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Civil Engineering and Development Department

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Agreement No. CE 31/2024 (CE)

Development off Tseung Kwan O Area 132 – Design and Construction

Building Today for a Sustainable Tomorrow

Innovative Engineering for Sustainable Reclamation

Contract No. ED/2025/02
Development off Tseung Kwan O Area 132 - Reclamation and Site Formation Works

Construction Noise Management Plan for Reclamation Works for "Development off Tseung Kwan O Area 132" (Final)

January 2026

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Civil Engineering and Development Department

East Development Office

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Development off Tseung Kwan O Area 132 – Design and Construction

Construction Noise Management Plan for Reclamation Works for "Development off Tseung Kwan O Area 132" (Final) – Issue 2

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1. INTRODUCTION

1.1 Background

1.1.1 The Development of Tseung Kwan O Area 137 and Associated Reclamation Sites includes the redevelopment of the Tseung Kwan O Area 137 (TKO 137) to a new community primarily for housing purpose, and reclamation at Tseung Kwan O Area 132 (TKO 132) for public facilities. The Development of Tseung Kwan O Area 137 and Associated Reclamation Sites is a Designated Project (DP) under Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO) and comprises various Schedule 2 Designated Projects (DPs) under schedule 2 of the EIAO, which include essential engineering infrastructures works/ public facilities.

1.1.2 An Environmental Impact Assessment (EIA) Report for Development of Tseung Kwan O Area 137 and Associated Reclamation Sites (Register No.: AEIAR-265/2025) (the Approved EIA Report) was submitted and approved on 30 April 2025 under the EIAO. Following the approval of the EIA Report, three Environmental Permits (EP) were granted on 23 July 2025, including:

- EP for construction and operation of carriageway bridge for “Development off Tseung Kwan O Area 132” (EP No. EP-667/2025);
- EP for reclamation works for “Development at Tseung Kwan O Area 137” (EP No. EP-668/2025); and
- EP for reclamation works for “Development off Tseung Kwan O Area 132” (EP No. EP-669/2025).

1.1.3 The works of TKO 132 will be implemented under the following work contracts:

<u>Contract No. ED/2025/02: Development off Tseung Kwan O Area 132 - Reclamation and Site Formation Works</u>

- This contract covers reclamation works for the "Development off Tseung Kwan O Area 132", which are governed by EP No. EP-669/2025, as well as other non-DP works including the TKO 132 site formation works and TKO 132 infrastructure works.

<u>Contract ED/2025/03: Development off Tseung Kwan O Area 132 – Marine Viaduct and Associated Works</u>

- This contract includes the construction of carriageway bridge for "Development off Tseung Kwan O Area 132" and associated site formation works, which are governed by EP No. EP-667/2025, as well as other non-DP works including infrastructure works and construction of a sewage pumping station for TKO 132 (TKO 132 SPS).

1.2 Scope and Purpose of this CNMP

1.2.1 Pursuant of the EP Condition 2.16 of the EP-669/2025, a Construction Noise Management Plan (CNMP) shall be submitted to the Environmental Protection Department (EPD) prior to the issuance of tender invitation for EPD agreement. This CNMP has been prepared for the DP works, reclamation works for “Development off Tseung Kwan O Area 132” under Contract No. ED/2025/02, (hereafter referred to as “the Project”), and is therefore submitted to EPD for fulfilment of the EP Condition 2.16 of the EP-669/2025.

1.2.2 The CNMP includes the latest construction programme, methodology and plant inventory, quantitative construction noise impact assessment, a list of quieter construction method / equipment, recommended construction noise mitigation measures, implementation schedule of the mitigation measures (including implementation party, location, timing of implementation), and the details of the construction noise impact monitoring and audit program to review the effectiveness of recommended mitigation measures.

1.2.3 The concurrent projects including non-DP works under Contract No. ED/2025/02 (i.e. the TKO 132 site formation works and TKO 132 infrastructure works) and Contract ED/2025/03 which are located within 300 m assessment area of the Project were also considered in the cumulative construction noise impact assessment under this CNMP. **Appendix 1.1** shows the contract boundaries of Contract ED/2025/02 and Contract ED/2025/03.

1.2.4 Individual CNMP for the non-DP works under Contract ED/2025/02, and for the DP works and non-DP works under Contract ED/2025/03 have been prepared and submitted separately in accordance with the corresponding EP conditions and/or the requirements in the Approved EIA Report.

2. THE PROJECT

2.1 Major Construction Activities

2.1.1 Under the governance by the EP No. EP-669/2025, the Project in this CNMP includes the following elements:

- Formation of around 19 ha of land by reclamation;
- Associated removal of obstruction; and
- Associated environmental mitigation works.

2.1.2 The construction of the Project would commence in Mid-2026 for targeted completion in January 2029. The detailed construction activities and programme are presented in **Appendix 2.1** and summarised in **Table 2.1**.

Table 2.1 Summary of Construction Activities for the Project

Activity Group	Activity Description
TKO 132 Reclamation Works	Deep Cement Mixing (DCM) Site Trial
	Installation of Silt Curtain
	Removal of Obstructions / Marine Deposit (MD)
	Installation of Geotextile and Sand Blanket
	Marine DCM
	Construction of Seawall
	Installation of Rockfill
	Construction of Box Culvert and Drainage Works
	Reclamation Fill
	Dredging for Concrete Batching Plant (CBP) Berthing Facility

2.1.3 The locations of the construction work areas of the Project are presented in **Appendix 2.2**.

2.1.4 No percussive piling would be carried out for the construction of the Project, unless considered other non-percussive means (such as bored piling, press-in piling, helical piling) not practical. The requirement has been stipulated in EPD's Recommended Pollution Control Clauses (RPCC) (noise relevant sections), as presented in **Table 7.1**.

2.2 Construction Plant Inventory

2.2.1 The construction plant inventory of the Project is presented in **Appendix 2.3** and summarised below:

Table 2.2 Summary of Construction Plant Inventory of the Project (Unmitigated Scenario)

Activity Group	Construction Plant
TKO 132 Reclamation Works	• Anchor boat • Backhoe, wheeled/tracked • Bulldozer, wheeled/tracked • Cement barge • Compactor, vibratory • Concrete lorry mixer • Crane, mobile

Activity Group	Construction Plant
	• DCM barge • Derrick barge • Derrick lighter • Drill rig, rotary type (diesel) • Dump truck • Excavator, mini-robot mounted • Excavator, wheel/tracked, mounted with Rapid Impact Compactor • Excavator, wheeled/tracked • Flattop barge • Generator • Grab Dredger • Grout mixer • Grout pump • Hooper barge • Long range excavator, wheeled/tracked • Poker, vibratory, hand-held • Roller, vibratory • Tug boat • Water pump, submersible (electric) • Welder/Generator, portable

2.3 Construction Hours

2.3.1 Based on the latest design information, construction activities for the Project would only be carried out during the non-restricted hours (0700-1900 on any day, not being a Sunday or General Holiday) within the construction period.

2.4 Concurrent Projects

2.4.1 As presented in **Section 1.1**, the non-DP works under Contract ED/2025/02 (i.e. construction of TKO 132 Site Formation Works and TKO 132 Infrastructure Works), as well as the marine viaduct works, site formation works, infrastructure works and construction of TKO 132 sewage pumping station under Contract ED/2025/03, have been considered as concurrent projects for cumulative construction noise impact assessment in this CNMP. The mitigation measures proposed in their respective CNMPs have been taken into account in both the unmitigated and mitigated scenarios under this CNMP.

2.4.2 According to Section 4.5.7 and Table 2.22 of the Approved EIA Report, other concurrent projects that have potential cumulative construction noise impact and located within the assessment boundary have been identified in **Table 2.3**. However, there are no confirmed details on the design / alignment and construction method for these concurrent projects. Therefore, the cumulative construction noise impacts from these concurrent projects have not been considered in this CNMP, as detailed in **Table 2.3**.

Table 2.3 Summary of Concurrent Projects within the 300 m Assessment Boundary

Concurrent Project	Construction Programme	Brief Description	Cumulative Impact Assessed in this CNMP
TKO 132 Site Formation Works and TKO 132 Infrastructure Works under Contract ED/2025/02	See **Appendix 2.1**	Site Formation Works and Infrastructure Works	Yes
Marine Viaduct Works and Site Formation Works under Contract ED/2025/03	See **Appendix 2.1**	Marine viaduct and site formation Works	Yes
TKO 132 sewage pumping station and infrastructure works under Contract ED/2025/03	See **Appendix 2.1**	Sewage pumping station and infrastructure works	Yes
Power cables connecting to the Electricity Facilities (EFs) at TKO 132	The project(s) is under planning. Commencement date of construction is subject to separate study. Completion date is expected to be tally with the EFs.	Laying of power cables is expected to connect to the proposed EFs at TKO 132. The actual alignment and design are under planning.	No
Potential Hiking Trail at TKO 132	To be confirmed (Note: As this project is at feasibility stage, there is no concrete implementation schedule/construction programme.)	Construction of hiking trail/ boardwalk connecting existing hiking trails to TKO 132	No

2.4.3 The construction programme, works areas and construction plant inventories of the concurrent projects including Contract ED/2025/02 and Contract ED/2025/03 are provided by and confirmed with the proponent of the concurrent projects, and are presented in **Appendix 2.1**, **Appendix 2.2** and **Appendix 2.3**, respectively. The cumulative construction noise impact from the Project and the above concurrent projects was assessed in this CNMP.

2.4.4 For all the concurrent projects, liaison should be carried out by the Contractor as far as practicable to minimize any overlapping of works and to ensure no adverse cumulative noise impact would arise.

3. LEGISLATION, STANDARDS AND GUIDELINES

3.1 Construction Noise Criteria

3.1.1 Construction noise impact generated by the construction activities of the Project was assessed in accordance with the noise criteria given in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The criteria are summarized in **Table 3.1**.

Table 3.1 Construction Noise Criteria during for Non-Restricted Hours

Uses	Daytime Noise Criteria, $L_{eq(30min)}$ dB(A)
• All domestic premises, • Temporary housing accommodation, • Hostels, • Convalescent homes, and • Homes for the aged	75
• Places of public worship, • Courts of law, and • Hospitals and medical clinics	70
• Educational institutions	70
• Educational institutions (during examinations)	65

Notes:
The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external façade.

3.1.2 In the case which construction works would be carried out during restricted hours (all days between 1900 and 0700 hours and at any time on Sundays and general holidays), the noise standards should be referenced to relevant technical memoranda issued under the Noise Control Ordinance (NCO). For carrying out such construction work, a Construction Noise Permit (CNP) shall be applied by the Contractor separately.

3.2 Assessment Methodology

3.2.1 This CNMP is prepared according to requirements in the EP Condition 2.16, Section 4.8.1 of the Approved EIA Report, EIAO Guidance Note No. 9/2023 "*Preparation of Construction Noise Impact Assessment under the Environmental Impact Assessment Ordinance*" (EIAO-GN 9/2023), and Professional Persons Environmental Consultative Committee Practice Notes 1/24 "*Minimizing Noise from Construction Activities*" (ProPECC PN 1/24). A quantitative construction noise impact assessment was conducted following the procedure specified in the Technical Memorandum on Noise from Construction Work Other Than Percussive Piling (GW-TM) issued under the NCO. The assessment methodology is summarized as follows:

- Identify representative Noise Sensitive Receivers (NSRs) potentially impacted by the construction activities undertaken under the Project;
- Determine the Powered Mechanical Equipment (PME) used for relevant activities, based on the plant inventory agreed upon by the Project Engineer;
- Assign Sound Power Levels (SWLs) to the proposed PME, referencing the GW-TM and the list of SWLs for other commonly used PME published by EPD;

- Calculate correction factors based on the distance between NSRs and the notional noise source position at the construction sites;
- Apply corrections in calculations, accounting for potential screening effects and acoustic reflections, if applicable;
- Predict construction noise levels at representative NSRs;

3.2.2 The assessment was undertaken based on the assumption that all items of construction PME are located at a notional source position for each construction activity and that all PME are operating simultaneously. Noise reduction of 10dB(A) for the direct line of sight totally screened or 5 dB(A) for partially screened by substantial barriers (buildings, terrain and other structures) has been taken into account in the construction noise calculation in accordance with GW-TM.

3.2.3 The construction programme and construction plant inventory (unmitigated scenario) of the Project for this CNMP are presented in **Appendix 2.1** and **Appendix 2.3** respectively. The construction plant inventory includes PME to be used for each construction activity in the construction programme, as well as the utilization rate, and quantity of each type of PME. Sound Power Level (SWL) of each PME would be assigned based on Table 3 of GW-TM or "Sound power levels of other commonly used Powered Mechanical Equipment" (OCUPME).

3.2.4 The predicted construction noise level at each representative NAP during each month of the construction programme is compared against the criteria of constriction noise level as stipulated in **Section 3.1**. If the predicted noise level exceeds the criteria, appropriate mitigation measures would be recommended, including but not limited to adoption of quieter construction methods, use of Quality PME (QPME), grouping of PMEs, use of moveable noise barriers and full enclosures and good site practices. The mitigated scenario of construction noise impact would then be assessed, if applicable.

3.2.5 Subject to the availability of the detailed design information at the time of preparation of this CNMP, the cumulative construction noise impact due to construction activities of the concurrent projects presented in **Section 2.4**, have been considered in this CNMP.

4. CONSTRUCTION NOSIE IMPACT ASSESSMENT

4.1 Assessment Area

4.1.1 The assessment area is defined as the area within 300 m from the boundary of Contract ED/2025/02, which is presented in **Appendix 1.1**.

4.2 Identification of Noise Sensitive Receivers

4.2.1 Noise Sensitive Receivers identified in the Approved EIA Report are still valid. Based on the 300 m assessment boundary, NSRs are identified based on desktop review of relevant land use plans, including the Recommended Outline Development Plan (RODP) in the Approved EIA Report, which has been gazetted and form part of the S/TKO/32 - Tseung Kwan O Outline Zoning Plan (OZP). No committed / planned / proposed NSR is identified within the assessment boundary during the construction period of the Project. The nearest existing NSRs were identified within the assessment boundary and are listed in **Table 4.1.** The locations of the representative NSRs are presented in **Appendix 4.1**.

Table 4.1 Identified Representative Noise Sensitive Receivers

NSR	Description	Use [1]	Distance from the Contract, m	Height of NSR in mPD or Number of Storey
E-OLV	On Luen Village	R[2]	30	1 storey

Notes:
[1] R – Residential
[2] Existing residential uses located on area zoned Green Belt

4.3 Identification of Representative Noise Assessment Points

4.3.1 NSRs that are in close proximity to the construction site of the Project were identified as representative Noise Assessment Points (NAPs), which are listed in **Table 4.2**. The locations of the representative NAPs are presented in **Appendix 4.2**.

Table 4.2 Representative Noise Assessment Point

NSR_ID	NAP_ID	Description	Use [1] [2]	Height of NSR in mPD or Number of Storey
E-OLV	E-OLV-R-C1	Village House at GLL S11295 of On Luen Village	R [2]	1 storey
	E-OLV-R-C2	Village House at GLL S11366a of On Luen Village	R [2]	1 storey
	E-OLV-R-C3	Village House at GLL S11124a of On Luen Village	R [2]	1 storey
	E-OLV-R-C4	Village House at GLL S11949 of On Luen Village	R [2]	1 storey

Notes:
[1] R – Residential
[2] Existing residential uses located on area zoned Green Belt

4.4 Construction Noise Impact Assessment Results

4.4.1 With adoption of quieter construction method for the Project as described in Section 4.7.1.18 of the Approved EIA Report and stated in **Section 5.1.1**, the construction programme, locations of works area and construction plant inventory for the Project and concurrent projects are presented in **Appendices 2.1 - 2.3**, predicted cumulative

construction noise levels at the representative NAPs due to the Project under unmitigated scenario and concurrent projects (with consideration of the mitigation measures recommended in their CNMPs) are summarized in **Table 4.3** and detailed in **Appendix 4.3**. The predicted maximum construction noise levels at representative NAPs due to the Project would range from 68 to 79 dB(A). The predicted maximum cumulative construction noise levels at representative NAPs would range from 70 to 80 dB(A), exceeding the 75 dB(A) EIAO-TM criteria. Thus, construction noise mitigation measures are required and recommended in **Section 5.1**.

Table 4.3 Predicted Maximum Construction Noise Levels (Unmitigated Scenario)

NAPs	Predicted Construction Noise Level, $L_{eq\ (30\text{-}min)}$ dB(A) [1][2]		Criteria, $L_{eq\ (30\text{-}min)}$ dB(A)
	The Project	Cumulative	
E-OLV-R-C1	70	71	75
E-OLV-R-C2	68	70	75
E-OLV-R-C3	**77**	**78**	75
E-OLV-R-C4	**79**	**80**	75

Remarks:
[1] Predicted construction noise level is rounded to nearest integer for comparison with the criteria.
[2] Boldfaced values indicate exceedance to the criterion.

5. MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS

5.1 Mitigation Measures

5.1.1 As described in Section 4.7.1.18 of the Approved EIA Report, non-dredged marine DCM method would be used for seabed ground treatment throughout the reclamation, as listed in **Table 5.1**. Precast structures for blockworks, instead of in-situ concreting would also be used for seawall construction as far as practicable. These quieter construction methods should be adopted for the construction of the Contract.

Table 5.1 Quieter Construction Method Adopted for the Project

Involved Construction Process	Conventional Construction Method / PME	Quieter Construction Method
Seabed ground treatment for seawall construction and reclamation	Dredging by dredger	Non-dredge DCM method
Seawall construction	In-situ concreting	Precast structures for blockworks

5.1.2 As mentioned in **Section 4.3**, adverse construction noise impact is anticipated under the unmitigated scenario. Mitigation measures are recommended to reduce the construction noise level so as to comply with the relevant criteria. The following mitigation measures which have been confirmed by Project Engineer to be feasible and practicable are recommended.

5.1.3 Use of quieter construction method, Quality Powered Mechanical Equipment and quieter model equipment has been utilized as far as practicable for mitigating adverse construction noise impact. However, given the significant exceedance of construction noise level, additional mitigation measures has been recommended, including installation of noise barrier and good site practices. The details of mitigation measures are presented in **Appendix 5.1**.

Use of Quieter Construction Method (QCM)

5.1.4 Quieter construction method (QCM) including non-dredged method is adopted to avoid / minimize potential noise impact induced by dredging works. The reclamation works off TKO 132 would be conducted using marine deep cement mixing method. No dredging works would be carried out for the Project. Dredging works would only be carried out to maintain sufficient water depth for marine vessel access for the CBP berthing facility. For construction of seawall, installation of precast structures of blockworks would be adopted instead of in-situ concreting. Filling material would be transported by barge to respective barging point located nearby / adjacent to reclamation works area, as shown in **Appendix 2.2**.

Use of Quality Powered Mechanical Equipment (QPME)

5.1.5 The use of QPME in each construction work is detailed in the construction plant inventory (mitigated scenario) in **Appendix 5.1**. A summary of the QPME to be adopted is provided in **Table 5.2**. The Contractor should adopt QPME / PME with same or lower SWL whenever the state equipment model is not available to the Contractor at specific time periods.

Table 5.2 Summary of SWL of Recommended QPME

QPME	QPME Reference Number	Brand	Model Number	SWL, dB(A)
Excavator, wheeled/tracked	EPD-15967	KOMATSU	PC200-10M0	101
Bulldozer, tracked	EPD-14522	KOMATSU	D61EX-24E0	107
Crane, mobile	EPD-16069	ZOOMLION	ZCT1000V532	100
Roller, vibratory	EPD-15815	DYNAPAC	CA1400D	103

Installation of Noise Barrier

5.1.6 Movable noise barriers would be erected to provide screening from the construction plant. Noise barriers would be most effective when located immediately adjacent to the PME and can reduce the noise level by 5 dB(A) for movable PME and by 10 dB(A) for stationary PME. The Contractor shall be responsible for design of the noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and the PME. The barrier material of movable noise barrier should have at least 10 kg/m^2 surface density, according to Section 4.8.1.6 of the Approved EIA Report.

Good Site Practice

5.1.7 To further minimize construction noise impacts, the following good site practice and noise management technique presented in S4.8.1.7 of Approved EIA Report should be properly implemented:

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;
- Machines and plants (such as trucks, cranes, etc.) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- Plants known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;
- Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;
- Mobile plants should be located as far away from NSRs as possible and practicable; and
- Material stockpiles, site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.

5.2 Effectiveness of Recommended Mitigation Measures

5.2.1 The above mitigation measures, including the use of QCM, use of QPME, installation of noise barrier, and good site practices have been proven to be effective and widely adopted in Hong Kong for the purpose of reducing construction noise impact to NSRs. These mitigation measures are also documented in EPD website as part of the construction noise mitigation measures. Installation of noise barriers has been considered in this CNMP under the mitigated scenario, which demonstrated that the construction noise level would be in compliance with relevant noise criteria as presented in **Section 3.1**.

5.3 Prediction and Evaluation of Environmental Impact (Mitigated Scenario)

5.3.1 The construction plant inventory for the Project under mitigated scenario and concurrent projects have been presented in **Appendix 5.1**. With the implementation of mitigation measures as recommended in **Section 5.1**, the predicted construction noise assessment results are summarized in **Table 5.3** and detailed in **Appendix 5.2**.

Table 5.3 Predicted Maximum Construction Noise Level (Mitigated Scenario)

NAPs	Predicted Construction Noise Level, $L_{eq\ (30\text{-}min)}$ dB(A) [1][2]		Criteria, $L_{eq\ (30\text{-}min)}$ dB(A)
	the Project	Cumulative	
E-OLV-R-C1	64	68	75
E-OLV-R-C2	62	68	75
E-OLV-R-C3	71	75	75
E-OLV-R-C4	72	75	75

Remarks:
[1] Predicted construction noise level is rounded to nearest integer for comparison with the criteria.
[2] Boldfaced values indicate exceedance to the criterion.

5.3.2 The predicted maximum noise levels at representative NAPs due to the Project would range from 62 to 72 dB(A). The predicted maximum cumulative construction noise levels at representative NAPs would range from 68 to 75 dB(A), complying with the 75 dB(A) EIAO-TM criteria. Therefore, no adverse construction noise impact is anticipated, with proper implementation of the recommended mitigation measures.

5.3.3 To further minimize construction noise impacts, other than the QCMs as mentioned to be adopted in **Section 5.1.6**, QCM specified in the EPD's website should be considered by the Contractor to adopt on-site as practicable to further minimize the potential construction noise impact. The Contractor should explore the possibility of application of QCM. A summary of QCM recommended in the Approved EIA Report for the Project is presented in **Table 5.4**.

Table 5.4 Quieter Construction Methods for Contractor Considerations

Involved Construction Process	Conventional Construction Method / PME	Quieter Construction Method / PME
Sheet pile walls and precast structures construction	In-situ concreting for reclamation works	Hydraulic press-in method
Material handling / barging	Conveyor	Fully enclosed conveyor
Filling	Drill and break method / Excavator-mounted breaker	Use of hydraulic splitter, hydraulic crusher / bursting system / quiet type saw / use of chemical expansion agent
Site clearance (such as small boulder removal), etc.	- Bitumen Paver - Drum Roller - Mobile Crane - Excavator - Bulldozer - Loader - Roller - Compactor - Generator - Air Compressor	Use of Quality PME

5.4 Implementation Schedule of the Construction Noise Mitigation Measures

5.4.1 The implementation schedule of noise mitigation measures in the EIA report, EM&A manual and this CNMP are summarized in **Table 5.5**.

Table 5.5 Implementation Schedule of the Construction Noise Mitigation Measures for the Project

EIA Ref.	EP Condition	Recommended Mitigation Measures	Works Area	Timing	Implementation Party	Overall Environmental Performance Target
4.7.1.5	-	Non-dredged marine deep cement mixing method would be used for seabed ground treatment throughout the reclamation. Precast structures for blockworks, instead of in-situ concreting would also be used for seawall construction as far as practicable. Fully-enclosed conveyor should be used	C6_A C6_C C6_D1 C6_D2 C6_E C6_F C6_G C6_H1 C6_H2 C6_I C6_J C6_K C6_L	All	Contractor	EIAO-TM
4.8.1.1 - 4.8.1.4	-	Use of quieter construction method / PME as necessary (See **Table 5.1 and Table 5.2**)	All	All	Contractor	EIAO-TM
4.8.1.5	-	Careful scheduling of construction activities and grouping of PMEs and liaison between contractors to avoid multiple noisy construction activities / equipment to be used at the same time within close proximity	All	All	Contractor	EIAO-TM
4.8.1.6	-	Use of noise barriers / enclosures	C6_J C6_L	All	Contractor	EIAO-TM
4.8.1.7	-	Good site practice and noise management techniques should be practised during each phase of construction: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plants (such as trucks, cranes, etc.) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;	All	All	Contractor	EIAO-TM

EIA Ref.	EP Condition	Recommended Mitigation Measures	Works Area	Timing	Implementation Party	Overall Environmental Performance Target
		• Plants known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plants should be located as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.				
4.8.1.10 – 4.8.1.11	2.16	Pre-construction Construction Noise Management Plan (CNMP) should be submitted to EPD before commencement of construction works, according to requirements in EP Condition 2.16.	All	2 months before Construction	Contractor	EIAO-TM

6. ENVIORNMENTAL MONITORING AND AUDIT PROGRAMME

6.1 Environmental Monitoring and Audit

6.1.1 Environmental Monitoring and Audit (EM&A) requirements of the Project were recommended in the EM&A Manual of the Approved EIA. Construction noise monitoring stations relevant to the Project are listed in **Table 6.1**. Their locations according to the EM&A Manual are presented in **Appendix 6.1**.

Table 6.1 Construction Noise Monitoring Stations for the Project

Station	NAP ID	Location
CM2	E-OLV-R-C2	Village House at GLL S11366a of On Luen Village
CM3	E-OLV-R-C4	Village House at GLL S11949 of On Luen Village

6.1.2 The monitoring equipment, parameters, baseline and impact monitoring method, and event and action plan in the EM&A Manual are still valid.

6.2 Site Inspection

6.2.1 Regular site inspections should be conducted at least once per week, according to Section 3.12 of the EM&A Manual, to ensure that the effectiveness of implemented noise mitigation measures and the compliance of the construction noise criteria.

7. CLAUSES RECOMMENDED IN THE TENDER DOCUMENT AND CONTRACT SPECIFICATIONS

7.1 Tender Document

7.1.1 With reference to Clause 6.1 of the EIAO-GN 9/2023, and Annex A of ProPECC PN 1/24, the EPD's Recommended Pollution Control Clauses (RPCC) for Construction Contracts should be incorporated in the tender document. The noise-relevant clauses are listed in below **Table 7.1**.

Table 7.1 Relevant Clauses Recommended for Tender Document

NOISE CONTROL		
Noise control - general requirements	(1)	The Contractor shall observe and comply with the Noise Control Ordinance and its subsidiary regulations.
	(2)	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 or shields, acoustic sheds or screens or other means, to avoid disturbance to any nearby noise sensitive receivers.
	(3)	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 (a) The noise level measured at 1m from the most affected external facade of the nearby noise sensitive receivers from the construction works alone during any 30-minute period shall not exceed an equivalent sound level (Leq) of 75dB(A). (b) The noise level measured at 1m from the most affected external facade of the nearby schools from the construction works alone during any 30-minute period shall not exceed an equivalent sound level (Leq) of 70 dB(A) [65 dB(A) during school examination periods]. The Contractor shall liaise with the schools and/or the Hong Kong Examinations and Assessment Authority to ascertain the exact dates and times of all examination periods during the course of the contract. (c) Should the limits stated in the above sub-clause(a) and (b) be exceeded, the construction shall stop and shall not re-commence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented. (d) The Contractor shall adopt, where necessary and practicable, the use of quieter construction equipment and/or methods when carrying out the construction works, including reclamation works, site formation works, infrastructure works, etc. Examples of quieter construction methods and equipment can be found on the EPD's website https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/home2/quieter-construction-methods.html (e) No percussive pilling shall be carried out, unless the Engineer considers other non-percussive means (such as bored piling, press-in piling, helical piling) not practical. (f) Rock excavation or fracture shall be carried out by non-explosive or non-percussive means (such as chemical expansion agent, hydraulic splitting, crushing) unless the Engineer considers them not practical. When blasting is to be carried out, less noisy technique (such as pulse plasma fragmentation) shall be considered unless the Engineer considers it not practical. Rock blasting using explosives should only be carried out as a last

		resort, and shall not be done during 7 p.m. to 7 a.m. and any time on a general holiday, including Sunday, to avoid noise impact at sensitive hours.
	(4)	Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project.
	(5)	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.
	(6)	Notwithstanding the requirements and limitations set out in Clause (3) above and subject to compliance with Clauses (2) and (5) above, the Engineer may upon application in writing by the Contractor, allow the use of equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, is considered to be of absolute necessity and adequate noise insulation has been provided to the schools to be affected, or of emergency nature, and not in contravention with the Noise Control Ordinance in any respect.
	(7)	The Contractor shall, when necessary, apply for a construction noise permit in accordance with the Noise Control (General) Regulations prior to the commencement of the relevant part(s) of the works, display the permit as required and provide a copy to the Engineer.
	(8)	Measures that are to be taken to protect adjacent schools and other adjacent noise sensitive receivers, if necessary and practicable, shall include, but not be limited to, the use of quieter construction methods and equipment, and adequate noise barriers/enclosures. The barriers/enclosures shall be of substantial construction and designed to reduce transmission of noise (simple plywood hoarding will not be sufficient). The barriers/enclosures shall be designed to meet the requirements given on the EPD's website: https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/index.html. The location and details of the barriers/enclosures shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.

7.2 Contract Specifications

7.2.1 According to Sections 4.8.1.10 – 4.8.1.11 and Table 4.22 of the Approved EIA Report and with reference to Annex A of ProPECC PN 1/24, recommended contract specifications for noise mitigation measures for the Project are listed in below **Table 7.2**, based on Annex C of the ProPECC PN 1/24 and **Section 5** of this CNMP.

Table 7.2 Recommended Contract Specifications for Construction Noise Mitigation Measures

General Noise Mitigation Measures	(1)	The Contractor shall adopt the following general noise mitigation practices: i. Use non-percussive pile driving methods such as hydraulic press-in method, vibration or jacking method for installing or extracting sheet piles; ii. Use non-percussive equipment such as hydraulic crusher, sawing, coring machines etc. for demolition and concrete breaking work; iii. Close all hoods, cover panels and inspection hatches of powered mechanical plant such as generators, air compressors etc. during operation; iv. Provide noise dampening materials inside and outside refuse chutes during building construction;

		v. Fit mufflers or silencers, and dampening layer with steel collars to hand held pneumatic breakers; vi. Use Quality Powered Mechanical Equipment (QPME) recognized by the Environmental Protection Department (EPD) as far as practicable. Details of QPME can be found in EPD website at http://www.epd.gov.hk/epd/english/environmentinhk/noise/qpme/index.html. Where a QPME is used, the plant shall be registered with EPD, and a valid label issued by EPD from such registration shall be affixed on the plant at all times and kept legible; and vii. Use of Quieter Construction Methods as far as practicable listed in the EPD website at https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/home2/quieter-construction-methods.html.
	(2)	Where the noise level measured at the noise sensitive receivers (NSR) exceeds 75 dB(A) (Leq 30 min) for domestic premises, and 70 dB(A) (Leq 30 min) for schools or 65dB(A) (Leq 30 min) during school examinations, the Contractor shall provide an acoustic screen or enclosure4 to shield the public or NSR from the noisy activity at source or adopt quiet process/plant, except for works under emergency or with the prior agreement of the Engineer that the provision of such is not necessary, such that the noise level measured at the NSR do not exceed the limits as mentioned in this sub-clause. The detailed design / technical information including the size, material and form of the screen or enclosure shall be proposed by the Contractor and submitted to the Engineer for approval before the work commences. The acoustic screen or enclosure shall be securely fixed at the base to avoid overturning. It shall be provided and installed such that no powered mechanical equipment can be seen from the nearby noise sensitive receiver. No gap, hole nor leakage shall be found in the entire screening part of acoustic enclosure, and all joints of baffles or panels shall be well designed to prevent direct leakage of noise under the normal condition. Notwithstanding any approval given, the Contractor shall be fully liable for his design in all respects.
Concrete Removal Works	(3)	For construction activities involving Concrete Removal works, the Contractor shall use the best practicable means to protect nearby noise sensitive receivers from noise nuisance. If the best practicable means cannot be achieved, the Contractor shall provide detailed justifications for any other construction methods used. The general principle in noise reduction of concrete removal works is the minimization of noise from in-situ removal of concrete by percussive breakers, reduction of noisy processes and adoption of quieter methods. These methods of best practicable means shall include but not limited to: i. Use of non-explosive chemical expansion agents instead of explosive chemicals or expansive compounds; ii. Use of high pressure water jetting instead of traditional jackhammers and drill hammers; iii. Use of quieter type wire saws or diamond wire saws for cutting large areas and heavily reinforced concrete; iv. Use of quieter type blade saws utilizing diamond blades with higher speeds and smoother blades reduces excitation of vibration; v. Use of hydraulic crushers for concrete breaking instead of traditional excavator-mounted breakers; vi. Use of handheld concrete crushers instead of traditional jackhammers; vii. Use of diamond coring tools instead of traditional drilling tool; and

		viii. Use of hydraulic splitters instead of traditional jackhammers and breakers; and ix. Use QPME and quieter model of PME as stated in the Construction Plant Inventory (Mitigated Scenario) as presented in **Appendix 5.1** of this CNMP. For specification of recommended QPME and Quieter Model of PME, please refer to **Table 5.2** of this CNMP. If the stated equipment model is not available at the specific time period of construction, the QPME / quieter model of PME with the same or lower SWL should be adopted by the Contractor
Site Formation / Excavation and Lateral Support / Foundation Works	(4)	For construction activities involving site formation / excavation and lateral support / foundation works, the Contractor shall use the best practicable means to protect nearby noise sensitive receivers from noise nuisances. If the best practicable means cannot be achieved, the Contractor shall provide detailed justifications for any other construction methods used. The general principle in noise reduction of site formation / excavation and lateral support / foundation works is the minimization of fabrication of building elements in-situ, reduction of noisy processes and adoption of quieter methods. These methods of best practicable means shall include but not limited to: i. Use of silent piling by press-in method instead of traditional massive augering and piling machines or drop hammer for sheet piling / channel planking installation work; ii. Use of a bursting system to replace traditional handheld percussive breakers; iii. Use of non-explosive chemical expansion agents instead of explosive chemicals or expansive compounds; iv. Use of a sheet piling noise reducer such as a suitable shock absorber to reduce collisions between sheet pile / channel planking and holding parts; v. Use of pile driving impact cushions to reduce noise generated by piling impact; vi. Pre-augering/pre-trench/boring pile holes to remove underground obstruction for avoiding hard driving / soften the ground; vii. Use of crack inducers instead of traditional percussive breakers; and viii. Use QPME and quieter model of PME as stated in the Construction Plant Inventory (Mitigated Scenario) as presented in **Appendix 5.1** of this CNMP. For specification of recommended QPME and Quieter Model of PME, please refer to **Table 5.2** of this CNMP. If the stated equipment model is not available at the specific time period of construction, the QPME / quieter model of PME with the same or lower SWL should be adopted by the Contractor.
General Building Works	(5)	For construction activities involving general building works, the Contractor shall use the best practicable means to protect nearby noise sensitive receivers from noise nuisance. If the best practicable means cannot be achieved, the Contractor shall provide detailed justifications for any other construction methods used. The general principle in noise reduction of general building works is the minimization of fabrication of building elements in-situ, reduction of noisy processes and adoption of quieter methods. These methods of best practicable means shall include but not limited to:

		i. Use of prefabricated structure / sections to replace in-situ construction to reduce the amount of mechanical equipment used on site; ii. Use of self-compacting concrete (without the aid of a vibrator e.g. poker for compaction) for in-situ concreting; iii. Use of formwork made of recyclable light-weight modules, so that the pre-fabricated formwork system could be assembled and dismantled without the need of in-situ cutting and hammering; iv. Use of crack inducers instead of traditional percussive breakers; and v. Use QPME and quieter model of PME as stated in the Construction Plant Inventory (Mitigated Scenario) as presented in **Appendix 5.1** of this CNMP. For specification of recommended QPME and Quieter Model of PME, please refer to **Table 5.2** of this CNMP. If the stated equipment model is not available at the specific time period of construction, the QPME / quieter model of PME with the same or lower SWL should be adopted by the Contractor
Underground Utility and Piping Works	(6)	For construction activities involving installation of underground utility and piping works, the Contractor shall use the best practicable means to protect nearby noise sensitive receivers from noise nuisance. If the best practicable means cannot be achieved, the Contractor shall provide detailed justifications for any other construction methods used. The general principle in noise reduction of underground utility and piping works is the avoidance of using cut and cover methods, reduction of noisy processes and adoption of quieter methods. These methods of best practicable mean shall include but not limited to: i. Use of the spiral wound rehabilitation technology (SPRTMPE) instead of traditional cut and cover methods; ii. Use of Cured-In-Place-Pipe (CIPP) lining instead of “open, cut and replace” method; iii. Use of pipe-jacking or micro-tunnelling technology; and iv. Use QPME and quieter model of PME as stated in the Construction Plant Inventory (Mitigated Scenario) as presented in **Appendix 5.1** of this CNMP. For specification of recommended QPME and Quieter Model of PME, please refer to **Table 5.2** of this CNMP. If the stated equipment model is not available at the specific time period of construction, the QPME / quieter model of PME with the same or lower SWL should be adopted by the Contractor

7.2.2 According to Sections 4.8.1.10 – 4.8.1.11 and Table 4.22 of the Approved EIA Report and with reference to Annex A of the ProPECC PN 1/24, Contract Specifications for Imposition of Construction Noise Management Plan (CNMP) is recommended in below **Table 7.3**, based on Annex C of the ProPECC PN 1/24.

Table 7.3 Recommended Contract Specifications for Imposition of CNMP for the Project

NOISE CONTROL		
Noise control – general requirements	(1)	The Contractor shall submit a Pre-construction Construction Noise Management Plan (CNMP) to EPD, based on the latest project design, according to Condition 2.16 of the Environmental Permit EP-669/2025, Sections 4.6, 4.8 and 4.12 and Table 4.22 of the Approved EIA Report, and Section 3.11.1.3 of the Environmental Monitoring and Audit (EM&A) Manual. A CNMP usually contains the following basic information: • Construction works programme and construction methodology; • Powered Mechanical Equipment (PME) list for the construction work;

		• Quantitative construction noise impact assessment; • List of noise mitigation measures to be adopted; and • Construction noise impact monitoring and audit programme. Under the circumstances that a CNMP has already been prepared before the construction contract is awarded to a contractor, the Contractor has to verify if there is any change (including the construction noise mitigation measures and/or plant inventory recommended in the previous CNMP, design parameters, etc.) in the course of project implementation. If there is any such change, an updated CNMP shall be submitted to the Client, no later than one month before the implementation of any of such change. The CNMP / updated CNMP shall include an implementation schedule clearly listing out the mitigation measures, the implementation party, location and timing of implementation. All mitigation measures recommended and requirements specified in the CNMP / updated CNMP shall be fully implemented. The CNMP / updated CNMP shall be prepared and checked by Certified Noise Modelling Professional as recognized by the Hong Kong Institute of Qualified Environmental Professionals Limited or equivalent. In the event a construction project is tendered on basis of a design and CNMP already approved by the Client, the tender documents should best be accompanied with the approved CNMP for identification of necessary noise mitigation measures for implementation. There should also be a tender condition to require the Contractor to produce an updated CNMP no later than one month before the implementation of any change should there be any changes in project design, plant inventory for different construction phases, noise mitigation measures, etc.
Reclamation off TKO 132	(2)	For construction works involving reclamation, the Contractor shall use the following quieter construction methods: i. Use of deep cement mixing method. Dredging work should not be carried out for the purpose of reclamation. ii. Filling material should be transported by barge to respective barging point located nearby / adjacent to reclamation works area. The barging point should be equipped with conveyor belts with full enclosure.
Construction of seawall	(3)	For seawall construction, the Contractor shall use the following quieter construction method: i. Precast structure of blockworks should be prepared for on-site installation.

8. CONCLUSION

8.1.1 This CNMP has identified noise sensitive receivers within 300 m assessment area of the Project for assessment. The construction activities of the Project and the concurrent projects have been identified and considered in the cumulative noise impact assessment under this CNMP, as far as the construction information is available.

8.1.2 The predicted maximum cumulative construction noise levels at the residential NSRs due to the Project and the concurrent projects would be up to 80 dB(A), exceeding the 75 dB(A) noise criterion. Therefore, noise mitigation measures would be required for the construction activities of the Project.

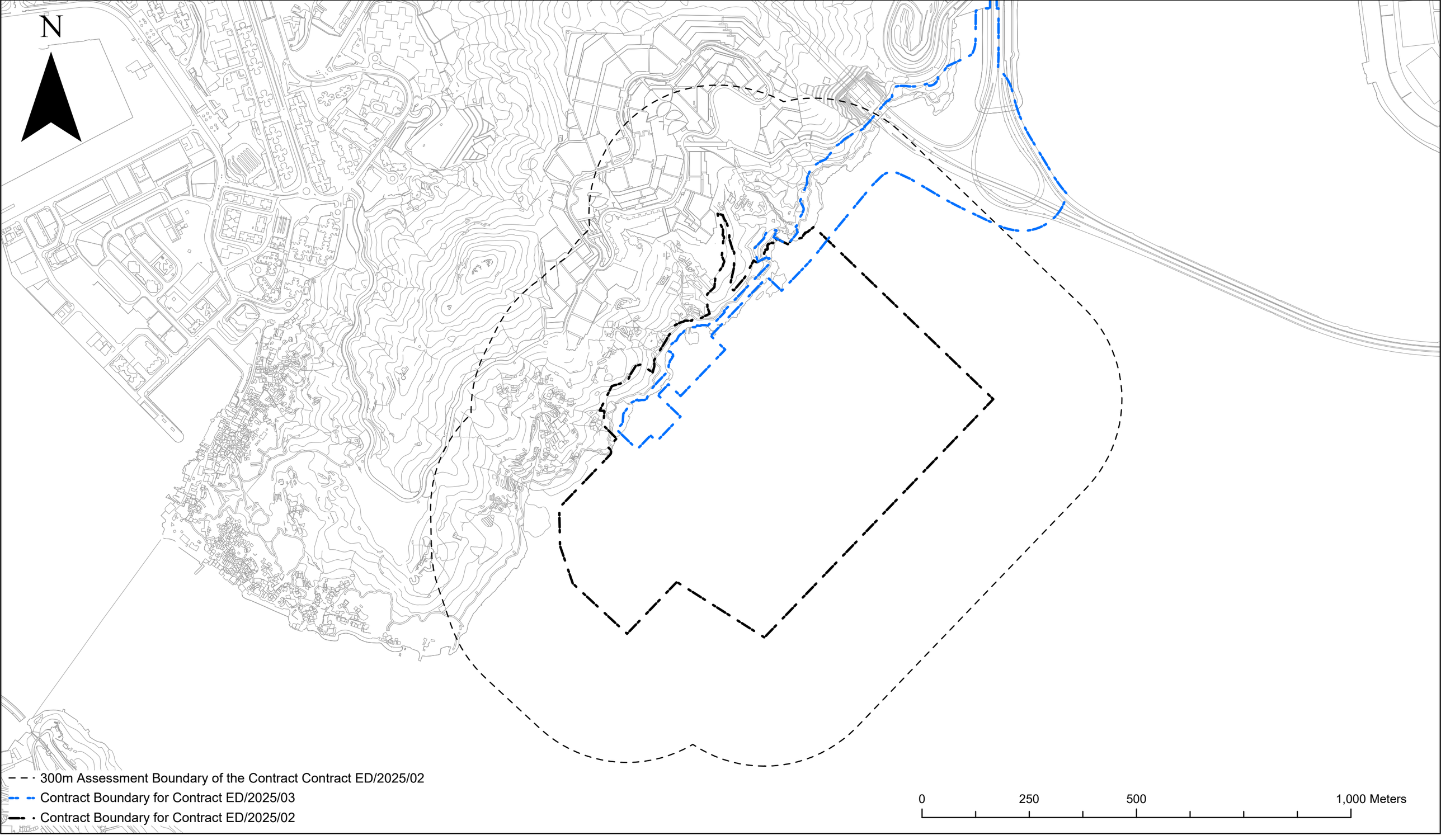
8.1.3 Based on the construction programme and plant inventory at the time of preparation of this CNMP, with proper implementation of recommended noise mitigation measures including the use of quiet construction method, use of quality PME, erection of noise barriers and good site practices for the Project, which are effective mitigation measures, and the noise mitigation measures for concurrent projects as proposed in their CNMPs, the predicted maximum cumulative construction noise levels at residential NSRs would be up to 75 dB(A), complying with the 75 dB(A) noise criteria. No adverse construction noise impact would be anticipated due to the Project. The Contractor should also consider the use of other Quieter Construction Method (QCM) during construction. Construction noise impact monitoring and audit program requirements have been recommended in the EM&A Manual and are still valid.

8.1.4 Tender documents and contract specifications should include the recommended clauses and the recommended mitigation measures in this CNMP to ensure good engineering practice to minimise inconvenience and environmental nuisance to nearby sensitive receivers.

8.1.5 In accordance with the EP requirement, the Contractor should submit a Pre-construction CNMP to EPD before commencement of construction works. The relevant parties should implement this Pre-construction CNMP (or latest version as agreed by EPD) in accordance with the implementation schedule.

Appendix 1.1

Locations of the Contracts



Appendix 1.1
Locations of the Contracts

Appendix 2.1

Construction Programme of the Project and Concurrent Projects

Appendix 2.1 Construction Programme of the Project and Concurrent Projects

The Project

Activity ID	Construction Activities	2026						2027												2028												2029												2030								
		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09
ED/2025/02 -	**TKO 132 Reclamation Works**																																																		
1	Site Preparation																																																		
12	DCM Site Trial																																																		
13	Installation of Silt Curtain																																																		
14	Removal of Obstructions/ MD																																																		
15	Installation of Geotextile and Sand Blanket (vertical seawall)																																																		
16	Installation of Geotextile and Sand Blanket (sloping seawall)																																																		
17	Installation of Geotextile and Sand Blanket (reclamation)																																																		
18	Carry Out Marine DCM for vertical seawall																																																		
19	Carry Out Marine DCM for sloping seawall																																																		
20	Construct Vertical Seawall																																																		
21	Installation of rockfill for vertical seawall																																																		
27	Construct Remaining Seawall and Rockfill																																																		
99a	Construct Sloping Seawall NE Portion																																																		
22	Construct Sloping Seawall																																																		
23	Carry Out Marine DCM for inland for NE Portion																																																		
23a	Carry Out Marine DCM for inland for remaining																																																		
24	Filling to +3mPD for EF and C7																																																		
28	Remaining Reclamation Filling to +3mPD																																																		
25	Filling to Formation Level +6.75mPD for EF and C7																																																		
29	Remaining Filling to Formation Level +6.75mPD																																																		
24a	Construction of Box Culvert and Drainage Works																																																		
31	Dredging for CBP Berthing Facility																																																		

Remarks:
1. This construction programme is solely for the purpose of preparing the pre-tender Construction Management Plan (CNMP).

Appendix 2.1 Construction Programme of the Project and Concurrent Projects

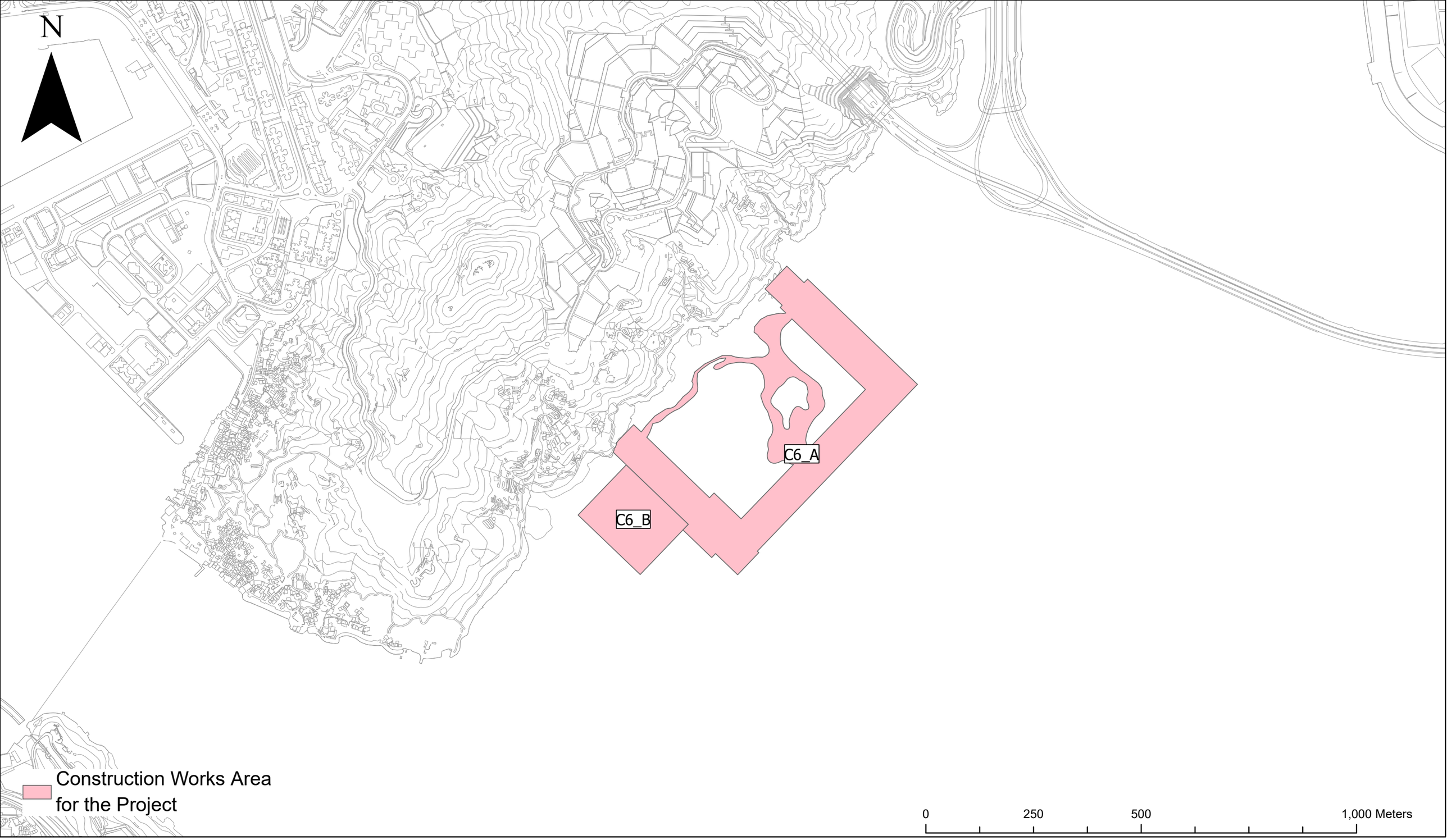
Concurrent Projects

Activity ID	Construction Activities	2026						2027												2028												2029												2030								
		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09
ED/2025/02 - TKO 132 Site Formation Works																																																			
33	Site Establishment and Clearance																																																		
34	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works																																																		
ED/2025/02 - TKO 132 Infrastructure Works																																																		
99b	Rock breaking for Abutment and Approach Ramp																																																		
99c	Construct Retaining Wall, Abutment and Approach Ramp																																																		
99d	Filling Works for Abutment and Approach Ramp																																																		
ED/2025/03 - Marine Viaduct Works																																																		
11	Temporary Staging Platform																																																		
12	Predrilling on Temporary Platform																																																		
13	UU diversion for CLP 11kV and Watermain within existing utility trough																																																		
14	Temporary Modification of existing sign gantry FADS2																																																		
15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)																																																		
16	Marine Bored Pile (Zone A + Zone D) - 40nos																																																		
17	Marine Bored Pile (Zone B) - 30nos																																																		
18	Marine Bored Pile (Zone C) - 26nos																																																		
19	Pile Cap (Zone A + Zone D) - 15nos																																																		
20	Pile Cap (Zone B) - 13nos																																																		
21	Pile Cap (Zone C) - 13nos																																																		
22	Marine Pier(Zone A + Zone D) - 25nos																																																		
23	Marine Pier(Zone B) - 13nos																																																		
24	Marine Pier (Zone C) - 13nos																																																		
25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework																																																		
29	Erection of Segments (Zones A and D) - 446nos																																																		
30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m																																																		
31	Erection of Segments (Zone C) - 16nos																																																		
32	Cast-insitu (Zone C) - 300m																																																		
33a	Stressing Tendons Road L100																																																		
33b	Stressing Tendons Slip Road L01-1																																																		
33c	Stressing Tendons Slip Road L01-2																																																		
33d	Stressing Tendons Slip Road L02-1																																																		
33e	Stressing Tendons Slip Road L02-2																																																		
34a	Dismantling Lifting Frame & Falsework Road L100																																																		
34b	Dismantling Lifting Frame & Falsework Slip Road L01-1																																																		
34c	Dismantling Lifting Frame & Falsework Slip Road L01-2																																																		
34d	Dismantling Lifting Frame & Falsework Slip Road L02-1																																																		
34e	Dismantling Lifting Frame & Falsework Slip Road L02-2																																																		
34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening																																																		
35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100																																																		
35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1																																																		
35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2																																																		
35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1																																																		
35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2																																																		
35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening																																																		
36a	Waterproofing, Paving, Roadmarking Road L100																																																		
36b	Waterproofing, Paving, Roadmarking Slip Road L01-1																																																		
36c	Waterproofing, Paving, Roadmarking Slip Road L01-2																																																		
36d	Waterproofing, Paving, Roadmarking Slip Road L02-1																																																		
36e	Waterproofing, Paving, Roadmarking Slip Road L02-2																																																		
36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening																																																		
37a	E&M and T&C Road L100																																																		
37b	E&M and T&C Slip Road L01-1																																																		
37c	E&M and T&C Slip Road L01-2																																																		
37d	E&M and T&C Slip Road L02-1																																																		
37e	E&M and T&C Slip Road L02-2																																																		
37f	E&M and T&C Slip Road S300 widening																																																		
ED/2025/03 - TKO 132 Infrastructure Works																																																		
111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC																																																		
111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI																																																		
ED/2025/03 - Construction of SPS																																																		
121	Foundation and Superstructure																																																		
122	E&M Installation																																																		
123	Architectural & Landscaping Works																																																		
ED/2025/03 - TKO 132 Site Formation Works																																																		
131	Site Establishment and Clearance																																																		
132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks																																																		

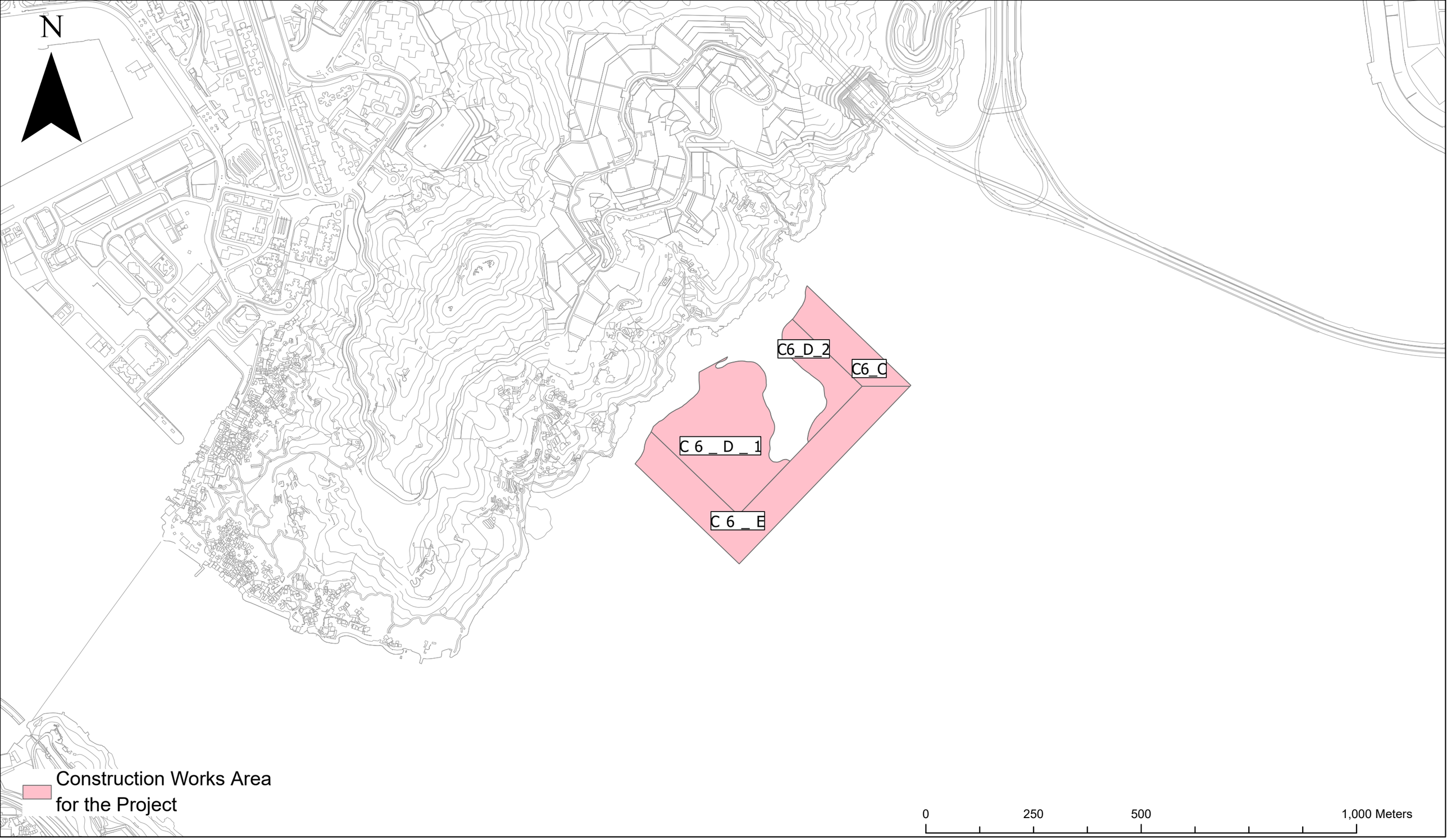
Remarks:

1. This construction programme is solely for the purpose of preparing the pre-tender Construction Management Plan (CNMP).

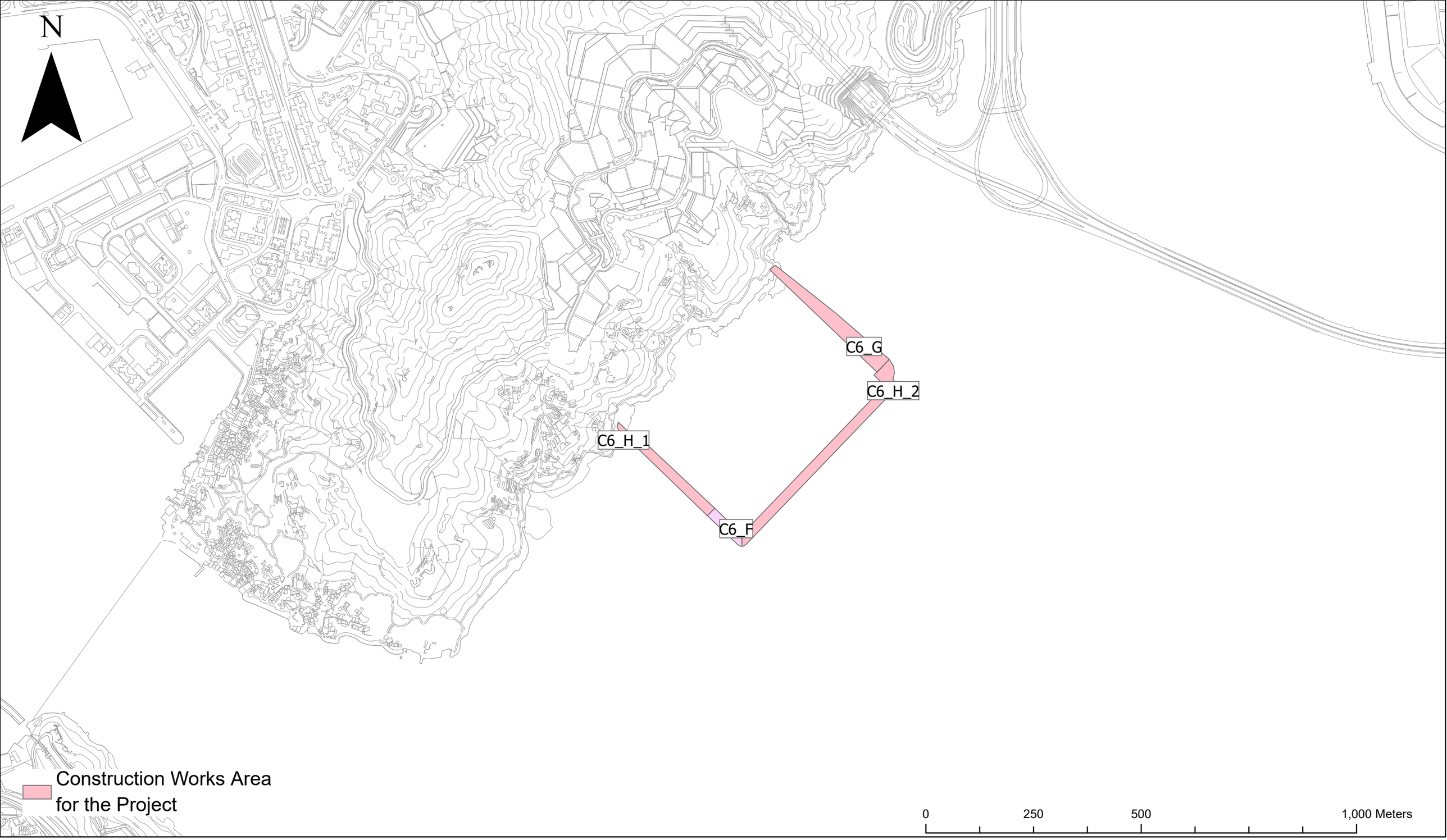
Appendix 2.2a
Locations of the Works Area of the Project



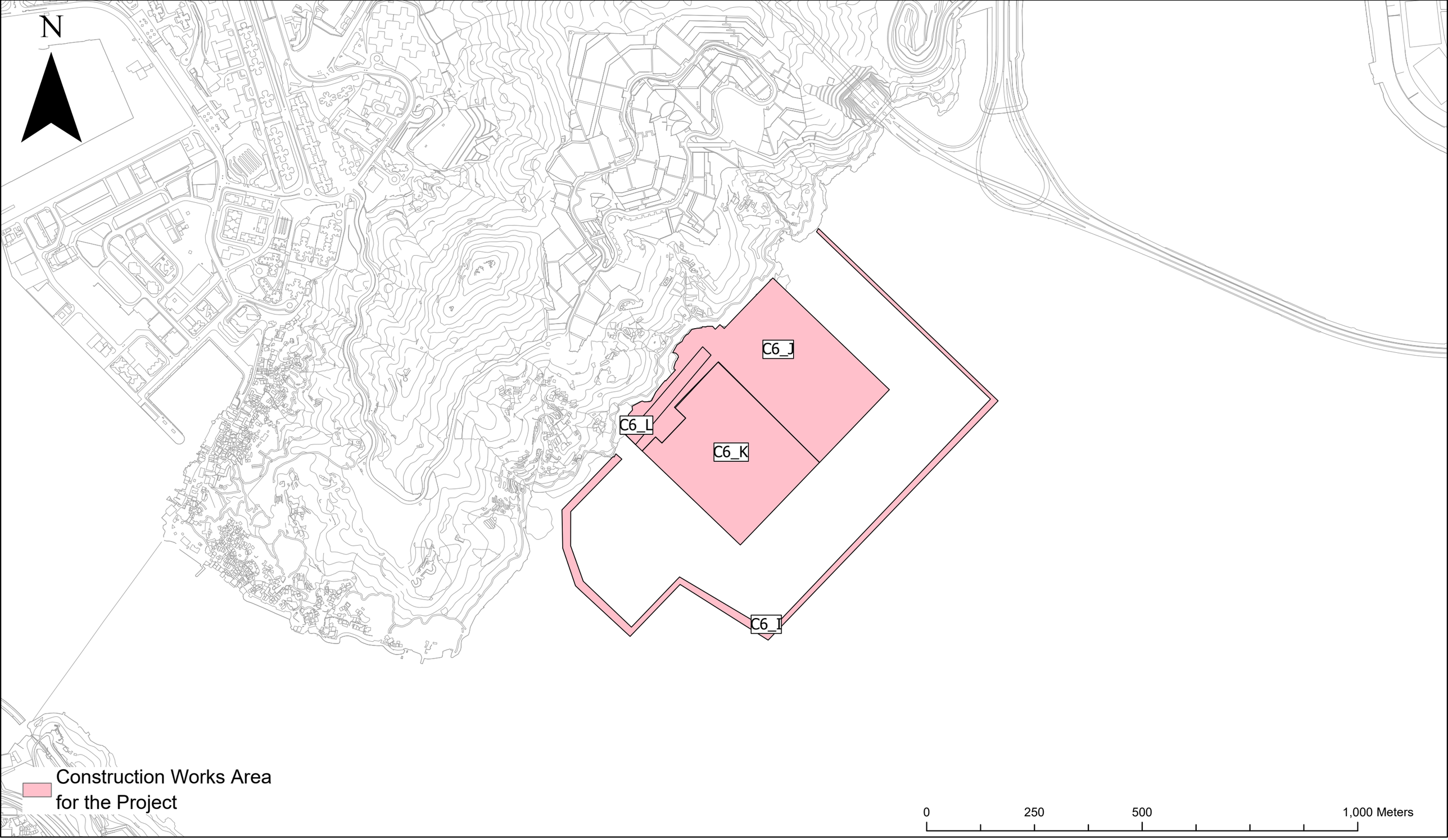
Appendix 2.2a
Locations of the Works Area of the Project
(Sheet 1 of 4)



Appendix 2.2a
Locations of the Works Area of the Project
(Sheet 2 of 4)

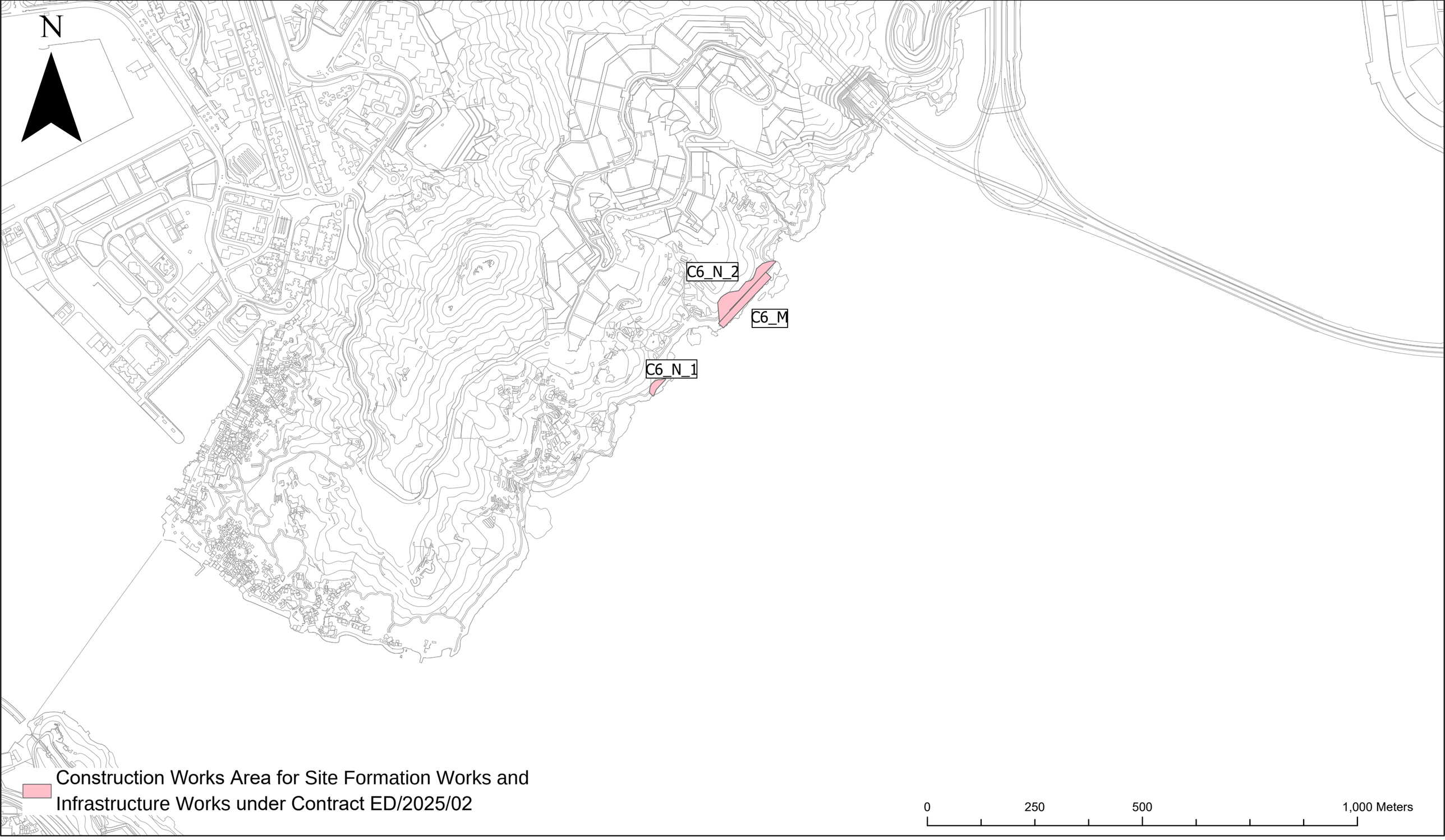


Appendix 2.2a
Locations of the Works Area of the Project
(Sheet 3 of 4)



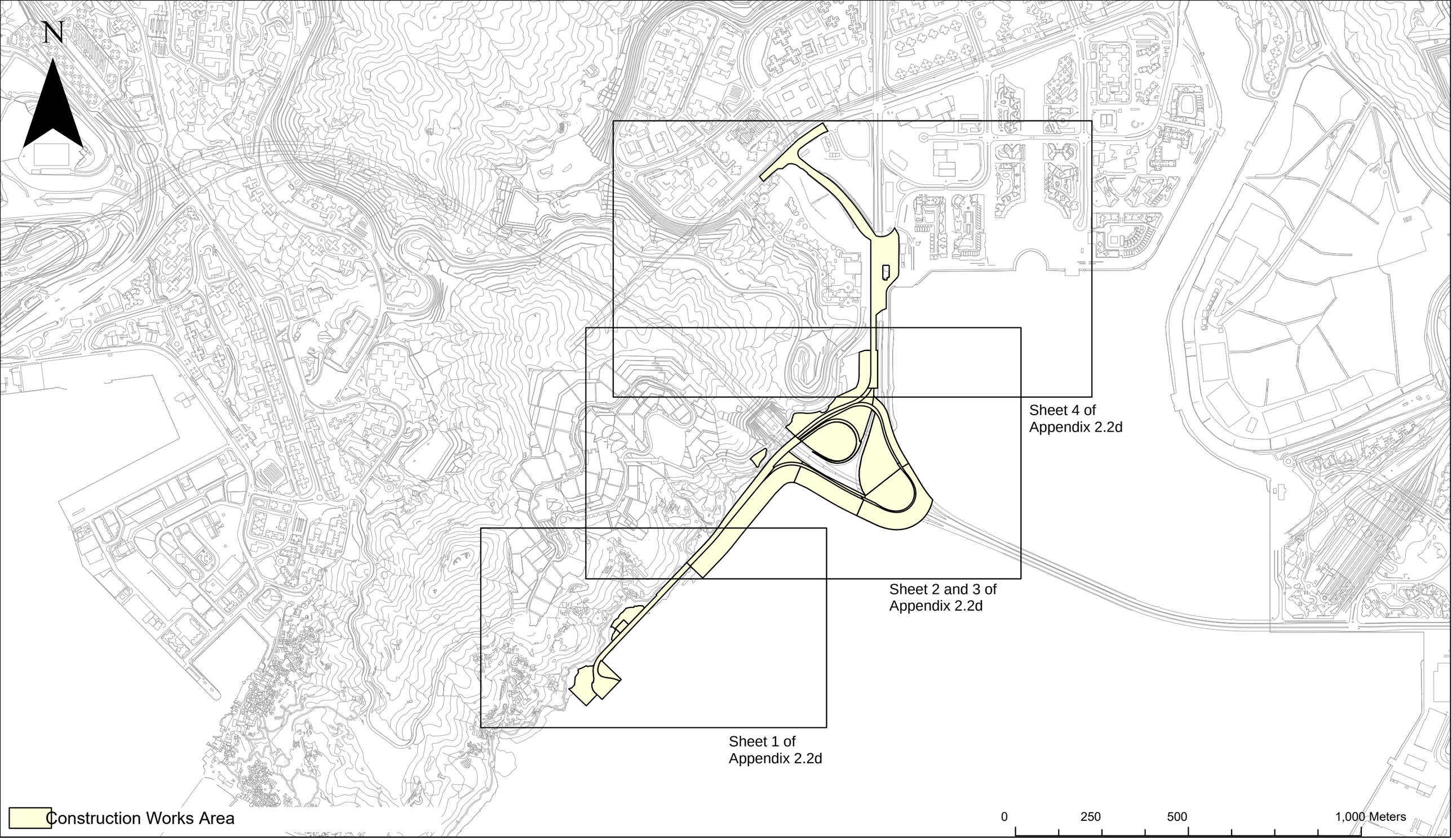
Appendix 2.2a
Locations of the Works Area of the Project
(Sheet 4 of 4)

Appendix 2.2b
Locations of the Works Area of Site Formation and Infrastructure Works (Concurrents Project under Contract ED/2025/02)



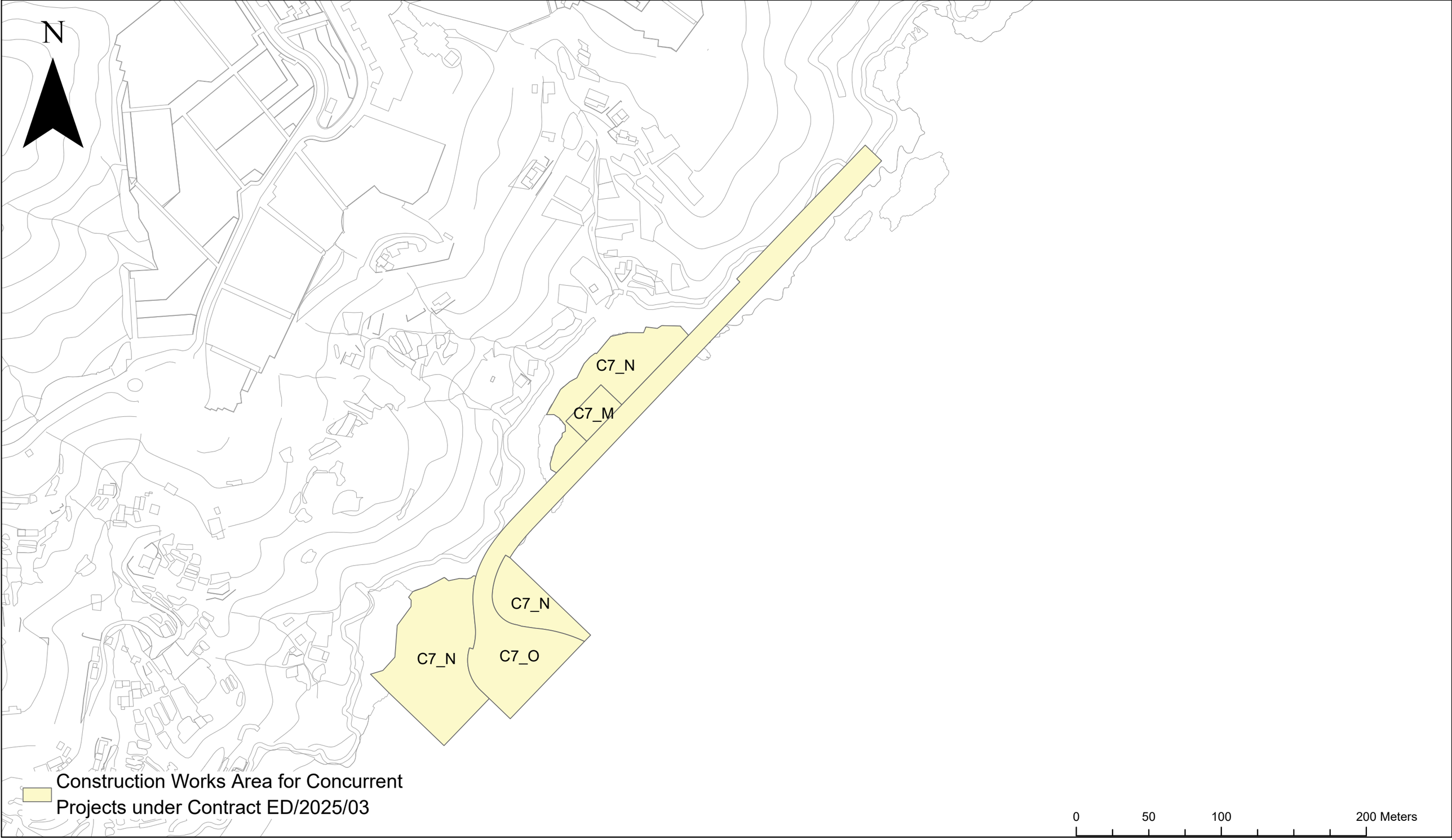
Appendix 2.2b
Locations of the Works Area of Site Formation and Infrastructure Works (Concurrent Project under Contract ED/2025/02)

Appendix 2.2c
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Key Plan)

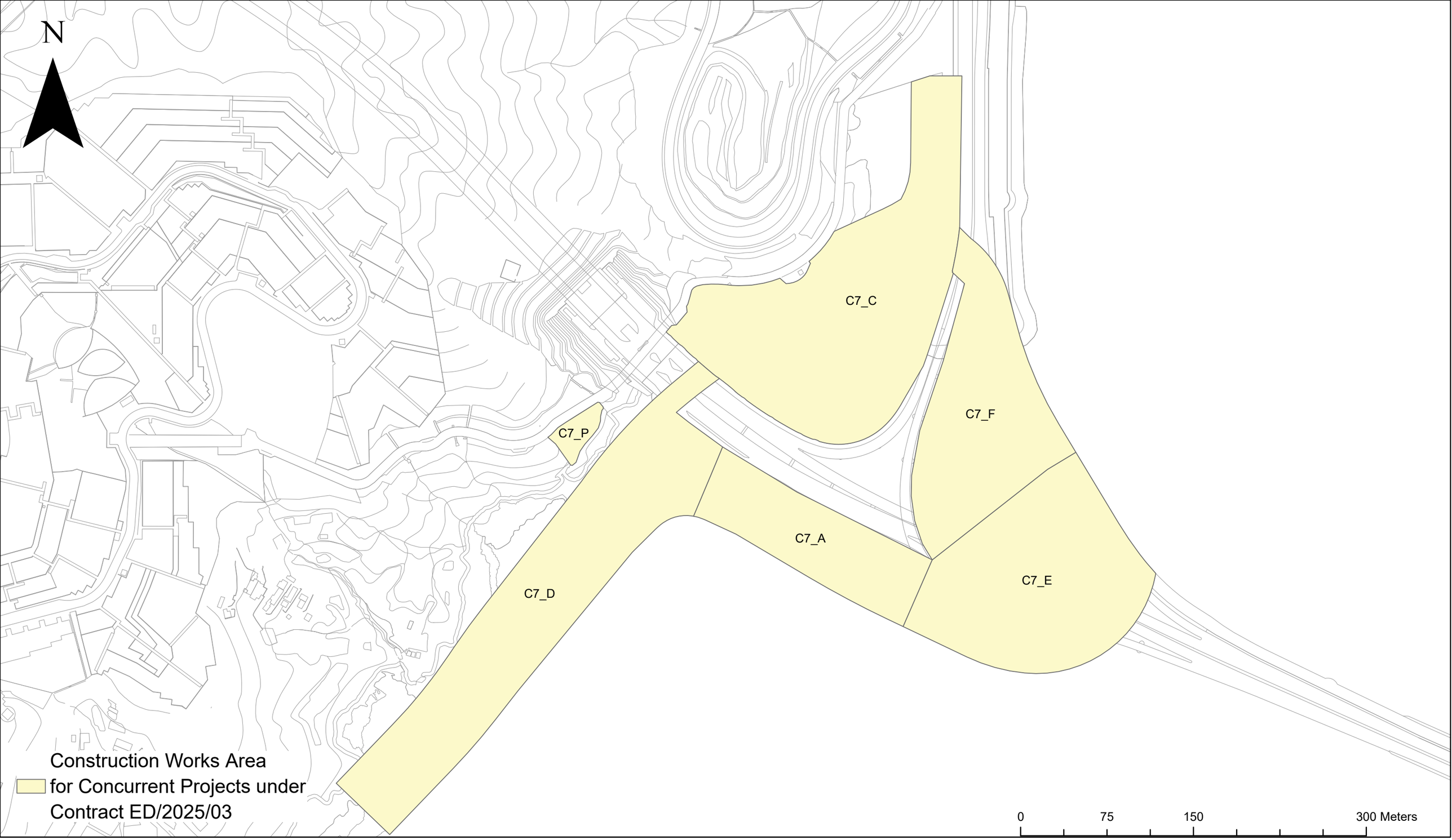


Appendix 2.2c
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Key Plan)

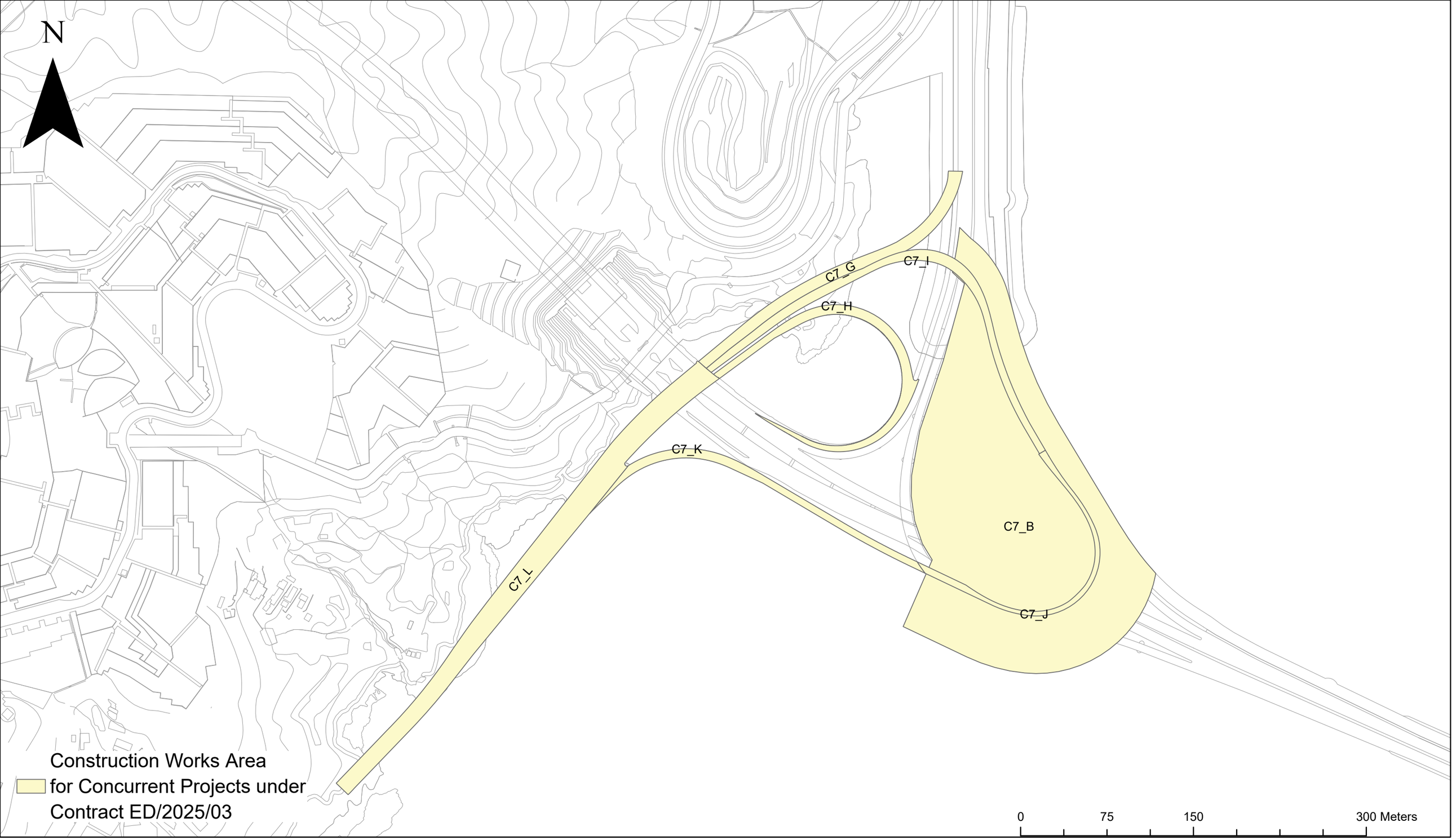
Appendix 2.2d
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03



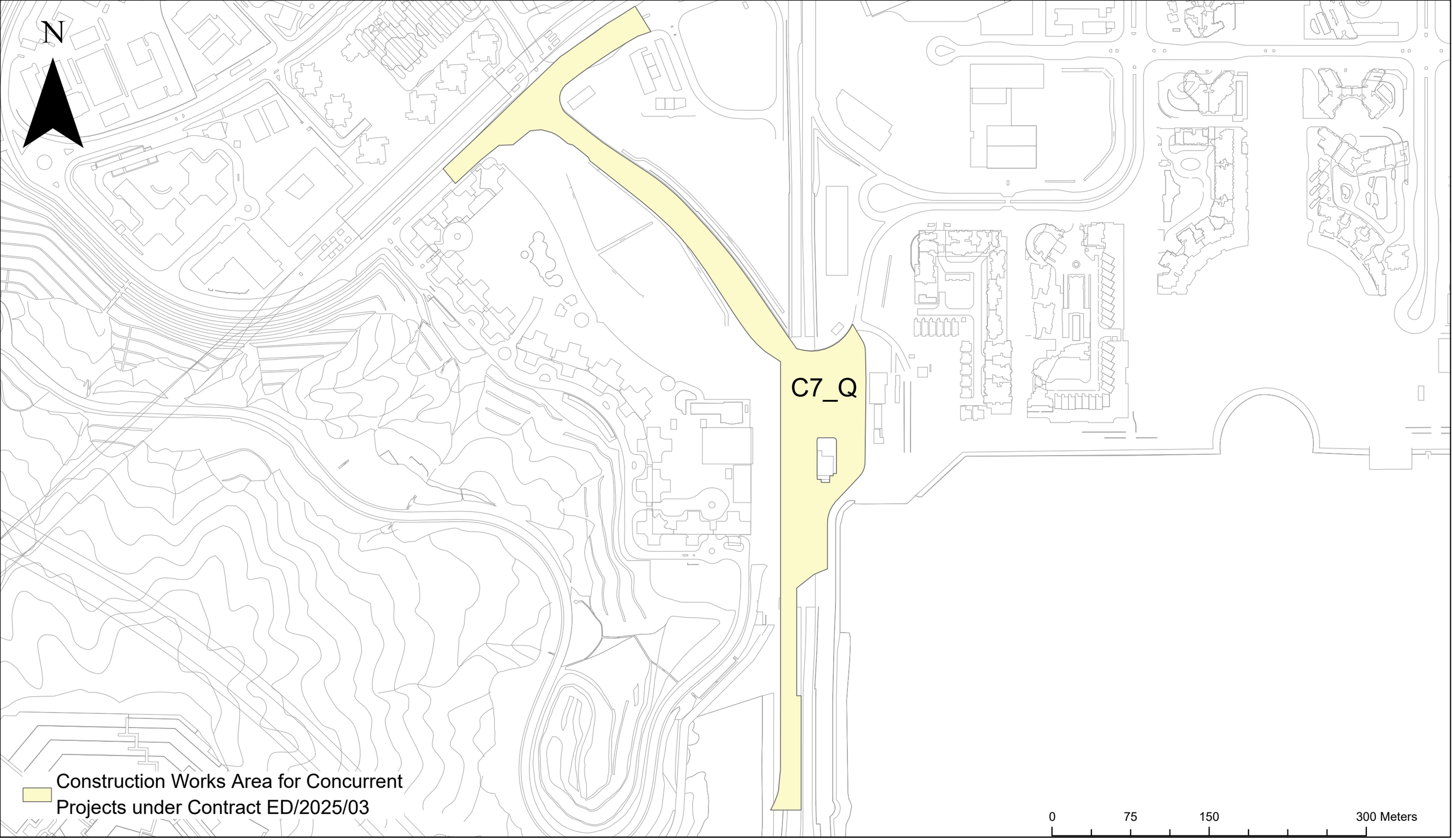
Appendix 2.2d
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Sheet 1 of 4)



Appendix 2.2d
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Sheet 2 of 4)



Appendix 2.2d
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Sheet 3 of 4)



Appendix 2.2d
Locations of the Works Area of Concurrent Projects under Contract ED/2025/03 (Sheet 4 of 4)

Appendix 2.3
Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(A): The Project

Activity ID	Activity	Powered Mechanical Equipment	PME reference	SWL per Item, dB(A)	No. of Items	On-time %	Sub-total of SWL of PME, dB(A)	SWL of Activity, dB(A)
ED/2025/02 - TKO 132 Reclamation Works								
12	DCM Site Trial	DCM barge	CNP 061	104	1	70%	102.5	**109.8**
		Cement barge	CNP 061	104	1	70%	102.5	
		Tug boat	CNP 221	110	1	40%	106.0	
		Anchor boat	CNP 221	110	1	20%	103.0	
13	Installation of Silt Curtain	Derrick barge / Derrick lighter	CNP 061	104	1	80%	103.0	**107.8**
		Tug boat	CNP 221	110	1	40%	106.0	
14	Removal of Obstructions/ MD	Derrick barge / Derrick lighter	CNP 061	104	1	80%	103.0	**113.6**
		Grab dredger	CNP 063	112	1	80%	111.0	
		Tug boat	CNP 221	110	2	40%	109.0	
15	Installation of Geotextile and Sand Blanket (vertical seawall)	Hopper barge	CNP 061	104	1	60%	101.8	**113.7**
		Derrick barge / Derrick lighter	CNP 061	104	2	80%	106.0	
		Flattop barge	CNP 061	104	1	60%	101.8	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	1	20%	103.0	
		Generator	CNP 101	108	1	100%	108.0	
16	Installation of Geotextile and Sand Blanket (sloping seawall)	Hopper barge	CNP 061	104	1	60%	101.8	**113.7**
		Derrick barge / Derrick lighter	CNP 061	104	2	80%	106.0	
		Flattop barge	CNP 061	104	1	60%	101.8	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	1	20%	103.0	
		Generator	CNP 101	108	1	100%	108.0	
17	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%	101.8	**113.7**
		Derrick barge / Derrick lighter	CNP 061	104	2	80%	106.0	
		Flattop barge	CNP 061	104	1	60%	101.8	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	1	20%	103.0	
		Generator	CNP 101	108	1	100%	108.0	
18	Carry Out Marine DCM for vertical seawall	DCM barge	CNP 061	104	3	70%	107.2	**113.5**
		Cement barge	CNP 061	104	3	70%	107.2	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	2	20%	106.0	
19	Carry Out Marine DCM for sloping seawall	DCM barge	CNP 061	104	2	70%	105.5	**111.2**
		Cement barge	CNP 061	104	2	70%	105.5	
		Tug boat	CNP 221	110	1	40%	106.0	
		Anchor boat	CNP 221	110	1	20%	103.0	
20	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%	103.0	**110.8**
		Derrick lighter	CNP 061	104	1	80%	103.0	
		Tug boat	CNP 221	110	2	40%	109.0	
21	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%	103.0	**110.8**
		Derrick lighter	CNP 061	104	1	80%	103.0	
		Tug boat	CNP 221	110	2	40%	109.0	
27	Construct Remaining Seawall and Rockfill	Derrick barge	CNP 061	104	1	80%	103.0	**110.8**
		Derrick lighter	CNP 061	104	1	80%	103.0	
		Tug boat	CNP 221	110	2	40%	109.0	
99a	Construct Sloping Seawall NE Portion	Derrick barge	CNP 061	104	1	80%	103.0	**110.8**
		Derrick lighter	CNP 061	104	1	80%	103.0	
		Tug boat	CNP 221	110	2	40%	109.0	
22	Construct Sloping Seawall	Derrick barge	CNP 061	104	1	80%	103.0	**110.8**
		Derrick lighter	CNP 061	104	1	80%	103.0	
		Tug boat	CNP 221	110	2	40%	109.0	
23	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%	107.2	**113.5**
		Cement barge	CNP 061	104	3	70%	107.2	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	2	20%	106.0	
23a	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%	107.2	**113.5**
		Cement barge	CNP 061	104	3	70%	107.2	
		Tug boat	CNP 221	110	2	40%	109.0	
		Anchor boat	CNP 221	110	2	20%	106.0	
24	Filling to +3mPD for EF and C7	hopper barge	CNP 061	104	3	60%	106.6	**124.3**
		Derrick barge / Derrick lighter	CNP 061	104	4	80%	109.1	
		Tug boat	CNP 221	110	2	55%	110.4	
		Anchor boat	CNP 221	110	2	40%	109.0	
		Long boom excavator, wheeled/tracked	CNP 081	112	7	80%	119.5	
		Bulldozer, wheeled/tracked	CNP 030	115	4	80%	120.1	
		Backhoe, wheeled/tracked	CNP 081	112	3	80%	115.8	
		Dump truck	OCUPME_58	105	4	80%	110.1	
28	Remaining Reclamation Filling to +3mPD	hopper barge	CNP 061	104	3	60%	106.6	**123.6**
		Derrick barge / Derrick lighter	CNP 061	104	4	80%	109.1	
		Tug boat	CNP 221	110	2	55%	110.4	
		Anchor boat	CNP 221	110	2	40%	109.0	
		Long boom excavator, wheeled/tracked	CNP 081	112	6	80%	118.8	
		Bulldozer, wheeled/tracked	CNP 030	115	3	80%	118.8	
		Backhoe, wheeled/tracked	CNP 081	112	3	80%	115.8	
		Dump truck	OCUPME_58	105	3	80%	108.8	
25	Filling to Formation Level +6.75mPD for EF and C7	Derrick barge / Derrick lighter	CNP 061	104	6	80%	110.8	**124.7**
		Tug Boat	CNP 221	110	1	40%	106.0	
		Long range excavator, wheeled/tracked	CNP 081	112	6	80%	118.8	
		Bulldozer, wheeled/tracked	CNP 030	115	3	80%	118.8	
		Backhoe, wheeled/tracked	CNP 081	112	3	80%	115.8	
		Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	4	80%	117.1	
		Roller, vibratory	CNP 186	108	5	60%	112.8	
		Compactor, vibratory	CNP 050	105	6	60%	110.6	
		Dump truck	OCUPME_58	105	3	60%	107.6	
29	Remaining Filling to Formation Level +6.75mPD	Derrick barge / Derrick lighter	CNP 061	104	6	80%	110.8	**126.7**
		Tug Boat	CNP 221	110	3	40%	110.8	
		Long range excavator, wheeled/tracked	CNP 081	112	6	80%	118.8	
		Bulldozer, wheeled/tracked	CNP 030	115	6	80%	121.8	
		Backhoe, wheeled/tracked	CNP 081	112	6	80%	118.8	
		Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	8	80%	120.1	
		Roller, vibratory	CNP 186	108	3	60%	110.6	
		Compactor, vibratory	CNP 050	105	6	60%	110.6	
		Dump truck	OCUPME_58	105	6	60%	110.6	
24a	Construction of Box Culvert and Drainage Works	Excavator, wheeled/tracked	CNP 081	112	2	70%	113.5	**120.8**
		Excavator, mini-robot mounted	OCUPME_20	94	2	70%	95.5	
		Backhoe, wheeled/tracked	CNP 081	112	2	70%	113.5	
		Drill rig, rotary type (diesel)	OCUPME_19	110	2	60%	110.8	
		Concrete lorry mixer	CNP 044	109	1	50%	106.0	
		Poker, vibratory, hand-held	CNP 170	113	2	50%	113.0	
		Crane, mobile	OCUPME_9	108	2	50%	108.0	
		Dump truck	OCUPME_58	105	2	50%	105.0	
		Water pump, submersible (electric)	CNP 283	85	4	100%	91.0	
		Grout mixer	OCUPME_26	90	1	50%	87.0	
		Grout pump	OCUPME_27	105	1	50%	102.0	
		Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	1	50%	109.0	
		Roller, vibratory	CNP 186	108	1	50%	105.0	
		Compactor, vibratory	CNP 050	105	2	50%	105.0	
		Welder/Generator, portable	OCUPME_28	100	2	50%	100.0	
		Generator	CNP 101	108	2	100%	111.0	
31	Dredging for CBP Berthing Facility	Derrick barge / Derrick lighter	CNP 061	104	1	80%	103.0	**112.7**
		Grab dredger	CNP 063	112	1	80%	111.0	
		Tug boat	CNP 221	110	1	40%	106.0	

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C1)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C2)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C3)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%					104.8	**108.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%					98.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%					102.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%					102.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-5	-5	99.8	**103.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-5	-5	93.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-5	-5	97.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-5	-5	97.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%					97.0	**115.1**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%					97.0	
			Tug boat	CNP 221	110	1	20%					103.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%					101.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5		-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%					101.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%					108.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5		-5	106.5	
			Air compressor	CNP 003	104	2	70%					105.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%					100.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5		-5	103.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5		-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5		-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%					99.0	
			Grout Mixer	OCUPME_26	90	1	50%					87.0	
			Grout Pump	OCUPME_27	105	1	50%					102.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%					100.0	
			Generator	CNP 103	95	2	100%					98.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**112.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-5	-5	103.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-5	-5	106.5	
			Air compressor	CNP 003	104	2	70%			-5	-5	100.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-5	-5	95.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-5	-5	103.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-5	-5	95.0	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-5	-5	103.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-5	-5	102.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-5	-5	96.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-5	-5	100.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-5	-5	102.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-5	-5	95.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-5	-5	100.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-5	-5	102.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-5	-5	95.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C4)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Remarks:
[1] Sound Power Level of PME Kubota U55-4 A is calculated based on the measurement result of sound pressure level at 7m as stiulated in the Brochure and Test Report as attached in this Appendix.

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

(C): Concurrent Projects under Contract ED/2025/03

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
ED/2025/03 - Marine Viaduct Works												
11	Temporary Staging Platform		Ro-ro barge	CNP 061	104	1	20%			97.0		**114.2**
			Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Crawler crane	CNP 061	104	1	20%			97.0		
			Vibratory hammer	OCUPME_33	115	1	20%			108.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	40%			109.0		
			Welder/Generator, portable	OCUPME_28	100	4	40%			102.0		
			Grout Mixer	OCUPME_26	90	2	30%			87.8		
			Grout pump	OCUPME_27	105	2	30%			102.8		
			Generator	CNP 103	95	4	100%			101.0		
12	Predrilling on Temporary Platform		Jack-up barge	CNP 061	104	3	30%			103.5		**114.4**
			Drill rig, rotary type (diesel)	OCUPME_19	110	3	40%			110.8		
			Grout Mixer	OCUPME_26	90	3	30%			89.5		
			Grout pump	OCUPME_27	105	3	30%			104.5		
			Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	3	40%			100.8		
			Generator	CNP 103	95	3	100%			99.8		
13	UU diversion for CLP 11kV and Watermain within existing utility trough		Roro/Flattop barge	CNP 061	104	1	20%			97.0		**109.4**
			Crane barge	CNP 048	112	1	20%			105.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
14	Temporary Modification of existing sign gantry FADS2		Crane, mobile	EPD-16069	100	1	20%			93.0		**106.1**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	50%			102.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	1	40%			96.0		
			Generator	CNP 103	95	1	100%			95.0		
15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)		Excavator, wheeled/tracked	EPD-15967	101	1	80%			100.0		**114.3**
			Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	3	80%			106.8		
			Crane, mobile	EPD-16069	100	1	80%			99.0		
			Concrete lorry mixer	CNP 044	109	1	30%			103.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	60%			105.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
			Air Compressor, air flow > 10m3/min and ≤ 30m3/min	CNP 002	102	1	60%			99.8		
			Hand-held Percussive Breaker	EPD-15617	99	1	50%			96.0		
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	40%			105.0		
			Vibratory rammer	CNP 169	108	3	40%			108.8		
16	Marine Bored Pile (Zone A + Zone D) - 40nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**114.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	30%	Moveable Noise Barrier	-5	102.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	2	30%			97.8		
			Piling, large diameter bored, oscillator	CNP 165	115	2	30%	Moveable Noise Barrier	-5	107.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	2	30%	Moveable Noise Barrier	-5	107.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Slurry barge	CNP 061	104	2	30%			101.8		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	30%			102.8		
			Generator	CNP 103	95	4	50%			98.0		
17	Marine Bored Pile (Zone B) - 30nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**115.4**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	30%			104.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	1	30%			94.8		
			Piling, large diameter bored, oscillator	CNP 165	115	1	30%			109.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	1	30%			109.8		
			Welder/Generator, portable	OCUPME_28	100	1	30%			94.8		
			Slurry barge	CNP 061	104	1	30%			98.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
18	Marine Bored Pile (Zone C) - 26nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**117.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	30%			107.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	2	30%			97.8		
			Piling, large diameter bored, oscillator	CNP 165	115	2	30%			112.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	2	30%			112.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Slurry barge	CNP 061	104	2	30%			101.8		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	30%			102.8		
			Generator	CNP 103	95	4	100%			101.0		
19	Pile Cap (Zone A + Zone D) - 15nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**110.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
20	Pile Cap (Zone B) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**109.7**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	1	40%			96.0		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	1	30%			96.8		
			Generator	CNP 103	95	1	100%			95.0		
21	Pile Cap (Zone C) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**110.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
22	Marine Pier(Zone A + Zone D) - 25nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**111.1**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
23	Marine Pier(Zone B) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**110.8**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	1	30%			96.8		
			Generator	CNP 103	95	1	100%			95.0		

Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
24	Marine Pier (Zone C) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**111.1**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
29	Erection of Segments (Zones A and D) - 446nos		Lifting Frame	OCUPME_9	108	2	40%			107.0		**114.7**
			Crane Barge	CNP 048	112	2	30%			109.8		
			Derrick barge / Derrick lighter	CNP 061	104	2	30%			101.8		
			Tug Boat	CNP 221	110	2	30%			107.8		
			Hydraulic Jack with Pump	OCUPME_27	105	2	40%			104.0		
			Crane, mobile	EPD-16069	100	2	40%			99.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	2	40%			104.0		
			Generator	CNP 103	95	4	100%			101.0		
30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**114.0**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Lifting Frame	OCUPME_9	108	2	60%			108.8		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
31	Erection of Segments (Zone C) - 16nos		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**113.3**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Lifting Frame	OCUPME_9	108	1	60%			105.8		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
32	Cast-insitu (Zone C) - 300m		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**112.5**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
33b	Stressing Tendons Slip Road L01-1		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33d	Stressing Tendons Slip Road L02-1		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33a	Stressing Tendons Road L100		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33c	Stressing Tendons Slip Road L01-2		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33e	Stressing Tendons Slip Road L02-2		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
34a	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34b	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34c	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34d	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34e	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34f	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		

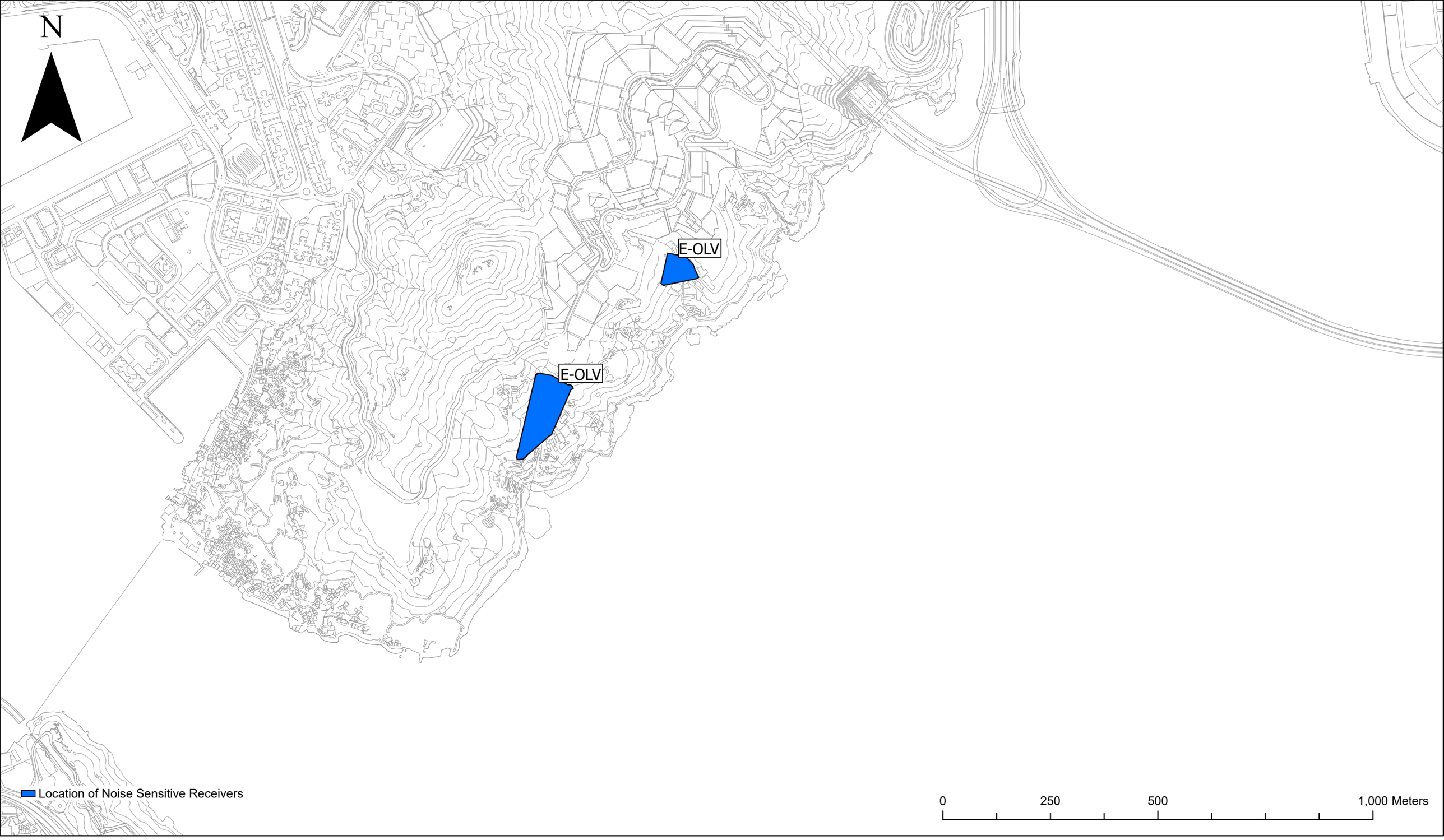
Appendix 2.3 Construction Plant Inventory of the Project (Unmitigated) and Concurrent Projects

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
36b	Waterproofing, Paving, Roadmarking Slip Road L01-1		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36d	Waterproofing, Paving, Roadmarking Slip Road L02-1		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36a	Waterproofing, Paving, Roadmarking Road L100		Asphalt paver	CNP 004	109	1	40%			105.0		**107.6**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%	Moveable Noise Barrier	-5	100.0		
			Generator	CNP 103	95	1	100%			95.0		
36c	Waterproofing, Paving, Roadmarking Slip Road L01-2		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36e	Waterproofing, Paving, Roadmarking Slip Road L02-2		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
37b	E&M and T&C Slip Road L01-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37d	E&M and T&C Slip Road L02-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37a	E&M and T&C Road L100		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37c	E&M and T&C Slip Road L01-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37f	E&M and T&C Slip Road S300 widening		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37e	E&M and T&C Slip Road L02-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
ED/2025/03 - TKO 132 Infrastructure Works												
111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	A	Excavator, wheeled/tracked	EPD-15967	101	1	60%	Moveable Noise Barrier	-5	93.8	Group A: 98.2	**103.6**
		A	Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	60%	Moveable Noise Barrier	-5	95.8	Group B: 97	
		A	Hand-held Percussive Breaker	EPD-15617	99	1	60%	Acoustic Enclosure	-10	86.8	Group C: 102.8	
		B	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	50%	Moveable Noise Barrier	-5	97.0	PME without grouping: 95.8	
		C	Vibratory rammer	CNP 169	108	2	50%	Acoustic Enclosure	-10	98.0	[2] [3]	
		C	Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	101.0		
			Water pump, submersible (electric)	CNP 283	85	2	100%			88.0		
			Generator	CNP 103	95	1	100%			95.0		
111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI		Derrick lighter	CNP 061	104	1	30%			98.8	Group A: 101.3	**112.5**
			Flattop barge	CNP 061	104	1	30%			98.8	Group B: 102.8	
			Tug boat	CNP 221	110	1	40%			106.0	Group C: 105.4	
			Anchor boat	CNP 221	110	1	20%			103.0	PME without grouping: 111.6	
		A	Excavator, wheeled/tracked	EPD-15967	101	1	70%	Moveable Noise Barrier	-5	94.5	[2] [3]	
		A	Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	70%	Moveable Noise Barrier	-5	96.5		
		A	Breaker, hand-held, mass > 10kg and < 20kg	EPD-15617	99	2	70%	Moveable Noise Barrier	-5	95.5		
		A	Backhoe, wheeled/tracked	EPD-15967	101	1	70%	Moveable Noise Barrier	-5	94.5		
			Roller, vibratory	CNP 186	108	1	35%	Moveable Noise Barrier	-5	98.4		
		B	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	50%	Moveable Noise Barrier	-5	97.0		
		B	Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	101.0		
		C	Poker, vibratory, hand-held	OCUPME_34	102	2	50%	Moveable Noise Barrier	-5	97.0		
		C	Compactor vibratory	CNP 050	105	2	50%	Moveable Noise Barrier	-5	100.0		
		C	Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	103.0		
			Grader	CNP 104	113	2	35%	Moveable Noise Barrier	-5	106.5		
			Asphalt paver	CNP 004	109	1	35%	Moveable Noise Barrier	-5	99.4		
			Paint line marker	CNP 161	90	1	35%	Moveable Noise Barrier	-5	80.4		
			Welder/Generator, portable	OCUPME_28	100	1	35%	Moveable Noise Barrier	-5	90.4		
		B	Crane, mobile	EPD-16069	100	1	50%	Moveable Noise Barrier	-5	92.0		
			Water pump, submersible (electric)	CNP 283	85	5	100%			92.0		
			Generator	CNP 103	95	2	100%			98.0		
ED/2025/03 - Construction of SPS												
121	Foundation and Superstructure		Derrick lighter	CNP 061	104	1	40%			100.0		**113.5**
			Flattop barge	CNP 061	104	1	40%			100.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	60%			100.8		
			Backhoe, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%	Moveable Noise Barrier	-5	102.8		
			Crane, mobile	EPD-16069	100	1	60%			97.8		
			Compactor, vibratory	CNP 050	105	1	60%			102.8		
			Vibratory rammer	CNP 169	108	1	60%			105.8		
			Air Compressor, air flow > 10m3/min and ≤ 30m3/min	CNP 002	102	1	60%			99.8		
			Concrete lorry mixer	CNP 044	109	1	60%	Moveable Noise Barrier	-5	101.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	60%			102.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
			Welder/Generator, portable	OCUPME_28	100	1	60%			97.8		
			Water pump, submersible (electric)	CNP 283	85	2	100%			88.0		
			Generator	CNP 103	95	1	100%			95.0		
122	E&M Installation		Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		**107.0**
			Crane, mobile	EPD-16069	100	1	60%			97.8		
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Welder/Generator, portable	OCUPME_28	100	1	60%			97.8		
			Water pump, submersible (electric)	CNP 283	85	1	60%			82.8		
123	Architectural & Landscaping Works		Excavator, wheeled/tracked	EPD-15967	101	1	40%			97.0		**102.5**
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	40%			101.0		
ED/2025/03 - TKO 132 Site Formation Works												
131	Site Establishment and Clearance		Bulldozer, wheeled/tracked	CNP 030	115	1	60%			112.8		**113.7**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			102.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks		Drill rig, rotary type (air-pressurised)	OCUPME_19	110	3	80%			113.8		**118.5**
			Drill rig, rotary type (diesel)	OCUPME_19	110	3	80%			113.8		
			Hand-held Percussive Breaker	EPD-15617	99	2	60%			99.8		
			Vibratory rammer	CNP 169	108	2	40%			107.0		
			Concrete lorry mixer	CNP 044	109	1	40%			105.0		
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	40%			105.0		
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	2	40%			101.0		
			Air compressor	CNP 003	104	3	80%			107.8		
			Grout Mixer	OCUPME_26	90	1	40%			86.0		
			Grout Pump	OCUPME_27	105	1	40%			101.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		

Remarks:
[1] Sound Power Level of PME Kubota U55-4 A is calculated based on the measurement result of sound pressure level at 7m as stiulated in the Brochure and Test Report as attached in this Appendix.
[2] PME of different group would be operated separately. PME with no specified group are assumed always on.
[3] For each activity with grouping of PME, only one group of PME would be used at the same time. To be conservative, the maximum SWL of the sub-groups within each activity were adopted in the assessment instead of the whole list of PME within each activity.

Appendix 4.1

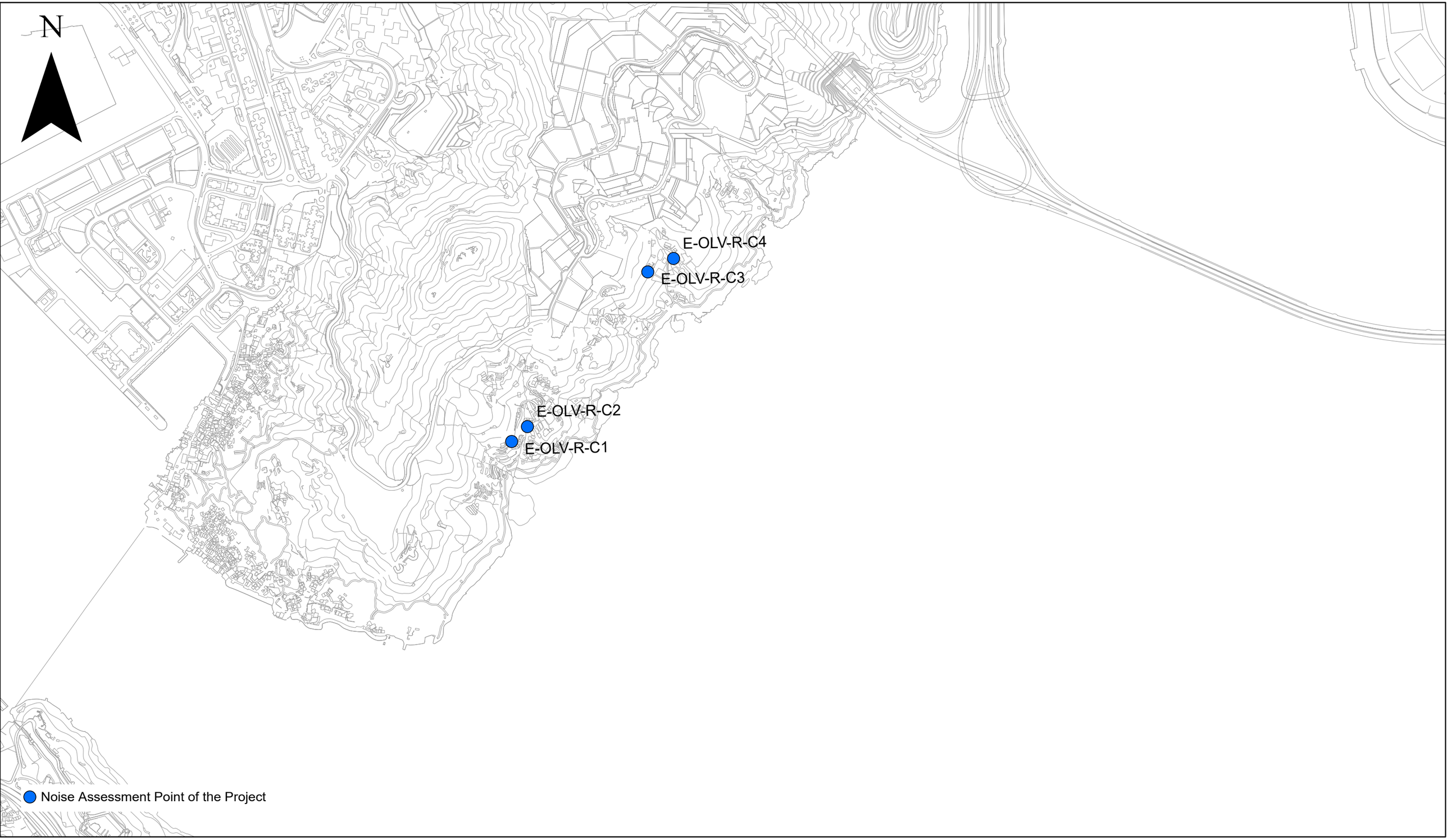
Location of the Noise Sensitive Receivers



Appendix 4.1
Locations of the Noise Sensitive Receivers

Appendix 4.2

Location of the Representative Noise Assessment Points



Appendix 4.2
Locations of the Representative Noise Assessment Points

Appendix 4.3
Predicted Construction Noise Level under Unmitigated Scenario

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

The Project
E-OLV-R-C1

Contract	Construction Activity ID	Construction Activitiy	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections			SPL at NSR, Leq,30-mins dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Screening, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																											
ED/2025/02	1	Site Preparation							-	-	-	-																															
	12	DCM Site Trial	C6_C	109.8	720	-65.1	-10	3	37.6				38	38	38																													
			C6_D_1	109.8	330	-58.4	-5	3	49.4				49	49	49																													
			C6_D_2	109.8	670	-64.5	-10	3	38.3				38	38	38																													
			C6_E	109.8	540	-62.6	-5	3	45.1				45	45	45																													
	13	Installation of Silt Curtain	C6_I	107.8	150	-51.5	-5	3	54.3				54																														
	14	Removal of Obstructions/ MD	C6_A	113.6	240	-55.6	-5	3	56.0				56	56	56	56																												
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	113.7	540	-62.6	-5	3	49.0						49	49	49																											
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	113.7	720	-65.1	-10	3	41.5						42	42																											
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	113.7	330	-58.4	-5	3	53.3						53	53	53	53	53	53	53																						
			C6_D_2	113.7	670	-64.5	-10	3	42.2						42	42	42	42	42	42	42																						
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	540	-62.6	-5	3	48.9							49	49	49	49	49	49	49																						
	19	Carry Out Marine DCM for sloping seawall	C6_C	111.2	720	-65.1	-10	3	39.0							39	39																											
	20	Construct Vertical Seawall	C6_H_1	110.8	230	-55.2	-5	3	53.6									54	54	54	54	54	54	54																				
			C6_H_2	110.8	540	-62.6	-5	3	46.2									46	46	46	46	46	46	46																				
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	230	-55.2	-5	3	53.6											54	54	54	54	54	54																			
			C6_H_2	110.8	540	-62.6	-5	3	46.2											46	46	46	46	46	46																			
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	460	-61.3		3	52.5																									53	53								
	99a	Construct Sloping Seawall NE Portion	C6_G	110.8	710	-65.0	-10	3	38.8				39	39	39	39																											
	22	Construct Sloping Seawall	C6_G	110.8	710	-65.0	-10	3	38.8								39	39	39	39																							
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	330	-58.4	-5	3	53.2							53																											
			C6_D_2	113.5	670	-64.5	-10	3	42.0							42																											
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	330	-58.4	-5	3	53.2							53	53	53	53	53																							
			C6_D_2	113.5	670	-64.5	-10	3	42.0							42	42	42	42	42																							
	24	Filling to +3mPD for EF and C7	C6_J	124.3	260	-56.3	-10	3	61.0									61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61										
	28	Remaining Reclamation Filling to +3mPD	C6_K	123.6	310	-57.8	-5	3	63.8																									64	64	64								
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	124.7	260	-56.3	-10	3	61.4																					61	61	61	61	61	61	61	61	61					
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	126.7	310	-57.8	-5	3	66.8																											67	67	67	67	67				
	24a	Construction of Box Culvert and Drainage Works	C6_L	120.8	270	-56.6	-10	3	57.2																	57	57	57	57	57	57	57	57	57	57	57	57						
	31	Dredging for CBP Berthing Facility	C6_B	112.7	220	-54.8	-5	3	55.9																									56	56	56	56	56	56	56				
		Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)								-	-	-	59	57	59	61	58	63	63	64	63	63	63	63	62	63	63	63	63	65	65	65	66	67	67	70	69	68	67	67	-	-	-	-	-
		Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)								-	-	-	59	57	59	61	58	63	63	64	63	63	63	63	62	63	63	63	63	65	65	65	66	67	67	70	69	68	67	67	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C1

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026																2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Site Formation Works																																																							
ED/2025/02	33	Site Establishment and Clearance	C6_N_1	98.8	320	-58.1	3	44						44	44	44	44																																						
			C6_N_2	98.8	580	-63.3	3	39						39	39	39	39																																						
	34	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	C6_N_1	107.5	320	-58.1	3	52									52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
			C6_N_2	107.5	580	-63.3	3	47									47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	45	45	45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
ED/2025/02 - TKO 132 Infrastructure Works																																																					
ED/2025/02	99b	Rock breaking for Abutment and Approach Ramp	C6_M	106.8	550	-62.8	3	47												47	47	47	47	47	47	47	47	47	47	47																										
	99c	Construct Retaining Wall, Abutment and Approach Ramp	C6_M	106.3	550	-62.8	3	47																							47	47	47																						
	99d	Filling Works for Abutment and Approach Ramp	C6_M	106.3	550	-62.8	3	47																										47	47																		
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	47	47	47	47	47	47	47	47	47	47	50	47	50	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C1

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026									2027																		2028													2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																																
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	1220	-69.7	3	47				47	47	47	47	47	47																														
			C7_C	114.2	1200	-69.6	3	48				48	48	48	48	48	48																														
			C7_D	114.2	740	-65.4	3	52				52	52	52	52	52	52																														
	12	Predrilling on Temporary Platform	C7_B	114.4	1220	-69.7	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																		
			C7_C	114.4	1200	-69.6	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																		
			C7_D	114.4	740	-65.4	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52																		
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	1200	-69.6	3	43				43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43																		
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	1200	-69.6	3	40				40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40																		
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	1200	-69.6	3	48			48	48	48	48	48	48																														
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	1110	-68.9	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49												
			C7_D	114.9	740	-65.4	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53												
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	1200	-69.6	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49														
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	1220	-69.7	3	51						51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51					
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	1110	-68.9	3	45							45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45						
			C7_D	110.9	740	-65.4	3	49							49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49							
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	1200	-69.6	3	43								43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43														
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	1220	-69.7	3	44								44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44				
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	1110	-68.9	3	45								45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45				
			C7_D	111.1	740	-65.4	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49				
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	1200	-69.6	3	44									44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44														
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	1220	-69.7	3	44									44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44			
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	1110	-68.9	3	41										41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41		
			C7_D	106.6	740	-65.4	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44		
			C7_C	106.6	1200	-69.6	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_F	106.6	1270	-70.1	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_E	106.6	1230	-69.8	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	1110	-68.9	3	49											49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49					
			C7_D	114.7	740	-65.4	3	52											52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	1200	-69.6	3	47										47	47	47	47	47	47	47	47	47	47	47	47	47	47	47														
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	1220	-69.7	3	47											47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47											
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	1220	-69.7	3	46																									46	46	46	46	46	46	46	46	46	46	46	46
			C7_J	112.5	1220	-69.7	3	46																									46	46	46	46	46	46	46	46	46	46	46	46
	33a	Stressing Tendons Road L100	C7_L	105.0	710	-65.0	3	43																										43	43	43	43	43						
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	1180	-69.4	3	39																39	39	39	39	39	39	39	39	39	39	39										
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	1170	-69.4	3	39																39	39	39	39	39	39	39	39	39	39	39										
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	1170	-69.4	3	39																									39	39	39	39	39	39	39	39	39	39			
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	1020	-68.2	3	40																																		40	40	40	40	40	40
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	710	-65.0	3	45																														45	45	45						
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	1180	-69.4	3	40																																	40	40				
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	1170	-69.4	3	40																																	40	40	40	40	40	40
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	1170	-69.4	3	40																																	40	40	40	40	40	40
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	1020	-68.2	3	41																																	40	40	40	40	40	41
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	1220	-69.7	3	40																																	40	40	40	40	40	40
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	710	-65.0	3	45																														45	45	45	45	45	45	45	45	
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	1180	-69.4	3	40																																	40	40	40	40	40	40
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	1170	-69.4	3	40																																	40	40	40	40	40	40
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	1170	-69.4	3	40																																	40	40	40	40	40	40
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	1020	-68.2	3	42																																						42
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	1220	-69.7	3	40																																						
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	710	-65.0	3	46																														46	46	46	46					
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	1180	-69.4	3	43																																		43	43	43	43		
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	1170	-69.4	3	43																																		43	43	43	43		
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	1170	-69.4	3	43																																			43	43	43	43	
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	1020	-68.2	3	44																																						
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	1220	-69.7	3	42																																						
	37a	E&M and T&C Road L100	C7_L	105.8	710	-65.0	3	44																																		44	44	44	44		
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	1180	-69.4	3	39																																					39	39	39
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	1170	-69.4	3	39																																					39	39	39
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	1170	-69.4	3	39																																						39
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	1020	-68.2	3	41																																						
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	1220	-69.7	3	39																																						
Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	54	55	58	58	60	60	61	61	60	61	62	62	62	62	62	62	62	62	61	61	61	61	61	61	60	59	59	57	56	55	54	53	
ED/2025/03 - TKO 132 Infrastructrure Works																																																
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	290	-57.2	3	49																															49	49	49	49	49	49	49	49	
			C7_Q	103.6	1440	-71.2	3	35																															35	35	35	35	35	35	35	35	
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	230	-55.2	3	60																															60	60	60	60	60	60	60	60	60
			C7_O	112.5	290	-57.2	3	58																															58	58	58	58	58	58	58	58	58
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	63	63	63	63	63	63	63	63
ED/2025/03 - Construction of SPS																																																
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	420	-60.5	3	56																															56	56	56	56	56	56	56	56	56
	122	E&M Installation	C7_M	107.0	420	-60.5	3	50																																									50
	123	Architectural & Landscaping Works	C7_M	102.5	420	-60.5	3	45																																									
Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	56	56	56	56	56	56	56	57
ED/2025/03 - TKO 132 Site Formation Works																																																
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	1030	-68.3	3	48.5	48	48	48	48	48	48																																
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	1030	-68.3	3	53.2						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									48	48	48	48	48	54	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									48	55	56	58	58	61	61	62	62	62	62	63	63	63	63	63	63	63	63	63	63	62	62	62	62	63	66	66	65	65	65	65	65	65	65
Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									48	55	56	62	61	64	64	63	66	66	66	66	66	66	66	65	66	66	66	66	67	67	67	67	68	68	71	70	70	69	69	65	65	65	65	65

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

The Project
E-OLV-R-C2

Contract	Construction Activity ID	Construction Activitiy	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections			SPL at NSR, Leq,30-mins dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Screening, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																												
ED/2025/02	1	Site Preparation							-	-	-	-																																
	12	DCM Site Trial	C6_C	109.8	670	-64.5	-10	3	38.3				38	38	38																														
			C6_D_1	109.8	290	-57.2	-10	3	45.5				46	46	46																														
			C6_D_2	109.8	620	-63.8	-10	3	38.9				39	39	39																														
			C6_E	109.8	510	-62.2	-10	3	40.6				41	41	41																														
	13	Installation of Silt Curtain	C6_I	107.8	140	-50.9	-5	3	54.9				55																																
	14	Removal of Obstructions/ MD	C6_A	113.6	200	-54.0	-10	3	52.5				53	53	53	53																														
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	113.7	510	-62.2	-10	3	44.5						45	45	45	45																												
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	113.7	670	-64.5	-10	3	42.2						42	42																														
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	113.7	290	-57.2	-10	3	49.4						49	49	49	49	49	49	49																								
			C6_D_2	113.7	620	-63.8	-10	3	42.8						43	43	43	43	43	43	43																								
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	510	-62.2	-10	3	44.4						44	44	44	44	44	44	44																								
	19	Carry Out Marine DCM for sloping seawall	C6_C	111.2	670	-64.5	-10	3	39.6						40	40																														
	20	Construct Vertical Seawall	C6_H_1	110.8	190	-53.6	-10	3	50.2								50	50	50	50	50	50	50																							
			C6_H_2	110.8	520	-62.3	-10	3	41.5								41	41	41	41	41	41	41																							
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	190	-53.6	-10	3	50.2										50	50	50	50	50	50																						
			C6_H_2	110.8	520	-62.3	-10	3	41.5										41	41	41	41	41	41																						
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	440	-60.9	-10	3	42.9																																				
	99a	Construct Sloping Seawall NE Portion	C6_G	110.8	660	-64.4	-10	3	39.4				39	39	39	39																														
	22	Construct Sloping Seawall	C6_G	110.8	660	-64.4	-10	3	39.4								39	39	39	39																										
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	290	-57.2	-10	3	49.3							49																														
			C6_D_2	113.5	620	-63.8	-10	3	42.7							43																														
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	290	-57.2	-10	3	49.3							49	49	49	49	49																										
			C6_D_2	113.5	620	-63.8	-10	3	42.7							43	43	43	43	43																										
	24	Filling to +3mPD for EF and C7	C6_J	124.3	220	-54.8	-10	3	62.5									62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62											
	28	Remaining Reclamation Filling to +3mPD	C6_K	123.6	270	-56.6	-10	3	60.0																										60	60	60									
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	124.7	220	-54.8	-10	3	62.8																						63	63	63	63	63	63	63	63	63						
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	126.7	270	-56.6	-10	3	63.0																												63	63	63	63	63					
	24a	Construction of Box Culvert and Drainage Works	C6_L	120.8	220	-54.8	-10	3	58.9																		59	59	59	59	59	59	59	59	59	59	59	59							
	31	Dredging for CBP Berthing Facility	C6_B	112.7	220	-54.8	-10	3	50.9																										51	51	51	51	51	51	51					
									Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	57	54	56	58	55	63	63	64	63	63	63	63	63	64	64	64	64	66	66	66	67	66	66	68	67	66	63	63	-	-	-	-	-
									Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	57	54	56	58	55	63	63	64	63	63	63	63	63	64	64	64	64	66	66	66	67	66	66	68	67	66	63	63	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C2

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026					2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Site Formation Works																																									
ED/2025/02	33	Site Establishment and Clearance	C6_N_1	98.8	270	-56.6	3	45						45	45	45	45																										
			C6_N_2	98.8	530	-62.5	3	39						39	39	39	39																										
	34	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	C6_N_1	107.5	270	-56.6	3	54									54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			C6_N_2	107.5	530	-62.5	3	48									48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	46	46	46	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
ED/2025/02 - TKO 132 Infrastructure Works																																									
ED/2025/02	99b	Rock breaking for Abutment and Approach Ramp	C6_M	106.8	500	-62.0	3	48												48	48	48	48	48	48	48	48	48	48	48														
	99c	Construct Retaining Wall, Abutment and Approach Ramp	C6_M	106.3	500	-62.0	3	47																						47	47	47												
	99d	Filling Works for Abutment and Approach Ramp	C6_M	106.3	500	-62.0	3	47																									47	47									
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	48	48	48	48	48	48	48	48	48	48	51	47	50	47	-	-	-	-	-	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C2

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026									2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																												
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	1170	-69.4	3	48				48	48	48	48	48	48																												
			C7_C	114.2	1150	-69.2	3	48				48	48	48	48	48	48																												
			C7_D	114.2	690	-64.8	3	52				52	52	52	52	52	52																												
	12	Predrilling on Temporary Platform	C7_B	114.4	1170	-69.4	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																
			C7_C	114.4	1150	-69.2	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																	
			C7_D	114.4	690	-64.8	3	53		53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53																	
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	1150	-69.2	3	43				43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43																
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	1150	-69.2	3	40				40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40																
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	1150	-69.2	3	48			48	48	48	48	48	48																													
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	1060	-68.5	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49										
			C7_D	114.9	690	-64.8	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53										
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	1150	-69.2	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49														
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	1170	-69.4	3	52						52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52			
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	1060	-68.5	3	45							45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45							
			C7_D	110.9	690	-64.8	3	49							49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49								
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	1150	-69.2	3	43								43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43										
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	1170	-69.4	3	45								45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	1060	-68.5	3	46								46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46			
			C7_D	111.1	690	-64.8	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49			
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	1150	-69.2	3	45									45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	1170	-69.4	3	45									45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45		
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	1060	-68.5	3	41										41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41		
			C7_D	106.6	690	-64.8	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45		
			C7_C	106.6	1150	-69.2	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_F	106.6	1220	-69.7	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_E	106.6	1180	-69.4	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	1060	-68.5	3	49											49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49				
			C7_D	114.7	690	-64.8	3	53											53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53				
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	1150	-69.2	3	48										48	48	48	48	48	48	48	48	48	48	48	48	48	48													
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	1170	-69.4	3	47											47	47	47	47	47	47	47	47	47	47	47	47	47	47													
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	1170	-69.4	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			C7_J	112.5	1170	-69.4	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	33a	Stressing Tendons Road L100	C7_L	105.0	660	-64.4	3	44																				44	44	44	44	44												
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	1130	-69.1	3	39																39	39	39	39	39	39	39	39	39	39	39									
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	1120	-69.0	3	39																39	39	39	39	39	39	39	39	39	39	39									
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	1120	-69.0	3	39																			39	39	39	39	39	39	39	39	39	39								
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	970	-67.7	3	40																														40	40	40	40	40	40
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	660	-64.4	3	45																								45	45	45									
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	1130	-69.1	3	41																											41	41								
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	970	-67.7	3	42																																			42
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	1170	-69.4	3	40																																			
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	660	-64.4	3	45																								45	45	45	45	45	45	45	45	45			
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	1130	-69.1	3	41																											41	41	41	41	41	41	41	41	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	970	-67.7	3	42																																			42
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	1170	-69.4	3	40																																			
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	660	-64.4	3	46																										46	46	46	46							
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	1130	-69.1	3	43																												43	43	43	43					
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	1120	-69.0	3	43																												43	43	43	43					
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	1120	-69.0	3	43																													43	43	43	43				
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	970	-67.7	3	44																																			
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	1170	-69.4	3	43																																			
	37a	E&M and T&C Road L100	C7_L	105.8	660	-64.4	3	44																											44	44	44	44					
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	1130	-69.1	3	40																															40	40	40			
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	1120	-69.0	3	40																															40	40	40			
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	1120	-69.0	3	40																																			40
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	970	-67.7	3	41																																			
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	1170	-69.4	3	39																																			
		Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	55	56	58	58	61	61	61	62	61	61	62	62	62	62	62	62	62	63	62	61	61	61	61	61	60	59	59	57	57	56	55	53		
ED/2025/03 - TKO 132 Infrastructrure Works																																												
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	250	-56.0	3	51																															51	51	51	51	51	51	51
			C7_Q	103.6	1390	-70.9	3	36																															36	36	36	36	36	36	36
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	190	-53.6	3	62																															62	62	62	62	62	62	62	62
			C7_O	112.5	250	-56.0	3	60																															60	60	60	60	60	60	60	60
		Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ED/2025/03 - Construction of SPS																																												
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	370	-59.4	3	57																															57	57	57	57	57	57	57	57
	122	E&M Installation	C7_M	107.0	370	-59.4	3	51																																					51
	123	Architectural & Landscaping Works	C7_M	102.5	370	-59.4	3	46																																					
		Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ED/2025/03 - TKO 132 Site Formation Works																																												
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	980	-67.8	3	48.9	49	49	49	49	49	49	49																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	980	-67.8	3	53.7						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
		Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							49	49	49	49	49	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
		Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							49	56	57	59	59	62	62	62	63	62	63	64	64	64	64	64	64	64	64	64	63	63	63	63	63	64	67	67	67	66	66	66	66	66	66
		Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							49	56	57	61	60	63	63	63	66	66	66	66	66	66	66	67	67	67	67	68	68	68	68	68	68	69	70	69	68	68	66	66	66	66	66

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

The Project
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Contract	Construction Activity ID	Construction Activitiy	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections			SPL at NSR, Leq,30-mins dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Screening, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																												
ED/2025/02	1	Site Preparation							-	-	-	-																																
	12	DCM Site Trial	C6_C	109.8	350	-58.9	-5	3	48.9				49	49	49																														
			C6_D_1	109.8	260	-56.3		3	56.5				56	56	56																														
			C6_D_2	109.8	330	-58.4		3	54.4				54	54	54																														
			C6_E	109.8	510	-62.2		3	50.6				51	51	51																														
	13	Installation of Silt Curtain	C6_I	107.8	320	-58.1	-5	3	47.7				48																																
	14	Removal of Obstructions/ MD	C6_A	113.6	200	-54.0		3	62.5				63	63	63	63																													
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	113.7	510	-62.2		3	54.5						55	55	55	55																											
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	113.7	350	-58.9	-5	3	52.8						53	53																													
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	113.7	260	-56.3		3	60.4						60	60	60	60	60	60	60																							
			C6_D_2	113.7	330	-58.4		3	58.3						58	58	58	58	58	58	58																							
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	510	-62.2		3	54.4							54	54	54	54	54	54	54																							
	19	Carry Out Marine DCM for sloping seawall	C6_C	111.2	350	-58.9	-5	3	50.3							50	50																											
	20	Construct Vertical Seawall	C6_H_1	110.8	350	-58.9		3	54.9									55	55	55	55	55	55	55																				
			C6_H_2	110.8	540	-62.6		3	51.2									51	51	51	51	51	51	51																				
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	350	-58.9		3	54.9											55	55	55	55	55	55																			
			C6_H_2	110.8	540	-62.6		3	51.2											51	51	51	51	51	51																			
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	550	-62.8		3	51.0																															51	51				
	99a	Construct Sloping Seawall NE Portion	C6_G	110.8	260	-56.3	-5	3	52.5				52	52	52	52																													
	22	Construct Sloping Seawall	C6_G	110.8	260	-56.3	-5	3	52.5								52	52	52	52																									
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	260	-56.3		3	60.2							60																													
			C6_D_2	113.5	330	-58.4		3	58.2							58																													
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	260	-56.3		3	60.2							60	60	60	60	60																							
			C6_D_2	113.5	330	-58.4		3	58.2							58	58	58	58	58																							
	24	Filling to +3mPD for EF and C7	C6_J	124.3	160	-52.1	-5	3	70.2									70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70										
	28	Remaining Reclamation Filling to +3mPD	C6_K	123.6	260	-56.3		3	70.3																										70	70	70							
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	124.7	160	-52.1	-5	3	70.6																					71	71	71	71	71	71	71	71	71						
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	126.7	260	-56.3		3	73.4																												73	73	73	73	73				
	24a	Construction of Box Culvert and Drainage Works	C6_L	120.8	180	-53.1		3	70.7																	71	71	71	71	71	71	71	71	71	71	71							
	31	Dredging for CBP Berthing Facility	C6_B	112.7	470	-61.4		3	54.3																									54	54	54	54	54	54	54				
									Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	65	65	67	69	66	72	72	72	71	71	71	71	70	73	73	73	73	75	75	75	75	75	75	**77**	**77**	75	73	73	-	-	-	-	-
									Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	65	65	67	69	66	72	72	72	71	71	71	71	70	73	73	73	73	75	75	75	75	75	75	**77**	**77**	75	73	73	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/02

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Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026										2027												2028												2029						
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Site Formation Works																																															
ED/2025/02	33	Site Establishment and Clearance	C6_N_1	108.8	220	-54.8	3	57						57	57	57	57																														
			C6_N_2	103.8	150	-51.5	3	55						55	55	55	55																														
	34	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	C6_N_1	115.1	220	-54.8	3	63									63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
			C6_N_2	112.5	150	-51.5	3	64									64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	59	59	59	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
ED/2025/02 - TKO 132 Infrastructure Works																																														
ED/2025/02	99b	Rock breaking for Abutment and Approach Ramp	C6_M	111.8	160	-52.1	3	63												63	63	63	63	63	63	63	63	63	63	63																	
	99c	Construct Retaining Wall, Abutment and Approach Ramp	C6_M	111.3	160	-52.1	3	62																							62	62	62														
	99d	Filling Works for Abutment and Approach Ramp	C6_M	111.3	160	-52.1	3	62																									62	62												
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	63	63	63	63	63	63	63	63	63	63	66	62	65	62	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C3

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026										2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																													
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	780	-65.8	3	51				51	51	51	51	51	51																												
			C7_C	114.2	710	-65.0	3	52				52	52	52	52	52	52																												
			C7_D	114.2	270	-56.6	3	61				61	61	61	61	61	61																												
	12	Predrilling on Temporary Platform	C7_B	114.4	780	-65.8	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52																
			C7_C	114.4	710	-65.0	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52																
			C7_D	114.4	270	-56.6	3	61		61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61																
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	710	-65.0	3	47				47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47																
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	710	-65.0	3	44				44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44																
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	710	-65.0	3	52			52	52	52	52	52	52																												
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	640	-64.1	3	54						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54								
			C7_D	114.9	270	-56.6	3	61						61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61								
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	710	-65.0	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53																
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	780	-65.8	3	55						55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55			
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	640	-64.1	3	50							50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50							
			C7_D	110.9	270	-56.6	3	57							57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57							
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	710	-65.0	3	48								48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48								
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	780	-65.8	3	48								48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48			
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	640	-64.1	3	50								50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50			
			C7_D	111.1	270	-56.6	3	57								57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57			
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	710	-65.0	3	49									49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49							
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	780	-65.8	3	48									48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48			
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	640	-64.1	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
			C7_D	106.6	270	-56.6	3	53										53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53			
			C7_C	106.6	710	-65.0	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
			C7_F	106.6	810	-66.2	3	43										43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43			
			C7_E	106.6	790	-66.0	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44			
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	640	-64.1	3	54											54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54					
			C7_D	114.7	270	-56.6	3	61											61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	710	-65.0	3	52										52	52	52	52	52	52	52	52	52	52	52	52	52	52	52												
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	780	-65.8	3	50											50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50											
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	780	-65.8	3	50																				50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			C7_J	112.5	770	-65.7	3	50																				50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	33a	Stressing Tendons Road L100	C7_L	105.0	240	-55.6	3	52																					52	52	52	52	52											
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	680	-64.7	3	43																43	43	43	43	43	43	43	43	43	43	43	43								
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	680	-64.7	3	43																43	43	43	43	43	43	43	43	43	43	43	43								
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	680	-64.7	3	43																				43	43	43	43	43	43	43	43	43	43						
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	530	-62.5	3	46																														46	46	46	46	46	46
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	240	-55.6	3	54																								54	54	54									
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	680	-64.7	3	45																											45	45							
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	680	-64.7	3	45																											45	45	45	45	45	45	45		
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	680	-64.7	3	45																											45	45	45	45	45	45	45		
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	530	-62.5	3	47																																			47
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	770	-65.7	3	44																																			
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	240	-55.6	3	54																								54	54	54	54	54	54	54	54				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	530	-62.5	3	47																																			47
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	770	-65.7	3	44																																			
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	240	-55.6	3	55																																			
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	680	-64.7	3	47																																			
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	680	-64.7	3	47																																			
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	680	-64.7	3	47																																			
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	530	-62.5	3	50																																			
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	770	-65.7	3	46																																			
	37a	E&M and T&C Road L100	C7_L	105.8	240	-55.6	3	53																											53	53	53	53					
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	680	-64.7	3	44																															44	44	44			
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	680	-64.7	3	44																															44	44	44			
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	680	-64.7	3	44																																			44
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	530	-62.5	3	46																																			
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	770	-65.7	3	43																																			
		Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	62	62	65	65	67	67	68	68	67	68	69	69	69	69	69	69	69	69	68	68	68	68	68	68	68	67	66	65	62	61	60	59	57
ED/2025/03 - TKO 132 Infrastructrure Works																																													
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	150	-51.5	3	55																														55	55	55	55	55	55	55
			C7_Q	103.6	950	-67.6	3	39																														39	39	39	39	39	39	39
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	120	-49.6	3	66																														66	66	66	66	66	66	66
			C7_O	112.5	150	-51.5	3	64																														64	64	64	64	64	64	64
		Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	68	68	68	68	68	68	68	68
ED/2025/03 - Construction of SPS																																													
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	150	-51.5	3	65																														65	65	65	65	65	65	65	65	65
	122	E&M Installation	C7_M	107.0	150	-51.5	3	58																																						58
	123	Architectural & Landscaping Works	C7_M	102.5	150	-51.5	3	54																																						
		Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	65	65	65	65	65	65	65	66
ED/2025/03 - TKO 132 Site Formation Works																																													
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	540	-62.6	3	54.1	54	54	54	54	54	54	54																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	540	-62.6	3	58.8						59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
		Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							54	54	54	54	54	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
		Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							54	62	63	65	65	69	68	69	71	70	70	72	72	72	72	72	72	72	72	72	71	72	71	72	71	71	72	73	73	73	73	72	72	72	72	72
		Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							54	62	63	68	68	71	72	71	74	74	74	74	74	74	74	74	**76**	**76**	**76**	**76**	**77**	**77**	**77**	**77**	**77**	**78**	**78**	**77**	**76**	**76**	72	72	72	72	72

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

The Project
E-OLV-R-C4

Contract	Construction Activity ID	Construction Activitiy	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections			SPL at NSR, Leq,30-mins dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Screening, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																											
ED/2025/02	1	Site Preparation							-	-	-	-																																
	12	DCM Site Trial	C6_C	109.8	310	-57.8	-10	3	45.0				45	45	45																														
			C6_D_1	109.8	260	-56.3		3	56.5				56	56	56																														
			C6_D_2	109.8	300	-57.5	-10	3	45.2				45	45	45																														
			C6_E	109.8	490	-61.8		3	51.0				51	51	51																														
	13	Installation of Silt Curtain	C6_I	107.8	390	-59.8	-5	3	46.0				46																																
	14	Removal of Obstructions/ MD	C6_A	113.6	170	-52.6	-5	3	58.9				59	59	59	59																														
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	113.7	490	-61.8		3	54.9						55	55	55																												
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	113.7	310	-57.8	-10	3	48.9						49	49																														
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	113.7	260	-56.3		3	60.4						60	60	60	60	60	60	60																							
			C6_D_2	113.7	300	-57.5	-10	3	49.1						49	49	49	49	49	49	49																							
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	490	-61.8		3	54.7							55	55	55	55	55	55	55																							
	19	Carry Out Marine DCM for sloping seawall	C6_C	111.2	310	-57.8	-10	3	46.3							46	46																												
	20	Construct Vertical Seawall	C6_H_1	110.8	390	-59.8		3	54.0									54	54	54	54	54	54	54																				
			C6_H_2	110.8	500	-62.0		3	51.8									52	52	52	52	52	52	52																				
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	390	-59.8		3	54.0											54	54	54	54	54	54																			
			C6_H_2	110.8	500	-62.0		3	51.8											52	52	52	52	52	52																			
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	570	-63.1		3	50.7																															51	51				
	99a	Construct Sloping Seawall NE Portion	C6_G	110.8	200	-54.0	-10	3	49.8				50	50	50	50																														
	22	Construct Sloping Seawall	C6_G	110.8	200	-54.0	-10	3	49.8								50	50	50	50																										
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	260	-56.3		3	60.2							60																													
			C6_D_2	113.5	300	-57.5	-10	3	49.0							49																													
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	260	-56.3		3	60.2							60	60	60	60	60																							
			C6_D_2	113.5	300	-57.5	-10	3	49.0							49	49	49	49	49																							
	24	Filling to +3mPD for EF and C7	C6_J	124.3	160	-52.1		3	75.2									75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75									
	28	Remaining Reclamation Filling to +3mPD	C6_K	123.6	260	-56.3		3	70.3																									70	70	70							
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	124.7	160	-52.1		3	75.6																			76	76	76	76	76	76	76	76	76	76						
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	126.7	260	-56.3		3	73.4																												73	73	73	73	73			
	24a	Construction of Box Culvert and Drainage Works	C6_L	120.8	200	-54.0		3	69.8																	70	70	70	70	70	70	70	70	70	70	70							
	31	Dredging for CBP Berthing Facility	C6_B	112.7	510	-62.2		3	53.6																									54	54	54	54	54	54	54			
		Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)								-	-	-	62	62	65	67	65	**76**	**76**	**76**	**76**	**76**	75	75	75	**76**	**76**	**76**	**76**	**79**	**79**	**79**	**79**	**78**	**78**	**79**	**78**	**78**	73	73	-	-	-	-	-
		Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)								-	-	-	62	62	65	67	65	**76**	**76**	**76**	**76**	**76**	75	75	75	**76**	**76**	**76**	**76**	**79**	**79**	**79**	**79**	**78**	**78**	**79**	**78**	**78**	73	73	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C4

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026																2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06						
ED/2025/02 - TKO 132 Site Formation Works																																																				
ED/2025/02	33	Site Establishment and Clearance	C6_N_1	98.8	260	-56.3	3	45						45	45	45	45																																				
			C6_N_2	98.8	100	-48.0	3	54						54	54	54	54																																				
	34	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	C6_N_1	107.5	260	-56.3	3	54									54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			C6_N_2	107.5	100	-48.0	3	62									62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	54	54	54	64	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
ED/2025/02 - TKO 132 Infrastructure Works																																																			
ED/2025/02	99b	Rock breaking for Abutment and Approach Ramp	C6_M	106.8	130	-50.3	3	60												60	60	60	60	60	60	60	60	60	60	60																						
	99c	Construct Retaining Wall, Abutment and Approach Ramp	C6_M	106.3	130	-50.3	3	59																						59	59	59																			
	99d	Filling Works for Abutment and Approach Ramp	C6_M	106.3	130	-50.3	3	59																									59	59																
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	60	60	60	60	60	60	60	60	60	60	62	59	62	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 4.3 Predicted Construction Noise Level under Unmitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C4

Contract	Construction Activity_ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026										2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																													
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	710	-65.0	3	52				52	52	52	52	52	52																												
			C7_C	114.2	640	-64.1	3	53				53	53	53	53	53	53																												
			C7_D	114.2	210	-54.4	3	63				63	63	63	63	63	63																												
	12	Predrilling on Temporary Platform	C7_B	114.4	710	-65.0	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52																	
			C7_C	114.4	640	-64.1	3	53		53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53																	
			C7_D	114.4	210	-54.4	3	63		63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63																	
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	640	-64.1	3	48				48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																	
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	640	-64.1	3	45				45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45																	
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	640	-64.1	3	53			53	53	53	53	53	53																													
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	570	-63.1	3	55						55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55										
			C7_D	114.9	210	-54.4	3	63						63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63										
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	640	-64.1	3	54						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54															
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	710	-65.0	3	56						56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56			
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	570	-63.1	3	51							51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51								
			C7_D	110.9	210	-54.4	3	59							59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59									
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	640	-64.1	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49														
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	710	-65.0	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	570	-63.1	3	51								51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51						
			C7_D	111.1	210	-54.4	3	60								60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60						
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	640	-64.1	3	50									50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50								
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	710	-65.0	3	49									49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	570	-63.1	3	47										47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47		
			C7_D	106.6	210	-54.4	3	55										55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55		
			C7_C	106.6	640	-64.1	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45		
			C7_F	106.6	740	-65.4	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44		
			C7_E	106.6	720	-65.1	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44		
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	570	-63.1	3	55											55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55					
			C7_D	114.7	210	-54.4	3	63											63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	640	-64.1	3	53										53	53	53	53	53	53	53	53	53	53	53	53	53	53												
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	710	-65.0	3	51											51	51	51	51	51	51	51	51	51	51	51	51	51	51	51											
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	710	-65.0	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			C7_J	112.5	710	-65.0	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	33a	Stressing Tendons Road L100	C7_L	105.0	180	-53.1	3	55																				55	55	55	55	55												
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	610	-63.7	3	44																44	44	44	44	44	44	44	44	44	44	44	44								
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	610	-63.7	3	44																44	44	44	44	44	44	44	44	44	44	44	44								
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	610	-63.7	3	44																			44	44	44	44	44	44	44	44	44	44	44						
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	460	-61.3	3	47																														47	47	47	47	47	47
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	180	-53.1	3	57																								57	57	57									
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	610	-63.7	3	46																											46	46							
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	460	-61.3	3	48																																			48
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	710	-65.0	3	45																																			
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	180	-53.1	3	57																								57	57	57	57	57	57	57	57				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	460	-61.3	3	48																																			48
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	710	-65.0	3	45																																			
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	180	-53.1	3	58																										58	58	58	58						
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	610	-63.7	3	48																												48	48	48	48				
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	610	-63.7	3	48																												48	48	48	48				
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	610	-63.7	3	48																													48	48	48	48			
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	460	-61.3	3	51																																			
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	710	-65.0	3	47																																			
	37a	E&M and T&C Road L100	C7_L	105.8	180	-53.1	3	56																											56	56	56	56					
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	610	-63.7	3	45																															45	45	45		
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	610	-63.7	3	45																															45	45	45		
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	610	-63.7	3	45																																			45
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	460	-61.3	3	48																																			
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	710	-65.0	3	44																																			
		Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	64	64	67	67	69	69	70	70	69	69	70	70	70	70	71	71	71	71	70	70	70	70	70	70	70	69	68	67	63	62	61	61	58
ED/2025/03 - TKO 132 Infrastructrure Works																																													
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	120	-49.6	3	57																													57	57	57	57	57	57	57
			C7_Q	103.6	880	-66.9	3	40																													40	40	40	40	40	40	40
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	140	-50.9	3	65																													65	65	65	65	65	65	65
			C7_O	112.5	120	-49.6	3	66																													66	66	66	66	66	66	66
		Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	69	69	69	69	69	69	69
ED/2025/03 - Construction of SPS																																													
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	170	-52.6	3	64																													64	64	64	64	64	64	64	64
	122	E&M Installation	C7_M	107.0	170	-52.6	3	57																																					57
	123	Architectural & Landscaping Works	C7_M	102.5	170	-52.6	3	53																																					
		Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	64	64	64	64	64	64	65
ED/2025/03 - TKO 132 Site Formation Works																																												
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	470	-61.4	3	55.3	55	55	55	55	55	55																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	470	-61.4	3	60.0						60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)							55	55	55	55	55	61	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							55	64	65	67	67	70	70	70	71	70	71	72	72	72	72	72	72	72	72	72	71	71	71	72	71	71	72	73	73	73	72	72	72	72	71	71
		Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)							55	64	65	68	68	71	72	71	**77**	**77**	**77**	**77**	**77**	**77**	**77**	**78**	**78**	**78**	**78**	**80**	**80**	**80**	**80**	**78**	**78**	**80**	**79**	**79**	**76**	**76**	72	72	72	71	71

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_A for E-OLV-R-C1 and E-OLV-R-C2

NP of Works Area C6_A for E-OLV-R-C3

NP of Works Area C6_A for E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_A

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_B for E-OLV-R-C1

NP of Works Area C6_B for E-OLV-R-C2

NP of Works Area C6_B for E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_B

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_C for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_C

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_D_1 for E-OLV-R-C1 and E-OLV-R-C2

NP of Works Area C6_D_1 for E-OLV-R-C3

NP of Works Area C6_D_1 for E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_D_1

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_D_2 for E-OLV-R-C1 and E-OLV-R-C2

NP of Works Area C6_D_2 for E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

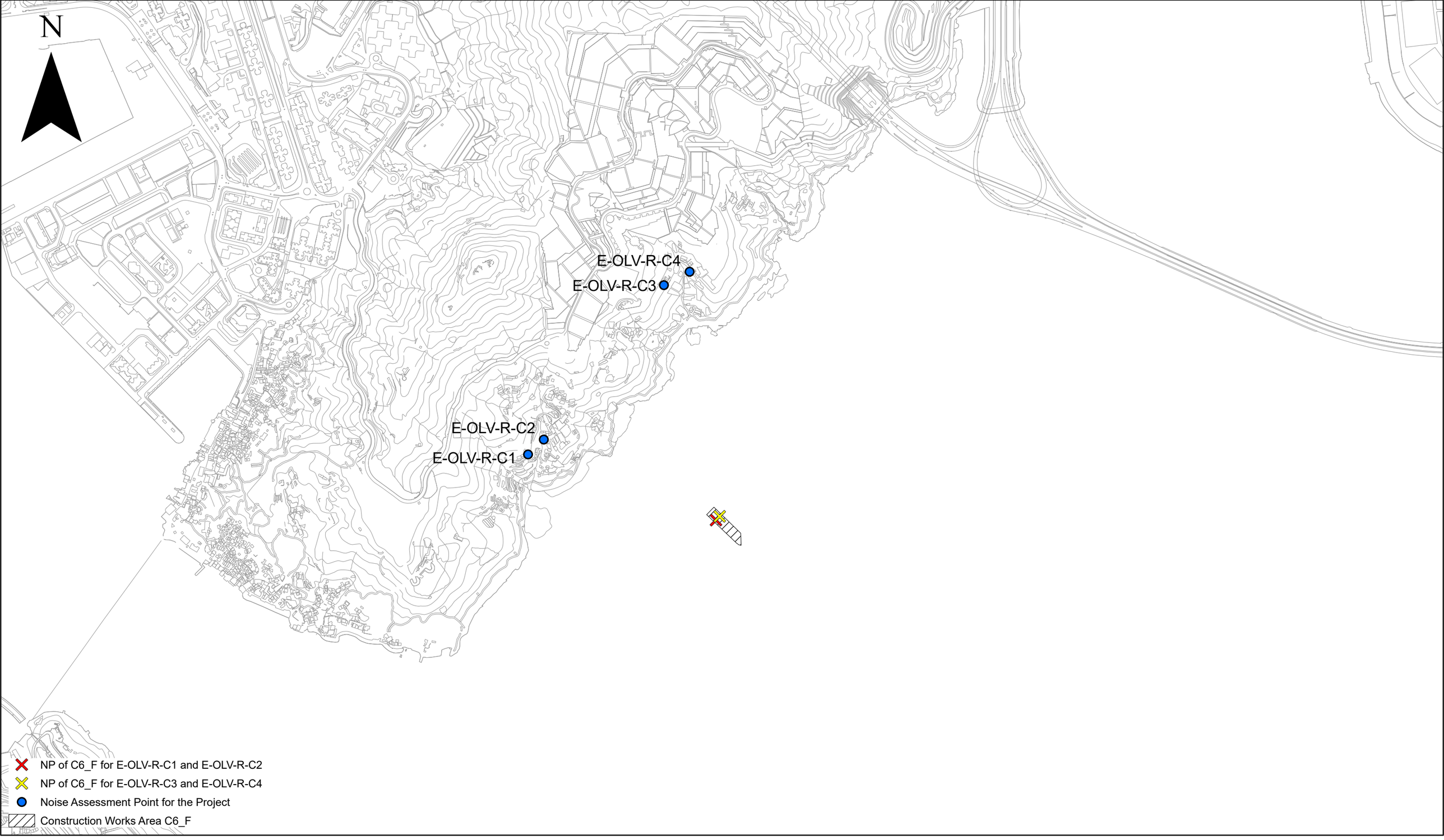
Construction Works Area C6_D_2

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_G for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_G

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_H_1 for E-OLV-R-C1 and E-OLV-R-C2

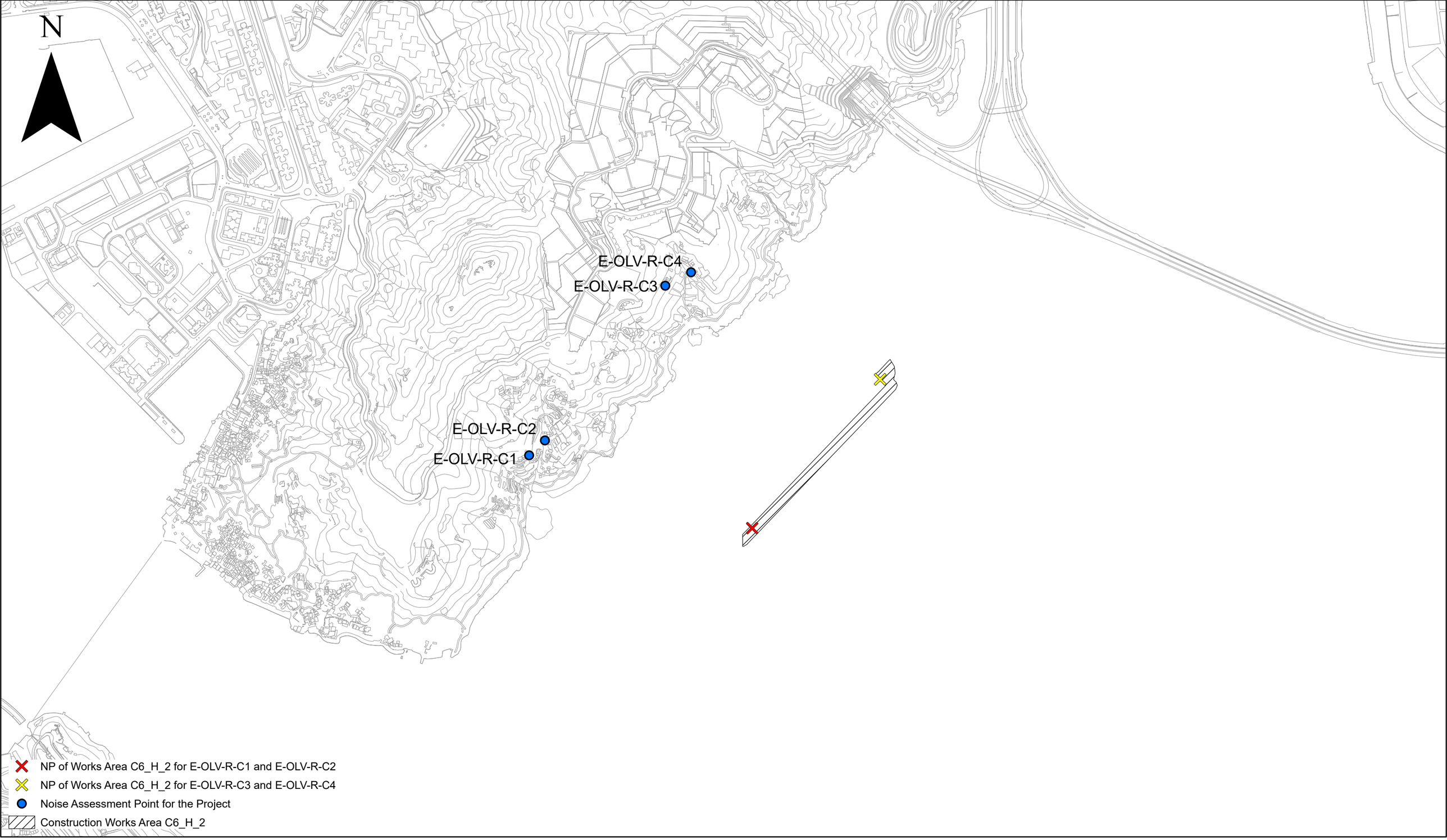
NP of Works Area C6_H_1 for E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_H_1

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_I for E-OLV-R-C1

NP of Works Area C6_I for E-OLV-R-C2

NP of Works Area C6_I for E-OLV-R-C3 and E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_I

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_J for E-OLV-R-C1 and E-OLV-R-C2

NP of Works Area C6_J for E-OLV-R-C3

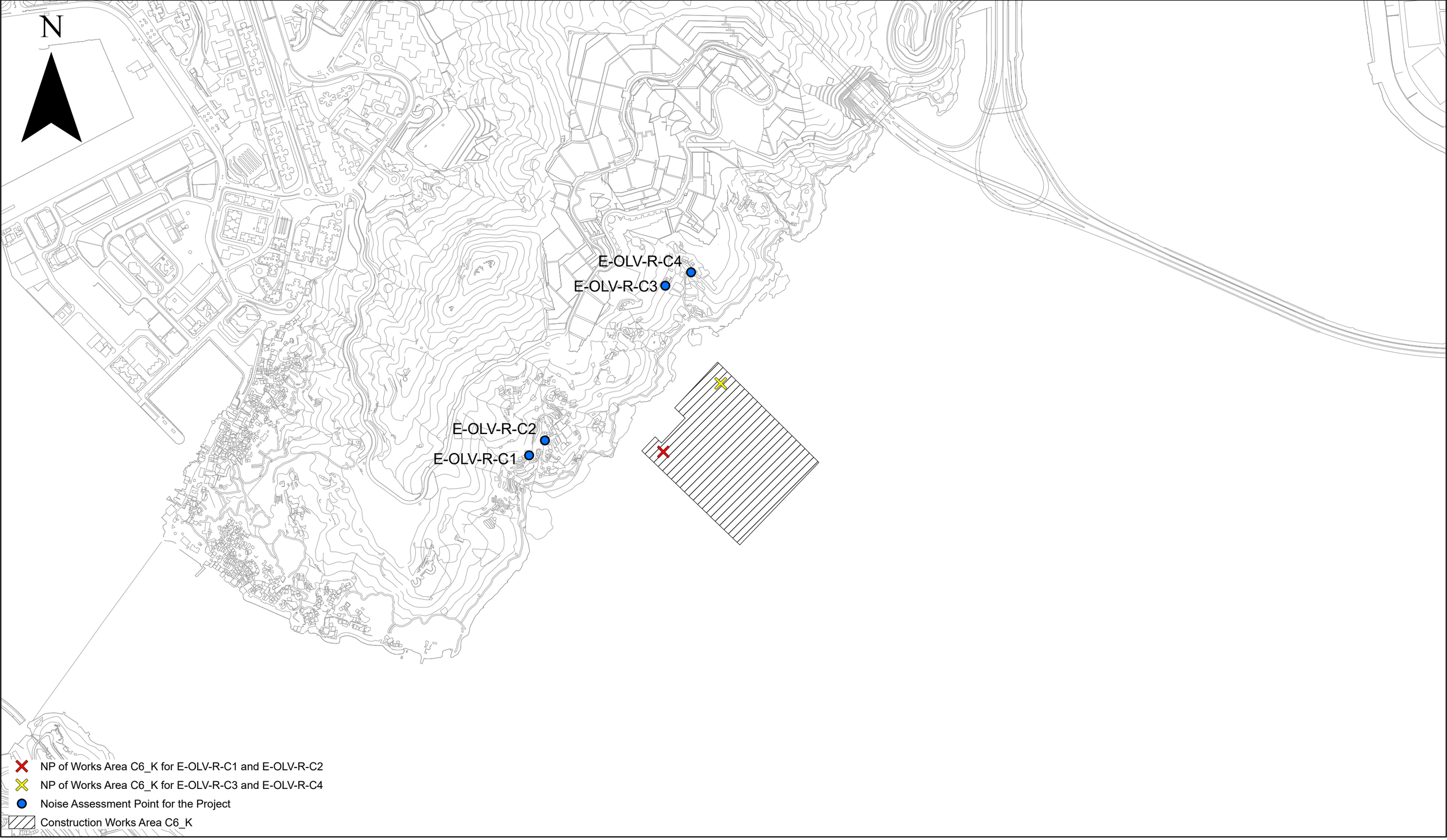
NP of Works Area C6_J for E-OLV-R-C4

Noise Assessment Point for the Project

Construction Works Area C6_J

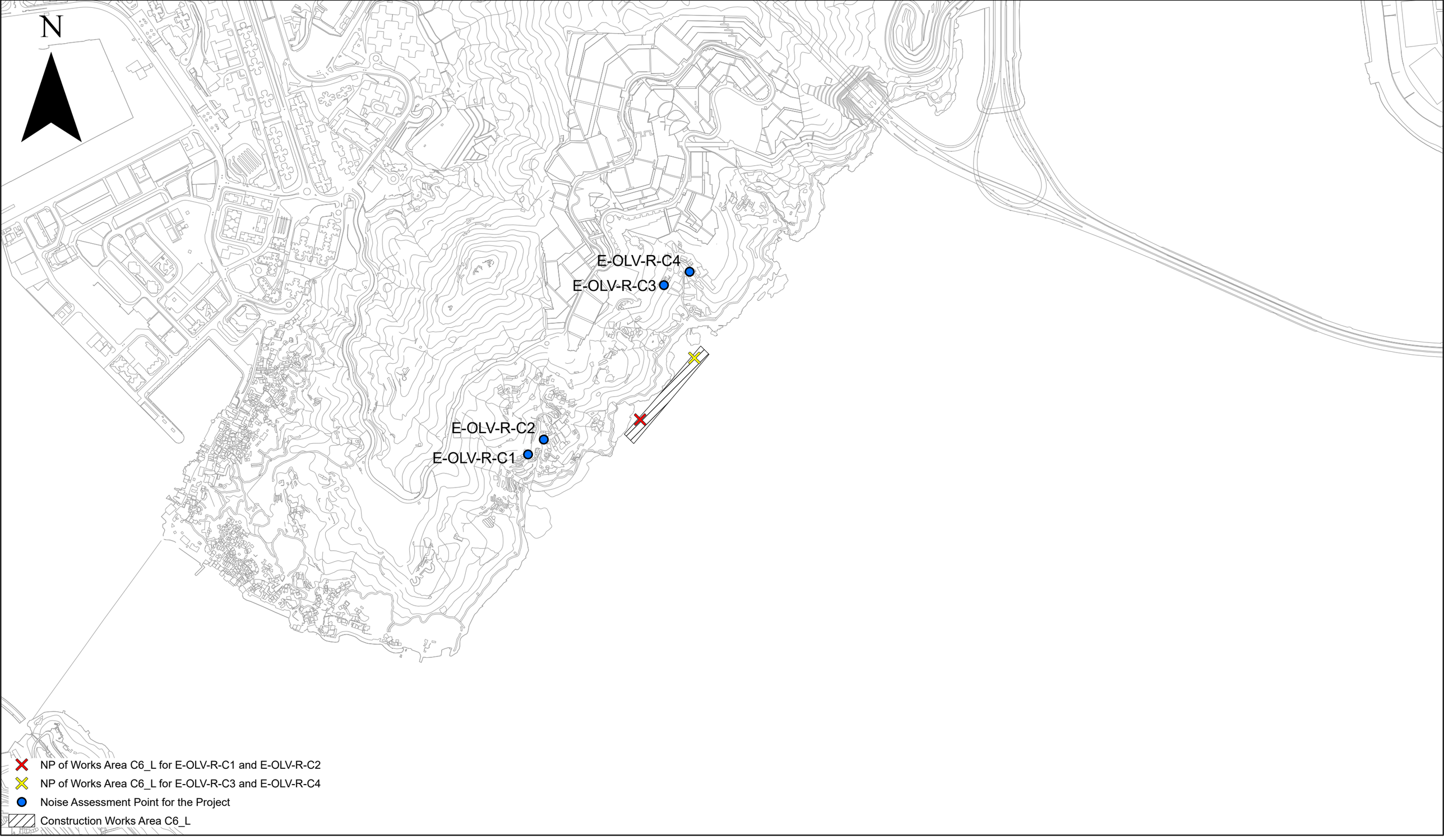
Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



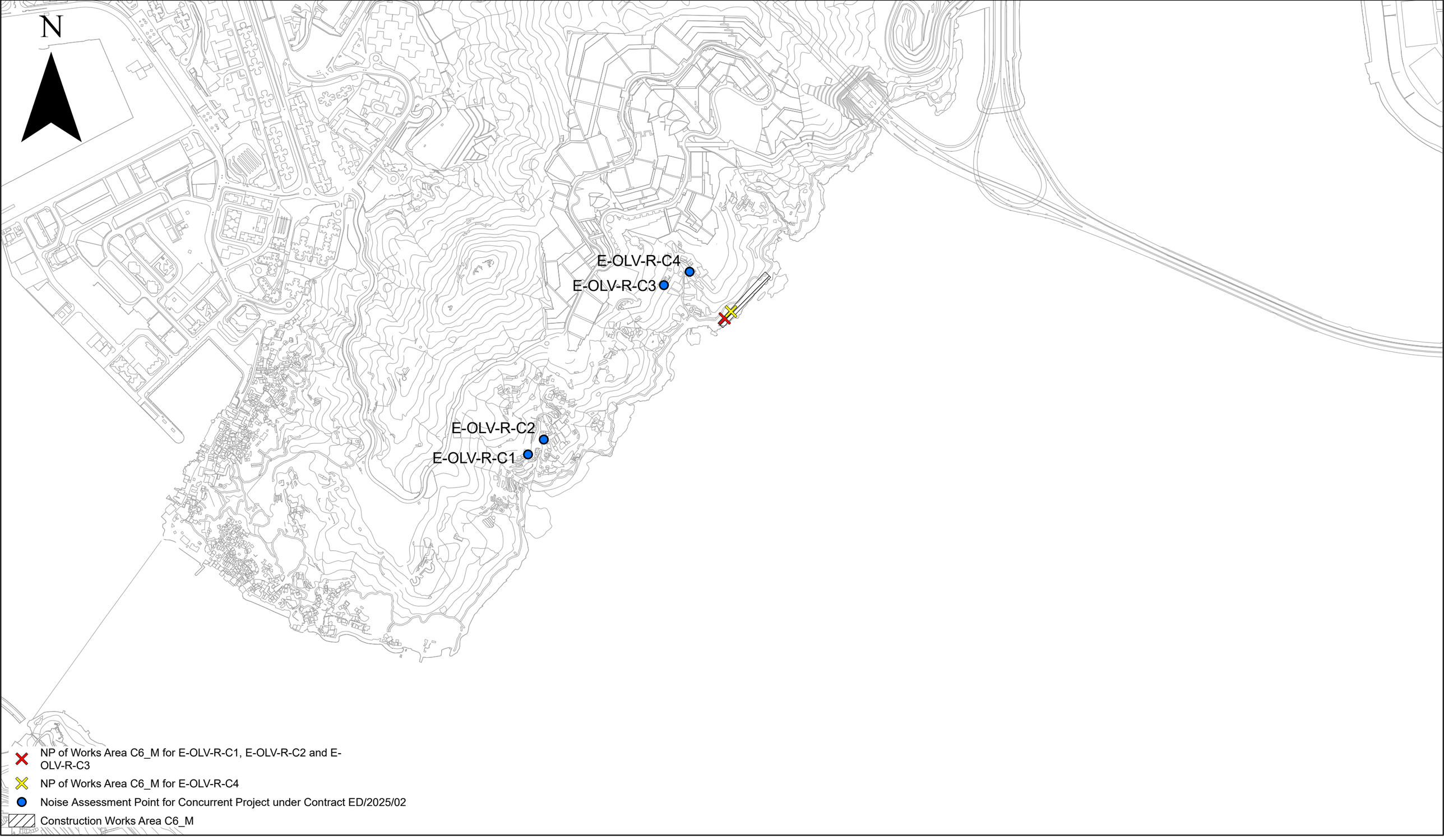
Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



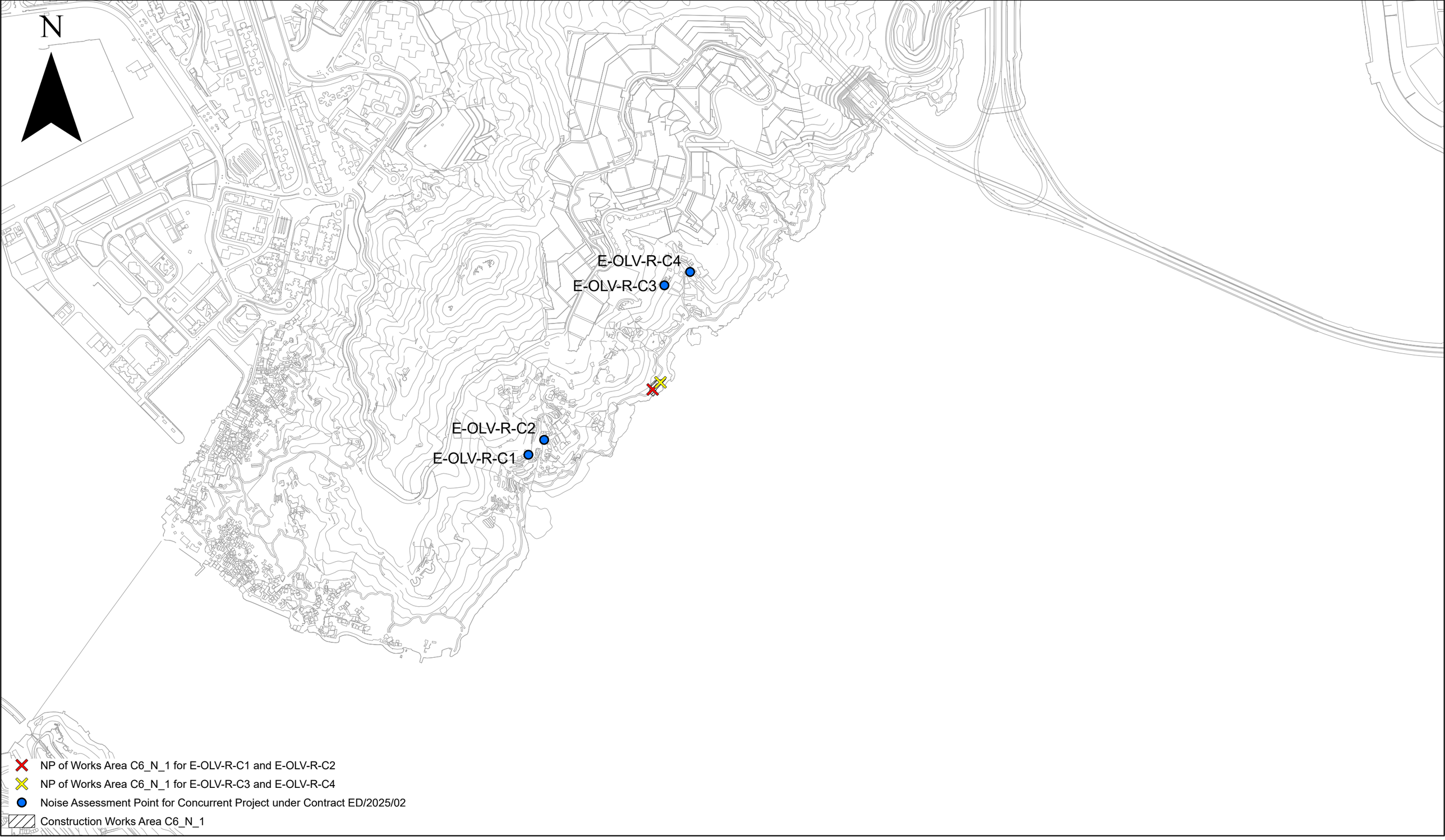
Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters



Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C6_N_2 for E-OLV-R-C1 and E-OLV-R-C2

NP of Works Area C6_N_2 for E-OLV-R-C3

NP of Works Area C6_N_2 for E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/02

Construction Works Area C6_N_2

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_A for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_A

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_B for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_B

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_C for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_C

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_D for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_D

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_E for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_E

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_F for E-OLV-R-C1, E-OLV-R-C2

NP of Works Area C7_F for E-OLV-R-C3

NP of Works Area C7_F for E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_F

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_G for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_G

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_H for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_H

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

× NP of Works Area C7_I for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_I

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_J for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_J

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

× NP of Works Area C7_K for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_K

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_L for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_L

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_P for E-OLV-R-C1, E-OLV-R-C2

NP of Works Area C7_P for E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_P

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_M for E-OLV-R-C3, E-OLV-R-C4

NP of Works Area C7_M for E-OLV-R-C1, E-OLV-R-C2

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_M

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_N for E-OLV-R-C1, E-OLV-R-C2

NP of Works Area C7_N for E-OLV-R-C3

NP of Works Area C7_N for E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_N

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_O for E-OLV-R-C1, E-OLV-R-C2

NP of Works Area C7_O for E-OLV-R-C3

NP of Works Area C7_O for E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_O

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

N

E-OLV-R-C4

E-OLV-R-C3

E-OLV-R-C2

E-OLV-R-C1

NP of Works Area C7_Q for E-OLV-R-C1, E-OLV-R-C2, E-OLV-R-C3, E-OLV-R-C4

Noise Assessment Point for Concurrent Project under Contract ED/2025/03

Construction Works Area C7_Q

Location of Notional Point (NP) for each Works Area and Noise Assessment Point

0 250 500 1,000 Meters

Appendix 5.1
Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(A): The Project (for representative NAP: E-OLV-R-C1)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Reclamation Works													
12	C6_C	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_D_1	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-5	-5	97.5	**104.8**
			Cement barge	CNP 061	104	1	70%			-5	-5	97.5	
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
12	C6_D_2	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_E	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-5	-5	97.5	**104.8**
			Cement barge	CNP 061	104	1	70%			-5	-5	97.5	
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
13	C6_I	Installation of Silt Curtain	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**102.8**
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
14	C6_A	Removal of Obstructions/ MD	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**108.6**
			Grab dredger	CNP 063	112	1	80%			-5	-5	106.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
15	C6_E	Installation of Geotextile and Sand Blanket (vertical seawall)	Hopper barge	CNP 061	104	1	60%			-5	-5	96.8	**107.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-5	-5	101.0	
			Flattop barge	CNP 061	104	1	60%			-5	-5	96.8	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
			Generator	CNP 103	95	1	100%			-5	-5	90.0	
16	C6_C	Installation of Geotextile and Sand Blanket (sloping seawall)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
17	C6_D_1	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%			-5	-5	96.8	**107.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-5	-5	101.0	
			Flattop barge	CNP 061	104	1	60%			-5	-5	96.8	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
			Generator	CNP 103	95	1	100%			-5	-5	90.0	
17	C6_D_2	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
18	C6_E	Carry Out Marine DCM for vertical seawall	DCM barge	CNP 061	104	3	70%			-5	-5	102.2	**108.5**
			Cement barge	CNP 061	104	3	70%			-5	-5	102.2	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	2	20%			-5	-5	101.0	
19	C6_C	Carry Out Marine DCM for sloping seawall	DCM barge	CNP 061	104	2	70%			-10	-10	95.5	**101.2**
			Cement barge	CNP 061	104	2	70%			-10	-10	95.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
20	C6_H_1	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
20	C6_H_2	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
21	C6_H_1	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
21	C6_H_2	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
27	C6_F	Construct Remaining Seawall and Rockfill	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
99a	C6_G	Construct Sloping Seawall NE Portion	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
22	C6_G	Construct Sloping Seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
23	C6_D_1	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%			-5	-5	102.2	**108.5**
			Cement barge	CNP 061	104	3	70%			-5	-5	102.2	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	2	20%			-5	-5	101.0	
23	C6_D_2	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
23a	C6_D_1	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%			-5	-5	102.2	**108.5**
			Cement barge	CNP 061	104	3	70%			-5	-5	102.2	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	2	20%			-5	-5	101.0	
23a	C6_D_2	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
24	C6_J	Filling to +3mPD for EF and C7	hopper barge	CNP 061	104	3	60%			-10	-10	96.6	**108.3**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%			-10	-10	99.1	
			Tug boat	CNP 221	110	2	55%			-10	-10	100.4	
			Anchor boat	CNP 221	110	2	40%			-10	-10	99.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	7	80%	Moveable Noise Barrier	-5	-10	-10	98.5	
			Bulldozer, wheeled/tracked	EPD-14522	107	4	80%	Moveable Noise Barrier	-5	-10	-10	102.1	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-10	-10	94.8	
			Dump truck	OCUPME_58	105	4	80%	Moveable Noise Barrier	-5	-10	-10	100.1	
28	C6_K	Remaining Reclamation Filling to +3mPD	hopper barge	CNP 061	104	3	60%			-5	-5	101.6	**112.8**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%			-5	-5	104.1	
			Tug boat	CNP 221	110	2	55%			-5	-5	105.4	
			Anchor boat	CNP 221	110	2	40%			-5	-5	104.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	6	80%			-5	-5	102.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%			-5	-5	105.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%			-5	-5	99.8	
			Dump truck	OCUPME_58	105	3	80%			-5	-5	103.8	
25	C6_J	Filling to Formation Level +6.75mPD for EF and C7	Derrick barge / Derrick lighter	CNP 061	104	6	80%			-10	-10	100.8	**108.1**
			Tug Boat	CNP 221	110	1	40%			-10	-10	96.0	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%	Moveable Noise Barrier	-5	-10	-10	100.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-10	-10	94.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	4	80%	Moveable Noise Barrier	-5	-10	-10	96.1	
			Roller, vibratory	EPD-15815	103	5	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Compactor, vibratory	CNP 050	105	6	60%	Moveable Noise Barrier	-5	-10	-10	100.6	
			Dump truck	OCUPME_58	105	3	60%			-10	-10	97.6	
29	C6_K	Remaining Filling to Formation Level +6.75mPD	Derrick barge / Derrick lighter	CNP 061	104	6	80%			-5	-5	105.8	**114.8**
			Tug Boat	CNP 221	110	3	40%			-5	-5	105.8	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%			-5	-5	102.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	6	80%			-5	-5	108.8	
			Backhoe, wheeled/tracked	EPD-15967	101	6	80%			-5	-5	102.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	8	80%			-5	-5	104.1	
			Roller, vibratory	EPD-15815	103	3	60%			-5	-5	100.6	
			Compactor, vibratory	CNP 050	105	6	60%			-5	-5	105.6	
			Dump truck	OCUPME_58	105	6	60%			-5	-5	105.6	
24a	C6_L	Construction of Box Culvert and Drainage Works	Excavator, wheeled/tracked	EPD-15967	101	2	70%			-10	-10	92.5	**107.7**
			Excavator, mini-robot mounted	OCUPME_20	94	2	70%			-10	-10	85.5	
			Backhoe, wheeled/tracked	EPD-15967	101	2	70%			-10	-10	92.5	
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	60%	Moveable Noise Barrier	-5	-10	-10	100.8	
			Concrete lorry mixer	CNP 044	109	1	50%			-10	-10	96.0	
			Poker, vibratory, hand-held	CNP 170	113	2	50%	Moveable Noise Barrier	-5	-10	-10	103.0	
			Crane, mobile	EPD-16069	100	2	50%			-10	-10	90.0	
			Dump truck	OCUPME_58	105	2	50%			-10	-10	95.0	
			Water pump, submersible (electric)	CNP 283	85	4	100%			-10	-10	81.0	
			Grout mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	1	50%	Moveable Noise Barrier	-5	-10	-10	99.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	2	50%			-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
31	C6_B	Dredging for CBP Berthing Facility	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**107.7**
			Grab dredger	CNP 063	112	1	80%			-5	-5	106.0	
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(A): The Project (for representative NAP: E-OLV-R-C2)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Reclamation Works													
12	C6_C	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_D_1	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_D_2	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_E	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
13	C6_I	Installation of Silt Curtain	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**102.8**
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
14	C6_A	Removal of Obstructions/ MD	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	**103.6**
			Grab dredger	CNP 063	112	1	80%			-10	-10	101.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
15	C6_E	Installation of Geotextile and Sand Blanket (vertical seawall)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
16	C6_C	Installation of Geotextile and Sand Blanket (sloping seawall)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
17	C6_D_1	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
17	C6_D_2	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
18	C6_E	Carry Out Marine DCM for vertical seawall	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
19	C6_C	Carry Out Marine DCM for sloping seawall	DCM barge	CNP 061	104	2	70%			-10	-10	95.5	**101.2**
			Cement barge	CNP 061	104	2	70%			-10	-10	95.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
20	C6_H_1	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
20	C6_H_2	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
21	C6_H_1	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
21	C6_H_2	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
27	C6_F	Construct Remaining Seawall and Rockfill	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
99a	C6_G	Construct Sloping Seawall NE Portion	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
22	C6_G	Construct Sloping Seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
23	C6_D_1	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
23	C6_D_2	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
23a	C6_D_1	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
23a	C6_D_2	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
24	C6_J	Filling to +3mPD for EF and C7	hopper barge	CNP 061	104	3	60%			-10	-10	96.6	**108.3**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%			-10	-10	99.1	
			Tug boat	CNP 221	110	2	55%			-10	-10	100.4	
			Anchor boat	CNP 221	110	2	40%			-10	-10	99.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	7	80%	Moveable Noise Barrier	-5	-10	-10	98.5	
			Bulldozer, wheeled/tracked	EPD-14522	107	4	80%	Moveable Noise Barrier	-5	-10	-10	102.1	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-10	-10	94.8	
			Dump truck	OCUPME_58	105	4	80%	Moveable Noise Barrier	-5	-10	-10	100.1	
28	C6_K	Remaining Reclamation Filling to +3mPD	hopper barge	CNP 061	104	3	60%			-10	-10	96.6	**107.8**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%			-10	-10	99.1	
			Tug boat	CNP 221	110	2	55%			-10	-10	100.4	
			Anchor boat	CNP 221	110	2	40%			-10	-10	99.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	6	80%			-10	-10	97.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%			-10	-10	100.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%			-10	-10	94.8	
			Dump truck	OCUPME_58	105	3	80%			-10	-10	98.8	
25	C6_J	Filling to Formation Level +6.75mPD for EF and C7	Derrick barge / Derrick lighter	CNP 061	104	6	80%			-10	-10	100.8	**108.1**
			Tug Boat	CNP 221	110	1	40%			-10	-10	96.0	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%	Moveable Noise Barrier	-5	-10	-10	100.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-10	-10	94.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	4	80%	Moveable Noise Barrier	-5	-10	-10	96.1	
			Roller, vibratory	EPD-15815	103	5	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Compactor, vibratory	CNP 050	105	6	60%	Moveable Noise Barrier	-5	-10	-10	100.6	
			Dump truck	OCUPME_58	105	3	60%			-10	-10	97.6	
29	C6_K	Remaining Filling to Formation Level +6.75mPD	Derrick barge / Derrick lighter	CNP 061	104	6	80%			-10	-10	100.8	**109.8**
			Tug Boat	CNP 221	110	3	40%			-10	-10	100.8	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%			-10	-10	97.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	6	80%			-10	-10	103.8	
			Backhoe, wheeled/tracked	EPD-15967	101	6	80%			-10	-10	97.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	8	80%			-10	-10	99.1	
			Roller, vibratory	EPD-15815	103	3	60%			-10	-10	95.6	
			Compactor, vibratory	CNP 050	105	6	60%			-10	-10	100.6	
			Dump truck	OCUPME_58	105	6	60%			-10	-10	100.6	
24a	C6_L	Construction of Box Culvert and Drainage Works	Excavator, wheeled/tracked	EPD-15967	101	2	70%			-10	-10	92.5	**107.7**
			Excavator, mini-robot mounted	OCUPME_20	94	2	70%			-10	-10	85.5	
			Backhoe, wheeled/tracked	EPD-15967	101	2	70%			-10	-10	92.5	
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	60%	Moveable Noise Barrier	-5	-10	-10	100.8	
			Concrete lorry mixer	CNP 044	109	1	50%			-10	-10	96.0	
			Poker, vibratory, hand-held	CNP 170	113	2	50%	Moveable Noise Barrier	-5	-10	-10	103.0	
			Crane, mobile	EPD-16069	100	2	50%			-10	-10	90.0	
			Dump truck	OCUPME_58	105	2	50%			-10	-10	95.0	
			Water pump, submersible (electric)	CNP 283	85	4	100%			-10	-10	81.0	
			Grout mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	1	50%	Moveable Noise Barrier	-5	-10	-10	99.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	2	50%			-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
31	C6_B	Dredging for CBP Berthing Facility	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	**102.7**
			Grab dredger	CNP 063	112	1	80%			-10	-10	101.0	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(A): The Project (for representative NAP: E-OLV-R-C3)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Reclamation Works													
12	C6_C	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-5	-5	97.5	**104.8**
			Cement barge	CNP 061	104	1	70%			-5	-5	97.5	
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
12	C6_D_1	DCM Site Trial	DCM barge	CNP 061	104	1	70%					102.5	**109.8**
			Cement barge	CNP 061	104	1	70%					102.5	
			Tug boat	CNP 221	110	1	40%					106.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
12	C6_D_2	DCM Site Trial	DCM barge	CNP 061	104	1	70%					102.5	**109.8**
			Cement barge	CNP 061	104	1	70%					102.5	
			Tug boat	CNP 221	110	1	40%					106.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
12	C6_E	DCM Site Trial	DCM barge	CNP 061	104	1	70%					102.5	**109.8**
			Cement barge	CNP 061	104	1	70%					102.5	
			Tug boat	CNP 221	110	1	40%					106.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
13	C6_I	Installation of Silt Curtain	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**102.8**
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
14	C6_A	Removal of Obstructions/ MD	Derrick barge / Derrick lighter	CNP 061	104	1	80%					103.0	**113.6**
			Grab dredger	CNP 063	112	1	80%					111.0	
			Tug boat	CNP 221	110	2	40%					109.0	
15	C6_E	Installation of Geotextile and Sand Blanket (vertical seawall)	Hopper barge	CNP 061	104	1	60%					101.8	**112.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%					106.0	
			Flattop barge	CNP 061	104	1	60%					101.8	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
			Generator	CNP 103	95	1	100%					95.0	
16	C6_C	Installation of Geotextile and Sand Blanket (sloping seawall)	Hopper barge	CNP 061	104	1	60%			-5	-5	96.8	**107.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-5	-5	101.0	
			Flattop barge	CNP 061	104	1	60%			-5	-5	96.8	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
			Generator	CNP 103	95	1	100%			-5	-5	90.0	
17	C6_D_1	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%					101.8	**112.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%					106.0	
			Flattop barge	CNP 061	104	1	60%					101.8	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
			Generator	CNP 103	95	1	100%					95.0	
17	C6_D_2	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%					101.8	**112.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%					106.0	
			Flattop barge	CNP 061	104	1	60%					101.8	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
			Generator	CNP 103	95	1	100%					95.0	
18	C6_E	Carry Out Marine DCM for vertical seawall	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
19	C6_C	Carry Out Marine DCM for sloping seawall	DCM barge	CNP 061	104	2	70%			-5	-5	100.5	**106.2**
			Cement barge	CNP 061	104	2	70%			-5	-5	100.5	
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
			Anchor boat	CNP 221	110	1	20%			-5	-5	98.0	
20	C6_H_1	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
20	C6_H_2	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
21	C6_H_1	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
21	C6_H_2	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
27	C6_F	Construct Remaining Seawall and Rockfill	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
99a	C6_G	Construct Sloping Seawall NE Portion	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
22	C6_G	Construct Sloping Seawall	Derrick barge	CNP 061	104	1	80%			-5	-5	98.0	**105.8**
			Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
23	C6_D_1	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
23	C6_D_2	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
23a	C6_D_1	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
23a	C6_D_2	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
24	C6_J	Filling to +3mPD for EF and C7	hopper barge	CNP 061	104	3	60%			-5	-5	101.6	**113.3**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%			-5	-5	104.1	
			Tug boat	CNP 221	110	2	55%			-5	-5	105.4	
			Anchor boat	CNP 221	110	2	40%			-5	-5	104.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	7	80%	Moveable Noise Barrier	-5	-5	-5	103.5	
			Bulldozer, wheeled/tracked	EPD-14522	107	4	80%	Moveable Noise Barrier	-5	-5	-5	107.1	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-5	-5	99.8	
			Dump truck	OCUPME_58	105	4	80%	Moveable Noise Barrier	-5	-5	-5	105.1	
28	C6_K	Remaining Reclamation Filling to +3mPD	hopper barge	CNP 061	104	3	60%					106.6	**117.8**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%					109.1	
			Tug boat	CNP 221	110	2	55%					110.4	
			Anchor boat	CNP 221	110	2	40%					109.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%					110.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%					104.8	
			Dump truck	OCUPME_58	105	3	80%					108.8	
25	C6_J	Filling to Formation Level +6.75mPD for EF and C7	Derrick barge / Derrick lighter	CNP 061	104	6	80%			-5	-5	105.8	**113.1**
			Tug Boat	CNP 221	110	1	40%			-5	-5	101.0	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%	Moveable Noise Barrier	-5	-5	-5	102.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%	Moveable Noise Barrier	-5	-5	-5	105.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5	-5	-5	99.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	4	80%	Moveable Noise Barrier	-5	-5	-5	101.1	
			Roller, vibratory	EPD-15815	103	5	60%	Moveable Noise Barrier	-5	-5	-5	102.8	
			Compactor, vibratory	CNP 050	105	6	60%	Moveable Noise Barrier	-5	-5	-5	105.6	
			Dump truck	OCUPME_58	105	3	60%			-5	-5	102.6	
29	C6_K	Remaining Filling to Formation Level +6.75mPD	Derrick barge / Derrick lighter	CNP 061	104	6	80%					110.8	**119.8**
			Tug Boat	CNP 221	110	3	40%					110.8	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	6	80%					113.8	
			Backhoe, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	8	80%					109.1	
			Roller, vibratory	EPD-15815	103	3	60%					105.6	
			Compactor, vibratory	CNP 050	105	6	60%					110.6	
			Dump truck	OCUPME_58	105	6	60%					110.6	
24a	C6_L	Construction of Box Culvert and Drainage Works	Excavator, wheeled/tracked	EPD-15967	101	2	70%					102.5	**115.1**
			Excavator, mini-robot mounted	OCUPME_20	94	2	70%					95.5	
			Backhoe, wheeled/tracked	EPD-15967	101	2	70%					102.5	
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	60%	Moveable Noise Barrier	-5		-5	105.8	
			Concrete lorry mixer	CNP 044	109	1	50%					106.0	
			Poker, vibratory, hand-held	CNP 170	113	2	50%	Moveable Noise Barrier	-5		-5	108.0	
			Crane, mobile	EPD-16069	100	2	50%					100.0	
			Dump truck	OCUPME_58	105	2	50%					105.0	
			Water pump, submersible (electric)	CNP 283	85	4	100%					91.0	
			Grout mixer	OCUPME_26	90	1	50%					87.0	
			Grout pump	OCUPME_27	105	1	50%					102.0	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	1	50%	Moveable Noise Barrier	-5		-5	104.0	
			Roller, vibratory	EPD-15815	103	1	50%					100.0	
			Compactor, vibratory	CNP 050	105	2	50%					105.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%					100.0	
			Generator	CNP 103	95	2	100%					98.0	
31	C6_B	Dredging for CBP Berthing Facility	Derrick barge / Derrick lighter	CNP 061	104	1	80%					103.0	**112.7**
			Grab dredger	CNP 063	112	1	80%					111.0	
			Tug boat	CNP 221	110	1	40%					106.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(A): The Project (for representative NAP: E-OLV-R-C4)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Reclamation Works													
12	C6_C	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_D_1	DCM Site Trial	DCM barge	CNP 061	104	1	70%					102.5	**109.8**
			Cement barge	CNP 061	104	1	70%					102.5	
			Tug boat	CNP 221	110	1	40%					106.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
12	C6_D_2	DCM Site Trial	DCM barge	CNP 061	104	1	70%			-10	-10	92.5	**99.8**
			Cement barge	CNP 061	104	1	70%			-10	-10	92.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
12	C6_E	DCM Site Trial	DCM barge	CNP 061	104	1	70%					102.5	**109.8**
			Cement barge	CNP 061	104	1	70%					102.5	
			Tug boat	CNP 221	110	1	40%					106.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
13	C6_I	Installation of Silt Curtain	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**102.8**
			Tug boat	CNP 221	110	1	40%			-5	-5	101.0	
14	C6_A	Removal of Obstructions/ MD	Derrick barge / Derrick lighter	CNP 061	104	1	80%			-5	-5	98.0	**108.6**
			Grab dredger	CNP 063	112	1	80%			-5	-5	106.0	
			Tug boat	CNP 221	110	2	40%			-5	-5	104.0	
15	C6_E	Installation of Geotextile and Sand Blanket (vertical seawall)	Hopper barge	CNP 061	104	1	60%					101.8	**112.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%					106.0	
			Flattop barge	CNP 061	104	1	60%					101.8	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
			Generator	CNP 103	95	1	100%					95.0	
16	C6_C	Installation of Geotextile and Sand Blanket (sloping seawall)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
17	C6_D_1	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%					101.8	**112.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%					106.0	
			Flattop barge	CNP 061	104	1	60%					101.8	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	1	20%					103.0	
			Generator	CNP 103	95	1	100%					95.0	
17	C6_D_2	Installation of Geotextile and Sand Blanket (reclamation)	Hopper barge	CNP 061	104	1	60%			-10	-10	91.8	**102.4**
			Derrick barge / Derrick lighter	CNP 061	104	2	80%			-10	-10	96.0	
			Flattop barge	CNP 061	104	1	60%			-10	-10	91.8	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
			Generator	CNP 103	95	1	100%			-10	-10	85.0	
18	C6_E	Carry Out Marine DCM for vertical seawall	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
19	C6_C	Carry Out Marine DCM for sloping seawall	DCM barge	CNP 061	104	2	70%			-10	-10	95.5	**101.2**
			Cement barge	CNP 061	104	2	70%			-10	-10	95.5	
			Tug boat	CNP 221	110	1	40%			-10	-10	96.0	
			Anchor boat	CNP 221	110	1	20%			-10	-10	93.0	
20	C6_H_1	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
20	C6_H_2	Construct Vertical Seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
21	C6_H_1	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
21	C6_H_2	Installation of rockfill for vertical seawall	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
27	C6_F	Construct Remaining Seawall and Rockfill	Derrick barge	CNP 061	104	1	80%					103.0	**110.8**
			Derrick lighter	CNP 061	104	1	80%					103.0	
			Tug boat	CNP 221	110	2	40%					109.0	
99a	C6_G	Construct Sloping Seawall NE Portion	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
22	C6_G	Construct Sloping Seawall	Derrick barge	CNP 061	104	1	80%			-10	-10	93.0	**100.8**
			Derrick lighter	CNP 061	104	1	80%			-10	-10	93.0	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
23	C6_D_1	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
23	C6_D_2	Carry Out Marine DCM for inland for NE Portion	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
23a	C6_D_1	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%					107.2	**113.5**
			Cement barge	CNP 061	104	3	70%					107.2	
			Tug boat	CNP 221	110	2	40%					109.0	
			Anchor boat	CNP 221	110	2	20%					106.0	
23a	C6_D_2	Carry Out Marine DCM for inland for remaining	DCM barge	CNP 061	104	3	70%			-10	-10	97.2	**103.5**
			Cement barge	CNP 061	104	3	70%			-10	-10	97.2	
			Tug boat	CNP 221	110	2	40%			-10	-10	99.0	
			Anchor boat	CNP 221	110	2	20%			-10	-10	96.0	
24	C6_J	Filling to +3mPD for EF and C7	hopper barge	CNP 061	104	3	60%					106.6	**116.3**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%					109.1	
			Tug boat	CNP 221	110	2	55%					110.4	
			Anchor boat	CNP 221	110	2	40%					109.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	7	80%	Moveable Noise Barrier	-5		-5	103.5	
			Bulldozer, wheeled/tracked	EPD-14522	107	4	80%	Moveable Noise Barrier	-5		-5	107.1	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5		-5	99.8	
			Dump truck	OCUPME_58	105	4	80%	Moveable Noise Barrier	-5		-5	105.1	
28	C6_K	Remaining Reclamation Filling to +3mPD	hopper barge	CNP 061	104	3	60%					106.6	**117.8**
			Derrick barge / Derrick lighter	CNP 061	104	4	80%					109.1	
			Tug boat	CNP 221	110	2	55%					110.4	
			Anchor boat	CNP 221	110	2	40%					109.0	
			Long boom excavator, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%					110.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%					104.8	
			Dump truck	OCUPME_58	105	3	80%					108.8	
25	C6_J	Filling to Formation Level +6.75mPD for EF and C7	Derrick barge / Derrick lighter	CNP 061	104	6	80%					110.8	**115.5**
			Tug Boat	CNP 221	110	1	40%					106.0	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%	Moveable Noise Barrier	-5		-5	102.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	3	80%	Moveable Noise Barrier	-5		-5	105.8	
			Backhoe, wheeled/tracked	EPD-15967	101	3	80%	Moveable Noise Barrier	-5		-5	99.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	4	80%	Moveable Noise Barrier	-5		-5	101.1	
			Roller, vibratory	EPD-15815	103	5	60%	Moveable Noise Barrier	-5		-5	102.8	
			Compactor, vibratory	CNP 050	105	6	60%	Moveable Noise Barrier	-5		-5	105.6	
			Dump truck	OCUPME_58	105	3	60%					107.6	
29	C6_K	Remaining Filling to Formation Level +6.75mPD	Derrick barge / Derrick lighter	CNP 061	104	6	80%					110.8	**119.8**
			Tug Boat	CNP 221	110	3	40%					110.8	
			Long range excavator, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	6	80%					113.8	
			Backhoe, wheeled/tracked	EPD-15967	101	6	80%					107.8	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	EPD-15967	101	8	80%					109.1	
			Roller, vibratory	EPD-15815	103	3	60%					105.6	
			Compactor, vibratory	CNP 050	105	6	60%					110.6	
			Dump truck	OCUPME_58	105	6	60%					110.6	
24a	C6_L	Construction of Box Culvert and Drainage Works	Excavator, wheeled/tracked	EPD-15967	101	2	70%					102.5	**115.1**
			Excavator, mini-robot mounted	OCUPME_20	94	2	70%					95.5	
			Backhoe, wheeled/tracked	EPD-15967	101	2	70%					102.5	
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	60%	Moveable Noise Barrier	-5		-5	105.8	
			Concrete lorry mixer	CNP 044	109	1	50%					106.0	
			Poker, vibratory, hand-held	CNP 170	113	2	50%	Moveable Noise Barrier	-5		-5	108.0	
			Crane, mobile	EPD-16069	100	2	50%					100.0	
			Dump truck	OCUPME_58	105	2	50%					105.0	
			Water pump, submersible (electric)	CNP 283	85	4	100%					91.0	
			Grout mixer	OCUPME_26	90	1	50%					87.0	
			Grout pump	OCUPME_27	105	1	50%					102.0	
			Excavator, wheel/tracked, mounted with Rapid Impact Compactor	CNP 081	112	1	50%	Moveable Noise Barrier	-5		-5	104.0	
			Roller, vibratory	EPD-15815	103	1	50%					100.0	
			Compactor, vibratory	CNP 050	105	2	50%					105.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%					100.0	
			Generator	CNP 103	95	2	100%					98.0	
31	C6_B	Dredging for CBP Berthing Facility	Derrick barge / Derrick lighter	CNP 061	104	1	80%					103.0	**112.7**
			Grab dredger	CNP 063	112	1	80%					111.0	
			Tug boat	CNP 221	110	1	40%					106.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C1)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C2)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C3)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%					104.8	**108.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%					98.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%					102.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%					102.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-5	-5	99.8	**103.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-5	-5	93.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-5	-5	97.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-5	-5	97.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%					97.0	**115.1**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%					97.0	
			Tug boat	CNP 221	110	1	20%					103.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%					101.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5		-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%					101.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%					108.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5		-5	106.5	
			Air compressor	CNP 003	104	2	70%					105.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%					100.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5		-5	103.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5		-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5		-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%					99.0	
			Grout Mixer	OCUPME_26	90	1	50%					87.0	
			Grout Pump	OCUPME_27	105	1	50%					102.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%					100.0	
			Generator	CNP 103	95	2	100%					98.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**112.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-5	-5	103.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-5	-5	106.5	
			Air compressor	CNP 003	104	2	70%			-5	-5	100.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-5	-5	95.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-5	-5	103.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-5	-5	95.0	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-5	-5	103.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-5	-5	102.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-5	-5	96.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-5	-5	100.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-5	-5	102.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-5	-5	95.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-5	-5	92.0	**111.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-5	-5	92.0	
			Tug boat	CNP 221	110	1	20%			-5	-5	98.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-5	-5	102.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-5	-5	96.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-5	-5	100.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-5	-5	102.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-5	-5	95.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-5	-5	101.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-5	-5	94.0	
			Grout Mixer	OCUPME_26	90	1	50%			-5	-5	82.0	
			Grout Pump	OCUPME_27	105	1	50%			-5	-5	97.0	
			Roller, vibratory	EPD-15815	103	1	50%			-5	-5	95.0	
			Compactor, vibratory	CNP 050	105	3	50%			-5	-5	101.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-5	-5	100.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-5	-5	96.8	
			Generator	CNP 103	95	2	100%			-5	-5	93.0	

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(B): Concurrent Projects under Contract ED/2025/02 (for representative NAP: E-OLV-R-C4)

ID	Works Area	Activity	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Corrections for Mitigation Measures, dB(A)	Screening Correction by Terrain / Building, dB(A)	Maximum Correction by Terrain / Building Screening or by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL per Activity, dB(A)
ED/2025/02 - TKO 132 Site Formation Works													
33	C6_N_1	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
33	C6_N_2	Site Establishment and Clearance	Bulldozer, wheeled/tracked	EPD-14522	107	1	60%			-10	-10	94.8	**98.8**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			-10	-10	88.8	
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			-10	-10	92.8	
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			-10	-10	92.8	
34	C6_N_1	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
34	C6_N_2	Slope Improvement Works including Soil Nailing, Slope Formation and Landscaping Works	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**107.5**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%	Moveable Noise Barrier	-5	-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%			-10	-10	98.6	
			Drill rig, rotary type (air-pressurised)	OCUPME_19	110	2	70%	Moveable Noise Barrier	-5	-10	-10	101.5	
			Air compressor	CNP 003	104	2	70%			-10	-10	95.5	
			Hand-held Percussive Breaker	EPD-15617	99	2	70%			-10	-10	90.5	
			Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	-10	-10	98.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Welder/Generator, portable	OCUPME_28	100	2	50%			-10	-10	90.0	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
ED/2025/02 - TKO 132 Infrastructure Works													
99b	C6_M	Rock breaking for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.8**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	6	60%	Moveable Noise Barrier	-5	-10	-10	98.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%			-10	-10	97.8	
			Crane, mobile	EPD-16069	100	3	50%	Moveable Noise Barrier	-5	-10	-10	91.8	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99c	C6_M	Construct Retaining Wall, Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	
99d	C6_M	Filling Works for Abutment and Approach Ramp	Derrick lighter	CNP 061	104	1	20%			-10	-10	87.0	**106.3**
			Flattop barge / Ro-ro barge	CNP 061	104	1	20%			-10	-10	87.0	
			Tug boat	CNP 221	110	1	20%			-10	-10	93.0	
			Excavator, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Bulldozer, wheeled/tracked	EPD-14522	107	2	60%			-10	-10	97.8	
			Backhoe, wheeled/tracked	EPD-15967	101	2	60%			-10	-10	91.8	
			Excavator breaker 5.5 tonne with attachment	Kubota U55-4 A	103	3	60%	Moveable Noise Barrier	-5	-10	-10	95.6	
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	50%			-10	-10	97.0	
			Crane, mobile	EPD-16069	100	2	50%	Moveable Noise Barrier	-5	-10	-10	90.0	
			Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	50%	Moveable Noise Barrier	-5	-10	-10	96.0	
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	1	50%			-10	-10	89.0	
			Grout Mixer	OCUPME_26	90	1	50%			-10	-10	77.0	
			Grout Pump	OCUPME_27	105	1	50%			-10	-10	92.0	
			Roller, vibratory	EPD-15815	103	1	50%			-10	-10	90.0	
			Compactor, vibratory	CNP 050	105	3	50%			-10	-10	96.8	
			Vibratory rammer	CNP 169	108	1	50%	Moveable Noise Barrier	-5	-10	-10	95.0	
			Welder/Generator, portable	OCUPME_28	100	3	50%			-10	-10	91.8	
			Generator	CNP 103	95	2	100%			-10	-10	88.0	

Remarks:
[1] Sound Power Level of PME Kubota U55-4 A is calculated based on the measurement result of sound pressure level at 7m as stiulated in the Brochure and Test Report as attached in this Appendix.

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

(C): Concurrent Projects under Contract ED/2025/03

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
ED/2025/03 - Marine Viaduct Works												
11	Temporary Staging Platform		Ro-ro barge	CNP 061	104	1	20%			97.0		**114.2**
			Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Crawler crane	CNP 061	104	1	20%			97.0		
			Vibratory hammer	OCUPME_33	115	1	20%			108.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	40%			109.0		
			Welder/Generator, portable	OCUPME_28	100	4	40%			102.0		
			Grout Mixer	OCUPME_26	90	2	30%			87.8		
			Grout pump	OCUPME_27	105	2	30%			102.8		
			Generator	CNP 103	95	4	100%			101.0		
12	Predrilling on Temporary Platform		Jack-up barge	CNP 061	104	3	30%			103.5		**114.4**
			Drill rig, rotary type (diesel)	OCUPME_19	110	3	40%			110.8		
			Grout Mixer	OCUPME_26	90	3	30%			89.5		
			Grout pump	OCUPME_27	105	3	30%			104.5		
			Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	3	40%			100.8		
			Generator	CNP 103	95	3	100%			99.8		
13	UU diversion for CLP 11kV and Watermain within existing utility trough		Roro/Flattop barge	CNP 061	104	1	20%			97.0		**109.4**
			Crane barge	CNP 048	112	1	20%			105.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
14	Temporary Modification of existing sign gantry FADS2		Crane, mobile	EPD-16069	100	1	20%			93.0		**106.1**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	50%			102.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	1	40%			96.0		
			Generator	CNP 103	95	1	100%			95.0		
15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)		Excavator, wheeled/tracked	EPD-15967	101	1	80%			100.0		**114.3**
			Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	3	80%			106.8		
			Crane, mobile	EPD-16069	100	1	80%			99.0		
			Concrete lorry mixer	CNP 044	109	1	30%			103.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	60%			105.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
			Air Compressor, air flow > 10m3/min and ≤ 30m3/min	CNP 002	102	1	60%			99.8		
			Hand-held Percussive Breaker	EPD-15617	99	1	50%			96.0		
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	40%			105.0		
			Vibratory rammer	CNP 169	108	3	40%			108.8		
16	Marine Bored Pile (Zone A + Zone D) - 40nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**114.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	30%	Moveable Noise Barrier	-5	102.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	2	30%			97.8		
			Piling, large diameter bored, oscillator	CNP 165	115	2	30%	Moveable Noise Barrier	-5	107.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	2	30%	Moveable Noise Barrier	-5	107.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Slurry barge	CNP 061	104	2	30%			101.8		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	30%			102.8		
			Generator	CNP 103	95	4	50%			98.0		
17	Marine Bored Pile (Zone B) - 30nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**115.4**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	30%			104.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	1	30%			94.8		
			Piling, large diameter bored, oscillator	CNP 165	115	1	30%			109.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	1	30%			109.8		
			Welder/Generator, portable	OCUPME_28	100	1	30%			94.8		
			Slurry barge	CNP 061	104	1	30%			98.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
18	Marine Bored Pile (Zone C) - 26nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**117.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Anchor boat	CNP 221	110	1	20%			103.0		
			Drill rig, rotary type (diesel)	OCUPME_19	110	2	30%			107.8		
			Piling, large diameter bored, reverse circulation drill	CNP 166	100	2	30%			97.8		
			Piling, large diameter bored, oscillator	CNP 165	115	2	30%			112.8		
			Piling, large diameter bored, grab and chisel	CNP 164	115	2	30%			112.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Slurry barge	CNP 061	104	2	30%			101.8		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	4	30%			102.8		
			Generator	CNP 103	95	4	100%			101.0		
19	Pile Cap (Zone A + Zone D) - 15nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**110.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
20	Pile Cap (Zone B) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**109.7**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	1	40%			96.0		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	1	30%			96.8		
			Generator	CNP 103	95	1	100%			95.0		
21	Pile Cap (Zone C) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	20%			97.0		**110.9**
			Crane Barge	CNP 048	112	1	20%			105.0		
			Flattop barge	CNP 061	104	1	20%			97.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Floating concrete batching barge	CNP 022	108	2	30%			105.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
22	Marine Pier(Zone A + Zone D) - 25nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**111.1**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
23	Marine Pier(Zone B) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**110.8**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	1	30%			96.8		
			Generator	CNP 103	95	1	100%			95.0		

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
24	Marine Pier (Zone C) - 13nos		Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		**111.1**
			Crane Barge	CNP 048	112	1	30%			106.8		
			Flattop barge	CNP 061	104	1	30%			98.8		
			Tug boat	CNP 221	110	1	30%			104.8		
			Floating concrete batching barge	CNP 022	108	1	30%			102.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	30%			99.8		
			Generator	CNP 103	95	2	100%			98.0		
25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
29	Erection of Segments (Zones A and D) - 446nos		Lifting Frame	OCUPME_9	108	2	40%			107.0		**114.7**
			Crane Barge	CNP 048	112	2	30%			109.8		
			Derrick barge / Derrick lighter	CNP 061	104	2	30%			101.8		
			Tug Boat	CNP 221	110	2	30%			107.8		
			Hydraulic Jack with Pump	OCUPME_27	105	2	40%			104.0		
			Crane, mobile	EPD-16069	100	2	40%			99.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	2	40%			104.0		
			Generator	CNP 103	95	4	100%			101.0		
30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**114.0**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Lifting Frame	OCUPME_9	108	2	60%			108.8		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
31	Erection of Segments (Zone C) - 16nos		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**113.3**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Lifting Frame	OCUPME_9	108	1	60%			105.8		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
32	Cast-insitu (Zone C) - 300m		Concrete lorry mixer	CNP 044	109	1	50%			106.0		**112.5**
			Poker, vibratory, hand-held	OCUPME_34	102	2	50%			102.0		
			Generator	CNP 103	95	2	100%			98.0		
			Crane Barge	CNP 048	112	1	30%			106.8		
			Derrick barge / Derrick lighter	CNP 061	104	1	30%			98.8		
			Tug Boat	CNP 221	110	1	30%			104.8		
			Hydraulic Jack with Pump	OCUPME_27	105	1	40%			101.0		
			Crane, mobile	EPD-16069	100	1	40%			96.0		
			Cherrypicker	AEIAR-167/2012 [1]	105	1	40%			101.0		
33b	Stressing Tendons Slip Road L01-1		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33d	Stressing Tendons Slip Road L02-1		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33a	Stressing Tendons Road L100		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33c	Stressing Tendons Slip Road L01-2		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
33e	Stressing Tendons Slip Road L02-2		Hydraulic Jack with Pump	OCUPME_27	105	1	100%			105.0		**105.0**
34a	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34b	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34c	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34d	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34e	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
34f	Dismantling Lifting Frame & Falsework		Crane, mobile	EPD-16069	100	1	30%			94.8		**106.6**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	40%			101.0		
			Electric drill	CNP 064	103	2	40%			102.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		
35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		
35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**106.7**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric drill	CNP 064	103	2	30%			100.8		
			Welder/Generator, portable	OCUPME_28	100	2	30%			97.8		
			Generator	CNP 103	95	2	100%			98.0		

Appendix 5.1 Construction Plant Inventory of the Project (Mitigated) and Concurrent Projects

Activity ID	Activity	Group [3]	Powered Mechanical Equipment	PME reference [1]	SWL per Item, dB(A)	No. of Items	On-time %	Recommended Mitigation Measures	Correction by Mitigation Measures, dB(A)	Sub-total SWL of PME after Correction by Mitigation Measures, dB(A)	SWL of Each Grouping of PME, dB(A)	SWL of Activity, dB(A)
36b	Waterproofing, Paving, Roadmarking Slip Road L01-1		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36d	Waterproofing, Paving, Roadmarking Slip Road L02-1		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36a	Waterproofing, Paving, Roadmarking Road L100		Asphalt paver	CNP 004	109	1	40%			105.0		**107.6**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%	Moveable Noise Barrier	-5	100.0		
			Generator	CNP 103	95	1	100%			95.0		
36c	Waterproofing, Paving, Roadmarking Slip Road L01-2		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
36e	Waterproofing, Paving, Roadmarking Slip Road L02-2		Asphalt paver	CNP 004	109	1	40%			105.0		**109.0**
			Paint line marker	CNP 161	90	1	10%			80.0		
			Compactor, vibratory	CNP 050	105	1	40%			101.0		
			Spray machine	CNP 281	88	1	10%			78.0		
			Dump truck	OCUPME_58	105	2	50%			105.0		
			Generator	CNP 103	95	1	100%			95.0		
37b	E&M and T&C Slip Road L01-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37d	E&M and T&C Slip Road L02-1		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37a	E&M and T&C Road L100		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37c	E&M and T&C Slip Road L01-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37f	E&M and T&C Slip Road S300 widening		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
37e	E&M and T&C Slip Road L02-2		Crane, mobile	EPD-16069	100	1	40%			96.0		**105.8**
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Electric Drill	CNP 064	103	2	30%			100.8		
			Generator	CNP 103	95	1	100%			95.0		
ED/2025/03 - TKO 132 Infrastructure Works												
111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	A	Excavator, wheeled/tracked	EPD-15967	101	1	60%	Moveable Noise Barrier	-5	93.8	Group A: 98.2	**103.6**
		A	Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	60%	Moveable Noise Barrier	-5	95.8	Group B: 97	
		A	Hand-held Percussive Breaker	EPD-15617	99	1	60%	Acoustic Enclosure	-10	86.8	Group C: 102.8	
		B	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	50%	Moveable Noise Barrier	-5	97.0	PME without grouping: 95.8	
		C	Vibratory rammer	CNP 169	108	2	50%	Acoustic Enclosure	-10	98.0	[2] [3]	
		C	Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	101.0		
			Water pump, submersible (electric)	CNP 283	85	2	100%			88.0		
			Generator	CNP 103	95	1	100%			95.0		
111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI		Derrick lighter	CNP 061	104	1	30%			98.8	Group A: 101.3	**112.5**
			Flattop barge	CNP 061	104	1	30%			98.8	Group B: 102.8	
			Tug boat	CNP 221	110	1	40%			106.0	Group C: 105.4	
			Anchor boat	CNP 221	110	1	20%			103.0	PME without grouping: 111.6	
		A	Excavator, wheeled/tracked	EPD-15967	101	1	70%	Moveable Noise Barrier	-5	94.5	[2] [3]	
		A	Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	70%	Moveable Noise Barrier	-5	96.5		
		A	Breaker, hand-held, mass > 10kg and < 20kg	EPD-15617	99	2	70%	Moveable Noise Barrier	-5	95.5		
		A	Backhoe, wheeled/tracked	EPD-15967	101	1	70%	Moveable Noise Barrier	-5	94.5		
			Roller, vibratory	CNP 186	108	1	35%	Moveable Noise Barrier	-5	98.4		
		B	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	50%	Moveable Noise Barrier	-5	97.0		
		B	Concrete lorry mixer	CNP 044	109	1	50%	Moveable Noise Barrier	-5	101.0		
		C	Poker, vibratory, hand-held	OCUPME_34	102	2	50%	Moveable Noise Barrier	-5	97.0		
		C	Compactor vibratory	CNP 050	105	2	50%	Moveable Noise Barrier	-5	100.0		
		C	Vibratory rammer	CNP 169	108	2	50%	Moveable Noise Barrier	-5	103.0		
			Grader	CNP 104	113	2	35%	Moveable Noise Barrier	-5	106.5		
			Asphalt paver	CNP 004	109	1	35%	Moveable Noise Barrier	-5	99.4		
			Paint line marker	CNP 161	90	1	35%	Moveable Noise Barrier	-5	80.4		
			Welder/Generator, portable	OCUPME_28	100	1	35%	Moveable Noise Barrier	-5	90.4		
		B	Crane, mobile	EPD-16069	100	1	50%	Moveable Noise Barrier	-5	92.0		
			Water pump, submersible (electric)	CNP 283	85	5	100%			92.0		
			Generator	CNP 103	95	2	100%			98.0		
ED/2025/03 - Construction of SPS												
121	Foundation and Superstructure		Derrick lighter	CNP 061	104	1	40%			100.0		**113.5**
			Flattop barge	CNP 061	104	1	40%			100.0		
			Tug boat	CNP 221	110	1	20%			103.0		
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Breaker, excavator mounted (pneumatic)	Kubota U55-4 A	103	1	60%			100.8		
			Backhoe, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Drill rig, rotary type (diesel)	OCUPME_19	110	1	60%	Moveable Noise Barrier	-5	102.8		
			Crane, mobile	EPD-16069	100	1	60%			97.8		
			Compactor, vibratory	CNP 050	105	1	60%			102.8		
			Vibratory rammer	CNP 169	108	1	60%			105.8		
			Air Compressor, air flow > 10m3/min and ≤ 30m3/min	CNP 002	102	1	60%			99.8		
			Concrete lorry mixer	CNP 044	109	1	60%	Moveable Noise Barrier	-5	101.8		
			Poker, vibratory, hand-held	OCUPME_34	102	2	60%			102.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
			Welder/Generator, portable	OCUPME_28	100	1	60%			97.8		
			Water pump, submersible (electric)	CNP 283	85	2	100%			88.0		
			Generator	CNP 103	95	1	100%			95.0		
122	E&M Installation		Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		**107.0**
			Crane, mobile	EPD-16069	100	1	60%			97.8		
			Mobile working platform/cherry picker	AEIAR-167/2012 [1]	105	1	60%			102.8		
			Welder/Generator, portable	OCUPME_28	100	1	60%			97.8		
			Water pump, submersible (electric)	CNP 283	85	1	60%			82.8		
123	Architectural & Landscaping Works		Excavator, wheeled/tracked	EPD-15967	101	1	40%			97.0		**102.5**
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	40%			101.0		
ED/2025/03 - TKO 132 Site Formation Works												
131	Site Establishment and Clearance		Bulldozer, wheeled/tracked	CNP 030	115	1	60%			112.8		**113.7**
			Excavator, wheeled/tracked	EPD-15967	101	1	60%			98.8		
			Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_58	105	1	60%			102.8		
			Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME_56	105	1	60%			102.8		
132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks		Drill rig, rotary type (air-pressurised)	OCUPME_19	110	3	80%			113.8		**118.5**
			Drill rig, rotary type (diesel)	OCUPME_19	110	3	80%			113.8		
			Hand-held Percussive Breaker	EPD-15617	99	2	60%			99.8		
			Vibratory rammer	CNP 169	108	2	40%			107.0		
			Concrete lorry mixer	CNP 044	109	1	40%			105.0		
			Concrete pump, stationary/lorry mounted	CNP 047	109	1	40%			105.0		
			Poker, vibratory, hand-held (electric)	OCUPME_34	102	2	40%			101.0		
			Air compressor	CNP 003	104	3	80%			107.8		
			Grout Mixer	OCUPME_26	90	1	40%			86.0		
			Grout Pump	OCUPME_27	105	1	40%			101.0		
			Welder/Generator, portable	OCUPME_28	100	2	40%			99.0		
			Generator	CNP 103	95	2	100%			98.0		

Remarks:
[1] Sound Power Level of PME Kubota U55-4 A is calculated based on the measurement result of sound pressure level at 7m as stiulated in the Brochure and Test Report as attached in this Appendix.
[2] PME of different group would be operated separately. PME with no specified group are assumed always on.
[3] For each activity with grouping of PME, only one group of PME would be used at the same time. To be conservative, the maximum SWL of the sub-groups within each activity were adopted in the assessment instead of the whole list of PME within each activity.

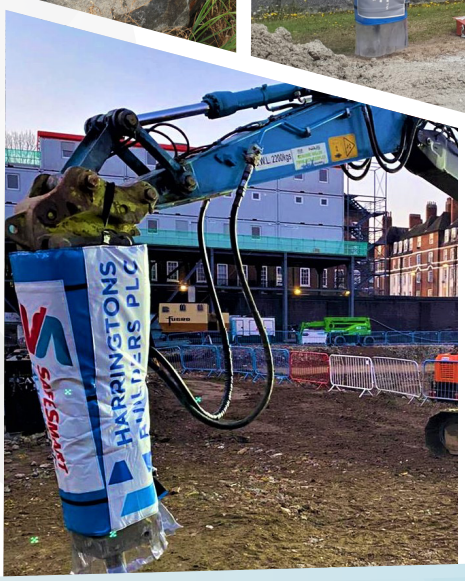
HUSHTEC™

NOISE CONTROL SOLUTIONS

ROCK BREAKERS

HUSHTEC
BREAKER ATTACHMENT

THE NEW HUSHTEC ROCK BREAKER NOISE CONTROL ATTACHMENT WAS DEVELOPED TO MITIGATE THE HAMMER NOISE EFFECTS, control dust and prevent abrasive injuries to personnel onsite by also controlling flying concrete chip and debris.



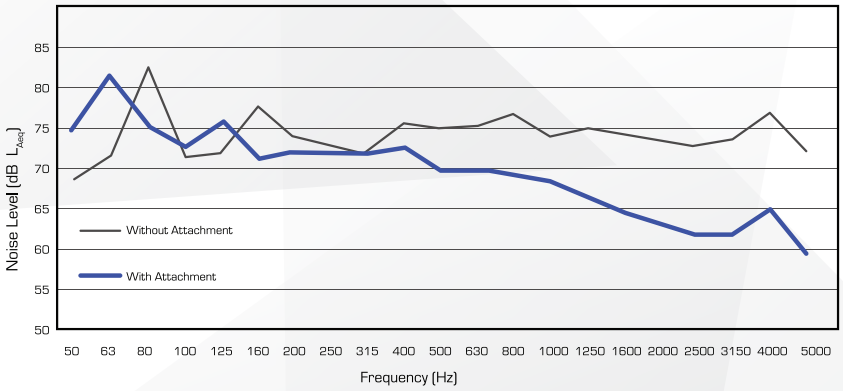
MITIGATE NOISE, DUST AND FLYING DEBRIS

Features & Benefits:

- Mitigates noise
- Reduces Dust
- Prevents Flying Debris/chip
- 1-minute install / removal
- Available to suit breakers from 1Ton – over 100T in size
- Personalized branding available

NOISE TESTING

THIRD OCTAVE BAND SPECTRA FOR MEAUREMENTS



MEASUREMENT RESULTS

ROCK BREAKER Attachment	DURATION (m:ss)	NOISE Level
On	6:25	78 dB LAeq
Off	7:35	86 dB LAeq

Contact us today to learn further about how our bespoke and customized HUSHTEC solutions can advance your site safety and help you comply with noise governing laws.

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MEMO

Project:	HushTec Construction Barrier Testing	**Document No.:**	Mm 001		
To:	Duraflex Distribution	**Date:**	7 February 2020		
Attention:	Brentley Stewart	**Cross Reference:**			
Delivery:	Email	**Project No.:**	20190714		
From:	Pranaya Thaker	**No. Pages:**	5	**Attachments:**	No
Subject:	Rock Breaker Attachment Measurements				

Duraflex Distribution requested that Marshall Day Acoustics measure the noise reduction performance of their new rock breaker attachment during concrete breaking at their site at 1800 SH1, Kaiwaka.

We visited their site on 3 February 2020 for these measurements. This memo summarises our findings. See Appendix A for photos taken during the measurements.

Measurements and Results

We measured noise from a 5.5 tonne Kubota U55-4 excavator rig breaking a concrete pad just outside your warehouse. We first measured with the rock breaker attachment, and then without the attachment for comparison. Due to the small total area of concrete that was available for breaking, we only measured each scenario for around 7 minutes. While the dominant noise source during the measurements was the concrete breaking measured at a distance of approximately 7m, there were also high background noise levels due to the proximity of SH1.

The results are summarised in Table 1, and the third octave band spectrum measured for both scenarios is presented in Figure 1.

Table 1: Measurement results

Rock Breaker Attachment	Duration (m:ss)	Noise Level
On	6:25	78 dB L_{Aeq}
Off	7:35	86 dB L_{Aeq}

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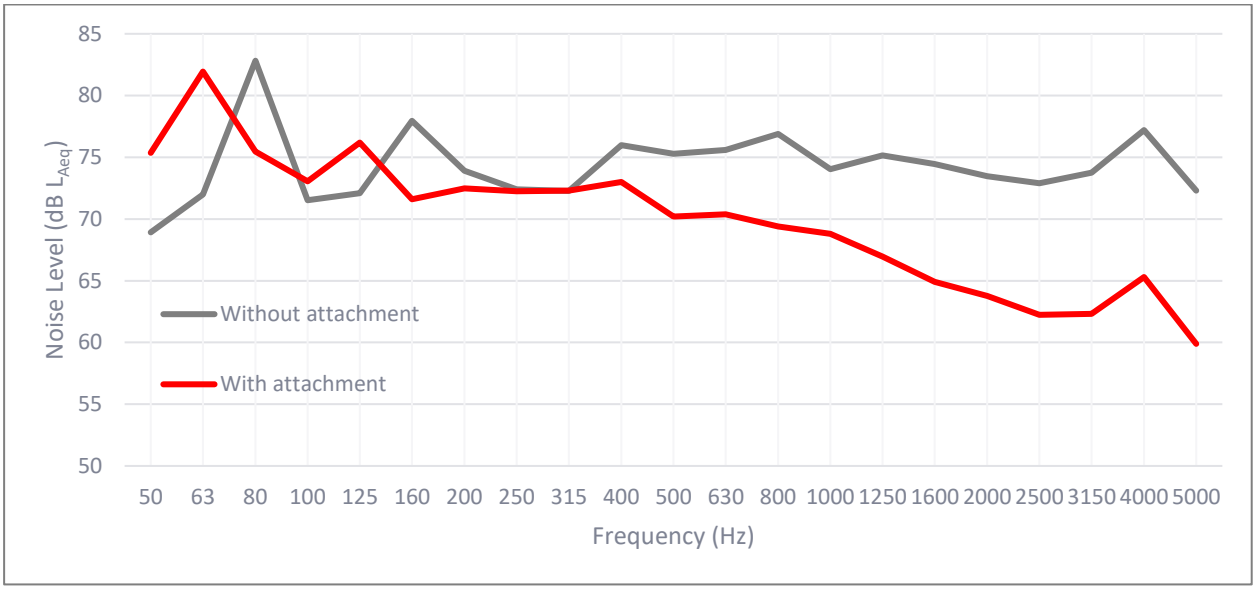
Figure 1: Third octave band spectra for measurements



Discussion and Conclusion

Measurements show that there was a difference of 8 decibels. However, the measurements were not controlled, and there was a number of complicating factors in the measurements. As such, we can't say with certainty that the noise level difference measured is the noise reduction that can be expected when using the rock breaker attachment on any sized equipment on any site.

Specifically, the complicating factors include:

- Road traffic noise from SH1
- Short measurement durations
- Only one breaking material measured
- Only one size of breaker measured.

As the Duraflex site is along SH1, and the concrete breaking was measured along the roadside façade of the warehouse quite close to SH1, there was significant influence from road traffic noise in the measurements. Unfortunately, due to the short measurement durations, we can't assume the contribution from road traffic was equal between the two measurements and so cannot ignore it.

However, the most significant component of road traffic noise is in the lower frequencies. The influence from road traffic noise in these lower frequencies is likely the reason the two spectra in Figure 1 cross over each other below 250 Hz, but are more clearly separated at the mid and high frequencies (where traffic noise would be less present). As such, we are limited to assessing the performance of the rock breaker attachment at these mid and high frequencies.

New Zealand Standard NZS 6803:1999 'Acoustics – Construction Noise' recommends a measurement duration of 15 minutes for construction activities, as this will generally capture a representative sample of the activity. Unfortunately, due to the limited volume of concrete available for breaking, a longer measurement wasn't possible. This may have resulted in an inadequate sampling of rock breaking with and without the attachment.

Further limitations were that only concrete was available to break, and only one size of breaker was captured – a relatively small 5.5 tonne rig. It's very common to require basalt breaking, which generates higher noise levels compared to concrete breaking. Measuring the noise reduction performance of the attachment during basalt breaking would provide valuable data and allow us to determine a more general expected noise reduction performance. Similarly, measurements on larger breakers – which are more commonly used for

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breaking than the small rig measured – would also provide meaningful data and help to determine the general performance of the attachment.

Due to the complicating factors discussed, we consider the measured noise reduction performance of the attachment of 8 decibels to be indicative, as opposed to definite. With more measurements, and measurements that are more controlled, the performance rating can be determined with more certainty.

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APPENDIX A MEASUREMENT PHOTOS

Figure A1: With rock breaker attachment

Figure A2: Without rock breaker attachment

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Figure A3: Concrete pad thickness

Figure A4: Broken concrete

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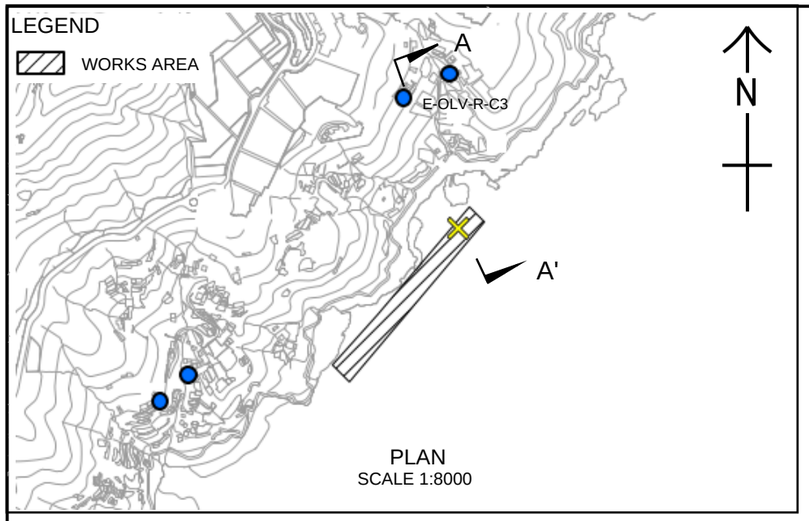
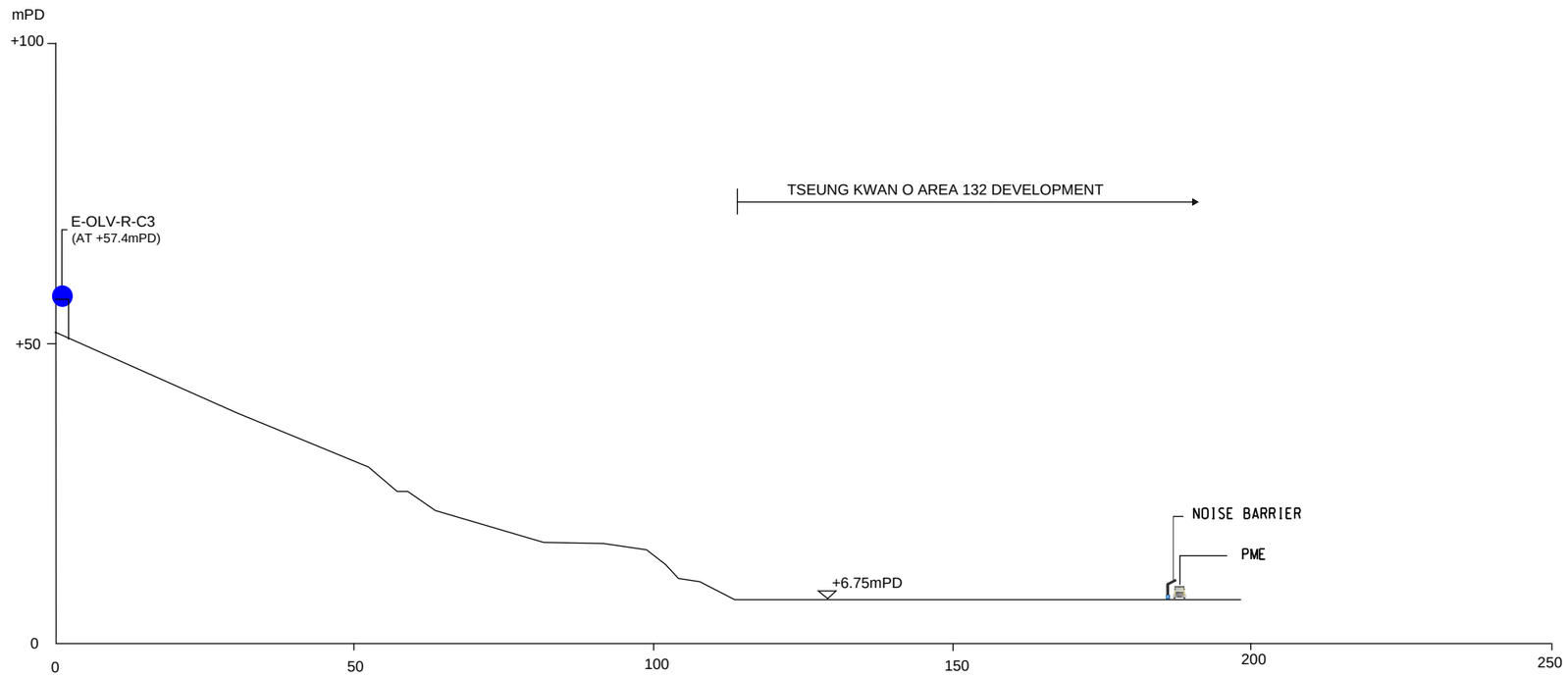


PLAN
SCALE 1:8000

REMARK:

1. THE CONTRACTOR SHOULD PLACE NOISE BARRIERS AT LOCATIONS WHERE THE DIRECT LINE OF SIGHT BETWEEN NSR AND THE PME IS BLOCKED. SIZE OF THE NOISE BARRIER TO BE DETERMINED IN THE CONSTRUCTION STAGE.



SECTION A-A'
SCALE 1:1000

DRAWING OF TYPICAL NOISE BARRIER ARRANGEMENT

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: ZHILZ
PATH P:\PROJECTS\60604728\DRAWING\SKETCH\SK7139.dgn
2022/6/23

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PROJECT
項目
DEVELOPMENT OFF TSEUNG KWAN O AREA 132 - DESIGN AND CONSTRUCTION

CLIENT
業主
土木工程拓展署
CEDD Civil Engineering and Development Department

CONSULTANT
工程顧問公司

SUB-CONSULTANTS
分判工程顧問公司
AECOM Asia Company Ltd.
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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 修改摘要	CHK. 核核

STATUS
階段

SCALE 比例: A3 AS SHOWN
DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60742243
AGREEMENT NO. 協議編號: CE31/2024

SHEET TITLE
圖紙名稱
DRAWING OF TYPICAL NOISE BARRIER ARRANGEMENT

SHEET NUMBER
圖紙編號
60720423/ FIGURE 1

Appendix 5.2
Predicted Construction Noise Level under Mitigated Scenario

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

The Project
E-OLV-R-C1

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026										2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																													
ED/2025/02	1	Site Preparation						-	-	-	-																																		
	12	DCM Site Trial	C6_C	99.8	720	-65.1	3	38				38	38	38																																
			C6_D_1	104.8	330	-58.4	3	49				49	49	49																																
			C6_D_2	99.8	670	-64.5	3	38				38	38	38																																
			C6_E	104.8	540	-62.6	3	45				45	45	45																																
	13	Installation of Silt Curtain	C6_I	102.8	150	-51.5	3	54				54																																		
	14	Removal of Obstructions/ MD	C6_A	108.6	240	-55.6	3	56				56	56	56	56																																
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	107.4	540	-62.6	3	48						48	48	48	48																														
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	102.4	720	-65.1	3	40						40	40																																
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	107.4	330	-58.4	3	52						52	52	52	52	52	52	52	52																										
			C6_D_2	102.4	670	-64.5	3	41						41	41	41	41	41	41	41	41																										
	18	Carry Out Marine DCM for vertical seawall	C6_E	108.5	540	-62.6	3	49							49	49	49	49	49	49	49																										
	19	Carry Out Marine DCM for sloping seawall	C6_C	101.2	720	-65.1	3	39							39	39																														
	20	Construct Vertical Seawall	C6_H_1	105.8	230	-55.2	3	54									54	54	54	54	54	54	54																								
			C6_H_2	105.8	540	-62.6	3	46									46	46	46	46	46	46	46																								
	21	Installation of rockfill for vertical seawall	C6_H_1	105.8	230	-55.2	3	54											54	54	54	54	54	54																								
			C6_H_2	105.8	540	-62.6	3	46											46	46	46	46	46	46																								
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	460	-61.3	3	53																																						
	99a	Construct Sloping Seawall NE Portion	C6_G	100.8	710	-65.0	3	39				39	39	39	39																																
	22	Construct Sloping Seawall	C6_G	100.8	710	-65.0	3	39								39	39	39	39																										
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	108.5	330	-58.4	3	53							53																																
			C6_D_2	103.5	670	-64.5	3	42							42																																
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	108.5	330	-58.4	3	53							53	53	53	53	53																										
			C6_D_2	103.5	670	-64.5	3	42							42	42	42	42																												
	24	Filling to +3mPD for EF and C7	C6_J	108.3	260	-56.3	3	55									55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55														
	28	Remaining Reclamation Filling to +3mPD	C6_K	112.8	310	-57.8	3	58																															58	58	58						
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	108.1	260	-56.3	3	55																							55	55	55	55	55	55	55	55	55						
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	114.8	310	-57.8	3	60																															60	60	60	60	60					
	24a	Construction of Box Culvert and Drainage Works	C6_L	107.7	270	-56.6	3	54																			54	54	54	54	54	54	54	54	54	54	54	54							
	31	Dredging for CBP Berthing Facility	C6_B	107.7	220	-54.8	3	56																															56	56	56	56	56	56	56	56	
		Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	59	57	59	61	57	61	60	61	60	60	59	59	58	58	58	58	58	59	59	59	62	62	62	64	63	62	61	61	-	-	-	-	-
		Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)							-	-	-	59	57	59	61	57	61	60	61	60	60	59	59	58	58	58	58	58	59	59	59	62	62	62	64	63	62	61	61	-	-	-	-	-

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C1

| **ED/2025/02 - TKO 132 Site Formation Works** | | |

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C1

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																										
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	1220	-69.7	3	47				47	47	47	47	47	47																										
			C7_C	114.2	1200	-69.6	3	48				48	48	48	48	48	48																										
			C7_D	114.2	740	-65.4	3	52				52	52	52	52	52	52																										
	12	Predrilling on Temporary Platform	C7_B	114.4	1220	-69.7	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48														
			C7_C	114.4	1200	-69.6	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48														
			C7_D	114.4	740	-65.4	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52														
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	1200	-69.6	3	43				43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43														
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	1200	-69.6	3	40				40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40														
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	1200	-69.6	3	48			48	48	48	48	48	48																										
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	1110	-68.9	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49								
			C7_D	114.9	740	-65.4	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53								
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	1200	-69.6	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49														
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	1220	-69.7	3	51						51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51			
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	1110	-68.9	3	45							45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45						
			C7_D	110.9	740	-65.4	3	49							49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49						
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	1200	-69.6	3	43								43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43								
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	1220	-69.7	3	44								44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44			
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	1110	-68.9	3	45								45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
			C7_D	111.1	740	-65.4	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49			
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	1200	-69.6	3	44									44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44								
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	1220	-69.7	3	44									44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44		
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	1110	-68.9	3	41										41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
			C7_D	106.6	740	-65.4	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
			C7_C	106.6	1200	-69.6	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
			C7_F	106.6	1270	-70.1	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
			C7_E	106.6	1230	-69.8	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	1110	-68.9	3	49											49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49					
			C7_D	114.7	740	-65.4	3	52											52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	1200	-69.6	3	47										47	47	47	47	47	47	47	47	47	47	47	47	47	47	47										
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	1220	-69.7	3	47											47	47	47	47	47	47	47	47	47	47	47	47	47	47	47										
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	1220	-69.7	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			C7_J	112.5	1220	-69.7	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	33a	Stressing Tendons Road L100	C7_L	105.0	710	-65.0	3	43																				43	43	43	43	43											
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	1180	-69.4	3	39																39	39	39	39	39	39	39	39	39	39	39								
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	1170	-69.4	3	39																39	39	39	39	39	39	39	39	39	39	39								
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	1170	-69.4	3	39																			39	39	39	39	39	39	39	39	39	39							
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	1020	-68.2	3	40																												40	40	40	40	40	40	
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	710	-65.0	3	45																								45	45	45								
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	1180	-69.4	3	40																											40	40						
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	1170	-69.4	3	40																											40	40	40	40	40	40	40	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	1170	-69.4	3	40																											40	40	40	40	40	40	40	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	1020	-68.2	3	41																																		41
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	1220	-69.7	3	40																																		
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	710	-65.0	3	45																								45	45	45	45	45	45	45	45				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	1180	-69.4	3	40																											40	40	40	40	40	40	40	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	1170	-69.4	3	40																											40	40	40	40	40	40	40	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	1170	-69.4	3	40																											40	40	40	40	40	40	40	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	1020	-68.2	3	42																																		42
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	1220	-69.7	3	40																																		
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	710	-65.0	3	46																										46	46	46	46						
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	1180	-69.4	3	43																												43	43	43	43				
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	1170	-69.4	3	43																												43	43	43	43				
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	1170	-69.4	3	43																														43	43	43	43		
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	1020	-68.2	3	44																																		
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	1220	-69.7	3	42																																		
	37a	E&M and T&C Road L100	C7_L	105.8	710	-65.0	3	44																											44	44	44	44				
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	1180	-69.4	3	39																															39	39	39	
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	1170	-69.4	3	39																															39	39	39	
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	1170	-69.4	3	39																																		39
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	1020	-68.2	3	41																																		
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	1220	-69.7	3	39																																		
Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	54	55	58	58	60	60	61	61	60	61	62	62	62	62	62	62	62	62	61	61	61	61	61	61	60	59	59	57	56	55	54	53

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - TKO 132 Infrastructrure Works																																										
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	290	-57.2	3	49																													49	49	49	49	49	49	49
			C7_Q	103.6	1440	-71.2	3	35																													35	35	35	35	35	35	35
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	230	-55.2	3	60																													60	60	60	60	60	60	60
			C7_O	112.5	290	-57.2	3	58																													58	58	58	58	58	58	58
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	63	63	63	63	63
ED/2025/03 - Construction of SPS																																										
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	420	-60.5	3	56																											56	56	56	56	56	56	56	56
	122	E&M Installation	C7_M	107.0	420	-60.5	3	50																																			50
	123	Architectural & Landscaping Works	C7_M	102.5	420	-60.5	3	45																																			
Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	56	56	56	56	56
ED/2025/03 - TKO 132 Site Formation Works																																										
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	1030	-68.3	3	48.5	48	48	48	48	48	48																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	1030	-68.3	3	53.2						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									48	48	48	48	48	54	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									48	55	56	58	58	61	61	62	62	62	62	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62	63	66	66	65	65	65	65	65
Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									48	55	56	62	61	63	64	63	65	64	65	65	65	65	65	64	64	64	64	64	64	64	65	65	65	67	68	67	67	67	65	65	65	65

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

The Project
E-OLV-R-C2

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026																2027																		2028																		2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																	

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C2

| ED/2025/02 - TKO 132 Site Formation Works | | |

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C2

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																										
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	1170	-69.4	3	48				48	48	48	48	48	48																										
			C7_C	114.2	1150	-69.2	3	48				48	48	48	48	48	48																										
			C7_D	114.2	690	-64.8	3	52				52	52	52	52	52	52																										
	12	Predrilling on Temporary Platform	C7_B	114.4	1170	-69.4	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48														
			C7_C	114.4	1150	-69.2	3	48		48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48														
			C7_D	114.4	690	-64.8	3	53		53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53														
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	1150	-69.2	3	43				43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43														
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	1150	-69.2	3	40				40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40														
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	1150	-69.2	3	48			48	48	48	48	48	48																										
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	1060	-68.5	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49										
			C7_D	114.9	690	-64.8	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53										
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	1150	-69.2	3	49						49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49														
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	1170	-69.4	3	52						52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52				
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	1060	-68.5	3	45							45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45							
			C7_D	110.9	690	-64.8	3	49							49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49							
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	1150	-69.2	3	43								43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43										
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	1170	-69.4	3	45								45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45				
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	1060	-68.5	3	46								46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46				
			C7_D	111.1	690	-64.8	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49				
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	1150	-69.2	3	45									45	45	45	45	45	45	45	45	45	45	45	45	45	45														
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	1170	-69.4	3	45									45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45			
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	1060	-68.5	3	41										41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41		
			C7_D	106.6	690	-64.8	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45		
			C7_C	106.6	1150	-69.2	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_F	106.6	1220	-69.7	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
			C7_E	106.6	1180	-69.4	3	40										40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	1060	-68.5	3	49											49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49					
			C7_D	114.7	690	-64.8	3	53											53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	1150	-69.2	3	48											48	48	48	48	48	48	48	48	48	48	48	48														
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	1170	-69.4	3	47											47	47	47	47	47	47	47	47	47	47	47	47	47	47												
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	1170	-69.4	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			C7_J	112.5	1170	-69.4	3	46																			46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	33a	Stressing Tendons Road L100	C7_L	105.0	660	-64.4	3	44																				44	44	44	44	44												
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	1130	-69.1	3	39																39	39	39	39	39	39	39	39	39	39	39									
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	1120	-69.0	3	39																39	39	39	39	39	39	39	39	39	39	39									
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	1120	-69.0	3	39																			39	39	39	39	39	39	39	39	39	39							
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	970	-67.7	3	40																														40	40	40	40	40	40
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	660	-64.4	3	45																								45	45	45									
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	1130	-69.1	3	41																											41	41							
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	970	-67.7	3	42																																			42
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	1170	-69.4	3	40																																			
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	660	-64.4	3	45																								45	45	45	45	45	45	45	45				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	1130	-69.1	3	41																											41	41	41	41	41	41	41	41	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	1120	-69.0	3	41																											41	41	41	41	41	41	41	41	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	970	-67.7	3	42																																			42
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	1170	-69.4	3	40																																			
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	660	-64.4	3	46																										46	46	46	46							
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	1130	-69.1	3	43																												43	43	43	43					
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	1120	-69.0	3	43																												43	43	43	43					
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	1120	-69.0	3	43																														43	43	43	43			
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	970	-67.7	3	44																																			
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	1170	-69.4	3	43																																			
	37a	E&M and T&C Road L100	C7_L	105.8	660	-64.4	3	44																											44	44	44	44					
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	1130	-69.1	3	40																																40	40	40	
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	1120	-69.0	3	40																																40	40	40	
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	1120	-69.0	3	40																																			40
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	970	-67.7	3	41																																			
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	1170	-69.4	3	39																																			
Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	55	56	58	58	61	61	61	62	61	61	62	62	62	62	62	62	62	63	62	61	61	61	61	61	60	59	59	57	57	56	55	53

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - TKO 132 Infrastructrure Works																																										
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	250	-56.0	3	51																														51	51	51	51	51	51
			C7_Q	103.6	1390	-70.9	3	36																														36	36	36	36	36	36
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	190	-53.6	3	62																														62	62	62	62	62	62
			C7_O	112.5	250	-56.0	3	60																														60	60	60	60	60	60
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	64	64	64	64	64
ED/2025/03 - Construction of SPS																																										
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	370	-59.4	3	57																											57	57	57	57	57	57	57	57	57
	122	E&M Installation	C7_M	107.0	370	-59.4	3	51																																				51
	123	Architectural & Landscaping Works	C7_M	102.5	370	-59.4	3	46																																				
Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	57	57	57	57	58
ED/2025/03 - TKO 132 Site Formation Works																																										
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	980	-67.8	3	48.9	49	49	49	49	49	49																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	980	-67.8	3	53.7						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									49	49	49	49	49	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									49	56	57	59	59	62	62	62	63	62	63	64	64	64	64	64	64	64	64	63	63	63	63	63	64	67	67	67	66	66	66	66	66	66
Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									49	56	57	61	60	63	63	63	65	64	64	65	65	65	65	65	65	65	65	65	65	65	65	65	66	68	68	67	67	66	66	66	66	66

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

The Project
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Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026																2027														2028														2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06						
ED/2025/02 - TKO 132 Reclamation Works																																																								
ED/2025/02	1	Site Preparation						-	-	-	-																																												
	12	DCM Site Trial	C6_C	104.8	350	-58.9	3	49				49	49	49																																										
			C6_D_1	109.8	260	-56.3	3	56				56	56	56																																									
			C6_D_2	109.8	330	-58.4	3	54				54	54	54																																									
			C6_E	109.8	510	-62.2	3	51				51	51	51																																									
	13	Installation of Silt Curtain	C6_I	102.8	320	-58.1	3	48				48																																										
	14	Removal of Obstructions/ MD	C6_A	113.6	200	-54.0	3	63				63	63	63	63																																								
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	112.4	510	-62.2	3	53						53	53	53	53																																						
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	107.4	350	-58.9	3	52						52	52																																								
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	112.4	260	-56.3	3	59						59	59	59	59	59	59	59	59																																	
			C6_D_2	112.4	330	-58.4	3	57						57	57	57	57	57	57	57	57																																	
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	510	-62.2	3	54							54	54	54	54	54	54	54																																	
	19	Carry Out Marine DCM for sloping seawall	C6_C	106.2	350	-58.9	3	50							50	50																																							
	20	Construct Vertical Seawall	C6_H_1	110.8	350	-58.9	3	55									55	55	55	55	55	55	55																															
			C6_H_2	110.8	540	-62.6	3	51									51	51	51	51	51	51	51																															
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	350	-58.9	3	55											55	55	55	55	55	55																															
			C6_H_2	110.8	540	-62.6	3	51											51	51	51	51	51	51																															
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	550	-62.8	3	51																																													
	99a	Construct Sloping Seawall NE Portion	C6_G	105.8	260	-56.3	3	52				52	52	52	52																																							
	22	Construct Sloping Seawall	C6_G	105.8	260	-56.3	3	52								52	52	52	52																																	
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	260	-56.3	3	60							60																																						
			C6_D_2	113.5	330	-58.4	3	58							58																																						
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	260	-56.3	3	60							60	60	60	60	60																																	
			C6_D_2	113.5	330	-58.4	3	58							58	58	58	58	58																																	
	24	Filling to +3mPD for EF and C7	C6_J	113.3	160	-52.1	3	64									64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64																			
	28	Remaining Reclamation Filling to +3mPD	C6_K	117.8	260	-56.3	3	64																																													
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	113.1	160	-52.1	3	64																																													
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	119.8	260	-56.3	3	66																																													
	24a	Construction of Box Culvert and Drainage Works	C6_L	115.1	180	-53.1	3	65																																													
	31	Dredging for CBP Berthing Facility	C6_B	112.7	470	-61.4	3	54																																													
Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	65	65	67	69	66	68	68	68	67	67	65	65	65	68	68	68	68	69	69	69	69	69	69	71	70	69	67	67	-	-	-	-	-						
Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	65	65	67	69	66	68	68	68	67	67	65	65	65	68	68	68	68	69	69	69	69	69	69	71	70	69	67	67	-	-	-	-	-						

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/02

E-OLV-R-C3

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Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C3

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																										
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	780	-65.8	3	51				51	51	51	51	51	51																										
			C7_C	114.2	710	-65.0	3	52				52	52	52	52	52	52																										
			C7_D	114.2	270	-56.6	3	61				61	61	61	61	61	61																										
	12	Predrilling on Temporary Platform	C7_B	114.4	780	-65.8	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52														
			C7_C	114.4	710	-65.0	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52														
			C7_D	114.4	270	-56.6	3	61		61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61														
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	710	-65.0	3	47				47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47														
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	710	-65.0	3	44				44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44														
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	710	-65.0	3	52			52	52	52	52	52	52																										
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	640	-64.1	3	54						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54							
			C7_D	114.9	270	-56.6	3	61						61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61							
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	710	-65.0	3	53						53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53													
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	780	-65.8	3	55						55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55		
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	640	-64.1	3	50							50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50						
			C7_D	110.9	270	-56.6	3	57							57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57						
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	710	-65.0	3	48								48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48							
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	780	-65.8	3	48								48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48		
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	640	-64.1	3	50								50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50					
			C7_D	111.1	270	-56.6	3	57								57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57					
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	710	-65.0	3	49									49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49										
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	780	-65.8	3	48									48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	640	-64.1	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	
			C7_D	106.6	270	-56.6	3	53										53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	
			C7_C	106.6	710	-65.0	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	
			C7_F	106.6	810	-66.2	3	43										43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	
			C7_E	106.6	790	-66.0	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	640	-64.1	3	54											54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54					
			C7_D	114.7	270	-56.6	3	61											61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	710	-65.0	3	52											52	52	52	52	52	52	52	52	52	52	52	52	52												
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	780	-65.8	3	50											50	50	50	50	50	50	50	50	50	50	50	50	50	50	50										
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	780	-65.8	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			C7_J	112.5	770	-65.7	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	33a	Stressing Tendons Road L100	C7_L	105.0	240	-55.6	3	52																				52	52	52	52	52										
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	680	-64.7	3	43																43	43	43	43	43	43	43	43	43	43	43								
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	680	-64.7	3	43																43	43	43	43	43	43	43	43	43	43	43								
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	680	-64.7	3	43																			43	43	43	43	43	43	43	43	43	43							
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	530	-62.5	3	46																												46	46	46	46	46	46	
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	240	-55.6	3	54																								54	54	54								
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	680	-64.7	3	45																											45	45						
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	680	-64.7	3	45																											45	45	45	45	45	45	45	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	680	-64.7	3	45																											45	45	45	45	45	45	45	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	530	-62.5	3	47																																		47
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	770	-65.7	3	44																																		
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	240	-55.6	3	54																								54	54	54	54	54	54	54	54				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	680	-64.7	3	45																											45	45	45	45	45	45	45	45
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	530	-62.5	3	47																																		47
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	770	-65.7	3	44																																		
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	240	-55.6	3	55																										55	55	55	55						
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	680	-64.7	3	47																												47	47	47	47				
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	680	-64.7	3	47																												47	47	47	47				
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	680	-64.7	3	47																													47	47	47	47			
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	530	-62.5	3	50																																		
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	770	-65.7	3	46																																		
	37a	E&M and T&C Road L100	C7_L	105.8	240	-55.6	3	53																											53	53	53	53				
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	680	-64.7	3	44																															44	44	44	
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	680	-64.7	3	44																															44	44	44	
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	680	-64.7	3	44																																		44
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	530	-62.5	3	46																																		
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	770	-65.7	3	43																																		
Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	62	62	65	65	67	67	68	68	67	68	69	69	69	69	69	69	69	69	68	68	68	68	68	68	67	66	65	62	61	60	59	57

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - TKO 132 Infrastructrure Works																																										
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	150	-51.5	3	55																													55	55	55	55	55	55	55
			C7_Q	103.6	950	-67.6	3	39																													39	39	39	39	39	39	39
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	120	-49.6	3	66																													66	66	66	66	66	66	66
			C7_O	112.5	150	-51.5	3	64																													64	64	64	64	64	64	64
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	68	68	68	68	68	68
ED/2025/03 - Construction of SPS																																										
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	150	-51.5	3	65																											65	65	65	65	65	65	65	65
	122	E&M Installation	C7_M	107.0	150	-51.5	3	58																																			58
	123	Architectural & Landscaping Works	C7_M	102.5	150	-51.5	3	54																																			
Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	65	65	65	65	65	66
ED/2025/03 - TKO 132 Site Formation Works																																										
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	540	-62.6	3	54.1	54	54	54	54	54	54																												
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	540	-62.6	3	58.8						59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									54	54	54	54	54	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									54	62	63	65	65	69	68	69	71	70	70	72	72	72	72	72	72	72	72	72	71	72	71	72	71	71	72	73	73	73	73	72	72	72	72	72
Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									54	62	63	68	68	71	72	71	73	72	73	73	73	73	73	72	73	73	73	73	73	74	73	74	73	73	74	75	74	74	74	72	72	72	72	72

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

The Project
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Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026										2027										2028											2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/02 - TKO 132 Reclamation Works																																											
ED/2025/02	1	Site Preparation						-	-	-	-																																	
	12	DCM Site Trial	C6_C	99.8	310	-57.8	3	45				45	45	45																															
			C6_D_1	109.8	260	-56.3	3	56				56	56	56																															
			C6_D_2	99.8	300	-57.5	3	45				45	45	45																															
			C6_E	109.8	490	-61.8	3	51				51	51	51																															
	13	Installation of Silt Curtain	C6_I	102.8	390	-59.8	3	46				46																																	
	14	Removal of Obstructions/ MD	C6_A	108.6	170	-52.6	3	59				59	59	59	59																															
	15	Installation of Geotextile and Sand Blanket (vertical seawall)	C6_E	112.4	490	-61.8	3	54						54	54	54	54																													
	16	Installation of Geotextile and Sand Blanket (sloping seawall)	C6_C	102.4	310	-57.8	3	48						48	48																															
	17	Installation of Geotextile and Sand Blanket (reclamation)	C6_D_1	112.4	260	-56.3	3	59						59	59	59	59	59	59	59																									
			C6_D_2	102.4	300	-57.5	3	48						48	48	48	48	48	48	48																									
	18	Carry Out Marine DCM for vertical seawall	C6_E	113.5	490	-61.8	3	55							55	55	55	55	55	55	55																									
	19	Carry Out Marine DCM for sloping seawall	C6_C	101.2	310	-57.8	3	46							46	46																													
	20	Construct Vertical Seawall	C6_H_1	110.8	390	-59.8	3	54									54	54	54	54	54	54	54																							
			C6_H_2	110.8	500	-62.0	3	52									52	52	52	52	52	52	52																							
	21	Installation of rockfill for vertical seawall	C6_H_1	110.8	390	-59.8	3	54											54	54	54	54	54	54																						
			C6_H_2	110.8	500	-62.0	3	52											52	52	52	52	52	52																						
	27	Construct Remaining Seawall and Rockfill	C6_F	110.8	570	-63.1	3	51																																					
	99a	Construct Sloping Seawall NE Portion	C6_G	100.8	200	-54.0	3	50				50	50	50	50																															
	22	Construct Sloping Seawall	C6_G	100.8	200	-54.0	3	50								50	50	50	50																									
	23	Carry Out Marine DCM for inland for NE Portion	C6_D_1	113.5	260	-56.3	3	60							60																														
			C6_D_2	103.5	300	-57.5	3	49							49																														
	23a	Carry Out Marine DCM for inland for remaining	C6_D_1	113.5	260	-56.3	3	60							60	60	60	60	60																									
			C6_D_2	103.5	300	-57.5	3	49							49	49	49	49	49																									
	24	Filling to +3mPD for EF and C7	C6_J	116.3	160	-52.1	3	67									67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67											
	28	Remaining Reclamation Filling to +3mPD	C6_K	117.8	260	-56.3	3	64																									64	64	64									
	25	Filling to Formation Level +6.75mPD for EF and C7	C6_J	115.5	160	-52.1	3	66																					66	66	66	66	66	66	66	66	66							
	29	Remaining Filling to Formation Level +6.75mPD	C6_K	119.8	260	-56.3	3	66																											66	66	66	66	66					
	24a	Construction of Box Culvert and Drainage Works	C6_L	115.1	200	-54.0	3	64																		64	64	64	64	64	64	64	64	64	64	64							
	31	Dredging for CBP Berthing Facility	C6_B	112.7	510	-62.2	3	54																									54	54	54	54	54	54	54					
							Construction Noise Level due to TKO 132 Reclamation Works of Contract ED/2025/02, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	62	62	64	67	64	69	69	69	69	69	68	68	68	69	69	69	69	71	71	71	71	70	70	72	71	70	67	67	-	-	-	-	-
							Construction Nosie Level due to the Project, $L_{eq,30\text{-}mins}$ dB(A)	-	-	-	62	62	64	67	64	69	69	69	69	69	68	68	68	69	69	69	69	71	71	71	71	70	70	72	71	70	67	67	-	-	-	-	-

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/02

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| **ED/2025/02 - TKO 132 Site Formation Works** | | |

Appendix 5.2 Predicted Construction Noise Level under Mitigated Scenario

Concurrent Projects under Contract ED/2025/03

E-OLV-R-C4

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - Marine Viaduct Works																																										
ED/2025/03	11	Temporary Staging Platform	C7_B	114.2	710	-65.0	3	52				52	52	52	52	52	52																										
			C7_C	114.2	640	-64.1	3	53				53	53	53	53	53	53																										
			C7_D	114.2	210	-54.4	3	63				63	63	63	63	63	63																										
	12	Predrilling on Temporary Platform	C7_B	114.4	710	-65.0	3	52		52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52																
			C7_C	114.4	640	-64.1	3	53		53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53																
			C7_D	114.4	210	-54.4	3	63		63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63																
	13	UU diversion for CLP 11kV and Watermain within existing utility trough	C7_C	109.4	640	-64.1	3	48				48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48																
	14	Temporary Modification of existing sign gantry FADS2	C7_C	106.1	640	-64.1	3	45				45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45																
	15	Formation Works & Retaining Wall (B3-B4, C8-C9, and D8-D9)	C7_C	114.3	640	-64.1	3	53			53	53	53	53	53	53																												
	16	Marine Bored Pile (Zone A + Zone D) - 40nos	C7_A	114.9	570	-63.1	3	55						55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55								
			C7_D	114.9	210	-54.4	3	63						63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63								
	17	Marine Bored Pile (Zone B) - 30nos	C7_C	115.4	640	-64.1	3	54						54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54													
	18	Marine Bored Pile (Zone C) - 26nos	C7_B	117.9	710	-65.0	3	56						56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56			
	19	Pile Cap (Zone A + Zone D) - 15nos	C7_A	110.9	570	-63.1	3	51							51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51							
			C7_D	110.9	210	-54.4	3	59							59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59							
	20	Pile Cap (Zone B) - 13nos	C7_C	109.7	640	-64.1	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49												
	21	Pile Cap (Zone C) - 13nos	C7_B	110.9	710	-65.0	3	49								49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
	22	Marine Pier(Zone A + Zone D) - 25nos	C7_A	111.1	570	-63.1	3	51								51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51						
			C7_D	111.1	210	-54.4	3	60								60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60						
	23	Marine Pier(Zone B) - 13nos	C7_C	110.8	640	-64.1	3	50									50	50	50	50	50	50	50	50	50	50	50	50	50	50	50												
	24	Marine Pier (Zone C) - 13nos	C7_B	111.1	710	-65.0	3	49									49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	
	25 to 28	Set up of Launching Gantry, Lifting Frame & Falsework	C7_A	106.6	570	-63.1	3	47										47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	
			C7_D	106.6	210	-54.4	3	55										55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
			C7_C	106.6	640	-64.1	3	45										45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	
			C7_F	106.6	740	-65.4	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
			C7_E	106.6	720	-65.1	3	44										44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
	29	Erection of Segments (Zones A and D) - 446nos	C7_A	114.7	570	-63.1	3	55											55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55					
			C7_D	114.7	210	-54.4	3	63											63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63					
	30	Erection of Segments / Cast-insitu (Zone B) - 198 nos. / 133m	C7_C	114.0	640	-64.1	3	53										53	53	53	53	53	53	53	53	53	53	53	53	53													
	31	Erection of Segments (Zone C) - 16nos	C7_B	113.3	710	-65.0	3	51										51	51	51	51	51	51	51	51	51	51	51	51	51	51	51												
	32	Cast-insitu (Zone C) - 300m	C7_B	112.5	710	-65.0	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			C7_J	112.5	710	-65.0	3	50																			50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	33a	Stressing Tendons Road L100	C7_L	105.0	180	-53.1	3	55																				55	55	55	55	55												
	33b	Stressing Tendons Slip Road L01-1	C7_G	105.0	610	-63.7	3	44																44	44	44	44	44	44	44	44	44	44	44	44								
	33c	Stressing Tendons Slip Road L01-2	C7_I	105.0	610	-63.7	3	44																44	44	44	44	44	44	44	44	44	44	44	44								
	33d	Stressing Tendons Slip Road L02-1	C7_H	105.0	610	-63.7	3	44																			44	44	44	44	44	44	44	44	44	44	44							
	33e	Stressing Tendons Slip Road L02-2	C7_K	105.0	460	-61.3	3	47																														47	47	47	47	47	47
	34a	Dismantling Lifting Frame & Falsework Road L100	C7_L	106.6	180	-53.1	3	57																								57	57	57									
	34b	Dismantling Lifting Frame & Falsework Slip Road L01-1	C7_G	106.6	610	-63.7	3	46																											46	46							
	34c	Dismantling Lifting Frame & Falsework Slip Road L01-2	C7_I	106.6	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	34d	Dismantling Lifting Frame & Falsework Slip Road L02-1	C7_H	106.6	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	34e	Dismantling Lifting Frame & Falsework Slip Road L02-2	C7_K	106.6	460	-61.3	3	48																																			48
	34f	Dismantling Lifting Frame & Falsework Slip Road S300 widening	C7_J	106.6	710	-65.0	3	45																																			
	35a	Sign Gantry, TCSS, Street Furniture, Civil Provisions Road L100	C7_L	106.7	180	-53.1	3	57																								57	57	57	57	57	57	57	57				
	35b	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-1	C7_G	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35c	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L01-2	C7_I	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35d	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road L02-1	C7_H	106.7	610	-63.7	3	46																											46	46	46	46	46	46	46	46	
	35e	Sign Gantry, Street Furniture, Civil Provisions Slip Road L02-2	C7_K	106.7	460	-61.3	3	48																																			48
	35f	Sign Gantry, TCSS, Street Furniture, Civil Provisions Slip Road S300 widening	C7_J	106.7	710	-65.0	3	45																																			
	36a	Waterproofing, Paving, Roadmarking Road L100	C7_L	107.6	180	-53.1	3	58																										58	58	58	58						
	36b	Waterproofing, Paving, Roadmarking Slip Road L01-1	C7_G	109.0	610	-63.7	3	48																													48	48	48	48			
	36c	Waterproofing, Paving, Roadmarking Slip Road L01-2	C7_I	109.0	610	-63.7	3	48																													48	48	48	48			
	36d	Waterproofing, Paving, Roadmarking Slip Road L02-1	C7_H	109.0	610	-63.7	3	48																														48	48	48	48		
	36e	Waterproofing, Paving, Roadmarking Slip Road L02-2	C7_K	109.0	460	-61.3	3	51																																			
	36f	Waterproofing, Paving, Roadmarking Slip Road S300 widening	C7_J	109.0	710	-65.0	3	47																																			
	37a	E&M and T&C Road L100	C7_L	105.8	180	-53.1	3	56																											56	56	56	56					
	37b	E&M and T&C Slip Road L01-1	C7_G	105.8	610	-63.7	3	45																															45	45	45		
	37c	E&M and T&C Slip Road L01-2	C7_I	105.8	610	-63.7	3	45																															45	45	45		
	37d	E&M and T&C Slip Road L02-1	C7_H	105.8	610	-63.7	3	45																																			45
	37e	E&M and T&C Slip Road L02-2	C7_K	105.8	460	-61.3	3	48																																			
	37f	E&M and T&C Slip Road S300 widening	C7_J	105.8	710	-65.0	3	44																																			
Construction Noise Level due to Marine Viaduct Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	64	64	67	67	69	69	70	70	69	69	70	70	70	70	71	71	71	71	71	70	70	70	70	70	69	68	67	63	62	61	61	58

Contract	Construction Activity ID	Construction Activity	Construction Works Area	SWL per Activity, dB(A)	Notional Distance, m	Corrections		SPL at NSR, $L_{eq,30\text{-}mins}$ dB(A)	2026						2027												2028												2029					
						Distance, dB(A)	Façade, dB(A)		07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06
ED/2025/03 - TKO 132 Infrastructrure Works																																										
ED/2025/03	111a	Land Infrastructure Works (Waterworks, Sewerage, UU, E&M) At Portions IA, IB, VC	C7_O	103.6	120	-49.6	3	57																														57	57	57	57	57	57	57
			C7_Q	103.6	880	-66.9	3	40																														40	40	40	40	40	40	40
	111b	Land Infrastructure Works (Roadworks, Waterworks, Sewerage, Drainage, UU, E&M, Paving, Roadmarking, Street Furniture, Landscape) At Portions IIA, IV, VA, VC, VI	C7_N	112.5	140	-50.9	3	65																														65	65	65	65	65	65	65
			C7_O	112.5	120	-49.6	3	66																														66	66	66	66	66	66	66
Construction Noise Level due to TKO 132 Infrastructure Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	69	69	69	69	69	69
ED/2025/03 - Construction of SPS																																										
ED/2025/03	121	Foundation and Superstructure	C7_M	113.5	170	-52.6	3	64																											64	64	64	64	64	64	64	64	64	64
	122	E&M Installation	C7_M	107.0	170	-52.6	3	57																																				57
	123	Architectural & Landscaping Works	C7_M	102.5	170	-52.6	3	53																																				
Construction Noise Level due to Construction of SPS of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	64	64	64	64	64	65
ED/2025/03 - TKO 132 Site Formation Works																																										
ED/2025/03	131	Site Establishment and Clearance	C7_P	113.7	470	-61.4	3	55.3	55	55	55	55	55	55																													
	132	Natural Terrain Hazard Mitigation Measures and Associated Slopeworks	C7_P	118.5	470	-61.4	3	60.0						60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Construction Noise Level due to TKO 132 Site Formation Works of Contract ED/2025/03, $L_{eq,30\text{-}mins}$ dB(A)									55	55	55	55	55	61	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Total Construction Noise Level due to Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									55	64	65	67	67	70	70	70	71	70	71	72	72	72	72	72	72	72	72	71	71	71	72	71	71	72	73	73	73	72	72	72	71	71
Cumulative Construction Noise Level with the Project and Concurrent Projects, $L_{eq,30\text{-}mins}$ dB(A)									55	64	65	68	68	71	71	71	73	73	73	74	74	73	73	73	74	74	74	74	74	74	74	74	74	75	75	75	74	73	72	72	72	71	71

Appendix 6.1

Locations of Construction Noise Monitoring Stations

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

841800 E
843000 E
844200 E
845400 E
818000 N
816800 N
815600 N

TSEUNG KWAN O TOWN CENTRE
JUNK BAY (TSEUNG KWAN O)
YAU TONG
LEI YUE MUN
SHATSO WAN
TIU KENG LENG
CM2
CM3
SPS
EFs
CWHF
PFTF
RTS
CBP

N

NOTE:

1. ABBREVIATIONS :
   CBP - CONCRETE BATCHING PLANT
   CWHF - CONSTRUCTION WASTE HANDLING FACILITY
   PFTF - PUBLIC FILL TRANSFER FACILITIES
   SPS - SEWAGE PUMPING STATION
   RTS - REFUSE TRANSFER STATION
   EFs - ELECTRICITY FACILITIES

LEGEND:

- PROJECT BOUNDARY
- 300m ASSESSMENT AREA
- PUBLIC FACILITIES
- CM2 — CONSTRUCTION NOISE MONITORING STATIONS

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AECOM Binnies

PROJECT
項目
DEVELOPMENT OF TSEUNG KWAN O AREA 137 AND ASSOCIATED RECLAMATION SITES – INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT
客戶
土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
工程顧問公司
AECOM Binnies (TKO137) JV

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS
開收

SCALE 比例: A1 1 : 6500
DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60720423
CONTRACT NO. 合約編號: CE 40/2023(CE)

SHEET TITLE
圖紙名稱
LOCATIONS OF CONSTRUCTION NOISE MONITORING STATIONS

SHEET NUMBER
圖紙編號
APPENDIX 6.1