Appendix V

Environmental Assessment

EnviroSolutions & Consulting Ltd

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Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Environmental Assessment Report

Prepared for:
Sanfield (Management) Ltd

4 December 2024

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For and on behalf of
EnviroSolutions & Consulting

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Group COO

ESC Project No.	EPA23.1044-J.01
Deliverable No.	D01
Revision No.	6

File Location

https://envirosc.sharepoint.com/teams/hkprojects/shared documents/epa23.1044-j.01 sha po site 1/07 deliverables/ea report rev6.docx

Rev.	Description	Prepared	Reviewed	Approved	Date
1.1	Environmental Assessment Report	MW	JC	AW	15/12/23
2	Environmental Assessment Report	MW	JC	AW	13/6/24
3.1	Environmental Assessment Report	MW	JC	AW	24/7/24
4	Environmental Assessment Report	MW	JC	AW	20/9/24
5	Environmental Assessment Report	MW	JC	AW	31/10/24
6	Environmental Assessment Report	MW	JC	AW	04/12/24

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1 INTRODUCTION

1.1 Project Background

1.1.1 Aligning with Government directives to enhance the quantity, speed, efficiency, and quality of housing, the construction industry is spearheading the development of highly productive construction methods, including the widespread adoption of Modular Integrated Construction ("MiC"). MiC, an innovative construction method, involves assembling building components off-site in a controlled environment before transporting and seamlessly integrating them into the construction site.

1.1.2 In order to support adopting MiC, a temporary open storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery for a period of three years ("the Proposed Development" or "Proposed Use") at various lots in DD 107, Sha Po, Yuen Long, New Territories ("the Site") is proposed.

1.1.3 The Site is zoned Comprehensive Development Area (1) ("CDA(1)") under the Approved Kam Tin North Outline Zoning Plan ("OZP") No. S/YL-KTN/11. In accordance with Note (11) of the OZP, temporary use of development of any land or building exceeding a period of three years will require permission from the Town Planning Board ("TPB"). Therefore, a planning application pursuant to Section 16 of the *Town Planning Ordinance* ("TPO") is required.

1.1.4 In order to support the planning application for the Proposed Development, EnviroSolutions & Consulting Ltd ("ESC") has been appointed to prepare this Environmental Assessment ("EA") Report.

1.2 Site Description

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

- To the North: Park Yoho
- To the East: temporary structures
- To the South: nullah and open storage
- To the West: Park Yoho

1.3 Project Description

1.3.1 The Site area will be approximately 9,705m^2. The indicative layout of the Proposed Development can be referred to the Planning Statement.

1.3.2 The Proposed Use aims to serve as a transshipment depot for MiC components, with the objective of meeting the growing demand for MiC applications while ensuring efficient logistics and seamless implementation of MiC in housing projects. MiC components intended for temporary storage will weigh about 10 to 20 tonnes, with maximum length and width of approx. 8m and 2.5m, respectively. The Proposed Use also serves as a hub for modular construction materials being used for housing project sites in order to promote more Green Construction Methodology.

1.3.3 The Proposed Development comprises an open storage area, providing a secure location for the temporary storage of MiC components and modular construction materials, along with ancillary facilities, including three single-storey workshops, a two-storey office, an open staff car park, a single-storey guardhouse and electric machinery (e.g., tower crane and hoisting crane etc.) to support its operational needs.

1.3.4 The proposed ancillary office is a two-storey structure designed to accommodate about 50 staff members. The office is intended to provide administrative/supporting services to facilitate the seamless transshipment of MiC components. The office and the guardhouse will be equipped with air conditioning and ventilation system, and will not rely on opened windows or doors for ventilation.

1.3.5 The proposed ancillary single-storey workshops, equipped with lifting machinery (i.e., hoisting cranes or known as “gantry cranes”), will be enclosed, primarily serving for internal quality control and quality assurance checks of building structure components other than MiC, as well as any necessary final touching-up works with use of hand-tools such as electric grinders, electric drills, etc. and painting before their delivery to construction sites.

1.3.6 The aforementioned machines will be electrically powered and most of them will be used inside the workshops. The tower crane will be used outdoor for loading/unloading of MiC from lorry and no works will be required for the temporarily stored MiC outdoor. Forklifts will be used to move building structure components such as pipes for the final touching-up works with use of hand-tools to be carried out inside the workshops. Therefore, no adverse environmental impacts in particular noise impact will be arising from the Proposed Development. The assessment details are provided in the following chapters.

1.3.7 Additionally, solar panels will be installed on the workshop and office roofs for self-sufficiency purpose, contributing to environmental protection through renewable energy generation.

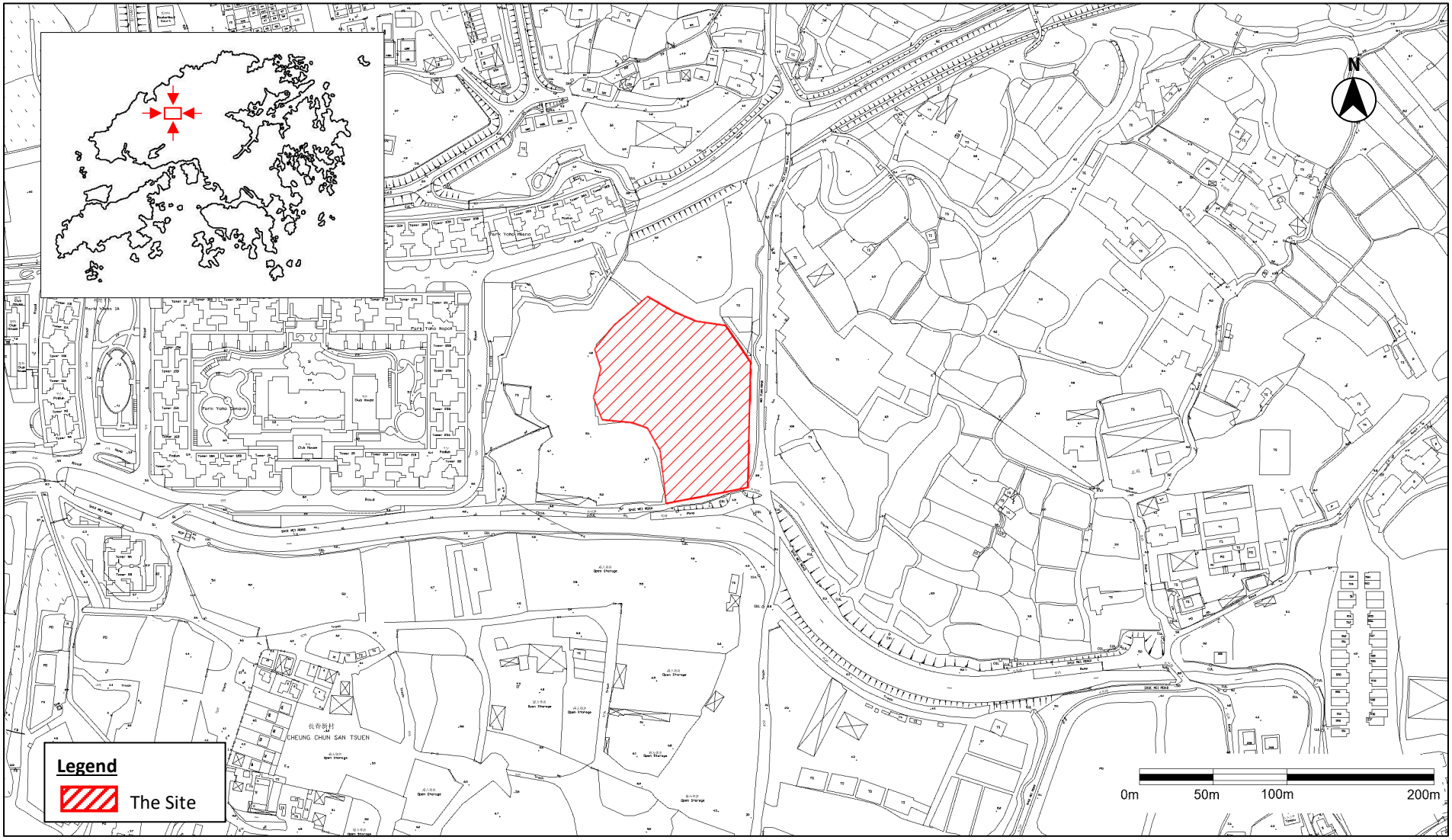
1.3.8 The operating hours of the Proposed Use will be from 8:00 a.m. to 7:00 p.m. from Monday to Saturday and without operation on Sunday and public holidays.

1.4 Objectives of the Report

1.4.1 The objectives of this EA Report are to:

- Assess the potential environmental impacts arising from the operation of the Proposed Development, in terms of air quality, noise, water quality and waste management.
- Recommend appropriate measures to mitigate any impacts if necessary.

Figure 1-1 Site Location and its Environs



2 AIR QUALITY

2.1 Environmental Legislation and Standards

Air Quality Objectives

2.1.1 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] ($\mu g/m^3$)	NUMBER 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 Oxide	1-hour	200	18
	Annual	40	Not applicable
Ozone	8-hour	160	9
Carbon Monoxide	1-hour	30,000	0
	8-hour	10,000	0
Lead	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

2.1.2 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.

2.1.3 The Regulation requires that advance notice is given to EPD for any notifiable work[1] [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

2.1.4 This Regulation takes effect on June 2015 and required 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.

Hong Kong Planning Standards and Guidelines ("HKPSG")

2.2 Identification of Air Sensitive Receiver ("ASRs")

2.2.1 The first layer ASRs within 500m from the boundary of the Site have been identified. All identified ASRs are existing ASRs and no planned ASR has been identified within the 500m Assessment Area. The 500m Assessment Area and locations of these ASRs are shown in **Figure 2-1** and summarised in **Table 2-2**.

Table 2-2 Identified Representative ASRs

ASR ID	DESCRIPTION	LANDUSE	NO. OF STOREY	APPROXIMATE DISTANCE TO SITE BOUNDARY
ASR1	PARK YOHO T36	Residential	12	64m
ASR2	PARK YOHO T25	Residential	15	90m
ASR3	Temporary Structure of Jimmy Garden	Workshop/ Garden	1	26m
ASR4	Temporary Structure, unknown	Unknown	1	22m
ASR5	Temporary Structure of open storage	Workshop	1	58m
ASR6	Temporary Structure of farmland	Workshop	1	45m

2.3 Identification of Air Pollution Sources

Construction Phase

2.3.1 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.

2.3.2 Based on the desktop review including OZP and survey map, there are 11 approved planning applications, mainly for development of warehouse, car parking area and recreational use such as hobby farm. There is no construction works in the vicinity of the Site during the site visit, however, there might be some concurrent construction works or projects due to those approved planning application within in 500m assessment area. The Applicant shall communicate with those project owners to prevent concurrent construction works as far as practicable before the commencement of the construction work, in order to minimise the impact to the air quality.

2.3.3 As advised by the Applicant, the site is already formed. Therefore, construction works including site formation/excavation and use of construction plants such as dump trucks, excavators, etc. will be minimal.

2.3.4 As mentioned in **Section 1.3**, building structures of the Proposed Development will include three 1-storey workshops, an office, a tower crane and a guardhouse. Therefore, no filling or excavation of the land will be required for the Proposed Development as indicated in Part 6(e)(ii) of Form No. S16-III for the Planning Application. For the worst-case scenario, as mentioned in **paragraph 5.2.12** construction works including the removal of existing concrete paving (about 20% of the Site area) and excavation of topsoil are assumed. About 70% of inert C&D materials will be recycled and only 608 tonnes will be delivered to public fill. The delivery involves about 15 no. of construction trucks per day. There will be limited numbers of diesel-powered machinery to be used at the site, estimated to be 1 excavator mounted breaker and 2 excavators which would be further reviewed subject to site condition and detailed construction methods. Limited equipment will be used during the construction phase.

2.3.5 With the implementation of dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, dust generation can be controlled and adverse fugitive dust impact is therefore not anticipated. More detailed descriptions for control measures are provided in **paragraphs 2.3.6** and **2.3.7**.

2.3.6 To avoid adverse construction air quality impact on the air sensitive uses nearby, good practice and 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 three 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 the site clearance) that may dislodge dust particles shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides within a day of demolition.
- Tarpaulin covering of all dusty vehicles 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 grinding work as far as practicable.
- 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 surface wet. Imposition of speed controls for vehicles on site haul roads and confine haulage and delivery vehicles to designated roadways inside the site.
- A 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 the 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.
- Emission from Non-Road Mobile Machinery ("NRMM") is governed under the *Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation*, as mentioned in **paragraph 2.1.4**. Each NRMM to be used in construction site shall be obtained with valid label in a prescribed format issued by EPD. The exempted NRMMs shall be avoided and electric NRMMs shall be adopted as far as practicable.
- The *Air Pollution Control (Fuel Restriction) Regulation* shall be fully complied with for the machinery to be used during the construction stage to minimise any aerial emissions.

2.3.7 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 are summarised below:

- The Contractor shall observe and comply with the APCO and is 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.

Operation Phase

2.3.8 The Proposed Development will be used as a temporary workshop and storage yard for MiC component and modular construction materials which transported to the Site by lorries. According to Table 4.3 of the Traffic Impact Assessment ("TIA"), 2 veh/hr is estimated to be induced at maximum. Thus, the vehicular emission impact arising from the induced traffic of the proposed development is considered limited and adverse air quality impact arising from the operation of the Proposed Development is not anticipated.

2.3.9 Those MiC (building components) will be assembled off-site. Limited touching up works including the use of hand-tools (e.g., electric grinders, electric drills, etc.) and painting, all the touching up works will be carried out inside the workshops. Electric tower/hoisting crane and fork-lifts will be used on-site, no air emission is anticipated. The entire site will be paved with concrete including the open storage area and so fugitive dust or emission could be properly controlled. With the implementation of the above measures and good site practice as mentioned in **paragraph 2.3.10**, adverse air quality impact is not anticipated.

2.3.10 The Good Practice recommended in *Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites* should be followed to minimise any potential air quality impact from the operation of the Proposed Development, such as:

- Dusty operations including cutting, grinding, polishing, loading, unloading or transfer of dusty construction materials, etc, are not permitted at the open area of the subject site as these activities, unless to be carried out in purposely-built enclosures and appropriate dust suppression measures are provided.
- Paint-spraying activities are not permitted at the on the surrounding environment (i.e. dispersing of paint mists from spraying).

2.3.11 The engines of the vehicles will be switched off during loading/unloading within the Site. Besides, Shui Mei Road and Mei Fung Road will still operate with ample capacity with the Proposed Development as per Section 5 of the TIA Report. As indicated in the TIA Report, only a few traffic will be generated by operating the Proposed Development. 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. 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. Hance, 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 Proposed Development on the surrounding air sensitive uses is not anticipated.

2.4 Conclusion

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

2.4.2 During the construction phase, about 15 no. of construction trucks per day will travel to the site, limited equipment (i.e. 1 excavator mounted breaker and 2 excavators) would be used on-site. With the implementation of dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, dust generation can be controlled and adverse fugitive dust impact is not anticipated. During the operation phase, only 2 no. of heavy vehicles will travel to the site per hour. No adverse traffic congestion problem and queuing on the public road leading worsening of vehicular emission impact is expected. The engines of the vehicles will be switched off during loading/unloading within the Site. The vehicular emission impact arising from the induced traffic is limited. All the touching up works will be carried out inside the workshops. Electric tower/hoisting crane and fork-lifts will be used on-site, no air emission is anticipated. No adverse air quality impact on the Site from vehicular emissions is anticipated with the implementation of the proposed mitigation measures during the operation phase. Also, the operation of the Proposed Development will not cause adverse air quality impacts on the surrounding air sensitive uses.

2.4.3 Overall, no adverse air quality impacts are anticipated during the construction and operation phases of the Proposed Development.

Figure 2-1 Location of Identified Air Sensitive Receivers and 500m Assessment Area

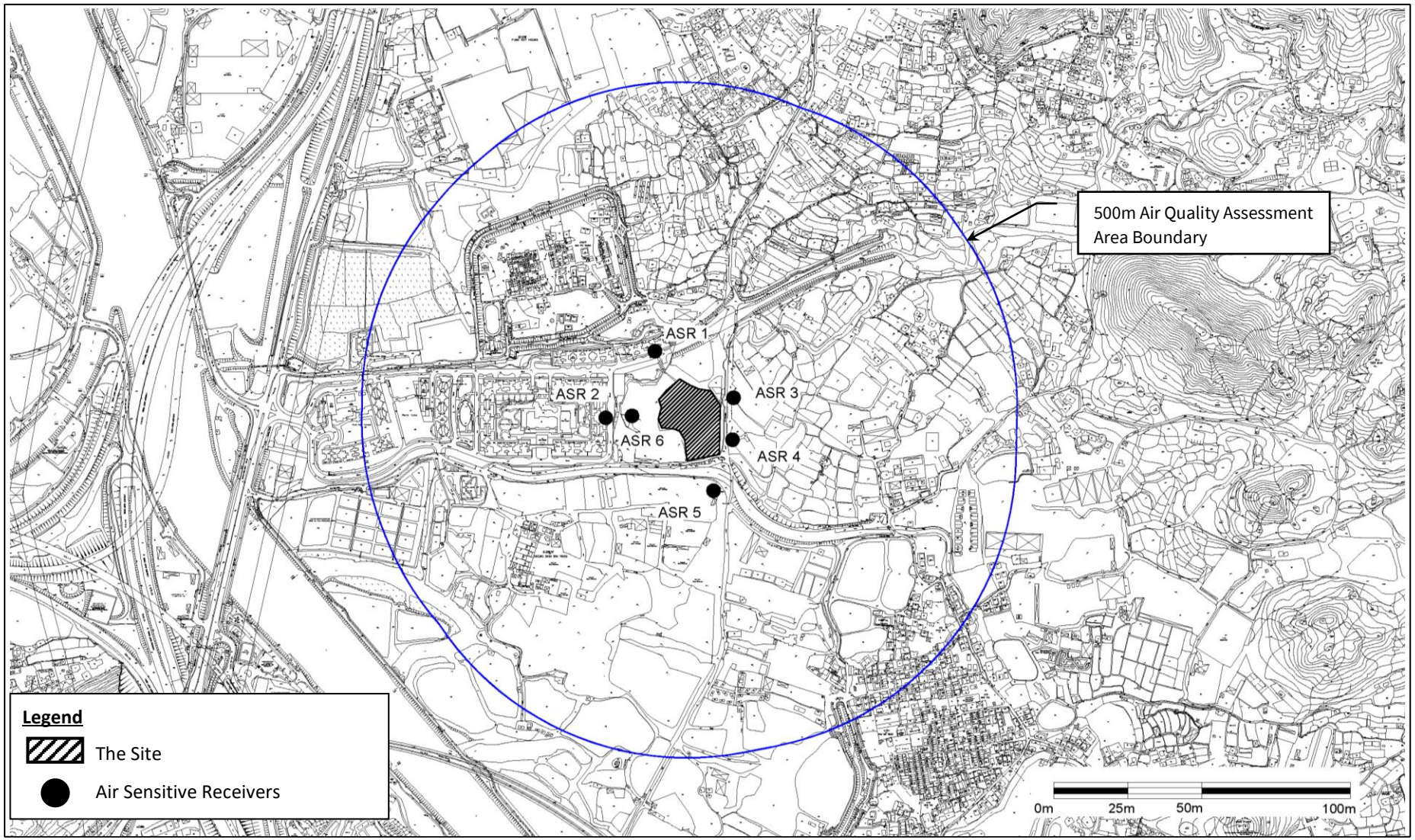
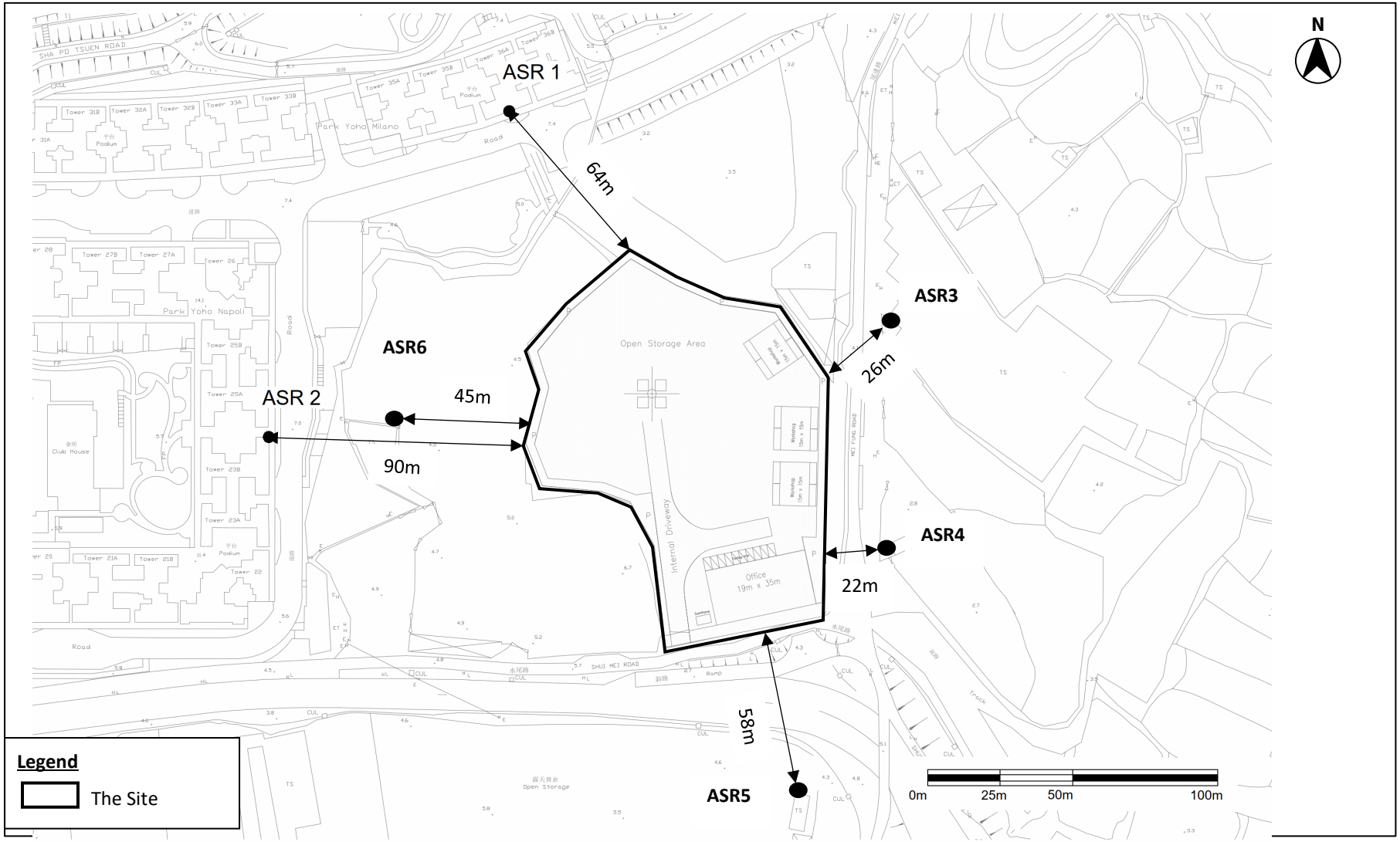


Figure 2-2 Horizontal Separation Distance Between the Site Boundary and the Identified ASRs



3 NOISE

3.1 Environmental Legislation and Standards

Noise Control Ordinance ("NCO", Cap. 400)

3.1.1 The principal 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. The TMs of NCO include:

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

3.1.2 The Site falls within a Designated Area ("DA") in accordance with EPD's Plan No. EPD/AN/NT-01 for Yuen Long, Tin Shui Wai, Mai Po, Shek Kong and Kwu Tung. Therefore, DA-TM is applicable.

3.1.3 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 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.

3.1.4 For noise arising from construction activities (other than percussive piling) during normal working hours (7am to 7pm from Monday to Saturday, not including general holidays), the noise criteria as shown in **Table 3-1** and control measures for construction noise impact during normal working hours can be referred to *Professional Persons Environmental Consultative Committee Practice Note PN 1/24 Minimizing Noise from Construction Activities* ("ProPECC PN1/24").

Table 3-1 Construction Noise Criteria for Non-Restricted Hours

NOISE SENSITIVE USE	$L_{eq\ (30min)}$ NOISE CRITERIA BETWEEN 0700 AND 1900 ON ANY DAY NOT BEING A SUNDAY OR GENERAL HOLIDAY
All domestic premises Temporary housing accommodation Hostels Convalescences homes Homes for the aged	75 dB(A)

NOISE SENSITIVE USE	$L_{eq\ (30min)}$ NOISE CRITERIA BETWEEN 0700 AND 1900 ON ANY DAY NOT BEING A SUNDAY OR GENERAL HOLIDAY
Places of public worship Courts of law Hospitals and medical clinics	70 dB(A)
Educational institutions (including kindergartens and nurseries)	70 dB(A) (or 65 dB(A) during examination)

3.1.5 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**. The classification of the operations of the subject site as "construction work" or "industrial/ commercial activity" depends on its nature, purpose and direct connection to any particular construction site or project. In any event, the noise assessment for the operational phase of the subject site in this report is indicative only. Nothing in this study shall bind the Noise Control Authority in the context of law enforcement against any of the noise from the subject site being assessed.

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")

3.1.6 The noise criteria for planned fixed 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

3.2 Noise Impact of Construction Phase

3.2.1 As mentioned in **paragraph 1.3.3** and Table 1 of the Planning Statement, building structures of the Proposed Development will include a 10m high two-storey office, three 10m high single-storey workshops and a 4m high single-storey guardhouse. No piling works will be generally required for the construction of structures not higher than 10m above ground. No noise due to piling works will therefore be arising from the Proposed Development. Various construction activities such as excavation will be the key noise sources generated during the construction phase. In particular, the use of Powered Mechanical Equipment ("PME") and the vehicle movement within the Site are the major noise sources.

3.2.2 Construction works should be carried out during non-restricted hours as far as practicable. The mitigation measures recommended in ProPECC PN1/24 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 should 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.
- Use of muffler/silencer for equipment when necessary.
- Noisy equipment and noisy activities should be located as far away from the NSRs as far as practicable.
- Use quiet construction method, e.g. use of saw-cut or hydraulic crusher instead of excavator-mounted percussive breaker as far as practicable.
- 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 As mentioned in **paragraph 3.2.2**, construction works should be carried out during non-restricted hours. If construction work involving the use of PME will be unavoidably 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/ DA-TM. Despite any description made in this report, the issue of CNP for the project construction is subject to the decision of the Noise Control Authority. The Noise Control Authority will consider a well-justified CNP application, once filed, for construction works within restricted hours as guided by the relevant TMs issued under the NCO. The Noise Control Authority will take into account contemporary conditions / situations of adjoining land uses and any previous complaints against construction activities at the site before making a decision in granting/renewing a CNP. Nothing in the report shall bind the Noise Control Authority in making a decision. If a CNP is to be issued, the Noise Control Authority shall include in it any conditions demand. Failure to comply with any such conditions will lead to cancellation of the CNP and prosecution under the NCO.

3.2.4 In addition, the EPD's RPCC for Construction Contract 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 below:

- The Contractor shall observe and comply with the NCO and its subsidiary regulations.
- 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).
  - Should the limits stated in the above be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Applicant or their representative 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 quietest practicable working methods when carrying out demolition works, and /or road opening works during restricted hours.
- The Contractor shall adopt, where necessary and practicable, the use of quieter construction equipment and/or methods when carrying out the construction works, including demolition works, foundation works, site formation works, road opening works, etc.
- 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.
- 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 Applicant or their representative.
- The relevant contract specifications recommended under ProPECC PN 1/24 shall also be adopted in the Construction Contract

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

3.3 Noise Impact of Operation Phase

General

3.3.1 The Proposed Development will be used as a temporary workshop and storage yard for MiC materials and modular construction materials. As confirmed by the Applicant, the operation procedures of the Proposed Development are as follows:

- Lorries with maximum Gross Vehicle Weight ("GVW") of no more than 38 tonnes will be used to deliver MiC components and also construction materials such as pipes to the Proposed Site. Lorry will be switched off immediately upon arrival at the pick-up or delivery point for loading or unloading.
- For safety requirements of operating tower crane, no operations or works shall be allowed within the operation area of tower crane. For ease of safety management, forklift will not be used when operating tower crane.
- For MiC component: One tower crane (electric) will be adopted to lift MiC component from lorry and unload to the open storage area within the Proposed Site gently, and lift the stored MiC component in the open storage area onto lorry gently for delivering the

MiC component to construction site. No significant noise will be generated other than the noise from the tower crane (electric).

- For other small size construction materials (such as pipes): Electric forklifts will be adopted to transport small size construction materials such as pipes from the lorry to one of the workshops for storage and final touch-up works, when necessary, and transport the stored small size construction materials (such as pipes) to construction site. Considering the Site Area is just 9,705m^2, use of forklifts for moving construction materials will not be more than 15 minutes. For the worst-case scenario, the maximum operation time of 30 minutes has been assumed in assessing fixed plant noise.
- All final touch-up works, when necessary, will be carried out by use of electric hand tools inside the workshops. No touch-up works, usage of additional equipment or other noisy activity will be carried out in the open area or outdoor of the Proposed Development.
- After the entire unloading or loading process, the lorry will be switched on and leave the Proposed Site along the original path.

3.3.2 For safety requirements of operating tower crane, no other activities shall be carried out under the electric tower crane when it is in operation. In the light of safety requirements, the tower crane will not be operated with the electric forklift as the same time within the Project Site. Considering the tower crane, forklift and lorries to be operated outdoor and all other equipment to be used inside the workshops, use of tower crane, forklift and lorries will be the dominant operation noise sources. Two scenarios of operation have been assessed based on the methodology detailed in **paragraphs 3.3.6** to **3.3.13**. The two scenarios are as follows:

Scenario 1:

- Tower crane (electric): (1 no./ 15 mins; % 50% utilisation of time)
- Lorry (5.5< GVW ≤38 tonnes): (4 no./ 30 mins; % 100% utilisation of time)

Scenario 2:

- Forklift (electric): (1 no./ 30 mins; about 100% utilisation of time)
- Lorry (5.5< GVW ≤38 tonnes): (4 no./ 30 mins; % 100% utilisation of time)

3.3.3 The location of storage area and equipment have been indicated in **Figure 3-3**.

3.3.4 As mentioned in **paragraph 1.3.8**, the operation hours of the Proposed Development will be from 08:00 to 19:00 from Monday to Saturday except general holidays. Thus, potential noise impacts during day-time should be assessed.

3.3.5 The potential major noise sources during the operation of the Proposed Development were identified as follows:

- On-site movements of vehicles
- Mechanical and Electrical ("M&E") equipment
- Off-Site Traffic Noise

Assessment Assumptions and Methodology

On-site movement of vehicles

3.3.6 Since the MiC components will be delivered via lorries (gross vehicle weight ≤38 tonne), on-site movement of vehicles are considered to be one of the major noise sources. As advised by the Applicant and from the Table 4.3 of approved TIA, the maximum number of heavy vehicle travel to the Site is two lorries per hour and 10 light vehicles (i.e. private cars) per hour travel to/ leaving the Site (i.e. office) in the AM and PM peak respectively. As indicated in TIA, 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 traffic noise impact (i.e. idling). The vehicle speed will be limited to no more than 15km/hour, due to the limited travelling area within the site, as lorries will only use the single track vertical driveway as shown in **Figure 3-3** to travel to/from the Proposed Development.

3.3.7 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:

$$SPL = SWL - 33 + 10logQ - 10logV - 10logd + AC + FC$$

where
SPL = Sound Pressure Levels at receiver, in dB(A)
SWL = Sound Power Levels of 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 metres
AC = Angle of view Correction = 10log(Θ/180) where Θ is the angle of view (in degree) of a particular haul road segment
FC = Façade Correction of +3 dB(A)

3.3.8 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 [Note 2].

M&E Equipment

3.3.9 During the operation, tower crane (electric) will be used on site for the MiC component transportation within the Site to open storage area. Forklift (electric) will be used on site for transporting other construction material such as pipes to the workshops for final touch-up when necessary. Since the tower crane and forklift will be used within the open area of the Proposed Site, they are considered as the main fixed plant noise sources during operation. The example of forklift (electric) is provided in **Appendix D** for reference.

3.3.10 Some M&E equipment, such as electric hoisting cranes (or "gantry cranes"), hand-tools such as electric grinders, electric drills, etc., will be used only inside the workshops when final touch-up works are necessary. The three workshops will be enclosed by the claddings with a surface density of at least 10kg/m^2. There will be no holes or gaps in the claddings or between the claddings. All the openings of the workshops will be acoustically sealed and be tightly closed during operation to avoid noise leakage and to minimise the generated noise leaking from the workshops. To further reduce the potential noise from the workshop, the door opening will face to the southeast or north of the Site, in order to prevent facing the identified NSRs. Considering the final touch-up works are not a frequent practice and continuous works in normal operation and all M&E will be stored within the enclosed workshop, no significant noise generated from the final touching up works within the

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

workshops is anticipated. As such, noise arising from hoisting cranes and other tools inside workshops is considered to be negligible. Regarding ventilation, no chiller and/or cooling tower will be adopted for the workshops and/or offices. For office, only split type and/or windows type air conditioners will be installed. For workshops, electric blowers will be used inside the workshops and ventilation fans will be installed to the south-eastern direction for ventilation. As the Sound Power Levels ("SWL") of outdoor unit split-type and windows type air conditioners are generally minimal while blowers will be used inside the enclosed workshops, noise impact from air conditioners, ventilation fans and blowers are considered to be negligible.

3.3.11 The SWL of tower crane (electric) is referred to that 95dB(A) of GW-TM. The SWL of forklift (electric), 82dB(A), is referred to the specifications of electric forklift in **Appendix D**. A catalogue of forklift (electric) is provided in **Appendix D** for reference.

3.3.12 The tower crane will be fixed in the proposed location of the site as shown in **Figure 3-3**. The centre point of the proposed location of the tower crane has been adopted to calculated distance from the NSRs and assessed the noise levels via the equation in **paragraph 3.3.13**. The forklift (electric) will move around the storage area, so geographic centre was estimated, and notional source position was adopted in the operation noise assessment. The location of the geographic centre of forklift, notional sources of each NSRs was provided in **Figure 3-3**.

3.3.13 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 PME, in dB(A)
DC = Distance Correction, in dB(A) by DC = 20log10(D) + 8
D = Horizontal distance between the NSR and the source in metres
FC = Façade Correction of +3 dB(A)

Off-Site Traffic Noise

3.3.14 During the operation phase, off-site traffic noise will be generated by heavy vehicle. Lorry will be adopted to transport MiC components and construction materials to the Site. As mentioned in **paragraph 3.3.6**, a maximum of 2 lorries/ hour will travel to and from the Site. Since no more than 2 vehicles per hour will enter the site, there would be no significant increase in the hourly traffic flows due to the Proposed Development. There will be 10 private cars traveling to/ leaving the Site (i.e. office) in the AM and PM peak with reference to the TIA report. However, private cars are considered as light vehicles, and it is one-off event in the morning and evening only (i.e. one event in the AM and one event in the PM). As such, traffic noise due to the one-off event of private cars is considered to be relatively insignificant compared with the maximum 2 numbers of heavy vehicles (i.e. lorries) per hour. Therefore, no adverse off-site traffic noise impact for the Proposed Development is anticipated.

Summary of Mitigation Measures

3.3.15 The mitigation measures to be implemented during the operation phase are listed in **Table 3-3**.

Table 3-3 Summary of Mitigation Measures in Operation Phase

Event/ Unit	Mitigation Measures to be Implemented
Lorry	• Travel to or leave the Site via single track vertical driveway. • Lorry will be switched off immediately upon arrival at the pick up or delivery point for loading or unloading. • Lorries with maximum Gross Vehicle Weight ("GVW") of no more than 38 tonnes will be used • Maximum 2 lorries per hour will travel to and from the Site.
Tower Crane (electric)	• Maximum operation time is 15 minutes per 30 minutes. • 1 no. of electric type tower crane will be used to lift MiC component from lorry and unload to the open storage area within the Proposed Site gently and lift the stored MiC component in the open storage area onto lorry gently for delivering the MiC component to construction site
Forklift	• 1 no. of electric forklift will be adopted to transport small size construction materials such as pipes from the lorry to one of the workshops and transport the stored small size construction materials (such as pipes) to construction site. • Electric forklift will move around the loading and unloading area within the Site.
Three Workshops	• The three workshops will be enclosed by the claddings with a surface density of at least 10kg/m^2. • All the openings of the workshops will be acoustically sealed and be tightly closed during operation • The door opening will face the southeast of the Site in order to preventing facing to the identified NSRs. • Final touching up works will be conducted within the workshop. • Electric hoisting cranes (or "gantry cranes"), hand-tools such as electric grinders, electric drills, etc., for final touching up works will be used only inside the workshops. • Ventilation fans will be installed to the south-eastern direction for ventilation.
Private cars	• Maximum 10 nos. of private car (light vehicles) will travel to the office of the Site in the AM and leave the Site in the PM. • One-off event in the morning and evening only.

NSRs

3.3.16 For operation noise, the first layer NSRs within 300m from the boundary of the Site have been identified. All identified NSRs are existing NSRs and no planned NSR has been identified within the assessment area. The location of these NSRs are shown in **Figure 3-1** and details are summarised in **Table 3-4**.

Table 3-4 Identified Representative NSRs of Noise from Fixed Sources

NSR ID	DESCRIPTION	LANDUSE	NO. OF STOREY	APPROXIMATE DISTANCE TO SITE BOUNDARY
IN1	PARK YOHO T36	Residential	12	64m
IN2	PARK YOHO T25	Residential	15	90m
IN3	Temporary Structure	Residential	3	219

NSR ID	DESCRIPTION	LANDUSE	NO. OF STOREY	APPROXIMATE DISTANCE TO SITE BOUNDARY
IN4	Temporary Structure	Residential	1	158
IN5	Temporary Structure	Residential	1	274m

3.3.17 The identified NSRs is located in a low density residential area consisting of low-rise or isolated high-rise developments and is considered not directly affected by the IF. 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 NSR is determined as Type A in accordance with IND-TM.

3.3.18 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

3.3.19 Background noise monitoring at the sensitive façade where is representative to the identified NSRs is the most preferable location. The Site is mainly surrounded by private lots (i.e. located between the Site and the identified NSRs). However, the landowner/ occupants refused to allow for background noise measurement. As such alternative background noise monitoring locations were adopted. The location of the most preferable location and the alternative background noise monitoring locations are shown in **Figure 3-2**.

3.3.20 Alternative locations BG1, BG2, BG3 and BG4 have been selected to conduct the background noise monitoring throughout the entire proposed operation hours (i.e. 0800 to 1900) during the weekday under free-field condition. BG1 is located at a location near the bridge to the east of IN1 and south of IN4. The major noise affecting BG1 is Mei Fung Road which is considered to be comparable to that at IN1 and IN4. The major noise sources of IN2 are Shui Mei Road and the car park. There are only car parks and access road connecting the car park and IN2 were available to access, however, considering the safety issue, car park and nearby area are not preferable. BG2 is located at a location near the roadside of Shui Mei Road and opposite the car park as well as the IN2. The major noise sources of BG2 are Shui Mei Road and the car park, which is similar environs to that of IN2. The major noise sources of IN3 and IN5 are the village access road, car park and Shui Mei Road (approximately 75m from IN3 and IN5). Considering safety issue for setting monitoring locations at a narrow village access road and within the accessible car parks, background noise levels of alternative locations at BG3 and BG4 outside the carpark and near the roadside of wider village access road were measured to represent IN3 and IN5 respectively.

3.3.21 A set of minimum $L_{90(1hour)}$ has been adopted as prevailing background noise level. The monitoring data is presented in **Appendix A**.

3.3.22 With reference to the *Technical Memorandum* ("TM") issued under the *Noise Control Ordinance* ("NCO"), sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 specifications were used for carrying out the noise monitoring. Immediately prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements

were considered acceptable and valid as the calibration level from before and after the noise measurement agrees to within 1.0dB.

3.3.23 Noise measurements were made in accordance with standard acoustical principles and practices in relation to weather conditions. Calibration certificates of the noise monitoring equipment used are provided in **Appendix B**.

Noise Criteria

3.3.24 As discussed in **paragraph 3.3.17**, the ASR of all identified NSRs is "A". The noise criteria for the planned fixed noise source were determined with reference to ANL-5 and the noise level is shown in **Table 3-5**.

Table 3-5 Noise Criteria of Noise from Fixed Sources of Identified Representative NSRs

NSR ID	DESCRIPTION	TIME PERIOD	MEASURED BACKGROUND NOISE LEVEL MINIMUM $L_{90(1HOUR)}$, dB(A)	NOISE CRITERIA (ANL-5, dB(A))	NOISE CRITERIA, dB(A)
IN1	PARK YOHO T36	Day	47	55	47
IN2	PARK YOHO T25	Day	48	55	48
IN3	Temporary Structure	Day	47	55	47
IN4	Temporary Structure	Day	47	55	47
IN5	Temporary Structure	Day	47	55	47

Note: The background noise level was measured at free-field condition. Thus, a façade correction of +3 dB(A) was applied.

Assessment Results

3.3.25 The predicted noise impact results are summarised in **Table 3-6** and detailed in **Appendix C**. The project proponent's construction professionals have confirmed that the lists of plant and their percentage on-times during the operation of the subject site, as outlined in **Appendix B**, are realistic, practical and practicable.

Table 3-6 Predicted Noise Impact Level During Operation Phase

NSR ID	DESCRIPTION	TIME PERIOD	NOISE CRITERIA, dB(A)	PREDICTED NOISE LEVEL, dB(A)	EXCEEDANCE
Scenario 1					
IN1	PARK YOHO T36	Day	47	47	No
IN2	PARK YOHO T25	Day	48	46	No
IN3	Temporary Structure (unknown)	Day	47	41	No
IN4	Temporary Structure (unknown)	Day	47	42	No
IN5	Temporary Structure (unknown)	Day	47	40	No
Scenario 2					
IN1	PARK YOHO T36	Day	47	39	No

NSR ID	DESCRIPTION	TIME PERIOD	NOISE CRITERIA, dB(A)	PREDICTED NOISE LEVEL, dB(A)	EXCEEDANCE
IN2	PARK YOHO T25	Day	48	42	No
IN3	Temporary Structure (unknown)	Day	47	39	No
IN4	Temporary Structure (unknown)	Day	47	36	No
IN5	Temporary Structure (unknown)	Day	47	38	No

3.4 Conclusion

3.4.1 During the construction phase of the Proposed Development, with the implementation of the noise mitigation measures recommended in **paragraph 3.2.4**, no adverse noise impact is anticipated.

3.4.2 Tower crane (electric), forklift (electric) and on-site heavy vehicle movement (lorry) are the major potential noise sources during the operation phase. Final touch-up works will be conducted inside enclosed workshops when necessary. All the openings of the workshops should be acoustically sealed and be tightly closed during operation to avoid noise leakage and to minimize the noise generated from within Considering the final touch-up works are not a frequent practice and continuous works in normal operation and all M&E will be stored within the enclosed workshop, no significant noise impact arising from enclosed M&E equipment is anticipated. Quantitative assessment for the fixed noise sources was conducted. The predicted noise level during operation ranges from 40 dB(A) to 47 dB(A) for Scenario 1 and from 36dB(A) to 42 dB(A) for Scenario 2 which indicated that all the noise levels at NSRs would comply with the relevant noise criterion.

3.4.3 Overall, therefore, there will be no adverse noise impact during the construction and operation phases of the Proposed Development. The construction and operational activities during construction and operational phases of the subject site would be designed, planned and managed to ensure the noise from the site would comply with the relevant noise criteria and requirements under the Hong Kong and Planning Standards and Guidelines and the Noise Control Ordinance.

Figure 3-1 Location of Identified Representative NSRs and 300m Assessment Area

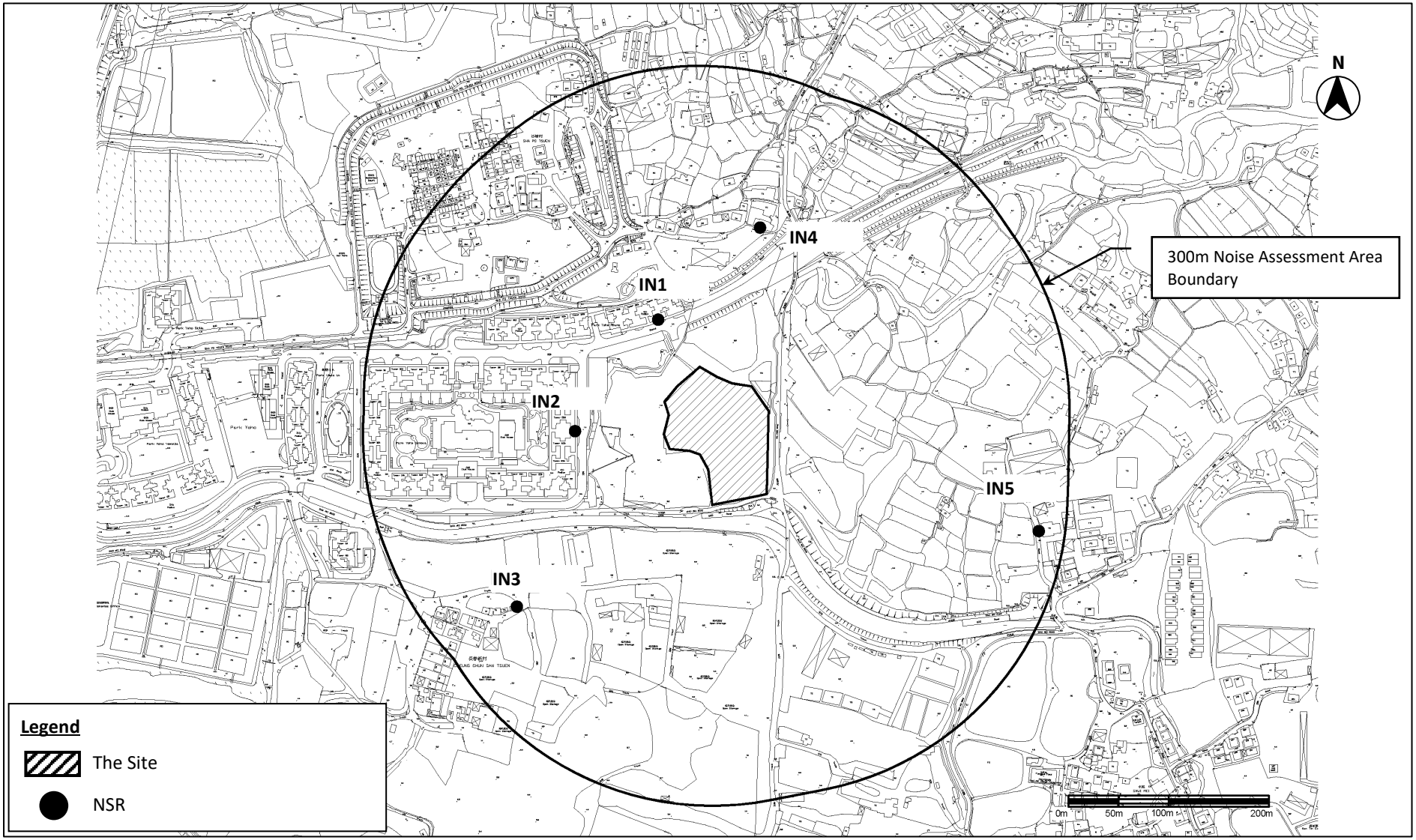
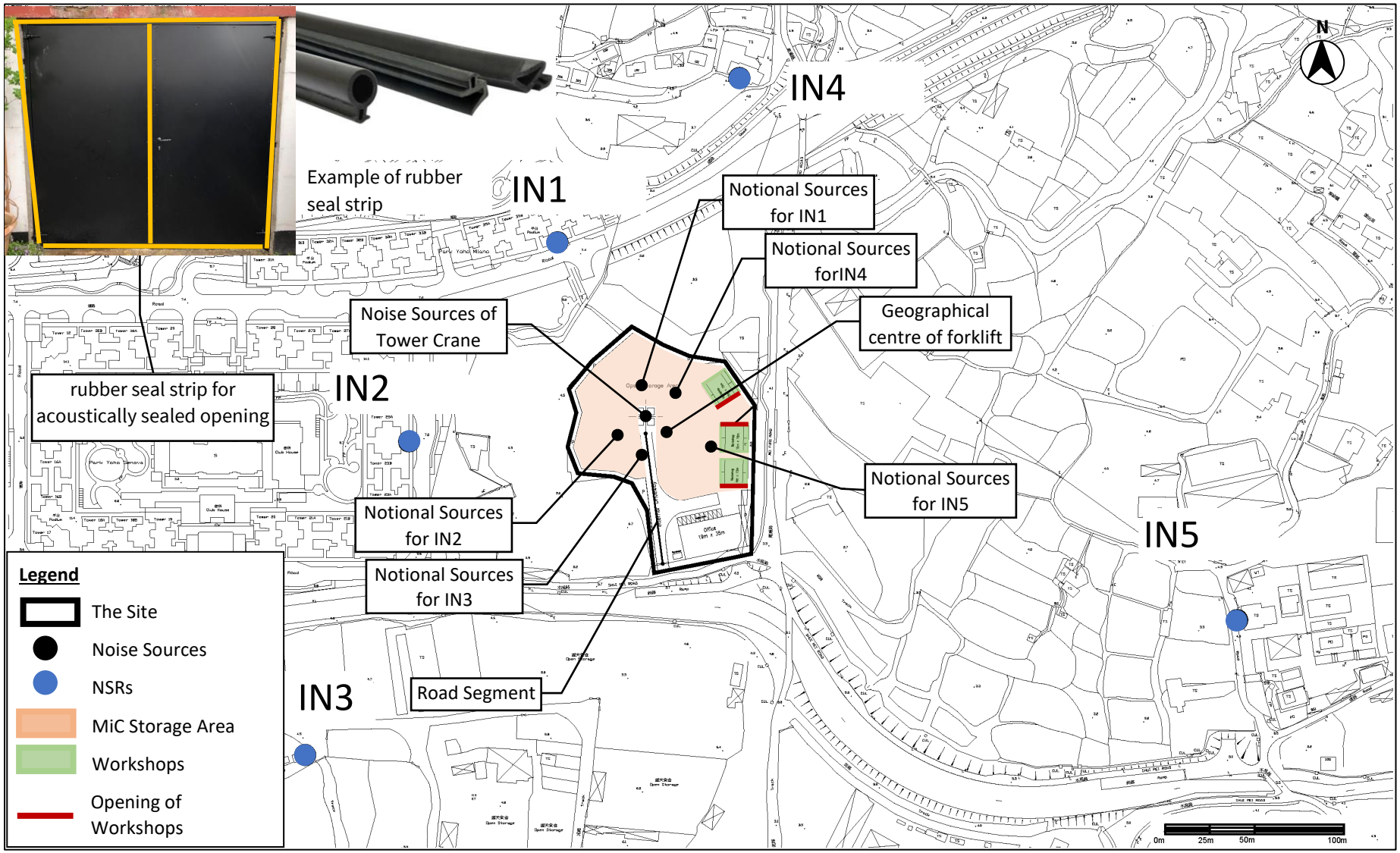


Figure 3-2 Location of Background Noise Monitoring

Figure 3-3 Location of Potential Noise Sources



4 WATER QUALITY

4.1 Environmental Legislation and Standards

Water Pollution Control Ordinance (Cap. 358)

4.1.1 The *Technical Memorandum – Standards for Effluent Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters* ("WPCO-TM") is issued under Section 21 of the *Water Pollution Control Ordinance* ("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 PN2/23

4.1.2 With reference to *Professional Persons Environmental Consultative Committee ("ProPECC") Practice Note Construction Site Drainage* ("ProPECC PN2/23"), 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, overflow, sewage collection and treatment, and comprehensive waste management (collection, handling, transportation, and disposal) procedures.

Drainage Plan subject to Comment by the Environmental Protection Department, ProPECC PN1/23

4.1.3 With reference to *ProPECC Practice Note Drainage Plan subject to Comment by the Environmental Protection Department – Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations* ("ProPECC PN1/23"), 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

4.1.4 With reference to ETWB TCW No. 5/2005, an administrative framework is included to better protect all natural streams/rivers from the impacts of construction works and outlines practices to minimise the water quality impacts upon watercourses.

4.2 Identified Water Sensitive Receivers

4.2.1 A desktop study on the OZP, topographic maps and aerial photos has been conducted together with the site visit in order to identify the Water Sensitive Receivers ("WSRs"). The WSRs were identified within 500m study area, details as listed in is shown in **Figure 4-1**.

Table 4-1 Identified Water Sensitive Receivers

WSRs ID	Description	Type	Status (active/ inactive)	Distance from the Site, m
W1	Nullah along Shui Mei Road	Modified watercourse	Active	15

WSRs ID	Description	Type	Status (active/ inactive)	Distance from the Site, m
W2	Pond near agricultural area to the west of the Site	Pond	Active	200
W3	Watercourse in agricultural area to the west of the Site	Modified watercourse	Active	100
W4	Nullah to the north of the Site	Channelised watercourse	Active	50
W5	Pond in agricultural area to the north of the Site	Pond	Active	200
W6	Pond/wetland area near Park YOHO	Pond	Active	400
W7	Au Tau Fisheries Office, Agriculture, Fisheries and Conservation Department	Multiple Ponds	Active	420
W8	Ponds and watercourses in wetland area to the South of Cheung Chun San Tsuen	Natural watercourse and ponds	Active	380
W9	Multiple ponds in wetland area to the South of Cheung Chun San Tsuen	Multiple Ponds	Active	420
W10	Recreational pond in Simple Cottage	Pond	Active	420
W11	Ponds near Shui Mei Tsuen Village	Multiple Ponds	Active	380
W12	Pond in agricultural areal to the west of the Site	Pond	Active	430

4.3 Potential Impacts

Construction and Reinstatement Phase

4.3.1 Since there are no pilling works and construction of underground utilities, there is only limited construction activities such as paving removal (about 20% of the Site area), excavation of topsoil, and backfilling. Muddy runoff from the Site may be generated during the construction/reinstatement phase, including filling activities and reinstatement works, especially during the rainy season. The nearest WSRs is the open channel next to the Shui Mei Road. Considering the elevation decease from Shui Mei Road to the Site Boundary, therefore, the runoff from the site to nearby WSRs is no expected. With the implication of

mitigation measures mentioned in **Section 4.4**, no adverse water quality impact to the nearby WSRs due to the construction works of the Site is anticipated.

4.3.2 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.

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

Operation Phase

4.3.4 The major source of sewage/wastewater during operation phase would be sewage and wastewater from toilets. Septic tank/soakaway pit system will be provided as recommended in the Sewerage Review Report.

4.3.5 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 watercourse during regular cleaning or during rainstorms. In order to minimise this pollution loading, silt/sand traps should be provided for the drainage systems of open areas in accordance with the relevant government guidelines. Paved perimeter u-channel would be provided to prevent discharge of spillage of wastewater beyond the site boundary, and accumulation of deposits on nearby public roads. Good practices stated in ProPECC PN 1/23 should be also referenced when designing on-site drainage. With the provision and implementation of the aforementioned mitigation measures for non-point source pollution, adverse water quality impact is not anticipated.

4.3.6 A Drainage Proposal for the Proposed Development has been carried out. As mentioned in the Drainage Proposal, runoff will be proposed diverted to the open channel to the south of the Site. No adverse drainage impact from the Site with the provision of the proposed internal drainage system is anticipated.

4.4 Mitigation Measures

Construction Phase

4.4.1 During construction phase, adequate capacity and number of portable toilets with adequate frequency for offsite disposal to be supplied, maintained and emptied by a licensed collector should be provided for construction workers.

4.4.2 The construction contractor shall follow good site practice and be responsible for providing, implementing and maintaining the mitigation measures as specified in ProPECC PN 2/23 for construction site drainage. The key requirements are as follows:

- Surface run-off from construction sites should 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 should be provided on site to properly direct storm water to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary to intercept

storm run-off from outside the Site so that it will not wash across the Site. Catchpits and perimeter channels should be construction in advance of site formation works and earthworks.

- Silt removal facilities, channels and manholes should 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.
- Construction works should be programmed to minimise soil excavation works in rainy reasons (generally from April to September). If soil excavation works could not be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporarily exposed slope surfaces should be covered (e.g. by tarpaulin), and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should 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 should be well compacted and the subsequent permanent works or surface protection works should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided when necessary.
- Measures should be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches should be discharged into storm drains via silt removal facilities.
- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Manholes (including newly constructed ones) should 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. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.
- All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm water drains. The section of construction road between the wheel washing bay and the public road should be paved to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.

4.4.3 In addition, the EPD's RPCC for Construction Contract 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 below:

- The Contractor shall observe and comply with 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 2/23 "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 site toilet facilities is/are 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.
- The contractor shall apply for a Discharge Licence from EPD under the WPCO. All site discharged shall be treated in accordance with the terms and conditions of the Discharge Licence.

Operation Phase

4.4.4 During operation phase, there is expected to be 50 staff with 8 having showering on-site. As concluded in the Sewerage Review Report, the total estimated Average Dry Weather Flow ("ADWF") from operation of the Proposed Development is calculated to be 12.460m^3/day. The sewage generated from the staff will be either treated by Septic Tank/Soakaway Pit System (Option 1) or collected by sewage storage tanks and tankered away with adequate frequency for Off-Site Disposal by a licensed collector (Option 2) as detailed in the Sewerage Review Report. For Option 1, a septic tank with capacity of approximately 13m^3 shall be provided. For Option 2, at least five sewage holding tanks with capacity of approximately 3,000L will be provided onsite, and daily offsite disposal by a licensed collector will be provided. With the provision of either Option 1 or Option 2, no adverse water quality impact arising from the Proposed Development is anticipated.

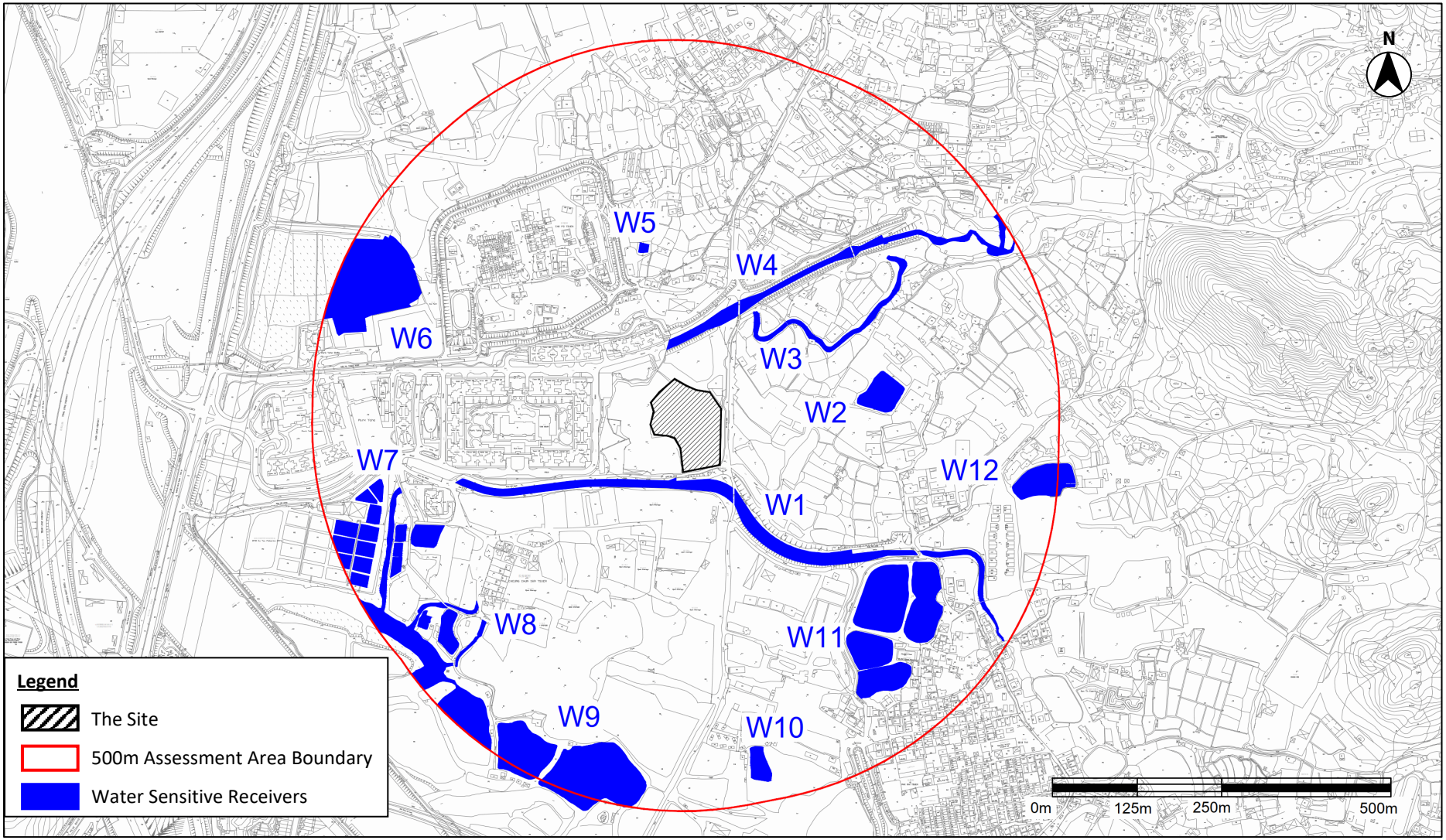
4.4.5 With reference to the Drainage Proposal, after development, the estimated peak runoff generated from the Site is 0.596m^3/s under a 50 year return period, which will be properly diverted to an open channel/nullah to the south of the Site. Best Management Practices for stormwater discharge shall be incorporated to minimise stormwater pollution arising from the Proposed Development. In order to reduce pollution due to runoff, silt/sand traps should be provided for the drainage systems of open areas in accordance with ProPECC PN1/23. In addition, runoff should be controlled by best management practice.

4.5 Conclusion

4.5.1 During construction, water quality impacts can be properly controlled with the implementation of good site practice, as stated in **paragraph 4.4.2**. Adequate capacity and number of portable toilets will be provided for construction workers on-site. With the provision, implementation and maintenance of the recommended measures, no adverse water quality impacts from the Site during construction phase is anticipated.

4.5.2 During operation, no adverse water quality impact is anticipated from wastewater/sewage from employees. The wastewater arising from the Proposed Development will be treated by Septic Tank/Soakaway Pit System. With the provision of Septic Tank/Soakaway Pit System, no adverse water quality impact from the Proposed Development is anticipated.

Figure 4-1 Location of Water Sensitive Receivers (WSRs)



5 WASTE MANAGEMENT AND LAND CONTAMINATION

5.1 Environmental Legislation and Standards

Waste Management

5.1.1 The key environmental legislation and standards are as follows:

- Waste Disposal Ordinance (Cap. 354) ("WDO")
- 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

Land Contamination

5.1.2 The references of contaminated land management include the following documents published by EPD:

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

- Practice Guide for Investigation and Remediation of Contaminated Land

5.2 Potential Impacts

Construction Phase

5.2.1 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 Materials (e.g. wood and plastics)
- Chemical wastes such as waste battery and waste lubricating oil from vehicles/plant maintenance
- General refuse generated by site workers

Inert C&D Materials

5.2.2 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.

5.2.3 The major source of inert C&D materials during construction includes excavation for removal of paving. The Site area is approx. 9,705m^2 and approx. 20% of the Site area with concrete paving will be removed, i.e., 1,941m^2. Assuming the paving density [(note 3)] is 2.4 tonnes/m^3 and the thickness of paving is 100mm, approx. 466 tonnes waste paving will be generated from the removal of paving.

5.2.4 However, considering as a conservative approach, all the surface soil will be removed with a depth 50mm, approx. 873 tonnes topsoil will be excavated (based on a soil density of 1,800kg/m^3) [(note 4)].

5.2.5 Construction waste will also be generated during construction of the Proposed Development. This will comprise inert C&D materials, such as concrete waste, waste from blockwork and brickwork; and non-inert C&D materials from timber formwork, packaging waste and other non-inert wastes.

5.2.6 In accordance with Section 3.2 of *A Guide for Managing and Minimizing Building and Demolition Waste* published by the Hong Kong Polytechnic University in May 2001 ("the Guide"), it provides a "waste index" for building waste generation in Hong Kong based on the Gross Floor Area ("GFA") of three different building types as follows:

- 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

5.2.7 In order to properly estimate building waste from the Proposed Development, the "waste index" also include non-inert C&D materials such as timber formwork, packaging waste and

[3] Appendix P, EM&A Report for Tseung Kwan O – Lam Tin Tunnel – Design and Construction, 2020 (Agreement No, CE 59/2015 (EP))

[4] Appendix P, EM&A Report for Tseung Kwan O – Lam Tin Tunnel – Design and Construction, 2020 (Agreement No, CE 59/2015 (EP))

other wastes. On the other hand, the Guide does not identify what proportion of building waste is inert C&D materials and what proportion is non-inert C&D materials.

5.2.8 With reference to Plate 2.12 of EPD's *Monitoring of Solid Waste in Hong Kong – Waste Statistics for 2021*, in 2021 94% of construction wastes was either reused on-site or sent to the public fill reception facilities, implying that such construction wastes should 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. 94%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Inert C\&D materials (Commercial Office Projects)}} = 0.94 \times 0.200 m^3/m^2 \text{ GFA}$$

$$= 0.188 m^3/m^2 \text{ GFA}$$

5.2.9 The inert C&D materials component of building waste from the Proposed Development with a total floor area of approx. 2,025m^2 has therefore been estimated below:

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

$$= 0.188 \times 2,025$$

$$= 381 m^3$$

5.2.10 Inert C&D material mainly composes of concrete, soil and building materials, with reference to other previous study [Note 5], assuming the density of inert C&D materials is 1.8 tonnes/m^3, approx. 686 tonnes of building waste would be generated by the Proposed Development.

Table 5-1 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	
Paving	466
Excavated Material	873
STAGE: INFRASTRUCTURE CONSTRUCTION	
Building Waste	686
Total	**2,025**

5.2.11 In total, approx. 2,025 tonnes of inert C&D materials may be generated throughout the construction period. Assuming the construction period to be nine months with six working days a week and four weeks a month, the daily inert C&D material generation rate will be approx. 9 tonnes/day (i.e. 2,025 tonnes/(6 x 4) x 9 months)).

5.2.12 Inert C&D materials should be reused on-site as far as practicable. Good site practice and mitigation measures recommended in **Section 5.3** should be provided and implemented. Surplus inert C&D materials, if any, should be reused or recycled off-site as far as practicable (assuming approx. 70% of inert C&D material could be reused, i.e. 1,418 tonnes). If there will still be any remaining materials (assuming 30%, i.e. 608 tonnes), they should be delivered to public fill reception facilities such as Fill Bank at Tuen Mun Area 38.

[5] Mai Po Nature Reserve Infrastructure Upgrade Project, 2021 (No. 274/2021) density

5.2.13 With the provision and implementation of the recommended mitigation measures, no adverse waste impact from the handling, transportation or disposal of inert C&D materials during construction of the Proposed Development is anticipated.

Non-Inert C&D Materials

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

5.2.15 The major source of non-inert C&D materials during construction will be building waste including non-inert C&D materials such as timber formwork, packaging waste.

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

5.2.17 As shown in Plate 2.12 of Waste Statistics for 2021, in 2021 6% of non-inert C&D materials was disposed of at landfills. The proportion of non-inert C&D materials in the "waste index" can therefore be estimated by applying the Hong Kong-wide proportion of non-inert C&D materials in construction waste, i.e. 6%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Non-Inert C\&D materials (Commercial Office Projects)}} = 0.06 \times 0.200 m^3/m^2 \text{ GFA}$$

$$= 0.012 m^3/m^2 \text{ GFA}$$

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

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

$$= 0.012 \times 2{,}025$$

$$= 24.3 m^3$$

5.2.19 Since non-inert C&D materials mainly compose bamboo, timber, vegetation, packaging waste, that are not packed and more spacing compared with inert C&D material such as soil and concrete, so assuming the density of non-inert C&D materials is 1.11 tonnes/m[36], approx. 26.9 tonnes of non-inert C&D materials will be arising from the Proposed Development. Assuming the construction period to be nine months with six working days a week and four weeks a month, the daily non-inert C&D materials generation rate will be approx. 0.12 tonnes/day (i.e. 26.9 tonnes/(6 x 4) x 9 months)).

5.2.20 The non-inert C&D materials is summarised in **Table 5-2**.

Table 5-2 Total Estimated Non-Inert C&D Materials Generated During Construction

NON-INERT C&D MATERIAL TYPE	ESTIMATED NON-INERT C&D MATERIAL GENERATION (TONNES)
STAGE: INFRASTRUCTURE CONSTRUCTION	
Building Waste	26.9

[6] Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery, 2016 (EIA 236/2016).

NON-INERT C&D MATERIAL TYPE	ESTIMATED NON-INERT C&D MATERIAL GENERATION (TONNES)
Total	**26.9**

5.2.21 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 plastics, 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.

5.2.22 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 Proposed Development. Therefore, no more than 3 tonnes non-inert C&D materials may be reused or recycled on-site.

5.2.23 If 10% non-inert C&D materials can be reused/recycled on-site, the surplus non-inert C&D materials mainly comprising building waste will be approx. 23.9 tonnes in total. Assuming the construction period to be nine months with six working days a week and four weeks a month, the total daily non-inert C&D materials for disposal of at WENT Landfill would be approx. 0.1 tonnes/day (i.e. 23.9 tonnes/(6 x 4) x 9 months).

5.2.24 With the above estimation, no adverse waste impact from the handling, transportation or disposal of non-inert C&D materials during construction of the Proposed Development is anticipated.

General Refuse

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

5.2.26 The number of workers will depend on the construction methods employed and on which contractor carries out the work. According to the Applicant's experience, the number of construction workers for the Proposed Development should be no more than 20 per day.

5.2.27 Each construction worker will generate general refuse, which is similar to domestic waste. According to Plate 2.7 of Waste Statistics for 2021, the per capita domestic waste disposal rate in 2021 was 0.94kg/person/day, although the per worker generation rate of general refuse will likely be less than this. For a conservative approach, the per capita domestic waste disposal rate in 2021 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

= 20 workers x 0.94kg/workers/day

= 18.8kg/day

Total General Refuse = General Refuse/Day x Construction Duration

= 18.8kg/day x [6 days/week x 4 weeks/month x 9 months]

= 4,060.8kg or 4.1 tonnes

5.2.28 On-site sorting should be carried out for 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.

5.2.29 According to Plate 3.2 of Waste Statistics for 2021, in 2021 the recovery rate of domestic waste is approx. 20%. It is therefore assumed that 20% of general refuse, i.e., ~812kg of general refuse, would be reused and recycled by the recyclers. The surplus general refuse of 3,249 kg or 15kg/day in average would be disposed of at landfill.

5.2.30 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

5.2.31 No hazardous materials or hazardous wastes are expected to be generated during the construction phase. Only limited amount which is expected to be less than 1 tonne of chemical waste 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.

5.2.32 The Contractor shall register as a Chemical Waste Producer under the WDO. All chemical waste shall be stores 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.

5.2.33 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.

Garden (or Yard) Waste

5.2.34 No garden waste will be generated.

Summary

5.2.35 The type and estimated quantities of different types of wastes generated during the construction phase are summarised in **Table 5-3.**

Table 5-3 Estimated Amount of Different Types of Wastes to be Generated During Construction Phase

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	TREATMENT
INERT C&D MATERIAL			
Paving	466	Removal of paving	1. On-site reuse/recycle 2. Off-site reuse/recycle 3. Delivery to public fill reception facilities
Excavated material	873	Excavation	
Building Waste	686	Building works	

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	TREATMENT
NON-INERT C&D MATERIAL			
Building Waste	26.9	Building works	1. On-site sorting for reuse/recycle 2. Disposal of at landfill
OTHERS			
General Refuse	4.1	Construction staff	1. On-site sorting for reuse/recycle 2. Disposal of at landfill
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.

Operation Phase

5.2.36 During the operation phase, the major type of waste generated will be general refuse, commercial and industrial wastes, such as the MiC component and modular construction materials storage. According to the Waste Statistic for 2021, the most recent per municipal solid waste disposal rate is 1.53kg/person/day. The estimated total staff of the Proposed Development would be around 50 people. With six working days per week, the quantity of commercial waste disposed of is expected to be less than 24 tonnes per year [(Note 7)].

5.2.37 Plate 3.2 of Waste Statistics for 2021 shows that in 2021, the recovery rate of municipal solid waste is 31%. It is therefore estimated that 31% of commercial waste (i.e. 7.4 tonnes/year) could be reused and recycled by the recyclers.

5.2.38 The surplus commercial waste of 16.6 tonnes/year (i.e. 0.05 tonnes/day on average assuming seven working days per week) would be disposed of at the NWNTTS.

5.2.39 Since commercial waste will be collected on a regular basis by registered waste collectors, and since commercial waste will be disposed at the 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 5.3**should be implemented.

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

5.3 Mitigation Measures

Construction Phase

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

5.3.2 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

[7] Waste generation = 1.53kg/person/day x 50 people x 6 working days/week x 52 weeks/year = 24 tonnes/year

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.

5.3.3 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 pest and vermin problems. Waste storage areas should be well maintained and cleaned regularly.

5.3.4 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. Dump trucks with mechanical cover shall be used to minimise windblown litter and dust during transportation of waste.

5.3.5 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 materials such as concrete, asphalt, etc. should be delivered to public fill. Non-inert and non-recyclable wastes should be disposed at designated landfill site.

5.3.6 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.

5.3.7 Food waste generated during construction and operation would be separated from other waste and recycled as far as practicable, in order to minimise unpleasant odour and potential environmental hygiene issues.

5.3.8 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*.

5.3.9 In addition, the EPD’s RPCC for Construction Contract 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 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 non-inert C&D materials (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 delivered to public fill reception facility as the last resort. The non-inert C&D materials 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 delivery 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.
- Fly-tipping or disposal of C&D materials at locations other than the designated locations shall be prohibited. In order to review the trip-ticket record as mentioned in **paragraph 5.3.4** above, the following measures may be considered when necessary:
  - All dump trucks engaged on-site for delivery of inert and non-inert C&D material from the site to the designated disposal locations, including PFRFs, landfills etc., should be equipped with GPS or equivalent system for tracking and monitoring of their travel routings and parking locations by the Contractor to prohibit illegal dumping and landfilling of materials.
  - The data collected by GPS or equivalent system should be recorded properly for checking and analysis the travel routing and parking locations of dump truck engaged on-site.

Operation Phase

5.3.10 The operator 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 suitable 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

5.3.11 The majority of waste generated during the operation of the Proposed Development will mainly comprise the MiC component and modular construction materials storage, general refuse and commercial wastes such as food waste, food packaging, paper, can, plastic bottles, etc., which shall be collected and stores 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 licensed waste collectors and taken off-site for recycling or disposal, respectively.

5.4 Land Contamination

5.4.1 Historical aerial photographs provided in **Appendix E** shows that the Site was an agriculture land in Year 1970 to 1990s, which the historical agricultural activities unlikely caused land contamination. In Year 2003, the Site was observed to be abandoned and covered in vegetation. The trend of abandoning agriculture uses within the Site was continued in 2000s. In 2015, a warehouse/storage area with car park is observed. There is no evidence of any past land use, either agriculture land, vacant land or industrial use, within the Site that could have resulted in contamination. As advised by the Applicant, the Site has been operated by them or their sister companies since 2014/15 for construction related usages including storage of construction materials, nursery for landscape works, etc. without Dangerous Goods ("DGs"), chemical waste (e.g., waste lubricating oil, waste batteries, etc.) and/or any liquid chemicals. \

5.4.2 As such, there is no reason to suspect that contaminated land was present within the Site.

5.4.3 The Site is currently a plant nursery with an open storage area. Part of the Site is currently paved and in good condition with no cracks or stains on the paved ground. No land contamination activities on the Site were observed. There are several temporary structures (tent and containers) in the Site, no chemicals or hazardous/ dangerous goods were stored inside the temporary structures (i.e. tent and containers). Mainly tools and associated equipment for planting, plant nursery and flowerpot and etc. were store inside the tent. The containers were used as staff resting room. No dangerous Good ("DG"), chemical or oil was observed to be stored in the plant. No stains were observed and there was no sign of vegetation stress, which can be indicative of contaminated soils. In addition, no equipment and vehicles repairing activities were observed onsite, and no underground fuel storage tank was found during the site walk. In addition, no leakage of chemical was observed. Photographs taken in November 2023 are provided in **Figure 5-1** for reference. The site walkover checklist was provided in **Appendix G**.

5.4.4 Enquiries regarding the past records of registered Chemical Waste Producers or accident spillage/leakage of dangerous or chemical, as well as current/past licences for storage of Dangerous Good (DG), registration of DG licence, fire incidents, spillage/leakage of DG were made to the Environmental Protection Department ("EPD") and Fire Services Department ("FSD"), respectively. With reference to replies from both EPD and FSD (**Appendix F** refers), it is confirmed that there is no accident spillage / leakage of dangerous or chemical, no current/past licences for storage of DG, no registration of DG licence, and no records of spillage/leakage of DG from relevant authorities were found at the existing Site. Review of chemical waste producer records was made in EPD's office, no chemical waste producer record was registered within the existing Site. The replies from the authorities are provided in **Appendix F**. One fire incident near the Lamp Posts VG0231 related to vehicle fire was recorded by FSD, however, the location is outside the Site. The indicative location is shown in **Figure 5-1.**

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

5.5 Conclusion

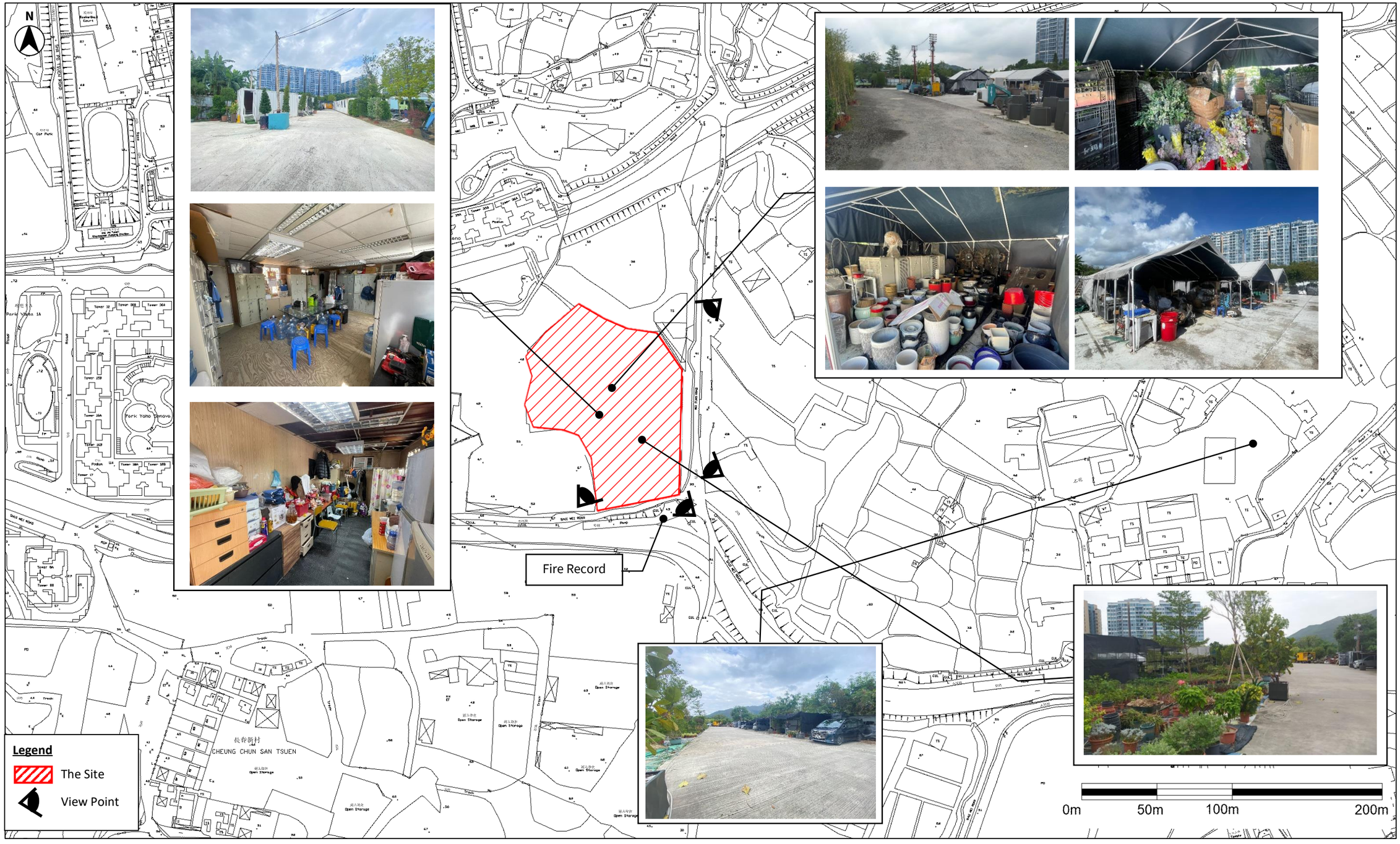
5.5.1 With the development of WMP and to implement the good site practices recommended therein, the waste generation during construction phase can be greatly reduced. Provided that good site practices as recommended in **Section 5.3** will be followed, there should be no adverse impacts related to the management, handling and transportation of waste during the construction phase.

5.5.2 During the operation phase, the major type of waste generated will be commercial wastes. Since commercial wastes 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.

5.5.3 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.

5.5.4 There was no previous and present land use with potential land contamination activities on the Site. Hance, no land contamination issue is anticipated.

Figure 5-1 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.

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 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 operation phase.

6.1.5 Overall, 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 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.

6.1.8 In view of the maximum travel flow generated from the proposed development is 2 heavy vehicles/ hours. there would be no significant increase in the hourly traffic flows due to the proposed development. Therefore, no adverse off-site traffic noise impact for the proposed development is anticipated.

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

Water Quality

6.1.10 During construction phase, water quality impacts will be properly controlled with the implementation of good site practice. Portable toilets, when necessary will be provided for construction workers on-site. Provided these measures are implemented, adverse water quality impact is not anticipated during the construction phase. 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 will be treated by Septic Tank/Soakaway Pit System.

Waste Management

6.1.12 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 construction phase.

6.1.13 During 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.

6.1.14 Based on the preliminary land contamination review, no existing and/or previous uses with potential land contamination activities on the Site were identified.

Appendix A Background Noise Monitoring Data

BG1

Sampling Date:	12 September 2024	Noise Measurement	
Sampling Period:	0800 to 1900	Noise Meter Model:	Rion, NL-52
Weather Conditions:	Sunny	Calibration	
Wind Speed:	<5 m/s	Calibrator Model:	Rion, NC-74
Noise Meter Model:	Rion, NL-52	Before:	94.0 dB(A)
Façade/ Free-field	Free-field	After	94.0 dB(A)

Start Time	Leq 30min	Lmax	Lmin	L10	L90-1hr
12/09/2024 08:00	62.0	89.1	43.8	59.2	45.5
12/09/2024 08:30	57.8	85.4	43.3	56.1	
12/09/2024 09:00	59.2	83.0	42.6	58.1	44.4
12/09/2024 09:30	54.7	77.8	43.1	52.7	
12/09/2024 10:00	58.6	86.6	42.9	60.1	45.4
12/09/2024 10:30	58.1	86.9	42.5	56.7	
12/09/2024 11:00	58.1	83.9	43.6	60.1	44.9
12/09/2024 11:30	59.2	96.5	42.9	54.5	
12/09/2024 12:00	57.1	91.4	43.5	54.7	45.7
12/09/2024 12:30	56.1	89.1	44.0	52.7	
12/09/2024 13:00	55.3	80.7	42.4	52.8	44.1
12/09/2024 13:30	59.3	90.4	42.3	56.2	
12/09/2024 14:00	60.2	85.0	44.3	57.5	46.8
12/09/2024 14:30	58.9	89.0	45.0	52.6	
12/09/2024 15:00	55.0	79.0	43.0	53.9	44.5
12/09/2024 15:30	58.5	92.2	42.8	54.7	
12/09/2024 16:00	60.2	88.1	42.4	57.7	44.1
12/09/2024 16:30	56.3	77.3	43.1	59.2	
12/09/2024 17:00	58.2	83.3	42.5	56.3	44.5
12/09/2024 17:30	57.3	80.1	42.9	61.3	
12/09/2024 18:00	55.6	77.4	42.9	57.5	44.6
12/09/2024 18:30	57.3	89.8	32.7	56.9	
Minimum	54.7	77.3	32.7	52.6	44.1
Average	57.9	85.5	42.7	56.4	45.0

BG2

Sampling Date:	12 September 2024	Noise Measurement	
Sampling Period:	0800 to 1900	Noise Meter Model:	Rion, NL-52
Weather Conditions:	Sunny	Calibration	
Wind Speed:	<5 m/s	Calibrator Model:	Rion, NC-74
Noise Meter Model:	Rion, NL-52	Before:	94.0 dB(A)
Façade/ Free-field	Free-field	After	94.0 dB(A)

Start Time	Leq 30min	Lmax	Lmin	L10	L90-1 hr
12/09/2024 08:00	63.1	86.0	40.0	64.0	44.9
12/09/2024 08:30	65.6	85.9	57.2	66.5	
12/09/2024 09:00	64.5	85.8	52.3	64.5	55.6
12/09/2024 09:30	63.5	88.1	52.7	61.7	
12/09/2024 10:00	61.7	85.4	52.5	62.8	55.1
12/09/2024 10:30	63.0	87.8	52.5	62.7	
12/09/2024 11:00	61.6	83.4	52.9	63.4	55.1
12/09/2024 11:30	61.8	87.4	52.3	60.5	
12/09/2024 12:00	61.8	87.9	52.6	61.5	54.8
12/09/2024 12:30	62.8	87.6	52.0	61.0	
12/09/2024 13:00	63.8	87.9	52.5	63.5	55.4
12/09/2024 13:30	63.9	86.3	52.7	62.9	
12/09/2024 14:00	62.5	86.0	52.6	61.7	55.5
12/09/2024 14:30	63.8	87.5	52.5	63.5	
12/09/2024 15:00	62.9	85.8	52.3	62.8	54.8
12/09/2024 15:30	63.4	86.2	51.2	63.2	
12/09/2024 16:00	64.8	91.2	53.1	64.1	55.6
12/09/2024 16:30	62.8	83.1	51.7	62.4	
12/09/2024 17:00	62.4	85.3	51.3	62.8	54.4
12/09/2024 17:30	61.2	80.5	51.0	63.7	
12/09/2024 18:00	62.8	86.8	51.0	61.8	53.8
12/09/2024 18:30	62.8	92.7	26.1	62.3	
Minimum	61.2	80.5	26.1	60.5	44.9
Average	63.0	86.6	50.7	62.9	54.1

.

BG3

Sampling Date:	11 September 2024	Noise Measurement	
Sampling Period:	0800 to 1900	Noise Meter Model:	Rion, NL-52
Weather Conditions:	Sunny	Calibration	
Wind Speed:	<5 m/s	Calibrator Model:	Rion, NC-74
Noise Meter Model:	Rion, NL-52	Before:	94.0 dB(A)
Façade/ Free-field	Free-field	After	94.0 dB(A)

Start Time	Leq 30min	Lmax	Lmin	L10	L90-1hr
11/09/2024 08:00	63.8	88.3	43.7	62.5	46.9
11/09/2024 08:30	63.9	87.5	44.7	64.3	
11/09/2024 09:00	63.7	95.0	44.0	59.0	46.5
11/09/2024 09:30	64.6	93.9	45.2	63.9	
11/09/2024 10:00	63.9	91.8	42.3	63.9	44.3
11/09/2024 10:30	62.7	88.4	41.5	60.1	
11/09/2024 11:00	61.6	84.3	41.5	60.7	44.0
11/09/2024 11:30	61.4	88.8	41.4	60.6	
11/09/2024 12:00	61.0	86.6	42.2	61.1	45.0
11/09/2024 12:30	58.5	79.7	43.0	60.8	
11/09/2024 13:00	60.2	86.4	42.3	58.4	45.3
11/09/2024 13:30	60.8	85.9	44.9	60.6	
11/09/2024 14:00	63.8	93.3	45.5	64.8	47.7
11/09/2024 14:30	56.9	81.9	45.1	56.9	
11/09/2024 15:00	58.0	84.6	45.7	59.0	47.0
11/09/2024 15:30	64.8	94.5	43.6	62.0	
11/09/2024 16:00	59.7	85.8	44.6	59.4	47.6
11/09/2024 16:30	62.2	86.9	44.3	63.2	
11/09/2024 17:00	61.3	84.6	45.7	60.4	47.9
11/09/2024 17:30	62.9	89.0	45.3	60.7	
11/09/2024 18:00	59.2	85.4	44.9	58.5	46.8
11/09/2024 18:30	55.5	83.1	44.5	55.4	
Minimum	55.5	79.7	41.4	55.4	44.0
Average	61.4	87.5	43.9	60.7	46.3

BG4

Sampling Date:	11 September 2024	Noise Measurement	
Sampling Period:	0800 to 1900	Noise Meter Model:	Rion, NL-52
Weather Conditions:	Sunny	Calibration	
Wind Speed:	<5 m/s	Calibrator Model:	Rion, NC-74
Noise Meter Model:	Rion, NL-52	Before:	94.0 dB(A)
Façade/ Free-field	Free-field	After	94.0 dB(A)

Start Time	Leq 30min	Lmax	Lmin	L10	L90-1 hr
11/09/2024 08:00	57.3	81.7	42.3	61.4	44.6
11/09/2024 08:30	55.6	81.2	42.8	54.4	
11/09/2024 09:00	58.1	81.5	42.5	59.6	44.1
11/09/2024 09:30	47.6	66.7	42.6	48.8	
11/09/2024 10:00	50.5	83.6	42.3	48.9	44.1
11/09/2024 10:30	53.0	85.4	42.4	49.8	
11/09/2024 11:00	56.2	79.2	43.9	52.1	45.1
11/09/2024 11:30	50.9	82.8	43.8	52.8	
11/09/2024 12:00	52.1	73.9	43.9	53.6	45.1
11/09/2024 12:30	50.9	77.9	43.8	54.0	
11/09/2024 13:00	52.8	87.8	43.9	53.1	45.4
11/09/2024 13:30	51.0	74.9	44.0	52.9	
11/09/2024 14:00	63.2	97.1	44.2	54.7	45.8
11/09/2024 14:30	49.8	74.0	44.4	51.6	
11/09/2024 15:00	60.3	82.2	44.4	62.3	47.4
11/09/2024 15:30	58.7	78.2	45.3	62.1	
11/09/2024 16:00	56.4	78.7	44.6	59.4	46.7
11/09/2024 16:30	51.6	68.4	44.5	54.5	
11/09/2024 17:00	52.1	75.6	44.2	55.4	45.9
11/09/2024 17:30	53.7	80.8	44.0	56.7	
11/09/2024 18:00	49.9	67.3	42.5	54.1	44.0
11/09/2024 18:30	57.6	85.9	42.6	50.3	
Minimum	47.6	66.7	42.3	48.8	44.0
Average	54.1	79.3	43.6	54.7	45.3

Photographic Record of Prevailing Background Noise Measurement

BG1	BG2
	
BG3	**BG4**
	

Appendix B Noise Meter Calibration Certificates

Hong Kong Calibration Ltd.
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Calibration Certificate

Certificate No. 311869 Page 1 of 3 Pages

Customer : Enovative Environmental Service Limited

Address :

Order No. : Q34412 **Date of receipt :** 14-Dec-23

Item Tested

Description : Sound Level Meter
Manufacturer : RION **I.D.** : --
Model : NL-52 **Serial No.** : 01143483

Test Conditions

Date of Test : 9-Jan-24 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
The UUT has an indication that it conforms to IEC 61672-1:2002 Class 1
Ref. Document/Procedure: Z01, IEC 61672-1:2013.

Test Results

All results were within the IEC 61672 Class 1, manufacturer's specification or Tolerance.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S240	Sound Level Calibrator	303941	NIM-PRC & SCL-HKSAR
S017	Multi-Function Generator	C211339	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 9-Jan-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel. 2425 8801 Fax. 2425 8646

E

Hong Kong Calibration Ltd.
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Calibration Certificate

Certificate No. 311869

Results :

Acoustical signal test

1. **Indication at the Calibration Check Frequency** (1kHz)

UUT Setting		Applied Value (dB)	UUT Reading (dB)
Weight.	Response		After Adjust.*
A	F	94.0	94.0
	S		94.0
C	F		94.0
Z			94.0

*Adjustment using the customer's sound calibrator was performed immediately before test.

Tolerance : ± 1.0 dB
Uncertainty : ± 0.1 dB

2. **Self-generated noise** (Microphone Installed, most sensitive range) : 14.5 dBA (Mfr's Spec. ≤ 17 dBA)

Electrical signal tests

3. **Frequency weightings** (A ,F)

Frequency	Attenuation (dB)	IEC 61672-1 Class 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 1.5 dB
63 Hz	-26.2	- 26.2 dB, ± 1.0 dB
125 Hz	-16.2	- 16.1 dB, ± 1.0 dB
250 Hz	-8.7	- 8.6 dB, ± 1.0 dB
500 Hz	-3.2	- 3.2 dB, ± 1.0 dB
1 kHz	0.0 (Ref)	0 dB, ± 0.7 dB
2 kHz	+1.0	+ 1.2 dB, ± 1.0 dB
4 kHz	+0.6	+ 1.0 dB, ± 1.0 dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -2.5 dB
16 kHz	-8.6	- 6.6 dB, + 2.5 dB ~ - 16.0 dB

Uncertainty : ± 0.1 dB

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Calibration Certificate

Certificate No. 311869 Page 3 of 3 Pages

4. Frequency & Time weightings

4.1 Frequency Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
	C		94.0	± 0.2 dB
	Z		94.0	

Uncertainty : ± 0.1 dB

4.2 Time Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
S			94.0	± 0.1 dB
eq			94.0	

Uncertainty : ± 0.1 dB

5. Level Linearity on the Reference Level Range (8 kHz, A, F)

Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
124.0	124.0	± 0.8 dB
114.0	114.0	
104.0	104.0	
94.0	94.0 (Ref.)	
84.0	84.0	
74.0	74.0	
64.0	64.0	
54.0	54.0	
44.0	44.1	

Uncertainty : ± 0.1 dB

6. Level Linearity including the level range control (1 kHz, A, F)

N.A. (UUT is single range)

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure: 1 008 hPa.
4. Microphone model: UC-59, S/N: 11558.
5. Preamplifier model: NH-25, S/N: 43502.

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Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 311867 Page 1 of 4 Pages

Customer : Enovative Environmental Service Limited

Address :

Order No. : Q34412 **Date of receipt :** 14-Dec-23

Item Tested

Description : Sound Level Meter
Manufacturer : RION
Model : NL-52
I.D. : --
Serial No. : 00175560

Test Conditions

Date of Test : 9-Jan-24
Ambient Temperature : (23 ± 3)°C
Supply Voltage : --
Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.
The UUT has an indication that it conforms to IEC 61672-1:2013/2002 Class 1
Ref. Document/Procedure: Z01, IEC 61672-1:2013, IEC 61260-1:2014.

Test Results

All results were within the IEC 61672 Class 1, manufacturer's specification or Tolerance.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S240	Sound Level Calibrator	303941	NIM-PRC & SCL-HKSAR
S017	Multi-Function Generator	C211339	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 9-Jan-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. 311867

Results :

Acoustical signal test

1. **Indication at the Calibration Check Frequency** (1kHz)

UUT Setting		Applied Value (dB)	UUT Reading (dB)
Weight.	Response		After Adjust.*
A	F	94.0	94.0
	S		94.0
C	F		94.0
Z			94.0

*Adjustment using the customer's sound calibrator was performed immediately before test.

Tolerance : ± 1.0 dB
Uncertainty : ± 0.1 dB

2. **Self-generated noise** (Microphone Installed, most sensitive range) : 14.7 dBA (Mfr's Spec. ≤ 17 dBA)

Electrical signal tests

3. **Frequency weightings** (A ,F)

Frequency	Attenuation (dB)	IEC 61672-1 Class 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 1.5 dB
63 Hz	-26.2	- 26.2 dB, ± 1.0 dB
125 Hz	-16.1	- 16.1 dB, ± 1.0 dB
250 Hz	-8.7	- 8.6 dB, ± 1.0 dB
500 Hz	-3.2	- 3.2 dB, ± 1.0 dB
1 kHz	0.0 (Ref)	0 dB, ± 0.7 dB
2 kHz	+1.0	+ 1.2 dB, ± 1.0 dB
4 kHz	+0.7	+ 1.0 dB, ± 1.0 dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -2.5 dB
16 kHz	-8.6	- 6.6 dB, + 2.5 dB ~ - 16.0 dB

Uncertainty : ± 0.1 dB

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 311867

4. Frequency & Time weightings

4.1 Frequency Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
	C		94.0	± 0.2 dB
	Z		94.0	

Uncertainty : ± 0.1 dB

4.2 Time Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
S			94.0	± 0.1 dB
eq			94.0	

Uncertainty : ± 0.1 dB

5. Level Linearity on the Reference Level Range (8 kHz, A, F)

Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
124.0	124.0	± 0.8 dB
114.0	114.0	
104.0	104.0	
94.0	94.0 (Ref.)	
84.0	84.0	
74.0	74.0	
64.0	64.0	
54.0	54.0	
44.0	44.1	

Uncertainty : ± 0.1 dB

6. Level Linearity including the level range control (1 kHz, A, F)

N.A. (UUT is single range)

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Calibration Certificate

Certificate No. 311867 Page 4 of 4 Pages

7. Filter Characteristics

7.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	Tolerance (dB) (Ref.: IEC 61260-1 Class 1 Spec.)
125 Hz	-76.7	< - 60
250 Hz	-71.2	< - 40.5
500 Hz	-39.9	< - 16.6
707 Hz	-3.3	+ 0.4 ~ - 5.3
1 kHz (Ref)	--	--
1.414 kHz	-3.4	+ 0.4 ~ - 5.3
2 kHz	-41.1	< - 16.6
4 kHz	-85.7	< - 40.5
8 kHz	-88.8	< - 60

Uncertainty : ± 0.25 dB

7.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	Tolerance (dB) (Ref.: IEC 61260-1 Class 1 Spec.)
326 Hz	-65.2	< - 60
530 Hz	-47.3	< - 40.5
772 Hz	-22.5	< - 16.6
891 Hz	-3.6	+ 0.4 ~ - 5.3
1 kHz (Ref)	--	--
1.122 kHz	-3.9	+ 0.4 ~ - 5.3
1.296 kHz	-22.8	< - 16.6
1.887 kHz	-47.9	< - 40.5
3.070 kHz	-92.6	< - 60

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure: 1 008 hPa.
4. Microphone model: UC-59, S/N: 10989.
5. Preamplifier model: NH-25, S/N: 65662.

---------- END ----------

Hong Kong Calibration Ltd.
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Calibration Certificate

Certificate No. 311870 Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

Address :

Order No. : Q34412 **Date of receipt :** 14-Dec-23

Item Tested

Description : Sound Calibrator
Manufacturer : RION **I.D.** : --
Model : NC-74 **Serial No.** : 34678506

Test Conditions

Date of Test : 9-Jan-24 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
The UUT has an indication that it conforms to IEC 60942:2003 Class 1.
Ref. Document/Procedure : F21, Z02, IEC 60942:2003.

Test Results

All results were within the IEC 60942 Class 1 specification.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	303639	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	303941	NIM-PRC & SCL-HKSAR
S041	Universal Counter	300591	SCL-HKSAR
S206	Sound Level Meter	303634	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 9-Jan-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
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Hong Kong Calibration Ltd.
香 港 校 正 有 限 公 司

Calibration Certificate

Certificate No. 311870 Page 2 of 2 Pages

Results :

1. **Generated Sound Pressure Level**

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	93.9	± 0.4 dB

Uncertainty : ± 0.2 dB

2. **Short-term Level Fluctuation** : 0.0 dB
IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.05 dB

3. **Frequency**

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.001	± 1 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. **Total Distortion + Noise** : < 1.2 %
IEC 60942 Class 1 Spec. : < 3.0 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 008 hPa.

---------- END ----------

Appendix C Noise Calculation of Fixed Source

Scenario 1

Predicted Noise Level at NSR IN1

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Tower Crane (electric)		Stationary	CNP 049	95	1	NA	0	95.0	109.0	NA	NA	15	50.0%	-3.0	-48.7	NA	NA	0	3	46.3	47	47
Rd1	Lorry (5.5<gross veh weight≤38 tonnes)	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	6.6	NA	N/A	NA	-21.8	-14.4	-10	0	3	34.8		

1. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
2. Measured background noise at BG1 was adopted as the criteria.

Predicted Noise Level at NSR IN2

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Tower Crane (electric)		Stationary	CNP 049	95	1	NA	0	95.0	132.8	NA	NA	15	50.0%	-3.0	-50.4	NA	NA	0	3	44.6	46	48
Rd1	Lorry (5.5<gross veh weight≤38 tonnes)	Haul Road	Other PME	105	4	NA	0	NA	140.2	10	27.8	NA	N/A	NA	-21.5	-8.1	-10	0	3	41.4		

1. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
2. Measured background noise at BG2 was adopted as the criteria.

Predicted Noise Level at NSR IN3

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Tower Crane (electric)		Stationary	CNP 049	95	1	NA	0	95.0	268.8	NA	NA	15	50.0%	-3.0	-56.6	NA	NA	0	3	38.4	41	47
Rd1	Lorry (5.5<gross veh weight≤38 tonnes)	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	15.1	NA	N/A	NA	-21.8	-10.8	-10	0	3	38.4		

1. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
2. Measured background noise at BG3 was adopted as the criteria.

Predicted Noise Level at NSR IN4

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Tower Crane (electric)		Stationary	CNP 049	95	1	NA	0	95.0	196.1	NA	NA	15	50.0%	-3.0	-53.8	NA	NA	0	3	41.2	42	47
Rd1	Lorry (5.5<gross veh weight≤38 tonnes)	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	5.8	NA	N/A	NA	-21.8	-14.9	-10	0	3	34.3		

1. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
2. Measured background noise at BG1 was adopted as the criteria.

Predicted Noise Level at NSR IN5

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Tower Crane (electric)		Stationary	CNP 049	95	1	NA	0	95.0	349.2	NA	NA	15	50.0%	-3.0	-58.8	NA	NA	0	3	36.2	40	47
Rd1	Lorry (5.5<gross veh weight≤38 tonnes)	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	11.9	NA	N/A	NA	-21.8	-11.8	-10	0	3	37.4		

1. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
2. Measured background noise at BG4 was adopted as the criteria.

Scenario 2

Predicted Noise Level at NSR IN1

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Forklift (electric)		Stationary	Note 1	82	1	NA	0	82.0	93.0	NA	NA	30	100.0%	0.0	-47.4	NA	NA	0	3	37.6	39	47
Rd1	Lorry (5.5<gross veh weight≤38	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	6.6	NA	N/A	NA	-21.8	-14.4	-10	0	3	34.8		

Notes:
1. The SWL of electric forklift in Appendix D is referenced.
2. Since the forklift (electric) will move arround the storage area as shown in Figure 3-3, so notional source approach is adopted to represent the location of forklift (electric).
3. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
4. Measured background noise at BG1 was adopted as the criteria.

Predicted Noise Level at NSR IN2

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Forklift (electric)		Stationary	Note 1	82	1	NA	0	82.0	117.0	NA	NA	30	100.0%	0.0	-49.3	NA	NA	0	3	35.7	42	48
Rd1	Lorry (5.5<gross veh weight≤38	Haul Road	Other PME	105	4	NA	0	NA	140.2	10	27.8	NA	N/A	NA	-21.5	-8.1	-10	0	3	41.4		

Notes:
1. The SWL of electric forklift in Appendix D is referenced.
2. Since the forklift (electric) will move arround the storage area as shown in Figure 3-3, so notional source approach is adopted to represent the location of forklift (electric).
3. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
4. Measured background noise at BG2 was adopted as the criteria.

Predicted Noise Level at NSR IN3

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Forklift (electric)		Stationary	Note 1	82	1	NA	0	82.0	252.0	NA	NA	30	100.0%	0.0	-56.0	NA	NA	0	3	29.0	39	47
Rd1	Lorry (5.5<gross veh weight≤38	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	15.1	NA	N/A	NA	-21.8	-10.8	-10	0	3	38.4		

Notes:
1. The SWL of electric forklift in Appendix D is referenced.
2. Since the forklift (electric) will move arround the storage area as shown in Figure 3-3, so notional source approach is adopted to represent the location of forklift (electric).
3. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
4. Measured background noise at BG3 was adopted as the criteria.

Predicted Noise Level at NSR IN4

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Forklift (electric)		Stationary	Note 1	82	1	NA	0	82.0	180.0	NA	NA	30	100.0%	0.0	-53.1	NA	NA	0	3	31.9	36	47
Rd1	Lorry (5.5<gross veh weight≤38	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	5.8	NA	N/A	NA	-21.8	-14.9	-10	0	3	34.3		

Notes:
1. The SWL of electric forklift in Appendix D is referenced.
2. Since the forklift (electric) will move arround the storage area as shown in Figure 3-3, so notional source approach is adopted to represent the location of forklift (electric).
3. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
4. Measured background noise at BG1 was adopted as the criteria.

Predicted Noise Level at NSR IN5

Fixed-noise Sources		Source Type	Ref. Code	SWL/unit, dB(A)	Quantity	At-source Noise Mitigation Measures	Noise Reduction from Mitigation Measures, dB(A)	Corrected SWL, dB(A)	Distance, m	Speed, km/h	Angle of view, degree	Operation (30mins)	% on time	Correction						CNL, dB(A)	Total CNL, dB(A)	Criterion, dB(A)
														Time	Distance	Angle of view	Speed	Screening Effect, dB(A)	Facade			
Forklift (electric)		Stationary	Note 1	82	1	NA	0	82.0	310.0	NA	NA	30	100.0%	0.0	-57.8	NA	NA	0	3	27.2	38	47
Rd1	Lorry (5.5<gross veh weight≤38	Haul Road	Other PME	105	4	NA	0	NA	152.9	10	11.9	NA	N/A	NA	-21.8	-11.8	-10	0	3	37.4		

Notes:
1. The SWL of electric forklift in Appendix D is referenced.
2. Since the forklift (electric) will move arround the storage area as shown in Figure 3-3, so notional source approach is adopted to represent the location of forklift (electric).
3. A noise reduction of speed, angle of view, distance and time is applied via -10log(variable).
4. Measured background noise at BG4 was adopted as the criteria.

Appendix D Example of Forklift (electric)

J2.0-3.5 XTLG SERIES

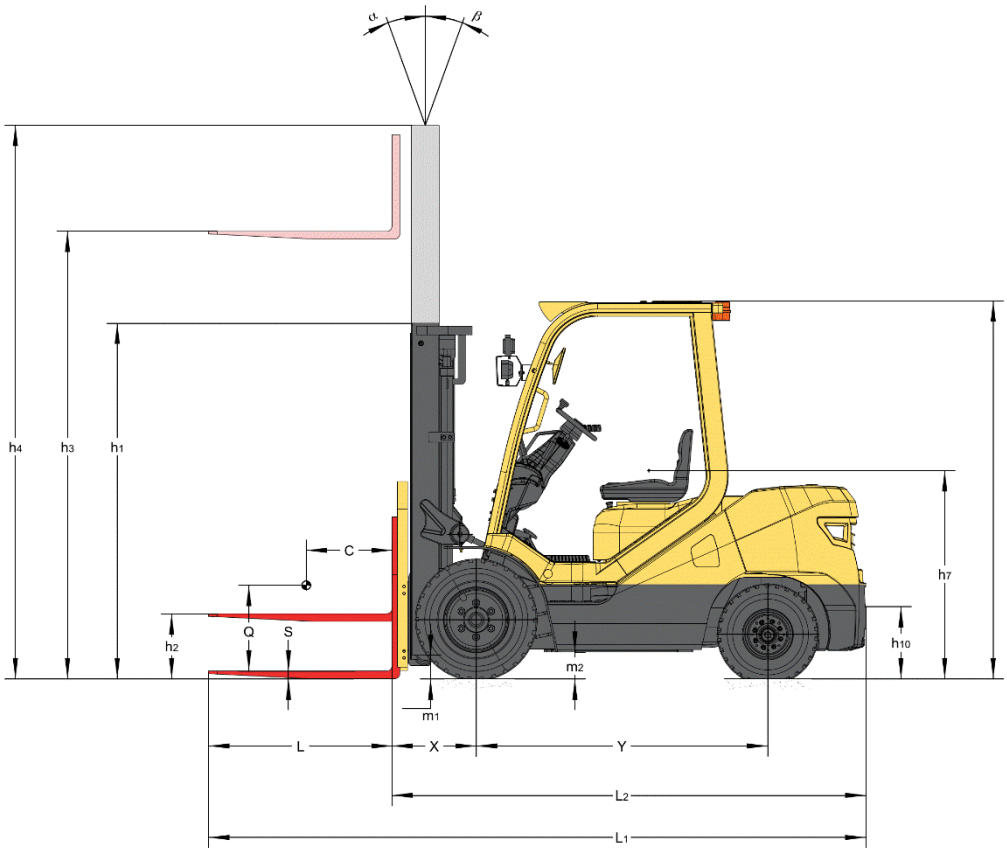
ELECTRIC FORKLIFT TRUCKS

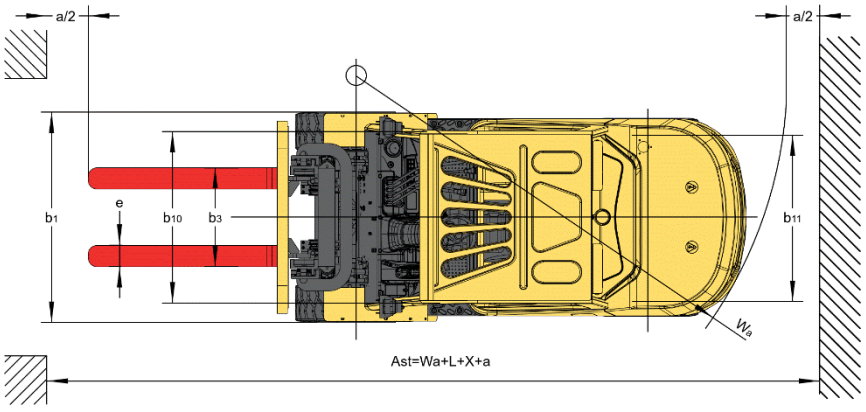
PRODUCT TECHNICAL GUIDE

HYSTER

WWW.HYSTER.COM

TRUCK DIMENSIONS





2

J2.0-2.5 XTLG SERIES SPECIFICATIONS

GENERAL	1-1	Manufacturer			Hyster			
	1-2	Model designation			J2.0XTLG		J2.5XTLG	
	1-3	Drive			Electric			
	1-4	Operator type			Seat			
	1-5	Rated capacity/rated load	Q	kg	2000		2500	
	1-6	Load centre distance	c	mm	500			
	1-8	Load distance, centre of drive axle to fork	x	mm	476			
	1-9	Wheelbase (with mast vertical)	y	mm	1600			
WEIGHT	2-1	Service weight	kg	kg	3515	3645	3775	3905
	2-2	Axle loading, laden front/rear	kg	kg	4865/650	4980/665	5535/740	5650/755
	2-3	Axle loading, unladen front/rear	kg	kg	1355/2160	1400/2245	1470/2305	1520/2385
WHEELS	3-1	Tyres front/rear			Pneumatic			
	3-2	Tyre size, front			7.00-12-12PR			
	3-3	Tyre size, rear			6.00-9-10PR			
	3-5	Wheels, number front/rear			2x /2			
	3-6	Tread, front	b_{10}		970			
	3-7	Tread, rear	b_{11}		980			
DIMENSIONS	4-1	Tilt of mast/fork carriage, forward /backward	α / β		6/12			
	4-2	Height, mast lowered	h_1		2010			
	4-3	Free lift	h_2		160			
	4-4	Lift	h_3		3000			
	4-5	Height, mast extended (1)	h_4		3575			
	4-7	Height of overhead guard(cabin) (2)	h_6		2180			
	4-8	Seat height/stand height (3)	h_7		1190			
	4-12	Towing coupling height	h_{10}		250			
	4-19	Overall length	l_1		3630		3692	
	4-20	Length to face of forks	l_2		2560		2622	
	4-21	Overall width	b_1		1160			
	4-22	Fork dimensions ISO2331	s/e/l		40/122/1070			
	4-23	Fork carriage ISO 2328. Class/type, A/B			IIA			
	4-24	Fork carriage width (4)	b_3	mm	1040			
	4-31	Ground clearance, laden, below mast	m_1	mm	125			
	4-32	Ground clearance, centre of wheelbase	m_2	mm	130			
	4-33	Load dimension b_{12} x l_6 crossways	b_{12} x l_6	mm	1000*1000			
	4-34	Aisle width with predetermimned load dimensions	A_{st}	mm	3966		4026	
	4-34-1	Aisle width with pallets 1000mm x 1200mm crossways	A_{st}	mm	3966		4026	
	4-34-2	Aisle width with pallets 800mm x 1200mm crossways	A_{st}	mm	3766		3826	
	4-35	Turning radius	W_a	mm	2290		2350	
	4-36	Inner turning radius	b_{13}	mm	745			
PERFORMANCE	5-1	Travel speed, laden/unladen		km/h	15/15	19/19	15/15	19/19
	5-1-1	Travel speed, laden / unladen, backwards		km/h	12/12	16/16	12/12	16/16
	5-2	Lifting speed, laden/unladen		mm/s	400/430	510/540	400/430	510/540
	5-3	Lowering speed laden/unladen		mm/s	420/500			
	5-5	Drawbar pull laden/unladen		N	16000/13000	19000/15000	17000/15000	23000/16000
	5-8	Maximum gradeability, laden/unladen		%	15/15	20/20	15/15	20/20
	5-9	Acceleration time, laden/unladen 15m		sec	5.6/5.5			
	5-10	Service brake			Hydraulic			
ELECTRIC ENGINE	6-1	Drive motor rating S2 60 min		Kw	15	21.6	15	21.6
	6-2	Lift motor rating at S3 15 %		Kw	15	22.6	15	22.6
	6-3	Battery according to DIN 43531/35/36 A, B, C, no			No			
	6-4	Battery voltage/nominal capacity K5		(V)/(Ah)	115.2V/228Ah	153.6V/228Ah	115.2V/228Ah	153.6V/228Ah
	6-5	Battery weight		kg	235	330	235	330
	6-6	Energy consumption according to VDI cycle		kWh/h	4.75	5.4	5.1	5.78
	6-7	Turnover output		t/h	135	162	145	173
	6-8	Energy consumption at turnover output		kWh/h	5.8	5.5	6.27	5.9
ADDITIONAL DATA	8-1	Type of drive unit			PM AC			
	10-1	Operating pressure for attachments		bar	140			
	10-2	Oil volume for attachments (5)		l/min	64			
	10-7	Sound pressure level at the driver's seat		dB (A)	66			
	10-7-1	Sound power level during the workcycle (6)		dB (A)	82	81	82	81
	10-8	Towing coupling, type DIN			PIN			

(1) Without load backrest.
(2) h6 subject to +/- 5mm tolerance.
(3) Full suspension seat in depressed position.
(4) Add 32mm with load backrest.
(5) Variable.
(6) LPAZ, measured according to the test cycles and based on the weighting values contained in EN12053.

Specification sheet truck based on:
VDI 2198, with the following configuration: Complete truck with 3000mm 2-stage limited free lift mast, standard carriage and 1070mm forks, overhead guard and standard pneumatic drive and steer tyres.

3

J3.0-3.5 XTLG SERIES SPECIFICATIONS

GENERAL	1-1	Manufacturer			Hyster			
	1-2	Model designation			J3.0XTLG		J3.5XTLG	
	1-3	Drive			Electric			
	1-4	Operator type			Seat			
	1-5	Rated capacity/rated load	Q	kg	3000		3500	
	1-6	Load centre distance	c	mm	500			
	1-8	Load distance, centre of drive axle to fork	x	mm	491		510	
	1-9	Wheelbase (with mast vertical)	y	mm	1700			
WEIGHT	2-1	Service weight	kg	kg	4275	4330	4675	4730
	2-2	Axle loading, laden front/rear	kg	kg	6416/859	6465/865	7210/965	7260/970
	2-3	Axle loading, unladen front/rear	kg	kg	1710/2565	1732/2598	1846/2829	1868/2862
WHEELS	3-1	Tyres front/rear			Pneumatic			
	3-2	Tyre size, front			28×9-15-14PR			
	3-3	Tyre size, rear			6.50-10-10PR			
	3-5	Wheels, number front/rear			2x /2			
	3-6	Tread, front	b_{10}		1000			
	3-7	Tread, rear	b_{11}		970			
DIMENSIONS	4-1	Tilt of mast/fork carriage, forward /backward	α / β		6/12			
	4-2	Height, mast lowered	h_1		2150			
	4-3	Free lift	h_2		165		170	
	4-4	Lift	h_3		3000			
	4-5	Height, mast extended [1]	h_4		3640		3700	
	4-7	Height of overhead guard(cabin) [2]	h_6		2205			
	4-8	Seat height/stand height [3]	h_7		1215			
	4-12	Towing coupling height	h_{10}		260			
	4-19	Overall length	l_1		3763		3853	
	4-20	Length to face of forks	l_2		2693		2783	
	4-21	Overall width	b_1		1228			
	4-22	Fork dimensions ISO2331	s/e/l		45/122/1070		50/122/1070	
	4-23	Fork carriage ISO 2328. Class/type, A/B			IIIA			
	4-24	Fork carriage width [4]	b_3	mm	1100			
	4-31	Ground clearance, laden, below mast	m_1	mm	140			
	4-32	Ground clearance, centre of wheelbase	m_2	mm	155			
	4-33	Load dimension b_{12} x l_6 crossways	b_{12} x l_6	mm	1000*1000			
	4-34	Aisle width with predetermimned load dimensions	A_{st}	mm	4125		4220	
	4-34-1	Aisle width with pallets 1000mm x 1200mm crossways	A_{st}	mm	4125		4220	
	4-34-2	Aisle width with pallets 800mm x 1200mm crossways	A_{st}	mm	3925		4020	
	4-35	Turning radius	W_a	mm	2430		2500	
	4-36	Inner turning radius	b_{13}	mm	823			
PERFORMANCE	5-1	Travel speed, laden/unladen		km/h	15/15	19/19	15/15	19/19
	5-1-1	Travel speed, laden / unladen, backwards		km/h	12/12	16/16	12/12	16/16
	5-2	Lifting speed, laden/unladen		mm/s	350/380	430/500	350/380	430/500
	5-3	Lowering speed laden/unladen		mm/s	420/500			
	5-5	Drawbar pull laden/unladen		N	19000/16000	26000/17000	19000/16000	27000/17000
	5-8	Maximum gradeability, laden/unladen		%	15/15	20/20	15/15	20/20
	5-9	Acceleration time, laden/unladen 15m		sec	5.6/5.5			
	5-10	Service brake			Hydraulic			
ELECTRIC ENGINE	6-1	Drive motor rating S2 60 min		Kw	15	21.6	15	21.6
	6-2	Lift motor rating at S3 15 %		Kw	15	22.6	15	22.6
	6-3	Battery according to DIN 43531/35/36 A, B, C, no			No			
	6-4	Battery voltage/nominal capacity K5		(V)/(Ah)	115.2V/228Ah	153.6V/228Ah	115.2V/228Ah	153.6V/228Ah
	6-5	Battery weight		kg	235	330	235	330
	6-6	Energy consumption according to VDI cycle		kWh/h	5.78	6.4	6.32	7
	6-7	Turnover output		t/h	165	192	180	210
	6-8	Energy consumption at turnover output		kWh/h	7.1	6.54	7.76	7.14
ADDITIONAL DATA	8-1	Type of drive unit			PM AC			
	10-1	Operating pressure for attachments		bar	140			
	10-2	Oil volume for attachments [5]		l/min	64			
	10-7	Sound pressure level at the driver's seat		dB (A)	66			
	10-7-1	Sound power level during the workcycle [6]		dB (A)	82	81	82	81
	10-8	Towing coupling, type DIN			PIN			

(1) Without load backrest.
(2) h6 subject to +/- 5mm tolerance.
(3) Full suspension seat in depressed position.
(4) Add 32mm with load backrest.
(5) Variable.
(6) LPAZ, measured according to the test cycles and based on the weighting values contained in EN12053.

Specification sheet truck based on:
VDI 2198, with the following configuration: Complete truck with 3000mm 2-stage limited free lift mast, standard carriage and 1070mm forks, overhead guard and standard pneumatic drive and steer tyres.

4

MAST AND CAPACITY INFORMATION

J2.0XTLG, J2.5XTLG, J3.0XTLG, J3.5XTLG RATED CAPACITY @ 500MM LOAD CENTRE

Mast Type	Mast Specification	Max. Fork Lift	Overall Extended Height						Free Lift		Load Distance		Mast Tilt		Load Capacity			
			Lowered Height		Lift Height										Load Center @ 500mm			
					Without Load Backrest		With Load Backrest		Without Load Backrest	With Load Backrest					Front Single Pneu Tyres		Front Dual Pneu Tyres	
			2.0t	2.5t	2.0t	2.5t	2.0t	2.5t	2.0t	2.5t	2.0t	2.5t	Fwd	Back	2.0t	2.5t	2.0t	2.5t
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	(°)	(°)	kg	kg	kg	kg
2 Stage LFL	M300	3000	2010	2010	3575	3575	3990	3990	160	160	465	465	6	12	2000	2500	2000	2500
	M330	3300	2160	2160	3875	3875	4290	4290	160	160	465	465	6	12	2000	2500	2000	2500
	M370	3700	2360	2360	4275	4275	4690	4690	160	160	465	465	6	6	2000	2500	2000	2500
	M400	4000	2560	2560	4575	4575	4990	4990	160	160	465	465	6	6	2000	2500	2000	2500
3 Stage FFL	TFM450	4500	2060	2060	5017	5017	5490	5490	1440	1070	485	485	6	6	1830	2020	1900	2340
	TFM480	4800	2160	2160	5317	5317	5790	5790	1540	1170	485	485	6	6	1710	1890	1830	2260
	TFM550	5500	2425	2425	6017	6017	6490	6490	1800	1430	485	485	3	6	1110	1280	1660	2070
	TFM600	6000	2610	2610	6517	6517	6990	6990	1990	1620	485	485	3	6	850	1010	1520	1920
	TFM650	6500	2825	2825	7017	7017	7490	7490	2215	1835	485	485	3	6	610	740	1380	1760

Mast Type	Mast Specification	Max. Fork Lift	Overall Extended Height						Free Lift				Load Distance		Mast Tilt		Load Capacity			
			Lowered Height		Lift Height												Load Center @ 500mm			
					Without Load Backrest		With Load Backrest		Without Load Backrest		With Load Backrest						Front Single Pneu Tyres		Front Dual Pneu Tyres	
			3.0t	3.5t	3.0t	3.5t	3.0t	3.5t	3.0t		3.0t	3.5t	3.0t	3.5t	Fwd	Back	3.0t	3.5t	3.0t	3.5t
		mm	mm	mm	mm	mm	mm	mm	mm			mm	mm	mm	(°)	(°)	kg	kg	kg	kg
2 Stage LFL	M300	3000	2075	2150	3640	3700	4100	4100	165	170	165	170	490	510	6	12	3000	3500	3000	3500
	M330	3300	2225	2300	3940	4000	4400	4400	165	170	165	170	490	510	6	12	3000	3500	3000	3500
	M370	3700	2425	2500	4340	4400	4800	4800	165	170	165	170	490	510	6	6	3000	3500	3000	3500
	M400	4000	2625	2700	4640	4700	5100	5100	165	170	165	170	490	510	6	6	3000	3310	3000	3490
3 Stage FFL	TFM450	4500	2125	2200	5100	5140	5600	5600	1525	1560	1025	1100	505	520	6	6	2680	2870	2790	3260
	TFM480	4800	2225	2300	5400	5440	5900	5900	1625	1660	1125	1200	505	520	6	6	2610	2630	2710	3180
	TFM550	5500	2490	2565	6100	6140	6600	6600	1880	1915	1380	1455	505	520	3	6	1860	1920	2510	2950
	TFM600	6000	2675	2750	6600	6640	7100	7100	2075	2110	1575	1650	505	520	3	6	1280	1450	2340	2690
	TFM650	6500	2890	2965	7100	7140	7600	7600	2260	2290	1790	1830	505	520	3	6	820	920	2140	2250

LI-ION BATTERY AND CHARGER DATA

LI-ION BATTERY DATA – J2.0-3.5 XTLG				
Battery Type			115.2V228AH	153.6V228AH
Dimension	L x W x H	mm	657 x 700 x 608	734 x 658 x 735
Weight		kg	280	340
Battery Color			HYG HCE-51 Black	
Nominal Voltage		V	115.2	153.6
Maximum Voltage		V	130	173.8
Minimum Voltage		V	100	122.4
Nominal Capacity		Ah	228	
Usable Capacity		Ah	205	
Energy		kWh	26.3	35
Nominal Discharge Current		A	220	250
Maximum Discharge Current -5s		A	400	
Nominal Charge Current		A	100	150
Maximum Charge Current -5s		A	150	170
Operating Temperature		°C	-25 – 45	
Charging Temperature		°C	0 – 45	
Power Connector			Cable	
Power Connector Position			Side	
Charge Connector			DIN 160A	GB 250A Socket
Charge Connector Position			Side	
Antiarc Type			N/A	
CANBUS Protocol			HYG	
CANBUS Speed			125Kbps for CH and TR	
Chemistry			LFP	

LI-ION CHARGER DATA – J2.0-3.5 XTLG						
Charger type			HWCD18-115V50A		HWCD18-153.6V100A	
Maximum output power		kW	6.9	13.8	17.5	19.2
Rated output current		A	50	100		150
Output voltage range		V	60-138		60-180	
Current limit adjustable range		A	0-50	0-100		0-150
Peak-peak murmurs		%	≤1			
Precision of voltage regulation		%	≤±0.5			
Steady current accuracy		%	≤±0.5			
Parallel current sharing module		%	≤±5			
Machine efficiency			Output 70 ~ 96 VDC, load ≥50% rated, the whole machine efficiency ≥94%	Load ≥50% rated, the whole machine efficiency ≥94%		
Output protection			Short-circuit, over-current, over-voltage, reverse connection, current backflow protection			
Rated input voltage			Three-phase four-wire system 380Vac±15%			
Input Voltage Range		Vac	320 ~ 450			
Input Current		A	11.8	23.5	30.3	31.9
Input frequency		Hz	45 ~ 65			
Power Factor	PF		≥0.99			
Current distortion	THD	%	≤5			
Input Protection			Over-voltage, under-voltage, lack of phase, over-current protection			
Working environment temperature			-30°C – 55°C normal operation; 57°C – 75°C reduction output; over 75°C shutdown protection			
Storage temperature		°C	-40 ~ 75			
Relative humidity		%	0 ~ 95			
Altitude			≤2000m full load output, 2000-3000m according to GB/T3859.2-19935.11.2, capacity reduction			
Insulation Strength			Input-output: 2800Vdc 1minute≤10mA			
			Input-shell: 2800Vdc 1minute≤10mA			
			Output-shell: 1400Vdc 1minute≤10mA			
			Input-output: DC500V>10MΩ			
			Input-shell: DC500V>10MΩ			
			Output-shell: DC500V>10MΩ			
External dimension (host)	L x W x H	mm	558 × 330 × 617			
One machine net weight		kg	47			
Protection level			IP54			
Output plug-in model			Reema 160A mother		WOER 125A DC Charging Gun	
Output plug-in specifications			Comply with GB/T 20234-2015.3			
Heat dissipation mode			Forced wind cooling			
Auxiliary Power Supply			12V power supply 6A/75W			
Batteries			Lithium batteries			
CAN protocol			HYG			

6

STANDARD AND OPTIONAL EQUIPMENT

PERFORMANCE
115.2 Volt electrical system with Rema Connection
153.6 Volt electrical system with GB Connection
Standard Construction
Drum Brakes
Antistatic Strap
115.2V 228Ah (26.2kWh) Integrated Li-ion battery
115.2V/50A Three Phase Lithium Ion LFP CACTi charger with REMA160A Connector (input 320V-450V)
115.2V/100A Three Phase Lithium Ion LFP CACTi charger with REMA160A Connector (input 320V-450V)
153.6V 228Ah(35.1kWh) Integrated Li-ion battery
153.6V/100A Three Phase Lithium Ion LFP CACTi charger with GB 250A Connector (input 320V-450V)
153.6V/150A Three Phase Lithium Ion LFP CACTi charger with GB 250A Connector (input 320V-450V)
Battery Disconnect
OPERATION
Key Switch Start
Traction Speed Limiter
Operator Presence System (OPS)
Manual Park Brake
DRIVE
Directional Lever
MONOTROL® Directional Control Pedal
Standard Tread
Dual Tread
Tyres - Super Elastic
Tyres - Super Elastic Non-Marking
Tyres - PR Pneumatic
LIFT
2 Stage Limited Free Lift - Class II
3 Stage Full Free Lift - Class II
2 Stage Limited Free Lift - Class III
3 Stage Full Free Lift - Class III
Mast tilt - 6° Forward / 6° Back
Mast tilt - 6° Forward / 12° Back
With Tilt Cylinder Boots

HANDLING
Hook Type Carriage - 1038mm Class II
Hook Type Carriage - 1100mm Class III
Hook Type Carriage - 1200mm Class II
Hook Type Integral Sideshift Carriage - 1040mm Class II
Hook Type Integral Side Shift Carriage - 1100mm Class III
Without Carriage
Without Load Backrest
940mm Load Backrest - Class II
1080mm Load Backrest - Jclass III
2 Function (0 Auxiliary) Hydraulic Valve
3 Function (1 Auxiliary) Hydraulic Valve
4 Function (2 Auxiliary) Hydraulic Valve
3 Function Hose Group (1 Auxiliary)
4 Function Hose Group (2 Auxiliary)
Manual lever hydraulic controls
Clamping Function
Hook Type Standard Forks - 1070mm
Hook Type Standard Forks - 1220mm
Hook Type Standard Forks - 1370mm
Hook Type Standard Forks - 1520mm
Hook Type Standard Forks - 1820mm
Hook Type Standard Forks - 1970mm
Hook Type Standard Forks - 2120mm
Hook Type Standard Forks - 2220mm
Hook Type Standard Forks - 2300mm
Hook Type Standard Forks - 2440mm
CAB
Key Switch Start
Traction Speed Limiter
Operator Presence System (OPS)
Manual Park Brake
ERGONOMICS
2180mm Overhead Guard J2.0-2.5XTLG
2205mm Overhead Guard J3.0-3.5XTLG
Non Suspension Vinyl Seat
Full Suspension Vinyl Seat (SC29) with Switch for OPS
Standard Seat Belt with Interlock
Steering wheel with spinner knob
Tyres - PR Pneumatic
VISIBILITY
LED work lights
2 Front LED Work Lights with Stop, Tail, Indicator and Reverse Lights
2 Front and 1 Rear LED Work Lights with Stop, Tail, Indicator and Reverse Lights
Amber Strobe Light - Ignition and Switch Activated
Audible Reverse Alarm
Parking Alarm
APPEARANCE
Hyster yellow paint base truck
Special paint base truck
SUPPLEMENTAL
Literature package
Parts Manual
Warranty: 12 Months / 2,000 Hours Manufacturers Warranty (parts only)
60 months / 7,500 hours Integrated Li-ion Battery Warranty
12 months Li-ion CACTI Charger Warranty

7

HYSTER EUROPE
Centennial House, Building 4.5, Frimley Business Park,
Frimley, Surrey, GU16 7SG, United Kingdom

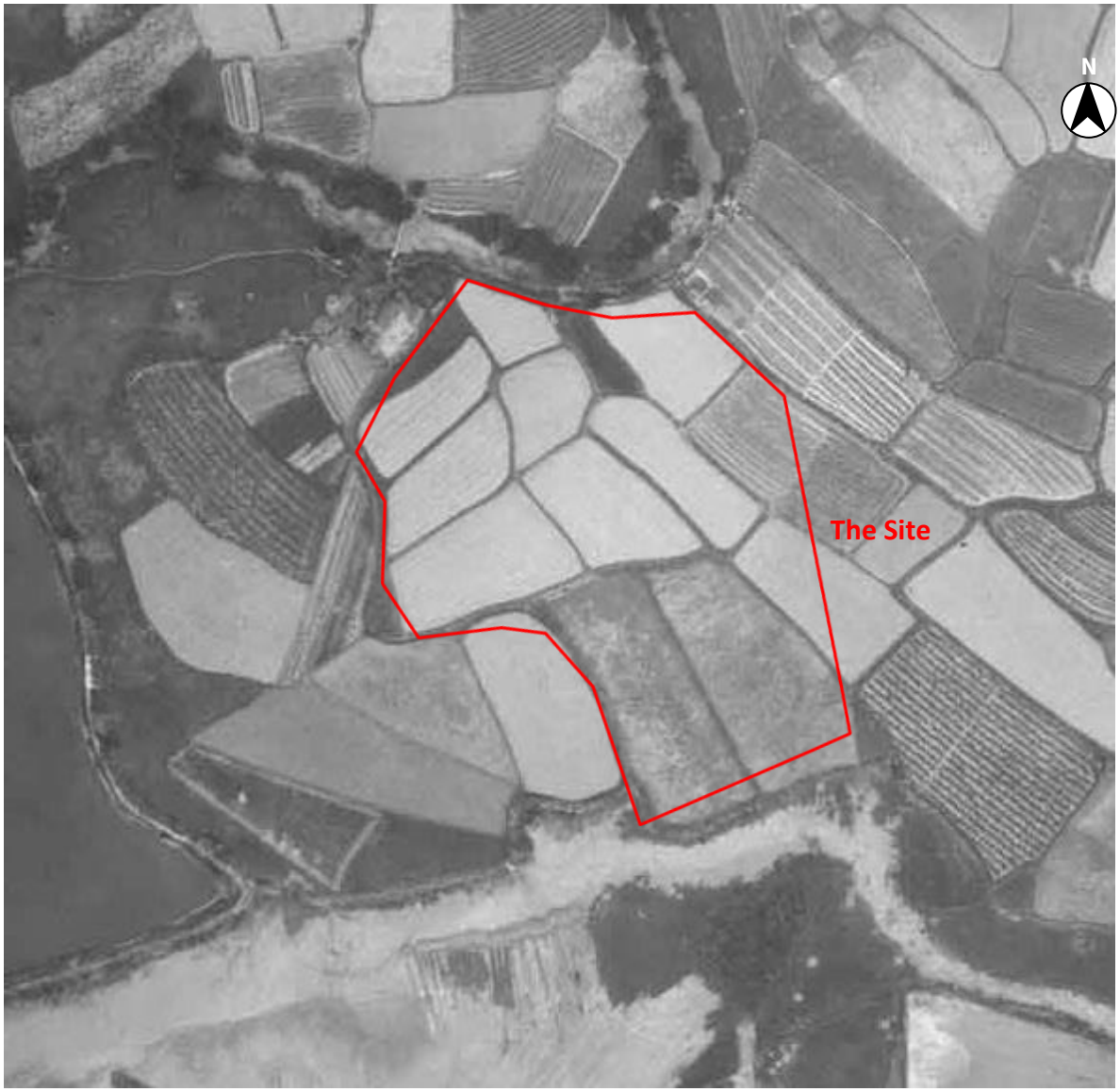
Visit us online at **www.hyster.com** or call us at **+44 (0) 1276 538500**.

Safety: This truck conforms to the current EU requirements

Part no. 3997294 | Rev. 00-05/24-DMS. Printed in EU.

Appendix E Aerial Photographs

Figure D - 1 Aerial Photograph in Year 1970



Source: Lands Department

In 1970, the Site was an agriculture land. No activities likely to result in land contamination were observed.

Figure D - 2 Aerial Photograph in Year 1988

Source: Lands Department

In 1988, the Site was an agriculture land. No activities likely to result in land contamination were observed.

Figure D - 3 Aerial Photograph in Year 1995

Source: Lands Department

In 1995, the Site was an agriculture land. No activities likely to result in land contamination were observed.

Figure D - 4 Aerial Photograph in Year 2003

Source: Lands Department

In 2003, the Site appears to be abandoned and covered with sparse vegetation.

Figure D - 5 Aerial Photograph in Year 2009

Source: Lands Department

In 2009, the Site appears to be abandoned and covered with sparse vegetation.

Figure D - 6 Aerial Photograph in Year 2015

Source: Lands Department

In 2015, the Site appears to be used as a storage area/warehouse with a car park.

Figure D - 7 Aerial Photograph in Year 2022

Source: Lands Department

In 2022, the Site appears to be used as a plant nursey and open storage of building materials.

Appendix F Reply from Authorities

本署檔案
OUR REF : ( ) EP910/E6/1
來函檔案
YOUR REF : EPA23.1044-J.01/ L00099/AW/JC
電 話
TEL NO :
圖文傳真
FAX NO :
網 址
HOMEPAGE : http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (North)
10/F., Shatin Government Offices,
1 Sheung Wo Che Road,
Shatin, N.T.

環境保護署
環保法規管理科
區域辦事處(北)
新界沙田上禾輋路 1 號
沙田政府合署 10 樓

By Post and Email

11 July 2024

EnviroSolutions & Consulting Ltd
16/F & 17/F, 700 Nathan Road,
Mong Kok, Hong Kong
(Attn.: Antony WONG)

Dear Sir/Madam,

Contract No. YL/2022/01
Temporary Storage for MiC Components and
Construction Materials with Ancillary Workshops,
Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Request for Information for Preparation of Land Contamination Assessment

We refer to your above letter under reference requesting for registered chemical waste producer and record of chemical and dangerous spillage / leakage. Given no particular time period were mentioned in the letter, to avoid unnecessary wastage of resources, a search of 3 year records may be a reasonable choice.

This Regional Office has no record of chemical and dangerous spillage / leakage incident at the captioned locations in the past 3 years. Nonetheless, you may also need to check with other relevant parties / departments for such information as appropriate.

For the records of Chemical Waste Producer Registration, a registry of chemical waste producers is available in our Territory Control Office. Should you like to view the records, you may approach Mr. Gordon KWAN at for making an appointment to view the records.

Yours faithfully,

(CHAU Tsz-yan)
for Director of Environmental Protection

FW: EPA23.1044-J.01 S16 Planning Application - Information Request to EPD

Roy LI Jiehua
To khlo@epd.gov.hk
Cc Julie Chan

Reply | Reply All | Forward

Mon 15/07/2024 11:30

Dear Mr. LO,

Contract No. YL/2022/01
Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Environmental Assessment - Information Request to EPD

Further to our discussion on phone, I will go to EPD Office to inspect the registry of chemical waste producer at 2:00p.m. on 16 July 2024. The inspection is to address the potential land contamination issue related to the above captioned project.
Thank you.

Roy LI
Assistant Environment Consultant

ESC
EnviroSolutions & Consulting Limited
Solutions for Environment | Safety | Sustainability

16/F & 17/F, 700 Nathan Road, Mong Kok, Kowloon, Hong Kong
roy@envirosc.com
www.envirosc.com

Integrity, Accountability, Passion, Insight

INOGEN ALLIANCE

EnviroSolutions & Consulting Ltd
Solutions for Environment | Safety | Sustainability

www.envirosc.com | www.simplyehs.com
enquiries@envirosc.com

Our Ref. EPA23.1044-J.01/ L00099/AW/JC
Your Ref.

27 June 2024

Yuen Long West and San Tin - Regional Office (North)
Environmental Compliance Division
Environmental Protection Department
10th floor, Shatin Government Offices
No.1 Sheung Wo Che Road, Sha Tin
N.T., Hong Kong

By Email

Attention: Miss WONG Hau Yin, Suki

Dear Madam

Contract No. YL/2022/01
Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Environmental Assessment - Information Request to EPD

Sanfield (Management) Ltd proposes to develop temporary use of captioned land into a temporary open storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery for three years. As such S16 planning application is required under Town Planning Ordinance. We have been appointed by Sanfield (Management) Ltd as the Environmental Consultant to prepare an Environmental Assessment (EA) report for the captioned project. The site location of the project is shown in **Figure 1**. The subcontract for the consultancy service is also enclosed for your information.

To address the potential land contamination issue, we would appreciate if you could provide us with a list of records of Chemical Waste Producers Registration or incidents of chemical spillage/leakage, etc, related to the site if any, including the company name, type of chemical, location etc.

Should you have any enquiries regarding the above, please do not hesitate to contact the undersigned on tel.

Yours faithfully
for and on behalf of ESC

Antony WONG
Country Manager, Hong Kong

Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po Environmental Assessment Report

Figure 1 *Site Location and its Environs*

Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po Environmental Assessment Report

EnviroSolutions & Consulting
Solutions for Environment | Safety | Sustainability

Ref. EPA23.1044-P.01/L00045/AB/AW

5 October 2023

Sanfield (Management) Ltd
c/o Grandmax Surveyors Ltd.
Unit 1215, 12/F, Houston Centre
63 Mody Road, East Tsim Sha Tsui, Kowloon

By Email

Attention: Mr Chi Wai WONG

Dear Sir

Modular Integrated Construction (MiC) Components Assembling Centre with Ancillary Office and Staff Car Park for a Temporary Period of Three Years at Lot Nos. 1555 S.A (Part), 1555 S.B (Part), 1557 RP (Part), 1558 (Part) and 1559 (Part) in D.D. 107, Sha Po, Yuen Long, NT – Environmental Assessment, Drainage Impact Assessment and Sewerage Impact Assessment Proposal for Services

Thank you for your invitation to submit a proposal for the captioned services.

EnviroSolutions & Consulting Ltd ("ESC") is pleased to submit herewith this Technical and Fee Proposal to prepare Environmental Assessment, Drainage Impact Assessment and Sewerage Impact Assessment for the captioned project in Hong Kong.

We trust you find this proposal acceptable and are therefore able to send a signed copy of this proposal back to the undersigned at your earliest convenience. Alternatively, we would be pleased to receive your Works Order/Purchase Order for the Services, referencing this Proposal.

Should you have any queries regarding this proposal, please do not hesitate to contact Antony WONG on

Yours Faithfully
for and on behalf of ESC

Alexi BHANJA
Managing Director, Hong Kong

Encl.

Accepted
for and on behalf of
Sanfield (Management) Ltd

Name: WONG CHI WAI
Position: Managing Director
Date: 6 October 2023

EnviroSolutions & Consulting Limited

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防處總部大廈

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

本處檔號 OUR REF. :
來函檔號 YOUR REF. :
電子郵件 E-mail :
圖文傳真 FAX NO. :
電 話 TEL NO. :

4 July 2024

(Attn: Mr. Antony WONG, Country Manager)

Dear Mr. WONG,

Contract No. YL/2022/01
Temporary Storage for Mic Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 22.5.2024 regarding the captioned subject.

Your case is being handled, and a reply will be furnished to you as soon as possible. Please be advised that due to time lapse, this Department can only provide the following information for your requested information:

(i) Dangerous Goods Licence Record: from the year of 1990 to present moment.

(ii) Incident Record: Past three years of fire and special services incidents.

Should you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(TSANG Chun-hei)
for Director of Fire Services

Ref. number and date should be quoted in reference to this letter
凡 提 及 本 信 時 請 引 述 編 號 及 日 期

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防處總部大廈

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

本處檔號 **OUR REF.** :
來函檔號 **YOUR REF.** :
電子郵件 **E-mail** :
圖文傳真 **FAX NO.** :
電　　話 **TEL NO.** :

19 July 2024

(Attn: Mr. Antony WONG, Country Manager)

Dear Mr. WONG,

Contract No. YL/2022/01
Temporary Storage for Mic Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 22.5.2024 regarding the captioned request and reply below in response to your questions:-

1. No Dangerous Goods Licence was issued in respect of the captioned address.

2. A total of **1** incident record was found at the subject location. Please refer to **Appendix A** for details.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(LAI Kin-man)
for Director of Fire Services

Ref. number and date should be quoted in reference to this letter
凡 提 及 本 信 時 請 引 述 編 號 及 日 期

Appendix A

Contract No. YL/2022/01
Temporary Storage for Mic Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Request for Information of Dangerous Goods & Incident Records

No.	Date	Type of Incident	Address
1.	17/7/2021	Vehicle Fire	Near Lamp Post No. VG0231 of Shui Mei Road, Cheung Chun San Tsuen

1

EnviroSolutions & Consulting Ltd
Solutions for Environment | Safety | Sustainability

Our Ref. EPA23.1044-J.01/ L00100/AW/JC
Your Ref.

22 May 2024

Corporate Services Division
Corporate Strategy Command
Fire Services Department

By Email

Attention: Mr. LAI Kin Man

Dear Sir

Contract No. YL/2022/01
Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po
Environmental Assessment - Information Request to FSD

Sanfield (Management) Ltd proposes to develop temporary use of captioned land into a temporary open storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery for three years. As such S16 planning application is required under Town Planning Ordinance. We have been appointed by Sanfield (Management) Ltd as the Environmental Consultant to prepare an Environmental Assessment (EA) report for the captioned project. The site location of the project is shown in **Figure 1**. The subcontract for the consultancy service is also enclosed for your information.

To address the potential land contamination issue, we would appreciate if you could provide us with a list of records of dangerous goods license, fire incidents or incidents of dangerous goods spillage/leakage, etc, related to the site if any, including the company name, type of chemical, location etc.

Should you have any enquiries regarding the above, please do not hesitate to contact the undersigned on tel.

Yours faithfully
for and on behalf of ESC

Antony WONG
Country Manager, Hong Kong

Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po Environmental Assessment Report

Figure 1 *Site Location and its Environs*

Temporary Storage for MiC Components and Construction Materials with Ancillary Workshops, Office, Staff Car Park and Machinery at Various Lots in DD 107, Sha Po Environmental Assessment Report

EnviroSolutions & Consulting
Solutions for Environment | Safety | Sustainability

Ref. EPA23.1044-P.01/L00045/AB/AW

5 October 2023

Sanfield (Management) Ltd
c/o Grandmax Surveyors Ltd.

By Email

Attention: Mr Chi Wai WONG

Dear Sir

Modular Integrated Construction (MiC) Components Assembling Centre with Ancillary Office and Staff Car Park for a Temporary Period of Three Years at Lot Nos. 1555 S.A (Part), 1555 S.B (Part), 1557 RP (Part), 1558 (Part) and 1559 (Part) in D.D. 107, Sha Po, Yuen Long, NT – Environmental Assessment, Drainage Impact Assessment and Sewerage Impact Assessment Proposal for Services

Thank you for your invitation to submit a proposal for the captioned services.

EnviroSolutions & Consulting Ltd ("ESC") is pleased to submit herewith this Technical and Fee Proposal to prepare Environmental Assessment, Drainage Impact Assessment and Sewerage Impact Assessment for the captioned project in Hong Kong.

We trust you find this proposal acceptable and are therefore able to send a signed copy of this proposal back to the undersigned at your earliest convenience. Alternatively, we would be pleased to receive your Works Order/Purchase Order for the Services, referencing this Proposal.

Should you have any queries regarding this proposal, please do not hesitate to contact Antony WONG on .

Yours Faithfully
for and on behalf of ESC

Alexi BHANJA
Managing Director, Hong Kong

Encl.

Accepted
for and on behalf of
Sanfield (Management) Ltd

Name: WONG CHI WAI
Position: Managing Director
Date: 6 October 2023

EnviroSolutions & Consulting Limited

Appendix G Site Walkover Checklist

Site Walkover Checklist

GENERAL SITE DETAILS

SITE OWNER/CLIENT	Lot 1555 SA, 1557 RP, 1558, 1559 D.D.107
PROPERTY ADDRESS	Lot 1555 SA, 1557 RP, 1558, 1559 D.D.107

PERSON CONDUCTING THE QUESTIONNAIRE

NAME	Julie CHAN
POSITION	Consultant

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME	N/A
POSITION	N/A
TELEPHONE	N/A

SITE ACTIVITIES

~~Briefly describe activities carried out on site, including types of products/chemicals/materials handled.~~

Obtain a flow schematic if possible.

Number of employees: Full-time: _____

Part-time: _____

Temporary/Seasonal: _____

Maximum no. of people on site at any time: _____

Typical hours of operation: _____

Number of shifts: _____

Days per week: _____

Weeks per year: _____

Scheduled plant shut down: _____

Detail the main sources of energy at the site:

Gas	Yes/No
Electricity	Yes/No
Coal	Yes/No
Oil	Yes/No
~~Other~~	~~Yes/No~~

SITE DESCRIPTION

This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.

What is the total site area: (Estimated based on the walkover)7905 m^2

What area of the site is covered by buildings/temporary structures (%): 50 %

Please list all current and previous owners/occupiers if possible.

Is a site plan available? If yes, please attach	~~Yes~~/No
Are there any other parties on site as tenants or sub-tenants?	~~Yes~~/No
If yes, identify those parties:	N/A

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighboring facilities and types of industry.

North:

South:

West:

North:

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).

State the size and location of the nearest residential communities.

Ae there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?

Questionnaire with Existing/Previous Site Owner or Occupier (Interview was NOT available during site walkover)

		Yes/No	Notes
1.	What are the main activities/operations at the above address?		Plant nursery and tools storage
2.	How long have you been occupying the site?	N/A	
3.	Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	No	
4.	Prior to your occupancy, who occupied the site?	NA	
5.	What were the main activities/operations during their occupancy?		Plant nursery and tools storage
6.	Have there been any major changes in operations carried out at the site in the last 10 years?	N/A	
7.	Have any polluting activities been carried out in the vicinity of the site in the past?	N/A	
8.	To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	N/A	
9.	Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	No	Not observed
10.	Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	No	Not observed

11. Are any chemicals used in your daily operations? (If yes, please provide details.)	No	
• Where do you store these chemicals?	No	Not observed
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	N/A	
13. Has the facility produced a separate hazardous substance inventory?	N/A	
14. Have there ever been any incidents or accidents (e.g. spills, fi res, injuries, etc.) involving any of these materials? (If yes, please provide details.)	N/A	
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	N/A	Not observed
16. Do you have any underground storage tanks? (If yes, please provide details.)	N/A	Not observed
• How many underground storage tanks do you have on site?	N/A	
• What are the tanks constructed of?	N/A	
• What are the contents of these tanks?	N/A	
• Are the pipelines above or below ground?	N/A	
• If the pipelines are below ground, has any leak and integrity testing been performed?	N/A	
• Have there been any spills associated with these tanks?	N/A	
17. Are there any disused underground storage tanks?	No	Not observed
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	N/A	
19. How are the wastes disposed of?	N/A	
20. Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	N/A	
21. Have any spills occurred on site? (If yes, please provide details.)	No	Not observed
• When did the spill occur?	N/A	
• What were the substances spilled?	N/A	
• What was the quantity of material spilled?	N/A	
• Did you notify the relevant departments of the spill?	N/A	
• What were the actions taken to clean up the spill?	N/A	
• What were the areas affected?	N/A	
22. Do you have any records of major renovation of your site or re- arrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	N/A	
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	Not observed
24. Are there any known contaminations on site? (If yes, please provide details.)	N/A	
25. Has the site ever been remediated? (If yes, please provide details.)	N/A	

Observations

		Yes/No	Notes
1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	
2.	What are the conditions of the bund walls and floors?	-	About 20% of the ground is paved with concrete and in good condition. No crack was observed. Containers and tent were observed on-site. Plan nursery and tools stored inside the tents. Containers were the staff resting area
3.	Are any surface water drains located near to drum storage and unloading areas?	No	
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No.	
5.	Is there a storage site for the wastes?	No	
6.	Is there an on-site landfill?	No	
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	
9.	Are there any potential off-site sources of contamination?	No	
10.	Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	No	
12.	Any noticeable odours during site walkover?	No	
13.	Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	Not observed	No mentioned chemical was observed on-site

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Solutions for Environment | Safety | Sustainability

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Accountability

We understand the importance of being accountable to each other and our clients.

Passion

We are completely passionate about providing practical solutions and outcomes that deliver for our clients.

Insight

We work in an environment that encourages and values insight as a critical quality which informs our decisions and our clients and supports practical solutions and project delivery.

Integrity

We behave with respect and honesty toward each other, our clients and our stakeholders.