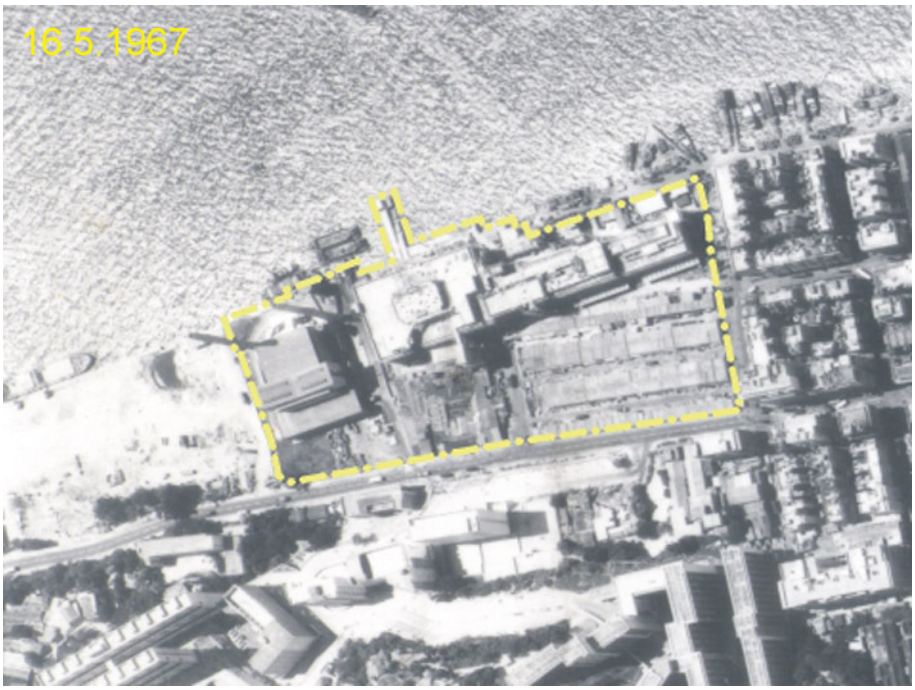
Aerial Photos

(Sheet 2 of 10)

Appendix A



1963

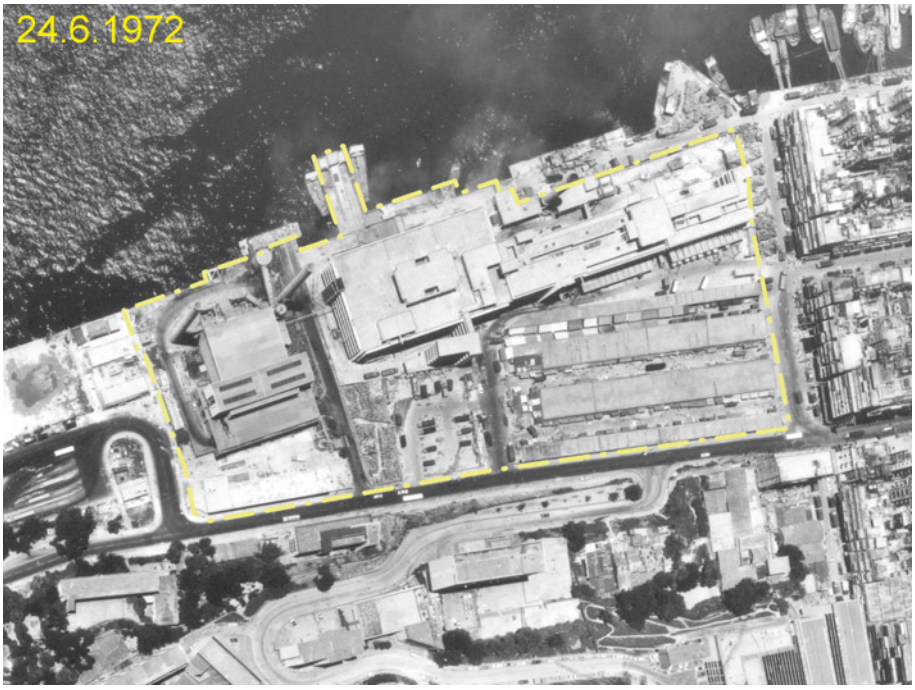


1967

Legend:

Project site area

Civil Engineering and Development Department	Mott MacDonald	**Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site** **Environmental Permit No. EP-136/2002/D**	Title: **Aerial Photos** **(Sheet 3 of 10)** Appendix A



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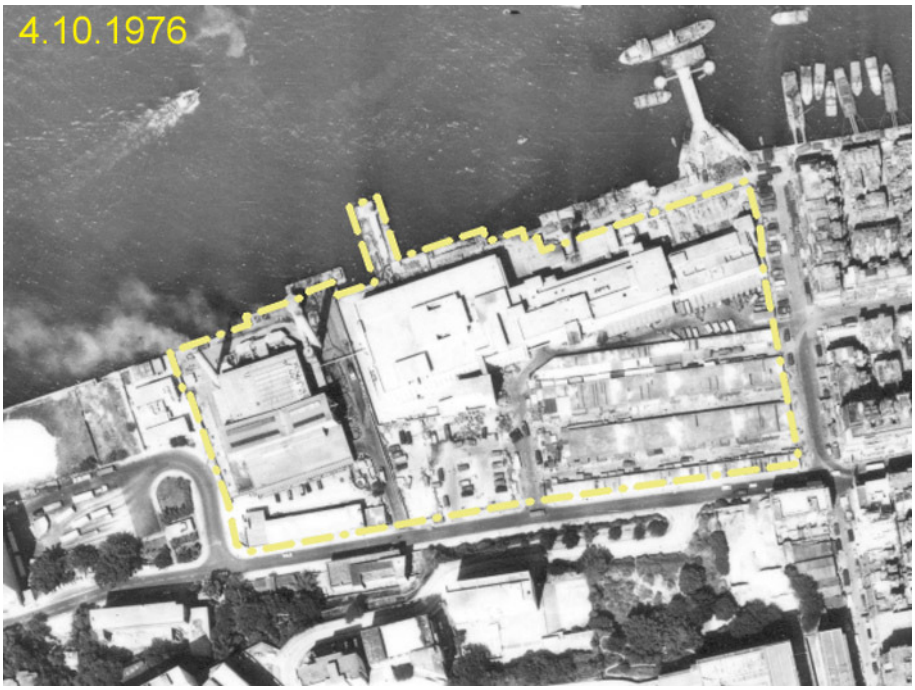


1976

Legend:

Project site area

Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

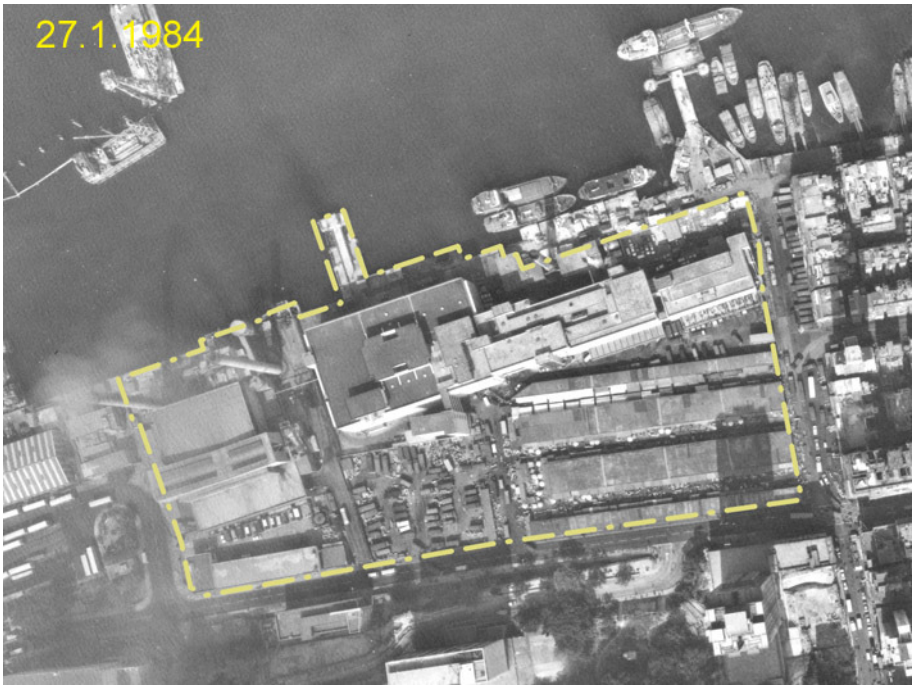
Environmental Permit No. EP-136/2002/D

Title:

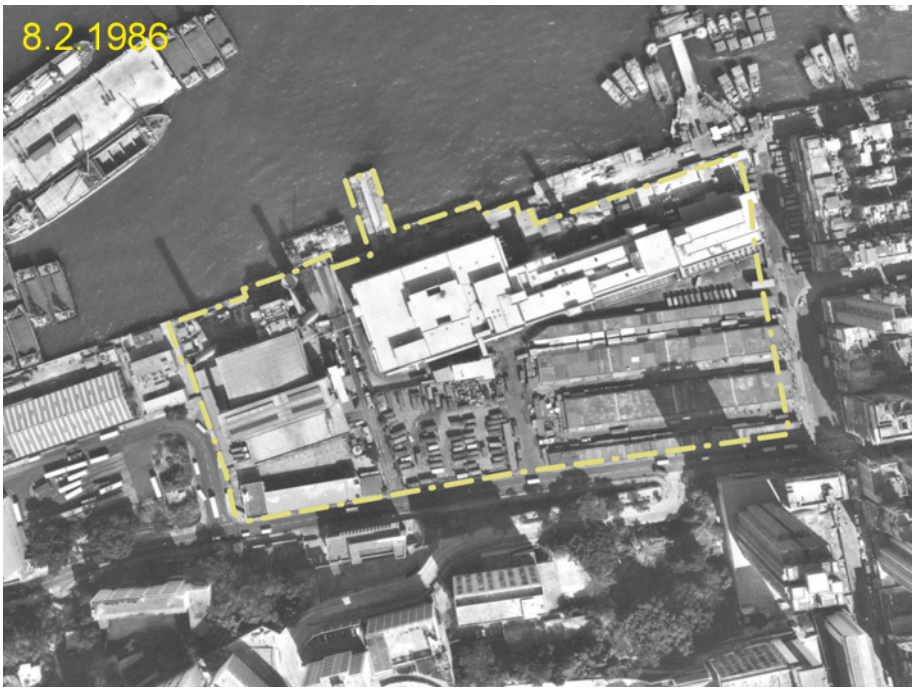
Aerial Photos

(Sheet 4 of 10)

Appendix A



1984



1986

Legend:

Project site area

Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

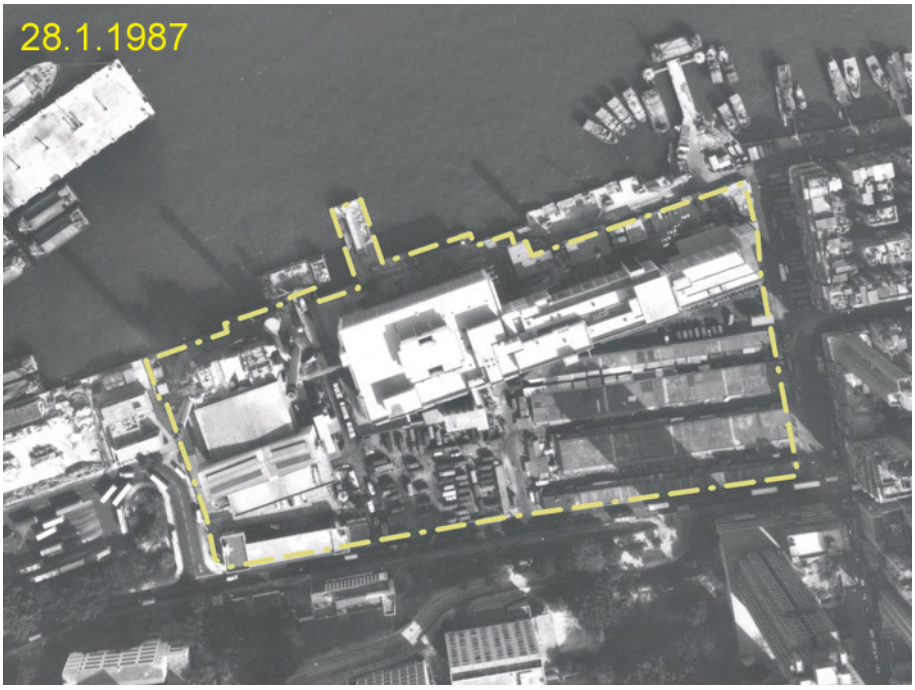
Environmental Permit No. EP-136/2002/D

Title:

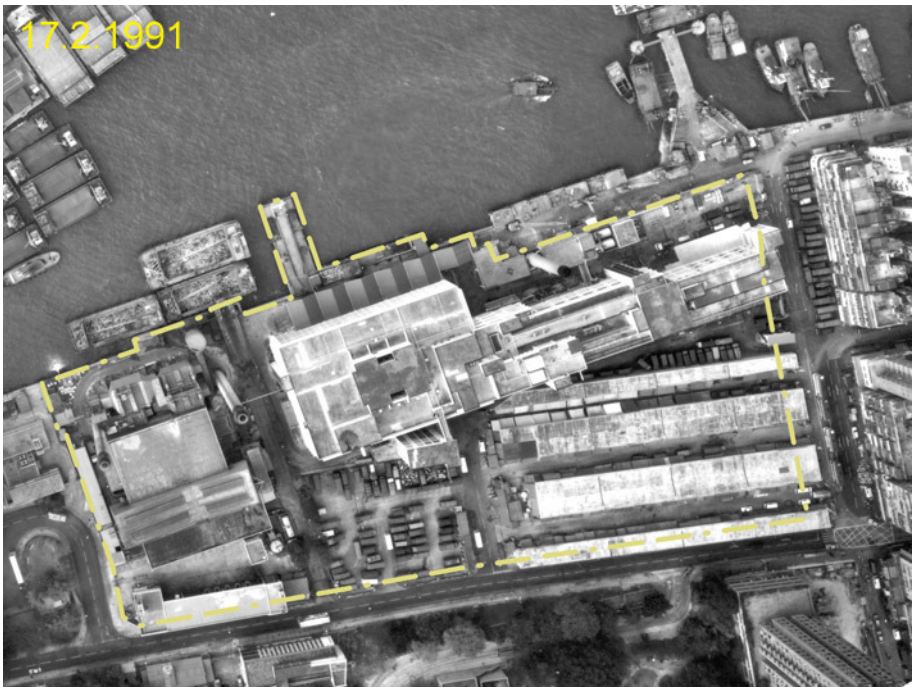
Aerial Photos

(Sheet 5 of 10)

Appendix A



1987



1991

Legend:

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Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

Environmental Permit No. EP-136/2002/D

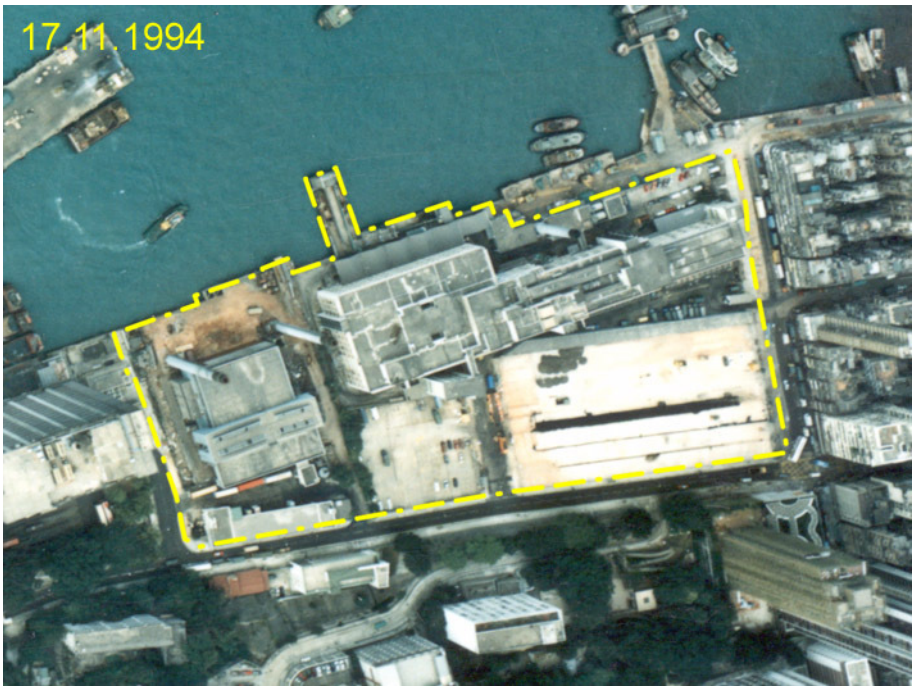
Title:

Aerial Photos

(Sheet 6 of 10)

Appendix A

1993



1994

Legend:

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Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

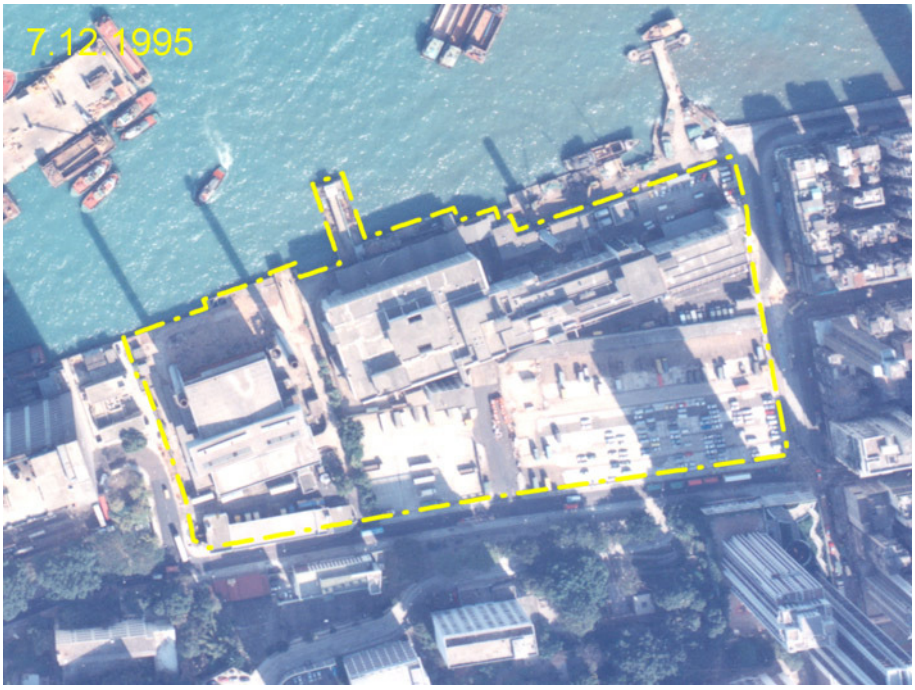
Environmental Permit No. EP-136/2002/D

Title:

Aerial Photos

(Sheet 7 of 10)

Appendix A



1995

1998

Legend:

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Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

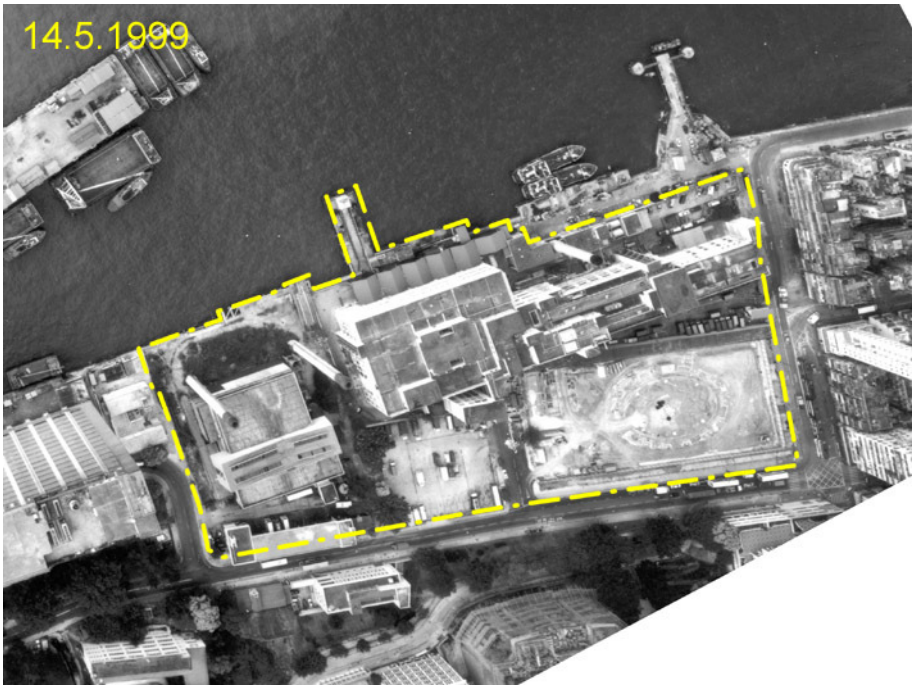
Environmental Permit No. EP-136/2002/D

Title:

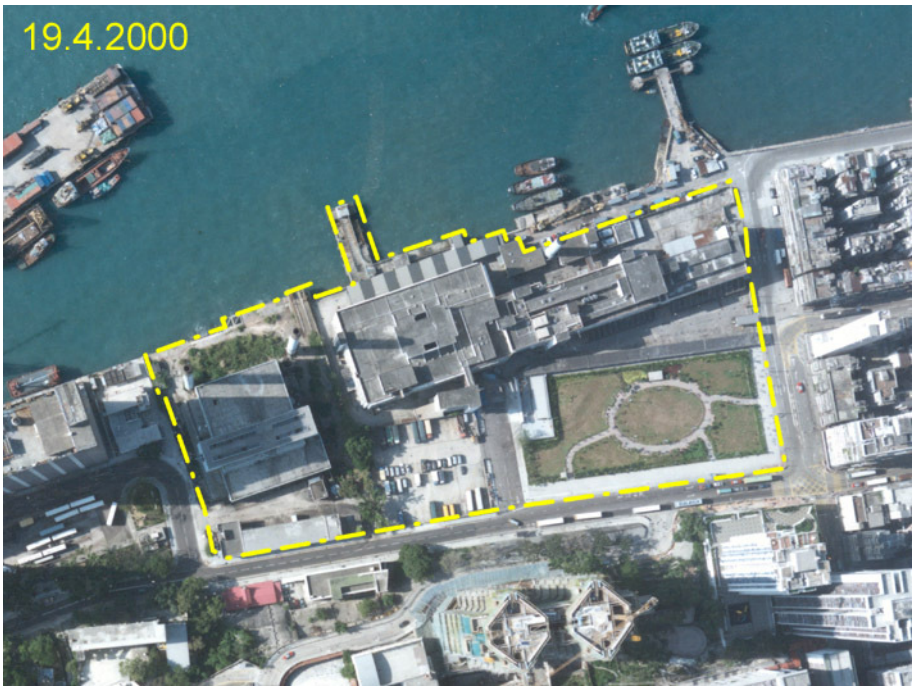
Aerial Photos

(Sheet 8 of 10)

Appendix A



1999



2000

Legend:

Project site area

Civil Engineering and Development Department

Mott MacDonald

Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

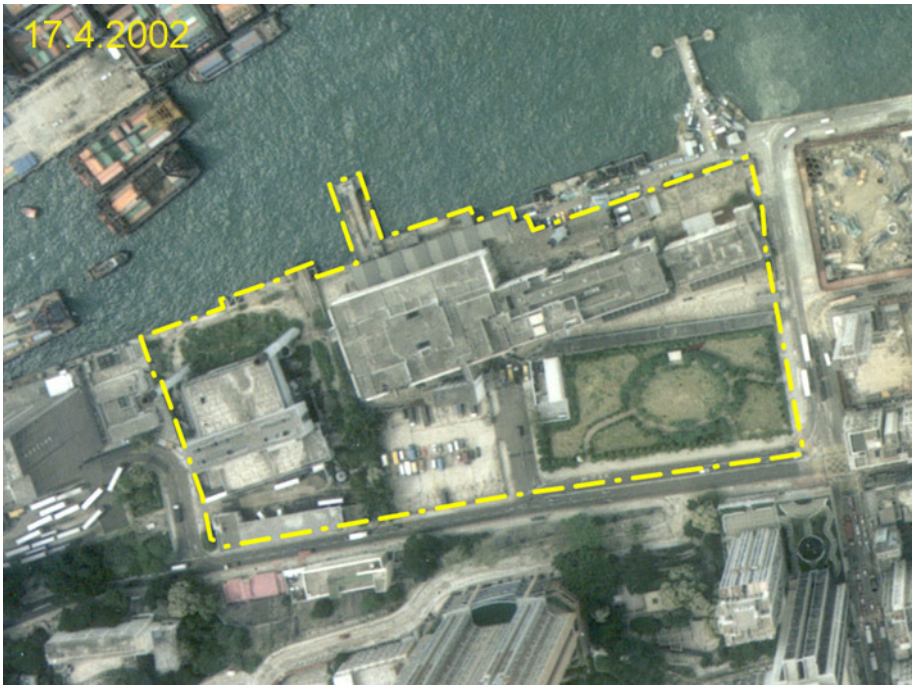
Environmental Permit No. EP-136/2002/D

Title:

Aerial Photos

(Sheet 9 of 10)

Appendix A



2002

Legend:

Project site area

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Demolition of Buildings and Structures in the Proposed Kennedy Town Comprehensive Development Area Site

Environmental Permit No. EP-136/2002/D

Title:

Aerial Photos

(Sheet 10 of 10)

Appendix A

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Appendix B. Testing Previously Conducted within the Project Site

Grid[4]	Boreholes[4,5]	Hotspot (original EIA study)	Tier	Grid/ BCT	Depth of Samples Tested[6] (m)														Parameters Provided				
					0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]	Insufficient Samples for Lab Analysis[7]
1	#BH82			Y	Y	Y	-	-	-	-	-	Y	Y	Y	Y	Y	-	-	-	√	√	√	√	-
	BH83		Y		-	-	-	Δ	-	Δ	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	√	√	-	Arsenic, Cadmium, Copper, Lead and Zinc only	As, Cd, Cu, Pb, Zn: 4.5m, 7.5m, 10.5m and 12m
	BH85		Y		Y	Y	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	Δ	√	-	√	Arsenic, Cadmium, Copper, Lead and Zinc only	Petroleum Carbon Ranges: 3.0m, 10.5m, 12.0m and 13.5m
	BH86		Y		Y	-	-	Δ	Δ	-	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	√	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	TB10	Y			Y 0.4	Y 1.2	Y 1.8	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	TB10a	Y			-	Y 2.6	Y 3.9	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
2	BH88		Y		-	-	Δ	Δ	Δ	Y	Y	Y	Y	Δ	Δ	Δ	Δ	-	-	√	-	√	Lead only	Pb: 3.0m, 4.5m, 6.0m, 7.5m, 9.0m, 10.5m and 12.0m PAH: 4.5m and 6.0m Petroleum Carbon Ranges: 21.0m
	BH91		Y		-	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	√	-	-	-	-
	BH92		Y		Y	Y	-	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	√	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	BH93		Y		Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH94		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH95		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	TB5	Y			Y 1.8	Y 2.5	Y 3.4	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH97		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	#BH99			Y	Y	Y	Y	Y	-	Y	Y	Y	Y	-	Y	-	-	-	-	√	√	√	√	Hg: 3.0m, 4.5m, 7.5m, 9.0m, 10.5m, 12.0m and 15.0m
	TB7	Y			Y 1.5	Y 2.7	Y 3.3	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	TB9	Y			Y 1.0	Y 2.4	Y 3.3	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
3	#BH8			Y	Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	√	√	√	√	Hg: 4.5m Petroleum Carbon Ranges and BTEX: 4.5m
	BH96		Y		-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
4	BH1		Y		Y	Y	Y	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH3		Y		Y	Y	Y	-	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper and Lead only	Cu: 6.0m
	TB23	Y			Y	Y 1.9	Y 3.4	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH5		Y		Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH7		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper and Lead only	-
	BH9		Y		Y	Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	-	-	√	Copper and Lead only	-
	#BH10a			Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
5	BH65		Y		Y	Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	√	√	-	Lead, Mercury and Zinc only	-
	BH69		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	BH70		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cadmium, Copper, Lead and Zinc only	-
	TB11	Y			Y	Y 2.4	Y 3.8	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH71		Y		-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	BH72		Y		-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	BH73		Y		Δ	Y	Δ	Δ	-	-	-	Δ	-	-	-	-	-	-	-	√	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	BH74		Y		Δ	Y	-	Δ	-	-	-	-	-	-	-	-	-	-	-	√	√	-	Cadmium, Copper, Lead and Zinc only	-

Grid[4]	Boreholes[4,5]	Hotspot (original EIA study)	Tier	Grid/ BCT	Depth of Samples Tested[6] (m)														Parameters Provided				
					0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]	Insufficient Samples for Lab Analysis[7]
	BH76		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	BH77		Y		-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	#BH78			Y	-	Y	Y	Y	-	-	Y	Y	Y	Y	-	-	-	-	-	√	√	√	√	PAH and all heavy metals except Hg: 4.5m
	TB28	Y			Y 0.4	Y 2.1	Y 3.6	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH79		Y		-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	-
	*BH80		Y		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH84		Y		-	-	-	Y	Y	Y	Y	Y	Y	Δ	Δ	Δ	-	Δ	-	√	-	-	Arsenic, Cadmium, Copper, Lead and Zinc only	As, Cd, Cu, Pb, Zn: 4.5m, 6.0m, 7.5m, 9.0m, 10.5m and 12.0m
	BH53		Y		Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cadmium, Copper, Lead and Zinc only	-
	*BH55		Y		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH56		Y		-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH57		Y		Δ	Δ	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	As, Cu, Zn: 0.5m
	TB4	Y			Y	Y 2.7	Y 3.9	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH58		Y		Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH59		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH61		Y		-	Y	Y	Y	Δ	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	√	Arsenic, Copper, Lead and Zinc only	-
6	BH75		Y		-	Y	Y	Y	Y	Y	Δ	Δ	Δ	-	Δ	-	-	-	-	-	-	√	Arsenic, Cadmium, Copper, Lead and Zinc only	PAH, As, Cd, Cu, Pb and Zn: 3.0m and 7.5m
	#BH81			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
	BH89		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH90		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	√	-	-
	TB8	Y			Y 1.1	Y 2.6	Y 3.1	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH100		Y		-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	TB6	Y			Y 0.6	Y 2.2	Y 3.3	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH31		Y		Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	#BH32			Y	-	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	√	√	√	√	-
7	BH33		Y		-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	√	√	-	Cadmium, Copper, Lead, Mercury and Zinc only	-
	BH37		Y		-	-	-	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH10		Y		Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	√	Copper and Lead only	-
	TB27	Y			Y	Y 2.0	Y 3.4	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
8	BH11		Y		Y	Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	√	-	√	Copper and Lead only	-
	BH15		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	√	Copper and Lead only	-
	BH16		Y		Y	Y	Δ	Δ	-	-	-	-	-	-	-	-	-	-	-	√	√	√	Copper, Lead and Mercury only	Cu and Pb: 0.5m
	BH30		Y		Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH54		Y		-	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	√	√	-	Mercury only	-
	BH62		Y		Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead, Mercury and Zinc only	-
9	BH63		Y		Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead, Mercury and Zinc only	-
	BH64		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead, Mercury and Zinc only	-
	TB13	Y			Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH66		Y		Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead, Mercury and Zinc only	-
	#BH68			Y	-	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 7.5m, 9.0m, 10.5m, 12.0m, 13.5m and 15.0m
	BH47		Y		Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	-
	BH48		Y		Y	Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead, Mercury and Zinc only	-
10	#BH49			Y	Y	-	Y	-	Y	Δ	-	Y	Y	-	-	-	-	-	-	√	√	√	√	Hg: 3.0m, 7.5m, 10.5m and 12.0m Petroleum Carbon Ranges and BTEX: 3.0m, 10.5m and 12.0m
	BH50		Y		Y	Y	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Cadmium, Copper, Lead and Zinc only	-
	BH51		Y		-	-	Y	Y	Y	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	Cadmium, Copper, Lead and Zinc only	-
	BH52		Y		Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cadmium, Copper, Lead and Zinc only	-
	TB3	Y			-	Y 2.5	Y 3.8	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-

Grid[4]	Boreholes[4,5]	Hotspot (original EIA study)	Tier	Grid/ BCT	Depth of Samples Tested[6] (m)														Parameters Provided				
					0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]	Insufficient Samples for Lab Analysis[7]
	TB12	Y			Y	Y 2.5	Y 3.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
11	BH170			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
12	BH172			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
13	BH171			Y	-	-	Y	Y	Y	Y	Y	-	Y	-	-	-	-	-	-	√	√	√	√	-
14	BH173			Y	Y	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
15	BH135		Y		Δ	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Barium, Cadmium, Cobalt, Chromium, Copper, Molybdenum, Nickel, Tin, Lead and Zinc only	Ba, Co, Cr, Mo, Ni and Sn: 0.5m and 4.5m
	BH136		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead and Zinc only	-
	BH137		Y		Y	Y	-	Y	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	Copper, Lead and Zinc only	Zn: 0.5m
	BH142		Y		Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	Lead only	Pb: 3.0m, 4.5m, 6.0m
	#BH143			Y	Y	Y	Y	Y	Δ	-	Δ	Y	Y	-	Y	-	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 0.5m, 1.5m, 3.0m, 4.5m, 10.5m, 12.0m and 15.0m Hg: 6.0m
	BH144		Y		Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead and Zinc only	-
	BH145		Y		Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH150		Y		Y	Y	Δ	-	-	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	-
	TB16	Y			Y 0.8	Y 2.3	Y 3.6	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	TB30	Y			Y 0.6	Y 2.4	Y 3.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
16	BH146		Y		Y	Y	Δ	Δ	Δ	Δ	-	Δ	-	Δ	Δ	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	Cu and Pb: 3.0m, 4.5m, 6.0m, 7.5m and 10.5m
	BH147		Y		Y	Y	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	-
	#BH148			Y	Y	-	-	Y	Y	Y	Y	-	Y	Y	Y	-	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 0.5m and 6.0m
	BH149		Y		Y	Y	Δ	Δ	Δ	Δ	Δ	Δ	-	Δ	-	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	Cu, Pb and Zn: 3.0m, 4.5m, 6.0m, 7.5m, 9.0m and 10.5m
	BH177		Y		-	Y	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	-
	TB15	Y			Y 0.4	Y 2.3	Y 3.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
17	BH126		Y		Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	BH128		Y		Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	BH129		Y		Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	BH130		Y		Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	TB19	Y			Y 0.6	Y 2.3	Y 3.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH131		Y		Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	BH132		Y		-	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	#BH134			Y	-	Y	Y	Y	-	Y	Y	Y	Y	Y	-	Y	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 7.5m, 9.0m, 10.5m, 12.0m and 13.5m
	BH139		Y		Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead and Mercury only	-
	TB17	Y			Y 0.4	Y 2.3	Y	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
18	BH116		Y		Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	-
	BH117		Y		Y	Y	Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	-
	BH117a		Y		Y	Y	Y	Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Mercury, Lead and Zinc only	Cu, Zn and Hg: 4.5m
	TB29	Y			Y	Y 1.0 1.3 2.0	Y	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH118		Y		Y	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	-
	BH119		Y		-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	Cu, Pb, Hg and Zn: 4.5m
	BH120		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	Lead only	Pb: 3.0m, 4.5m, 7.5m and 9.0m
	BH121		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	Lead only	Pb: 3.0m and 7.5m
	BH122		Y		Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	TB18	Y			Y 1.0	Y 2.4	Y 3.8	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-

Grid[4]	Boreholes[4,5]	Hotspot (original EIA study)	Tier	Grid/ BCT	Depth of Samples Tested[6] (m)														Parameters Provided				
					0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]	Insufficient Samples for Lab Analysis[7]
	BH123		Y		Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lead only	-
	BH124		Y		Y	Y	Y	-	-	-	-	-	Δ	-	-	-	-	-	-	-	-	-	Lead only	-
	#BH125			Y	Y	Y	Y	Y	-	-	-	-	Y	Y	Y	Y	-	-	-	√	√	√	√	Hg: 16.5m
19	#BH179			Y	-	Y	-	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	√	√	√	√	-
20	BH108		Y		Y	Y	Y	Δ	-	Δ	-	Δ	-	Δ	-	-	-	-	-	√	√	√	Arsenic, Cadmium, Copper, Lead, Mercury and Zinc only	Petroleum Carbon Ranges: 3.0m, 7.5m and 10.5m
	BH109		Y		Δ	Y	Y	-	-	Δ	Δ	-	Δ	Δ	Δ	-	-	-	-	√	√	√	Arsenic, Cadmium, Copper, Lead, Mercury and Zinc only	Petroleum Carbon Ranges: 0.5m, 7.5m and 9.0m
	#BH110			Y	Y	Y	Y	Y	Δ	Δ	-	Y	Y	Y	Y	-	-	-	-	√	√	√	√	Hg and Petroleum Carbon Ranges: 1.5m and 4.5m
	BH111		Y		Y	-	Y	Y	Y	Y	Y	-	Y	Δ	-	-	-	-	-	√	-	√	Arsenic, Cadmium, Copper, Lead, Mercury and Zinc only	As, Cd, Cu, Pb, Zn, Hg: 4.5m, 6.0m, 7.5m, 9.0m and 12.0m Petroleum Carbon Ranges and PAH: 4.5m, 6.0m, 7.5m and 9.0m
	BH112		Y		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Y	Δ	Δ	Δ	-	-	-	-	√	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	As, Cu, Pb, Hg and Zn: 10.5m
	BH113		Y		-	-	-	-	-	-	-	-	-	-	Δ	Δ	-	-	-	√	-	√	-	-
	BH114		Y		Y	Y	Y	Δ	Δ	Δ	Δ	-	-	Δ	-	-	-	-	-	√	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	-
	BH115		Y		Y	Y	Y	Y	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	√	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	-
	TB20	Y			Y 0.3	Y	Y 3.2	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
21	#BH178			Y	Y	Y	Y	Y	-	Y	Y	Y	-	-	-	-	-	-	-	√	√	√	√	-
22	BH151		Y		Y	Y	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	√	Arsenic, Copper, Lead, Mercury and Zinc only	As, Cu, Pb, Zn, Hg: 4.5m, 6.0m, 7.5m, 9.0m and 12.0m
	BH161			Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 4.5m
23	BH165			Y	Y	Y	Y	Δ	-	Y	Y	Y	Y	Δ	-	Δ	-	-	-	√	√	√	√	-
24	BH167			Y	Y	Y	-	Y	Y	Y	-	Y	-	-	Δ	Δ	-	-	-	√	√	√	√	Hg: 10.5m Petroleum Carbon Ranges and BTEX: 6.0m and 10.5m
25	BH104		Y		Y	Y	Y	Y	Δ	Y	Δ	Δ	Y	-	Δ	-	-	-	-	-	-	√	Lead and Mercury only	Pb: 6.0m, 7.5m, 9.0m, 10.5m and 12.0m Hg and PAH: 7.5m and 12.0m
	BH105		Y		Y	Y	Y	-	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	-	√	Lead and Mercury only	-
	BH169			Y	Y	Y	Y	Y	-	-	Y	Y	Y	Δ	-	Δ	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 3.0m, 4.5m, 9.0m, 10.5m and 12.0m
26	BH38		Y		-	Δ	Δ	Y	-	Δ	-	Δ	-	Δ	-	-	-	-	-	√	√	-	Arsenic, Cadmium, Copper, Lead, Mercury and Zinc only	Cd, Cu, Pb, Zn and Hg: 3.0m As: 3.0m and 7.5m
	BH40		Y		Y	Y	Y	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH41		Y		Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH42		Y		-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH44		Y		Y	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	-	-	-	√	√	-	Copper, Lead, Mercury and Zinc only	PAH and all heavy metals except Hg: 1.5m
	BH46		Y		Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead, Mercury and Zinc only	As: 1.5m, 3.0m, 4.5m and 6.0m
	BH154			Y	Y	Y	-	Y	Y	-	-	-	-	-	-	-	-	-	-	√	√	√	√	PAH and all heavy metals except Hg: 6.0m
	TB2	Y			Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
27	BH156			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
	TB14	Y			Y 0.4	Y 2.5	Y 3.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH153		Y		-	Y	Y	Y	Y	Y	Δ	-	Δ	Δ	-	-	-	-	-	-	-	-	Copper, Lead and Mercury only	Pb and Hg: 9.0m, 12.0m and 13.5m
	TB24	Y			Y 1.2	Y 2.0	Y 3.0	Y 4.0	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
28	BH158			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	√	√	√	√	-
29	BH162			Y	Y	Y	Y	Y	Y	Y	-	Y	Y	-	Δ	-	-	-	-	√	√	√	√	-
30	BH164			Y	Y	Y	Y	Y	-	Y	-	Y	-	-	-	-	-	-	-	√	√	√	√	Hg, Petroleum Carbon Ranges and BTEX: 7.5m
31	BH166			Y	Y	Y	Y	Y	-	-	Y	-	-	-	-	-	-	-	-	√	√	√	√	-

Grid[4]	Boreholes[4,5]	Hotspot (original EIA study)	Tier	Grid/ BCT	Depth of Samples Tested[6] (m)														Parameters Provided				
					0.5	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	Petroleum Carbon Ranges	VOC BTEX[2] only	SVOC PAH only	Heavy Metals[3]	Insufficient Samples for Lab Analysis[7]
32	BH101		Y		Δ	Δ	Δ	Y	Y	-	Δ	-	Δ	Δ	-	-	-	-	-	-	-	√	Lead and Mercury only	Pb and Hg: 4.5m and 6.0m PAH: 4.5m
	TB25	Y			Y 0.9	Y 1.6	Y 2.9	Y 3.9	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH102		Y		Y	Y	Y	-	-	-	-	Δ	-	-	-	-	-	-	-	-	-	√	Cadmium, Copper, Zinc, Arsenic, Lead and Mercury only	Cd, Cu, Zn and As: 1.5m and 3.0m
	BH103		Y		Y	Y	Y	Y	-	Y	Y	-	-	-	-	-	-	-	-	-	-	√	Lead and Mercury only	Pb: 3.0m, 7.5m, 9.0m and 10.5m Hg: 0.5m, 3.0m, 7.5m and 9.0m PAH: 3.0m
	BH106		Y		Y	Y	Y	Y	Δ	-	-	Δ	Δ	-	-	-	-	-	-	-	-	√	Lead and Mercury only	-
	BH107		Y		Y	Y	-	Y	Δ	Δ	Δ	-	-	-	Δ	-	-	-	-	-	-	√	Lead and Mercury only	-
	BH168			Y	Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	√	√	√	√	-
33	BH36		Y		Y	Y	Y	Y	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	√	-	-	Cadmium, Copper, Lead, Mercury and Zinc only	-
	BH155			Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
34	BH157			Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH174		Y		Y	Y	Δ	Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead and Mercury only	-
	BH175		Y		Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead and Mercury only	-
	BH176		Y		Y	Y	Y	-	Δ	-	Δ	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead and Mercury only	-
35	BH159			Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
36	BH160			Y	Y	Y	Y	-	Y	-	Y	-	-	-	-	-	-	-	-	√	√	√	√	-
37	BH163			Y	Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	√	√	√	√	-
A	BH39		Y		Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Arsenic, Copper, Lead and Zinc only	-
	BH43		Y		Δ	Δ	Δ	Δ	-	-	-	-	-	-	-	-	-	-	-	√	√	-	Arsenic, Copper, Lead and Zinc only	-
	BH45		Y		-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Copper, Lead, Mercury and Zinc only	-
B	#BH152			Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	-	-	-	-	-	√	√	√	√	-
C	#BH133			Y	Y	Y	Y	-	Y	-	Y	Y	Y	Y	-	-	-	-	-	√	√	√	√	-
D	BH22		Y		Y	Y	Y	Δ	Δ	-	-	-	-	-	-	-	-	-	-	√	√	-	Copper, Lead, Mercury and Zinc only	Hg and Petroleum Carbon Ranges: 3.0m, 4.5m and 6.0m
	BH24		Y		Y	Y	-	Y	Y	-	-	-	-	-	-	-	-	-	-	√	-	-	√	Petroleum Carbon Ranges: 0.5m
	BH25		Y		-	-	-	Δ	Δ	Δ	-	-	-	-	-	-	-	-	-	√	-	√	Cadmium, Copper, Lead, Mercury and Zinc only	Pb, Zn and Petroleum Carbon Ranges: 6.0m and 7.5m
	BH27		Y		Y	Y	Y	Y	Δ	-	Δ	-	-	-	-	-	-	-	-	√	-	√	Copper, Lead, Zinc and Mercury only	Cu, As and Hg: 6.0m
	TB21	Y			Y	Y 2.4	Y 3.5	Y 4.9	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	#BH27a			Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	BH34		Y		Y	Y	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	√	-	-	Cadmium, Copper, Lead, Mercury and Zinc only	-
	TB1	Y			Y 0.3	Y 1.3	Y 2.5	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	TB22	Y			Y	Y 1.8	Y 2.9	-	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-
	TB26	Y			Y 0.8	Y 1.8	Y 2.7	Y 3.4	-	-	-	-	-	-	-	-	-	-	-	√	√	√	√	-

Remarks: 1. √ = Parameters selected for the specific sampling borehole.

Y = Analysis carried out for all selected parameters. (If there is insufficient sample for analysis, the analysis is still regarded as "Y - carried out" and shown in "Insufficient Samples for Lab Analysis" column.)

Δ = Analysis carried out only for Petroleum Carbon Ranges, PAH, BTEX and/or Heavy Metals.

= Borehole for comprehensive testing (BCT).

* = No information available / sample obtained was insufficient to conduct analysis.

2. BTEX include Benzene, Ethylbenzene, Toulene and Xylenes.
3. Heavy metals include Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Nickel, Tin and Zinc.
4. Please refer to **Figure 2.1 and Figure 2.2** for grid and borehole locations respectively.
5. ( ) Bracketed boreholes are located at the same position.
6. Actual sample depth is stated where it varies from the set depth.
7. Insufficient samples for specified depth of samples test. (e.g. For Petroleum Carbon Ranges testing of BH85, insufficient samples are found for depths of 3.0m, 10.5m and 12.0m.)

Appendix C. Site Walkover Checklist

General Site Details:
Site Owner: New World First Bus Service Limited
Property Address: STT NHS 583, Sai Ning Street, Hong Kong

Person Conduction the Questionnaire:
Name: Alfee Au
Position: Senior Building Service Engineer

Site Activities

Number of employees:	**Full-time:**	6
	Part-time:	Nil
	Temporary / Seasonal:	6 contractors
Maximum no. of people on site at any time:		4
Typical hours of operation:		21:00 – 02:15
Number of shifts:		2 shifts (06:30 – 17:00 and 17:00 – 02:45)
Days per week:		7
Weeks per year:		52
Scheduled plant shut-down:		N/A
Detail the main sources of energy at the site:		
	Gas	No
	Electricity	Yes
	Coal	No
	Oil	No
	Other	No

Site Description

What is the total site area:	Approx. 2,150m^2
What area of the site is covered by buildings (%):	40%
Is a site plan available?	No
Are there any other parties on site as tenants or sub-tenants?	No

Description surround land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.
North: Victoria Harbour
South: Clinic and Elderly centre
East: Public car park
West: Factory buildings

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.)
The surrounding landscape resources consist of some trees to the west and south, and a water body (Victoria Harbour) to the north.

State the size and location of the nearest residential communities.
The nearest residential communities are Mount Davis 33 and Cayman Rise Block 1 & 2.

Are they any sensitive habitats nearby, such as nature reserves, parks, wetlands or site of special scientific interest?
There is a temporary public park (Cadogan Street Temporary Garden) to the east of bus depot, however, this is also included in the scope of this Project.

Questionnaire with Existing / Previous Site Owner or Occupier

	Yes / No	Notes
1. What are the main activities / operations at the above address?	--	Bus Washing, Bus Filling and Office Block
2. How long have you been occupying the site?	--	Around 15 years
3. Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	No	--
4. Prior to your occupancy, who occupied the site?	--	EMSD Depot
5. What were the main activities / operations during their occupancy?	--	Vehicle Washing and Filling Station
6. Have there been any major changes in operations carried out at the site in the last 10 years?	No	--
7. Have any polluting activities been carried out in the vicinity of the site in the past?	Yes	--
8. To the best of your knowledge, has the site ever been used as a petrol filling station / car service garage?	Yes	--
9. Are there any boreholes / wells or natural springs either on the site or in the surrounding area?	Yes	Boreholes used in previous EIA and previous SI
10. Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	Yes	Above Ground Fuel Tank
11. Are any chemicals used in your daily operations? (If yes, please provide details.)	Yes	Above Ground Fuel Tank
• Where do you store these chemicals?	--	Above Ground as shown in Figure 3.1
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	--	Not Known
13. Has the facility produced a separate hazardous substance inventory?	--	Not Known
14. Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details)	No	--
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	--	Stored in drums
16. Do you have any underground storage tanks? (If yes, please provide details.)	No	Only above ground storage tank
• How many underground storage tanks do you have on site?	--	--
• What are the tanks constructed of?	--	--
• What are the contents of these tanks?	--	--
• Are the pipelines above or below ground?	--	--
• If the pipelines are below ground, has any leak and integrity testing \g been performed?	No	--
• Have there been any spills associated with these tanks?	No	--
17. Are there any disused underground storage tanks?	No	--
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	--
19. How are the wastes disposed of?	--	Not a chemical wastes producer.
20. Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	No	--
21. Have you spills occurred on site? (If yes, please provide details.)	No	--

	Yes / No	Notes
• When did the spill occur?	--	--
• What were the substances spilled?	--	--
• What was the quantity of material spilled?	--	--
• Did you notify the relevant departments of the spill?	--	--
• What were the actions taken to clean up the spill?	--	--
• What were the areas affected?	--	--
22. Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work / underground tanks (If yes, please provide details.)	No	--
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	--
24. Are there any known contaminations on site? (If yes, please provide details.)	No	--
25. Has the site ever been remediated? (If yes, please provide details.)	No	--

Observations

	Yes / No	Notes
1. Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	Yes	On Concrete Floors
2. What are the conditions of the bund walls and floors?	--	Good Condition
3. Are there any surface water drains located near to drum storage and unloading areas?	Yes	--
4. Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	Only wastewater and there is a discharge license for the site.
5. Is there a storage site for the wastes?	No	--
6. Is there an on-site landfill?	No	--
7. Were any stressed vegetation noted on site during the site reconnaissance? (if yes, please indicate location and approximate size.)	No	--
8. Were any stained surfaces noted on-site during the site reconnaissance? (if yes, please provide details.)	Yes	Photo 1
9. Are there any potential off-site sources of contamination?	No	--
10. Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	--
11. Are there any sumps, effluent pits, interceptors or lagoons on site?	Yes	Figure 3.1
12. Any noticeable odours during site walkover?	No	--
13. Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ask, oil tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	Yes	Figure 3.1

Photo 1 Stains on the Surface

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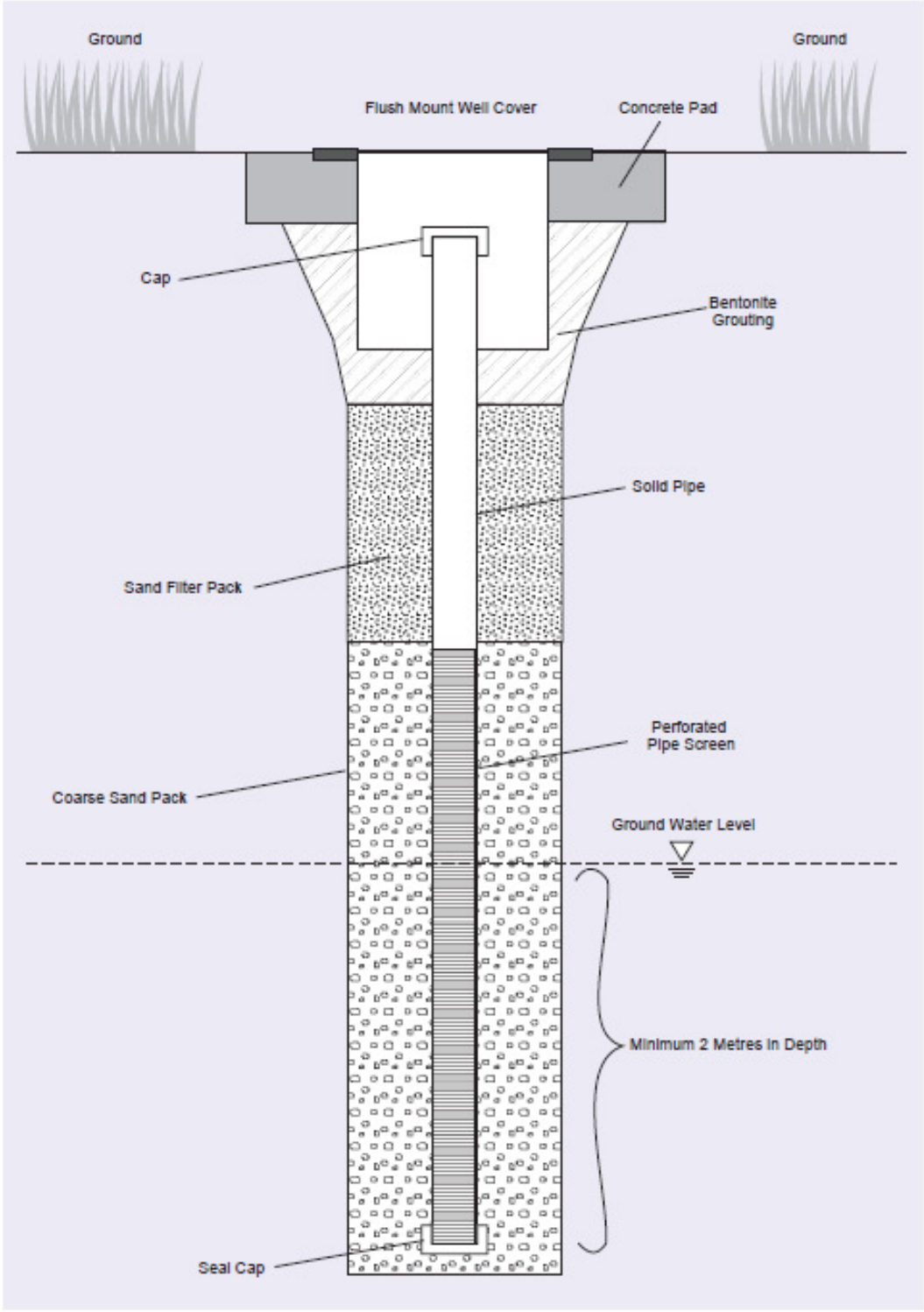
Appendix D. Schematic Drawing of Ground Water Monitoring Well



Remarks: Reference from Practice Guide for Investigation and Remediation of Contaminated Land, Annex E, EPD

Appendix E. Information from Government Departments

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS
BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

106

本處檔號 OUR REF. : (106) in FSD GR 6-5/4 R Pt. 2
來函檔號 YOUR REF. : KMY/SHC/LW/dl/T203204/21.15/L-1375
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk
圖文傳真 FAX NO. : 2739 5879
電 話 TEL NO. : 2733 7741

5 November 2012

Mott MacDonald Hong Kong Limited
20/F,
Two Landmark East,
100 How Ming Street,
Kwun Tong, Kowloon
(Attn: Mr. Lawrence WONG)

Dear Mr. WONG,

By fax (2827 1823) only

Decontamination Work at the Proposed Kennedy Town Comprehensive Development Area Site
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 19th October 2012 regarding the captioned request and reply below in response to your questions seriatim:-

1. Licensed dangerous goods are stored at the captioned address. Please refer to **Appendix A** for details.

2. According to our record, no incident record was found at the aforesaid location with your given conditions.

Should you have further questions, please feel free to contact Miss CHAN at 2733 7532.

Yours sincerely,

(WONG Ka-wing)
for Director of Fire Services

Appendix A

Decontamination Work at the Proposed Kennedy Town Comprehensive Development Area Site

Request for Information of Dangerous Goods & Incident Records

Type of Dangerous Goods	Quantity	Method of Storage
Oxygen	18 Cylinders	Inside an open ground DG store
Acetylene	18 Cylinders	Inside an open ground DG store