D01 - Environmental Assessment Report

Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 482Rp, 483, 484, 486, 487RP, 497S.A.R.P., 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and adjoining Government Land, Man Kam To Road, Sha Ling, New Territories

Oct 2024

Prepared by

C&K Land Management Company Limited

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1 PROJECT BACKGROUND

1.1 Introduction

1.1.1 Hong Kong Chilled Meat & Poultry Association ("HKCMA" or "the Applicant") plans to construct and operate a Temporary Cold Storage for Poultry and Distribution Centre ("the Centre" or "the Proposed Development") for a Period of 3 Years and Filling and Excavation of Land for Site Formation Works at Lots 471 S.B RP (Part), 472, 473, 474, 475,476, 482Rp, 483, 484, 486, 487RP, 497S.A.R.P. in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories ("the Site").

1.1.2 The Site is currently zoned "Agriculture" ("AGR") under the Approved Fu Tei Au and Sha Ling Outline Zoning Plan ("OZP") No. S/NE-FTA/18. In accordance with paragraph 10(a) of the Explanatory Note of the OZP, temporary use or development of any land or building not exceeding a period of three years would require planning permission from the Town Planning Board ("TPB"). Therefore, a Section 16 Planning Application with an application number A/NE-FTA/201 and A/NE- FTA/201 was made and approved with conditions on 28 May 2021 & 09 November 2023.

1.1.3 In order to provide better design for a more cost-effective of operating the Centre, the following major modifications to the approved planning application have been proposed:

- Changing the Site boundary from 16,060m^2 to 20,249m^2 approximately;
- Combining Blocks A, B, C into one Main Block;
- Not Changing the maximum building height keep to 20.675m above ground;
- Changing the Total Floor Area from 11,615m^2 to 15206.84m^2 approximately;
- Changing the Plot Ratio from 0.723 to 0.75; and
- Changing the site coverage from 51.94 % to 39.5%.

1.1.4 A new planning application shall be made under Section 16 of the *Town Planning Ordinance* ("TPO") for the aforementioned major modifications. CK Land Management Company Limited has been commissioned to prepare this Environmental Assessment ("EA") Report for supporting this new planning application.

1.2 Site Description

1.2.1 The Site is an elongated strip of land bounded by Man Kam To Road to the east and Lo Wu Station Road to the south with a total area of about 20,249m^2 in Sandy Ridge, which is close to the border between Lo Wu Boundary Control Point ("BCP") and Man Kam To BCP in North District. The Site is currently a vacant land overgrown with weeds and different tree groups. There is a watercourse cutting middle of the site running from the northeast to southeast direction, separating the Site into two halves.

1.2.2 The Site location and its environs are shown on ***Figure 1-1*** which the uses surrounding the Site include:

To the north, northwest and west: dwellings and residential temporary structures, Sandy Ridge Cemetery and the planned Sandy Ridge Columbarium.

To the east and southeast: The pipelines of the Dongjiang Water, Man Kam To Road, temporary structures, Boarder District Police Headquarter and Police Dog Unit and Force Search Unit Training School.

To the south: Sha Ling Playground and Lo Wu Station Road.

1.3 Project Description

1.3.1 The Centre will be built upon a site area of about 20,249m^2 with a Gross Floor Area ("GFA") of about 15,206.84m^2 and a plot ratio of about 0.75, comprising the following major components:

- Main block comprises a cold storage area and ancillary storage, office, FS Facilities, area for corridor, staircase and lift
- A Plant Room and Transformer Room (exempted from GFA)
- Guard House and Management Office

1.3.2 The existing watercourse running through the Site from northeast to southwest direction will be decked over underneath the proposed development.

1.3.3 The indicative layout and sectional plans of the Proposed Development can be referred to the Planning Statement.

1.4 Environmental Impact Assessment Ordinance ("EIAO") Implication

1.4.1 In order to determine whether the Proposed Development is classified as a Designated Project ("DP") thereby requiring to apply for an Environmental Permit ("EP") under the EIAO, all the DP items listed in Part I of Schedule 2 of the EIAO have been reviewed. The following DP items of Schedule 2 of EIAO may be relevant to the Proposed Development:

1. Item I.1 (b) – a drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300m from the nearest boundary of an existing or planned:
   - (i) Site of Special Scientific Interest ("SSSI");
   - (ii) Site of Cultural Heritage;
   - (iii) Marine Park or Marine Reserve;
   - (iv) Fish Culture Zone ("FCZ");
   - (v) Wild Animal Protection Area;
   - (vi) Coastal Protection Area ("CPA"); or
   - (vii) Conservation Area ("CA").
2. Item N.3 – Wholesale Market.

1.4.2 After reviewing Item I.1(b) and N.3 of EIAO Schedule 2, the Proposed Development is not considered as a DP with the following justifications:

1. Item I.1(b) of EIAO Schedule 2
   - (a) As mentioned in ***Section 1.3***, the existing watercourse running through the Site from northeast to southwest direction will be decked over and underneath the Proposed Development.
   - (b) As such, the Proposed Development will not involve drainage channel or river training and diversion works. Therefore, the Proposed Development is not classified as a DP under Item I.1(b) of Schedule 2 of the EIAO.
2. Item N.3 of EIAO Schedule 2
   - (a) "Wholesale Market" is not defined in Schedule 1 of the EIAO.
   - (b) As mentioned in ***paragraph 1.1.1***, the Project is a Temporary Cold Storage and Distribution Centre for chilled poultry. No selling of poultry to individuals, retailers or wholesalers as well as no slaughtering or cleaning of chilled meat / poultry will be involved in the Centre.

(c) Hence, the Project is not classified as a DP under EIAO Schedule 2 Part 1 Item N.3 "*A Wholesale Market*".

1.4.3 Although the Proposed Development is not a DP as justified above, all the environmental impacts in terms of air quality, noise, water quality and waste management arising from the Proposed Development have been assessed with reference to Chapter 9 "Environment" of the *Hong Kong Planning Standards and Guidelines* ("HKPSG") in this EA Report.

1.5 Non-Fuel Gas Dangerous Goods Risk Perspective

1.5.1 No non-fuel gas Dangerous Goods ("DGs") such as chlorine will be required to be stored on site for the Proposed Development. Therefore, no risk perspective related to non-fuel gas DG due to the Proposed Development is anticipated.

1.6 Objectives of this Report

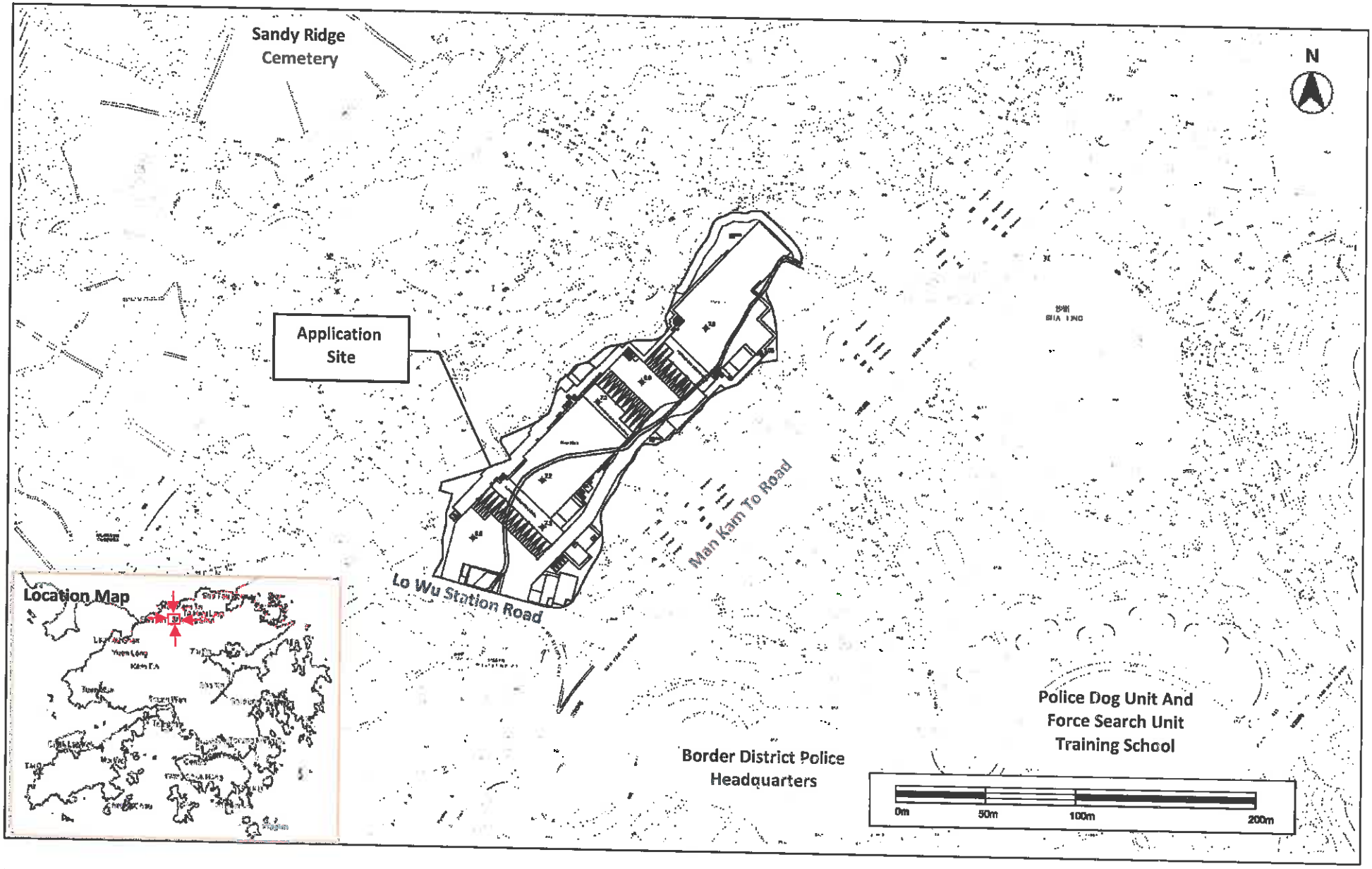
1.6.1 The objectives of this EA report are to:

Identify and qualitatively assess potential environmental impacts that may rise from the construction and operation of the Proposed Development, in terms of air quality, noise, water quality, waste management and land contamination.

Recommend appropriate measures to mitigate any impacts that area identified.

Propose measures for compliance with the "*The Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites*" ("COP").

Figure 1-1: Site Location and its Environs



2 AIR QUALITY REVIEW

2.1 Introduction

2.1.1 This section assesses the potential air quality impact associated with the Proposed Development during construction and operation phases. Mitigation measures are recommended, where necessary, as part of the assessment.

2.2 Environmental Legislation and Standards

Air Quality Objectives

2.2.1 The Air Quality Objectives ("AQOs") established under the *Air Pollution Control Ordinance* ("APCO") (Cap. 311) are given in ***Table 2.1***.

Table 2.1: Hong Kong Air Quality Objectives

POLLUTANT	AVERAGING TIME	CONCENTRATION LIMIT [Note 1], µg/m³	NO. OF EXCEEDANCES ALLOWED
Sulphur Dioxide ("SO_2")	10-minute	500	3
	24-hour	50	3
Respirable Suspended Particulates ("RSP" or "PM_{10}")[Note 2]	24-hour	100	9
	Annual	50	Not applicable
Fine Suspended Particulates ("FSP" or "$PM_{2.5}$")[Note 3]	24-hour	50	35
	Annual	25	Not applicable
Nitrogen Dioxide ("NO_2")	1-hour	200	18
	Annual	40	Not applicable
Ozone ("O_3")	8-hour	160	9
Carbon Monoxide ("CO")	1-hour	30,000	0
	8-hour	10,000	0
Lead ("Pb")	Annual	0.5	Not applicable

Notes:

1. All measurements of the concentration of gaseous air pollutants, i.e. SO_2, NO_2, O_3 and CO, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.
2. RSP means suspended particles in air with a nominal aerodynamic diameter of 10µm or less.
3. FSP means suspended particles in air with a nominal aerodynamic diameter of 2.5µm or less.

Air Pollution Control (Construction Dust) Regulation

2.2.2 Enacted under Section 43 of the APCO, *the Air Pollution Control (Construction Dust) Regulation* defines notifiable and regulatory works to ensure effective dust abatement measures have been properly implemented to reduce dust emissions for a number of construction activities.

2.2.3 The Regulation requires that advance notice is given to EPD for any notifiable work[Ref.#1] and the contractor shall ensure that the notifiable and regulatory works are carried out in accordance with the Schedule of the Regulation, which also includes dust control and suppression measures.

1. Notifiable works include site formation, reclamation, demolition of a building, work carried out in any part of a tunnel that is within 100m of any exit to the open air, construction of the foundation of a building, construction of the superstructure of a building and road construction work.

Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

2.2.4 This Regulation takes effect on 1 June 2015 and requires Non-road Mobile Machinery ("NRMM"), except those exempted, to comply with the prescribed emission standards. From 1 September 2015, all regulated machines sold or leased for use in Hong Kong must be approved or exempted with a proper label in a prescribed format issued by EPD. Starting from 1 December 2015, only approved or exempted NRMMs with a proper label are allowed to be used in specified activities and locations including construction sites, container terminals and back up facilities, restricted areas of the airport, designated waste disposal facilities and specified processes.

Asbestos Containing Materials ("ACMs")

2.2.5 The owner of premises which contain or may reasonably be suspected of containing ACMs shall engage a Registered Asbestos Consultant ("RAC") to prepare an Asbestos Investigation Report ("AIR"). If any ACM is found, an Asbestos Abatement Plan ("AAP") shall be submitted to EPD for approval. EPD shall be notified in writing at least 28 days before the commencement of any asbestos abatement work.

2.2.6 For Removal of ACMs, a Registered Asbestos Contractor shall be engaged to remove the ACM in accordance with the approved AAP under a RAC's supervision as required. Depending upon the type of work to be carried out, a RAC may need to be appointed to supervise, audit and air-monitor the asbestos abatement work. After completion of the asbestos abatement work, a summary report to be prepared by the RAC shall be submitted to EPD for record and demolition work can then commence.

Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations

2.2.7 Enacted under Section 43 of the APCO, the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations* stipulate that a prior approval from EPD will be required if the total fuel consumption capacity of any fuel-burning equipment or its chimney on premises to be installed or altered exceeds (a) 25L of conventional liquid fuel per hour; or (b) 30kg of conventional solid fuel per hour; or (c) 1,150MJ of any gaseous fuel per hour.

Hong Kong Planning Standards and Guidelines ("HKPSG")

2.2.8 The minimum buffer distances required between different types of roads and active open spaces are recommended in Chapter 9 Environment of HKPSG and are summarised in ***Table 2.2*** for ease of reference. For chimney, a buffer distance of 200m is recommended in Chapter 9 of HKPSG.

Table 2.2: HKPSG Minimum Setback Distances

POLLUTION SOURCE	TYPE OF ROAD	BUFFER DISTANCE	PERMITTED USES
Road and Highways	Trunk Road and Primary Distributor	>20m	Active and passive recreation use
		3 - 20m	Passive recreational use
		<3m	Amenity areas
	District Distributor	>10m	Active and passive recreational use
		<10m	Passive recreational uses
	Local Distributor	>5m	Active and passive recreational use
		<5m	Passive recreational use
	Under Flyovers	-	Passive recreational use

Source: Adapted from Table 3.1 of Chapter 9 Environment of HKPSG.

2.3 Air Sensitive Receivers ("ASRs")

2.3.1 The representative nearby ASR are summarised in ***Table 2.3*** and their locations are shown on ***Figure 3-1***.

Table 2.3: Identified Representative ASRs

ID	DESCRIPTION	NO. OF STOREY	DISTANCE TO SITE BOUNDARY
A1	Temporary Structure	1	1m
A2	Temporary Structure	1-3	72m
A3	Temporary Structure	1-3	59m
A4	Temporary Structure	1-3	51m
A5	Village House No.220 at Sha Ling	1-3	59m
A6	Village House No.56 at Sha Ling	1-3	56m
A7	Village House No.73 at Sha Ling	1-3	2m
A8	Village House No.79 at Sha Ling	1-3	24m
A9	Temporary Structure	1-3	11m
A10	Village House No.100 at Sha Ling	1-3	18m
A11	Temporary Structure	1-3	7m
A12	Temporary Structure	1-3	16m
A13	Temporary Structure	1-3	58m
A14	Village House No.181 Sha Ling	1-3	117m
A15	Temporary Structure	1-2	12m

2.3.2 For the ASRs of the Proposed Development, the office indicated on Drawing No. PL-002 in Annex 4 of the Planning Statement as indicated on ***Figure 2-1*** will be the ASR of the Proposed Development. The height of the office floor would be approx. 12.0mPD (~6m above ground).

2.4 Review of Air Quality Impact

Background Air Quality

2.4.1 According to the "*Guidelines on Assessing the 'TOTAL' Air Quality Impacts*" issued by EPD, *Pollutants in the Atmosphere and their Transport over Hong Kong* ("PATH") is a territory-wide air quality model developed by EPD to estimate air pollutants concentration over the whole Pearl River Delta region including Hong Kong. The latest version of the PATH model is PATH-2016.

2.4.2 The data in year 2022 have been extracted from PATH V2.1 in Grids (35, 56), which is adopted as the background pollutant concentrations for this EA study.

2.4.3 PATH V2.1 data of background concentrations of pollutants was released by EPD in July 2021, while the prevailing AQOs have been effective since 1 January 2022. As a conservative approach, the data for Year 2022 from PATHv.2.1 was adopted in this assessment even though the proposed commencement year is 2023 or 2024. The background concentrations of RSP, FSP and NO_2 in 2022 are summarised in ***Table 2-4*** below.

Table 2-4 Background Concentrations of RSP, FSP and NO_2 in 2022 from PATH V2.1

Pollutant	Averaging Time	AQO ($\mu g/m^3$)	Data	Background Concentrations ($\mu g/m^3$) from PATH V2.1 Grids 35,56	Past Background
RSP	24-hour	100 (9)	Maximum	103.5	100
			10th Maximum	71.9	62
			No. Exceedance	1	0
	Annual	50	Average	29.1	25
FSP	24-hour	50 (35)	Maximum	84.1	50
			36th Maximum	26.4	34
			No. Exceedance	11	0
	Annual	25	Average	16.6	15
NO_2	1-hour	200 (18)	Maximum	209.0	186
			19th Maximum	141.9	135
			No. Exceedance	1	0
	Annual	40	Average	16.9	36

Note:

* The data of past background at North AQMS were extracted from *Air Quality In Hong Kong 2021, EPD (2022)*.

Construction Phase

2.4.4 Fugitive dust is the major impact that will be generated during construction activities, such as excavation, stockpiling, earth moving, transferring or handling of dusty materials, filling activities and reinstatement works.

2.4.5 With the implementation of dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, dust generation can be controlled and significant fugitive dust impact is therefore not anticipated.

2.4.6 To avoid adverse dust impact on the air sensitive uses nearby, good practice and dust control measures to be implemented during the construction phase are as follows:

Provide hard paving on open area, regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.

The working area of any excavation or earth moving operation shall be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet.

Frequent watering for particularly dusty areas and areas close to ASRs.

Any stockpile of dusty materials shall be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides, or sprayed with water so as to maintain the entire surface wet.

Where possible, dusty materials shall be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.

The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures shall be sprayed with water

immediately before, during and immediately after the operation so as to maintain the entire surface wet.

All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition.

Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.

Vehicle washing facilities including a high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcore.

Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.

Spray water on the surface of façade before and during grinding work.

Equip vacuum cleaner on grinder for façade grinding work as far as practicable.

Main haul road shall be sprayed with water so as to maintain the entire road surface wet. Imposition of speed controls for vehicles on site haul roads and confine haulage and delivery vehicles to designated roadways inside the site.

The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit shall be kept clear of dusty materials.

Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.

Every stock of more than 20 bags of cement or dry Pulverised Fuel Ash ("PFA") should be covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides.

2.4.7 In addition, the EPD's *Recommended Pollution Control Clause ("RPCC") for Construction Contract* in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

The Contractor shall observe and comply with the APCO and its subsidiary regulations, particularly the *Air Pollution Control (Open Burning) Regulation* and *Air Pollution Control (Construction Dust) Regulation* and *Air Pollution Control (Smoke) Regulation*.

The Contractor shall undertake at all times to prevent dust nuisance and smoke as a result of his activities.

The Contractor shall ensure that there will be adequate water supply / storage for dust suppression.

The Contractor shall devise, arrange methods of working and carrying out the works in such a manner as to minimise dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

For better smoke control, the Contractor shall not use diesel hammer for percussive piling.

Before commencement of any work, the Engineer may require the methods of working, plant, equipment and air pollution control system to be used on the site to be made available for inspection and approval to ensure that they are suitable for the project.

2.4.8 There is a temporary structure (i.e. a small village house) within the Site which will be demolished during construction phase. The small village house is currently inaccessible. Hence, a RAC will be engaged during the detailed design stage to prepare an AIR. If any ACM is found, an

AAP shall be submitted to EPD for approval. EPD shall be notified in writing at least 28 days before the commencement of any asbestos abatement work.

2.4.9 For removal of ACMs, a Registered Asbestos Contractor shall be engaged to remove the ACM in accordance with the approved AAP under a RAC's supervision as required. Depending upon the type of work to be carried out, a RAC may need to be appointed to supervise, audit and air-monitor the asbestos abatement work. After completion of the asbestos abatement work, a summary report to be prepared by the RAC shall be submitted to EPD for record and demolition work can then commence. With the implementation of the aforementioned procedure and measures, no adverse impact from ACMs is anticipated.

2.4.10 For the emergency generator, the chimney design shall comply with the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations* as mentioned in ***paragraph 2.2.7***.

Operation Phase

Industrial Emission

2.4.11 Site visits were conducted on 23 March 2018, 19 September 2018 and 18 August 2021 to identify the potential air pollution sources in the vicinity of the Site. A cement works was located to the north of the Site. The cement works is located around 220m from the air sensitive use of the Site, which can satisfy the 200m buffer distance between industrial chimneys and air sensitive uses recommended in Chapter 9 of the HKPSG. Hence, no adverse air quality impact from industrial emission on the Centre is anticipated. The location of the cement works is shown on ***Figure 2-2.***

2.4.12 As advised by the Applicant, only three to five forklifts will be used within the Centre. As the forklifts will comply the emission standards of the *Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation*. The air quality impact from the forklifts is considered insignificant. No adverse air quality impact from the operation of the Centre on the surrounding air sensitive uses is therefore anticipated.

Vehicular Emission

2.4.13 Man Kam To Road and Lo Wu Station Road are the major road near the Site as shown on ***Figure 2-3***. With reference to the *Annual Traffic Census 2021* published by the Transport Department ("TD"), Man Kam To Road is classified as a Rural Road whilst there is no relevant information for Lo Wu Station Road. By considering the nature of Lo Wu Station Road, it is classified as a Rural Road. There is no specific buffer distance requirement recommended in Table 3.1, Chapter 9 of the HKPSG. Hence, the minimum buffer distance of 5m between air sensitive uses and local road is adopted for the Centre.

2.4.14 As illustrated on ***Figure 2-3***, majority of the Site can satisfy the buffer distance of 5m between the roads and the Site. There is no air sensitive use within the 5m buffer distance between the roads and the Site. In order to avoid adverse air quality impact from traffic emission, a buffer zone is recommended for the Proposed Development with the following requirements:

No fresh air intake / openable window of air sensitive uses shall be located within the buffer zone.

Any air sensitive uses within buffer zone shall rely on fresh air intake / openable window located out of the buffer zone for ventilation.

2.4.15 With the provision of the buffer zone, the buffer distances recommended in HKPSG will be satisfied. Therefore, no adverse air quality impact on the Site from traffic emission is anticipated.

2.4.16 The engines of the vehicles will be switched off during loading / unloading within the Centre. Besides, Man Kam To Road and Lo Wu Station Road will still operate with ample capacity with the Proposed Development as per Section 4.8 of the TIA Report. The additional traffic trips

related to the Proposed Development are considered insignificant and can be absorbed by the road networks. Therefore, it is anticipated that the induced traffic would not cause adverse traffic congestion problem and queuing on the public road leading worsening of vehicular emission impact. In addition, 39 numbers of loading/unloading bays and parking spaces in total will be provided for the Proposed Development. As described in paragraph 2.3.7 of the TIA Report, the provided loading/unloading bays and parking spaces will satisfy the peak demand. Moreover, Swept Path analysis has been conducted as mentioned in the TIA and all the reverse movement of vehicles will be confined within the Site only. Hence, no reverse movement of vehicles on the public road due to the Proposed Development is expected. Due to the low traffic flow generated and no idling emission from the vehicles during loading/unloading activities, adverse air quality impact from the Centre on the surrounding air sensitive uses is not anticipated.

Odour

2.4.17 As mentioned in ***Section 1.1***, the Proposed Development is a temporary storage of chilled poultry. No slaughtering generating considerable odour will be conducted. Therefore, no odour nuisance form the Project is anticipated during the operation phase.

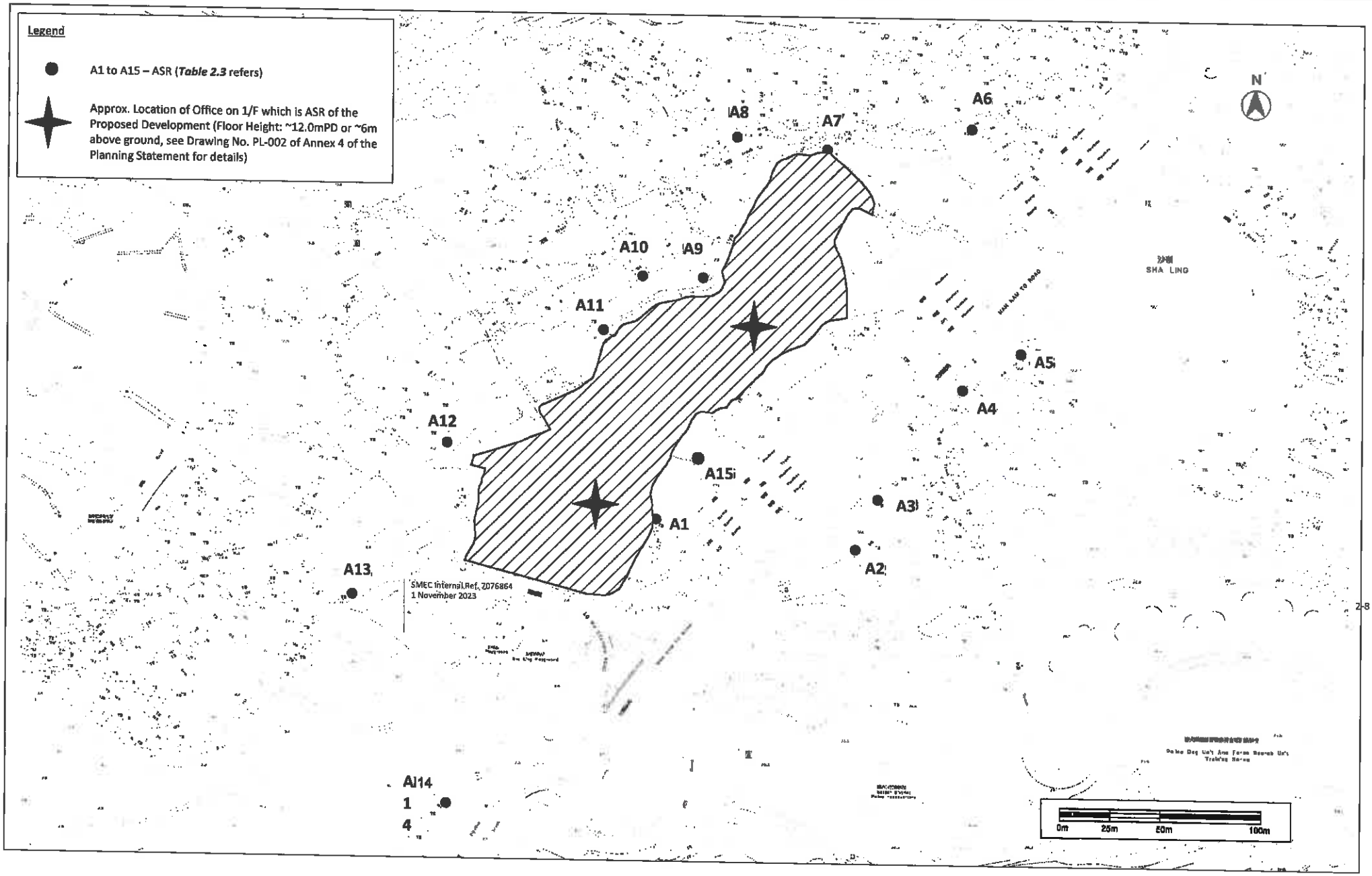
2.5 Conclusion

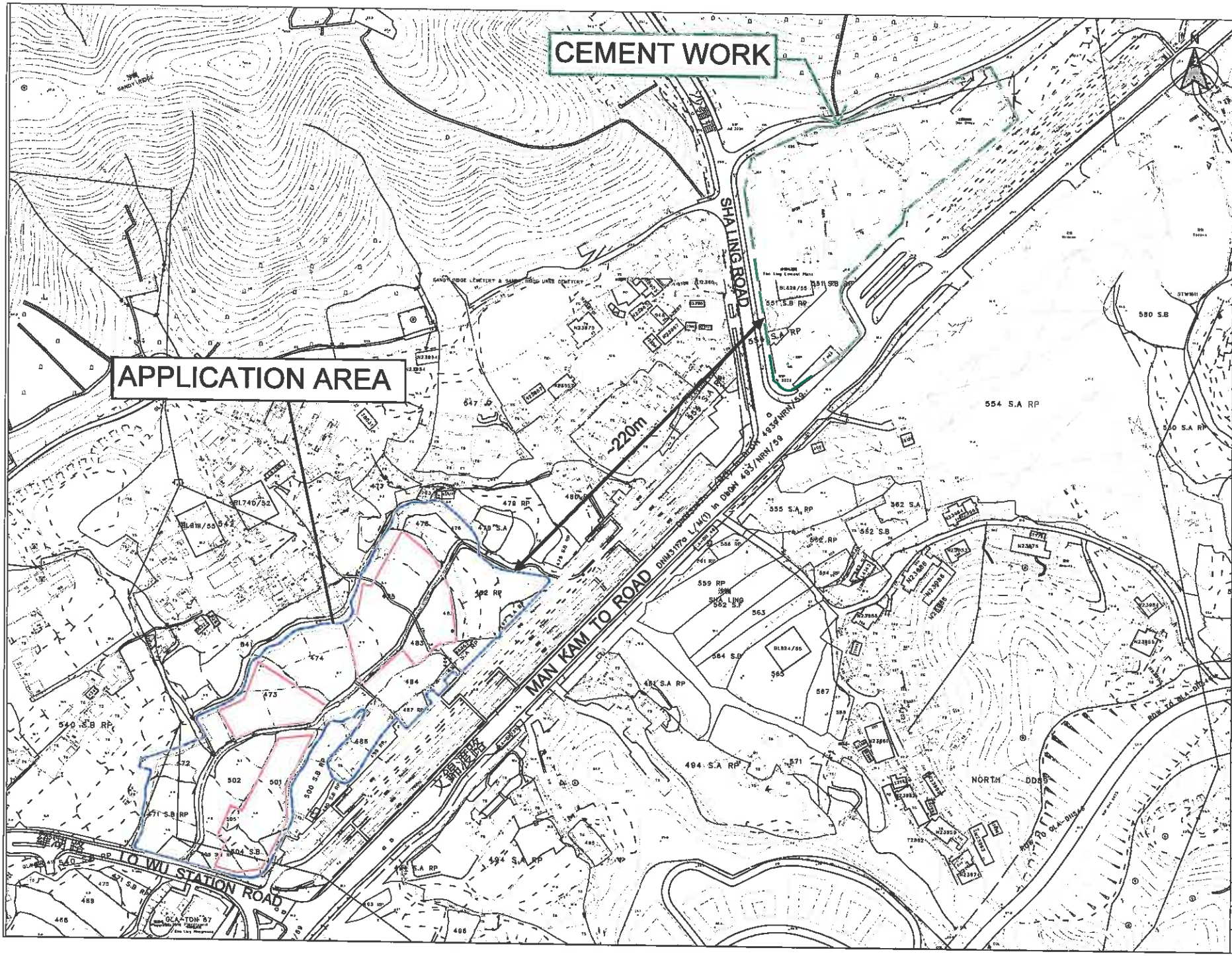
2.5.1 With the implementation of the recommended mitigation measures and good site practice, adverse impacts during the construction phases are not anticipated. No further mitigation measures are needed.

2.5.2 No adverse air quality impact on the Centre from industrial emission and vehicular emissions is anticipated with the implementation of the proposed mitigation measures during the operation phase. At the same time, the operation of the Centre will not cause adverse air quality impact on the surrounding air sensitive uses.

2.5.3 Overall, therefore, no adverse air quality impacts are anticipated during the construction and operation phases of the Centre.

Figure 2-1: Locations of ASRs





B.O. Reference

M.W. Reference

L.D. Reference

T.S.D. Reference

Notes

REV	DESCRIPTION	DATE

C&K Land Management Company Limited

Project

VARIOUS LOTS IN D.D.89 AND ADJOINING GOVERNMENT LAND, MAN KAM TO ROAD, SHA LING, NEW TERRITORIES

Application

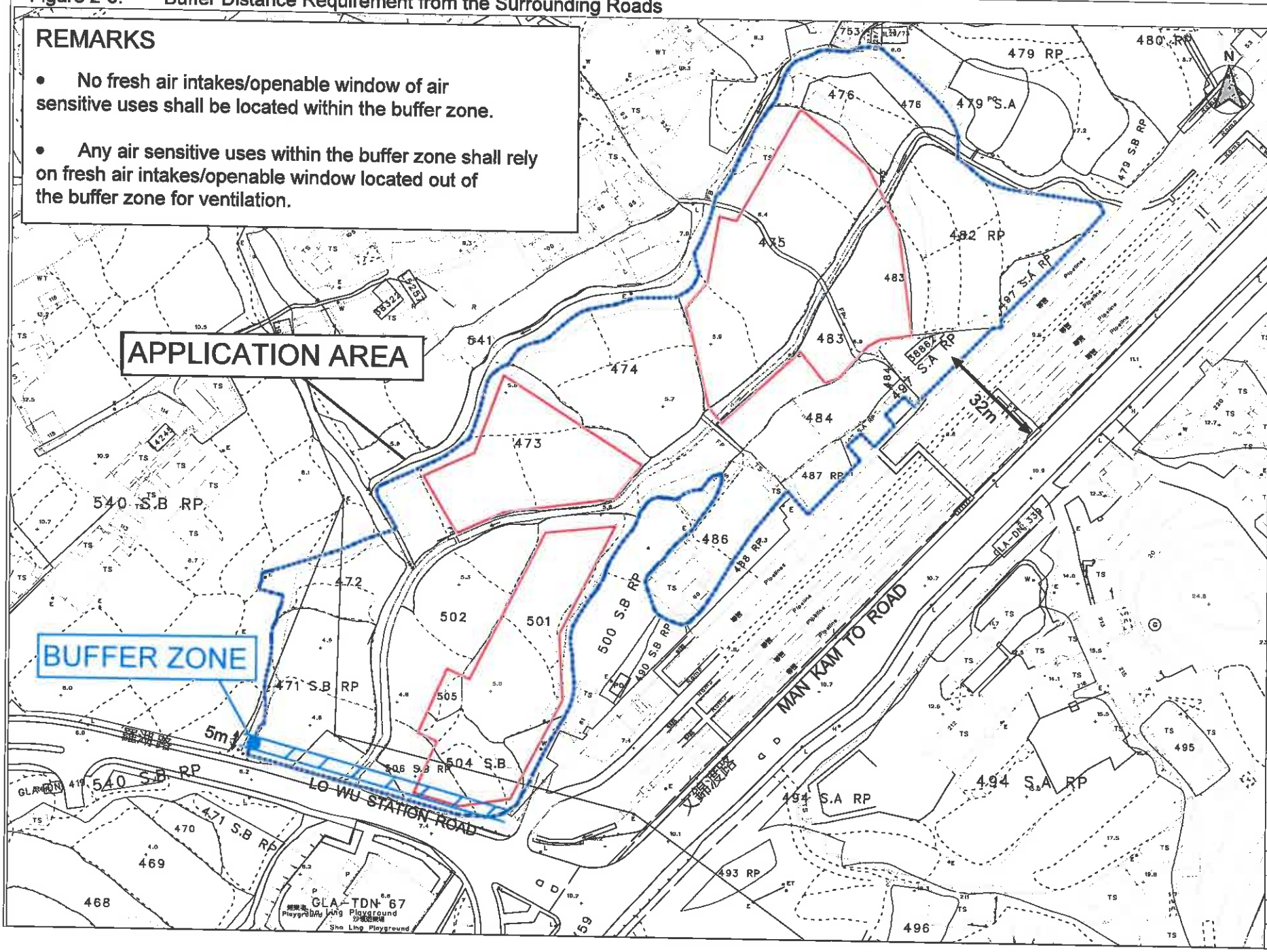
PROPOSED TEMPORARY COLD STORAGE FOR POULTRY AND DISTRIBUTION CENTRE FOR A PERIOD OF 3 YEARS AND FILLING OF LAND FOR SITE FORMATION WORKS

Drawing Title

ENVIRONMENTAL ASSESSMENT REPORT – LOCATION OF CEMENT WORKS

Scale	Revisions
1:2000 (A3)	–
Designed by: LW	Drawn by: Arthur
Checked by: AY	Date: 22-OCT-2024
Job No.: –	Drawing No.: EN-01

Figure 2-3: Buffer Distance Requirement from the Surrounding Roads



3 NOISE

3.1 Environmental Legislation and Standards

Noise Control Ordinance (Cap. 400)

3.1.1 The main piece of legislation controlling environmental noise impact is the *Noise Control Ordinance* ("NCO"). The NCO enables regulations and Technical Memoranda ("TMs") to be enacted, which introduces detailed control criteria, measurement procedures and other technical matters.

3.1.2 The Site does not fall within any Designated Area ("DA") in accordance with EPD's Plan No. EPD/AN/NT-01 and EPD/AN/NT-01A for Yuen Long, Tin Shui Wai, Mai Po, Shek Kong and Kwu Tung; as well as Plan No. EPD/AN/NT-02 and EPD/AN/NT-02A for Tai Po, Fanling, Sheung Shui and Sha Tau Kok. Therefore, the *Technical Memorandum on Noise from Construction Work in Designated Area* ("DA-TM") is not applicable.

3.1.3 Construction noise during noise control restricted hours is governed under the following Technical Memoranda:

- Technical Memorandum on Noise from Percussive Piling ("PP-TM").
- Technical Memorandum on Noise from Construction Work other than Percussive Piling ("GW-TM").
- Technical Memorandum for the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites ("IND-TM").

3.1.4 In addition, the following requirements are given under the NCO:

- Hand-held breakers having a mass of above 10kg and any air compressor capable of supplying compressed air at 500kPa or above must be fitted with a Noise Emission Label issued under the *Noise Control (Hand Held Percussive Breakers) Regulation and Noise Control (Air Compressors) Regulation* of NCO.
- Construction Noise Permit ("CNP") must be applied by the Contractor from EPD for any percussive piling at any time or any other construction activities conducted within restricted hours (for all days 7pm to 7am the next day and at all times on Public Holidays or Sundays) as defined in NCO.

3.1.5 There is no statutory control for noise arising from construction activities (other than percussive pilling) during normal working hours (7am to 7pm from Monday to Saturday, not including general holidays). Nevertheless, *Professional Persons Environmental Consultative Committee Practice Note PN2/93 Noise from Construction Activities – Non-statutory Controls* ("ProPECC PN2/93") recommends the noise criteria as shown in ***Table 3.1*** and guideline to minimise the potential construction noise impact during normal working hours.

Table 3.1: Construction Noise Criteria for Non-Restricted Hours

NOISE SENSITIVE USE	[illegible] NOISE CRITERIA BETWEEN 0700 AND 1900 ON ANY DAY NOT BEING A SUNDAY OR GENERAL HOLIDAY
Dwellings	75 dB(A)
School	70 dB(A) (or 65 dB(A) during examination)

3.1.6 For fixed plant noise during operation phase, the requirements of IND-TM shall be complied with. Table 2 of IND-TM stipulates the day, evening and night time Acceptable Noise Levels ("ANLs") for Noise Sensitive Receivers ("NSRs") according to the corresponding Area Sensitive

Rating ("ASR"), which is determined by Influencing Factors ("IFs") in accordance with the IND-TM. These are summarised in ***Table 3.2***.

Table 3.2: Acceptable Noise Levels for Fixed Noise Source

TIME PERIOD	ANL dB(A)		
	ASR "A"	ASR "B"	ASR "C"
Day (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)			
Night (2300 to 0700 hours)	50	55	60

Hong Kong Planning Standards & Guidelines ("HKPSG")

3.1.7 The noise criteria for planned fixed noise source shall follow the requirements of Table 4.1 of Chapter 9 of HKPSG:

(a) 5 dB(A) below the appropriate ANLs shown in Table 2 of IND-TM, and

(b) the prevailing background noise levels

3.1.8 As recommended in Table 4.1 of Chapter 9 Environment of HKPSG, standards for road traffic noise in terms of $L_{10(1\text{-hr})}$ for the following uses relying on opened windows for ventilation are shown in ***Table 3.3***.

Table 3.3: Summary of Road Traffic Noise Standards

USES	NOISE CRITERIA $L_{10(1\text{-hr})}$ dB(A)
All domestic premises including temporary housing accommodation	70
Hotels and hostels	70
Offices	70
Educational institutions including kindergartens, child care centres and all others where unaided voice communication is required	65
Places of public worship and courts of law	65
Diagnostic rooms and wards of hospitals, clinics, convalescences and residential care homes for the elderly	55

EIAO Guidance Note No. 12/2010 Road Traffic Noise Impact Assessment

3.1.9 The captioned guidance note ("GN") provide general reference for practitioners to prepare Road Traffic Noise Impact Assessment ("RTNIA") for Designated Projects ("DPs") under the *Environmental Impact Assessment Ordinance* ("EIAO"). Nevertheless, the perspective regarding "significant" impact in the GN is referenced.

3.1.10 As stipulated in the GN, traffic noise impact would be considered significant if the traffic noise level with the road project would be greater than that without the road project at the design year by 1.0 dB(A) or more.

3.1.11 Similarly, by the same token, the traffic noise impact would be considered significant if the traffic noise level with the proposed development would be greater than that without the proposed development by 1.0 dB(A) or more, and vice versa.

3.2 Construction Noise Impact

3.2.1 Various construction activities such as excavation, stockpiling, earth moving, filling activities, reinstatement works and etc. will be the key noise sources generated during the construction phase. In particular, the use of PME and the vehicle movement within the Site are the major noise sources.

3.2.2 Construction shall be carried out during non-restricted hours as far as practicable. The mitigation measures recommended in ProPECC PN2/93 should be implemented where applicable. In addition, the following measures and on-site practice are recommended in order to minimise the potential construction noise impacts during daytime:

Quiet PME and construction method should be adopted as far as practicable.

The Contractor shall devise and execute working methods to minimise the noise impacts on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented.

Switch off idling equipment.

Regular maintenance of equipment.

Fit muffler or silencer for equipment.

Noisy equipment and noisy activities should be located as far away from the NSRs as is practical.

Use quiet construction method, e.g. use of saw-cut or hydraulic crusher instead of excavator-mounted percussive breaker.

PME should be kept to a minimum and the parallel use of noisy equipment / machineries should be avoided.

Erect noise barriers or noise enclosure for the PME if appropriate.

Implement good house-keeping and provide regular maintenance to the PME.

Spot check resultant noise levels at nearby NSRs.

3.2.3 If construction work involving the use of PME will be required during restricted hours, a CNP shall be applied for under the NCO. The noise criteria and assessment procedures for obtaining a CNP are specified in GW-TM.

3.2.4 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

The Contractor shall observe and comply with the *NCO* and its subsidiary regulation.

The Contractor shall ensure that all plant and equipment to be used on the Site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings and shields, acoustic sheds or screen or other means, to avoid disturbance to nearby noise sensitive receivers.

For carrying out any construction work other than percussive piling during the time period from 0700 to 1900 hours on any day not being a general holiday (including Sundays), the Contractor shall comply with the following requirements.

- The noise level measured at 1m from most affected external façade of the nearby noise sensitive receivers from the construction works alone during any 30-minute period shall not exceed an equivalent sound level ("L_{eq}") of 75dB(A).
- The noise level measured at 1m from most affected external façade of the nearby schools from the construction works alone during any 30-minute period shall not exceed L_{eq} of 70dB(A) [65dB(A) during school examination period]. The Contractor shall liaise

with the schools and/or the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

- Should the limits stated in the above be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented.
- The Contractor shall adopt, where necessary, the use of Quiet Construction Equipment ("QCE") and/or shall employ the quietist practicable working methods when carrying out demolition works, and /or road opening works during restricted hours.

Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project.

The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

Notwithstanding the requirements and limitations set out in the bullet above and subject to compliance with the second and fifth bullet above, the Engineer may upon application in writing by the Contractor, allow the use of equipment and the carrying out of any construction activities for any duration provided that the Engineer is satisfied with the application which, in Engineer's opinion, is considered to be of absolute necessity and adequate noise insulation has been provided to the schools to be affected, or of emergency nature, and not in contravention with the NCO in any respect.

The Contractor shall, when necessary, apply for a construction noise permit in accordance with the *Noise Control (General) Regulations* prior to the commencement of the relevant part(s) of the works, display the permit as required and provide a copy to the Engineer.

Measures that are to be taken to protect adjacent school and adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise (simple plywood hoarding will not be sufficient). The barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228. The location and details of the barriers shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.

3.2.5 With the implementation of the abovementioned mitigation measures, adverse construction noise impact is not anticipated.

3.3 Noise Impacts from Fixed Sources during Operation

General

3.3.1 The Proposed Development will be used as a temporary poultry cold storage and distribution centre. Goods vehicles from the Mainland will stop at the Site and unload the chilled poultry. The chilled poultry will then be stored temporarily at the Site and delivered to different places in Hong Kong. However, no slaughtering or cleaning of chilled meat / poultry will be involved in the Proposed Development.

3.3.2 Moreover, no selling of poultry to individuals, retailers or wholesalers will be involved in the Proposed Development. As such, no outdoor loudspeakers or any form of outdoor amplification system will be used in the Proposed Development.

3.3.3 In order to prevent the poultry from spoiling, the Proposed Development is necessary to run around the clock. Therefore, potential noise impacts due to the operation in the three periods, i.e. day, evening and night times, should be assessed.

3.3.4 The potential noise sources during the operation of the Proposed Development were identified as follow –

- On-site movements of delivery vehicles / refrigerated collection vehicles
- Mechanical and Electrical ("M&E") equipment
- Loading / unloading activities

Assessment Assumptions and Methodology

On-site movement of vehicles

3.3.5 As the Proposed Development is used for temporary chilled poultry storage and distribution, on-site movement of delivery vehicles and refrigerated collection vehicles is considered to be the major noise source.

3.3.6 For the noise generated from on-site movement of vehicles, the *Method for Mobile Plant Using a Regular Well-Defined Route* stipulated in Annex F of BS 5228-1:2009+A1:2014 has been adopted for the assessment. Calculation is based on the following standard formula:

$$SPL = SWL - 33 + 10\log Q - 10\log V - 10\log d + AC + FC$$

where:

SPL	–	Sound Pressure Levels at receiver, in dB(A)
SWL	–	Sound Power Levels of Powered Mechanical Equipment (PME), in dB(A)
Q	–	Number of vehicles per hour
V	–	Average vehicle speed, in km/h
d	–	Distance of receiving position from the centre of haul road, in meters
AC	–	Angle of view Correction = $10\log(\Theta/180)$ where Θ is the angle of view (in degree) of a particular haul road segment
FC	–	Façade Correction of +3 dB(A)

3.3.7 Sound Power Levels ("SWLs") of the manoeuvring vehicles were reference to Table 3 of the GW-TM and the *Sound Power Levels of Other Commonly Used PME* available from EPD's website[ref.:2].

3.3.8 With regard to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the particular haul road segment.

Mechanical and Electrical ("M&E") Equipment

3.3.9 Most of M&E equipment, such as water pumps, fire services pumps and transformer, will be installed inside plant rooms of the Proposed Development. Thus, no significant noise impact arising from enclosed M&E equipment is anticipated. The impact from these sources is therefore not considered in the noise assessment.

3.3.10 Small, low-power split-type air-conditioners will be installed at the site office. The noise from the outdoor units ("ODUs") of these small air-conditioners is minimal. Thus, these ODUs have not been taken into account in the noise assessment. According to the information provided by the Project M&E Consultant, 4 sets (in total of 19 units) of condenser and several units of scroll compressors will be installed on the roof of the building blocks.

3.3.11 With reference to the *ASHRAE Handbook Chapter 48 – Noise and Vibration Control*, the scroll compressors tend to produce relatively weak tone. Thus, the noise impact from the scroll compressors is considered insignificant. However, condenser could generate adverse noise impact and thus considered as noise sources that could affect off-site NSRs.

[2] http://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

3.3.12 The SWLs of the condenser were referred to the catalogue provided by the Applicant. The noise levels were assessed based on the standard acoustics formula as follows -

SPL = SWL – DC + FC

Where:

SPL	–	Sound Pressure Levels at receiver, in dB(A)
SWL	–	Sound Power Levels of M&E Plant, in dB(A)
DC	–	Distance Correction, in dB(A) by DC = 20log10(D) + 8
D	–	Horizontal distance between the NSR and source in meters
FC	–	Façade Correction of +3 dB(A)

3.3.13 With regard to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the opening of the enclosure.

Loading/Unloading Activities

3.3.14 All loading/unloading areas are shown on ***Figure 3-3***. The loading/unloading area is composed of two parts –

1. Loading/unloading Bays – used for vehicle parking
2. Loading/unloading Platform – used for loading/unloading the chilled poultry

3.3.15 Mitigation measures for the loading/unloading areas have been considered for the layout design. After entering the Site, vehicles will enter at the loading/unloading platforms, which will be enclosed by a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2). Therefore, no loading/unloading activities will be undertaken at open area. In order to further minimise the noise impact, acoustic mat (minimum surface density of 7kg/m^2) will be provided to the opening side of the platforms. As such, the loading/unloading and distribution activities will be confined under the canopy and behind the side walls and acoustic mat of the loading/unloading platform. The operation will be carried out smoothly with sufficient space. The conceptual design of the mitigation measures at the loading/unloading areas is shown in ***Appendix A***. The noise reduction performance of the acoustic mat (minimum surface density of 7kg/m^2) shall be sufficient, an example of a market available product with similar surface density is given in ***Appendix B***. The mitigation measures will be applied to all loading/unloading platforms. The noise screening structures for the loading/unloading platforms, i.e. extended canopy with 2 side panels and acoustic mat, shall have no gap or slit. The extended canopy, enclosing shed and the side panels should be solid structures with acoustic mats securely installed which would not be easily tampered by on-site workers.

3.3.16 Since the loading/unloading activities will be undertaken in an enclosed area, the noise impact is anticipated to be minimal. Thus, loading/unloading activities has not been taken into account in the noise assessment.

Noise Sensitive Receivers ("NSRs")

3.3.17 There will be no NSR of the Proposed Development. Instead, the first layer of existing NSRs closest to the Proposed Development which is the most representative NSRs has been identified for the worst-case scenario.

3.3.18 The details of the selected NSRs are summarised in ***Table 3.4*** and their locations are shown on ***Figure 3-1***.

Table 3.4: Identified Representative NSRs of Noise from Fixed Sources

NSR ID	DESCRIPTION	NO. OF STOREY	DISTANCE TO SITE BOUNDARY
IN1	Temporary Structure	1	1m
IN2	Temporary Structure	1-3	72m
IN3	Temporary Structure	1-3	59m
IN4	Temporary Structure	1-3	51m
IN5	Village House No 220 at Sha Ling	1-3	59m
IN6	Village House No 56 at Sha Ling	1-3	56m
IN7	Village House No 73 at Sha Ling	1-3	2m
IN8	Village House No 79 at Sha Ling	1-3	24m
IN9	Temporary Structure	1-3	11m
IN10	Village House No 100 at Sha Ling	1-3	18m
IN11	Temporary Structure	1-3	7m
IN12	Temporary Structure	1-3	16m
IN13	Temporary Structure	1-3	58m
IN14	Village House No 181 Sha Ling	1-3	117m
IN15	Temporary Structure	1-2	12m

3.3.19 All identified NSRs are located in rural area. No major roads with annual average daily traffic flow in excess of 30,000 and industrial areas are found in the vicinity of the identified NSRs. Therefore, the ASRs of the identified NSRs are determined as Type A in accordance with IND-TM.

3.3.20 The ASR and ANLs adopted in this EA report are used for assessment purpose only, they should not bind the Noise Control Authority's decision in determining the noise criteria based on the legislation and practices being in force, and contemporary conditions/ situations of adjoining land uses.

Prevailing Background Noise

3.3.21 The most preferable locations for the background noise measurement are the sensitive facades of the representative NSRs. Therefore, villagers of the NSRs were approached to request permission for conducting background noise measurements at their premises. However, the requests were verbally refused. Moreover, they were reluctant to let us to conduct the noise measurement at the area of the village.

3.3.22 As the villagers were reluctant to let us conduct the noise measurement at their premises as well as the village, alternative locations for background noise measurement, namely BG1 and BG2, were selected at the drainage pipe near Man Kam To Road and Sha Ling Playground as shown on ***Figure 3-2.***

3.3.23 Under the circumstances as mentioned in ***paragraph 3.3.21***, BG1 is considered as the best alternative and feasible location to represent IN6 to IN14 for background noise measurement. According to the topographic map obtained from Lands Department, the level of the

measurement location BG1 is 6.2mPD, while the levels of Man Kam To Road and Lo Wu Station Road are around 9.8mPD to 10.7mPD. Although BG1 is located near to Man Kam To Road (about 60m) and Lo Wu Station Road (about 26m), the topography can shield up certain amount of traffic noise. However, it is noted that some NSRs (i.e. IN 6 to IN10) are located more than 100m from both Man Kam To Road and Lo Wu Station Road. In order to avoid over domination of traffic noise in the background noise levels of NSRs IN6 to IN14, L90 will be adopted to represent the background noise in the assessment to avoid.

3.3.24 NSRs IN1 to IN5 and IN15 are all directly affected by the traffic noise of Man Kam To Road and Lo Wu Station Road. Since the location of BG2 are next to IN1, it is expected that BG2 is capturing the same ambient noise of NSRs IN1 to IN5 and IN15.

3.3.25 The background noise levels measured at BG1 and BG2 represent the background noise for the NSRs shaded in green and yellow respectively as shown on ***Figure 3-2***. The prevailing background noise measurements were measured over 24 hours at 1.2m above ground with free-field condition.

3.3.26 The results of the background measurement are summarised in ***Table 3.5***. The detailed results are given in ***Appendix C***.

Table 3.5: Summary of Background Noise Monitoring

ID	COLOUR SHADE OF REPRESENTATIVE AREA[NOTE 1]	MEASUREMENT LOCATION	BACKGROUND NOISE LEVEL (AVERAGE $L_{90(1\ HOUR)}$), dB(A)		
			DAY	EVENING	NIGHT
BG1	Green	Sha Ling Playground	48	45	38
BG2	Yellow	Pipeline nearby NSR-IN1	54	46	41

Notes:

1. The measurement was conducted in free-field condition. Façade correction is not applied to the measured levels.

Noise Criteria

3.3.27 As discussed in ***paragraph 3.3.19***, the ASR of all identified NSRs is "A". The noise criteria for the planned fixed noise source were determined with reference to the prevailing background noise levels obtained in ***Table 3.5*** and are shown in ***Table 3.6***

Table 3.6: Noise Criteria for Planned Fixed Noise Source

NSR	ASR	COLOUR SHADE OF REPRESENTATIVE AREA[NOTE 1]	TIME PERIOD	BACKGROUND NOISE LEVEL (AVERAGE $L_{90(1\ HOUR)}$), dB(A)	ANL – 5, dB(A)	NOISE CRITERIA, dB(A)[NOTE 1]
IN1 – IN5, IN15	A	Yellow	Day	57	55	55
			Evening	49	55	49
			Night	44	45	44
IN6 – IN14	A	Green	Day	51	55	51
			Evening	48	55	48
			Night	41	45	41

Notes:

1. +3 dB(A) façade correction has been incorporated to the background noise level.

Assessment Results

On-site movement of vehicles

3.3.28 The road segments of the Proposed Development are shown on ***Figure 3-3***. Road segments S1 to S4 are one way road and S5 to S10 are two-way road.

3.3.29 During operation stage, the following types of vehicles travelling through the Site as listed in ***Table 3.8***:

Container vehicle ("CV")/ Heavy Goods Vehicle ("HGV")

Medium Goods Vehicle ("MGV");

Light Goods Vehicle ("LGV"), van

Private car.

3.3.30 It is known that the on-site movement of vehicles may cause adverse noise impact except due to private car movement, as it is considered to be negligible compare with other types of vehicles move within the Site. In order to minimise the noise impact to surrounding NSRs, following administrative controls shall be adopted during the operation phase:

1. Limit only a maximum of number of 5 vehicles per hour of MGV and 1 vehicle per hour of LGV that can run in and out of the Site in evening (1900-2300) and night time periods (2300-0700) respectively;
2. The loading and unloading area of container vehicle/ HGV/ MGV near the Site entrance/exit area will be used first especially during evening-time and night-time period to minimise the on-site movement these vehicles as far as practicable as shown on ***Figure 3-4***. Except there is overloading at the loading and unloading area which is the closest to the site entrance. The movement paths of different vehicles are summarised in ***Appendix E***.

3.3.31 According to the daily operation of the Proposed Cold Storage and Distribution Centre as provided by the applicant, the maximum numbers of different vehicle types during the peak hours in different time periods were estimated and summarised in ***Table 3.7***. The trips of vehicle of each road segment are summarised in ***Appendix E***.

Table 3.7: Number of Vehicles travelling through the Site

VEHICLE TYPE[1]	DAY* (0700-1900) (VEHICLES/HOUR)		EVENING* (1900-2300) (VEHICLES/HOUR)		NIGHT* (2300-0700) (VEHICLES/HOUR)	
	In	Out	In	Out	In	Out
CV/ HGV	16	16	0	0	0	0
MGV	0	0	5	5	0	0
LGV	0	0	0	0	1	1

Notes:

* The peak hour flow of each time period.

[1] According to Traffic Consultant, container vehicles/ heavy goods vehicle means a goods vehicle having a gross vehicle weight not exceeding 38 tonnes;

[2] According to Cap. 374 *Road Traffic Ordinance*, medium goods vehicle means a goods vehicle having a permitted gross vehicle weight exceeding 5.5 tonnes but not exceeding 24 tonnes; light goods vehicle means a goods vehicle having a gross vehicle weight not exceeding 5.5 tonnes.

3.3.33 A summary of the SWLs of vehicles are presented in ***Table 3.8***.

Table 3.8: SWLs of Vehicles

VEHICLE TYPE	SWL, dB(A)	DESCRIPTION
Container Vehicles/ Heavy Goods Vehicles/ Medium Goods Vehicles	105	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne
Light Goods Vehicles	101	Lorry, gross vehicle weight ≤ 5.5 tonne

3.3.34 The structure of cold storage blocks including the cover connecting Block 1 and Block 2 (minimum surface density of 10kg/m^2) can be used as a barrier to minimise the noise generated from on-site vehicle movement. However, NSR IN1 and IN15 are very close to the Site, a 5m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB1) would be constructed to further reduce the noise impact to these one to two storey high building (i.e. NSR IN1 and IN15), as shown on ***Figure 3-4.*** Besides, a 10m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB2) would be constructed next to NSRs IN12 and a 12m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB3) and cover connecting Main Block would be erected. NB2 and NB3 will be connected to the proposed cover and structures of Block 1 and Block 2 without slit or gap.

3.3.35 Regarding to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the particular haul road segment and the major noise sources (i.e. vehicle engine and chiller on the vehicle). The screening structure includes the proposed cold storage blocks and the proposed boundary wall.

3.3.36 The noise levels from on-site movement of vehicles were thus calculated as shown in ***Appendix F*** and summarised in ***Table 3.9.***

Table 3.9: Predicted Noise Levels from Vehicles travelling within the Site

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN1	54	49	35			
IN2	51	46	34			
IN3	51	46	35	55	49	44
IN4	48	42	30			
IN5	48	43	32			
IN6	36	31	21			
IN7	40	35	24			
IN8	41	36	25	51	48	41
IN9	49	44	33			
IN10	46	41	30			

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN11	48	43	32			
IN12	49	44	32			
IN13	51	46	35			
IN14	47	42	31			
IN15	54	49	37	55	49	44

Mechanical and Electrical (M&E) Equipment

3.3.37 As mentioned in ***paragraphs 3.3.10 - 3.3.11***, 4 sets (in total of 19) of condensers were taken into account in this assessment.

3.3.38 They are distributed on the roof top of Cold Storage Blocks 1 and 2. Seven condensers and six condensers are located on Cold Storage Block 1 (SW) and Block 1 (NE), respectively, while another six condensers are located on the Block 2, as shown on ***Figure 3-5***.

3.3.39 According to the information provided by the Project M&E Consultant, the SWL of the condenser, 76 dB(A) shown in ***Appendix D***, has been adopted in the calculation.

3.3.40 In order to minimise the noise impact, noise enclosure should be installed for the condenser.

3.3.41 According to the *Good Practices on Ventilation System Noise Control* published by EPD, a complete acoustic enclosure (minimum surface density of 10kg/m^2) with silencer for condenser with opening could provide a noise reduction of 20dB(A) or more.

3.3.42 In order to further minimise the noise impact, it is suggested that the openings of enclosure of Block 1 and Block 2 should face Man Kam To Road and located as far as practicable from the NSRs as shown on ***Figure 3-5***.

3.3.43 Regarding the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the openings.

3.3.44 The noise levels from M&E equipment were thus calculated as shown in ***Appendix F*** and summarised in ***Table 3.10***.

Table 3.10: Predicted Noise Levels from M&E Equipment

NSR	PREDICTED NOISE LEVEL, dB(A)	NOISE CRITERIA, dB(A)		
	Day / Evening / Night	Day	Evening	Night
IN1	36			
IN2	30			
IN3	30	55	49	44
IN4	30			
IN5	29			

NSR	PREDICTED NOISE LEVEL, dB(A)	NOISE CRITERIA, dB(A)		
	Day / Evening / Night	Day	Evening	Night
IN6	30			
IN7	36			
IN8	35			
IN9	37			
IN10	37	51	48	41
IN11	41			
IN12	35			
IN13	29			
IN14	26			
NI15	37	55	49	44

Overall Noise Impact from Fixed Sources

3.3.45 As the fixed noise sources include both noise from on-site vehicle movement and noise from M&E equipment, the overall noise impact from fixed sources were predicted and summarised in ***Table 3.11.***

Table 3.11: Predicted Overall Noise Impact from Fixed Sources

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN1	54	49	39			
IN2	51	46	36			
IN3	51	46	36	55	49	44
IN4	48	43	33			
IN5	48	43	34			
IN6	37	34	30			
IN7	41	39	36			
IN8	42	39	35			
IN9	49	45	38	51	48	41
IN10	46	42	38			
IN11	49	45	41			

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN12	50	45	36			
IN13	51	46	36			
IN14	47	42	32			
IN15	54	49	40	55	49	44

3.3.46 According to the results shown in ***Table 3.11***, potential fixed source noise impacts from the Proposed Development at the identified NSRs are anticipated to comply with the relevant noise standards.

3.4 Traffic Noise Impacts during Operation

Traffic Noise during Operation Peak

3.4.1 There will be off-site traffic as vehicles will be used for transporting the chilled poultry to the Proposed Development and delivering of the chilled poultry to different places in Hong Kong. The potential traffic noise impact during the operation peak hour advised by the Project Team Traffic Consultant has been assessed.

Assessment Assumption and Methodology

3.4.2 The road traffic noise levels of the operation peak of the Proposed Development have been predicted using a computer noise model, RoadNoise, which mainly follows the prediction procedures of the *UK Department of Transport's Calculation of Road Traffic Noise* ("CRTN"), as recommended in Chapter 9 Environment of HKPSG.

3.4.3 As mentioned in ***Paragraph 3.1.8***, the HKPSG assessment criteria for domestic premises is 70 dB(A). Having said that, as discussed in ***Paragraphs 3.1.9 to 3.1.11***, a contribution of less than 1.0 dB(A) due to the presence of the Proposed Development is also considered to be acceptable in environmental terms.

3.4.4 The commissioning year of the Project is tentatively scheduled in Year 2023 or 2024. Generally, the base traffic is expected to grow every year. Hence the noise contribution from the Proposed Development in the commission year is expected to be greater than that in the year with maximum projection within 15 years after operation. Since the commissioning year of Year 2023 or 2024 is not certain, it may shift to an earlier or later year. As such, for a conservative approach, the background traffic flow of Year 2018 (year before commission year) was proposed to be adopted in the assessment. The traffic forecasts for Year 2018 are enclosed in ***Appendix G.***

Noise Sensitive Receivers

3.4.5 According to the traffic data, the Proposed Development will only increase the traffic flow of Man Kam To Road and Lo Wu Station Road. Therefore, representative NSRs had been selected along these roads as shown in ***Table 3.12*** and ***Figure 3-6.***

Table 3.12 Representative NSRs of Traffic Noise during Operation Peak

NSR ID	DESCRIPTION	NO. OF STOREY
TN1	Village House No. 61 at Sha Ling	1

NSR ID	DESCRIPTION	NO. OF STOREY
TN2	Temporary Structure	1-3
TN3	Village House No. 185 at Sha Ling	1-3

Assessment Results

3.4.6 The predicted traffic noise levels in Year 2018 are summarised in ***Table 3.13***. The results show that the Proposed Development would generate less than 1.0 dB(A) contribution to the road traffic noise on the surrounding NSRs. Therefore, the road traffic noise impact to the NSRs due to the operation of the Proposed Development is considered to be insignificant.

Table 3.13: Summary of Road Traffic Noise Impacts during Operation Peak in Commission Year (2018)

NSR		NOISE LEVEL, $L_{10(1\text{-}HR)}$, dB(A))		CONTRIBUTION (2) – (1), dB(A))
ID	Floor Level	Without Proposed Development (1)	With Proposed Development (2)	
TN1	G/F	67.8	68.1	+0.3
TN2	G/F	77.6	77.7	+0.1
	1/F	77.4	77.5	+0.1
	2/F	77.0	77.1	+0.1
TN3	G/F	71.7	71.9	+0.2
	1/F	76.7	76.8	+0.1
	2/F	76.5	76.7	+0.2

Traffic Noise during late night / early morning

3.4.7 As the Site is located in rural area with low background noise level, late night and early morning hours are considered to be sensitive hours to the NSRs nearby. As such, potential traffic noise impact due to operation during the late night and early morning hours has been assessed.

3.4.8 According to ***Table 3.7***, maximum total one single trip per hour of vehicles will pass through Lo Wu Station Road and Man Kam To Road in the night time and early morning hours (2300 -0700).

Assessment Assumption and Methodology

3.4.9 In order to assess the noise impact from the additional traffic volume generated from the proposed development at late night / early morning, noise measurements were conducted at the representative NSRs of Lo Wu Station Road and Man Kam To Road between 02:00 and 04:30 on 27 June 2019 which was a normal weekday as shown on ***Figure 3-7***.

3.4.10 Two sets of 30 minutes noise measurement were conducted at each location. During each set of the measurement, a 9-tonne vehicle was run through the traffic access route (i.e. to and from) three times as to represent the maximum six single trips per hour of either container vehicle/ HGV/ MGV.

3.4.11 The time of vehicle passing through the road section near the receiver was marked up during the measurement. According to the mark-ups, the traffic noise level without the additional traffic

(i.e. 6 trips/hr) generated from the proposed development could be find out after extracting the noise data from the measurement.

3.4.12 Thus, the noise contribution from the additional traffic (i.e. 6 trips/hr) generated from the proposed development could be derived by comparing the noise levels between with and without the additional vehicle passing through the receiver -

$L_{eq30mins\ (Noise\ contribution)} = L_{eq30mins\ (with\ additional\ vehicles)} - L_{eq30mins\ (without\ additional\ vehicles)}$

Noise Sensitive Receivers

3.4.13 The noise sensitive receivers are chosen as close as possible to the traffic access road i.e. Man Kam To Road or Lo Wu Station Road to investigate the potential impact. Therefore, representative NSRs had been selected along these two roads as shown in ***Table 3.14*** and ***Figure 3-7.***

Table 3.14 Identified Representative NSRs of Traffic Noise during Late Night/Early Morning

NSR ID	DESCRIPTION	NEAREST ACCESS ROAD	DISTANCE TO THE NEAREST ACCESS ROAD
TN4	Village House No. 117 at Sha Ling	Lo Wu Station Road	148 m
TN5	Village House No. 9-10 at Hung Kiu San Tsuen	Man Kam To Road	14 m

Assessment Results

3.4.14 Although TN4 is the nearest NSR to the access route in representing NSRs nearby Lo Wu Station Road, the distance between TN4 and the access route is around 148m. The noise generated from vehicles going to and from the subject site was found to be almost unnoticeable compared to other non-project vehicles passing by (taxies, private cars, police cars, MTR van, motorcycles were observed during the noise measurement) the receiver. As such, after extraction the noise data from the measurement in accordance with the time marker, the noise level of $L_{eq30mins\ (without\ additional\ vehicles)}$ will be even a bit higher than $L_{eq30mins\ (with\ additional\ vehicles)}$ as shown in ***Table 3.15***. This result indicated that the dominant noise source was the non-project related vehicles passing by the receiver and the noise contribution from the project related vehicles shall be very low.

3.4.15 TN5 is located close to Man Kam To Road (i.e. perpendicular distance of 14m). As shown in ***Table 3.15***, the maximum noise contribution is 0.4 dB(A) and hence the potential noise impact from the operation of the Project is anticipated to be insignificant.

Table 3.15: Summary of Road Traffic Noise Impacts during Late Night/Early Morning

NSR		NOISE LEVEL, $L_{eq\ (30min)}$ dB(A))		CONTRIBUTION (2) – (1), dB(A))
ID	Measurement Set	Without Proposed Development (1)	With Proposed Development (2)	
TN4	1	54.5	54.3	< 0.0
	2	51.3	51.2	< 0.0
TN5	1	57.1	57.5	0.4
	2	59.6	59.2	0.4

3.5 Conclusion

3.5.1 During the construction phase of the Proposed Development, with the implementation of the noise mitigation measures recommended in ***paragraph 3.2***, no adverse noise impact is anticipated.

3.5.2 Quantitative assessment for the fixed noise sources during operation phase was conducted. The results show that the noise from the fixed sources of the Proposed Development is expected to comply with the relevant noise criterion after implementing proper mitigation measure, such as enclosing the loading/unloading platforms with a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2) with plastic strip doors installed to the opening side of the platforms, provision of complete enclosure with silencers to the condenser, orientation of the opening of enclosures, erection of a 5m barrier (i.e. NB1) next to segments 4 to 9, a 10m barrier (i.e. NB2) next to NSR IN12 and a 12m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB3) and cover connecting Main Block. NB2 and NB3 will be connected to the proposed cover and structures of Block 1 and Block 2 without slit or gap.

3.5.3 Quantitative assessment for the off-site road traffic noise was also conducted. With comparing the noise impacts between the scenarios of with and without the Proposed Development in Year 2018, the results show that the Proposed Development would not generate over 1.0 dB(A) or more contribution to the road traffic noise on the surrounding NSRs. Therefore, the traffic noise impact to the NSRs is considered as insignificant.

3.5.4 Overall, therefore, there will be no adverse noise impact during the construction and operation phases of the Proposed Development.

Figure 3-1: Locations of NSRs of Noise from Fixed Sources

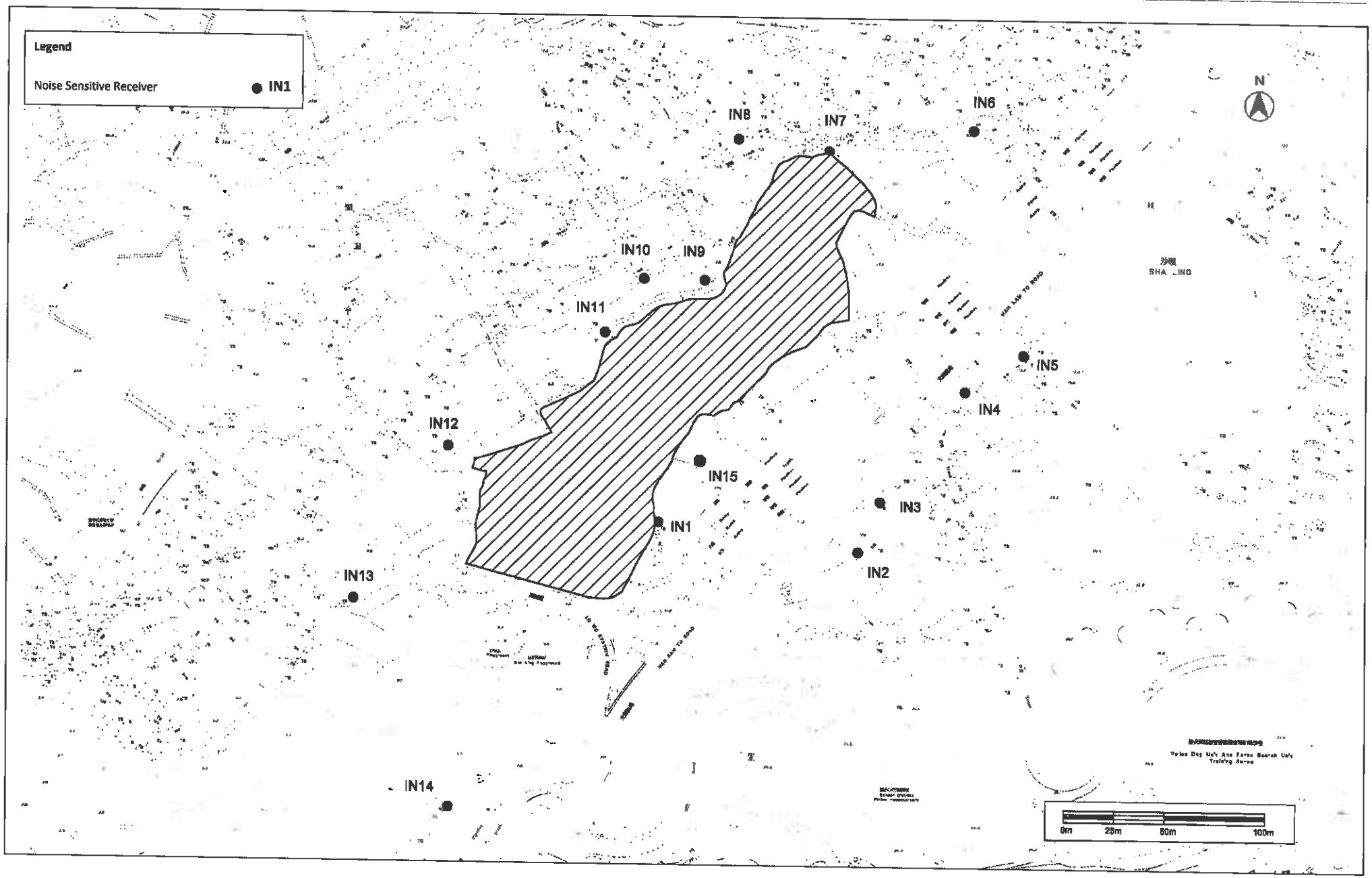


Figure 3-2: Locations of Background Noise Monitoring

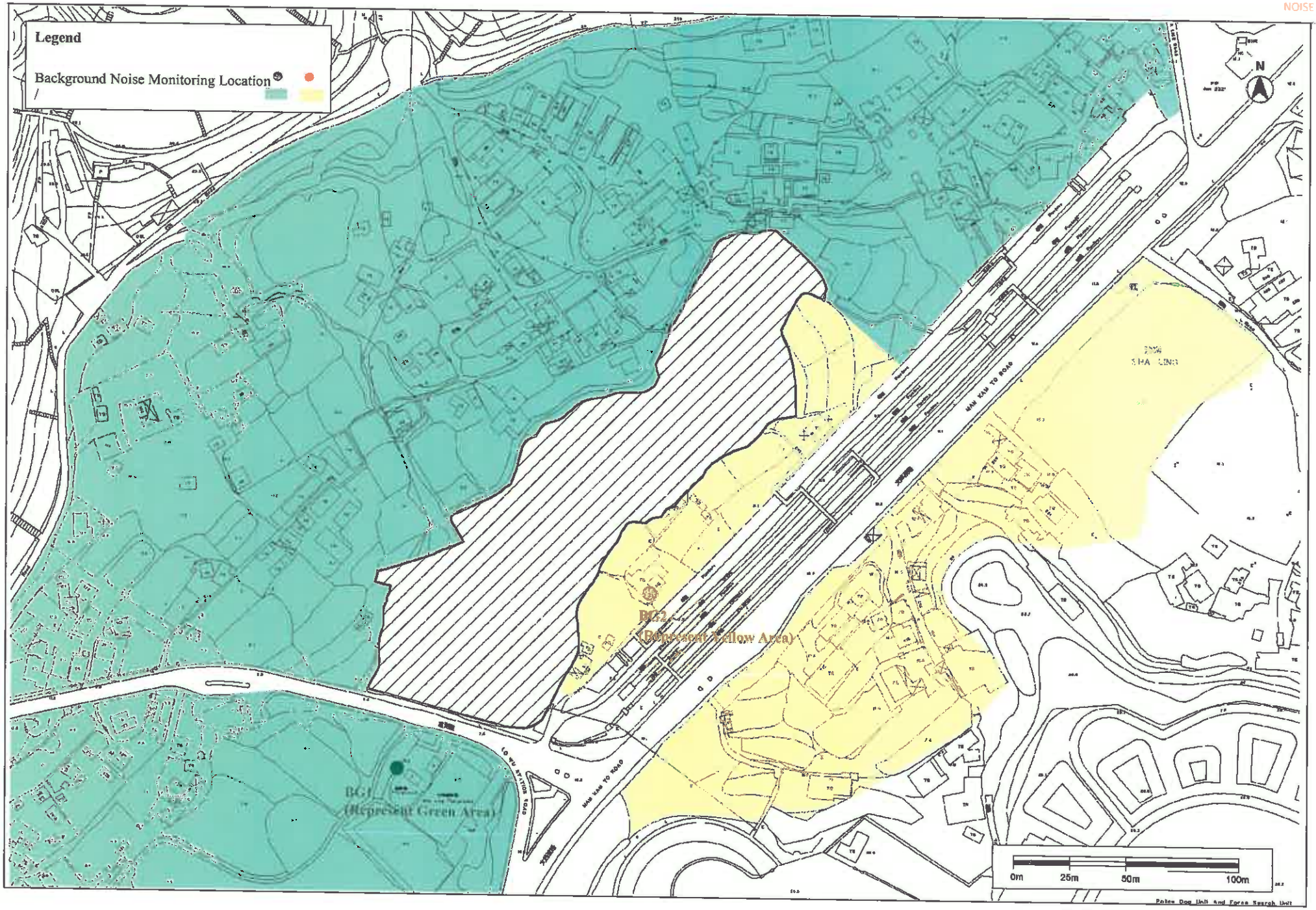

Legend
Background Noise Monitoring Location
N
MAN KAM TO ROAD
LO WU STATION ROAD
BG1
(Represent Green Area)
BG2
(Represent Yellow Area)
0m
25m
50m
100m

Figure 3-3: On-site Road Segments and Loading/ Unloading Areas

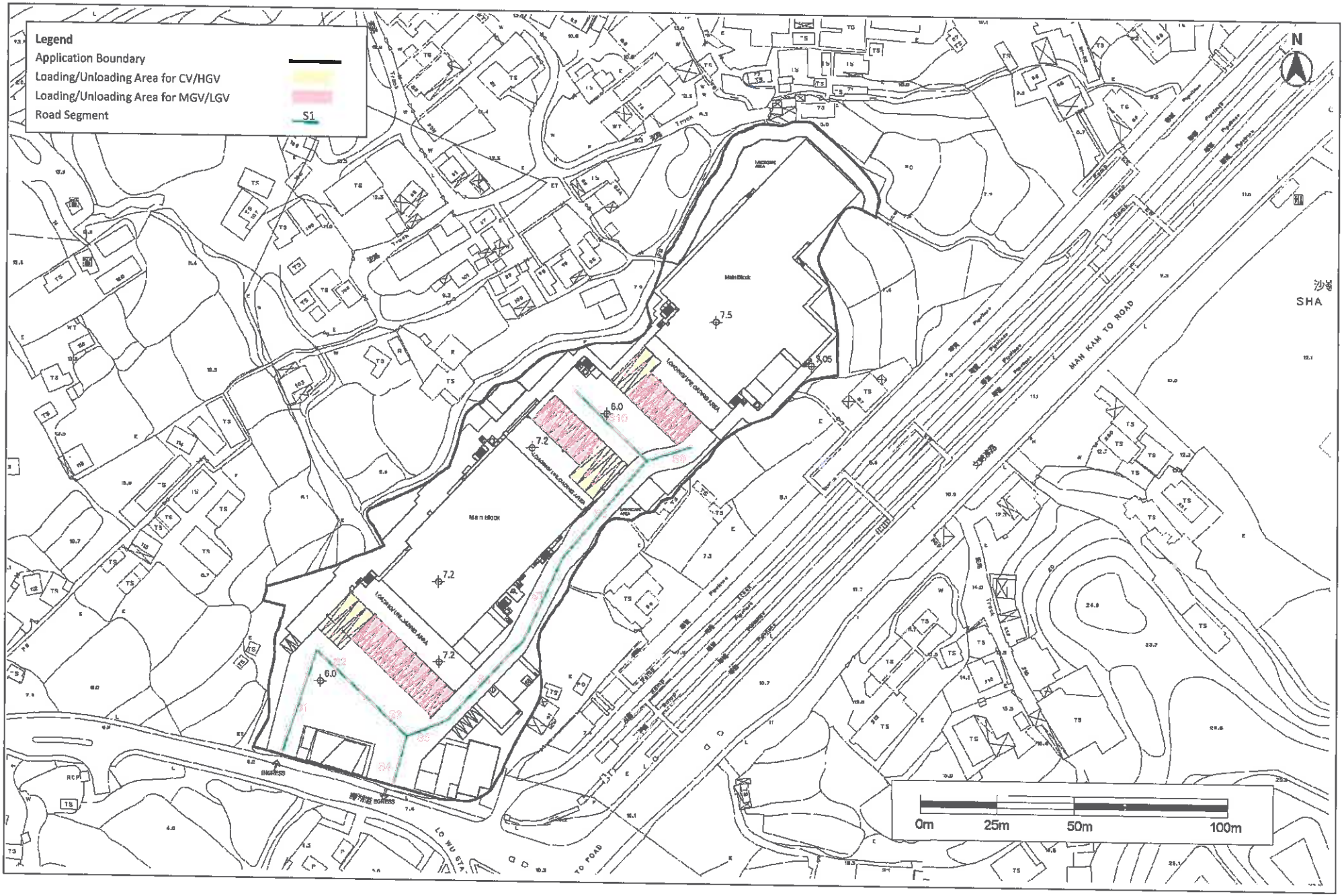


Figure 3-4: Mitigation Measures for on-site Vehicle Movement

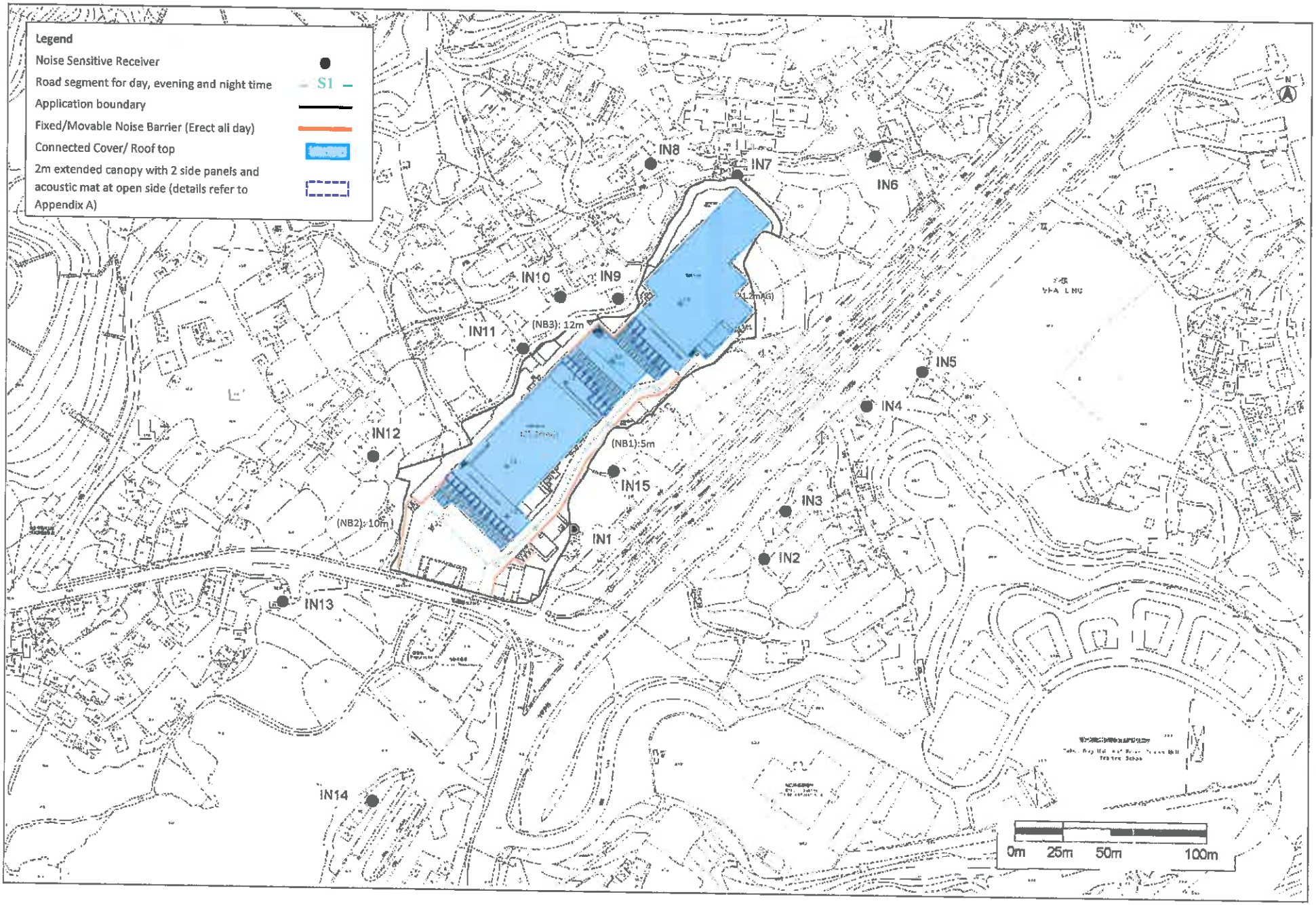


Figure 3-5: Locations and directions of the openings of the Enclosures

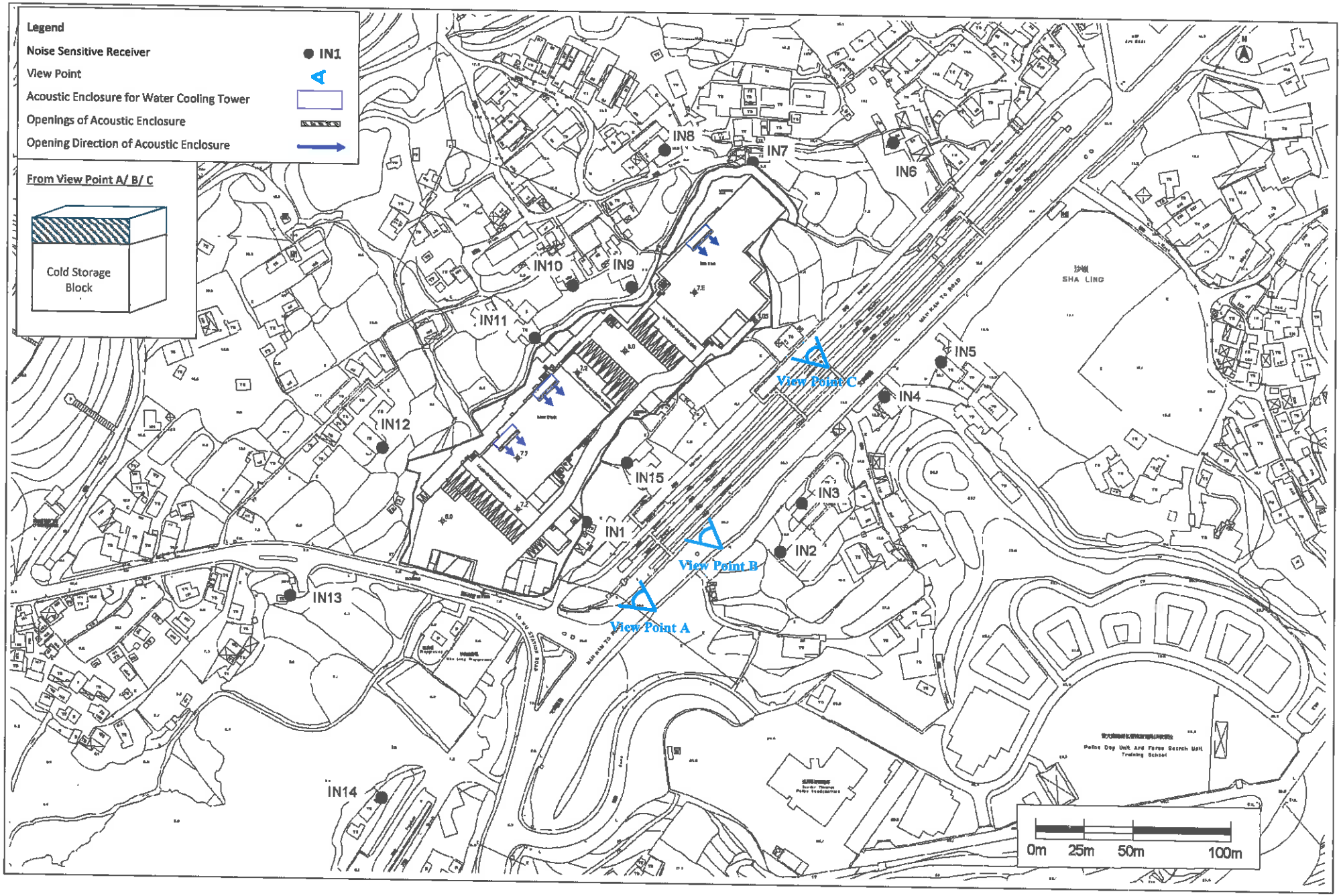


Figure 3-6: Locations of NSRs of Traffic Noise for Operation Peak

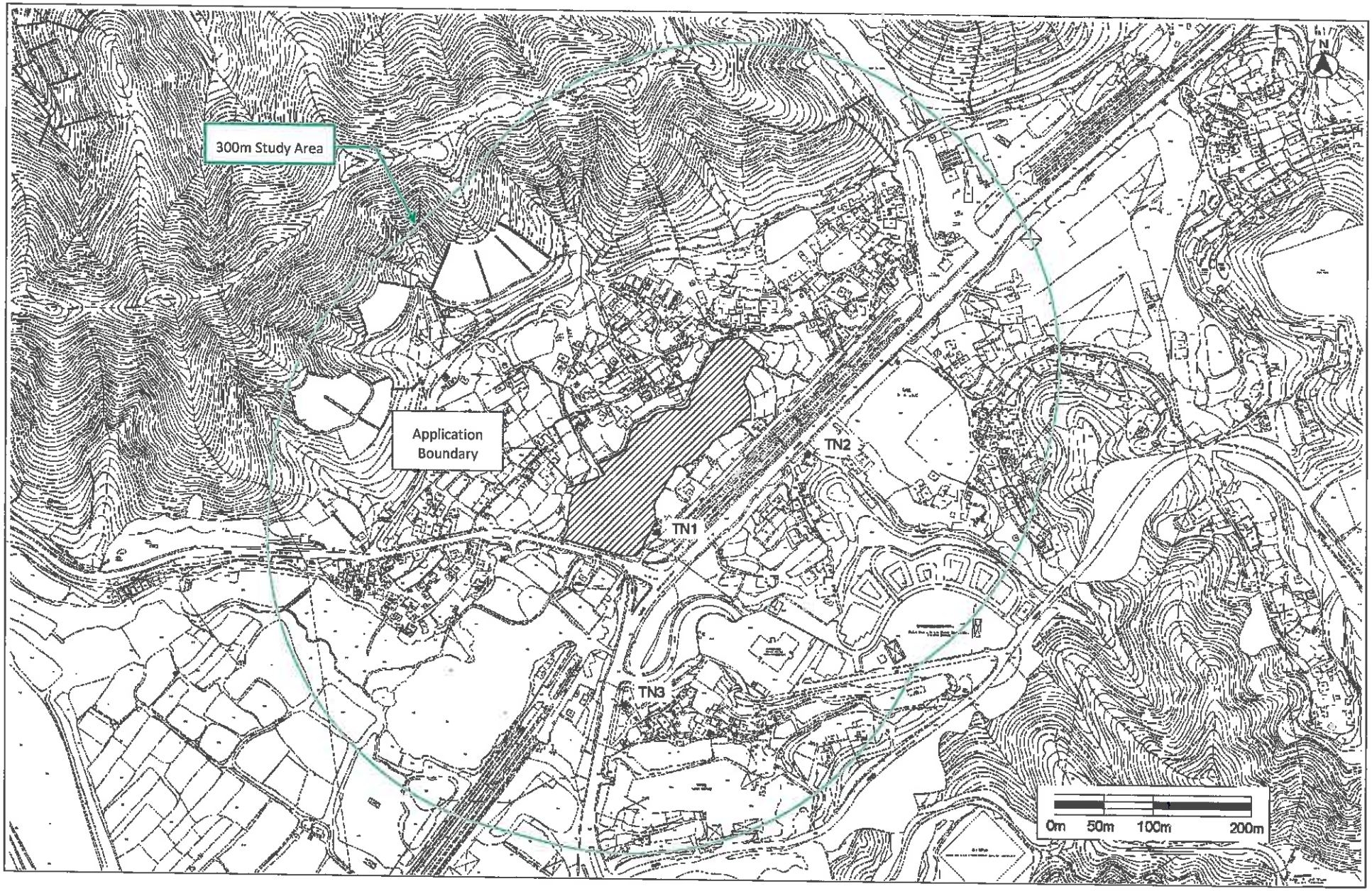
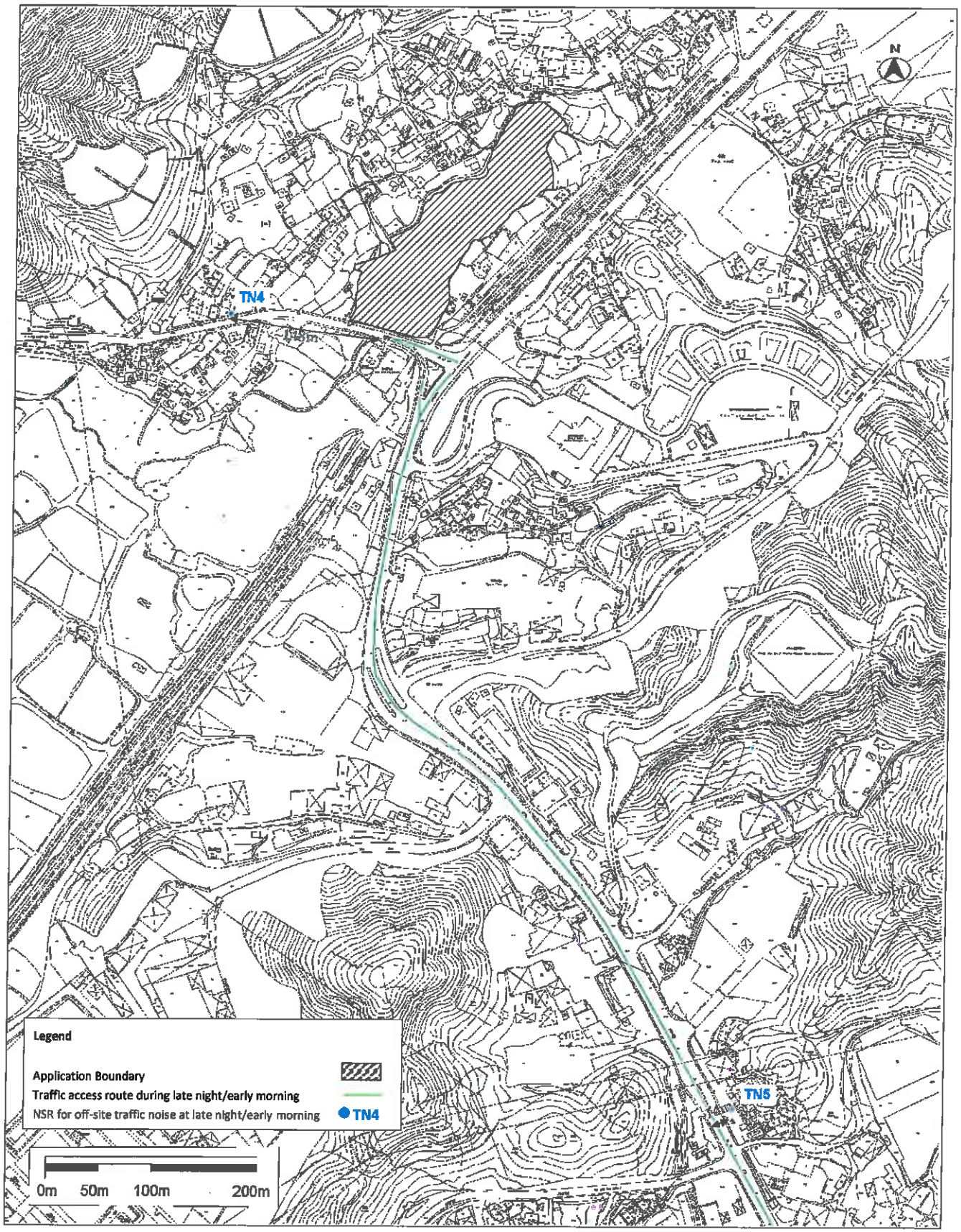


Figure 3-7: Locations of NSRs of Traffic Noise for Late Night or Early Morning



4 WATER QUALITY

4.1 Introduction

4.1.1 This section assesses the potential water quality impact associated with the Proposed Development during construction, operation and reinstatement phases. Mitigation measures are recommended, where necessary, as part of the assessment. There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction, operation and reinstatement of the Proposed Development.

4.2 Environmental Legislation and Standards

Water Pollution Control Ordinance (Cap. 358)

4.2.1 An amendment to the *Water Pollution Control Ordinance* ("WPCO") was enacted in 1990 and provides a mechanism for setting effluent standards. These are included in the *Technical Memorandum – Standards for Effluents Discharged in to Drainage and Sewerage Systems, Inland and Coastal Waters* ("WPCO-TM") issued under Section 21 of WPCO. All discharges into government sewerage systems, marine and inland waters are required to comply with the standards stipulated in the WPCO-TM.

Construction Site Drainage, ProPECC PN1/94

4.2.2 Under *ProPECC Practice Note PN1/94 Construction Site Drainage* ("ProPECC PN1/94"), various guidelines for the handling and disposal of construction site discharges are included. The guidelines include the use of sediment traps, wheel washing facilities for vehicles leaving the Site, adequate maintenance of drainage systems to prevent flooding and overflow, sewage collection and treatment, and comprehensive waste management (collection, handling, transportation, and disposal) procedures.

Drainage Plan subject to Comment by Environmental Protection Department, ProPECC PN5/93

4.2.3 Under *ProPECC Practice Note PN5/93 Drainage Plan subject to Comment by Environmental Protection Department ("ProPECC PN5/93")*, various guidelines for the pollution control for discharge to storm drains and foul sewers, such as the use of grease trap for wastewater from the restaurant kitchen, the use of silt removal facilities for open surface channel led to stormwater drains, etc., are included. The guidelines also include the requirements for submission of drainage plans.

Protection of natural streams/rivers from adverse impacts arising from construction works, ETWB TCW No. 5/2005

4.2.4 Under ETWB TCW No. 5/2005, administrative framework and procedures have been provided to clarify and strengthen existing measures for protection of natural streams/rivers from adverse impacts arising from construction works.

4.3 Identification of Water Sensitive Receivers

4.3.1 In order to identify the Water Sensitive Receivers ("WSRs"), a desktop study on the OZP, topographic maps and aerial photos has been conducted together with the site visit. The WSRs identified within 500m study area include the existing watercourse within and along the western site boundary and its upstream and downstream, a pond to the northeast of the Site and ponds

at the downstream of the existing watercourse to the southwest of the Site. The locations of these WSRs are summarised in ***Table 4.1*** and shown on ***Figure 4.1***.

Table 4.1: Water Sensitive Receivers

WSR ID	DESCRIPTION	TYPE	DISTANCE FROM THE SITE
WSR01	Existing Water Course Running Through the Site and its upstream and downstream	Modified natural watercourse with semi-natural substrate	Within the Site
WSR02	Pond	Man-made pond with natural substrates	<5m
WSR03	Ponds	Man-made ponds	260m
WSR04	Pond	Man-made pond	470m

4.4 Potential Impacts

Construction and Reinstatement Phase

4.4.1 The Proposed Development, including all cold storage buildings and road, will be constructed on an elevated platform supported by scattered piles within the Site. No construction/ reinstatement activities will be conducted within the water sensitive receivers (i.e. the existing watercourse). There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction and reinstatement of the Proposed Development. Direct impact to the existing watercourse is not anticipated.

4.4.2 Muddy runoff from the Site may be generated during the construction/reinstatement phase, including filling activities and reinstatement works, especially during the rainy season.

4.4.3 Wash water from vehicles and equipment; silt from any on-site stockpiles of soil, cement and grouting materials; and spillage of fuels, oil and lubricants from construction/reinstatement vehicles and plant may generate water quality impacts. If these pollution sources are not properly controlled, it would lead to increased amounts of suspended solids, grease and oil, pH, Biochemical Oxygen Demand ("BOD"), etc. in the drainage system.

4.4.4 There is also the issue of sewage generated by construction/reinstatement workers on-site.

Operation Phase

4.4.5 During operation of the Centre, all the vehicle movement, loading/unloading activities and staff activities will be confined on the road and cold store building on the platform, no activities will be conducted near the water sensitive receivers (i.e. the existing watercourse). There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the operation of the Proposed Development.

4.4.6 The major source of sewage / wastewater during operation phase would be sewage and grey water from toilets. Adequate capacity and number of wastewater storage tanks for temporarily storing all the wastewater will be provided onsite. All such kinds of wastewater need to be properly collected and tankered away with adequate frequency for offsite disposal by a licenced collector.

4.4.7 Daily floor cleaning will be also provided in the covered lorry loading / unloading area and loading platform. Floor cleaning is expected to be provided by mopping inside bucket. Therefore, no significant amount (i.e. less than $10m^3$/day) of wastewater due to floor cleaning will be discharged into storm water drainage system. Oil interceptors will be provided at the drainage system of the covered lorry loading / unloading area and loading platform in accordance with the ProPECC PN 5/93 to allow stormwater bypass during peak flow periods. The wastewater generated will be poured into the wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. Hence, no adverse impact is anticipated.

4.4.8 The Centre is a cold storage for frozen poultry, the meat unloaded from the lorry will be delivered to cold storage immediately. Hence, the wastewater generated from the melting is considered negligible. In addition, no vehicles washing and repairing will be conducted onsite, wastewater from vehicles washing and repairing is not anticipated. The loading and unloading platform is located within covered area.

4.4.9 A Sewerage Impact Assessment ("SIA") for the Centre is provided in a separate SIA report, which covers the assumptions and methods commonly adopted in Hong Kong. The SIA has concluded that there will be no unacceptable sewerage impact from the Site with the provision of recommended mitigation measures, i.e. Adequate capacity and number of toilets and wastewater storage tanks for sewage generated from the staff and wastewater generated from floor cleaning by mopping.

4.4.10 Non-point/diffuse source pollution, such as dust, tyre scraps, oil, etc. might be washed from road surface, proposed footpath and/or open areas into watercourses during regular cleaning or during rainstorms. In order to minimise this pollution loading, silt/sand traps and oil interceptors should be provided for the drainage systems of open areas in accordance with the relevant government guidelines. The onsite stormwater collection system and stormwater storage tank will be separates systems from the existing watercourse as shown on *Error! Reference source not found.*. No drainage diversion of the existing watercourse will be involved in the Project. A stormwater storage tank will be constructed to store the excessive runoff during extreme rainfall when the proposed stormwater collection system capacity of the U-channel has been exceeded, in order to minimise the occurrence of flooding of the site/ downstream area due to proposed development as far as possible. Underground stormwater storage tanks with total capacity of approx. $2400m^3$ with one storage tank in southeast of the Site of area 1660m2 is proposed. During low intensity rainfall (normal operation), flow will be collected to the peripheral U-channel and discharged to the existing downstream box culvert. During heavy raining, runoff collected by the proposed peripheral U- channels, however, partial stormwater will bypass the U-channel and overflow into proposed stormwater storage tank. So that, no additional runoff flow from the Site. Catchpit with sand trap will be provided at the inlet and outlet of the stormwater storage tank to prevent debris. The stored stormwater from the water tank will be reused as much as practicable, including re-use on-site (e.g., floor mopping, toilet flush, etc.). The surplus water will be drained off to the existing downstream box culvert when there is low intensity rainfall. As sedimentation of collected runoff could take place inside the stormwater storage tank, due to a longer retention time. Therefore, the water quality could be better. The effluent from the internal stormwater system and stormwater storage tank will be rainwater after sedimentation, which is considered as "unpolluted water" in accordance with WPCO. Hence, it is considered that emergency plan is not required of overflow or leakage of stormwater storage tank. With the provided silt/sand traps and oil interceptors, debris/oil can be trapped and removed before being washed into watercourses. Regular cleaning and maintenance of these mitigation measures will be provided by the operator. Hence, no adverse impact on the existing watercourse is anticipated.

4.4.11 Moreover, runoff should be controlled by best management practice. At the outlets to watercourses, the Applicant or their delegated operation parties should manage the cleaning of roads and open areas within the Site before heavy rain. To further minimise pollution loading, cleaning should be carried out during low traffic periods. Cleaning methods for roads/open areas, such as manual cleaning or mechanical methods and including street sweepers are recommended to be adopted. The substances during cleaning should be collected as far as practicable for off-site disposal at landfill sites. After the removal of the substances, the pollution loading of runoff would be reduced.

4.4.12 Water would be used in water cooling tower for the cooling function in which, chemical such as biocide will be applied to prevent algae bloom, all the chemicals used, operation and maintenance shall comply with the requirements as stipulated in the Code of Practice for Fresh Water Cooling Towers – Part 2: Operation and Maintenance 2016 Edition published by the Electrical and Mechanical Services Department ("EMSD"). During the operation of the water cooling tower, water will be evaporated, so refilling water will be needed to maintain sufficient water for cooling function. During the operation, water inside cooling towers will evaporate and so it will be filled when needed. Besides, such water will be discharged only when needed, e.g., too much algae grown, etc.. Thus, small amount (i.e. less than $10m^3$) of the water inside the cooling system would be discharged as toilet flushing water. Moreover, water sampling and water quality test will be conducted before the discharge to the portable toilet and to ensure it will comply with the requirements stipulated in Water Pollution Control Ordinance and its Technical Memorandum for discharge which is also required by the EMSD's Code of Practice. Further treatment will be conducted if there is any exceedance of the WPCO before discharge. The installation work of the water cooling tower is simply and is expected will not generated any polluted or waste water during construction. Therefore, it is expected no adverse water quality impact is anticipated during construction and operation phases. Because the water inside the water cooling towers, sewage and other kinds of wastewater will be tankered away, pollution loading to Deep Bay will not be increased during the operation phase.

4.4.13 Agrochemical, including pesticides or fertilisers, may be used in the maintenance of the greenery area, subject to the practice by the future landscape contractor. Under normal circumstances, any application of pesticides and fertilisers would only be on a need basis based on the health condition of the vegetation and confined within a small area. Since the scale of the greenery area is relatively small, the amount of agrochemicals to be used would be very limited and will not cause adverse water quality impact on the runoff. Only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided. With the implementation of the recommended measures, no adverse water quality is anticipated.

4.4.14 With the provision and implementation of the aforementioned mitigation measures for non-point source pollution, adverse water quality impact due to runoff is not anticipated.

4.4.15 The existing watercourse will be decked over underneath the proposed development as shown on ***Figure 4.2***. A Drainage Impact Assessment ("DIA") for the Centre has been carried out and is presented in a separate DIA report appended to the Planning Statement. The DIA has concluded that the surface runoff induced by the Centre would not cause any adverse drainage impact on the existing downstream watercourse with the provision of the proposed internal drainage system and aboveground stormwater storage tank.

4.5 Mitigation Measures

Construction and Reinstatement Phase

4.5.1 During construction including filling activities and reinstatement, it is recommended that adequate capacity and number of portable toilets with adequate frequency for offsite disposal by a licenced collector should be provided for construction/reinstatement workers. These will be supplied, maintained and emptied (at a sewage treatment facility) by a specialist contractor.

4.5.2 In order to avoid muddy surface runoff from entering the existing watercourse, earth bunds or sand bag barriers shall be provided along the watercourse. Temporary construction drainage along the watercourses and site boundary shall be also provided to collect and direct the muddy runoff to the wastewater treatment facilities for treatment prior to being discharged. The design of the construction/reinstatement site drainage system shall be independent from the existing watercourse. The details of wastewater treatment arrangement shall be submitted to EPD for review during the application of the wastewater discharge licence before commencement of the construction/reinstatement activities.

4.5.3 The construction/reinstatement contractor shall also follow good site practice and be responsible for the design construction, operation and maintenance of all the mitigation measures a specified in ProPECC PN 1/94 for construction/reinstatement site drainage:

Surface run-off from construction/reinstatement sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Temporary construction drainage or earth bunds or sand bag barriers shall be provided on site to properly direct storm water to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the Site so that it will not wash across the Site.

Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.

For the purpose of preventing soil erosion, temporarily exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.

Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary.

Measures shall be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities.

Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.

Manholes shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.

4.5.4 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements are summarised as follows:

The Contractor shall observe and comply with the WPCO and its subsidiary regulation.

The Contractor shall carry out the Works in such as manner as to minimise adverse impacts on the water quality during execution of the works. In particular the Contractor shall arrange his method of working to minimise the effects on the water quality within and outside the Site, on the transport routes and at the loading, dredging and dumping areas.

The Contractor shall follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in the ProPECC PN 1/94 "Construction Site Drainage" issued by the Director of Environmental Protection. The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval.

The Contractor shall not discharge directly or indirectly or cause or permit or suffer to be discharged into any public sewer, stormwater drain, channel, stream-course or sea any trade effluent or foul or contaminated water or cooling or hot water without the prior written consent of the Engineer in consultation with the Director of Environmental Protection and Director of Water Supplies, who may as a condition of granting his consent require to the Contractor to provide, operate and maintain at the Contractor's own expense to the satisfaction of the Engineer suitable works for the treatment and disposal of such trade effluent or foul or contaminated or cooling or hot water. The design of such treatment works shall be submitted to the Engineer for approval not less than one month before commencement of the relevant works.

If any office, site canteen or toilet facilities is erected, foul water effluent shall be directed to a foul sewer or to a sewage treatment and disposal facilities either directly or indirectly by means of pumping or other means approved by the Engineer.

4.5.5 Measures recommended in Appendix D of ETWB No.5/2005 *Protection of natural streams/rivers from adverse impacts arising from construction works* shall be also implemented by Contractor to the construction/reinstatement works in the vicinity of natural rivers and streams are listed below:

The proposed works site inside or in the proximity of natural rivers and streams should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on the stream water qualities. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site.

The natural bottom and existing flow in the river should be preserved as much as possible to avoid disturbance to the river habitats. If temporary access track on riverbed is unavoidable, this should be kept to the minimum width and length. Temporary river crossings should be supported on stilts above the riverbed.

Stockpiling of construction/reinstatement materials, if necessary, should be properly covered and located away from any natural stream/river.

Construction/reinstatement debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby rivers/streams by rain.

Construction/reinstatement effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order:

(i) minimisation of wastewater generation;

(ii) reuse and recycle;

(iii) treatment.

Proper locations for discharge outlets of wastewater treatment facilities well away from the natural streams/rivers should be identified.

Removal of existing vegetation alongside the riverbanks should be avoided or minimised. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environment upon completion of works.

Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the stream/river, but without unduly impeding the flow during heavy rain

Supervisory staff should be assigned to station on site to closely supervise and monitor the works.

4.5.6 In addition, detailed design of the platform and boundary of the construction/reinstatement site would consider avoidance of encroaching and adversely affecting the existing watercourse, maximising the distance between the works/development site and the existing watercourse, and providing sufficient buffer distance from the water during construction and reinstatement phases.

Operation Phase

4.5.7 During the operation phase, the sewage generated from the staff and floor cleaning by mopping will be collected by wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. Adequate capacity and number of wastewater storage tanks with adequate frequency for offsite disposal by a licenced collector will be provided onsite. Therefore, no adverse water quality impact arising from the Proposed Development is anticipated.

4.5.8 As mentioned in ***paragraph 4.4.7***, the loading and unloading platform will be washed by mopping. No wastewater due to floor washing will be discharged into storm water drainage system.

4.5.9 All operation activities of the Proposed Development shall be carried out within the cold store buildings and on the roads, sufficient buffer distance from the water shall be provided during operation. Non-point/diffuse source pollution, such as dust, tyre scraps, oil, etc. might be washed from road surface, proposed footpath and/or open areas into watercourses during rainstorms.

4.5.10 In order to reduce pollution due to runoff, silt/sand traps and oil interceptors should be provided for the drainage systems of open areas whilst oil interceptors should be installed for the system of covered loading/unloading area in accordance with ProPECC PN5/93. In addition, runoff shall be controlled by best management practice.

4.5.11 In order to prevent flooding of the downstream area, a stormwater storage tank will be constructed to store the excessive runoff during extreme rainfall when the stormwater collection system capacity of the u-channels has been exceeded. Trash screens will be provided at the inlet and outlet of the stromwater storage tank to prevent debris. After the rainstorm, most of the stored stormwater from the water tank will either be reused on-site as much as practicable (e.g., floor mopping, toilet flush, etc.). The surplus water will be drained off to the existing box culvert after heavy raining in which mitigation measures, including silt/sand traps and oil interceptors, recommended in ***paragraph 4.5.10*** of the EA report will be provided. The outlet of the storage tank to be equipped with control e.g. valve so that the stormwater that are not used can be discharged into the box culvert after heavy raining under a controlled manner. The detailed design of the stormwater storage tank would be submitted to EPD and DSD for approval during detailed design stage.

4.5.12 In order to reduce pollution due to the use of agrochemical, including pesticides or fertilisers, only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided.

4.5.13 With the provision and implementation of the aforementioned mitigation measures for non-point source pollution, adverse water quality impact due to runoff is not anticipated.

4.6 Conclusion

4.6.1 During construction, water quality impacts can be properly controlled with the implementation of good site practice, as stated in ***paragraph 4.5.3***. Adequate capacity and number of portable toilets will be provided for constructions workers on-site. Provided these measures are implemented, it is unlikely that any adverse water quality impacts from the Site will be generated during the construction phase.

4.6.2 The contractor shall apply for a Discharge Licence from EPD under the WPCO. All site discharges shall be treated in accordance with the terms and conditions of the Discharge Licence.

4.6.3 During operation, no adverse water quality impact is anticipated from the wastewater / sewage from employees and regular cleaning of the loading / unloading area. The sewage generated from the staff and wastewater generated from floor cleaning by mopping inside a bucket and water cooling tower will be collected by wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. With the provision of adequate capacity and number of the portable toilets with adequate frequency for offsite disposal by a licensed collector, no adverse water quality impact from the Proposed Development is anticipated.

4.6.4 Moreover, there will be no adverse water quality impact due to runoff with the provision and implementation of the recommended mitigation measures for non-point sources.

Figure 4-1: Locations of Water Sensitive Receivers

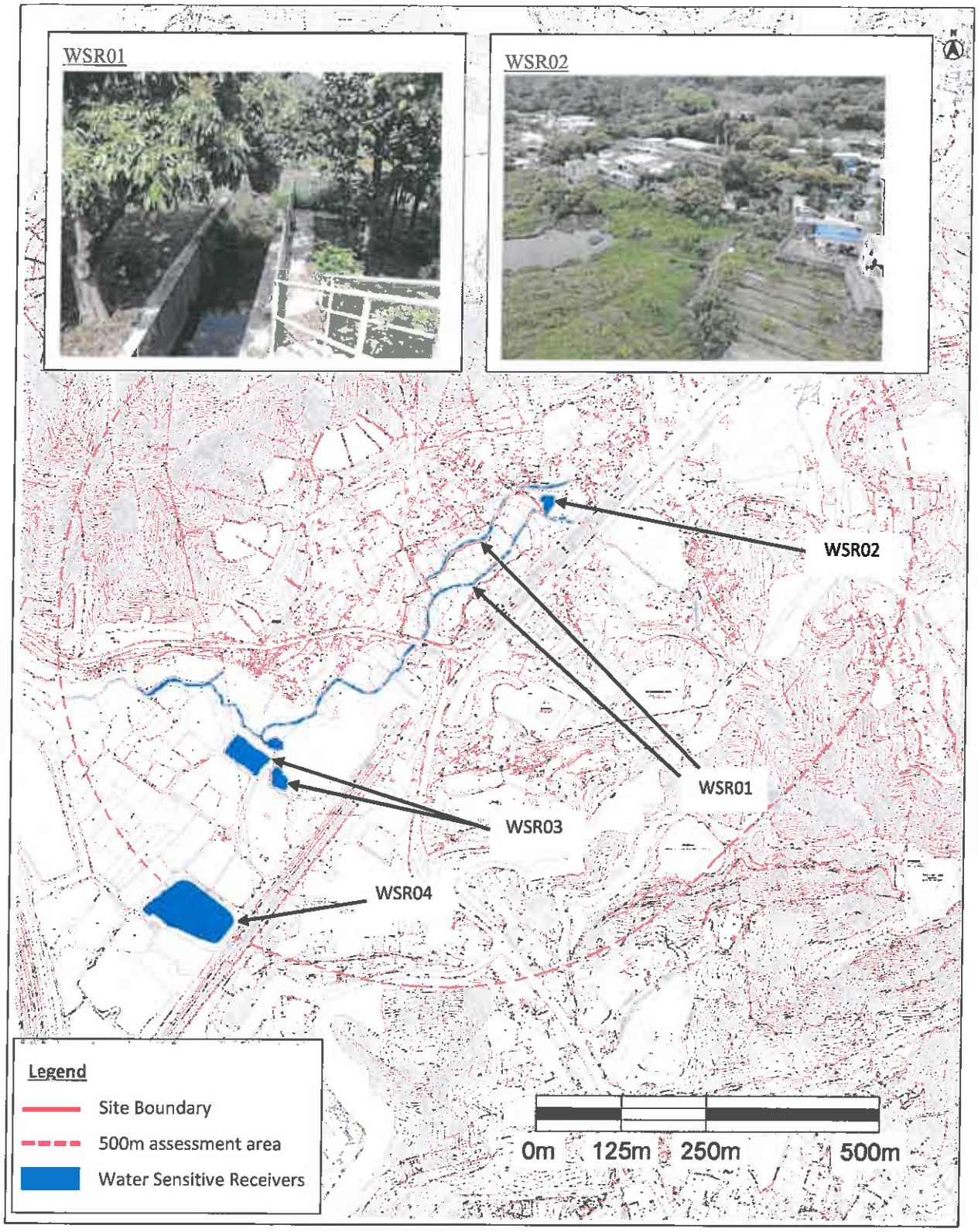
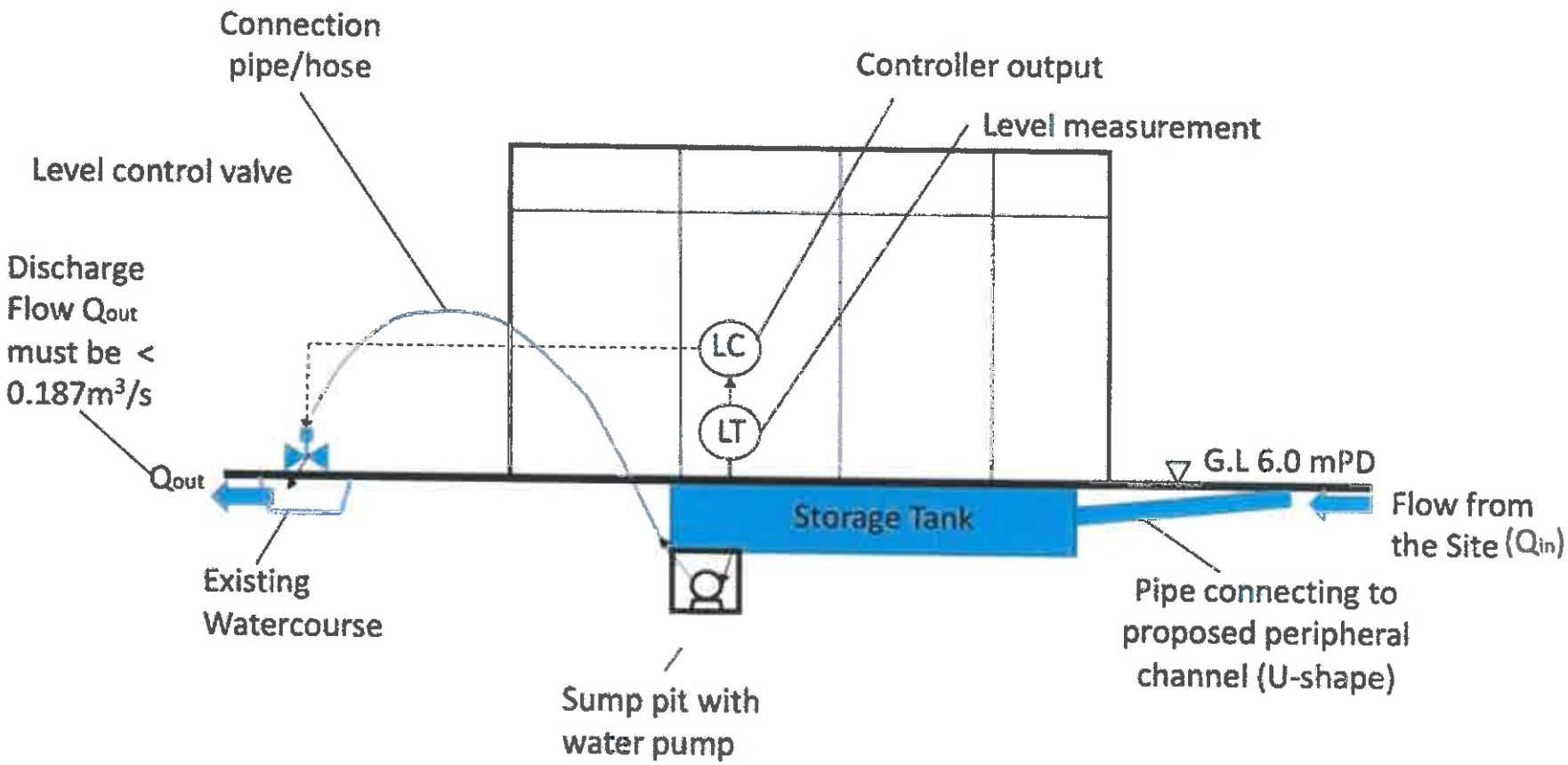


Figure 4-2. Water Intake and Discharge Mechanism with Storage Tank Underground



5 WASTE MANAGEMENT AND LAND CONTAMINATION

5.1 Introduction

5.1.1 This section assesses the potential impact related to waste management associated with the Proposed Development during construction and operation phases. Mitigation measures are recommended, where necessary, as part of the assessment.

5.2 Environmental Legislation and Standards

Waste Management

5.2.1 In carrying out the assessment, references have been made to the following relevant legislation, documents and guidelines that are applicable to waste management and disposal in Hong Kong:

5.2.2 The *Waste Disposal Ordinance* (Cap. 354) ("WDO") setting out requirements for storage, handling and transportation of all types of wastes, and subsidiary legislation such as the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* and the *Waste Disposal (Chemical Waste) (General) Regulation*.

Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).

Waste Disposal (Charges for Disposal of Chemical Waste) Regulation (Cap. 354J).

Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).

Land (Miscellaneous Provisions) Ordinance (Cap. 28).

Public Health and Municipal Services Ordinance (Cap.132BK) – Public Cleansing and Prevention of Nuisances Regulation

Environmental, Transport and Works Bureau ("ETWB") Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites.

ETWB Technical Circular (Works) No. 22/2003A, Additional Measures to improve Site Cleanliness and Control Mosquito Breeding on Construction Sites.

Development Bureau ("DevB") Technical Circular (Works) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials.

Civil Engineering and Development Department ("CEDD") Technical Circulars (CEDD TC No. 11/2019), Management of Construction and Demolition Materials.

Building Department Practice Note for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers Waste Minimisation – Construction and Demolition Waste ("ADV-19").

Building Department Practice Note for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers Waste Minimisation – Provision of Fitments and Fittings in New Buildings ("APP-114").

Building Department Practice Note for Registered Contractors ("PNRC 17"), Control of Environmental Nuisance from Construction Sites.

CEDD Project Administration Handbook for Civil Engineering Works ("PAH").

EPD Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

EPD Recommended Pollution Control Clauses ("RPCC") for Construction Contracts in COP.

Land Contamination

5.2.3 The land contamination assessment has been conducted in accordance with the following legislation, standard and guidelines:

EPD Guidance Note for Contaminated Land Assessment and Remediation.

EPD Practice Guide for Investigation and Remediation of Contaminated Land.

Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management

5.3 Potential Impacts

Construction Phase

5.3.1 The key potential waste sources during the construction phase are:

Inert Construction and Demolition ("C&D") materials (e.g. waste concrete, surplus soil, waste asphalt, etc.).

Non-inert C&D Waste (e.g. wood and plastics).

Chemical wastes such as ACMs, and waste battery and waste lubricating oil from vehicles / plant maintenance

General refuse generated by site workers.

Inert C&D Materials

5.3.2 Inert C&D materials are those which do not decompose, such as debris, rubble, earth and concrete, and which are suitable for land reclamation and site formation.

5.3.3 The major source on inert C&D materials during construction will be excavation for removal of paving and demolition of the existing small village house within the Site.

5.3.4 The quantity of demolition waste generated from the demolition of the existing small village house within the Site has been estimated in ***Table 5.1.***

Table 5.1: Estimated Quantity of Demolition Waste

BUILDING NAME	BUILDING TYPE	GENERATION RATE (kg/m² GFA)*	GFA (m²)	WASTE QUANTITY (kg)	WASTE QUANTITY (TONNES)
The Existing Village House	Residential	561	161	90,321	90

Note:

* The approximate generation rates of 561kg/m² for residential use were converted from the average generation rates of 115lb/ft² in Table 5 from *Characterization of Building-Related Construction and Demolition Debris*, Franklin Associates, USEPA, 1998.

5.3.5 According to the most recent Site inspections carried out on 23 March 2018 and 19 September 2018, majority of the Site is covered by vegetation (about 99% of the site area), paving was observed at the existing stream and a small village house at the eastern boundary (about 1% of the site area) only. An additional site visit was conducted on 23 March 2021 to verify the site condition. There is no change of the site condition in compared with the observation in 2018. The existing condition of the Site is shown on ***Figure 5-1***. Only paving of the small village house

will be removed. As a conservative estimation, the area of the paving of the small village house is about 161m^2. Assuming a typical slab thickness of 0.2m, approximately 32m^3 (161m^2 x 0.2m) or 77 tonnes waste concrete (based on a concrete density of 2,400kg/m^3) of paving to be disposed of.

Figure 5-1: Existing Condition within the Site in March 2021

5.3.6

The current elevation of the Site ranged from +4.5mPD to +6.13mPD. After re-profiling, the final elevation of the Site will be from+6.0mPD to +7.05mPD. For a conservative estimation, it is assumed to excavate an average depth of 1.0m across the 20249m^2 site area, resulting in around 20249m^3 or 32,398 tonnes (based on a soil density of 1,600kg/m^3) excavated materials.

5.3.7 In addition, construction wastes will also be generated during construction of the proposed development. This includes inert C&D materials, such as concrete waste, waste from blockwork and brickwork, waste from screeding and plastering; and non-inert C&D materials (or C&D waste) from timber formwork, packaging waste and other wastes.

5.3.8 Section 3.2 of A Guide for Managing and Minimizing Building and Demolition Waste published by The Hong Kong Polytechnic University in May 2001 provides a "waste index" for building waste generation in Hong Kong based on the GFA of three different building types:

Private Housing Projects	0.250m^3/m^2 GFA
Government Housing Projects	0.174m^3/m^2 GFA
Commercial Office Projects	0.200m^3/m^2 GFA

5.3.9 To provide a conservative estimate of building waste from the Proposed Development, the "waste index" for commercial office projects are adopted. However, as noted above, in addition to inert C&D materials, this "waste index" also include non-inert C&D materials (or C&D wastes), such as timber formwork, packaging waste and other wastes, and the Guide does not identify what proportion of building waste is inert C&D materials and what proportion is non-inert C&D materials (or C&D waste).

5.3.10 Plate 2.12 of EPD's Monitoring of Solid Waste in Hong Kong – Waste Statistics for 2020 identifies that in 2020, 95% of construction waste was either reused on-site or off-site or was sent to public fill reception facilities, meaning it must be inert C&D materials. The proportion of inert C&D materials in the "waste index" can therefore be estimated by applying the Hong Kong-wide proportion of inert C&D materials in construction waste, i.e. 95%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Inert C\&D materials (Commercial Office Projects)}} = 0.95 \times 0.200 m^3/m^2 \text{ GFA}$$
$$= 0.19 m^3/m^2 \text{ GFA}$$

5.3.11 The inert C&D materials component of building waste from the Proposed Development, which has a GFA of about 15,206.84m^2, can therefore be estimated as follows:

$$\text{Building Waste} = \text{Waste Index}_{\text{Inert C\&D materials (Commercial Office Projects)}} \times \text{GFA}$$
$$= 0.19 \times 15206.84$$
$$= 2{,}889 m^3$$

5.3.12 Assuming the density of inert C&D materials is 1.8 tonnes/m^3, the Project would give an estimated building wastes of around 5,200 tonnes to be disposed of.

Table 5.2: Total Estimated Inert C&D Materials Generated During Construction

INERT C&D MATERIAL TYPE	ESTIMATED INERT C&D MATERIAL GENERATION (TONNES)
Stage: Site Clearance and Formation	
Demolition of Existing Village House	90
Paving	77
Excavated Material	32,398
Stage: Infrastructure Construction	
Building Waste	5,200
Total	**37,598**

5.3.13 In total, therefore, an estimated 37598 tonnes of inert C&D materials may be generated throughout the 2 years construction period, equivalent to around 52tpd on average assuming 6 working days per week (i.e. 32398 tonnes/(365 days x (6/7) x 2 years)).

5.3.14 Inert C&D materials should be reused on-site as far as practicable and efforts should be made to optimise cut and fill requirements during the detailed design. Good site practice and mitigation measures recommended in ***Section 5.4*** should be implemented. Surplus inert C&D materials

should be sent off-site for reuse or recycle as far as practicable. The remaining materials should be sent to pubic fill reception facilities, Fill Bank at Tuen Mun Area 38 and Fill Bank at Tseung Kwan O Area 137.

5.3.15 About 14351m^2 area of the Site area will be required to be fill with depth of not more than 1.5m during the construction phase. Hence, about 21526m^3 fill materials will be required for the Proposed Development. Therefore, 21526m^3 (i.e. 34440 tonnes) excavated material will be reused onsite as fill materials. The surplus inert C&D material of about 20,064 tonnes (i.e. 32tpd on average assuming 6 working days per week) will be disposed of at public fill reception facilities.
Moreover, the reuse of inert C&D materials in public filling reception facilities would be agreed with relevant authorities before disposal. As the excavated materials generated from the Site will be sufficient for the filling works. It is expected that no imported fill should be required for the Project.

5.3.16 Given the above, no adverse waste impact from the handling, transportation or disposal of inert C&D materials during construction of the Project is anticipated.

Non-inert C&D Materials (or C&D Waste)

5.3.17 Non-inert C&D materials (or C&D waste), are those which can decompose such as bamboo, timber, vegetation, packaging waste and other organic material, and which are therefore unsuitable for land reclamation.

5.3.18 The major source on non-inert C&D materials during construction will be removal of topsoil and vegetation during site formation and building waste including non-inert C&D materials such as timber formwork, packaging waste.

5.3.19 Topsoil is the uppermost layer of soil capable of growing and supporting vegetation. Assuming the average depth of the topsoil is 0.25m and with density of 1,600kg/m^3, the quantity of the topsoil generated during site formation would be 5011m^3 (i.e.20249m^2 x 99% x 0.25m) or 8019 tonnes.

5.3.20 As shown on ***Figure 5-1***, majority of the Site is covered by grass. About 100 trees will be felled in accordance with the Landscape Plan. It is estimated that the quantity of vegetation generated during site formation will be less than 200 tonnes.

5.3.21 The building waste are included in the "waste index" provided in the Guide, discussed above, however, this also includes inert C&D materials.

5.3.22 Plate 2.12 of Waste Statistics for 2020 identifies that in 2020, 5% of construction and demolition waste, which is classified as non-inert C&D materials (or C&D waste), was disposed of in landfills. The proportion of non-inert C&D materials (or C&D waste) in the "waste index" can therefore be estimated by applying the Hong Kong-wide proportion of non-inert C&D materials (or C&D waste) in construction waste, i.e. 5%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Non-Inert C\&D materials (Commercial Office Projects)}} = 0.05 \times 0.200\text{m}^3/\text{m}^2\,\text{GFA}$$
$$= 0.01\text{m}^3/\text{m}^2\,\text{GFA}$$

5.3.23 Hence, the non-inert C&D materials (or C&D waste) components in building waste can therefore be estimated as follows:

Building Waste = Waste Index $_{\text{Non-Inert C\&D materials (Commercial Office Projects)}}$ x GFA

= 0.01 x 15,206

= 152m^3

5.3.24 Assuming the density of non-inert C&D materials is 1.0 tonnes/m^3, the Project would give an estimated building wastes of around 152 tonnes to be disposed of, equivalent to around 0.19m^3 or 0.19tpd on average on average assuming 6 working days per week throughout the 2 years construction period.

Table 5.3: Total Estimated Non-Inert C&D Materials Generated During Construction

INERT C&D MATERIAL TYPE	ESTIMATED NON-INERT C&D MATERIAL GENERATION (TONNES)
Stage: Site Clearance and Formation	
Topsoil	8,019
Vegetation	200
Stage: Infrastructure Construction	
Building Waste	152
Total	8,371

5.3.25 In total, therefore, an estimated 8371 tonnes of non-inert C&D materials may be generated throughout the 2 years construction period, equivalent to around 13.4tpd on average assuming 6 working days per week (i.e. 8,371 tonnes/(365 days x (6/7) x 2 years)).

5.3.26 On-site sorting should be carried out for non-inert C&D materials generated from the works. Recyclable materials, such as metal, paper product, timber and plastic, should be collected by local recyclers for recycling. All non-inert C&D materials should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North East New Territories Landfill ("NENT") Landfill.

5.3.27 With reference to the historical review in ***Section 5.5***, the Site was mainly used for farming in the past. Therefore, the topsoil is recommended to be reused for the greenery area of the Proposed Development as far as possible, which the greenery area will be approximately 4,106m^2 as shown in the Landscape Master Plan. Assuming an average depth of 0.5m soil for the greenery area, the quantity of topsoil required should be about 2,053m^3 or 3,285 tonnes (based on a soil density of 1,600kg/m^3). Hence, there will be about 3,075 tonnes surplus topsoil to be disposed of at the NENT subject to the quality of the topsoil and future detailed design of the greenery area.

5.3.28 The quantity of the generated non-inert building waste could be recycled/reused is expected to be no more than 10% of the generated amount in view of the scale of the Project. As such, it is estimated that the quantity of non-inert C&D wastes to be on-site reused / recycled is 12m^3 or 12 tonnes.

5.3.29 The surplus non-inert C&D material, including topsoil and building waste, of about 3,391 tonnes (i.e. 5.4pd) on average assuming 6 working days per week throughout the 2 years construction period (i.e. 3,391 tonnes/(365 days x (6/7) x 2 years)) would be disposed of at the NENT.

Moreover, the disposal of C&D wastes to landfills would be agreed with relevant authorities before disposal.

5.3.30 Given the above, no adverse waste impact from the handling, transportation or disposal of non-inert C&D materials (or C&D waste) during construction of the Proposed Development is anticipated.

General Refuse

5.3.31 General refuse from workers is similar to domestic waste and includes packaging and organic material.

5.3.32 The numbers of workers will depend on the construction methods employed and on which contractor carries out the work. Based on industry experience, we estimate the number of construction workers for a project of this size would average around 100 per day over the 2-year construction period.

5.3.33 Each construction worker will generate general refuse, which is similar to domestic waste. Plate 2.7 of Waste Statistics for 2020 identifies that the per capita domestic waste disposal rate in 2020 was 0.91kg/person/day, although the per worker generation rate of general refuse will likely be less than this. However, to be conservative, the per capita domestic waste disposal rate in 2020 has been adopted for general refuse generation by construction workers. On this basis:

General Refuse/Day = No. of workers/day x per capita generation rate
= 100 workers x 0.91kg/workers/day
= 91kg/day

Total General Refuse = General Refuse/Day x Duration of construction contract
= 91kg/day x [6 days/week X (365/7) weeks/years x 2 year]
= 56,940kg
= 57 tonnes

5.3.34 Hence, an estimated 57 tonnes of general refuse may be generated throughout the 2 years construction period, equivalent to around 0.091tpd on average (i.e. 57 tonnes/(365 days x (6/7) x 2 years)).

5.3.35 On-site sorting should be carried out general refuse generated from the works. Recyclable materials, such as metal, paper and plastic, should be collected by local recyclers for recycling. All general refuse should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North West New Territories Transfer Station ("NWNTRTS").

5.3.36 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of domestic waste is 19%. It is therefore estimated that 19% of general refuse (i.e. 10.8 tonnes) of general refuse could be reused and recycled by the recyclers. The surplus general refuse of 46.2 tonnes (i.e. 0.074 tpd on average assuming 6 working days per week throughout the 2 years construction period) would be disposed of at the NWNTRTS.

5.3.37 Given the above, no adverse waste impact from the handling, transportation or disposal of general refuse from workforce during construction of the Proposed Development is anticipated.

Chemical Waste

5.3.38 Some temporary structure within the Site will be demolished during the construction phase. The temporary structures are inaccessible at this moment Due to the age of the structure, ACM may be present in these temporary structures. Under the APCO, asbestos investigation shall be conducted by Registered Asbestos Consultant ("RAC") before demolition work potentially involving ACMs. If any ACMs is identified, an Asbestos Investigation Report ("AIR") and an Asbestos Abatement Plan ("AAP") shall be submitted to EPD. A Registered Asbestos Contractor ("RACont") shall be engaged to carry out asbestos abatement work according to the approved AIR and AAP before demolition. The owner of the premises must notify the Labour Department and the EPD at least 28 days before the commencement of the asbestos abatement works in accordance with the regulatory requirement.

5.3.39 If additional ACMs is discovered during the work, demolition shall be suspended and inform the RAC immediately, the RAC shall submit the modified AAP to the EPD after the investigation. An air sampling test shall be conducted by a Registered Asbestos Laboratory ("RAL") at the working area when all ACMs has been removed, in order to verify there is no asbestos fibre left suspended in the air.

5.3.40 The asbestos waste labelling, handling and packaging depends on the type of ACMs. All the handling, collection and transportation and disposal of asbestos waste shall be carried out according to EPD's Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste. The quantity of the asbestos to be generated depends on the investigation and asbestos abatement plan carried out by RAC.

5.3.41 Except the ACMs, no hazardous materials or hazardous wastes are expected to be generated during the construction phase. Since majority of maintenance/repairing for construction equipment to be carried out off-site during construction stage, only limited amount (i.e. < 1 tonnes) of chemical wastes including waste batteries, lubricating oil and waste paints may be generated given the small scale of the works. Other chemical wastes include waste lamp will be generated and the amount will be insignificant.

5.3.42 The Contractor shall register as a Chemical Waste Producer under the WDO. All chemical waste shall be stored at a properly designed chemical waste storage area located within the construction site in accordance with EPD's Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A licensed collector shall be employed to handle and dispose of all chemical wastes, e.g. at the Chemical Waste Treatment Centre ("CWTC") at Tsing Yi, or other facility approved by EPD.

5.3.43 Given the above, no adverse waste impact from the handling, transportation or disposal of chemical waste during the construction of the Proposed Development is anticipated.

Summary

5.3.44 The type and estimated quantities of different types of wastes generated during the construction phase are summarised in ***Table 5.4***.

Table 5.4: Estimated amount of different types of wastes to be generated during construction phase

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	MANAGEMENT OPTION	
			REUSE / TREATMENT	DISPOSAL
Inert C&D Material				
Demolition waste	90	Site clearance and formation	The opportunities for on-site reuse of inert C&D materials will be considered. 9,771 tonnes excavated material to be reused as fill material	The surplus inert C&D material will be disposed of at Fill Bank at Tuen Mun Area 38 and Tseung Kwan O Area 137
Paving	77			
Excavated Material	32,398			
Building Waste	5,200	Infrastructure construction		
Non-Inert C&D Material				
Topsoil	8,019	Site clearance and formation	About 3,285 tonnes topsoil to be reused onsite for greenery area	About 3,391 tonnes topsoil to be disposed of at NENT landfill
Vegetation	200		Nil	All disposed of at NENT landfill
Building Waste	152	Infrastructure construction	About 12 tonnes to be reused onsite	About 104 tonnes to be disposed of at NENT landfill
General Refuse	57	Construction worker and site office	About 10.8 tonnes to be recycled by recyclers	About 46.2 tonnes to be disposed of at NWNTRTS
Chemical Waste	< 1	Waste batteries, lubricating oil and waste paints, etc	All to be collected by the licensed chemical waste collector and treated in the CWTC	
ACM	Depends on the asbestos investigation and asbestos abatement plan	Asbestos waste	Supervision of the asbestos waste handling and packaging for disposal by RAC and follow the relevant legislation, guidelines and Code of Practice on Asbestos	

Operation Phase

5.3.45 **During the operation phase, the major type of waste generated will be waste from office and cold store. According to the EPD's *Monitoring of Solid Waste in Hong Kong – Waste Statistic for 2020* and shows the most recent per municipal solid waste disposal rate to be 1.44kg/person/day. The estimated total staffs of the Proposed Development would be about 200 people, so the quantity of commercial waste disposed of is expected to be less than 90 tonnes per year.**

5.3.46 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of municipal solid waste is 28%. It is therefore estimated that 28% of commercial waste (i.e. 25 tonnes) could be reused and recycled by the recyclers.

5.3.47 The surplus commercial waste of 65 tonnes (i.e. 0.178 tpd on average assuming 7 working days per week) would be disposed of at the NWNTRTS.

5.3.48 Since commercial waste will be collected on a regular basis by registered waste collectors, and since commercial waste will be disposed at a landfill managed by EPD, no adverse waste impacts from handling, transportation or disposal are anticipated. Nevertheless, to minimise domestic waste generation mitigation measures proposed in ***Section 5.4*** should be implemented.

5.3.49 Overall, there should be no adverse waste impact from the handling, transportation or disposal of domestic waste during the operation of the Proposed Development.

Reinstatement Phase

5.3.50 During the reinstatement phase, the major type of wastes are inert construction and demolition ("C&D") materials, non-inert C&D Materials, chemical wastes and general refuse

Inert C&D Materials

5.3.51 The major source of inert C&D waste during the reinstatement phase is the filling material in the construction phase which used for adjusting the level of the Site.

5.3.52 As mentioned in ***paragraph 5.3.15***, approximately 21,526m^3 (i.e.34,440 tonnes) of excavated material will be used for levelling the ground of the Site. Therefore, approximate 34,440 tonnes of filling material will be required to be removed during the reinstatement phase. The inert C&D materials will be disposed of at Fill Banks Tuen Mun Area 38 and/or Tseung Kwan O Area 137.

5.3.53 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of inert C&D materials during construction of the Project is anticipated.

Non-inert C&D Materials (or C&D Waste)

5.3.54 The major source of non-inert C&D materials (or C&D waste) during reinstatement phase will be removal of superstructures which are mainly composed of metal (i.e. steel). It is estimated the total amount of metal of structure to be demolished to be approximately 290 tonnes. All the non-inert C&D materials (metal) should be collected by local recyclers for recycling.

General Refuse

5.3.55 It is estimated that the number of construction workers for a project of this size would average around 100 per day over the 1-year construction period.

5.3.56 With reference to plate 2.7 of Waste Statistics for 2020 identifies that the per capita domestic waste disposal rate in 2020 was 0.91kg/person/day, although the per worker generation rate of general refuse will likely be less than this. However, to be conservative, the per capita domestic waste disposal rate in 2020 has been adopted for general refuse generation by construction workers. On this basis:

General Refuse/Day = No. of workers/day x per capita generation rate
= 100 workers x 0.91kg/workers/day
= 91kg/day

Total General Refuse = General Refuse/Day x Duration of construction contract
= 91kg/day x [6 days/week X (365/7) weeks/years x 1 year]
= 28,470kg
= 28 tonnes

5.3.57 Hence, an estimated 28 tonnes of general refuse may be generated throughout the 1 year construction period, equivalent to around 0.089tpd on average (i.e. 28 tonnes/(365 days x (6/7) x 1 year)).

5.3.58 On-site sorting should be carried out general refuse generated from the works. Recyclable materials, such as metal, paper and plastic, should be collected by local recyclers for recycling. All general refuse should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North West New Territories Transfer Station (NWNTRTS).

5.3.59 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of domestic waste is 19%. It is therefore estimated that 19% of general refuse (i.e. 5.3 tonnes) of general refuse could be reused and recycled by the recyclers. The surplus general refuse of 22.7 tonnes (i.e. 0.073 tpd on average assuming 6 working days per week throughout the 1 year demolition period) would be disposed of at the NWNTRTS.

5.3.60 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of general refuse from workforce during construction of the Proposed Development is anticipated.

Chemical Waste

5.3.61 No hazardous materials or hazardous wastes are expected to be generated during the reinstatement phase. Since majority of maintenance/repairing for construction equipment to be carried out off-site during reinstatement phase, only limited amount (i.e. < 1 tonnes) of chemical wastes including waste batteries and lubricating oil may be generated given the small scale of the works. Other chemical wastes include waste lamp will be generated and the amount will be insignificant.

5.3.62 The Contractor shall register as a Chemical Waste Producer under the WDO. All chemical waste shall be stored at a properly designed chemical waste storage area located within the construction site in accordance with EPD's Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A licensed collector shall be employed to handle and dispose of all chemical wastes, e.g. at the CWTC at Tsing Yi, or other facility approved by EPD.

5.3.63 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of chemical waste during the construction of the Proposed Development is anticipated.

Summary

5.3.64 The type and estimated quantities of different types of wastes generated during the reinstatement phase are summarised in ***Table 5.4***.

Table 5.5: Estimated amount of different types of wastes to be generated during reinstatement phase

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	MANAGEMENT OPTION	
			REUSE / TREATMENT	DISPOSAL
Inert C&D Material				
Excavated Material	34440	Removal of filling materials	NA	The inert C&D material will be disposed of at Fill Bank at Tuen Mun Area 38 and Tseung Kwan O Area 137
Non-Inert C&D Material				
Building Waste (Metal)	290	Superstructure Demolition (including metal from structure)	All the metal will be collected by local recycler.	NA
General Refuse	28	Construction worker and site office	About 5.3 tonnes to be recycled by recyclers	About 22.7 tonnes to be disposed of at NWNTRTS
Chemical Waste	< 1	Waste batteries, lubricating oil, etc	All to be collected by the licensed chemical waste collector and treated in the CWTC	

5.4 Mitigation Measures

Construction Phase and Reinstatement Phase

5.4.1 Waste management shall be controlled through contractual requirements as well as through statutory requirements.

5.4.2 A Waste Management Plan ("WMP") should be developed by the contractor and submitted to the Project Engineer / Architect for approval in accordance with ADV-19 before the commencement of any construction works. The objectives of the WMP will be to identify any potential environmental impacts from the generation of waste at the Site; to recommend appropriate waste handling, collection, sorting, disposal and recycling measures in accordance with requirements of the current regulations; and to categorise and permit segregation of C&D materials where practicable (i.e. inert material / non-inert material) for disposal considerations i.e. public fill / landfill.

5.4.3 The contractors should adopt good housekeeping practices with reference to the WMP such as waste segregation prior to disposal. Besides the provision of stockpiling and segregating areas at site, effective collection of site wastes is required to prevent waste materials being blown

around by wind, flushed or leached into nearby waters, or creating odour nuisance or pest and vermin problems. Waste storage areas should be well maintained and cleaned regularly.

5.4.4 A trip-ticket system should be established in accordance with DevB TC(W) No. 6/2010 and the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. A trip-ticket system should be included as one of the contractual requirements for the contractor to strictly implement.

5.4.5 Whenever there are excess recyclable construction materials, including bricks, plastics and metals, reuse and recycling should be carried out as far as practicable to minimise the amount of waste disposal. Other inert non-recyclable materials such as concrete, asphalt, etc. should be treated as public fill. Non-inert and non-recyclable wastes should be disposed at designated landfill site.

5.4.6 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the construction contractor to remove general refuse from the Site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" materials.

5.4.7 For chemical waste, the Contractor should follow the 'trip-ticket' system of which the arrangement of production, collection and disposal in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

5.4.8 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

The Contractor shall observe and comply with the *WDO* and its subsidiary.

The Contractor shall submit to the Engineer for approval a waste management plan with appropriate mitigation measures including allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.

The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.

The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse / recycling of waste and, as the last resort, disposal at different outlets as appropriate.

The reuse and recycling of waste shall be practised as far as possible. The recycled materials shall include paper / cardboard, timber and metal etc.

The Contractor shall ensure that C&D materials are sorted into public fill (inert portion) and C&D waste (non-inert portion). The public fill which comprises soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt shall be reused such as earth filling, reclamation, site formation works, etc. as far as practicable, and disposed of at Fill Bank as the last resort. The C&D waste which comprises metal, timber, paper, glass, etc. shall be reused and recycled as far as practicable, and, as the last resort, disposal of at landfills.

The Contractor shall record the amount of waste generated, recycled and disposed of (including the disposal sites).

The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill.

Training shall be provided for workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.

The Contractor shall not permit sewage and untreated effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land, or allow any solid waste including refuse which is not part of the final product from waste processing plants to be deposited anywhere within the Site and the adjoining land. He shall arrange removal of such matter from the Site in a proper manner to the satisfaction of the Engineer in consultation with the EPD.

The Contractor shall observe and comply with the *Waste Disposal (Chemical Waste) (General) Regulation*.

The Contractor shall apply for registration as chemical waste producer under the *Waste Disposal (Chemical Waste) (General) Regulation* when chemical waste is produced. All chemical waste shall be properly stored, labelled, packaged and collected in accordance with the Regulation.

5.4.9 When inclement weather (e.g. heavy rain, typhoon, etc.) is forecast, additional control measures should be adopted as follows:

Construction material, stockpiles, chemical and waste storage / recycling facilities should be immediately moved to secured area.

Construction material, stockpiles and waste storage / recycling facilities should be covered by an impermeable sheeting, if necessary.

Intercepting channels will be provided at the edge of the excavated area to prevent storm runoff from washing across the exposed surface.

Silt removal facilities, channels and manholes will be maintained and the deposited silt and grit will be removed regularly.

Operation Phase

5.4.10 The centre management shall encourage reuse and recycling of commercial wastes in line with government policy. The waste management hierarchy shall be adopted by the building management to manage commercial wastes in a sustainable manner. The waste management hierarchy is a concept which shows the desirability of various waste management methods and comprises the following in order of preference:

Avoidance.

Minimisation.

Recycling/reuse.

5.4.11 The majority of waste generated during the operation of the Proposed Development will mainly comprise general refuse and commercial wastes such as food waste, food packaging, paper, can, plastic bottles, etc., which shall be collected and stored in appropriate waste receptacles with a secure lid to minimise the potential adverse impact due to wind blowing away any waste and to improve hygiene. Recyclable and non-recyclable waste shall be regularly collected by licenced waste collectors and taken off-site for recycling or disposal, respectively.

5.5 Land Contamination

5.5.1 Historical aerial photographs provided in ***Appendix H*** shows that the Site was an agriculture land in Year 1976 to 1990s, which the historical agricultural activities unlikely caused land contamination. In Year 1996, part of the previous agriculture land at the southern part of the Site was observed abandoned and covered with vegetation while the northern part of the Site remained as agriculture use. A village house was observed at the eastern boundary. The trend of abandoning agriculture uses within the Site was continued in 2000s and 2010s. Only a small portion of land at the northern part of the Site remained as agriculture use. In Year 2016, all the previous agriculture uses were abandoned. The entire Site was vacant and covered with vegetation and a village house was observed at the eastern boundary. There is no evidence of any past land use, either agriculture land, vacant land or residential use, within the Site that could have resulted in contamination. As such, there is no reason to suspect that contaminated land was present within the Site.

5.5.2 The Site is currently a vacant land with a village house adjacent to the eastern boundary of the Site. Majority of the Site is covered by vegetation. No landuse with potential land contamination activities on the Site was observed. The photographs taken in March 2018 and March 2021 are provided in ***Figure 5-2*** for reference. As shown on the ***Figure 5-2***, the Site is currently a vacant land covered with vegetation and the Site is surrounded by village houses. No development or activities with potential land contamination activities were identified during the site visit.

5.5.3 No existing and previous development with potential land contamination activities on the Site is identified. Hence, no land contamination issue is anticipated.

5.6 Conclusion

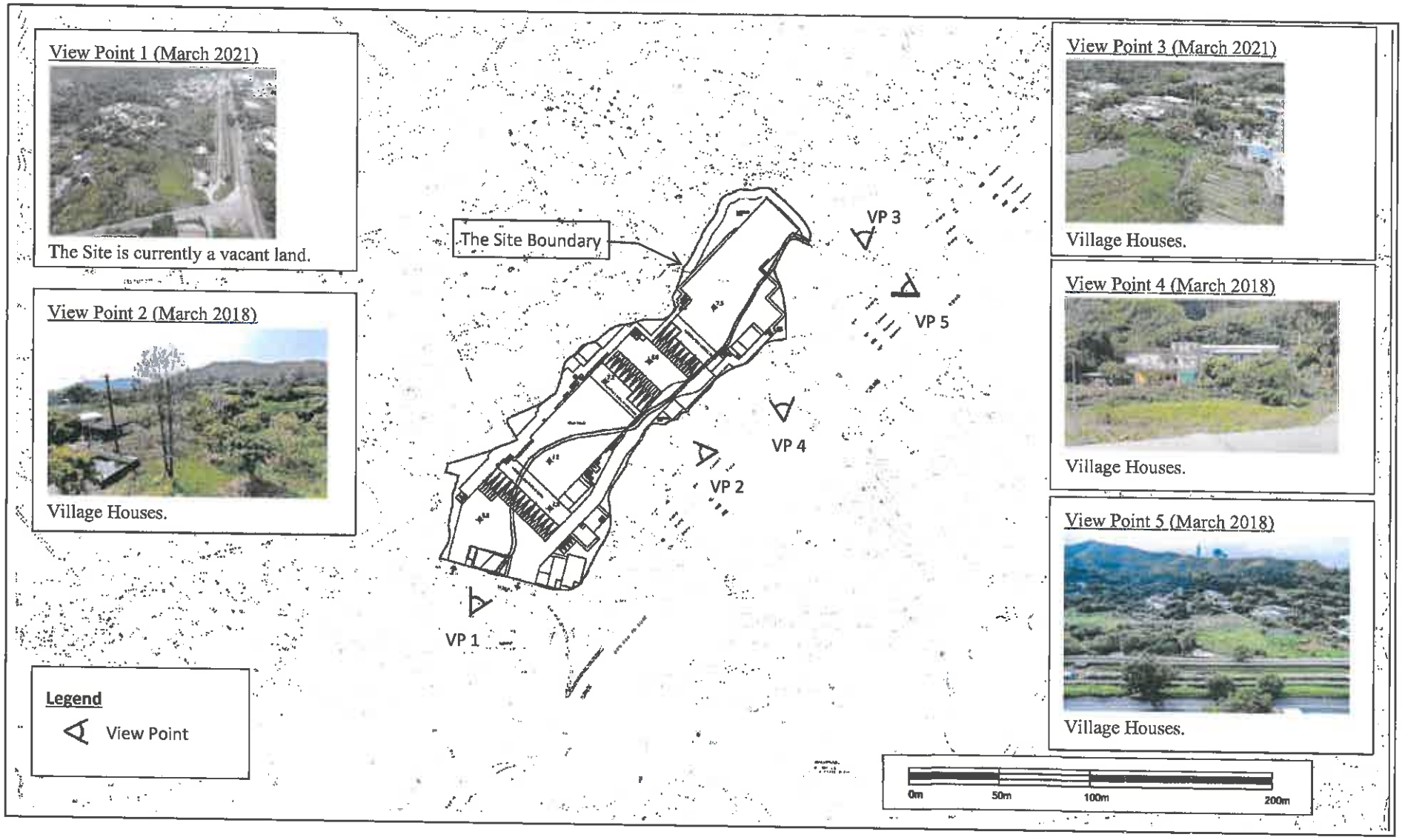
5.6.1 With the development of WMP and to implement the good site practices recommended therein, the waste generation during construction phase can be greatly reduced. Provided that good site practices as recommended in ***Section 5.4*** will be followed, there should be no adverse impacts related to the management, handling and transportation of waste during the construction and reinstatement phase.

5.6.2 During the operation phase, the major type of waste generated will be commercial wastes. Since commercial waste will be collected on a regular basis by registered waste collectors and will be disposed at a landfill managed by EPD, no adverse waste impacts from handling, transportation or disposal are anticipated during operation.

5.6.3 With the implementation of the recommended mitigation measures, adverse waste impacts generated during the construction and operational phases of the Proposed Development are not anticipated.

5.6.4 There was no previous development with potential land contamination activities on the Site. Hence, no land contamination issue is anticipated.

Figure 5-2: Site Inspection Photos of the Project Site and Surrounding Environment



6 CONCLUSIONS AND RECOMMENDATIONS

6.1.1 This EA has indicated that the Proposed Development will not generate any unacceptable environmental impacts during construction and operation phases, provided that all the recommended mitigation measures and good site practice are strictly implemented. The Applicant of the Proposed Development is committed to providing, implementing and maintaining all the mitigation measures as recommended in this EA Report. No temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction, operation and reinstatement of the Proposed Development will be carried out.

6.1.2 Specific conclusions for air quality, noise, water quality and waste management are as follows:

Air Quality

6.1.3 With the implementation of the recommended mitigation measures and good site practice, adverse impacts during the construction phases are not anticipated.

6.1.4 No adverse air quality impact on the Proposed Development is anticipated with the implementation of the proposed mitigation measures during the operation phase.

6.1.5 Overall, therefore, no adverse air quality impact is anticipated during the construction or operation phases of the Proposed Development.

Noise

6.1.6 During the construction phase of the Proposed Development, with the implementation of the noise mitigation measures recommended in ***Section 3.2***, no adverse noise impact is anticipated.

6.1.7 Quantitative assessment for the fixed noise sources during operation phase was conducted. The results show that the noise from the fixed sources of the Proposed Development is expected to comply with the relevant noise criterion after implementing proper mitigation measure, such as enclosing the loading/unloading platforms with a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2) with plastic strip doors installed to the opening side of the platforms, provision of complete enclosure with silencers to the condenser, orientation of the opening of enclosures, erection of a 5m barrier (i.e. NB1) next to segments 4 to 9, a 10m barrier (i.e. NB2) next to NSR IN12 and a 12m barrier (i.e. NB3) and cover connecting Main Block.

6.1.8 Quantitative assessment for the off-site road traffic noise was also conducted. With comparing the noise impacts between the scenarios of with and without the Proposed Development in Year 2018, the results show that the Proposed Development would not generate over 1.0 dB(A) or more contribution to the road traffic noise on the surrounding NSRs. Therefore, the traffic noise impact on the NSRs is considered to be insignificant.

6.1.9 Overall, therefore, there will be no adverse noise impact during the construction and operation phases of the Proposed Development.

Water Quality

6.1.10 During construction including filling activities and reinstatement, water quality impacts will be properly controlled with the implementation of good site practice. Portable toilets, when necessary, will be provided for construction/reinstatement workers on-site. Provided these measures are implemented, adverse water quality impact is not anticipated during the construction/reinstatement phases. The Contractor shall apply for a Discharge Licence under the

WPCO and the effluent discharged from the construction site shall comply with the terms and conditions of the Discharge Licence.

6.1.11 During operation, no adverse water quality impact is anticipated from the Proposed Development since sewage generated from staff and wastewater generated from floor cleaning by mopping will be collected by wastewater holding tanks and tankered away with adequate frequency for offsite disposal by licenced collectors. Moreover, there will be no adverse water quality impact due to runoff with the provision and implementation of the recommended mitigation measures for non-point sources.

6.1.12 Should there be any significant changes to Proposed Development resulting in potential adverse water quality impact; or any major changes to the mitigation measures for water pollution recommended in this EA Report, a revised EA Report incorporating the assessments for such significant changes to the Proposed Development and updated mitigation measures shall be prepared and submitted to the satisfaction of EPD. The technical feasibility and impacts on the surrounding environment, in particular the watercourses will be considered. The Applicant will ensure no construction works and operation activities under the final design of the Project would adversely affect the surrounding environment, including watercourses on site and in the vicinity.

Waste Management

6.1.13 With the provision and implementation of the good site practices recommended therein, the waste generation during construction phase will be reduced. Provided that good site practices are followed, there should be no adverse impacts related to the management, handling and transportation of waste during the construction and reinstatement phase.

6.1.14 During the operation phase, the major type of waste generated will be commercial waste. Since commercial waste will be collected on a regular basis by registered collectors and will be disposed of at landfill, no adverse waste impacts from handling, transportation or disposal are anticipated during the operation phase.

6.1.15 The Site is currently a vacant land and majority of the Site is covered by vegetation. Part of the Site was used for agriculture use in the past. Since there was no previous development with potential land contamination activities on the Site. Hence, no land contamination issue is anticipated.

Mitigation Measures

6.1.16 The mitigation measures recommended to be implemented for different environmental aspects are summarised below:

Table 6.1: Mitigation Measures for Potential Environmental Impact

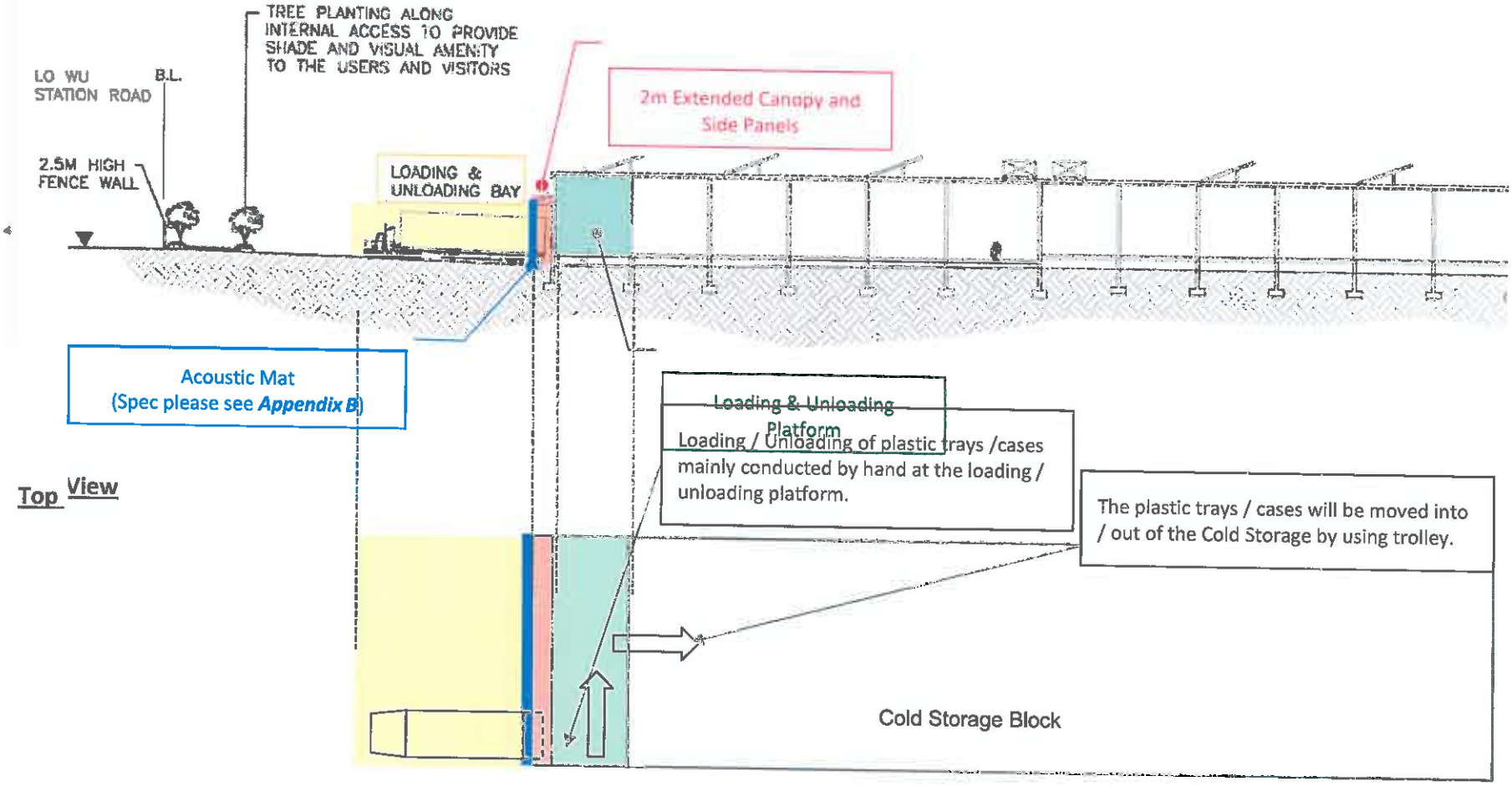
ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
Air	<u>During Construction Phase:</u> The good practice and dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation* shall be implemented. The good engineering practice as specified in EPD's Recommended Pollution Control Clause ("RPCC") for Construction Contract in COP should be incorporated in the relevant works contract. For the emergency generator, the chimney design shall comply with the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations.*

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
	During Operation Phase: A buffer zone of 5m shall be provided between Man Kam To Road / Lo Wu Station Road and the Proposed Development as follows: - No fresh air intake / openable window of air sensitive uses shall be located within the buffer zone. - Any air sensitive uses within buffer zone shall rely on fresh air intake / openable window located out of the buffer zone for ventilation.
Noise	During Construction Phase: The measures recommended in *ProPECC PN2/93* shall be implemented in accordance with Section 3.2.2 of the EA Report. If construction work involving the use of PME will be required during restricted hours, a Construction Noise Permit (CNP) shall be applied for under the *Noise Control Ordinance* (NCO). The good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The general requirements are summarised in Section 3.2.4 of the EA Report. Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project. The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented. Measures that are to be taken to protect adjacent school and adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise. The barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228(1984). The location and details of the barriers shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers. During Operation Phase: The loading/unloading platforms will be enclosed by a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2). No loading/unloading activities will be undertaken at open area. Acoustic mat (minimum surface density of 7kg/m^2) will be provided to the opening side of the platforms. Limit only a maximum of number of 1 veh/ hr of LGV that can run in and out of the Site in night time period Limit only a maximum of number of 5 veh/hr of MGV that can run in and out for the Site in evening time period Limit only a maximum of number of 16 veh/hr of CV/ HGV that can run in and out for the Site in day time period A 5m barrier (i.e. NB1) along road side of the southeast of the Site A 10m barrier (i.e. NB2) along road side of north of the Site A 12 barrier (i.e. NB3) and cover connecting Main Block A semi-enclosure with silencers should be installed for the condensers.

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
Water	<u>During Construction Phase:</u> Adequate capacity and number of portable toilets should be provided for construction workers. Adequate frequency of disposal of sewage by licensed contractor would be provided Earth bunds or sand bag barriers shall be provided along the watercourse. Channels along the watercourses and site boundary shall be also provided to collect and direct the muddy runoff to the wastewater treatment facilities for treatment prior to being discharged. The design of the construction site drainage system shall be independent from the existing watercourse. The construction contractor shall follow good site practice and be responsible for the design construction, operation and maintenance of all the mitigation measures a specified in ProPECC PN 1/94 for construction site drainage. The good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. Measures recommended in Appendix D of ETWB No.5/2005 Protection of natural streams/rivers from adverse impacts arising from construction works shall be also implemented by Contractor to the construction works in the vicinity of natural rivers and streams. Detailed design of the platform and boundary of the construction site would consider avoidance of encroaching and adversely affecting the existing watercourse, maximising the distance between the works/development site and the existing watercourse, and providing sufficient buffer distance from the water during construction. <u>During Operation Phase:</u> Sewage generated from the staff and wastewater generated from floor cleaning by mopping will be collected by wastewater storage tanks and tankered away for offsite disposal by licenced collectors. All operation activities of the Proposed Development shall be carried out within the cold store buildings and on the roads, sufficient buffer distance from the water shall be provided during operation. Silt/sand traps and oil interceptors should be provided for the drainage systems of open areas whilst oil interceptors should be installed for the system of covered loading/unloading area in accordance with the relevant government guidelines. Trash screens will be provided at the inlet and outlet of the stormwater storage tank to prevent debris. Only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided Small amount (i.e. less than $10m^3$) of the water inside the cooling system would be discharged as toilet flushing water. Moreover, water sampling and water quality test will be conducted before the discharge to the portable toilet and to ensure it will comply with the requirements stipulated in the *Water Pollution Control Ordinance and its Technical Memorandum for discharge* which is also required by the

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
	EMSD's Code of Practice.
Waste Management	<u>During Construction Phase:</u> A Waste Management Plan ("WMP") should be developed by the contractor and submitted to the Project Engineer / Architect for approval in accordance with ADV-19 before the commencement of any construction works. A trip-ticket system should be established in accordance with DevB TC(W) No. 6/2010 and the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the construction contractor to remove general refuse from the Site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" materials. Follow the good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. Additional measures shall be implemented when inclement weather is forecast in accordance with ***paragraph 5.4.9*** of the EA Report. <u>During Operation Phase:</u> The centre management shall encourage reuse and recycling of commercial wastes in line with government policy. The waste management hierarchy shall be adopted by the building management to manage commercial wastes in a sustainable manner. The waste management hierarchy is a concept which shows the desirability of various waste management methods and comprises the following in order of preference: - Avoidance. - Minimisation. - Recycling/reuse. Commercial wastes shall be collected and stored in appropriate waste receptacles with a secure lid to minimise the potential adverse impact due to wind blowing away garbage and to improve hygiene. Recyclable and non-recyclable waste shall be regularly collected by licensed waste collectors and taken off-site for recycling or disposal, respectively.

Appendix A CONCEPTUAL DESIGN OF THE MITIGATION MEASURES AT LOADING/UNLOADING AREAS


TREE PLANTING ALONG INTERNAL ACCESS TO PROVIDE SHADE AND VISUAL AMENITY TO THE USERS AND VISITORS
LO WU STATION ROAD
B.L.
2.5M HIGH FENCE WALL
LOADING & UNLOADING BAY
2m Extended Canopy and Side Panels
Acoustic Mat
(Spec please see Appendix B)
Loading & Unloading Platform
Loading / Unloading of plastic trays /cases mainly conducted by hand at the loading / unloading platform.
The plastic trays / cases will be moved into / out of the Cold Storage by using trolley.
Cold Storage Block
Top View

Appendix B **EXAMPLE OF ACOUSTIC MAT MATERIAL**

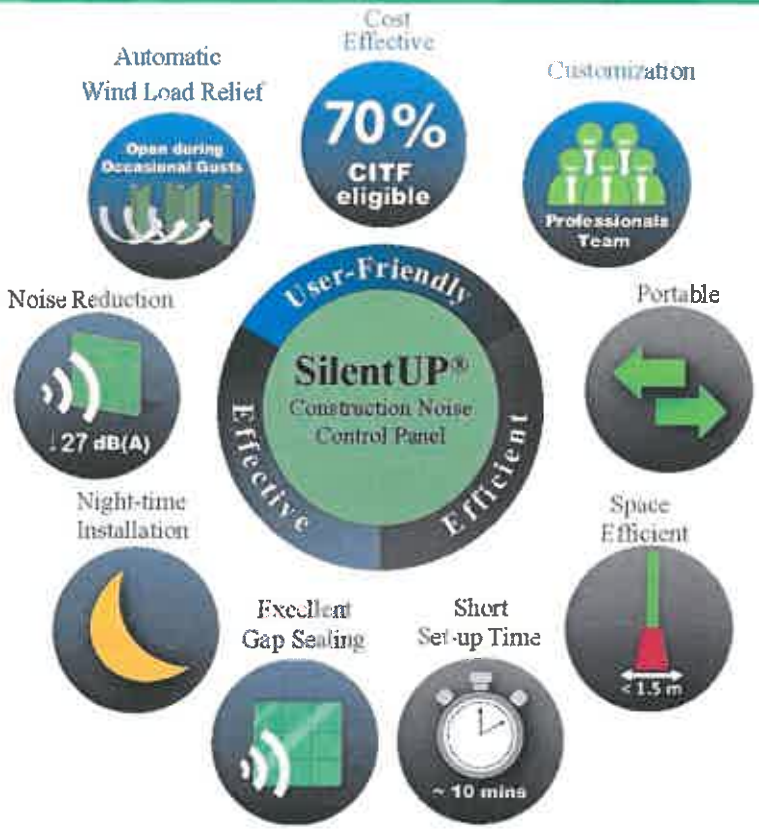
Acoustics Innovation

SilentUP®

Product Description

SilentUP® is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references aihk.hk/SilentUP/reference.



Benefits

- Minimize noise complaints
- Quiet and manual installation
- No concrete foundation required
- Flexible construction site planning
- Facilitate Construction Noise Permit (CNP) application process

Technical Information

SilentUP® noise barrier material conforms to **the flammability requirement specifications.**

BS5867-2:2008 TYPE B
GF8624

Product Specification

STC	18	24
Insertion Loss*	22 dB(A)	27 dB(A)
Modular Weight	5kg	8kg
Maximum Height	7m	5m
Modular Size	1m(H) x	35m(W)
Standard Colour	Grey	
Panel Thickness	100mm	on edges

* Tested with white noise source

CITF 建造業創科基金
CITF Pre-approved Product

Eligible contractors can apply for CITF.
citf.cic.hk

Client Feedback

"Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful – lightweight, easy to manoeuvre, and fit for purpose."

Richard Kwan
Former Environment Manager
MTR Corporation Ltd

"We are impressed by SilentUP's quick installation and relocation. It is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities."

Lighting Chan
Environmental Compliance Support Manager
Leighton Asia Ltd

"We are happy with Acoustics Innovation's professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals."

Ronald Fung
Project QA & Environmental Manager
Kier - Laing O'Rourke - Kaden Joint Venture

"SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs."

Clarence Yeung
Environmental Officer
Shun Wo Construction and Engineering Co. Ltd

Installation videos available at aihk.hk/youtube

aihk.hk | info@aihk.hk | (852) 2702-2007

R&D Division of Wilson Acoustics Limited

Appendix C BACKGROUND NOISE MONITORING

nd Noise Monitroing Location - BG1

Start Time	Measurement Time	Period	Leq	Lmax	Lmin	L10	L90		L90 (1hr)
9/10/2018 16:03	00d 00:30:00.0	Day	58.3	83.1	41.2	58.2	47.9		47.1
9/10/2018 16:33	00d 00:30:00.0	Day	54.4	67.8	40.6	57.7	46.4		
9/10/2018 17:03	00d 00:30:00.0	Day	53.4	66.2	40.8	56.5	47.8		47.6
9/10/2018 17:33	00d 00:30:00.0	Day	52.7	64.7	41	55.6	47.4		
9/10/2018 18:03	00d 00:30:00.0	Day	52.7	65.6	38.5	55.8	46	Not Use	48
9/10/2018 18:33	00d 00:30:00.0	Day	53.7	65.2	46.8	56.5	49.4		
9/10/2018 19:03	00d 00:30:00.0	Evening	52.8	64.1	43.5	55.9	47.5		46.4
9/10/2018 19:33	00d 00:30:00.0	Evening	52.1	64.3	40.5	55.1	45.3		
9/10/2018 20:03	00d 00:30:00.0	Evening	52.4	65.8	41.2	55.5	46		46.2
9/10/2018 20:33	00d 00:30:00.0	Evening	52.9	69.6	41.1	56.1	46.4		
9/10/2018 21:03	00d 00:30:00.0	Evening	52.7	70.2	41.4	55.6	45.9		42.9
9/10/2018 21:33	00d 00:30:00.0	Evening	49.4	72.5	39.1	52.6	41.8		
9/10/2018 22:03	00d 00:30:00.0	Evening	46.2	60.2	37.7	49.4	40.2	Not Use	40
9/10/2018 22:33	00d 00:30:00.0	Evening	45.9	59.4	36.9	49.1	39.9		
9/10/2018 23:03	00d 00:30:00.0	Night	46.4	65.7	36.3	49.5	39.4		39.9
9/10/2018 23:33	00d 00:30:00.0	Night	47.1	64.6	36.6	50.3	40.8		
10/10/2018 0:03	00d 00:30:00.0	Night	47.5	62.5	36.4	51.1	40.7		39.2
10/10/2018 0:33	00d 00:30:00.0	Night	43.8	59.4	36.4	47	38.6		
10/10/2018 1:03	00d 00:30:00.0	Night	43.7	57	35.7	47	38.1		38.6
10/10/2018 1:33	00d 00:30:00.0	Night	45.1	62.4	35.8	48	39.1		
10/10/2018 2:03	00d 00:30:00.0	Night	41.6	57.9	34.6	43.6	36.4		36.1
10/10/2018 2:33	00d 00:30:00.0	Night	40.3	56.7	33.7	42.4	35.8		
10/10/2018 3:03	00d 00:30:00.0	Night	40.6	55.6	33	43.3	34.7		35
10/10/2018 3:33	00d 00:30:00.0	Night	46.5	63.1	33.3	49.4	35.5		
10/10/2018 4:03	00d 00:30:00.0	Night	42.7	64.4	35.1	44	36.9		36.8
10/10/2018 4:33	00d 00:30:00.0	Night	42.9	67.6	35.2	43.8	36.8		
10/10/2018 5:03	00d 00:30:00.0	Night	43.8	64.5	34.9	45.2	37.2		37.7
10/10/2018 5:33	00d 00:30:00.0	Night	50.6	71.6	36.8	52.8	39.1		
10/10/2018 6:03	00d 00:30:00.0	Night	54.1	73.8	39.2	55.1	41.8	Not Use	42.3
10/10/2018 6:33	00d 00:30:00.0	Night	51.0	66	39.3	54.8	42.9		
10/10/2018 7:03	00d 00:30:00.0	Day	54.2	70.1	40.8	57.4	47.4		48
10/10/2018 7:33	00d 00:30:00.0	Day	54.5	68.3	42	57.5	48.8		
10/10/2018 8:03	00d 00:30:00.0	Day	53.5	66	40.5	57	46.4		46.2
10/10/2018 8:33	00d 00:30:00.0	Day	53.1	71.4	38.8	56.3	46		
10/10/2018 9:03	00d 00:30:00.0	Day	54.8	72.7	39.8	57.5	46.8		46.4
10/10/2018 9:33	00d 00:30:00.0	Day	56.9	77.5	39.2	57.9	46.4		
10/10/2018 10:03	00d 00:30:00.0	Day	59.4	88.2	41.7	57.4	46.3		46.8
10/10/2018 10:33	00d 00:30:00.0	Day	56.7	75.2	41.7	58	47.8		
10/10/2018 11:03	00d 00:30:00.0	Day	54.5	66.9	41.1	57.5	49.5		49
10/10/2018 11:33	00d 00:30:00.0	Day	71.6	93.1	44.2	68.5	48.6		
10/10/2018 12:03	00d 00:30:00.0	Day	53.2	63.6	41.8	56.2	48.4		48.4
10/10/2018 12:33	00d 00:30:00.0	Day	54.5	65.3	40.7	57.6	48.2		
10/10/2018 13:03	00d 00:30:00.0	Day	54.5	65.4	41.4	57.7	48.3		48.0901
10/10/2018 13:33	00d 00:30:00.0	Day	53.8	70.3	41.5	56.4	48		
10/10/2018 14:03	00d 00:30:00.0	Day	54.1	79.9	39.1	56.8	45.7		46.5
10/10/2018 14:33	00d 00:30:00.0	Day	53.7	69.3	42.3	56.7	47.1		
10/10/2018 15:03	00d 00:30:00.0	Day	55.3	73.5	38.8	58.4	46.9		48.2
10/10/2018 15:33	00d 00:30:00.0	Day	58.0	82.7	41.1	60.1	49.3		

Minmum Noise Level, dB(A)	Leq	Lmax	Lmin	L10	L90	Average	L90
Day	52.7	63.6	38.5	55.6	45.7		47.5
Evening	45.9	59.4	36.9	49.1	39.9		45.2
Night	40.3	55.6	33.0	42.4	34.7		37.6

Background Noise Monitroing Location - BG2

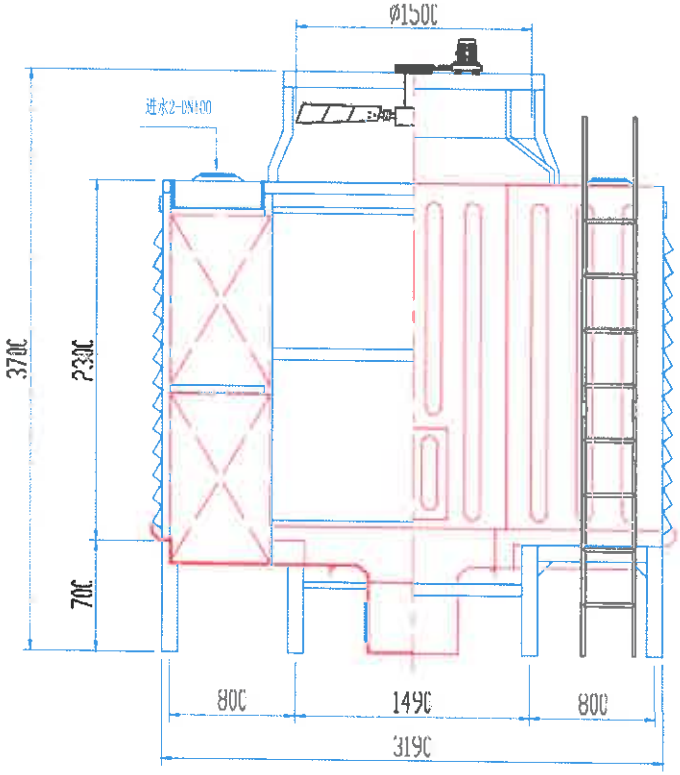
Address	Start Time	Measurement Time	Period	Leq	Lmax	Lmin	L10	L90		L90 (1 hr)
1	9/10/2018 15:45	00d 00:30:00.0	Day	63.4	80.2	42.5	68	53.4		54
2	9/10/2018 16:15	00d 00:30:00.0	Day	63.0	79.1	45.8	67.7	54.6		
3	9/10/2018 16:45	00d 00:30:00.0	Day	62.7	78.9	43.5	67.4	52.3		53.6
4	9/10/2018 17:15	00d 00:30:00.0	Day	62.7	79.3	43.6	67.2	55.2		
5	9/10/2018 17:45	00d 00:30:00.0	Day	61.9	82.5	40.5	66.3	54.3		51.9
6	9/10/2018 18:15	00d 00:30:00.0	Day	61.7	74.5	39.5	66.8	49.3		
7	9/10/2018 18:45	00d 00:30:00.0	Not Use	61.7	76.2	43.1	66.8	51.5	Not Use	50.1
8	9/10/2018 19:15	00d 00:30:00.0	Evening	61.4	76.3	41.5	66.2	48.4		
9	9/10/2018 19:45	00d 00:30:00.0	Evening	62.1	78.7	39.8	66.7	50.8		50
10	9/10/2018 20:15	00d 00:30:00.0	Evening	61.6	76.1	40.7	66.4	49.2		
11	9/10/2018 20:45	00d 00:30:00.0	Evening	62.0	79.8	40.6	66.4	51.1		47.1
12	9/10/2018 21:15	00d 00:30:00.0	Evening	59.8	75.2	39.5	65.2	45.2		
13	9/10/2018 21:45	00d 00:30:00.0	Evening	56.4	83.5	39.1	61.8	41.9		41.6
14	9/10/2018 22:15	00d 00:30:00.0	Evening	54.0	66.3	38.9	60.5	41.2		
15	9/10/2018 22:45	00d 00:30:00.0	Not Use	53.5	74.5	38.1	60	40.1	Not Use	40.1
16	9/10/2018 23:15	00d 00:30:00.0	Night	53.2	67.6	38.2	59.9	40		
17	9/10/2018 23:45	00d 00:30:00.0	Night	53.3	67.2	38.6	60	40.5		40
18	10/10/2018 0:15	00d 00:30:00.0	Night	52.9	69.9	38.3	60	39.8		
19	10/10/2018 0:45	00d 00:30:00.0	Night	49.2	66.3	38.1	55.7	39.2		39.3
20	10/10/2018 1:15	00d 00:30:00.0	Night	49.2	68.4	37.8	55.1	39.4		
21	10/10/2018 1:45	00d 00:30:00.0	Night	50.5	70.3	37.4	57.1	38.5		38.3
22	10/10/2018 2:15	00d 00:30:00.0	Night	44.1	62.3	37.1	49.8	38.2		
23	10/10/2018 2:45	00d 00:30:00.0	Night	48.2	67.5	37.2	53.6	38.8		39
24	10/10/2018 3:15	00d 00:30:00.0	Night	49.3	66.7	37.1	55.8	39.2		
25	10/10/2018 3:45	00d 00:30:00.0	Night	48.5	72.7	37.7	52.9	39.9		40.3
26	10/10/2018 4:15	00d 00:30:00.0	Night	46.4	69.3	38.2	48.6	40.8		
27	10/10/2018 4:45	00d 00:30:00.0	Night	47.6	64.1	39.5	53.9	41.9		42.1
28	10/10/2018 5:15	00d 00:30:00.0	Night	51.4	69.4	40	57.9	42.4		
29	10/10/2018 5:45	00d 00:30:00.0	Night	56.1	73	41	62.7	44.5		45.3901
30	10/10/2018 6:15	00d 00:30:00.0	Night	58.6	74.1	42.9	64.4	46.9		
31	10/10/2018 6:45	00d 00:30:00.0	Not Use	61.6	82.2	42.8	67.2	49.4	Not Use	52.6
32	10/10/2018 7:15	00d 00:30:00.0	Day	63.9	76.5	48.5	68.3	56.5		
33	10/10/2018 7:45	00d 00:30:00.0	Day	62.3	78.4	45.6	67.1	54		53.6
34	10/10/2018 8:15	00d 00:30:00.0	Day	62.4	79.3	45.1	67.3	53.2		
35	10/10/2018 8:45	00d 00:30:00.0	Day	63.3	77.8	43.8	68.1	53.2		53.1
36	10/10/2018 9:15	00d 00:30:00.0	Day	63.4	77.5	43.4	68.3	53		
37	10/10/2018 9:45	00d 00:30:00.0	Day	63.8	81.4	43.5	68.4	52.3		52.4
38	10/10/2018 10:15	00d 00:30:00.0	Day	62.5	75.2	43.9	67.6	52.5		
39	10/10/2018 10:45	00d 00:30:00.0	Day	64.6	81.1	43.6	68.8	54.6		55.9
40	10/10/2018 11:15	00d 00:30:00.0	Day	62.6	78.4	51.5	66.9	56.8		
41	10/10/2018 11:45	00d 00:30:00.0	Day	62.8	75.8	52	67.6	55.2		54.3
42	10/10/2018 12:15	00d 00:30:00.0	Day	61.8	78.5	44.2	66.4	52.7		
43	10/10/2018 12:45	00d 00:30:00.0	Day	64.0	77	44.8	68.5	54.8		55.1
44	10/10/2018 13:15	00d 00:30:00.0	Day	63.0	74.7	47.4	67.5	55.3		
45	10/10/2018 13:45	00d 00:30:00.0	Day	64.2	91.2	43.5	67.4	53.9		52.6
46	10/10/2018 14:15	00d 00:30:00.0	Day	61.9	74.7	43.7	66.8	51.9		
47	10/10/2018 14:45	00d 00:30:00.0	Day	63.3	85.2	43.7	67.9	53.5		53.6
48	10/10/2018 15:15	00d 00:30:00.0	Day	62.4	78.1	43.1	67.1	53.5		

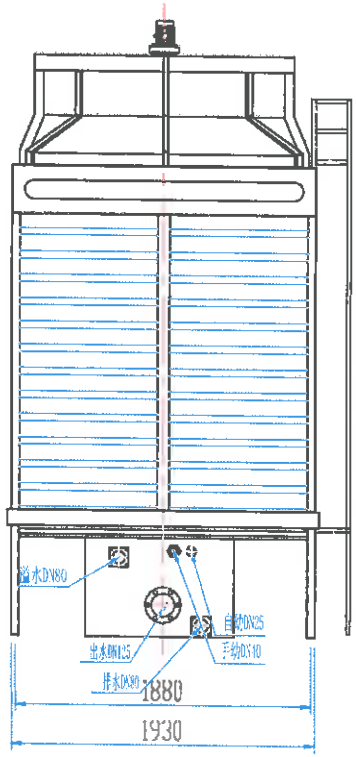
Minimum Noise Level, dB(A)	Leq	Lmax	Lmin	L10	L90	Average	L90
Day	61.6	74.5	39.5	66.3	49.3		53.6
Evening	54.0	66.3	38.9	60.5	41.2		46.2
Night	44.1	62.3	37.1	48.6	38.2		40.6

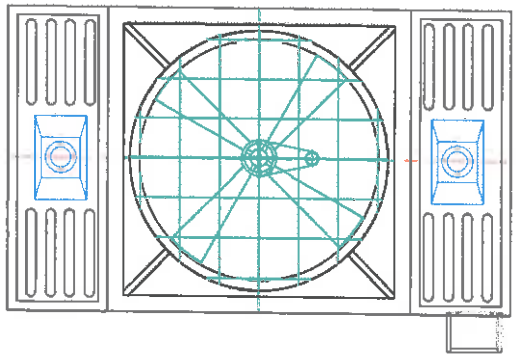
Appendix D **CATALUGUE OF WATER COOLING TOWER**

FT-1OOL/ SB 型技未參數惡表

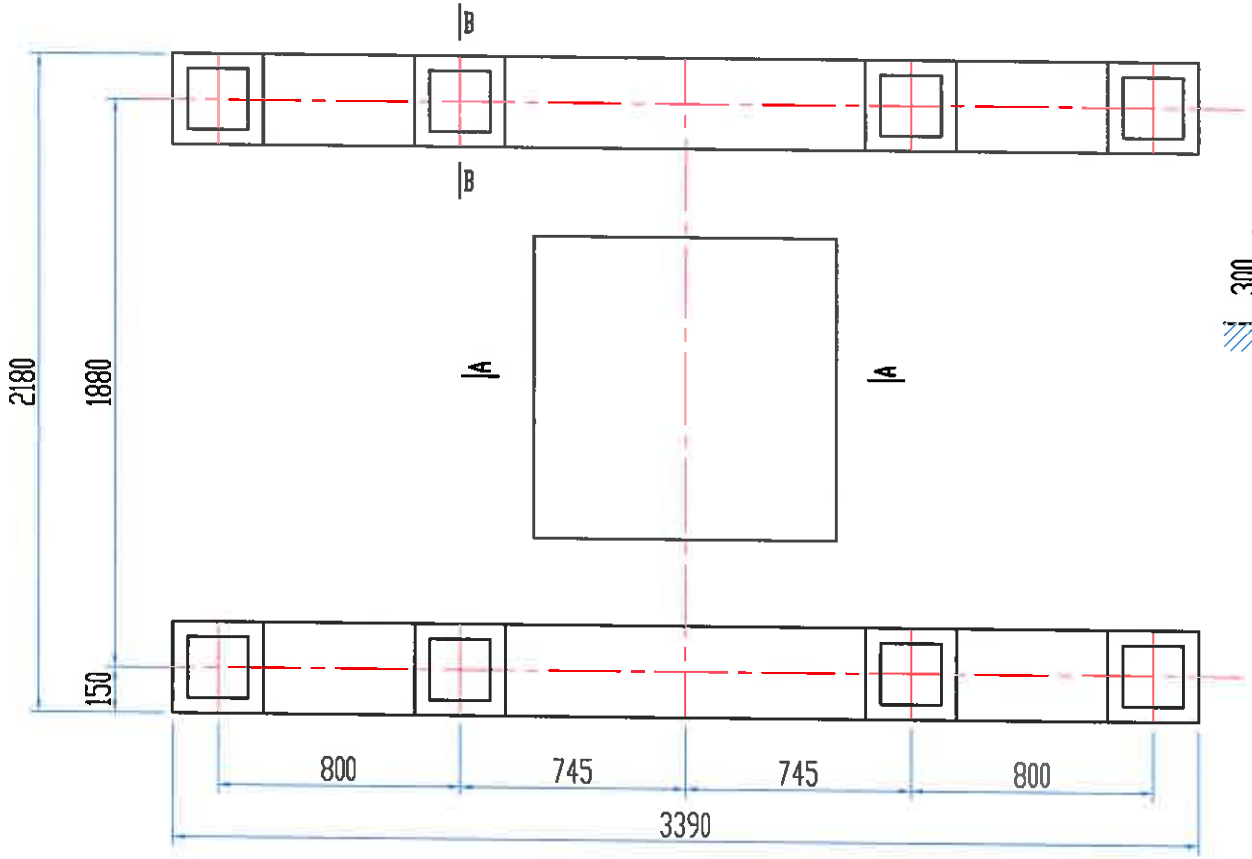
璜目	内　　容	敖　　据	各　　注
基本參敷	冷却塔类型	横流式方形水塔	
	冷却塔型另	FT-1OOL/SB	低噪音型
	单台冷却循环水量	100m 1 h	
	惡冷却循环水溢	100 記 / h	
	进水温度/出水温度	37°C / 32°C	降温 5°C
	环境干球/湿球温度	31. 5°C / 28°C	
	冷却能力	500,000 kca 1 / h	
	噪音值	64. OdB (A)	16 米処
	电源	380V 丨 3P / 50Hz	
	水痰要求	P H值 = 6 一 8	
没计參敷	氣比	0. 78 kg/ kg	
	水阻	49Kpa	
	弋水换失	O. 005%	
	蒸友掂失	O. 833%	
	渔重/军行重量 (吧)	0. 86/ 2. 26	
风机參敷	风扇形式	紬流式	
	风量	65, 000m h	
	风扇特速	410r/min	
	风吐直禋 (Cl))	1, 500 mm	
	叶片数呈	1 套	4片/套
	电机形式	全封困防水型	
	侍劫方式	带侍劫	
	电机功率	4. 0 kW (5HP- 4P)	
	甩机极救	4P	
	电机启动方式	直接启劫	
主要尺寸	板X宽X高 (L X W X H)	1, 930X3, 190X 3, 700 mm	
	进水管尺寸 (ON)	100mm	共 2 套
	出水管尺寸 (DN)	125mm	
	溢水管/排水管尺寸 (DN)	80mm 丨 80mm	
	自劫/手劫朴水尺寸 (DN)	25mm 丨 4 0mm	
材原	箱体	玻璃铜	优原玻璃釬维毯和柯脂合成
	围板		
	洒水系统		
	水盆、水缸		
	皮带	夏合材料	
	风扇	鋁合金	大弦弧
	电机	全封朗防水型	
	股片	P. V. C. 材料	阻燃型
	鉄框架、电机架	熟浸鍍钅 辛铜	符合英国 BS EN 10346:1999 标准

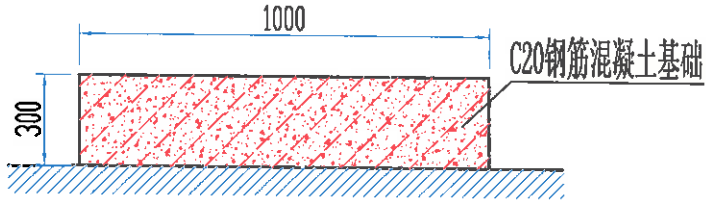




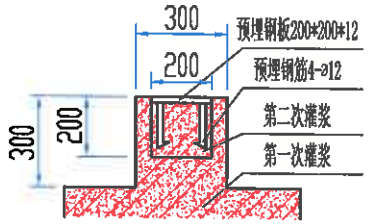


						100L/SB		
标记	处数	更改文件号	签字	日期				
制图	OXO	标准化			图样标记	重量	比例	方形横流式冷却塔外形图
设计		批准					1:15	
审核		日期	2017/08/13					100L/SB-02-C1-A
工艺		版本	A		共 张	第 张		





基础A-A



基础B-B

基础制作注意事项：

1、横梁承载，参考冷却塔运行重量以及设计的安装系数，

校核安装地基的承载能力。

2、预埋钢板表面水平误差±2mm。

3、如有疑问，可来电技术部咨询。

						FT-100L/SB		广林冷却塔
标记	处数	更改文件号	签字	日期				
制图		OZQ	标准化			图样标记	重量	比例	方形横流式冷却塔基础图
设计			批准					1:15	
审核			日期	2017/03/04					
工艺			版本	A		共 张	第 张		FT-100L/SB-01-A

Appendix E **DETAILS OF VEHICLE MOVEMENT**

Use of Road Segments by Different Vehicle Types

Road Segment ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Container Vehicle/ Heavy Goods Vehicles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Medium Goods Vehicles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Light Goods Vehicle, Van	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Hourly Trips of Vehicle on each Road Segment – during the peak of the corresponding time period

Segment ID	Description	Trips/hr (Day)		Trips/hr (Evening)			Trips/hr (Night)	
		Container Vehicle/ MGV	LGV, van	MGV	LGV, van		MGV	LGV, van
S1	One-Way	16	0	5	0	0	0	1
S2	One-Way	16	0	5	0	0	0	1
S3	One-Way	16	0	5	0	0	0	1
S4	One-Way	16	0	5	0	0	0	1
S5	Two-way	32	0	10	0	0	0	2
S6	Two-way	32	0	10	0	0	0	2
S7	Two-way	32	0	10	0	0	0	2
S8	Two-way	32	0	10	0	0	0	2
S9	Two-way	32	0	10	0	0	0	2
S10	Two-way	32	0	10	0	0	0	2

Appendix F NOISE CALCULATIOS OF FIXED SOURCE

IN1 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	81.2	105	16	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	37.2
	L	81.2	101	0	22.5	15	-19.1	-9.0	-10		3	0
S2	C	66.9	105	16	12.7	15	-18.3	-11.5	-10		3	35.5
	L	66.9	101	0	12.7	15	-18.3	-11.5	-10		3	0
S3	C	53.7	105	16	16.5	15	-17.3	-10.4	-10		3	37.6
	L	53.7	101	0	16.5	15	-17.3	-10.4	-10		3	0
S4	C	54.4	105	16	12.1	15	-17.4	-11.7	-10		3	36.2
	L	54.4	101	0	12.1	15	-17.4	-11.7	-10		3	0
S5	C	43.0	105	32	0.2	15	-16.3	-29.7	-10		3	22.3
	L	43.0	101	0	0.2	15	-16.3	-29.7	-10		3	0
S6	C	21.1	105	32	82.1	15	-13.2	-3.4	-10		3	51.6
	L	21.1	101	0	82.1	15	-13.2	-3.4	-10		3	0
S7	C	27.3	105	32	35.7	15	-14.4	-7.0	-10		3	46.9
	L	27.3	101	0	35.7	15	-14.4	-7.0	-10		3	0
S8	C	60.3	105	32	15.8	15	-17.8	-10.6	-10		3	39.9
	L	60.3	101	0	15.8	15	-17.8	-10.6	-10		3	0
S9	C	84.9	105	32	7.3	15	-19.3	-13.9	-10		3	35.1
	L	84.9	101	0	7.3	15	-19.3	-13.9	-10		3	0
S10	C	86.3	105	32	18.6	15	-19.4	-9.8	-10		3	39.1
	L	86.3	101	0	18.6	15	-19.4	-9.8	-10		3	0
											Total SPL, dB(A)	54

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	81.2	105	5	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	32.1
	L	81.2	101	0	22.5	15	-19.1	-9.0	-10		3	0
S2	M	66.9	105	5	12.7	15	-18.3	-11.5	-10		3	30.4
	L	66.9	101	0	12.7	15	-18.3	-11.5	-10		3	0
S3	M	53.7	105	5	16.5	15	-17.3	-10.4	-10		3	32.5
	L	53.7	101	0	16.5	15	-17.3	-10.4	-10		3	0
S4	M	54.4	105	5	12.1	15	-17.4	-11.7	-10		3	31.1
	L	54.4	101	0	12.1	15	-17.4	-11.7	-10		3	0
S5	M	43.0	105	10	0.2	15	-16.3	-29.7	-10		3	17.2
	L	43.0	101	0	0.2	15	-16.3	-29.7	-10		3	0
S6	M	21.1	105	10	82.1	15	-13.2	-3.4	-10		3	46.6
	L	21.1	101	0	82.1	15	-13.2	-3.4	-10		3	0
S7	M	27.3	105	10	35.7	15	-14.4	-7.0	-10		3	41.9
	L	27.3	101	0	35.7	15	-14.4	-7.0	-10		3	0
S8	M	60.3	105	10	15.8	15	-17.8	-10.6	-10		3	34.9
	L	60.3	101	0	15.8	15	-17.8	-10.6	-10		3	0
S9	M	84.9	105	10	7.3	15	-19.3	-13.9	-10		3	30.0
	L	84.9	101	0	7.3	15	-19.3	-13.9	-10		3	0
S10	M	86.3	105	10	18.6	15	-19.4	-9.8	-10		3	34.0
	L	86.3	101	0	18.6	15	-19.4	-9.8	-10		3	0
											Total SPL, dB(A)	49

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	81.2	105	0	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	0
	L	81.2	101	1	22.5	16	-19.1	-9.0	-10		3	20.8
S2	M	66.9	105	0	12.7	17	-18.3	-11.5	-10		3	0
	L	66.9	101	1	12.7	18	-18.3	-11.5	-10		3	18.7
S3	M	53.7	105	0	16.5	19	-17.3	-10.4	-10		3	0
	L	53.7	101	1	16.5	20	-17.3	-10.4	-10		3	20.3
S4	M	54.4	105	0	12.1	21	-17.4	-11.7	-10		3	0
	L	54.4	101	1	12.1	22	-17.4	-11.7	-10		3	18.5
S5	M	43.0	105	0	0.2	23	-16.3	-29.7	-10		3	0
	L	43.0	101	2	0.2	24	-16.3	-29.7	-10		3	4.2
S6	M	21.1	105	0	82.1	25	-13.2	-3.4	-10		3	0
	L	21.1	101	2	82.1	26	-13.2	-3.4	-10		3	33.2
S7	M	27.3	105	0	35.7	27	-14.4	-7.0	-10		3	0
	L	27.3	101	2	35.7	28	-14.4	-7.0	-10		3	28.2
S8	M	84.9	105	0	7.3	29	-19.3	-13.9	-10		3	0
	L	84.9	101	2	7.3	30	-19.3	-13.9	-10		3	16.0
S9	M	84.9	105	0	7.3	31	-19.3	-13.9	-10		3	0
	L	84.9	101	2	7.3	32	-19.3	-13.9	-10		3	15.8
S10	M	86.3	105	0	18.6	33	-19.4	-9.8	-10		3	0
	L	86.3	101	2	18.6	34	-19.4	-9.8	-10		3	19.5
											Total SPL, dB(A)	35

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	76	7	84.0	58.5	-43.3	0	Enclosure with silencer	-10	3	33.6
Condenser	Block 1 (NE)	76	6	83.3	70.4	-44.9	0	Enclosure with silencer	-10	3	31.4
Condenser	Block 2	76	6	83.3	160.8	-52.1	0	Enclosure with silencer	-10	3	24.2
										Total SPL, dB(A)	36

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	180.5	105	16	10.7	15	-22.6	-12.3	0		3	40.5
	L	180.5	101	0	10.7	16	-22.6	-12.3	0		3	0
S2	C	167.1	105	16	4.6	17	-22.2	-15.9	0		3	36.6
	L	167.1	101	0	4.6	18	-22.2	-15.9	0		3	0
S3	C	151.7	105	16	4.7	19	-21.8	-15.8	0		3	36.6
	L	151.7	101	0	4.7	20	-21.8	-15.8	0		3	0
S4	C	147.6	105	16	5.8	21	-21.7	-14.9	0		3	37.2
	L	147.6	101	0	5.8	22	-21.7	-14.9	0		3	0
S5	C	139.3	105	32	1.8	23	-21.4	-20.0	0		3	35.0
	L	139.3	101	0	1.8	24	-21.4	-20.0	0		3	0
S6	C	121.3	105	32	14.5	25	-20.8	-11.0	0	Nil	3	44.3
	L	121.3	101	0	14.5	26	-20.8	-11.0	0		3	0
S7	C	109.5	105	32	15.4	27	-20.4	-10.7	0		3	44.7
	L	109.5	101	0	15.4	28	-20.4	-10.7	0		3	0
S8	C	107.3	105	32	21.4	29	-20.3	-9.2	0		3	45.9
	L	107.3	101	0	21.4	30	-20.3	-9.2	0		3	0
S9	C	107.2	105	32	8.0	31	-20.3	-13.5	0		3	41.3
	L	107.2	101	0	8.0	32	-20.3	-13.5	0		3	0
S10	C	125.6	105	32	2.0	33	-21.0	-19.6	0		3	34.9
	L	125.6	101	0	2.0	34	-21.0	-19.6	0		3	0
											Total SPL, dB(A)	51

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	180.5	105	5	10.7	15	-22.6	-12.3	0		3	35.4
	L	180.5	101	0	10.7	16	-22.6	-12.3	0		3	0
S2	M	167.1	105	5	4.6	17	-22.2	-15.9	0		3	31.6
	L	167.1	101	0	4.6	18	-22.2	-15.9	0		3	0
S3	M	151.7	105	5	4.7	19	-21.8	-15.8	0		3	31.6
	L	151.7	101	0	4.7	20	-21.8	-15.8	0		3	0
S4	M	147.6	105	5	5.8	21	-21.7	-14.9	0		3	32.1
	L	147.6	101	0	5.8	22	-21.7	-14.9	0		3	0
S5	M	139.3	105	10	1.8	23	-21.4	-20.0	0		3	29.9
	L	139.3	101	0	1.8	24	-21.4	-20.0	0		3	0
S6	M	121.3	105	10	14.5	25	-20.8	-11.0	0	Nil	3	39.2
	L	121.3	101	0	14.5	26	-20.8	-11.0	0		3	0
S7	M	109.5	105	10	15.4	27	-20.4	-10.7	0		3	39.6
	L	109.5	101	0	15.4	28	-20.4	-10.7	0		3	0
S8	M	107.3	105	10	21.4	29	-20.3	-9.2	0		3	40.8
	L	107.3	101	0	21.4	30	-20.3	-9.2	0		3	0
S9	M	107.2	105	10	8.0	31	-20.3	-13.5	0		3	36.2
	L	107.2	101	0	8.0	32	-20.3	-13.5	0		3	0
S10	M	125.6	105	10	2.0	33	-21.0	-19.6	0		3	29.2
	L	125.6	101	0	2.0	34	-21.0	-19.6	0		3	0
											Total SPL, dB(A)	46

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	180.5	105	0	10.7	15	-22.6	-12.3	0		3	0
	L	180.5	101	1	10.7	16	-22.6	-12.3	0		3	24.1
S2	M	167.1	105	0	4.6	17	-22.2	-15.9	0		3	0
	L	167.1	101	1	4.6	18	-22.2	-15.9	0		3	20.3
S3	M	151.7	105	0	4.7	19	-21.8	-15.8	0		3	0
	L	151.7	101	1	4.7	20	-21.8	-15.8	0		3	20.4
S4	M	147.6	105	0	5.8	21	-21.7	-14.9	0		3	0
	L	147.6	101	1	5.8	22	-21.7	-14.9	0		3	21.0
S5	M	139.3	105	0	1.8	23	-21.4	-20.0	0		3	0
	L	139.3	101	2	1.8	24	-21.4	-20.0	0	Nil	3	18.7
S6	M	121.3	105	0	14.5	25	-20.8	-11.0	0		3	0
	L	121.3	101	2	14.5	26	-20.8	-11.0	0		3	28.1
S7	M	109.5	105	0	15.4	27	-20.4	-10.7	0		3	0
	L	109.5	101	2	15.4	28	-20.4	-10.7	0		3	28.5
S8	M	107.2	105	0	8.0	29	-20.3	-13.5	0		3	0
	L	107.2	101	2	8.0	30	-20.3	-13.5	0		3	25.4
S9	M	107.2	105	0	8.0	31	-20.3	-13.5	0		3	0
	L	107.2	101	2	8.0	32	-20.3	-13.5	0		3	25.1
S10	M	125.6	105	0	2.0	33	-21.0	-19.6	0		3	0
	L	125.6	101	2	2.0	34	-21.0	-19.6	0		3	18.1
											Total SPL, dB(A)	34

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	150.8	-51.6	0	Enclosure with silencer	-10	3	25.4
Condenser	Block 1 (NE)	75.5	6	83.3	141.2	-51.0	0	Enclosure with silencer	-10	3	25.3
Condenser	Block 2	75.5	6	83.3	164.0	-52.3	0	Enclosure with silencer	-10	3	24.0
										Total SPL, dB(A)	30

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN3-TemporaryStructure

TruckMovement-Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheilding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	192.3	105	16	9.5	15	-22.8	-12.8	0	Nil	3	39.7
	L	192.3	101	0	9.5	16	-22.8	-12.8	0		3	0
S2	C	177.7	105	16	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	26.8
	L	177.7	101	0	5.1	18	-22.5	-15.5	-10		3	0
S3	C	164.4	105	16	5.0	19	-22.2	-15.5	0		3	36.6
	L	164.4	101	0	5.0	20	-22.2	-15.5	0		3	0
S4	C	162.5	105	16	4.9	21	-22.1	-15.6	0		3	36.1
	L	162.5	101	0	4.9	22	-22.1	-15.6	0		3	0
S5	C	152.8	105	32	0.9	23	-21.8	-23.0	0		3	31.6
	L	152.8	101	0	0.9	24	-21.8	-23.0	0		3	0
S6	C	132.0	105	32	11.1	25	-21.2	-12.1	0		3	42.8
	L	132.0	101	0	11.1	26	-21.2	-12.1	0	Nil	3	0
S7	C	113.7	105	32	14.3	27	-20.6	-11.0	0		3	44.2
	L	113.7	101	0	14.3	28	-20.6	-11.0	0		3	0
S8	C	102.3	105	32	21.9	29	-20.1	-9.2	0		3	46.2
	L	102.3	101	0	21.9	30	-20.1	-9.2	0		3	0
S9	C	95.4	105	32	8.1	31	-19.8	-13.5	0		3	41.9
	L	95.4	101	0	8.1	32	-19.8	-13.5	0		3	0
S10	C	115.6	105	32	1.3	33	-20.6	-21.4	0		3	32.8
	L	115.6	101	0	1.3	34	-20.6	-21.4	0		3	0
											Total SPL, dB(A)	51

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheilding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	192.3	105	5	9.5	15	-22.8	-12.8	0	Nil	3	34.6
	L	192.3	101	0	9.5	16	-22.8	-12.8	0		3	0
S2	M	177.7	105	5	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	21.7
	L	177.7	101	0	5.1	18	-22.5	-15.5	-10		3	0
S3	M	164.4	105	5	5.0	19	-22.2	-15.5	0		3	31.5
	L	164.4	101	0	5.0	20	-22.2	-15.5	0		3	0
S4	M	162.5	105	5	4.9	21	-22.1	-15.6	0		3	31.0
	L	162.5	101	0	4.9	22	-22.1	-15.6	0		3	0
S5	M	152.8	105	10	0.9	23	-21.8	-23.0	0		3	26.5
	L	152.8	101	0	0.9	24	-21.8	-23.0	0		3	0
S6	M	132.0	105	10	11.1	25	-21.2	-12.1	0		3	37.7
	L	132.0	101	0	11.1	26	-21.2	-12.1	0		3	0
S7	M	113.7	105	10	14.3	27	-20.6	-11.0	0	Nil	3	39.1
	L	113.7	101	0	14.3	28	-20.6	-11.0	0		3	0
S8	M	102.3	105	10	21.9	29	-20.1	-9.2	0		3	41.1
	L	102.3	101	0	21.9	30	-20.1	-9.2	0		3	0
S9	M	95.4	105	10	8.1	31	-19.8	-13.5	0		3	36.8
	L	95.4	101	0	8.1	32	-19.8	-13.5	0		3	0
S10	M	115.6	105	10	1.3	33	-20.6	-21.4	0		3	27.8
	L	115.6	101	0	1.3	34	-20.6	-21.4	0		3	0
											Total SPL, dB(A)	46

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheilding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	192.3	105	0	9.5	15	-22.8	-12.8	0	Nil	3	0
	L	192.3	101	1	9.5	16	-22.8	-12.8	0		3	23.4
S2	M	177.7	105	0	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	0
	L	177.7	101	1	5.1	18	-22.5	-15.5	-10		3	10.5
S3	M	164.4	105	0	5.0	19	-22.2	-15.5	0		3	0
	L	164.4	101	1	5.0	20	-22.2	-15.5	0		3	20.3
S4	M	162.5	105	0	4.9	21	-22.1	-15.6	0		3	0
	L	162.5	101	1	4.9	22	-22.1	-15.6	0		3	19.8
S5	M	152.8	105	0	0.9	23	-21.8	-23.0	0		3	0
	L	152.8	101	2	0.9	24	-21.8	-23.0	0		3	15.4
S6	M	132.0	105	0	11.1	25	-21.2	-12.1	0		3	0
	L	132.0	101	2	11.1	26	-21.2	-12.1	0		3	26.6
S7	M	113.7	105	0	14.3	27	-20.6	-11.0	0	Nil	3	0
	L	113.7	101	2	14.3	28	-20.6	-11.0	0		3	28.0
S8	M	102.3	105	0	21.9	29	-20.1	-9.2	0		3	0
	L	102.3	101	2	21.9	30	-20.1	-9.2	0		3	30.0
S9	M	95.4	105	0	8.1	31	-19.8	-13.5	0		3	0
	L	95.4	101	2	8.1	32	-19.8	-13.5	0		3	25.7
S10	M	115.6	105	0	1.3	33	-20.6	-21.4	0		3	0
	L	115.6	101	2	1.3	34	-20.6	-21.4	0		3	16.7
											Total SPL, dB(A)	35

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	154.1	-51.8	0	Enclosure with silencer	-10	3	25.2
Condenser	Block 1 (NE)	75.5	6	83.3	138.1	-50.8	0	Enclosure with silencer	-10	3	25.5
Condenser	Block 2	75.5	6	83.3	142.6	-51.1	0	Enclosure with silencer	-10	3	25.2
										Total SPL, dB(A)	30

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN4- Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	244.8	105	16	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	27.0
	L	244.8	101	0	6.6	16	-23.9	-14.4	-10		3	0
S2	C	228.8	105	16	4.7	17	-23.6	-15.8	-10		3	25.4
	L	228.8	101	0	4.7	18	-23.6	-15.8	-10		3	0
S3	C	219.3	105	16	4.3	19	-23.4	-16.2	0	Nil	3	34.7
	L	219.3	101	0	4.3	20	-23.4	-16.2	0		3	0
S4	C	220.6	105	16	3.1	21	-23.4	-17.6	0		3	32.8
	L	220.6	101	0	3.1	22	-23.4	-17.6	0		3	0
S5	C	209.4	105	32	0.1	23	-23.2	-32.5	0		3	20.7
	L	209.4	101	0	0.1	24	-23.2	-32.5	0		3	0
S6	C	185.9	105	32	5.1	25	-22.7	-15.5	0		3	37.9
	L	185.9	101	0	5.1	26	-22.7	-15.5	0		3	0
S7	C	159.4	105	32	8.4	27	-22.0	-13.3	0		3	40.4
	L	159.4	101	0	8.4	28	-22.0	-13.3	0		3	0
S8	C	133.6	105	32	12.5	29	-21.3	-11.6	0		3	42.6
	L	133.6	101	0	12.5	30	-21.3	-11.6	0		3	0
S9	C	113.1	105	32	3.0	31	-20.5	-17.8	0		3	36.8
	L	113.1	101	0	3.0	32	-20.5	-17.8	0		3	0
S10	C	133.0	105	32	8.3	33	-21.2	-13.4	0		3	40.3
	L	133.0	101	0	8.3	34	-21.2	-13.4	0		3	0
											Total SPL, dB(A)	48

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	244.8	105	5	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	22.0
	L	244.8	101	0	6.6	16	-23.9	-14.4	-10		3	0
S2	M	228.8	105	5	4.7	17	-23.6	-15.8	-10		3	20.3
	L	228.8	101	0	4.7	18	-23.6	-15.8	-10		3	0
S3	M	219.3	105	5	4.3	19	-23.4	-16.2	0	Nil	3	29.6
	L	219.3	101	0	4.3	20	-23.4	-16.2	0		3	0
S4	M	220.6	105	5	3.1	21	-23.4	-17.6	0		3	27.8
	L	220.6	101	0	3.1	22	-23.4	-17.6	0		3	0
S5	M	209.4	105	10	0.1	23	-23.2	-32.5	0		3	15.6
	L	209.4	101	0	0.1	24	-23.2	-32.5	0		3	0
S6	M	185.9	105	10	5.1	25	-22.7	-15.5	0		3	32.9
	L	185.9	101	0	5.1	26	-22.7	-15.5	0		3	0
S7	M	159.4	105	10	8.4	27	-22.0	-13.3	0		3	35.3
	L	159.4	101	0	8.4	28	-22.0	-13.3	0		3	0
S8	M	133.6	105	10	12.5	29	-21.3	-11.6	0		3	37.5
	L	133.6	101	0	12.5	30	-21.3	-11.6	0		3	0
S9	M	113.1	105	10	3.0	31	-20.5	-17.8	0		3	31.7
	L	113.1	101	0	3.0	32	-20.5	-17.8	0		3	0
S10	M	133.0	105	10	8.3	33	-21.2	-13.4	0		3	35.2
	L	133.0	101	0	8.3	34	-21.2	-13.4	0		3	0
											Total SPL, dB(A)	42

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	244.8	105	0	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	0
	L	244.8	101	1	6.6	16	-23.9	-14.4	-10		3	10.7
S2	M	228.8	105	0	4.7	17	-23.6	-15.8	-10		3	0
	L	228.8	101	1	4.7	18	-23.6	-15.8	-10		3	9.1
S3	M	219.3	105	0	4.3	19	-23.4	-16.2	0	Nil	3	0
	L	219.3	101	1	4.3	20	-23.4	-16.2	0		3	18.4
S4	M	220.6	105	0	3.1	21	-23.4	-17.6	0		3	0
	L	220.6	101	1	3.1	22	-23.4	-17.6	0		3	16.6
S5	M	209.4	105	0	0.1	23	-23.2	-32.5	0		3	0
	L	209.4	101	2	0.1	24	-23.2	-32.5	0		3	4.5
S6	M	185.9	105	0	5.1	25	-22.7	-15.5	0		3	0
	L	185.9	101	2	5.1	26	-22.7	-15.5	0		3	21.7
S7	M	159.4	105	0	8.4	27	-22.0	-13.3	0		3	0
	L	159.4	101	2	8.4	28	-22.0	-13.3	0		3	24.2
S8	M	133.6	105	0	12.5	29	-21.3	-11.6	0		3	0
	L	133.6	101	2	12.5	30	-21.3	-11.6	0		3	26.4
S9	M	113.1	105	0	3.0	31	-20.5	-17.8	0		3	0
	L	113.1	101	2	3.0	32	-20.5	-17.8	0		3	20.6
S10	M	133.0	105	0	8.3	33	-21.2	-13.4	0		3	0
	L	133.0	101	2	8.3	34	-21.2	-13.4	0		3	24.1
											Total SPL, dB(A)	30

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	194.4	-53.8	0	Enclosure with silencer	-10	3	23.2
Condenser	Block 1 (NE)	75.5	6	83.3	167.5	-52.5	0	Enclosure with silencer	-10	3	23.8
Condenser	Block 2	75.5	6	83.3	117.9	-48.4	0	Enclosure with silencer	-10	3	26.9
										Total SPL, dB(A)	30

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonnes), LGV, Van, Private Car

INS - House 56 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	278.1	105	16	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	25.8
	L	278.1	101	0	5.7	15	-24.4	-15.0	-10		3	0
S2	C	261.9	105	16	4.2	15	-24.2	-16.3	-10		3	24.8
	L	261.9	101	0	4.2	15	-24.2	-16.3	-10		3	0
S3	C	253.0	105	16	3.8	15	-24.0	-16.7	0	Nil	3	34.5
	L	253.0	101	0	3.8	15	-24.0	-16.7	0		3	0
S4	C	254.6	105	16	2.7	15	-24.1	-18.3	0		3	33.0
	L	254.6	101	0	2.7	15	-24.1	-18.3	0		3	0
S5	C	243.3	105	32	0.2	15	-23.9	-30.8	0		3	23.7
	L	243.3	101	0	0.2	15	-23.9	-30.8	0		3	0
S6	C	219.6	105	32	4.0	15	-23.4	-16.5	0		3	38.4
	L	219.6	101	0	4.0	15	-23.4	-16.5	0		3	0
S7	C	192.3	105	32	6.6	15	-22.8	-14.3	0		3	41.1
	L	192.3	101	0	6.6	15	-22.8	-14.3	0		3	0
S8	C	164.5	105	32	9.1	15	-22.2	-12.9	0		3	43.2
	L	164.5	101	0	9.1	15	-22.2	-12.9	0		3	0
S9	C	142.0	105	32	1.5	15	-21.5	-20.8	0		3	36.0
	L	142.0	101	0	1.5	15	-21.5	-20.8	0		3	0
S10	C	160.8	105	32	8.0	15	-22.1	-13.5	0		3	42.7
	L	160.8	101	0	8.0	15	-22.1	-13.5	0		3	0
											Total SPL, dB(A)	48

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	278.1	105	5	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	20.8
	L	278.1	101	0	5.7	15	-24.4	-15.0	-10		3	0
S2	M	261.9	105	5	4.2	15	-24.2	-16.3	-10		3	19.8
	L	261.9	101	0	4.2	15	-24.2	-16.3	-10		3	0
S3	M	253.0	105	5	3.8	15	-24.0	-16.7	0	Nil	3	29.5
	L	253.0	101	0	3.8	15	-24.0	-16.7	0		3	0
S4	M	254.6	105	5	2.7	15	-24.1	-18.3	0		3	27.9
	L	254.6	101	0	2.7	15	-24.1	-18.3	0		3	0
S5	M	243.3	105	10	0.2	15	-23.9	-30.8	0		3	18.6
	L	243.3	101	0	0.2	15	-23.9	-30.8	0		3	0
S6	M	219.6	105	10	4.0	15	-23.4	-16.5	0		3	33.3
	L	219.6	101	0	4.0	15	-23.4	-16.5	0		3	0
S7	M	192.3	105	10	6.6	15	-22.8	-14.3	0		3	36.1
	L	192.3	101	0	6.6	15	-22.8	-14.3	0		3	0
S8	M	164.5	105	10	9.1	15	-22.2	-12.9	0		3	38.1
	L	164.5	101	0	9.1	15	-22.2	-12.9	0		3	0
S9	M	142.0	105	10	1.5	15	-21.5	-20.8	0		3	30.9
	L	142.0	101	0	1.5	15	-21.5	-20.8	0		3	0
S10	M	160.8	105	10	8.0	15	-22.1	-13.5	0		3	37.7
	L	160.8	101	0	8.0	15	-22.1	-13.5	0		3	0
											Total SPL, dB(A)	43

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	278.1	105	0	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	0
	L	278.1	101	1	5.7	15	-24.4	-15.0	-10		3	5.8
S2	M	261.9	105	0	4.2	15	-24.2	-16.3	-10		3	0
	L	261.9	101	1	4.2	15	-24.2	-16.3	-10		3	8.8
S3	M	253.0	105	0	3.8	15	-24.0	-16.7	0	Nil	3	0
	L	253.0	101	1	3.8	15	-24.0	-16.7	0		3	18.5
S4	M	254.6	105	0	2.7	15	-24.1	-18.3	0		3	0
	L	254.6	101	1	2.7	15	-24.1	-18.3	0		3	16.9
S5	M	243.3	105	0	0.2	15	-23.9	-30.8	0		3	0
	L	243.3	101	2	0.2	15	-23.9	-30.8	0		3	7.6
S6	M	219.6	105	0	4.0	15	-23.4	-16.5	0		3	0
	L	219.6	101	2	4.0	15	-23.4	-16.5	0		3	22.4
S7	M	192.3	105	0	6.6	15	-22.8	-14.3	0		3	0
	L	192.3	101	2	6.6	15	-22.8	-14.3	0		3	25.1
S8	M	164.5	105	0	9.1	15	-22.2	-12.9	0		3	0
	L	164.5	101	2	9.1	15	-22.2	-12.9	0		3	27.1
S9	M	142.0	105	0	1.5	15	-21.5	-20.8	0		3	0
	L	142.0	101	2	1.5	15	-21.5	-20.8	0		3	20.0
S10	M	160.8	105	0	8.0	15	-22.1	-13.5	0		3	0
	L	160.8	101	2	8.0	15	-22.1	-13.5	0		3	26.7
											Total SPL, dB(A)	32

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	225.8	-55.1	0	Enclosure with silencer	-10	3	21.9
Condenser	Block 1 (NE)	75.5	6	83.3	197.0	-53.9	0	Enclosure with silencer	-10	3	22.4
Condenser	Block 2	75.5	6	83.3	130.9	-50.3	0	Enclosure with silencer	-10	3	26.0
										Total SPL, dB(A)	29

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN6- House 36 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	312.9	105	16	3.2	15	-25.0	-17.5	-10	Cold Storage Block 1 &2 and cover	3	22.8
	L	312.9	101	0	3.2	15	-25.0	-17.5	-10		3	0
S2	C	296.4	105	16	4.2	15	-24.7	-16.3	-10		3	24.3
	L	296.4	101	0	4.2	15	-24.7	-16.3	-10		3	0
S3	C	295.1	105	16	3.6	15	-24.7	-17.0	-10		3	23.6
	L	295.1	101	0	3.6	15	-24.7	-17.0	-10		3	0
S4	C	302.1	105	16	1.4	15	-24.8	-21.2	-10		3	19.3
	L	302.1	101	0	1.4	15	-24.8	-21.2	-10		3	0
S5	C	289.5	105	32	1.1	15	-24.6	-22.3	-10		3	21.4
	L	289.5	101	0	1.1	15	-24.6	-22.3	-10		3	0
S6	C	264.9	105	32	0.2	15	-24.2	-29.8	-10		3	14.3
	L	264.9	101	0	0.2	15	-24.2	-29.8	-10		3	0
S7	C	231.9	105	32	2.4	15	-23.7	-18.7	-10		3	25.9
	L	231.9	101	0	2.4	15	-23.7	-18.7	-10		3	0
S8	C	195.5	105	32	0.9	15	-22.9	-23.2	-10		3	22.2
	L	195.5	101	0	0.9	15	-22.9	-23.2	-10		3	0
S9	C	168.4	105	32	2.5	15	-22.3	-18.6	-10		3	27.5
	L	168.4	101	0	2.5	15	-22.3	-18.6	-10		3	0
S10	C	176.4	105	32	10.4	15	-22.5	-12.4	-10		3	33.4
	L	176.4	101	0	10.4	15	-22.5	-12.4	-10		3	0
											Total SPL, dB(A)	36

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	312.9	105	5	3.2	15	-25.0	-17.5	-10	Cold Storage Block 1 &2 and cover	3	17.8
	L	312.9	101	0	3.2	15	-25.0	-17.5	-10		3	0
S2	M	296.4	105	5	4.2	15	-24.7	-16.3	-10		3	19.2
	L	296.4	101	0	4.2	15	-24.7	-16.3	-10		3	0
S3	M	295.1	105	5	3.6	15	-24.7	-17.0	-10		3	18.5
	L	295.1	101	0	3.6	15	-24.7	-17.0	-10		3	0
S4	M	302.1	105	5	1.4	15	-24.8	-21.2	-10		3	14.2
	L	302.1	101	0	1.4	15	-24.8	-21.2	-10		3	0
S5	M	289.5	105	10	1.1	15	-24.6	-22.3	-10		3	16.3
	L	289.5	101	0	1.1	15	-24.6	-22.3	-10		3	0
S6	M	264.9	105	10	0.2	15	-24.2	-29.8	-10		3	9.2
	L	264.9	101	0	0.2	15	-24.2	-29.8	-10		3	0
S7	M	231.9	105	10	2.4	15	-23.7	-18.7	-10		3	20.9
	L	231.9	101	0	2.4	15	-23.7	-18.7	-10		3	0
S8	M	195.5	105	10	0.9	15	-22.9	-23.2	-10		3	17.1
	L	195.5	101	0	0.9	15	-22.9	-23.2	-10		3	0
S9	M	168.4	105	10	2.5	15	-22.3	-18.6	-10		3	22.4
	L	168.4	101	0	2.5	15	-22.3	-18.6	-10		3	0
S10	M	176.4	105	10	10.4	15	-22.5	-12.4	-10		3	28.4
	L	176.4	101	0	10.4	15	-22.5	-12.4	-10		3	0
											Total SPL, dB(A)	31

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	312.9	105	0	3.2	15	-25.0	-17.5	-10	Cold Storage Block 1 &2 and cover	3	0
	L	312.9	101	1	3.2	15	-25.0	-17.5	-10		3	6.8
S2	M	296.4	105	0	4.2	15	-24.7	-16.3	-10		3	0
	L	296.4	101	1	4.2	15	-24.7	-16.3	-10		3	8.2
S3	M	295.1	105	0	3.6	15	-24.7	-17.0	-10		3	0
	L	295.1	101	1	3.6	15	-24.7	-17.0	-10		3	7.5
S4	M	302.1	105	0	1.4	15	-24.8	-21.2	-10		3	0
	L	302.1	101	1	1.4	15	-24.8	-21.2	-10		3	3.3
S5	M	289.5	105	0	1.1	15	-24.6	-22.3	-10		3	0
	L	289.5	101	2	1.1	15	-24.6	-22.3	-10		3	5.3
S6	M	264.9	105	0	0.2	15	-24.2	-29.8	-10		3	0
	L	264.9	101	2	0.2	15	-24.2	-29.8	-10		3	-1.7
S7	M	231.9	105	0	2.4	15	-23.7	-18.7	-10		3	0
	L	231.9	101	2	2.4	15	-23.7	-18.7	-10		3	9.9
S8	M	195.5	105	0	0.9	15	-22.9	-23.2	-10		3	0
	L	195.5	101	2	0.9	15	-22.9	-23.2	-10		3	6.2
S9	M	168.4	105	0	2.5	15	-22.3	-18.6	-10		3	0
	L	168.4	101	2	2.5	15	-22.3	-18.6	-10		3	11.4
S10	M	176.4	105	0	10.4	15	-22.5	-12.4	-10		3	0
	L	176.4	101	2	10.4	15	-22.5	-12.4	-10		3	17.4
											Total SPL, dB(A)	21

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	249.9	-56.0	0	Enclosure with silencer	-10	3	21.0
Condenser	Block 1 (NE)	75.5	6	83.3	213.7	-54.6	0	Enclosure with silencer	-10	3	21.7
Condenser	Block 2	75.5	6	83.3	103.2	-48.3	0	Enclosure with silencer	-10	3	28.1
										Total SPL, dB(A)	30

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN7- House 56Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	254.1	105	16	2.9	15	-24.1	-18.0	-10	Cold Storage Block 1 &2 and cover	3	23.2
	L	254.1	101	0	2.9	15	-24.1	-18.0	-10		3	0
S2	C	238.1	105	16	5.3	15	-23.8	-15.3	-10		3	26.2
	L	238.1	101	0	5.3	15	-23.8	-15.3	-10		3	0
S3	C	240.3	105	16	4.3	15	-23.8	-16.2	-10		3	25.3
	L	240.3	101	0	4.3	15	-23.8	-16.2	-10		3	0
S4	C	249.5	105	16	1.0	15	-24.0	-22.4	-10		3	18.9
	L	249.5	101	0	1.0	15	-24.0	-22.4	-10		3	0
S5	C	236.9	105	32	1.8	15	-23.7	-20.0	-10		3	24.5
	L	236.9	101	0	1.8	15	-23.7	-20.0	-10		3	0
S6	C	213.5	105	32	2.4	15	-23.3	-18.7	-10		3	26.3
	L	213.5	101	0	2.4	15	-23.3	-18.7	-10		3	0
S7	C	180.3	105	32	0.8	15	-22.6	-23.5	-10		3	22.3
	L	180.3	101	0	0.8	15	-22.6	-23.5	-10		3	0
S8	C	143.9	105	32	3.8	15	-21.6	-16.7	-10		3	30.0
	L	143.9	101	0	3.8	15	-21.6	-16.7	-10		3	0
S9	C	119.1	105	32	5.7	15	-20.8	-15.0	-10		3	32.6
	L	119.1	101	0	5.7	15	-20.8	-15.0	-10		3	0
S10	C	120.0	105	32	15.1	15	-20.8	-10.8	-10		3	36.7
	L	120.0	101	0	15.1	15	-20.8	-10.8	-10		3	0
											Total SPL, dB(A)	40

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	254.1	105	5	2.9	15	-24.1	-18.0	-10	Cold Storage Block 1 &2 and cover	3	18.2
	L	254.1	101	0	2.9	15	-24.1	-18.0	-10		3	0
S2	M	238.1	105	5	5.3	15	-23.8	-15.3	-10		3	21.1
	L	238.1	101	0	5.3	15	-23.8	-15.3	-10		3	0
S3	M	240.3	105	5	4.3	15	-23.8	-16.2	-10		3	20.2
	L	240.3	101	0	4.3	15	-23.8	-16.2	-10		3	0
S4	M	249.5	105	5	1.0	15	-24.0	-22.4	-10		3	13.9
	L	249.5	101	0	1.0	15	-24.0	-22.4	-10		3	0
S5	M	236.9	105	10	1.8	15	-23.7	-20.0	-10		3	19.4
	L	236.9	101	0	1.8	15	-23.7	-20.0	-10		3	0
S6	M	213.5	105	10	2.4	15	-23.3	-18.7	-10		3	21.3
	L	213.5	101	0	2.4	15	-23.3	-18.7	-10		3	0
S7	M	180.3	105	10	0.8	15	-22.6	-23.5	-10		3	17.2
	L	180.3	101	0	0.8	15	-22.6	-23.5	-10		3	0
S8	M	143.9	105	10	3.8	15	-21.6	-16.7	-10		3	24.9
	L	143.9	101	0	3.8	15	-21.6	-16.7	-10		3	0
S9	M	119.1	105	10	5.7	15	-20.8	-15.0	-10		3	27.5
	L	119.1	101	0	5.7	15	-20.8	-15.0	-10		3	0
S10	M	120.0	105	10	15.1	15	-20.8	-10.8	-10		3	31.7
	L	120.0	101	0	15.1	15	-20.8	-10.8	-10		3	0
											Total SPL, dB(A)	35

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	254.1	105	0	2.9	15	-24.1	-18.0	-10	Cold Storage Block 1 &2 and cover	3	0
	L	254.1	101	1	2.9	15	-24.1	-18.0	-10		3	7.2
S2	M	238.1	105	0	5.3	15	-23.8	-15.3	-10		3	0
	L	238.1	101	1	5.3	15	-23.8	-15.3	-10		3	10.1
S3	M	240.3	105	0	4.3	15	-23.8	-16.2	-10		3	0
	L	240.3	101	1	4.3	15	-23.8	-16.2	-10		3	9.3
S4	M	249.5	105	0	1.0	15	-24.0	-22.4	-10		3	0
	L	249.5	101	1	1.0	15	-24.0	-22.4	-10		3	2.9
S5	M	236.9	105	0	1.8	15	-23.7	-20.0	-10		3	0
	L	236.9	101	2	1.8	15	-23.7	-20.0	-10		3	8.5
S6	M	213.5	105	0	2.4	15	-23.3	-18.7	-10		3	0
	L	213.5	101	2	2.4	15	-23.3	-18.7	-10		3	10.3
S7	M	180.3	105	0	0.8	15	-22.6	-23.5	-10		3	0
	L	180.3	101	2	0.8	15	-22.6	-23.5	-10		3	6.2
S8	M	143.9	105	0	3.8	15	-21.6	-16.7	-10		3	0
	L	143.9	101	2	3.8	15	-21.6	-16.7	-10		3	14.0
S9	M	119.1	105	0	5.7	15	-20.8	-15.0	-10		3	0
	L	119.1	101	2	5.7	15	-20.8	-15.0	-10		3	16.5
S10	M	120.0	105	0	15.1	15	-20.8	-10.8	-10		3	0
	L	120.0	101	2	15.1	15	-20.8	-10.8	-10		3	20.7
											Total SPL, dB(A)	24

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	189.9	-53.6	0	Enclosure with silencer	-10	3	23.4
Condenser	Block 1 (NE)	75.5	6	83.3	153.3	-51.7	0	Enclosure with silencer	-10	3	24.6
Condenser	Block 2	75.5	6	83.3	43.0	-40.7	0	Enclosure with silencer	-10	3	35.7
										Total SPL, dB(A)	36

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

INS- House S6Sha Ling

TruckMovement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	232.2	105	16	1.7	15	-23.7	-20.1	-10		3	21.5
	L	232.2	101	0	1.7	15	-23.7	-20.1	-10		3	0
S2	C	217.3	105	16	5.6	15	-23.4	-15.1	-10		3	26.8
	L	217.3	101	0	5.6	15	-23.4	-15.1	-10		3	0
S3	C	223.0	105	16	4.5	15	-23.5	-16.1	-10		3	25.7
	L	223.0	101	0	4.5	15	-23.5	-16.1	-10		3	0
S4	C	234.1	105	16	0.4	15	-23.7	-26.2	-10		3	15.4
	L	234.1	101	0	0.4	15	-23.7	-26.2	-10		3	0
S5	C	222.0	105	32	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	26.0
	L	222.0	101	0	2.3	15	-23.5	-18.9	-10		3	0
S6	C	200.6	105	32	4.8	15	-23.0	-15.8	-10		3	29.5
	L	200.6	101	0	4.8	15	-23.0	-15.8	-10		3	0
S7	C	169.1	105	32	1.7	15	-22.3	-20.3	-10		3	25.7
	L	169.1	101	0	1.7	15	-22.3	-20.3	-10		3	0
S8	C	135.4	105	32	9.2	15	-21.3	-12.9	-10		3	34.1
	L	135.4	101	0	9.2	15	-21.3	-12.9	-10		3	0
S9	C	116.1	105	32	7.3	15	-20.6	-13.9	-10		3	33.7
	L	116.1	101	0	7.3	15	-20.6	-13.9	-10		3	0
S10	C	109.0	105	32	14.2	15	-20.4	-11.0	-10		3	36.9
	L	109.0	101	0	14.2	15	-20.4	-11.0	-10		3	0
											Total SPL, dB(A)	41

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	232.2	105	5	1.7	15	-23.7	-20.1	-10		3	16.4
	L	232.2	101	0	1.7	15	-23.7	-20.1	-10		3	0
S2	M	217.3	105	5	5.6	15	-23.4	-15.1	-10		3	21.8
	L	217.3	101	0	5.6	15	-23.4	-15.1	-10		3	0
S3	M	223.0	105	5	4.5	15	-23.5	-16.1	-10		3	20.7
	L	223.0	101	0	4.5	15	-23.5	-16.1	-10		3	0
S4	M	234.1	105	5	0.4	15	-23.7	-26.2	-10		3	10.4
	L	234.1	101	0	0.4	15	-23.7	-26.2	-10		3	0
S5	M	222.0	105	10	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	20.9
	L	222.0	101	0	2.3	15	-23.5	-18.9	-10		3	0
S6	M	200.6	105	10	4.8	15	-23.0	-15.8	-10		3	24.4
	L	200.6	101	0	4.8	15	-23.0	-15.8	-10		3	0
S7	M	169.1	105	10	1.7	15	-22.3	-20.3	-10		3	20.6
	L	169.1	101	0	1.7	15	-22.3	-20.3	-10		3	0
S8	M	135.4	105	10	9.2	15	-21.3	-12.9	-10		3	29.0
	L	135.4	101	0	9.2	15	-21.3	-12.9	-10		3	0
S9	M	116.1	105	10	7.3	15	-20.6	-13.9	-10		3	28.7
	L	116.1	101	0	7.3	15	-20.6	-13.9	-10		3	0
S10	M	109.0	105	10	14.2	15	-20.4	-11.0	-10		3	31.8
	L	109.0	101	0	14.2	15	-20.4	-11.0	-10		3	0
											Total SPL, dB(A)	36

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	232.2	105	0	1.7	15	-23.7	-20.1	-10		3	0
	L	232.2	101	1	1.7	15	-23.7	-20.1	-10		3	5.4
S2	M	217.3	105	0	5.6	15	-23.4	-15.1	-10		3	0
	L	217.3	101	1	5.6	15	-23.4	-15.1	-10		3	10.8
S3	M	223.0	105	0	4.5	15	-23.5	-16.1	-10		3	0
	L	223.0	101	1	4.5	15	-23.5	-16.1	-10		3	9.7
S4	M	234.1	105	0	0.4	15	-23.7	-26.2	-10		3	0
	L	234.1	101	1	0.4	15	-23.7	-26.2	-10		3	-0.6
S5	M	222.0	105	0	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	222.0	101	2	2.3	15	-23.5	-18.9	-10		3	9.9
S6	M	200.6	105	0	4.8	15	-23.0	-15.8	-10		3	0
	L	200.6	101	2	4.8	15	-23.0	-15.8	-10		3	13.5
S7	M	169.1	105	0	1.7	15	-22.3	-20.3	-10		3	0
	L	169.1	101	2	1.7	15	-22.3	-20.3	-10		3	9.7
S8	M	135.4	105	0	9.2	15	-21.3	-12.9	-10		3	0
	L	135.4	101	2	9.2	15	-21.3	-12.9	-10		3	18.0
S9	M	116.1	105	0	7.3	15	-20.6	-13.9	-10		3	0
	L	116.1	101	2	7.3	15	-20.6	-13.9	-10		3	17.7
S10	M	109.0	105	0	14.2	15	-20.4	-11.0	-10		3	0
	L	109.0	101	2	14.2	15	-20.4	-11.0	-10		3	20.8
											Total SPL, dB(A)	25

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	168.8	-52.5	0	Enclosure with silencer	-10	3	24.4
Condenser	Block 1 (NE)	75.5	6	83.3	133.9	-50.5	0	Enclosure with silencer	-10	3	25.8
Condenser	Block 2	75.5	6	83.3	51.9	-42.3	0	Enclosure with silencer	-10	3	34.0
										Total SPL, dB(A)	35

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN9 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	164.3	105	16	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	26.7
	L	164.3	101	0	4.1	15	-22.2	-16.4	-10		3	0
S2	C	148.5	105	16	8.4	15	-21.7	-13.3	-10		3	30.2
	L	148.5	101	0	8.4	15	-21.7	-13.3	-10		3	0
S3	C	152.1	105	16	6.7	15	-21.8	-14.3	-10		3	29.2
	L	152.1	101	0	6.7	15	-21.8	-14.3	-10		3	0
S4	C	162.4	105	16	1.0	15	-22.1	-22.6	-10		3	20.5
	L	162.4	101	0	1.0	15	-22.1	-22.6	-10		3	0
S5	C	150.1	105	32	3.3	15	-21.8	-17.4	-10		3	29.1
	L	150.1	101	0	3.3	15	-21.8	-17.4	-10		3	0
S6	C	128.1	105	32	7.0	15	-21.1	-14.1	-10		3	33.1
	L	128.1	101	0	7.0	15	-21.1	-14.1	-10		3	0
S7	C	96.3	105	32	2.9	15	-19.8	-18.0	-10		3	30.5
	L	96.3	101	0	2.9	15	-19.8	-18.0	-10		3	0
S8	C	63.3	105	32	23.6	15	-18.0	-8.8	-10		3	41.5
	L	63.3	101	0	23.6	15	-18.0	-8.8	-10		3	0
S9	C	48.7	105	32	18.1	15	-16.9	-10.0	-10		3	41.4
	L	48.7	101	0	18.1	15	-16.9	-10.0	-10		3	0
S10	C	36.7	105	32	39.5	15	-15.6	-6.6	-10		3	46.1
	L	36.7	101	0	39.5	15	-15.6	-6.6	-10		3	0
											Total SPL, dB(A)	49

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	164.3	105	5	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	21.6
	L	164.3	101	0	4.1	15	-22.2	-16.4	-10		3	0
S2	M	148.5	105	5	8.4	15	-21.7	-13.3	-10		3	25.2
	L	148.5	101	0	8.4	15	-21.7	-13.3	-10		3	0
S3	M	152.1	105	5	6.7	15	-21.8	-14.3	-10		3	24.1
	L	152.1	101	0	6.7	15	-21.8	-14.3	-10		3	0
S4	M	162.4	105	5	1.0	15	-22.1	-22.6	-10		3	15.5
	L	162.4	101	0	1.0	15	-22.1	-22.6	-10		3	0
S5	M	150.1	105	10	3.3	15	-21.8	-17.4	-10		3	24.1
	L	150.1	101	0	3.3	15	-21.8	-17.4	-10		3	0
S6	M	128.1	105	10	7.0	15	-21.1	-14.1	-10		3	28.0
	L	128.1	101	0	7.0	15	-21.1	-14.1	-10		3	0
S7	M	96.3	105	10	2.9	15	-19.8	-18.0	-10		3	25.4
	L	96.3	101	0	2.9	15	-19.8	-18.0	-10		3	0
S8	M	63.3	105	10	23.6	15	-18.0	-8.8	-10		3	36.4
	L	63.3	101	0	23.6	15	-18.0	-8.8	-10		3	0
S9	M	48.7	105	10	18.1	15	-16.9	-10.0	-10		3	36.4
	L	48.7	101	0	18.1	15	-16.9	-10.0	-10		3	0
S10	M	36.7	105	10	39.5	15	-15.6	-6.6	-10		3	41.0
	L	36.7	101	0	39.5	15	-15.6	-6.6	-10		3	0
											Total SPL, dB(A)	44

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	164.3	105	0	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	164.3	101	1	4.1	15	-22.2	-16.4	-10		3	10.6
S2	M	148.5	105	0	8.4	15	-21.7	-13.3	-10		3	0
	L	148.5	101	1	8.4	15	-21.7	-13.3	-10		3	14.2
S3	M	152.1	105	0	6.7	15	-21.8	-14.3	-10		3	0
	L	152.1	101	1	6.7	15	-21.8	-14.3	-10		3	13.1
S4	M	162.4	105	0	1.0	15	-22.1	-22.6	-10		3	0
	L	162.4	101	1	1.0	15	-22.1	-22.6	-10		3	4.5
S5	M	150.1	105	0	3.3	15	-21.8	-17.4	-10		3	0
	L	150.1	101	2	3.3	15	-21.8	-17.4	-10		3	13.1
S6	M	128.1	105	0	7.0	15	-21.1	-14.1	-10		3	0
	L	128.1	101	2	7.0	15	-21.1	-14.1	-10		3	17.0
S7	M	96.3	105	0	2.9	15	-19.8	-18.0	-10		3	0
	L	96.3	101	2	2.9	15	-19.8	-18.0	-10		3	14.4
S8	M	63.3	105	0	23.6	15	-18.0	-8.8	-10		3	0
	L	63.3	101	2	23.6	15	-18.0	-8.8	-10		3	25.4
S9	M	48.7	105	0	18.1	15	-16.9	-10.0	-10		3	0
	L	48.7	101	2	18.1	15	-16.9	-10.0	-10		3	25.4
S10	M	36.7	105	0	39.5	15	-15.6	-6.6	-10		3	0
	L	36.7	101	2	39.5	15	-15.6	-6.6	-10		3	30.0
											Total SPL, dB(A)	33

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	100.1	-48.0	0	Enclosure with silencer	-10	3	29.0
Condenser	Block 1 (NE)	75.5	6	83.3	63.6	-44.1	0	Enclosure with silencer	-10	3	32.2
Condenser	Block 2	75.5	6	83.3	51.1	-42.2	0	Enclosure with silencer	-10	3	34.2
										Total SPL, dB(A)	37

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN10 - House 100 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	148.0	105	16	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	24.8
	L	148.0	101	0	2.4	15	-21.7	-18.7	-10		3	0
S2	C	133.3	105	16	9.0	15	-21.2	-13.0	-10		3	31.0
	L	133.3	101	0	9.0	15	-21.2	-13.0	-10		3	0
S3	C	140.5	105	16	6.8	15	-21.5	-14.2	-10		3	29.6
	L	140.5	101	0	6.8	15	-21.5	-14.2	-10		3	0
S4	C	152.6	105	16	0.0	15	-21.8	-41.1	-10		3	2.3
	L	152.6	101	0	0.0	15	-21.8	-41.1	-10		3	0
S5	C	141.0	105	32	4.1	15	-21.5	-16.4	-10		3	30.4
	L	141.0	101	0	4.1	15	-21.5	-16.4	-10		3	0
S6	C	121.9	105	32	10.9	15	-20.9	-12.2	-10		3	35.3
	L	121.9	101	0	10.9	15	-20.9	-12.2	-10		3	0
S7	C	93.9	105	32	8.3	15	-19.7	-13.3	-10		3	35.2
	L	93.9	101	0	8.3	15	-19.7	-13.3	-10		3	0
S8	C	69.1	105	32	29.8	15	-18.4	-7.8	-10		3	42.1
	L	69.1	101	0	29.8	15	-18.4	-7.8	-10		3	0
S9	C	65.9	105	32	11.9	15	-18.2	-11.8	-10		3	38.3
	L	65.9	101	0	11.9	15	-18.2	-11.8	-10		3	0
S10	C	46.6	105	32	7.3	15	-16.7	-13.9	-10		3	37.7
	L	46.6	101	0	7.3	15	-16.7	-13.9	-10		3	0
											Total SPL, dB(A)	46

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	148.0	105	5	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	19.8
	L	148.0	101	0	2.4	15	-21.7	-18.7	-10		3	0
S2	M	133.3	105	5	9.0	15	-21.2	-13.0	-10		3	26.0
	L	133.3	101	0	9.0	15	-21.2	-13.0	-10		3	0
S3	M	140.5	105	5	6.8	15	-21.5	-14.2	-10		3	24.5
	L	140.5	101	0	6.8	15	-21.5	-14.2	-10		3	0
S4	M	152.6	105	5	0.0	15	-21.8	-41.1	-10		3	-2.7
	L	152.6	101	0	0.0	15	-21.8	-41.1	-10		3	0
S5	M	141.0	105	10	4.1	15	-21.5	-16.4	-10		3	25.3
	L	141.0	101	0	4.1	15	-21.5	-16.4	-10		3	0
S6	M	121.9	105	10	10.9	15	-20.9	-12.2	-10		3	30.2
	L	121.9	101	0	10.9	15	-20.9	-12.2	-10		3	0
S7	M	93.9	105	10	8.3	15	-19.7	-13.3	-10		3	30.2
	L	93.9	101	0	8.3	15	-19.7	-13.3	-10		3	0
S8	M	69.1	105	10	29.8	15	-18.4	-7.8	-10		3	37.0
	L	69.1	101	0	29.8	15	-18.4	-7.8	-10		3	0
S9	M	65.9	105	10	11.9	15	-18.2	-11.8	-10		3	33.3
	L	65.9	101	0	11.9	15	-18.2	-11.8	-10		3	0
S10	M	46.6	105	10	7.3	15	-16.7	-13.9	-10		3	32.6
	L	46.6	101	0	7.3	15	-16.7	-13.9	-10		3	0
											Total SPL, dB(A)	41

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	148.0	105	0	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	148.0	101	1	2.4	15	-21.7	-18.7	-10		3	8.8
S2	M	133.3	105	0	9.0	15	-21.2	-13.0	-10		3	0
	L	133.3	101	1	9.0	15	-21.2	-13.0	-10		3	15.0
S3	M	140.5	105	0	6.8	15	-21.5	-14.2	-10		3	0
	L	140.5	101	1	6.8	15	-21.5	-14.2	-10		3	13.5
S4	M	152.6	105	0	0.0	15	-21.8	-41.1	-10		3	0
	L	152.6	101	1	0.0	15	-21.8	-41.1	-10		3	-13.7
S5	M	141.0	105	0	4.1	15	-21.5	-16.4	-10		3	0
	L	141.0	101	2	4.1	15	-21.5	-16.4	-10		3	14.3
S6	M	121.9	105	0	10.9	15	-20.9	-12.2	-10		3	0
	L	121.9	101	2	10.9	15	-20.9	-12.2	-10		3	19.2
S7	M	93.9	105	0	8.3	15	-19.7	-13.3	-10		3	0
	L	93.9	101	2	8.3	15	-19.7	-13.3	-10		3	18.2
S8	M	69.1	105	0	29.8	15	-18.4	-7.8	-10		3	0
	L	69.1	101	2	29.8	15	-18.4	-7.8	-10		3	26.0
S9	M	65.9	105	0	11.9	15	-18.2	-11.8	-10		3	0
	L	65.9	101	2	11.9	15	-18.2	-11.8	-10		3	22.3
S10	M	46.6	105	0	7.3	15	-16.7	-13.9	-10		3	0
	L	46.6	101	2	7.3	15	-16.7	-13.9	-10		3	21.7
											Total SPL, dB(A)	30

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	85.2	-46.6	0	Enclosure with silencer	-10	3	30.4
Condenser	Block 1 (NE)	75.5	6	83.3	52.7	-42.4	0	Enclosure with silencer	-10	3	33.9
Condenser	Block 2	75.5	6	83.3	77.8	-45.8	0	Enclosure with silencer	-10	3	30.5
										Total SPL, dB(A)	37

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN11-Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	115.1	105	16	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	26.3
	L	115.1	101	0	2.6	15	-20.6	-18.4	-10		3	0
S2	C	100.7	105	16	11.7	15	-20.0	-11.9	-10		3	33.4
	L	100.7	101	0	11.7	15	-20.0	-11.9	-10		3	0
S3	C	109.2	105	16	8.4	15	-20.4	-13.3	-10		3	31.6
	L	109.2	101	0	8.4	15	-20.4	-13.3	-10		3	0
S4	C	122.0	105	16	0.7	15	-20.9	-24.0	-10		3	20.4
	L	122.0	101	0	0.7	15	-20.9	-24.0	-10		3	0
S5	C	111.1	105	32	5.6	15	-20.5	-15.1	-10		3	32.7
	L	111.1	101	0	5.6	15	-20.5	-15.1	-10		3	0
S6	C	94.3	105	32	17.1	15	-19.7	-10.2	-10		3	38.3
	L	94.3	101	0	17.1	15	-19.7	-10.2	-10		3	0
S7	C	71.2	105	32	16.8	15	-18.5	-10.3	-10		3	39.5
	L	71.2	101	0	16.8	15	-18.5	-10.3	-10		3	0
S8	C	58.9	105	32	38.0	15	-17.7	-6.8	-10		3	43.8
	L	58.9	101	0	38.0	15	-17.7	-6.8	-10		3	0
S9	C	69.1	105	32	7.2	15	-18.4	-14.0	-10		3	35.9
	L	69.1	101	0	7.2	15	-18.4	-14.0	-10		3	0
S10	C	48.5	105	32	21.4	15	-16.9	-9.3	-10		3	42.2
	L	48.5	101	0	21.4	15	-16.9	-9.3	-10		3	0
											Total SPL, dB(A)	48

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	115.1	105	5	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	21.2
	L	115.1	101	0	2.6	15	-20.6	-18.4	-10		3	0
S2	M	100.7	105	5	11.7	15	-20.0	-11.9	-10		3	28.3
	L	100.7	101	0	11.7	15	-20.0	-11.9	-10		3	0
S3	M	109.2	105	5	8.4	15	-20.4	-13.3	-10		3	26.5
	L	109.2	101	0	8.4	15	-20.4	-13.3	-10		3	0
S4	M	122.0	105	5	0.7	15	-20.9	-24.0	-10		3	15.4
	L	122.0	101	0	0.7	15	-20.9	-24.0	-10		3	0
S5	M	111.1	105	10	5.6	15	-20.5	-15.1	-10		3	27.7
	L	111.1	101	0	5.6	15	-20.5	-15.1	-10		3	0
S6	M	94.3	105	10	17.1	15	-19.7	-10.2	-10		3	33.3
	L	94.3	101	0	17.1	15	-19.7	-10.2	-10		3	0
S7	M	71.2	105	10	16.8	15	-18.5	-10.3	-10		3	34.4
	L	71.2	101	0	16.8	15	-18.5	-10.3	-10		3	0
S8	M	58.9	105	10	38.0	15	-17.7	-6.8	-10		3	38.8
	L	58.9	101	0	38.0	15	-17.7	-6.8	-10		3	0
S9	M	69.1	105	10	7.2	15	-18.4	-14.0	-10		3	30.9
	L	69.1	101	0	7.2	15	-18.4	-14.0	-10		3	0
S10	M	48.5	105	10	21.4	15	-16.9	-9.3	-10		3	37.1
	L	48.5	101	0	21.4	15	-16.9	-9.3	-10		3	0
											Total SPL, dB(A)	48

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	115.1	105	0	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	115.1	101	1	2.6	15	-20.6	-18.4	-10		3	10.2
S2	M	100.7	105	0	11.7	15	-20.0	-11.9	-10		3	0
	L	100.7	101	1	11.7	15	-20.0	-11.9	-10		3	17.3
S3	M	109.2	105	0	8.4	15	-20.4	-13.3	-10		3	0
	L	109.2	101	1	8.4	15	-20.4	-13.3	-10		3	15.5
S4	M	122.0	105	0	0.7	15	-20.9	-24.0	-10		3	0
	L	122.0	101	1	0.7	15	-20.9	-24.0	-10		3	4.4
S5	M	111.1	105	0	5.6	15	-20.5	-15.1	-10		3	0
	L	111.1	101	2	5.6	15	-20.5	-15.1	-10		3	16.7
S6	M	94.3	105	0	17.1	15	-19.7	-10.2	-10		3	0
	L	94.3	101	2	17.1	15	-19.7	-10.2	-10		3	22.3
S7	M	71.2	105	0	16.8	15	-18.5	-10.3	-10		3	0
	L	71.2	101	2	16.8	15	-18.5	-10.3	-10		3	23.4
S8	M	58.9	105	0	38.0	15	-17.7	-6.8	-10		3	0
	L	58.9	101	2	38.0	15	-17.7	-6.8	-10		3	27.8
S9	M	69.1	105	0	7.2	15	-18.4	-14.0	-10		3	0
	L	69.1	101	2	7.2	15	-18.4	-14.0	-10		3	19.9
S10	M	48.5	105	0	21.4	15	-16.9	-9.3	-10		3	0
	L	48.5	101	2	21.4	15	-16.9	-9.3	-10		3	26.1
											Total SPL, dB(A)	32

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	53.4	-42.5	0	Enclosure with silencer	-10	3	34.4
Condenser	Block 1 (NE)	75.5	6	83.3	27.8	-36.9	0	Enclosure with silencer	-10	3	39.4
Condenser	Block 2	75.5	6	83.3	106.7	-48.6	0	Enclosure with silencer	-10	3	27.8
										Total SPL, dB(A)	41

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN12-Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	50.1	105	16	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	40.6
	L	50.1	101	0	31.0	15	-17.0	-7.6	-10		3	0
S2	C	51.4	105	16	0.2	15	-17.1	-30.4	0	Nil	3	27.7
	L	51.4	101	0	0.2	15	-17.1	-30.4	0		3	0
S3	C	71.6	105	16	0.1	15	-18.5	-31.9	0		3	24.8
	L	71.6	101	0	0.1	15	-18.5	-31.9	0		3	0
S4	C	84.8	105	16	9.1	15	-19.3	-13.0	0		3	43.0
	L	84.8	101	0	9.1	15	-19.3	-13.0	0		3	0
S5	C	83.6	105	32	7.4	15	-19.2	-13.9	0		3	45.2
	L	83.6	101	0	7.4	15	-19.2	-13.9	0		3	0
S6	C	91.3	105	32	22.4	15	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	39.6
	L	91.3	101	0	22.4	15	-19.6	-9.1	-10		3	0
S7	C	103.0	105	32	15.5	15	-20.1	-10.6	-10		3	37.5
	L	103.0	101	0	15.5	15	-20.1	-10.6	-10		3	0
S8	C	125.5	105	32	12.1	15	-21.0	-11.7	-10		3	35.6
	L	125.5	101	0	12.1	15	-21.0	-11.7	-10		3	0
S9	C	149.3	105	32	0.3	15	-21.7	-27.7	-10		3	18.9
	L	149.3	101	0	0.3	15	-21.7	-27.7	-10		3	0
S10	C	133.8	105	32	12.5	15	-21.3	-11.6	-10		3	35.4
	L	133.8	101	0	12.5	15	-21.3	-11.6	-10		3	0
											Total SPL, dB(A)	48

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	50.1	105	5	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	35.6
	L	50.1	101	0	31.0	15	-17.0	-7.6	-10		3	0
S2	M	51.4	105	5	0.2	15	-17.1	-30.4	0	Nil	3	22.7
	L	51.4	101	0	0.2	15	-17.1	-30.4	0		3	0
S3	M	71.6	105	5	0.1	15	-18.5	-31.9	0		3	19.8
	L	71.6	101	0	0.1	15	-18.5	-31.9	0		3	0
S4	M	84.8	105	5	9.1	15	-19.3	-13.0	0		3	38.0
	L	84.8	101	0	9.1	15	-19.3	-13.0	0		3	0
S5	M	83.6	105	10	7.4	15	-19.2	-13.9	0		3	40.1
	L	83.6	101	0	7.4	15	-19.2	-13.9	0		3	0
S6	M	91.3	105	10	22.4	15	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	34.6
	L	91.3	101	0	22.4	15	-19.6	-9.1	-10		3	0
S7	M	103.0	105	10	15.5	15	-20.1	-10.6	-10		3	32.5
	L	103.0	101	0	15.5	15	-20.1	-10.6	-10		3	0
S8	M	125.5	105	10	12.1	15	-21.0	-11.7	-10		3	30.5
	L	125.5	101	0	12.1	15	-21.0	-11.7	-10		3	0
S9	M	149.3	105	10	0.3	15	-21.7	-27.7	-10		3	13.8
	L	149.3	101	0	0.3	15	-21.7	-27.7	-10		3	0
S10	M	133.8	105	10	12.5	15	-21.3	-11.6	-10		3	30.4
	L	133.8	101	0	12.5	15	-21.3	-11.6	-10		3	0
											Total SPL, dB(A)	44

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	50.1	105	0	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	0
	L	50.1	101	1	31.0	16	-17.0	-7.6	-10		3	24.3
S2	M	51.4	105	0	0.2	17	-17.1	-30.4	0	Nil	3	0
	L	51.4	101	1	0.2	18	-17.1	-30.4	0		3	10.9
S3	M	71.6	105	0	0.1	19	-18.5	-31.9	0		3	0
	L	71.6	101	1	0.1	20	-18.5	-31.9	0		3	7.6
S4	M	84.8	105	0	9.1	21	-19.3	-13.0	0		3	0
	L	84.8	101	1	9.1	22	-19.3	-13.0	0		3	25.3
S5	M	83.6	105	0	7.4	23	-19.2	-13.9	0		3	0
	L	83.6	101	2	7.4	24	-19.2	-13.9	0		3	27.1
S6	M	91.3	105	0	22.4	25	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	0
	L	91.3	101	2	22.4	26	-19.6	-9.1	-10		3	21.2
S7	M	103.0	105	0	15.5	27	-20.1	-10.6	-10		3	0
	L	103.0	101	2	15.5	28	-20.1	-10.6	-10		3	18.8
S8	M	125.5	105	0	12.1	29	-21.0	-11.7	-10		3	0
	L	125.5	101	2	12.1	30	-21.0	-11.7	-10		3	16.5
S9	M	149.3	105	0	0.3	31	-21.7	-27.7	-10		3	0
	L	149.3	101	2	0.3	32	-21.7	-27.7	-10		3	-0.5
S10	M	133.8	105	0	12.5	33	-21.3	-11.6	-10		3	0
	L	133.8	101	2	12.5	34	-21.3	-11.6	-10		3	15.8
											Total SPL, dB(A)	32

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	64.4	-44.2	0	Enclosure with silencer	-10	3	32.8
Condenser	Block 1 (NE)	75.5	6	83.3	95.2	-47.6	0	Enclosure with silencer	-10	3	28.8
Condenser	Block 2	75.5	6	83.3	203.0	-54.1	0	Enclosure with silencer	-10	3	22.2
										Total SPL, dB(A)	35

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN13 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	77.6	105	16	19.0	15	-18.9	-9.8	0	Nil	3	46.6
	L	77.6	101	0	19.0	15	-18.9	-9.8	0		3	0
S2	C	94.1	105	16	12.5	15	-19.7	-11.6	0		3	43.9
	L	94.1	101	0	12.5	15	-19.7	-11.6	0		3	0
S3	C	103.0	105	16	8.8	15	-20.1	-13.1	0		3	42.0
	L	103.0	101	0	8.8	15	-20.1	-13.1	0		3	0
S4	C	104.7	105	16	8.0	15	-20.2	-13.5	0		3	41.6
	L	104.7	101	0	8.0	15	-20.2	-13.5	0		3	0
S5	C	114.0	105	32	1.0	15	-20.6	-22.4	0		3	35.4
	L	114.0	101	0	1.0	15	-20.6	-22.4	0		3	0
S6	C	136.3	105	32	8.1	15	-21.3	-13.5	0		3	43.5
	L	136.3	101	0	8.1	15	-21.3	-13.5	0		3	0
S7	C	163.7	105	32	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	32.0
	L	163.7	101	0	7.0	15	-22.1	-14.1	-10		3	0
S8	C	196.3	105	32	4.1	15	-22.9	-16.4	-10		3	28.9
	L	196.3	101	0	4.1	15	-22.9	-16.4	-10		3	0
S9	C	223.0	105	32	0.9	15	-23.5	-23.0	-10		3	21.8
	L	223.0	101	0	0.9	15	-23.5	-23.0	-10		3	0
S10	C	211.9	105	32	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	31.8
	L	211.9	101	0	8.6	15	-23.3	-13.2	-10		3	0
											Total SPL, dB(A)	51

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	77.6	105	5	19.0	15	-18.9	-9.8	0	Nil	3	41.6
	L	77.6	101	0	19.0	15	-18.9	-9.8	0		3	0
S2	M	94.1	105	5	12.5	15	-19.7	-11.6	0		3	38.9
	L	94.1	101	0	12.5	15	-19.7	-11.6	0		3	0
S3	M	103.0	105	5	8.8	15	-20.1	-13.1	0		3	37.0
	L	103.0	101	0	8.8	15	-20.1	-13.1	0		3	0
S4	M	104.7	105	5	8.0	15	-20.2	-13.5	0		3	36.5
	L	104.7	101	0	8.0	15	-20.2	-13.5	0		3	0
S5	M	114.0	105	10	1.0	15	-20.6	-22.4	0		3	30.3
	L	114.0	101	0	1.0	15	-20.6	-22.4	0		3	0
S6	M	136.3	105	10	8.1	15	-21.3	-13.5	0		3	38.4
	L	136.3	101	0	8.1	15	-21.3	-13.5	0		3	0
S7	M	163.7	105	10	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	27.0
	L	163.7	101	0	7.0	15	-22.1	-14.1	-10		3	0
S8	M	196.3	105	10	4.1	15	-22.9	-16.4	-10		3	23.9
	L	196.3	101	0	4.1	15	-22.9	-16.4	-10		3	0
S9	M	223.0	105	10	0.9	15	-23.5	-23.0	-10		3	16.8
	L	223.0	101	0	0.9	15	-23.5	-23.0	-10		3	0
S10	M	211.9	105	10	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	26.8
	L	211.9	101	0	8.6	15	-23.3	-13.2	-10		3	0
											Total SPL, dB(A)	46

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	77.6	105	0	19.0	15	-18.9	-9.8	0	Nil	3	0
	L	77.6	101	1	19.0	15	-18.9	-9.8	0		3	30.6
S2	M	94.1	105	0	12.5	15	-19.7	-11.6	0		3	0
	L	94.1	101	1	12.5	15	-19.7	-11.6	0		3	27.9
S3	M	103.0	105	0	8.8	15	-20.1	-13.1	0		3	0
	L	103.0	101	1	8.8	15	-20.1	-13.1	0		3	26.0
S4	M	104.7	105	0	8.0	15	-20.2	-13.5	0		3	0
	L	104.7	101	1	8.0	15	-20.2	-13.5	0		3	25.5
S5	M	114.0	105	0	1.0	15	-20.6	-22.4	0		3	0
	L	114.0	101	2	1.0	15	-20.6	-22.4	0		3	19.3
S6	M	136.3	105	0	8.1	15	-21.3	-13.5	0		3	0
	L	136.3	101	2	8.1	15	-21.3	-13.5	0		3	27.4
S7	M	163.7	105	0	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	0
	L	163.7	101	2	7.0	15	-22.1	-14.1	-10		3	16.0
S8	M	196.3	105	0	4.1	15	-22.9	-16.4	-10		3	0
	L	196.3	101	2	4.1	15	-22.9	-16.4	-10		3	12.9
S9	M	223.0	105	0	0.9	15	-23.5	-23.0	-10		3	0
	L	223.0	101	2	0.9	15	-23.5	-23.0	-10		3	5.8
S10	M	211.9	105	0	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	0
	L	211.9	101	2	8.6	15	-23.3	-13.2	-10		3	15.8
											Total SPL, dB(A)	35

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	138.1	-50.8	0	Enclosure with silencer	-10	3	26.2
Condenser	Block 1 (NE)	75.5	6	83.3	174.4	-52.8	0	Enclosure with silencer	-10	3	23.5
Condenser	Block 2	75.5	6	83.3	286.4	-57.1	0	Enclosure with silencer	-10	3	19.2
										Total SPL, dB(A)	29

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN14 - House 181Sha Ling

TruckMovement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	136.6	105	16	2.6	15	-21.4	-18.3	0		3	35.6
	L	136.6	101	0	2.6	15	-21.4	-18.3	0		3	0
S2	C	148.6	105	16	7.4	15	-21.7	-13.9	0		3	39.7
	L	148.6	101	0	7.4	15	-21.7	-13.9	0		3	0
S3	C	139.9	105	16	7.0	15	-21.5	-14.1	0		3	39.7
	L	139.9	101	0	7.0	15	-21.5	-14.1	0		3	0
S4	C	129.0	105	16	1.3	15	-21.1	-21.5	0		3	32.7
	L	129.0	101	0	1.3	15	-21.1	-21.5	0		3	0
S5	C	141.3	105	32	3.3	15	-21.5	-17.4	0		3	39.4
	L	141.3	101	0	3.3	15	-21.5	-17.4	0	Nil	3	0
S6	C	164.5	105	32	3.0	15	-22.2	-17.7	0		3	38.4
	L	164.5	101	0	3.0	15	-22.2	-17.7	0		3	0
S7	C	197.7	105	32	1.1	15	-23.0	-22.2	0		3	33.2
	L	197.7	101	0	1.1	15	-23.0	-22.2	0		3	0
S8	C	234.4	105	32	1.5	15	-23.7	-20.8	0		3	33.8
	L	234.4	101	0	1.5	15	-23.7	-20.8	0		3	0
S9	C	260.5	105	32	2.1	15	-24.2	-19.3	0		3	34.9
	L	260.5	101	0	2.1	15	-24.2	-19.3	0		3	0
S10	C	258.1	105	32	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	30.0
	L	258.1	101	0	6.9	15	-24.1	-14.1	-10		3	0
											Total SPL, dB(A)	47

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	136.6	105	5	2.6	15	-21.4	-18.3	0		3	30.5
	L	136.6	101	0	2.6	15	-21.4	-18.3	0		3	0
S2	M	148.6	105	5	7.4	15	-21.7	-13.9	0		3	34.7
	L	148.6	101	0	7.4	15	-21.7	-13.9	0		3	0
S3	M	139.9	105	5	7.0	15	-21.5	-14.1	0		3	34.7
	L	139.9	101	0	7.0	15	-21.5	-14.1	0		3	0
S4	M	129.0	105	5	1.3	15	-21.1	-21.5	0		3	27.7
	L	129.0	101	0	1.3	15	-21.1	-21.5	0		3	0
S5	M	141.3	105	10	3.3	15	-21.5	-17.4	0		3	34.4
	L	141.3	101	0	3.3	15	-21.5	-17.4	0	Nil	3	0
S6	M	164.5	105	10	3.0	15	-22.2	-17.7	0		3	33.4
	L	164.5	101	0	3.0	15	-22.2	-17.7	0		3	0
S7	M	197.7	105	10	1.1	15	-23.0	-22.2	0		3	28.1
	L	197.7	101	0	1.1	15	-23.0	-22.2	0		3	0
S8	M	234.4	105	10	1.5	15	-23.7	-20.8	0		3	28.8
	L	234.4	101	0	1.5	15	-23.7	-20.8	0		3	0
S9	M	260.5	105	10	2.1	15	-24.2	-19.3	0		3	29.8
	L	260.5	101	0	2.1	15	-24.2	-19.3	0		3	0
S10	M	258.1	105	10	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	25.0
	L	258.1	101	0	6.9	15	-24.1	-14.1	-10		3	0
											Total SPL, dB(A)	42

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	136.6	105	0	2.6	15	-21.4	-18.3	0		3	0
	L	136.6	101	1	2.6	15	-21.4	-18.3	0		3	19.5
S2	M	148.6	105	0	7.4	15	-21.7	-13.9	0		3	0
	L	148.6	101	1	7.4	15	-21.7	-13.9	0		3	23.7
S3	M	139.9	105	0	7.0	15	-21.5	-14.1	0		3	0
	L	139.9	101	1	7.0	15	-21.5	-14.1	0		3	23.7
S4	M	129.0	105	0	1.3	15	-21.1	-21.5	0		3	0
	L	129.0	101	1	1.3	15	-21.1	-21.5	0		3	16.7
S5	M	141.3	105	0	3.3	15	-21.5	-17.4	0		3	0
	L	141.3	101	2	3.3	15	-21.5	-17.4	0	Nil	3	23.4
S6	M	164.5	105	0	3.0	15	-22.2	-17.7	0		3	0
	L	164.5	101	2	3.0	15	-22.2	-17.7	0		3	22.4
S7	M	197.7	105	0	1.1	15	-23.0	-22.2	0		3	0
	L	197.7	101	2	1.1	15	-23.0	-22.2	0		3	17.1
S8	M	234.4	105	0	1.5	15	-23.7	-20.8	0		3	0
	L	234.4	101	2	1.5	15	-23.7	-20.8	0		3	17.8
S9	M	260.5	105	0	2.1	15	-24.2	-19.3	0		3	0
	L	260.5	101	2	2.1	15	-24.2	-19.3	0		3	18.8
S10	M	258.1	105	0	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	0
	L	258.1	101	2	6.9	15	-24.1	-14.1	-10		3	14.0
											Total SPL, dB(A)	31

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	195.2	-53.8	0	Enclosure with silencer	-10	3	23.2
Condenser	Block 1 (NE)	75.5	6	83.3	229.0	-55.2	0	Enclosure with silencer	-10	3	21.1
Condenser	Block 2	75.5	6	83.3	335.2	-58.5	0	Enclosure with silencer	-10	3	17.8
										Total SPL, dB(A)	28

Note (*) Vehicle Type:

C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN15-TemporaryStructure

TruckMovement-Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	108.6	105	16	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	33.9
	L	108.6	101	0	14.3	15	-20.4	-11.0	-10		3	0
S2	C	92.4	105	16	12.0	15	-19.7	-11.8	-10		3	33.8
	L	92.4	101	0	12.0	15	-19.7	-11.8	-10		3	0
S3	C	84.7	105	16	12.0	15	-19.3	-11.8	-10		3	34.2
	L	84.7	101	0	12.0	15	-19.3	-11.8	-10		3	0
S4	C	89.0	105	16	5.9	15	-19.5	-14.9	-10		3	30.9
	L	89.0	101	0	5.9	15	-19.5	-14.9	-10		3	0
S5	C	76.7	105	32	2.6	15	-18.8	-18.4	-10		3	31.0
	L	76.7	101	0	2.6	15	-18.8	-18.4	-10		3	0
S6	C	52.0	105	32	8.6	15	-17.2	-13.2	-10		3	37.9
	L	52.0	101	0	8.6	15	-17.2	-13.2	-10		3	0
S7	C	23.1	105	32	61.4	15	-13.6	-4.7	-10		3	50.0
	L	23.1	101	0	61.4	15	-13.6	-4.7	-10		3	0
S8	C	26.6	105	32	68.4	15	-14.3	-4.2	-10		3	49.8
	L	26.6	101	0	68.4	15	-14.3	-4.2	-10		3	0
S9	C	48.3	105	32	14.0	15	-16.8	-11.1	-10		3	40.4
	L	48.3	101	0	14.0	15	-16.8	-11.1	-10		3	0
S10	C	53.2	105	32	25.9	15	-17.3	-8.4	-10		3	42.6
	L	53.2	101	0	25.9	15	-17.3	-8.4	-10		3	0
											Total SPL, dB(A)	54

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	108.6	105	5	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	28.9
	L	108.6	101	0	14.3	15	-20.4	-11.0	-10		3	0
S2	M	92.4	105	5	12.0	15	-19.7	-11.8	-10		3	28.8
	L	92.4	101	0	12.0	15	-19.7	-11.8	-10		3	0
S3	M	84.7	105	5	12.0	15	-19.3	-11.8	-10		3	29.2
	L	84.7	101	0	12.0	15	-19.3	-11.8	-10		3	0
S4	M	89.0	105	5	5.9	15	-19.5	-14.9	-10		3	25.9
	L	89.0	101	0	5.9	15	-19.5	-14.9	-10		3	0
S5	M	76.7	105	10	2.6	15	-18.8	-18.4	-10		3	25.9
	L	76.7	101	0	2.6	15	-18.8	-18.4	-10		3	0
S6	M	52.0	105	10	8.6	15	-17.2	-13.2	-10		3	32.9
	L	52.0	101	0	8.6	15	-17.2	-13.2	-10		3	0
S7	M	23.1	105	10	61.4	15	-13.6	-4.7	-10		3	44.9
	L	23.1	101	0	61.4	15	-13.6	-4.7	-10		3	0
S8	M	26.6	105	10	68.4	15	-14.3	-4.2	-10		3	44.8
	L	26.6	101	0	68.4	15	-14.3	-4.2	-10		3	0
S9	M	48.3	105	10	14.0	15	-16.8	-11.1	-10		3	35.3
	L	48.3	101	0	14.0	15	-16.8	-11.1	-10		3	0
S10	M	53.2	105	10	25.9	15	-17.3	-8.4	-10		3	37.6
	L	53.2	101	0	25.9	15	-17.3	-8.4	-10		3	0
											Total SPL, dB(A)	49

Truck Movement - Night

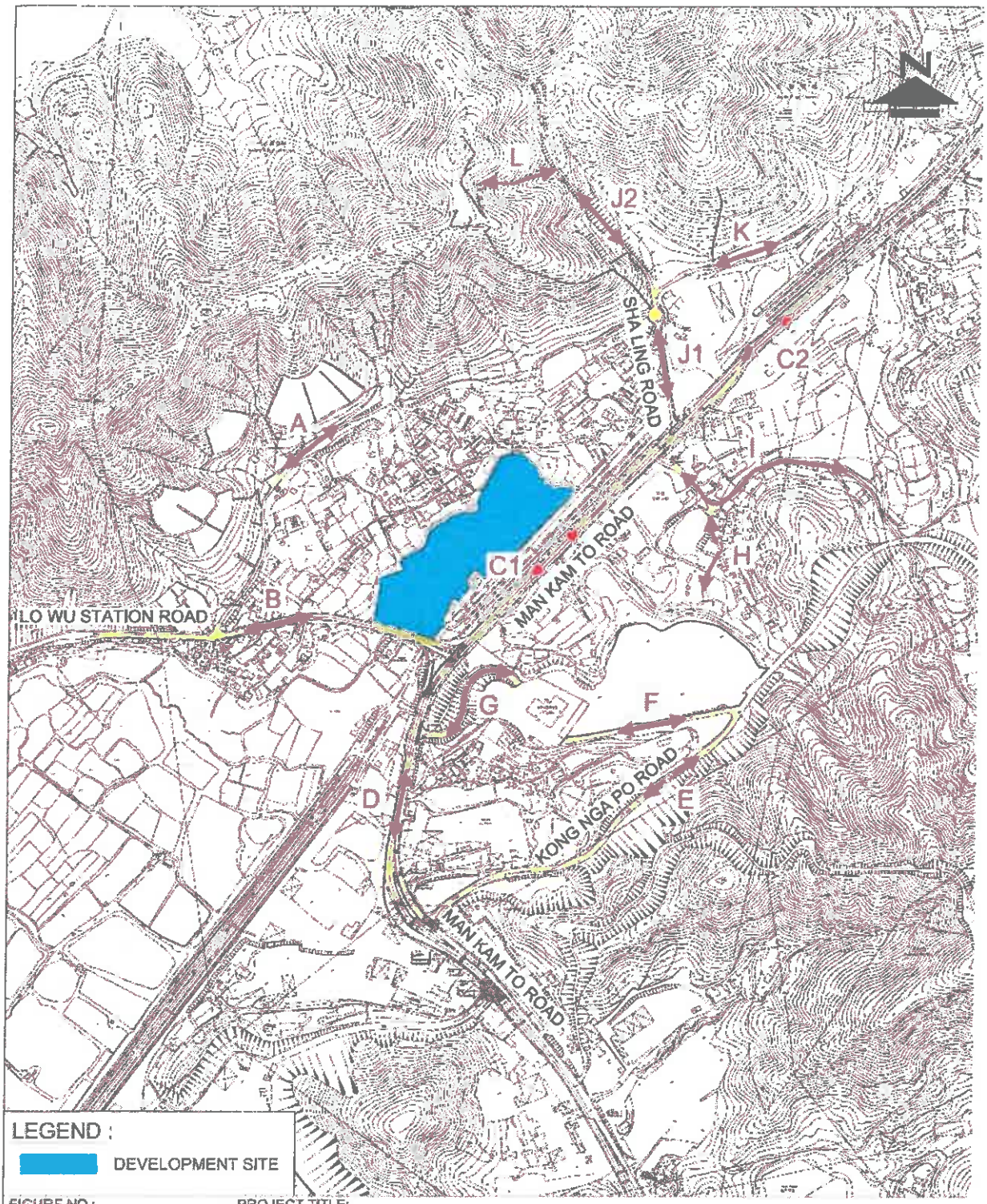
Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	108.6	105	0	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	0
	L	108.6	101	1	14.3	15	-20.4	-11.0	-10		3	17.9
S2	M	92.4	105	0	12.0	15	-19.7	-11.8	-10		3	0
	L	92.4	101	1	12.0	15	-19.7	-11.8	-10		3	17.8
S3	M	84.7	105	0	12.0	15	-19.3	-11.8	-10		3	0
	L	84.7	101	1	12.0	15	-19.3	-11.8	-10		3	18.2
S4	M	89.0	105	0	5.9	15	-19.5	-14.9	-10		3	0
	L	89.0	101	1	5.9	15	-19.5	-14.9	-10		3	14.9
S5	M	76.7	105	0	2.6	15	-18.8	-18.4	-10		3	0
	L	76.7	101	2	2.6	15	-18.8	-18.4	-10		3	15.0
S6	M	52.0	105	0	8.6	15	-17.2	-13.2	-10		3	0
	L	52.0	101	2	8.6	15	-17.2	-13.2	-10		3	21.9
S7	M	23.1	105	0	61.4	15	-13.6	-4.7	-10		3	0
	L	23.1	101	2	61.4	15	-13.6	-4.7	-10		3	34.0
S8	M	26.6	105	0	68.4	15	-14.3	-4.2	-10		3	0
	L	26.6	101	2	68.4	15	-14.3	-4.2	-10		3	33.8
S9	M	48.3	105	0	14.0	15	-16.8	-11.1	-10		3	0
	L	48.3	101	2	14.0	15	-16.8	-11.1	-10		3	24.3
S10	M	53.2	105	0	25.9	15	-17.3	-8.4	-10		3	0
	L	53.2	101	2	25.9	15	-17.3	-8.4	-10		3	26.6
											Total SPL, dB(A)	37

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	62.3	-43.9	0	Enclosure with silencer	-10	3	33.1
Condenser	Block 3 (NE)	75.5	6	83.3	52.3	-42.4	0	Enclosure with silencer	-10	3	34.0
Condenser	Block 2	75.5	6	83.3	124.5	-49.9	0	Enclosure with silencer	-10	3	26.4
										Total SPL, dB(A)	37

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

Appendix G **TRAFFIC FORECAST OF YEAR 2018 AND 2033**



LEGEND :

DEVELOPMENT SITE

FIGURE NO.: TNIA - 1

PROJECT NO.: 18014HK

SCALE: 1 : 6000 @ A4

DATE: 12 SEP 2018

PROJECT TITLE: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, NT

DRAWING TITLE: ROAD SECTION INDEX FOR TRAFFIC FORECAST

CTA Consultants Limited 志達顧問有限公司

2018 Traffic Forecast (Operation Peak Hour 0945 to 1045)

ID	Location	Direction	Speed Limit (km/h)	Without Proposed Development (2018)		With Proposed Development (2018)	
				1 hr Flow	% HV	1 hr Flow	% HV
				Q'	P'	Q'	P'
A	Access Road to Sandy Ridge	2-WAY	50	15	33.3	15	33.3
B	Lo Wu Station Road	EB	50	35	57.1	45	66.7
B		WB	50	20	25.0	30	50.0
C1	Man Kam To Road (Sha Ling Road / Lo Wu Station)	NB	50	485	55.6	490	56.1
C1		SB	50	320	45.4	325	46.2
C2	Man Kam To Road (Sha Ling Road / Lo Wu Station)	NB	50	475	45.3	480	45.8
C2		SB	50	245	55.0	250	56.0
D	Man Kam To Road (Kong Nga Po Road / Lo Wu Station)	NB	50	530	54.7	535	55.1
D		SB	50	350	45.8	355	46.5
E	Kong Nga Po Road	EB	50	70	50.0	70	50.0
E		WB	50	105	38.1	105	38.1
F	Access Road to Kong Nga Po Road	2-WAY	50	10	50.0	10	50.0
G	Access Road to Man Kam Road	2-WAY	50	10	100.0	10	100.0
H	Access Road to Man Kam Road	2-WAY	50	10	100.0	10	100.0
I	Access Road to Man Kam Road	2-WAY	50	15	33.3	15	33.3
J1	Sha Ling Road	2-WAY	50	55	63.7	55	63.7
J2	Sha Ling Road	2-WAY	50	20	50.0	20	50.0
K	Sha Ling Road	2-WAY	50	40	75.0	40	75.0
L	Access Road to Sha Ling Road	2-WAY	50	10	100.0	10	100.0

CTA Consultants Limited
Transportation, Planning, Engineering, Research and Development
We commit We deliver

Our Ref: 18014HK hor/ysl/01

By E-mail & Post
(E-mail: smkwong@td.gov.hk)

28 March 2019

Transport Department
NT Regional Office
Traffic Engineering (NTE) Division
North Section
9/F, Mongkok Government Offices,
30 Luen Wan Street, Mongkok, Kowloon.

Attn: Mr. KWONG Siu Ming, Kelvin (Engr/North 1)

Dear Mr. Kwong,

Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, New Territories
Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment (TNIA)

We, CTA Consultants Ltd., are commissioned as the Traffic Consultant for the proposed development at Sandy Ridge at various lots in DD89 and the adjoining Government land in Man Kam To Road.

The Traffic Noise Impact Assessment for the captioned development has already been submitted by the environmental consultant – SMEC to Environmental Protection Department (EPD). As per request by EPD, TD's endorsement on the traffic forecast used in the assessment is required. Therefore, we are pleased to submit herewith a technical note which summarizes the methodology and results of the traffic forecasts for Traffic Noise Impact Assessment (TNIA) for your kind consideration and approval.

The proposed development is targeted to be completed by 2021 tentatively and therefore year 2036 traffic forecasts (i.e. OP of the proposed development at year 2021 + 15 years) are required for the TNIA.

Thank you very much for your kind assistance and we are looking forward to hearing your favourable reply at your earliest convenience. Should you have any queries or require further information, please feel free to contact the undersigned or our Mr. Reus Leung at 2214 0849.

Yours Faithfully,
For and on behalf of
CTA Consultants Ltd.

Horace Mak
Director
Encl.

CTA Consultants Limited 志達顧問有限公司
Unit 801, 8/F, Technology Plaza, 651 King's Road, North Point, H.K. 香港北角英皇道 651 號科匯中心 8 樓 801 室
Tel (852) 2214 0849 · Fax (852) 2214 0817 · Email cta@ctaconsultants.com · Web www.ctaconsultants.com

Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, New Territories

Technical Note on Methodology for Estimating Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment

1. Objective

1.1 This technical note summarizes the methodology and results of the traffic forecasts in support of the Traffic Noise Impact Assessment (TNIA) for Proposed Development at Various Lots in DD 89 and the adjoining Government Land in Sandy Ridge.

2. Approach

2.1 The Annual Growth Rate derived based on Historical Traffic Data from Annual Traffic Census (ATC) published by Transport Department.

3. Methodology

3.1 Based on the assumption that daily traffic flow in different years is in direct proportion to the peak hour traffic flow throughout the district, the annual growth rate can be taken as being representative to the peak hour growth rate.

3.2 The proposed development is planned to be completed by year 2021 tentatively and hence year 2036 traffic forecasts (i.e. OP of proposed development at year 2021 + 15 years) for the following roads are required:

- Access Road to Sandy Ridge
- Lo Wu Station Road
- Man Kam To Road
- Kong Nga Po Road
- Sha Ling Road

Growth Rate

3.3 Numerous traffic-count stations are located in the vicinity of the proposed redevelopment. The traffic counts reported in the Annual Traffic Census (ATC), which is published by Transport Department, over a period of five years, i.e. 2012 to 2017 are summarized in **Table 1**.

Table 1 Historical Traffic Data from Annual Traffic Census (ATC)

Road Name	ATC Stn	From	To	Annual Average Daily Traffic (AADT)						Avg. Annual Growth (%)
				2012	2013	2014	2015	2016	2017	
Jockey Club Road	5218	Po Shek Wu Road	Man Kam To Road	20,820	21,550	20,860	21,830	23,060	22,890	1.91%
Man Kam To Road	5465	Jockey Club Road	Boundary	15,830	15,960	15,660	16,310	16,990	16,720	1.10%
Po Wan Road	5865	Chuk Wan Road	Jockey Club Road	2,440	2,460	2,440	2,420	3,140	3,090	4.84%
Sum				39,090	39,970	38,960	40,560	43,190	42,700	1.78%

3.4 Therefore, the traffic forecasts for design year 2036 can be derived based on the following formula:

$$\text{Year 2036 Traffic Flow} = \{\text{Year 2018 Observed Traffic Flow} \times (1+1.78\%)^{18}\} + \text{Proposed Development Traffic Flow}$$

3.5 As a result, the traffic forecasts for design year 2036 are estimated and detailed in **Appendix A**.

Appendix A

Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment

18014HK - Traffic Forecast for Traffic Noise Impact Assessment				2036 Peak Hour				Maximum Traffic Flow Peak within Operational Peak (0900-1200 / 0945-1045)					
Road Link	Road Name	Direction	Speed Limit (km/hr)	AM Peak (0845-0945)		PM Peak (1700-1800)		2018 Without proposed development		2036 Without proposed development		2036 With proposed development	
				2036 Peak Hour Traffic Flows (no veh/hr)	% of HV	2036 Peak Hour Traffic Flows (no veh/hr)	% of HV	2018 Peak Hour Traffic Flows (no veh/hr)	% of HV	2036 Peak Hour Traffic Flows (no veh/hr)	% of HV	2036 Peak Hour Traffic Flows (no veh/hr)	% of HV
1	Access Road to Sandy Ridge	2-Way	70	30	50.0%	40	62.5%	15	33.3%	25	20.0%	30	20.0%
2	Lo Wai Square Road	EB	50	25	57.1%	20	42.9%	15	57.1%	45	55.6%	60	66.7%
3	Lo Wai Station Road	WB	50	70	99.1%	30	50.0%	20	25.0%	75	80.0%	80	50.0%
4	Man Kam To Road (Sha Ling Road)/Lo Wai Station Road	NB	50	775	68.7%	160	30.7%	485	34.0%	675	35.7%	880	35.8%
4	Man Kam To Road (Sha Ling Road)/Lo Wai Station Road	SB	50	515	68.4%	700	76.3%	330	45.6%	695	45.6%	695	46.5%
4	Man Kam To Road (Sha Ling Road)/Lo Wai Station Road	NB	50	675	70.5%	660	56.6%	675	45.3%	895	45.9%	895	48.0%
4	Man Kam To Road (Sha Ling Road)/Lo Wai Station Road	SB	50	415	71.2%	675	70.8%	395	55.0%	695	55.2%	695	56.0%
10	Man Kam To Road/Chung Nga Po Road/Lo Wai Station Road	NB	50	860	69.3%	530	57.0%	530	34.3%	725	35.3%	730	35.1%
10	Man Kam To Road/Chung Nga Po Road/Lo Wai Station Road	SB	50	570	67.0%	790	70.9%	370	45.3%	680	45.9%	680	46.1%
11	Chung Nga Po Road	NB	50	575	56.7%	380	51.4%	70	100.0%	95	100.0%	95	100.0%
11	Chung Nga Po Road	SB	50	260	53.3%	495	41.4%	185	70.1%	230	70.3%	235	70.3%
12	Access Road to Chung Nga Po Road	2-Way	50	30	50.0%	15	75.0%	10	90.0%	10	90.0%	10	90.0%
13	Access Road to Man Kam To Road	2-Way	50	30	100.0%	10	100.0%	10	100.0%	10	100.0%	10	100.0%
14	Access Road to Man Kam To Road	2-Way	50	10	100.0%	10	100.0%	10	100.0%	10	100.0%	10	100.0%
15	Access Road to Man Kam To Road	2-Way	50	20	90.0%	20	85.0%	15	71.4%	20	75.0%	20	75.0%
16	Sha Ling Road	NB	50	10	60.0%	15	30.0%	5	80.0%	10	80.0%	10	80.0%
17	Sha Ling Road	SB	50	100	66.0%	10	35.0%	10	66.7%	60	62.5%	60	62.5%
18	Sha Ling Road	NB	50	25	52.0%	25	50.0%	10	100.0%	15	93.3%	15	93.3%
19	Sha Ling Road	SB	50	30	60.0%	30	50.0%	10	100.0%	15	93.3%	15	93.3%
20	Sha Ling Road	EB	50	60	77.0%	40	57.9%	15	86.7%	30	76.0%	30	76.0%
21	Sha Ling Road	NB	50	30	76.3%	30	76.0%	25	100.0%	35	82.9%	35	82.9%
22	Access Road to Sha Ling Road	2-Way	50	30	50.0%	30	100.0%	30	100.0%	70	100.0%	70	100.0%

Note: HV includes Light Bus, Public Light Bus, Light Goods Vehicle, Medium Goods Vehicle, Heavy Goods Vehicle, Private and Franchised Bus, Container Tractor, Coach and Bus. Bus includes Coach and Bus.

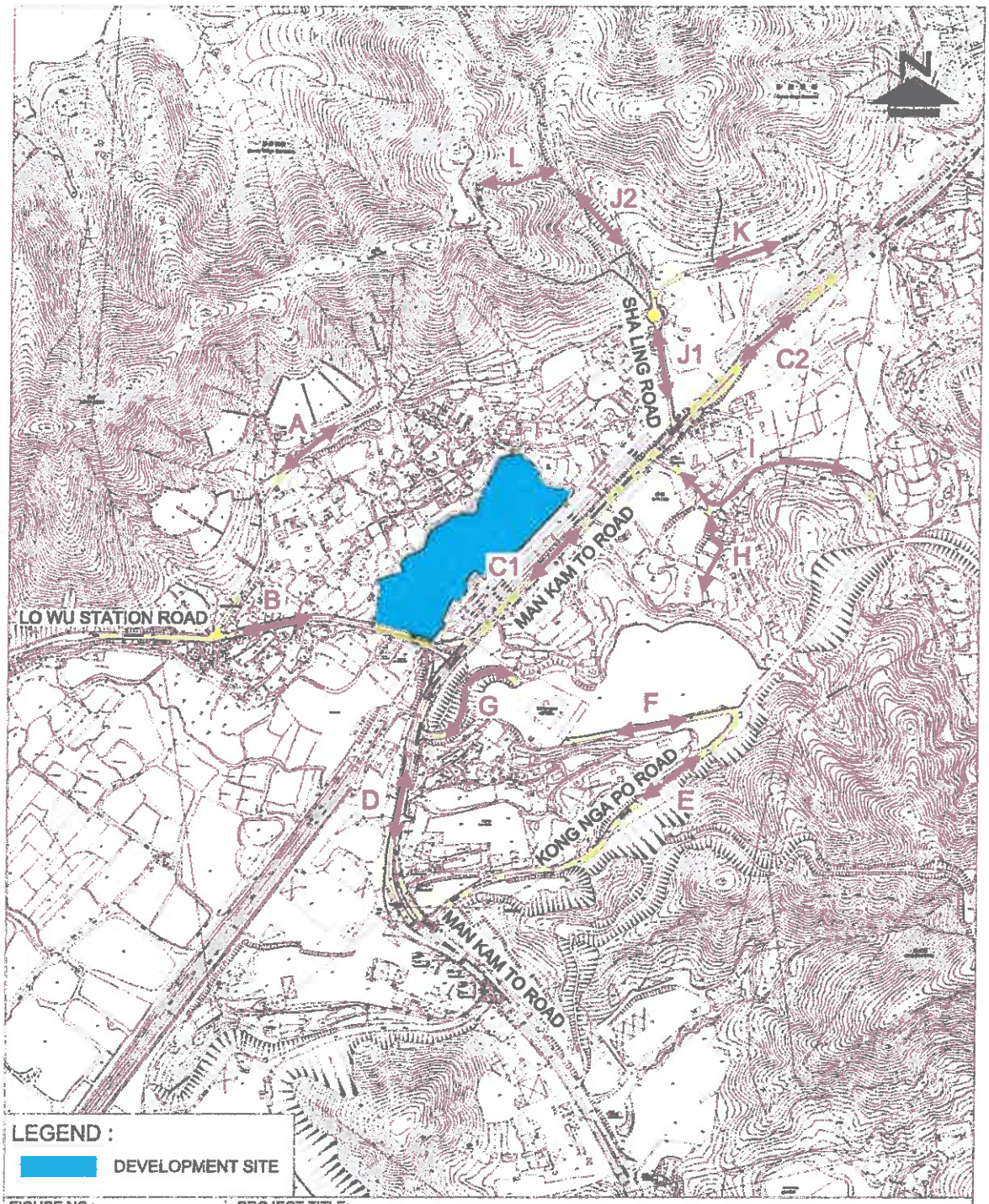


FIGURE NO.: TNIA - 1

PROJECT NO.: 18014HK

SCALE: 1 : 6000 @ A4

DATE: 12 SEP 2018

PROJECT TITLE:
Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, NT

DRAWING TITLE:

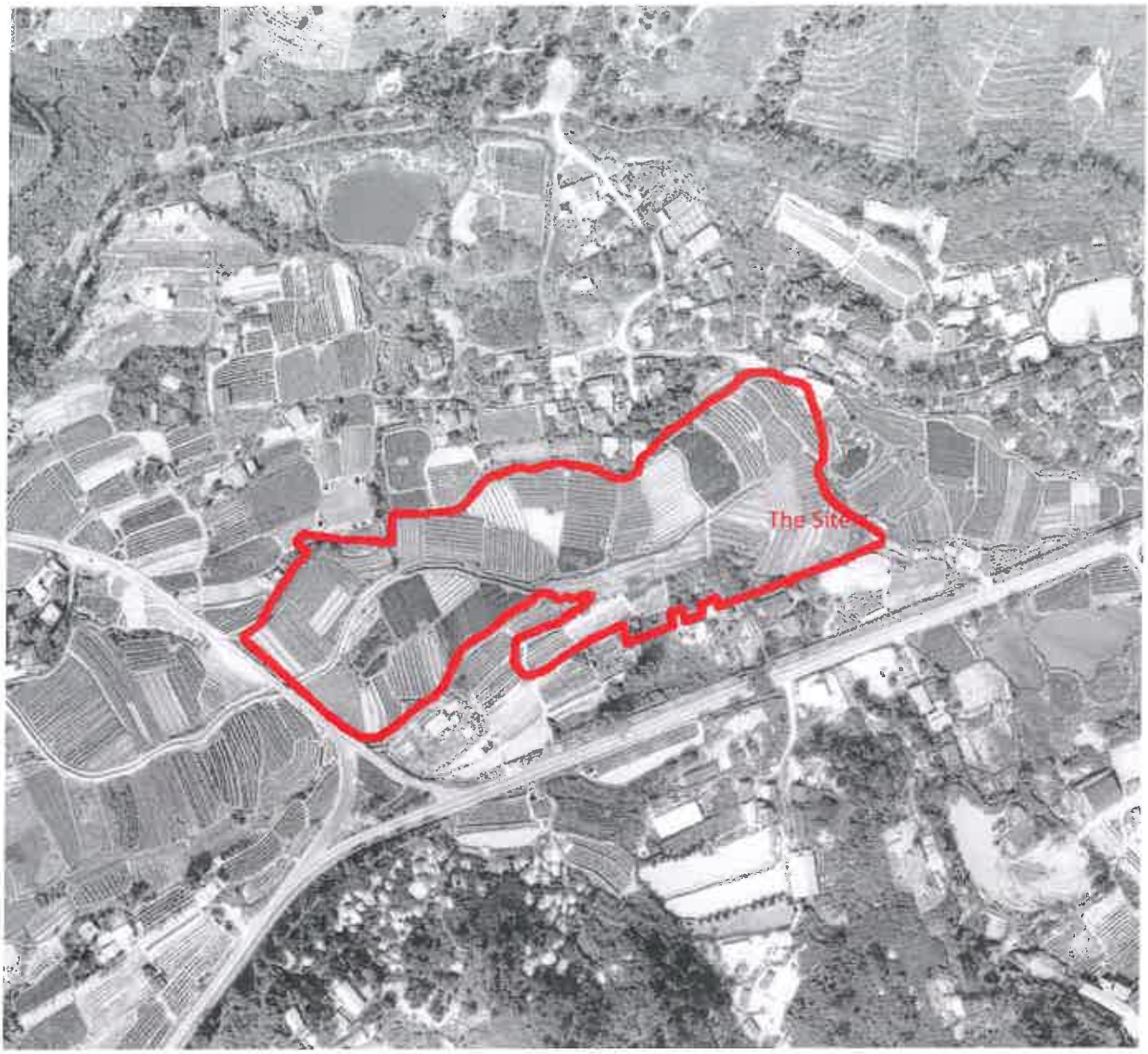
ROAD SECTION INDEX
FOR TRAFFIC FORECAST

CTA Consultants Limited
志達顧問有限公司

Figure I1: Aerial Photo in Year 1976

Appendix H **AERIAL PHOTOS**

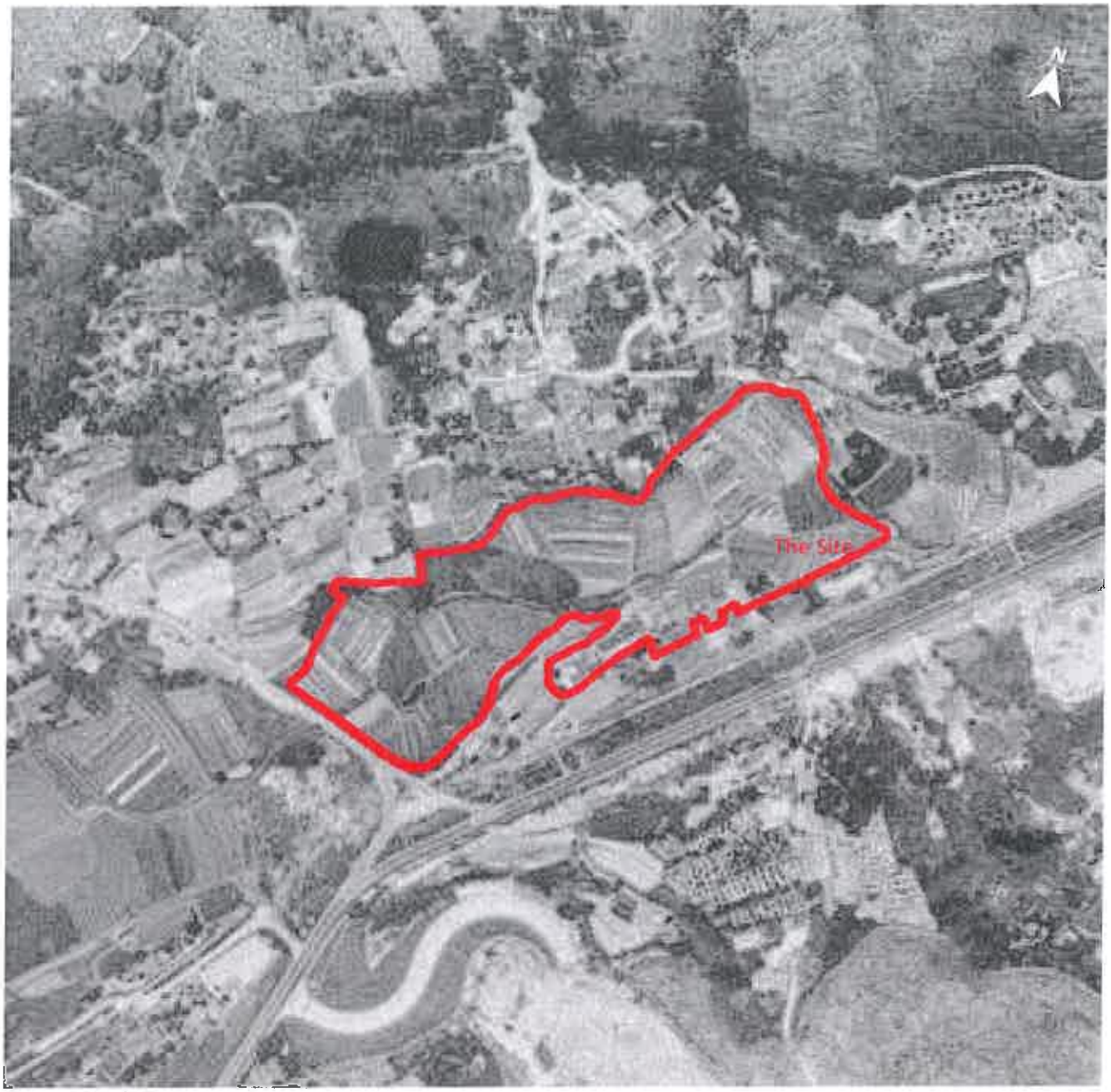
Figure I1: Aerial Photo in Year 1976



Source: Lands Department

In 1976, the Site was an agriculture land. No activities likely to result in land contamination were observed.

Figure I2: Aerial Photo in Year 1986



Source: Lands Department

In 1986, the Site remained as an agriculture land. No activities likely to result in land contamination were observed.

Figure I3: Aerial Photo in Year 1996

Source: Lands Department

In 1996, part of the previous agriculture land at the southern part of the Site was abandoned and covered with vegetation while the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.

Figure I4: Aerial Photo in Year 2006

Source: Lands Department

In 2006, majority of previous agriculture land of the Site was abandoned and covered with vegetation. Only a small portion of land at the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.

Figure I5: Aerial Photo in Year 2016

Source: Lands Department

In 2016, the situation of the Site was similar as 2006. Majority of Site was vacant and covered with vegetation. Only a small portion of land at the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.