Drainage Services Department

Port Shelter Sewerage, Stage 3 – Sewerage Works at Po Toi O

Quarterly EM&A Report

(Period from December 2022 to February 2023)

Prepared by

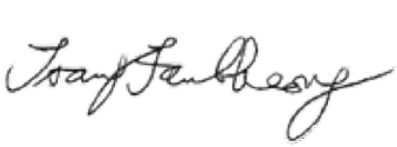
SGS Hong Kong Limited

Certified by:

Johnathan Ho

Environmental Team Leader

Verified by:



F.C. Tsang

Independent Environmental Checker

SGS Hong Kong Ltd. Units 303 & 305, 3/F, Building 22E
Phase 3, Hong Kong Science Park
Pak Shek Kok, New Territories
Hong Kong, China

Our Ref: PL-202303043

Drainage Services Department
Special Duty Division
42/F, Revenue Tower, 5 Gloucester Road,
Wan Chai, Hong Kong.

Attention: Ms. Janet YUEN

30 March 2023

Dear Janet,

Port Shelter Sewerage, Stage3 - Sewerage Works at Po Toi O
Quarterly EM&A Report for December 2022 to February 2023

Reference is made to your submission of the Quarterly EM&A Report for December 2022 to February 2023. We are pleased to inform you that we have no adverse comment on the captioned report.

Thank you for your attention. Please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully,

F.C. Tsang
Independent Environmental Checker

cc. ETL – Johnathan HO

Acuity Sustainability Consulting Limited
Flat/RM E, 12/F, Ford Glory Plaza,
Nos. 37-39 Wing Hong Street, Kowloon, Hong Kong
tel +852 2698 6833
fax +852 2698 9383 | e-mail admin@acuityhk.com
http www.acuityhk.com | www.aurecongroup.com

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Hong Kong, China

Issue and Revision Record

Revision	Description	Prepared by	Checked by	Approved by	Date
01	Submission	Various	Johnathan Ho 	Grace Fung 	2023

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1. EXECUTIVE SUMMARY

1.1 This Quarterly Environmental Monitoring & Audit (EM&A) report presents the EM&A works performed in the period between December 2022 to February 2023 for "Port Shelter Sewerage, Stage 3 – Sewerage works at Po Toi O".

1.2 The impact stage EM&A Programme for the Project includes air quality, noise, water quality, waste, ecology, fisheries, landscape and visual and built heritage monitoring. The recommended environmental mitigation measures were implemented on site and regular inspections were carried out to ensure that the environmental conditions are acceptable.

1.3 The EM&A programme was carried out by the ET in accordance with the EM&A Manual requirements. It is concluded from the EM&A works that adequate environmental mitigation measures have been implemented by the contractor where appropriate in the reporting quarter.

1.4 The construction commencement date of the project was revised on 27 April 2021. The construction commencement date of provision of village sewerage to the unsewered areas of Po Toi O has been revised from 1 March 2021 to 16 June 2021, and the construction commencement date of village sewerage construction of the local sewage treatment plant (STP) has been revised from 10 May 2021 to 16 June 2021. In view of the revised construction commencement date, the EM&A programme was subsequently suspended from 28 April 2021 until 16 June 2021.

Exceedance of Action and Limit Level

1.5 There was no action or limit level exceedance record of construction noise and air quality was recorded in the reporting quarter.

Implementation of Mitigation Measures

1.6 Construction phase weekly site inspections were carried out to confirm the implementation measures undertaken by the Contractor in the reporting quarter. The status of implementation of mitigation measures during the reporting quarter is shown in **Appendix E**.

Record of Complaints

1.7 No complaints, notification of summons and successful prosecution was received in the reporting period. No public engagement activity was conducted in the reporting quarter.

1.8 No air quality, noise and water complaints during 0700 – 1900 hours on normal weekdays was received in the reporting quarter.

Record of Notification of Summons and Successful Prosecutions

1.9 No notification of summons and successful prosecution was received in the reporting period. No public engagement activity was conducted in the reporting quarter.

2. INTRODUCTION

Project Info

2.1 Société Générale de Surveillance (SGS) Hong Kong Limited has been appointed by Drainage Services Department (DSD) as the Environmental Team (ET) to undertake the EM&A programme during construction phase of the Project in accordance to the approved EM&A Manual for the proposed sewerage works in Po Toi O (hereafter as "The Project"), an environmental enhancement project that aims to improve environmental hygiene of the Po Toi O area.

2.2 The Quarterly EM&A Report is prepared in accordance with the section 13.6 of the EM&A Manual. This Quarterly EM&A Report presents the monitoring works conducted from 1 December 2022 to February 28, 2023. The purpose of this report is to summarize the findings in the EM&A of the project over the reporting quarter.

Project Organization

2.3 The project organization chart, key personnel contact names and numbers and lines of communication with respect to the onsite environmental management perforce is shown in **Appendix C**.

Environmental Status in the Reporting Quarter

2.4 During the reporting quarter, construction works at Po Toi O undertaken include:

- Major activities in the reporting quarter:

1. Construction of village sewer;
2. Slope works.
3. Construction of temporary working platform

- Major activities in the upcoming quarter:

1. Construction of village sewer;
2. Slope works.
3. Construction of temporary working platform and installation of silt curtain for HDD

2.5 The Construction Works Programme of the Project is provided in **Appendix D**.

3. SUMMARY OF EM&A MONITORING REQUIREMENTS

3.1 In accordance with the EM&A Manual, environmental parameters including air quality, noise have been monitored in the reporting quarter. The specific parameters, monitoring frequency and the respective Action and Limit levels are given in **Table 3-1**. Locations of the monitoring stations are provided in **Appendix A**.

Table 3-1 ***Summary of Impact EM&A Requirements***

Parameters[2]	Descriptions	Locations[1]	Frequencies	Action Level	Limit Level
Air Quality	24-hour TSP	AMS1N	At least once every 6 days	153 µg/m^3	260 µg/m^3
	24-hour TSP	AMS2N1		179 µg/m^3	
	24-hour TSP	AMS3N		158 µg/m^3	
	24-hour TSP	AMS4N		144 µg/m^3	
	1-hour TSP	AMS1N		319 µg/m^3	500 µg/m^3
	1-hour TSP	AMS2N1		279 µg/m^3	
	1-hour TSP	AMS3N		303 µg/m^3	
	1-hour TSP	AMS4N		278 µg/m^3	
Noise	Leq, 30 minutes	NMS1N	At least once per week	When one documented complaint is received from any one of the noise sensitive receivers	75 dB(A)*
	Leq, 30 minutes	NMS2N1			
	Leq, 30 minutes	NMS3N			
	Leq, 30 minutes	NMS4N			

Notes:
1- Due to several limitations (i.e. EM&A approved monitoring stations not accessible) identified at the air quality and noise monitoring stations in the Approved EM&A Manual for the Project, the monitoring location AMS1 – AMS4 & NMS1 – NMS4 were replaced by alternative monitoring location AMS1N – AMS4N & NMS1N – NMS4N, which was approved by ER and IEC.

2- Marine construction was not commenced within the reporting quarter; hence impact EM&A requirement for water quality monitoring is not included in this table.

Environmental Mitigation Measures

3.2 Environmental mitigation measures have been recommended in the EM&A Manual. Summary implementation status of the environmental mitigation measures is provided in **Appendix E**.

4. SUMMARY OF EM&A MONITORING RESULTS

4.1 In accordance with the EM&A Manual, impact monitoring has been conducted in the reporting quarter. Meteorological data for the reporting quarter have been extracted from Hong Kong Observatory and present in **Appendix F.** Monitoring data with graphical presentation for the reporting quarter are show in **Appendix G.** A summary on the monitoring results is presented in **Table 4.1**.

Table 4-1 Summary of Monitoring Data

Parameter[1]	Monitoring Location	Minimum	Maximum	Average
Air Quality				
24-hour TSP	AMS1N	26 μg/m^3	75 μg/m^3	39 μg/m^3
24-hour TSP	AMS2N1	40 μg/m^3	94 μg/m^3	68 μg/m^3
24-hour TSP	AMS3N	32 μg/m^3	75 μg/m^3	51 μg/m^3
24-hour TSP	AMS4N	28 μg/m^3	87 μg/m^3	40 μg/m^3
1-hour TSP	AMS1N	22 μg/m^3	90 μg/m^3	43 μg/m^3
1-hour TSP	AMS2N1	34 μg/m^3	132 μg/m^3	75 μg/m^3
1-hour TSP	AMS3N	30 μg/m^3	163 μg/m^3	57 μg/m^3
1-hour TSP	AMS4N	22 μg/m^3	109 μg/m^3	45 μg/m^3
Construction Noise				
Leq(30min)	NMS1N	38.5 dB(A)	66.2 dB(A)	59.5 dB(A)
Leq(30min)	NMS2N1	44.5 dB(A)	75.8 dB(A)	62.7 dB(A)
Leq(30min)	NMS3N	43.7 dB(A)	68.8 dB(A)	60.0 dB(A)
Leq(30min)	NMS4N	39.1 dB(A)	61.6 dB(A)	50.3 dB(A)

Remarks:
1. Marine construction was not commenced within the reporting quarter; hence no water quality monitoring data summarized in this table.
2. A correction of +3 dB(A) was made to the free field measurements

Other Influencing Factors of the Monitoring Results

Air quality monitoring

4.2 Major emission sources during air quality monitoring in the reporting quarter were mainly vehicle emission from Po Toi O Chuen Road and nearby residents' activities.

Noise monitoring

4.3 Major noise sources during noise monitoring in the reporting quarter were mainly road traffic noise.

Monitoring Exceedances

4.4 Summary of the exceedances in the reporting quarter is tabulated in **Table 4.2**.

Monitoring Station	Parameter[1]	No. of Exceedance		Action Taken
		Action Level	Limit Level	
Air Quality				
AMS1N	24-hour TSP	0	0	N/A
AMS2N1	24-hour TSP	0	0	N/A
AMS3N	24-hour TSP	0	0	N/A
AMS4N	24-hour TSP	0	0	N/A
AMS1N	1-hour TSP	0	0	N/A
AMS2N1	1-hour TSP	0	0	N/A
AMS3N	1-hour TSP	0	0	N/A
AMS4N	1-hour TSP	0	0	N/A
Construction Noise				
NMS1N	Leq(30min)	0	0	N/A
NMS2N1	Leq(30min)	0	0	N/A
NMS3N	Leq(30min)	0	0	N/A
NMS4N	Leq(30min)	0	0	N/A

Remarks:
1. Marine construction was not commenced in the reporting quarter, no water quality monitoring was required in according to approved EM&A manual; hence no water quality monitoring data was recorded.

1-hour TSP Monitoring

4.5 All 1-hour TSP monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.

24-hour TSP Monitoring

4.6 All 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.

Construction Noise Monitoring

4.7 All construction noise monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.

5. WASTE MANAGEMENT

5.1 As advised by the Contractor, 17.5 m^3 of inert C&D material was generated and disposal to Tseung Kwan O Area 137 Fill Bank (TKO137FB) in the reporting quarter. For C&D wastes, 0 m^3 of general refuse was disposed of at NENT landfill, 0 kg waste were collected by recycling contractors, and 0 kg of chemical wastes was collected by licensed Contractors in the reporting quarter.

5.2 The detailed summary of waste flow is show in **Appendix H**.

6. ENVIRONMENTAL NON-CONFORMANCE

6.1 For this reporting quarter, no environmental complaint was received.

6.2 No non-compliance and environmental related prosecution or notification of summons was received. There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting quarter.

6.3 Statistics on complaints, notifications of summons, successful prosecutions and public engagement activities are summarized in **Appendix I**.

7. COMMENTS, RECOMMENDATIONS AND CONCLUSION

Comments

7.1 Based on the observations made during site audits and construction dust and noise monitoring results, no non-compliances and exceedances of air quality and noise limits were recorded.

Recommendations

7.2 Reviewing the implementation of the recommended mitigation measures in the EM&A Manual, it was observed that they were effective and efficient in controlling the potential impacts due to construction of the project during the reporting quarterly. Review of the effectiveness and efficiency of the EM&A programme will continue, and recommendations will be provided to remediate any potential impacts due to the project and to improve the EM&A programme if deficiencies of the existing EM&A programme are identified.

Conclusion

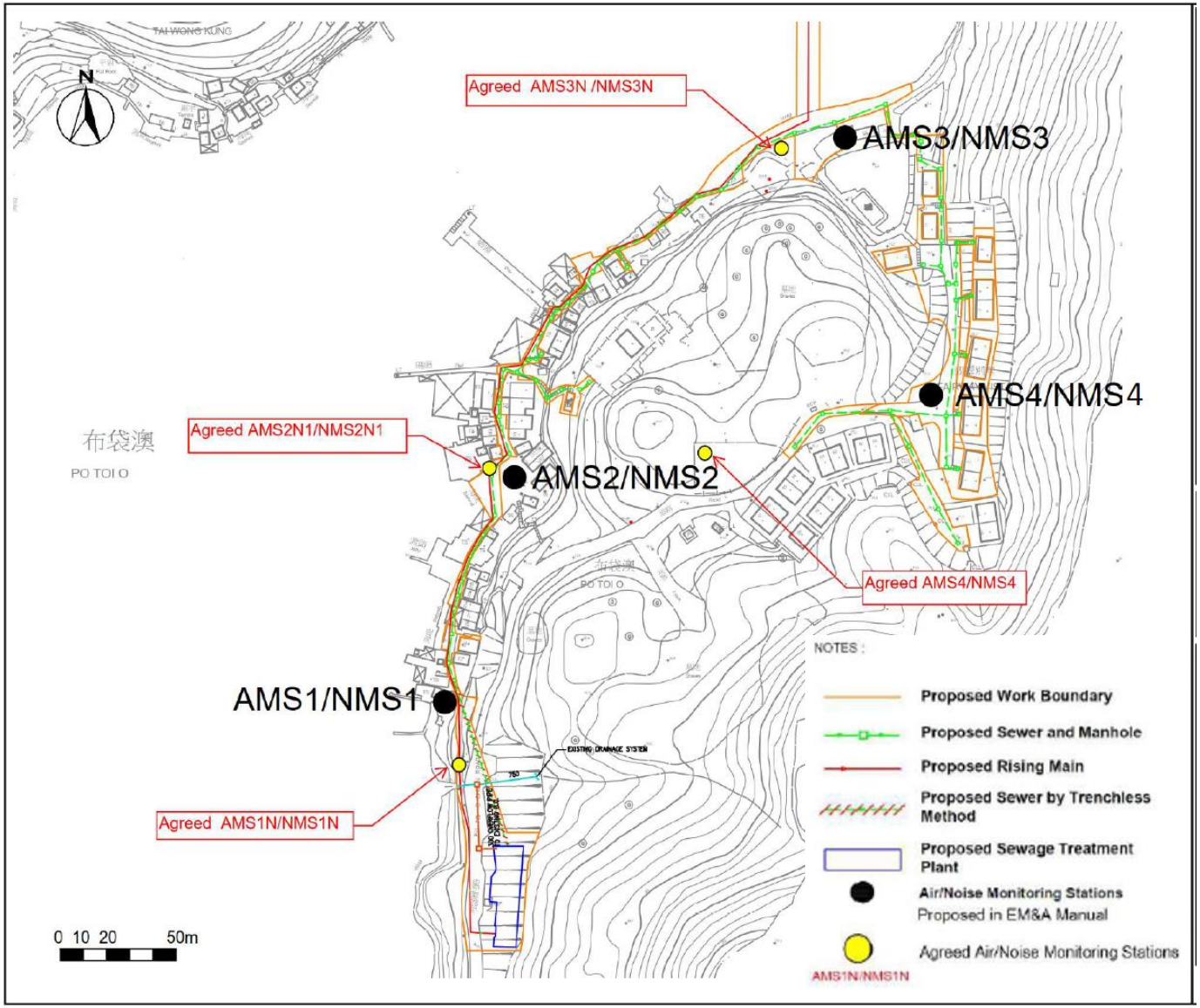
7.3 The EM&A programme as recommended in the EM&A Manual has been undertaken since the construction works of Port Shelter Sewerage, Stage 3 – Sewerage works at Po Toi O works commenced on 1 March 2021.

7.4 Monitoring of air quality and noise with respect to the Project is underway. In particular, the 1-hour TSP, 24-hour TSP and noise level (as Leq, 30 minutes) under monitoring have been checked against established Action and Limit levels. There was no breach of Action and Limit Levels for 1-hour TSP, 24-hour TSP and noise monitoring in the reporting quarter.

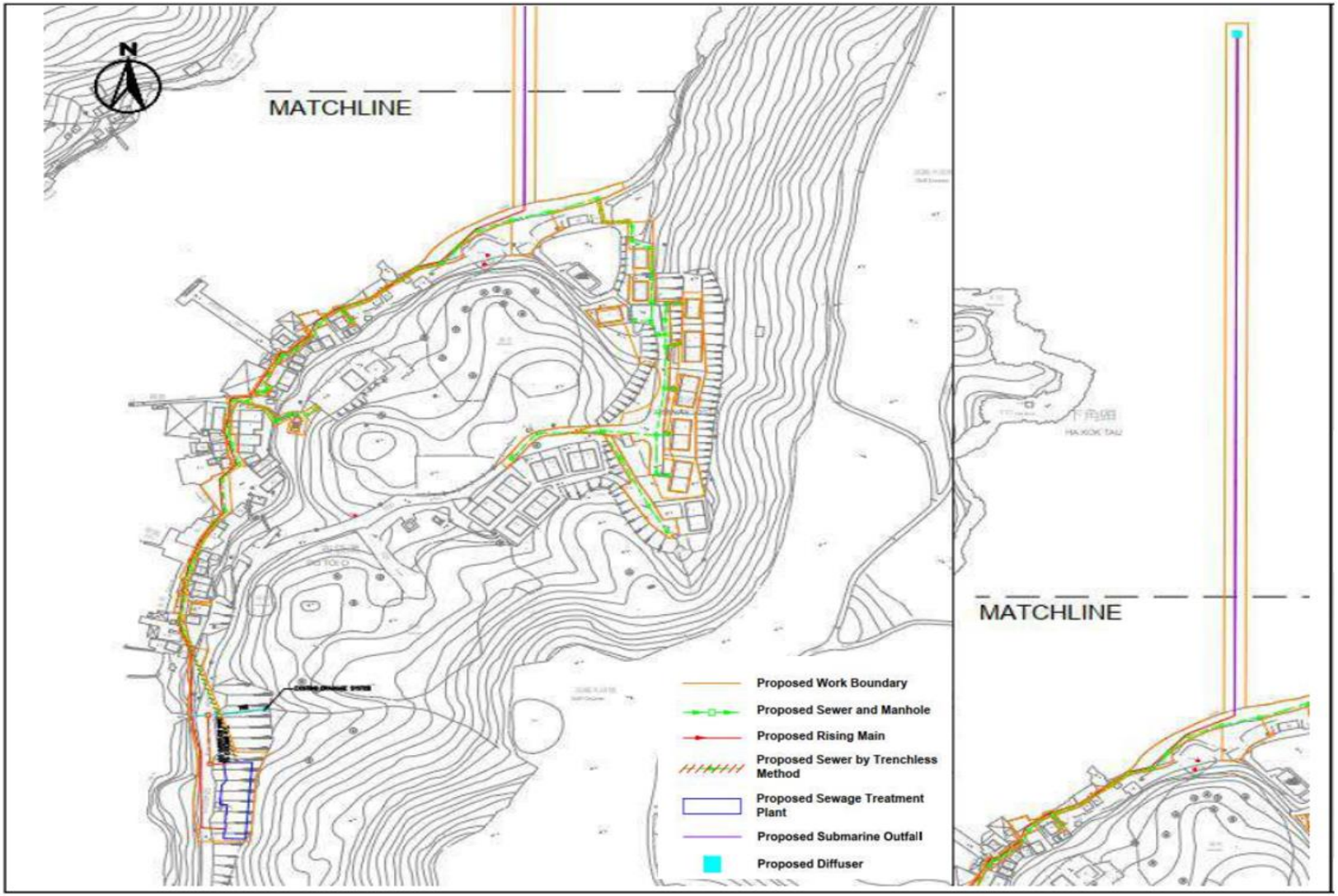
7.5 No complaint was received during the reporting quarter.

7.6 No notifications of summons or successful prosecution were received during the reporting quarter.

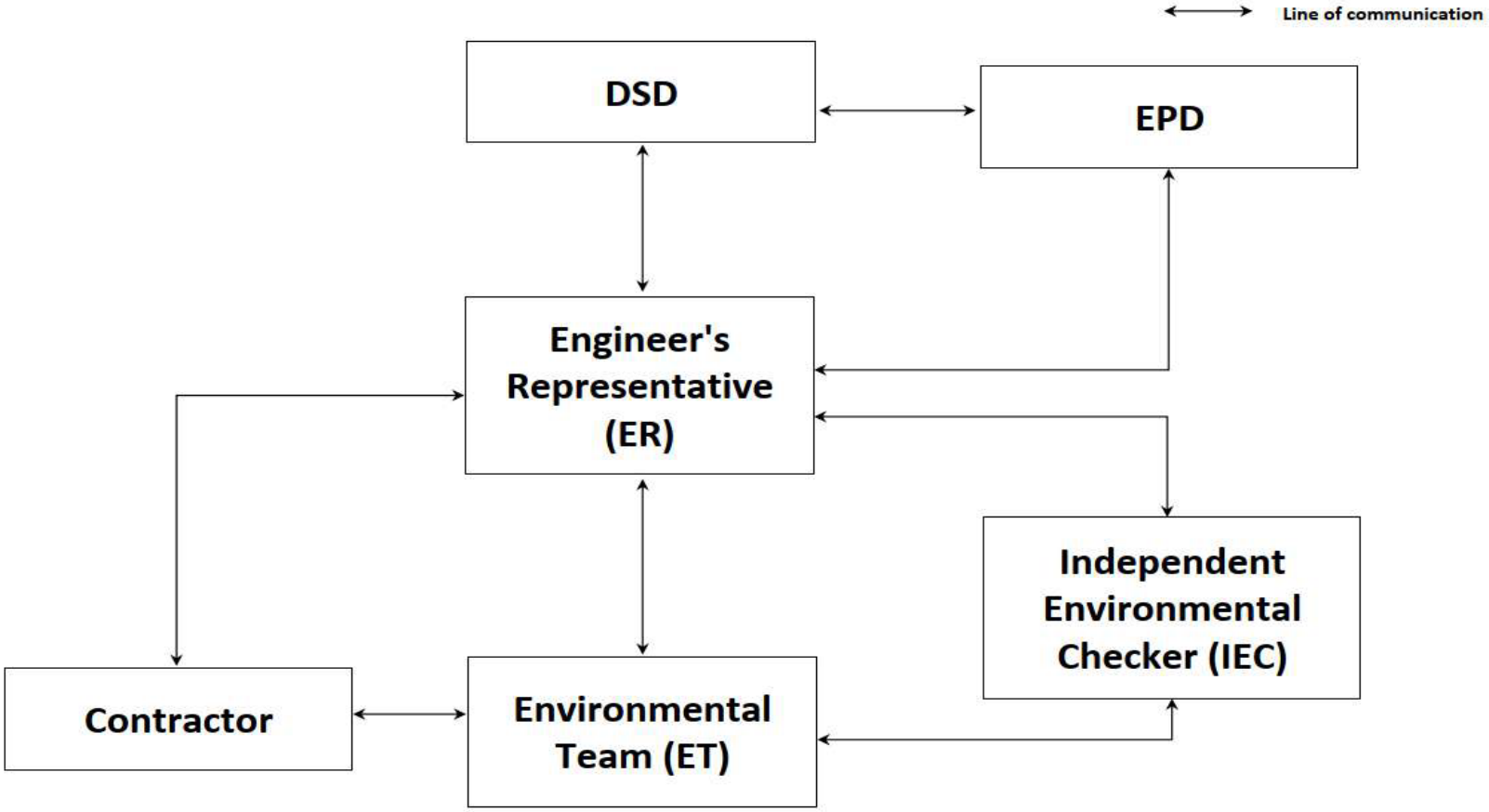
APPENDIX A - LOCATION OF THE MONITORINGAND CONTROL STATIONS


TAI WONG KUNG
N
Agreed AMS3N /NMS3N
AMS3/NMS3
AMS4/NMS4
布袋澳
PO TOI O
Agreed AMS2N1/NMS2N1
AMS2/NMS2
Agreed AMS4/NMS4
AMS1/NMS1
Agreed AMS1N/NMS1N
0 10 20 50m
NOTES :
Proposed Work Boundary
Proposed Sewer and Manhole
Proposed Rising Main
Proposed Sewer by Trenchless Method
Proposed Sewage Treatment Plant
Air/Noise Monitoring Stations Proposed in EM&A Manual
Agreed Air/Noise Monitoring Stations
AMS1N/NMS1N

APPENDIX B - LAYOUT PLAN OF PROJECT AREA


N
MATCHLINE
MATCHLINE
Proposed Work Boundary
Proposed Sewer and Manhole
Proposed Rising Main
Proposed Sewer by Trenchless Method
Proposed Sewage Treatment Plant
Proposed Submarine Outfall
Proposed Diffuser

APPENDIX C - PROJECT ORGANIZATION CHART & CONTACT INFORMATION OF KEY PERSONNEL


Line of communication
DSD
EPD
Engineer's Representative (ER)
Independent Environmental Checker (IEC)
Contractor
Environmental Team (ET)

Position	Party	Name	Telephone
Project Proponent	Drainage Services Department (DSD)	Ms. Janet Yuen	2594 7353
Senior Resident Engineer (SRE)	Binnies Hong Kong Limited (Binnies)	Mr. Eugene Chan	6392 3809
Independent Environmental Checker (IEC)	Acuity Sustainability Consulting Limited (ASC)	Dr. F.C. Tsang	2698 8060
Environmental Team (ET)	Société Générale de Surveillance (SGS) Hong Kong Limited	Mr. Johnathan Ho	9236 5528
Environmental Officer	China Geo-engineering Corporation (CGC)	Mr. Jasper Tang	6997 5530
Hotline Telephone Number			6902 2820

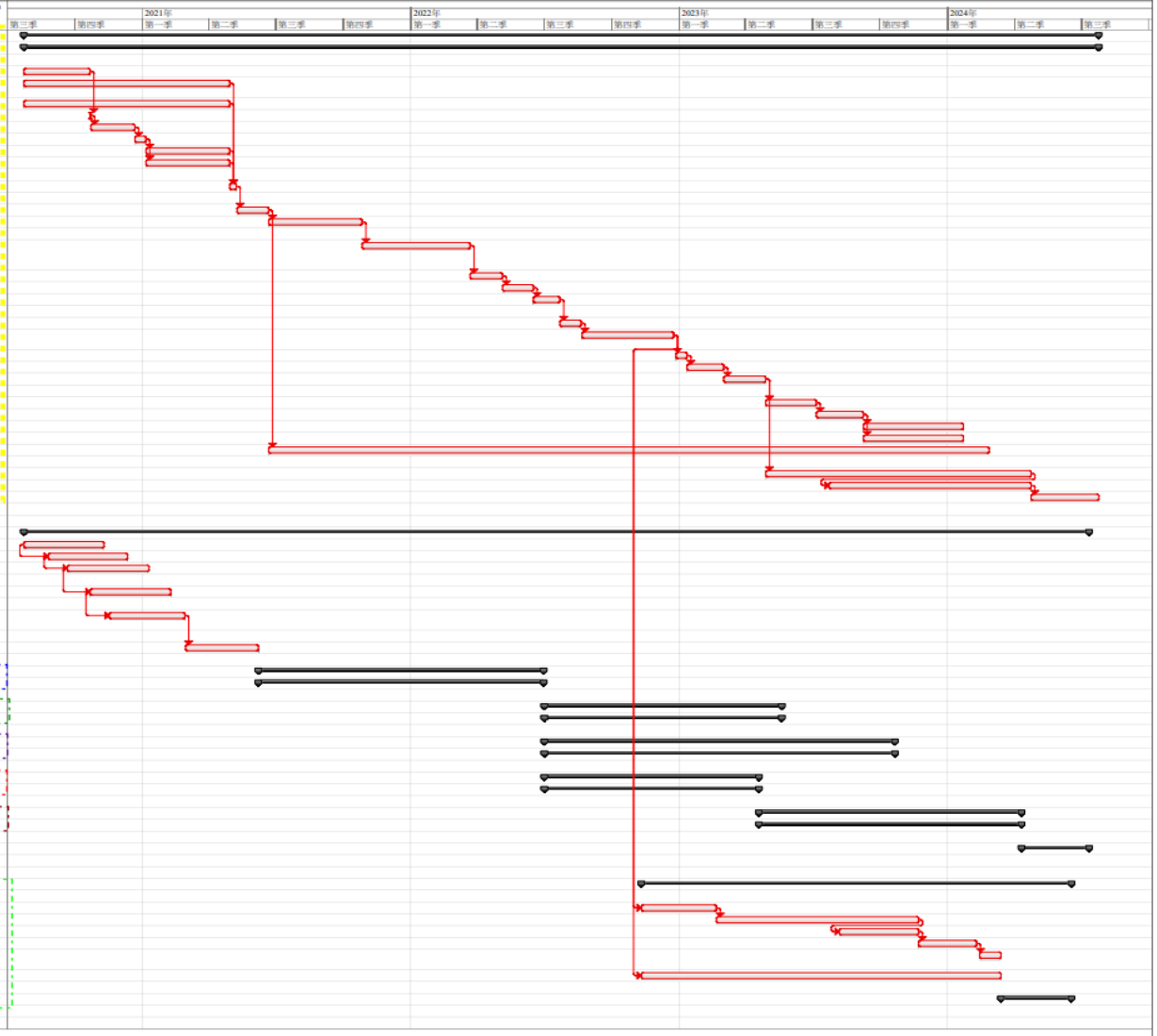
APPENDIX D – CONSTRUCTION WORK PROGRAMME

Project: Provision of Village Sewerage in Sai Kung

Drainage Services Department of HKSAR
Provision of Village Sewerage in Sai Kung
Contract No: DC/2019/09
Works Programme for PTO

Date: Oct 2021

識別碼	Task Name	Duration	Starting Date	ercentag of mplet	Completion Date
1	**Section 2 - Village Sewerage Works at Po Toi O and PTOSTP**	**1190 days**	**2020/7/24**	**0%**	**2024/7/24**
2	**Po Toi O Sewage Treatment Plant (PTOSTP)**	**1190 days**	**2020/7/24**	**0%**	**2024/7/24**
3					
4	Liaise with the village representative works to ensure the possession of construction site	75 days	2020/7/24	0%	2020/10/21
5	Preperation works (i.e. TMLG meetings; Application for traffic advice for suspension of existing parking slot; Re-provision of existing RCP, etc.)	231 days	2020/7/24	0%	2021/4/29
6	Environmental submissions	231 days	2020/7/24	0%	2021/4/29
7	Possession of site (Access Date: 22nd October 2020)	1 day	2020/10/22	0%	2020/10/22
8	Installation of site hoardings at PTOSTP	50 days	2020/10/23	0%	2020/12/21
9	Mobilization of plant and equipment	10 days	2020/12/22	0%	2021/1/5
10	Site clearance	95 days	2021/1/6	0%	2021/4/29
11	Initial survey, UU detection and permit-to-dig	95 days	2021/1/6	0%	2021/4/29
12					
13	Preparation for geotechnical submissions	7 days	2021/4/30	0%	2021/5/8
14					
15	Liaison with PTO VR	35 days	2021/5/10	0%	2021/6/21
16	Preparation and installation of rock fall fencing	105 days	2021/6/22	0%	2021/10/26
17					
18	Slope cutting (Total 2850 m3 solid materials to be removed, i.e. about 4275 m3 loosen materials. 23.8m3 loosen materials to be removed per day, i.e. 4 trips of dumping per day)(installation of silt curtain at the outlet of the box culvert)	120 days	2021/10/27	0%	2022/3/22
19	Installation of rock dowl (include drilling, rebar installation and grouting, etc.)	34 days	2022/3/23	0%	2022/5/5
20	Construction of anchorages for flexible barrier	34 days	2022/5/6	0%	2022/6/16
21	Installation of flexible barriers	30 days	2022/6/17	0%	2022/7/22
22					
23	Installation of sheetpile	25 days	2022/7/23	0%	2022/8/20
24	Excavation from +13.25 Mpd to -1.20 Mpd (Total 2150 m3 solid materials to be removed, i.e. about 3225m3 loosen materials. 23.8m3 loosen materials to be removed per day, i.e. 4 trips of dumping per day)	105 days	2022/8/22	0%	2022/12/24
25	Plate load test	12 days	2022/12/28	0%	2023/1/11
26	Construction of raft footing	40 days	2023/1/12	0%	2023/3/2
27	Construction of basement (below +13.25 mPD)	45 days	2023/3/3	0%	2023/4/28
28					
29	Construction of R.C. walls at 1st Floor	55 days	2023/4/29	0%	2023/7/6
30	Construction of rooftop (below + 17.75 mPD)	55 days	2023/7/7	0%	2023/9/8
31	External Finishes	110 days	2023/9/9	0%	2024/1/22
32	Internal Finishes (incl. installation of Door & Window etc)	110 days	2023/9/9	0%	2024/1/22
33	Landscape works & other associated works	797 days	2021/6/22	0%	2024/2/26
34					
35	E&M works	292 days	2023/4/29	0%	2024/4/23
36	T&C (Stage 1) + T&C (Stage 2)	223 days	2023/7/24	0%	2024/4/23
37	T&C (Stage 3)	75 days	2024/4/24	0%	2024/7/24
38					
39					
40	**Construction of PTO Village Sewerage**	**1179 days**	**2020/7/24**	**0%**	**2024/7/11**
41	Liaise with the village representatives	90 days	2020/7/24	0%	2020/11/9
42	Initial survey and photo-taking	90 days	2020/8/26	0%	2020/12/11
43	UU Detection and application for permit-to-dig	90 days	2020/9/21	0%	2021/1/9
44					
45	Trial pit excavation (Access Date of PTO-B1-01: 22nd Oct 2020)	90 days	2020/10/22	0%	2021/2/8
46					
47	Producing Layout plans showing the loction of terminal manholes, timber box and alignment of sewers and other associated preparation works	83 days	2020/11/17	0%	2021/2/27
48					
49	Liaison with PTO VR	83 days	2021/3/1	0%	2021/6/7
50					
51	**PTO-SW-01 (Open Trench, 18 nos. manholes (170m), and rising main(CH2+53.81 - CH4+36.66)**	**316 days**	**2021/6/8**	**0%**	**2022/6/30**
58	**Landscape works for PTO-SW-01**	**316 days**	**2021/6/8**	**0%**	**2022/6/30**
60					
61	**PTO-SW-02 (Open Trench, 16nos. Manhole(145m), and a Section of Rising Main)**	**263 days**	**2022/7/2**	**0%**	**2023/5/20**
68	**Landscape works for PTO-SW-02**	**263 days**	**2022/7/2**	**0%**	**2023/5/20**
70					
71	**PTO-SW-03 (Open Trench, 25 nos., Length: 360m)**	**390 days**	**2022/7/2**	**0%**	**2023/10/21**
78	**Landscape works for PTO-SW-03**	**390 days**	**2022/7/2**	**0%**	**2023/10/21**
80					
81	**PTO-Trenchless-01 (Trenchless, (Length: 75m) and related Rising Main)**	**237 days**	**2022/7/2**	**0%**	**2023/4/19**
88	**Landscape works for PTO-Trenchless-01**	**237 days**	**2022/7/2**	**0%**	**2023/4/19**
90					
91	**PTO-Trenchless-02 (Trenchless, (Length: 100m) and related Rising Main)**	**289 days**	**2023/4/20**	**0%**	**2024/4/10**
98	**Landscape works for PTO-Trenchless-02**	**289 days**	**2023/4/20**	**0%**	**2024/4/10**
100					
101	**Testing of PTO Village Sewerage**	**75 days**	**2024/4/11**	**0%**	**2024/7/11**
103					
104					
105	**Submarine Outfall by HDD Method with Cofferdam**	**471 days**	**2022/11/11**	**0%**	**2024/6/17**
106					
107	Installation of silt curtain near the rocky shore and construction of cofferdam for entry pit	81 days	2022/11/11	0%	2023/2/20
108	Horizontal Directional Drilling	225 days	2023/2/21	0%	2023/11/22
109	Construction of Cofferdam (include installation of silt curtain around the cofferdam)	90 days	2023/8/7	0%	2023/11/22
110	Construction of diffuser manifold	65 days	2023/11/23	0%	2024/2/9
111	Removal of cofferdam at both the manifold and the entry pit (including removal of silt curtain after removal of cofferdam)	25 days	2024/2/14	0%	2024/3/13
112	**Landscape works**	396 days	2022/11/11	0%	2024/3/13
113					
114	**Testing of Submaine Outfall**	**75 days**	**2024/3/14**	**0%**	**2024/6/17**
116					
117	**Completion of Section 2**	0 days	2024/7/11	0%	2024/7/11



Project:DC/2019/09
Date: Oct 2021

Task
Project Guide: Critical Task
Split
Progress
Milestone
Summary
Project Summary
Project Guide: Critical Task
Split
Progress
Milestone
Summary

APPENDIX E - IMPLETEMENTATION OF RECOMMENDED MITGATION MEASURES

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Air Quality Impact	A10	Good housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials.	✓	✓	✓
	A11	Adopt dust control measures, such as dust suppression using water spray on exposed soil at least 4 times a day, in areas with dusty construction activities and during material handling.	✓	✓	✓
	A12	Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags.	N/A	N/A	N/A
	A13	Maintain a reasonable height when dropping excavated materials to limit dust generation.	N/A	N/A	N/A
	A14	Limit vehicle speed within construction site and in Po Toi O to 10km/hr and confine vehicle movement in haul road.	✓	✓	✓
	A15	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen.	✓	✓	✓
	A16	Provide wheel washing at construction site exit to clean the vehicle body and wheel.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Air Quality Impact	A17	Cover materials on trucks before leaving the construction site to prevent debris from dropping during traffic movement or being blown away by wind	✓	✓	✓
	A18	Regular maintenance of plant equipment to prevent black smoke Emission.	✓	✓	✓
	A19	Throttle down or switch off unused machines or machine in intermittent use	✓	✓	✓
	A20	Minimize excavation area as far as possible.	✓	✓	✓
	A21	Store odorous excavated materials in covered containers and remove off-site as soon as possible within 24 hours.	✓	✓	✓
	A22	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	Rem.	✓	✓
	A23	Hoarding of not less than 2.4 m high shall be erected from ground level to surround the construction site for sewage treatment plant along Po Toi O Chuen Road except for a construction site entrance or exit.	N/A	N/A	N/A
	A24	Carry out air quality monitoring throughout the construction period	Obs.	✓	Obs.

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Noise Impact	N1	Use hand-held plant equipment or manual equipment within village area.	✓	✓	✓
	N2	For HDD, enclose the stationary plant equipment on three sides with cover. Only the side facing the sea shall be opened for heat exhaustion.	N/A	N/A	N/A
	N3	Generator should be placed at a fixed location at least 5-6m away from the NSRs and screened by noise barrier whenever excavation work must be carried out at their front doors.	✓	✓	✓
	N4	Avoid carrying out noisy activities at the same time. The work front of village sewer installation near NSRs PTO_N1 and PTO_N3 shall not be conducted concurrently with installation of Po Toi O Chuen Road sewer and horizontal directional drilling respectively.	✓	✓	✓
	N5	Vibratory poker shall only be operated 4m away from NSR and with noise barrier properly erected. Surfacing work within 4m from NSR shall be carried out by manual method.	✓	✓	✓
	N6	Schedule noisy activities to minimize exposure of nearby NSRs to high levels of construction noise.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Noise Impact	N7	Use Quality Powered Mechanical Equipment (QPME) which produces lower noise level.	✓	✓	✓
	N8	Erect 3m high mobile barriers with skid footing and a small cantilevered upper portion within a few meters of stationary plants and within about 5m of more mobile plant.	✓	✓	✓
	N9	Hand-held breaker shall be fitted with mufflers. A movable enclosure made up of plywood is proposed to surround both worker and breaker during breaking process. The internal wall of the enclosure should be laid with sound absorbent such as mineral wool.	✓	✓	✓
	N10	Regular maintenance of plant equipment to prevent noise emission due to impair.	✓	✓	✓
	N11	Position mobile noisy equipment in location and direction away from NSR.	✓	✓	✓
	N12	Use silencer or muffler on plant equipment and should be properly maintained.	✓	✓	✓
	N13	Throttle down or switch off unused machines or machine in intermittent use between work.	✓	✓	✓
	N14	Make good use of stockpiles or other structures for noise screening.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Noise Impact	N15	Mobile plant should be sited as far away from NSRs as possible	✓	✓	✓
	N16	Reduce the percentage on-time for some noisy PMEs	✓	✓	✓
	N17	Carry out noise monitoring	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Water Quality Impact	W1	Divert the water from outfall of W3 (stream near Fairway Vista) during open cut excavation for laying of gravity sewer nearby.	✓	✓	✓
	W2	Place sandbag along the upstream section of the stream near Fairway Vista and along rocky shore during open cut excavation for laying of gravity sewers/rising mains nearby.	✓	✓	✓
	W3	Intercept the water from u-channel at the foot of the slope where the STP will be built.	✓	✓	✓
	W4	Install cofferdam around the proposed excavation area for entry pit of HDD work to prevent falling of debris into the sea	N/A	N/A	N/A
	W5	Install sheet piles in marine waters by vibratory action.	N/A	N/A	N/A
	W6	Marine works (dredging, construction and installation works at diffuser location, backfilling) shall be carried out inside the watertight cofferdam. The cofferdam can only be removed after completion of work.	N/A	N/A	N/A
	W7	Dredging should be carried out by grab dredgers anchored outside the cofferdam. The marine sediment should be placed in sealed compartment of the marine barge.	N/A	N/A	N/A
	W8	Water removed from the cofferdam should be desilted before discharge back into the sea.	N/A	N/A	N/A

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Water Quality Impact	W9	Carry out water quality monitoring at water sensitive receivers before and during cofferdam installation works, throughout dredging works, and during cofferdam extraction works.	N/A	N/A	N/A
	W12	Set up sedimentation tank for settling suspended solids in wastewater before discharge into storm drains. Sand/silt removal facilities such as sand traps, silt traps and sedimentation basin should be provided with adequate capacity.	Rem.	Rem.	Obs.
	W13	Follow ProPECC PN 1/94 "Construction Site Drainage" as far as practicable	✓	✓	✓
	W14	Construct catchpits and perimeter channels prior to commencement of site formation works and earthworks	✓	✓	✓
	W15	Maintain silt removal facilities, channels, manholes before and after rainstorm.	✓	Rem.	Obs.
	W16	Remove silt and grit from silt trap at regular interval.	✓	✓	✓
	W17	Well design works program to minimize the work areas to minimize the soil exposure and site runoff.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Water Quality Impact	W18	Arrange soil excavation works outside rainy seasons (April to September) as far as possible. If this cannot be achieved, the following measures should be implemented:	✓	✓	✓
		Cover temporary exposed slope surfaces with impermeable materials, e.g. tarpaulin.	✓	✓	✓
		Protect temporary access roads by crushed stone or gravel.	✓	✓	✓
		Provide intercepting channels along crest/edge of excavation.	✓	✓	✓
	W19	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen.	✓	✓	✓
	W20	Prevent rainwater from entering trenches. Excavation of trenches should be dug and backfilled in short sections during rainy seasons. Remove silt in rainwater collected from the trenches or foundation excavations prior to discharge to storm drains.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Water Quality Impact	W21	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	✓	✓	✓
	W22	Cover and temporary seal manholes to prevent silt, construction materials or debris and surface runoff from entering foul sewers.	✓	✓	✓
	W23	Remove waste from the construction site regularly.	✓	✓	✓
	W24	Apply discharge license for effluent discharge. Treat the discharge to comply with the requirement in TM-DSS.	✓	✓	✓
	W25	Reuse treated effluent onsite, e.g. dust suppression, wheel washing and general cleaning.	✓	✓	✓
	W26	Monitor effluent water quality.	✓	✓	✓
	W27	Register as chemical waste producer if chemical waste will be generated.	✓	✓	✓
	W28	Perform maintenance of vehicles and equipment that have oil leakage and spillage potential on hard standings within a bunded area with sumps and oil interceptors.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Water Quality Impact	W29	Dispose chemical waste in accordance to Waste Disposal Ordinance. Follow the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes,* examples as follows:	✓	✓	✓
		Store chemical wastes with suitable containers to avoid leakage or spillage during storage, handling and transport.	✓	✓	✓
		Label chemical waste containers according to the CoP to notify and warn the waste handlers.	✓	✓	✓
		Store chemical wastes at designated safe location with adequate space.	✓	✓	✓
	W30	Provide sufficient chemical toilets with regular maintenance by registered waste collector where necessary.	✓	✓	✓
	W31	Provide a drip tray/container underneath the bentonite recycling system.	N/A	N/A	N/A
	W32	Carry out regular site inspection to audit the implementation of mitigation measures.	Obs.	Obs.	Obs.
	W33	Carry out effluent quality monitoring at location specified in the discharge license.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM4	Allocate an area for waste sorting and storage of C&D materials into the following categories for reuse, recycle or disposal if possible. Remove waste from the construction site for sorting once generated if no suitable space can be identified.	✓	✓	✓
		Excavated materials suitable for reuse	✓	✓	✓
		Inert C&D materials (or public fill) for disposal offsite	✓	✓	✓
		Non-inert C&D materials (or C&D waste) for disposal at landfills	✓	✓	✓
		Records of quantities generated/ recycled/ disposed maintained?	✓	✓	✓
		Chemical waste	✓	✓	✓
		Bentonite slurry for reconditioning and reuse	N/A	N/A	N/A
		General refuse	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM5	Adopt good site practice as follows:	✓	✓	✓
		Provide training to workers on site cleanliness, waste management (waste reduction, reuse and recycle) and chemical handling procedures.	✓	✓	✓
		Cover waste materials with tarpaulin or in enclosure during transportation.	✓	✓	✓
		Maintain drainage systems, sumps and oil interceptors.	✓	✓	✓
		Sort out chemical waste for proper handling and treatment onsite or offsite.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM6	Adopt good site practice as follows:	✓	✓	✓
		Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminum cans.) Remove waste from the construction site for sorting once generated if no suitable space can be identified.	✓	✓	✓
		Allocate area for proper storage of construction materials to prevent contamination prevent soil contamination?	✓	✓	✓
		Maintain drainage systems, sumps and oil interceptors.	✓	✓	✓
		Minimize wastage through careful planning and avoiding over purchase of construction materials	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM7	Prepare and implement a site-specific Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005. Detail waste management method in the form of avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal according to the recommendations on the EIA and EM&A Manual. It should be approved by the ER and regularly reviewed.	✓	✓	✓
	WM8	Store waste materials properly as follows:	✓	✓	✓
		Avoid contamination by proper handling and storing waste.	✓	✓	✓
		Prevent erosion by covering waste.	✓	✓	✓
		Apply water spray on excavated materials.	✓	✓	✓
		Maintain and clean storage area regularly.	✓	✓	✓
		Sort and stockpile different materials at designated location to enhance reuse.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM9	Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap.28) Dumping at Sea Ordinance (Cap. 466).	✓	✓	✓
	WM10	Hire licensed waste disposal contractors for waste collection and removal. Dispose waste at licensed waste disposal facilities	✓	✓	✓
	WM11	Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes	✓	✓	✓
	WM12	Provide wheel washing at construction site exit to clean the vehicle body and wheel.	✓	✓	✓
	WM13	Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM14	Dispose dry waste or waste with less than 70% water content by weight to landfill.	✓	✓	✓
	WM15	Follow the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste as follows:	✓	✓	✓
		Store chemical wastes with suitable containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport.	✓	✓	✓
		Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	✓	✓	✓
		The container capacity should be smaller than 450 litres unless agreed by the EPD.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM16	Comply with the requirement of the chemical storage area:	✓	✓	✓
		Store only chemical waste and label clearly the chemical characters of the waste.	✓	✓	✓
		Have at least 3 sides enclosed and protected from rainfall with cover.	✓	✓	✓
		Provide sufficient ventilation	✓	✓	✓
		Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger		✓	✓
	WM17	Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted	✓	✓	✓
	WM18	Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved Chemical Waste Treatment Centre at Tsing Yi or other licensed facility.	✓	✓	✓
	WM19	Hire reputable waste collector to separately collect and dispose general refuse from other wastes. Cover the waste to prevent being blown away.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Waste/Chemical Management	WM20	Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance.	✓	✓	✓
	WM21	Organize training and reminders to site staff on waste minimization through avoidance and reduction, reusing and recycling.	✓	✓	✓
	WM22	Used bentonite shall be reconditioned onsite and reused as far as practical to minimize wastage. If this is deemed not viable, the used bentonite shall be delivered offsite for reconditioning.	N/A	N/A	N/A
	WM23	Characterize the sediment quality of the marine sediment to be dredged and submit a Sediment Quality Report for EPD's approval. Dispose the dredged marine sediment in accordance with ETWB TC(W) No. 34/2002.	N/A	N/A	N/A

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Ecology	E1	Erect bright colour fencing along the boundary of the undisturbed region of the shrubland and woodland, and around *Diospyros vaccinioides,* a plant species of conservation importance, near the work boundary to remind workers not to trespass or occupy the area, and to be careful during operation of equipment.	✓	✓	✓
	E2	Reinstate the disturbed rocky shore with the rocks temporarily removed.	N/A	N/A	N/A
	E3	Place sandbag around the section of W3 next to Fairway Vista and along the shore during open cut excavation for laying of gravity sewer nearby.	✓	✓	✓
	E4	Temporarily divert the water from outfall of W3 away from excavation area.	✓	✓	✓
	E5	Inspect the condition of the *Diospyros vaccinioides* near the work boundary as part of weekly site audit.	✓	✓	✓
	E6	Erection of hoarding, fencing or provision of clear demarcation of work zones	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Ecology	E7	Designate areas for placement of equipment, building materials and wastes away from the natural environment.	✓	✓	✓
	E8	Carry out tree preservation and compensatory tree planting will be carried out in accordance with DEVB TCW No. 7/2015.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Landscape and Visual	CM8	Protective materials to be provided to natural rocky coastline to prevent damage to existing landform from plant and machinery during temporary drilling operations. Reinstatement following removal of plant & equipment to original or improved condition shall be undertaken.	N/A	N/A	N/A
	OM2	Use of appropriate building materials and colours for Sewage Treatment Plant to complement surroundings	N/A	N/A	N/A
	CM1	The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape. All slope excavation shall take place from within the work boundary to minimize impacts on adjacent slopes.	✓	✓	✓
	CM2	Reduction of construction period to practical minimum.	✓	✓	✓
	CM3	Construction traffic (land and sea) including construction plant, construction vessels and barges to be kept to a practical minimum.	✓	✓	✓
	CM4	Erection of decorative mesh screens or construction hoardings and/or temporary noise barriers around works areas in visually unobtrusive colors.	✓	✓	✓
	CM5	Avoidance of excessive height and bulk of site buildings and structures.	✓	✓	✓

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Landscape and Visual	CM6	Protective materials to be provided to natural rocky coastline to prevent damage to existing landform from plant and machinery during temporary drilling operations. Reinstatement following removal of plant & equipment to original or improved condition shall be undertaken.	✓	✓	✓
	CM7	All existing trees shall be carefully protected during construction. A Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. Tree risk assessment shall be undertaken to all existing trees within the project site as per "Guidelines for Tree Risk Assessment and Management Arrangement"	✓	✓	✓
	OM3	Lighting units to be directional and minimize unnecessary light spill and glare.	N/A	N/A	N/A
	OM4	Greening measures to reinstate the landscape which are appropriate to the context, including tree and shrub planting and vertical greening, shall be implemented.	N/A	N/A	N/A

Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			December 2022	January 2023	February 2023
Building Heritage	BH1	Undertake condition survey by professional qualified building surveyor or engineer to record the existing condition of the built heritage resources.	✓	✓	✓
	BH2	Carry out vibration and settlement monitoring to built heritage resources. A maximum vibration level 7.5mm/s shall be adopted for the Grade 3 Hung Shing Temple and settlement check points in the Alert/Alarm/Action limit levels at 6mm/8mm/10mm shall be adopted.	✓	✓	✓
	BH3	Are protective covering or protective screen provided to built heritage resources which are close to building area? (c.f. BH3)	N/A	N/A	N/A
	BH4	Maintain public access to the cultural landscape features (c.f. BH4)	N/A	N/A	N/A
	BH5	Provision of at least 1m buffer zone from the proposed works provided? (c.f. BH5)	N/A	N/A	N/A

Remark
N/A – Not Applicable
✓ – Implemented
Obs. – Observed
Rem. – Reminder

APPENDIX F - METEOROLOGICAL DATA EXTRACTED FROM HONG KONG OBSERVATORY

2022/12 Daily Extract of Meteorological Observations from HKO

	Hong Kong Observatory									King's Park	Waglan Island^	
ay	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)		Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)								
01	1020.5	18.4	16.5	14.8	11.5	72	88	Trace		0.3	010	31.9
02	1019.4	19.4	16.5	13.6	10.7	69	75	0.0		5.7	360	25.0
03	1017.1	21.5	19.2	16.9	14.3	73	86	0.0		4.2	010	15.3
04	1018.0	23.3	21.2	19.9	16.4	74	84	0.0		4.6	010	19.0
05	1019.8	20.7	17.9	15.7	11.5	66	76	0.0		1.9	360	32.3
06	1019.7	19.8	17.1	14.9	11.2	68	76	0.0		6.5	010	23.5
07	1018.9	21.5	18.7	16.6	12.6	68	63	Trace		7.6	010	22.7
08	1017.9	22.6	19.9	17.7	14.6	72	32	0.0		9.6	020	16.3
09	1015.8	22.7	19.6	17.4	13.2	67	19	0.0		9.1	010	21.3
10	1015.5	21.6	18.4	15.6	10.5	61	10	0.0		9.6	360	27.7
11	1016.2	19.0	16.7	15.3	8.8	60	65	0.0		1.7	360	34.0
12	1018.3	18.0	16.2	15.0	8.7	61	84	Trace		5.0	360	38.1
13	1019.4	16.7	14.5	12.9	8.9	71	88	3.2		0.0	360	29.8
14	1021.4	13.1	12.5	11.5	11.1	91	93	8.7		0.0	360	33.3
15	1017.9	16.2	14.6	12.3	13.3	91	90	3.8		0.0	030	24.3
16	1017.5	18.2	16.9	15.1	15.1	90	96	0.9		0.0	010	27.4
17	1024.9	15.1	13.2	11.8	4.9	60	89	9.1		0.0	360	61.2
18	1025.9	13.8	11.8	9.4	-5.2	30	42	Trace		8.9	010	41.9
19	1021.7	16.6	13.7	10.6	3.2	50	25	0.0		8.9	010	29.2
20	1018.3	19.2	16.8	14.7	11.5	71	53	0.0		7.3	060	31.4
21	1016.3	19.8	17.5	15.5	5.4	46	37	Trace		8.8	360	27.0
22	1016.5	20.3	17.2	13.9	1.4	35	6	0.0		9.4	010	22.6
23	1019.0	20.2	17.1	14.7	3.2	40	24	0.0		9.0	010	23.1
24	1021.1	20.1	16.9	14.4	5.8	49	13	0.0		9.4	020	22.4
25	1022.3	18.5	16.2	14.1	8.0	59	14	0.0		9.3	070	31.0
26	1022.8	18.8	16.3	14.3	9.7	65	7	0.0		9.3	070	29.4
27	1022.7	18.8	16.9	14.9	11.3	70	13	0.0		9.3	070	35.1
28	1022.6	20.6	17.7	14.7	11.6	68	23	0.0		9.3	060	27.7
29	1024.2	18.9	16.8	14.5	9.0	60	56	Trace		5.6	360	26.3
30	1025.1	17.3	15.0	12.4	7.8	62	12	0.0		9.3	360	30.1
31	1024.7	18.7	15.5	12.0	8.8	65	33	0.0		8.9	360	26.1
Mean/Total	1020.0	19.0	16.6	14.4	9.3	64	51	25.7		188.5	010	28.6
Climatological Normal?	1020.1	20.4	18.2	16.2	12.4	70	57	28.8		161.6	010	26.4

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Source: Daily Extract | Hong Kong Observatory(HKO) | Climate Information Service

2023/01 Daily Extract of Meteorological Observations from HKO

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1023.3	19.3	16.9	14.5	10.2	65	84	0.1	1.8	***	***
02	1023.1	21.6	18.7	17.2	12.0	65	79	Trace	4.8	***	***
03	1023.7	19.2	17.3	16.1	11.4	69	88	Trace	0.2	***	***
04	1023.4	19.9	17.4	15.8	12.7	74	83	Trace	5.0	***	***
05	1023.4	21.4	18.5	16.8	14.3	77	66	0.0	8.1	***	***
06	1022.6	23.4	19.8	17.0	11.9	62	56	0.0	9.6	***	***
07	1020.5	21.3	19.1	17.9	10.9	59	83	0.0	4.5	***	***
08	1020.0	20.0	18.6	17.0	9.8	57	88	Trace	0.1	***	***
09	1019.5	21.4	19.7	18.2	14.3	72	88	0.1	0.0	***	***
10	1018.8	19.0	18.2	17.6	16.8	91	91	5.5	0.0	***	***
11	1017.6	19.1	18.1	17.0	15.9	87	92	3.2	0.7	***	***
12	1014.5	19.6	18.8	17.5	16.8	88	89	0.5	0.0	***	***
13	1011.0	23.9	21.7	18.9	20.5	93	88	4.5	0.0	***	***
14	1009.4	24.7	22.7	20.0	20.9	90	62	3.4	4.8	***	***
15	1014.4	21.6	18.4	13.0	14.7	80	81	Trace	0.7	***	***
16	1021.6	13.2	12.3	11.3	6.2	66	88	0.0	0.0	***	***
17	1023.6	15.2	13.2	11.0	8.0	71	85	0.0	0.6	***	***
18	1024.1	17.1	14.3	11.5	6.2	58	41	0.0	9.1	***	***
19	1022.3	18.7	16.1	13.3	8.9	63	23	0.0	9.8	***	***
20	1021.4	20.9	17.6	15.9	10.1	62	74	Trace	5.1	***	***
21	1019.5	18.8	16.9	16.0	13.1	79	80	Trace	4.1	***	***
22	1016.5	22.4	18.8	16.6	15.8	83	62	0.6	7.1	***	***
23	1016.2	21.1	18.8	16.9	16.4	86	66	0.0	6.0	***	***
24	1024.5	18.7	14.7	12.0	4.3	51	44	0.3	7.4	***	***
25	1023.1	14.4	12.5	10.6	3.5	54	80	0.0	1.5	***	***
26	1019.3	18.6	15.7	13.0	9.4	66	85	0.0	3.0	***	***
27	1022.5	17.3	15.4	12.4	3.2	46	84	0.0	3.7	***	***
28	1024.1	15.7	12.9	10.6	-5.2	28	20	0.0	10.0	***	***
29	1023.7	16.0	12.8	9.8	-2.6	35	1	0.0	10.0	***	***
30	1022.2	18.8	15.0	11.7	3.5	48	8	0.0	10.1	***	***
31	1017.9	20.1	16.9	13.8	9.1	61	52	0.0	6.3	***	***
Mean/Total	1020.3	19.4	17.0	14.9	10.4	67	68	18.2	134.1	***	***
Climatological Normal[?]	1020.1	18.7	16.5	14.6	11.7	74	62	33.2	145.8	060	25.1

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Source: Daily Extract | Hong Kong Observatory(HKO) | Climate Information Service

2023/02 Daily Extract of Meteorological Observations from HKO

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1015.6	23.7	19.9	17.8	15.8	77	59	0.0	***	***	***
02	1018.2	21.2	19.4	17.9	15.2	77	56	0.0	***	***	***
03	1018.6	19.9	17.9	16.7	13.6	76	88	0.0	***	***	***
04	1017.4	19.1	17.4	16.6	14.2	81	88	0.4	***	***	***
05	1016.0	19.3	17.9	16.8	15.0	83	88	Trace	***	***	***
06	1014.6	21.1	19.2	17.9	16.6	85	88	0.1	***	***	***
07	1015.4	24.8	21.0	18.8	17.9	83	74	Trace	***	***	***
08	1017.1	20.1	18.5	17.2	15.8	84	88	Trace	***	***	***
09	1016.3	23.5	19.5	16.9	16.5	83	83	0.1	***	***	***
10	1014.9	24.2	21.2	19.5	18.9	87	86	0.1	***	***	***
11	1014.6	20.2	18.7	17.8	17.6	93	92	0.9	***	***	***
12	1013.9	21.1	19.9	18.7	19.1	95	88	Trace	***	***	***
13	1013.7	26.1	22.3	19.5	20.2	88	73	Trace	***	***	***
14	1018.8	20.7	18.5	16.6	11.4	64	84	0.0	***	***	***
15	1023.5	20.3	16.3	13.1	8.4	60	42	0.0	***	***	***
16	1024.7	19.9	16.8	14.5	9.3	62	83	0.0	***	***	***
17	1021.2	24.0	18.7	15.6	13.0	70	32	0.0	***	***	***
18	1018.2	25.1	21.0	18.0	14.6	67	73	0.0	***	***	***
19	1017.6	26.6	22.8	19.8	16.4	67	70	Trace	***	***	***
20	1019.2	24.1	20.1	18.2	12.8	64	58	0.0	***	***	***
21	1022.6	20.5	17.8	16.1	10.3	62	48	0.0	***	***	***
22	1022.2	20.4	16.9	14.8	9.3	61	13	0.0	***	***	***
23	1018.6	22.9	18.2	15.4	12.6	70	21	0.0	***	***	***
24	1018.9	23.4	19.8	17.0	13.3	67	13	0.0	***	***	***
25	1026.5	21.0	17.1	14.8	7.7	54	32	0.0	***	***	***
26	1029.2	21.2	16.8	14.4	8.3	58	39	0.0	***	***	***
27	1027.4	20.1	16.4	14.2	8.4	60	8	0.0	***	***	***
28	1024.0	22.3	17.8	14.9	12.3	71	25	0.0	***	***	***
Mean/Total	1019.2	22.0	18.9	16.8	13.7	73	60	1.6	***	***	***
Climatological Normal[?]	1018.7	19.4	17.1	15.3	13.2	79	72	38.9	101.7	060	24.2

*** *unavailable*
^ *Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989*
Trace means rainfall less than 0.05 mm
? 1991-2020 Climatological Normal, unless otherwise specified
Source: Daily Extract | Hong Kong Observatory(HKO) | Climate Information Service

APPENDIX G - GRAPHICAL PLOTS OF THE MONITORING RESULT

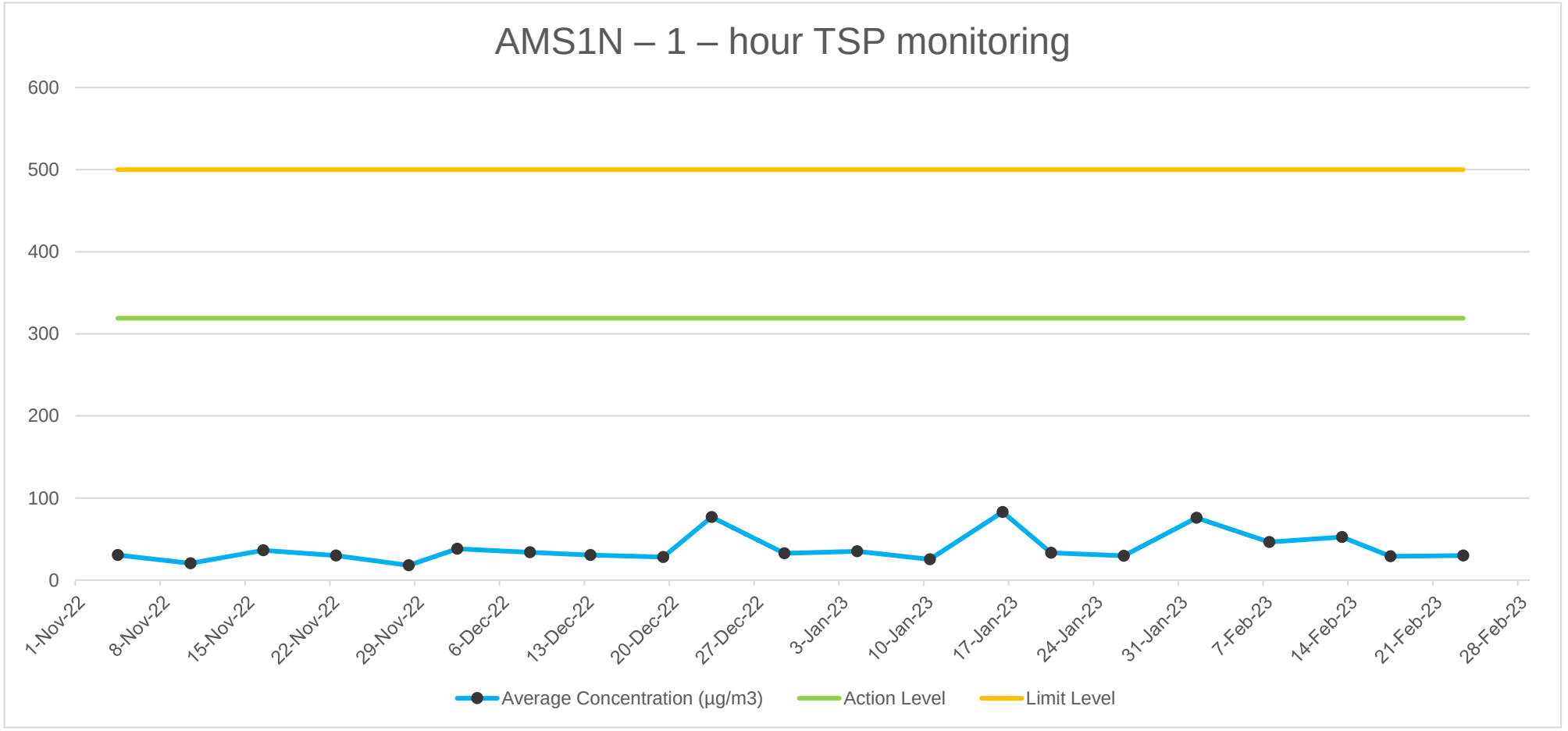
AMS1N – 1-hour and 24-hour TSP monitoring

Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
2-Dec-22	Fine	38.0	30
8-Dec-22	Fine	34.0	30
13-Dec-22	Cloudy	30.7	40
19-Dec-22	Fine	28.0	26
23-Dec-22	Fine	76.7	72
29-Dec-22	Cloudy	32.7	29

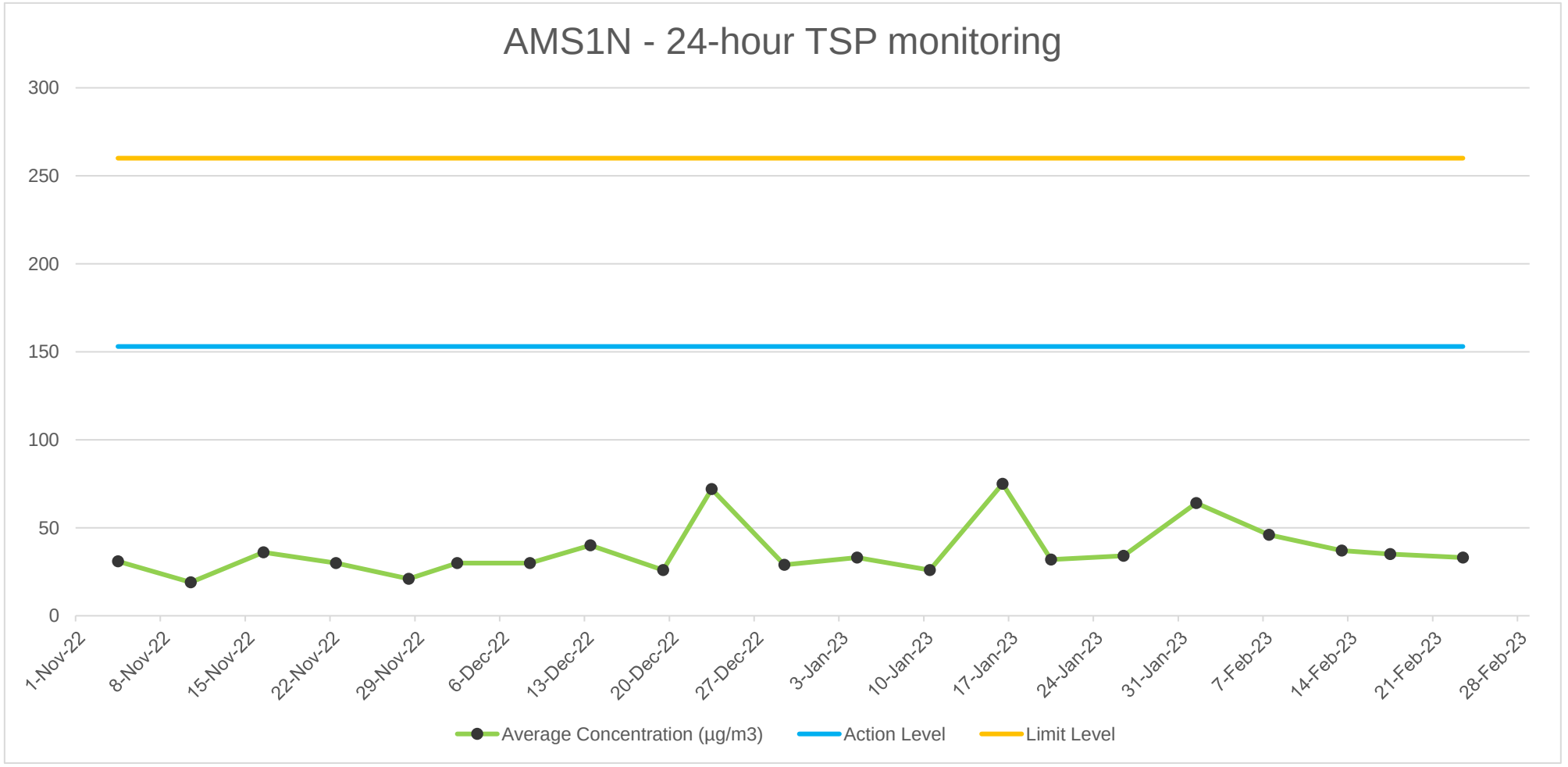
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
4-Jan-23	Cloudy	35.0	33
10-Jan-23	Cloudy	25.3	26
16-Jan-23	Cloudy	83.0	75
20-Jan-23	Fine	33.3	32
26-Jan-23	Cloudy	29.7	34

Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
1-Feb-23	Fine	76.0	64.0
7-Feb-23	Cloudy	46.3	46.0
13-Feb-23	Foggy	52.3	37.0
17-Feb-23	Fine	29.0	35.0
23-Feb-23	Fine	30.0	33.0
	Average:	43	39
	Action Level:	319	153
	Limit Level:	500	260

AMS1N- 1 – hour TSP Monitoring



AMS1N- 24– hour TSP Monitoring



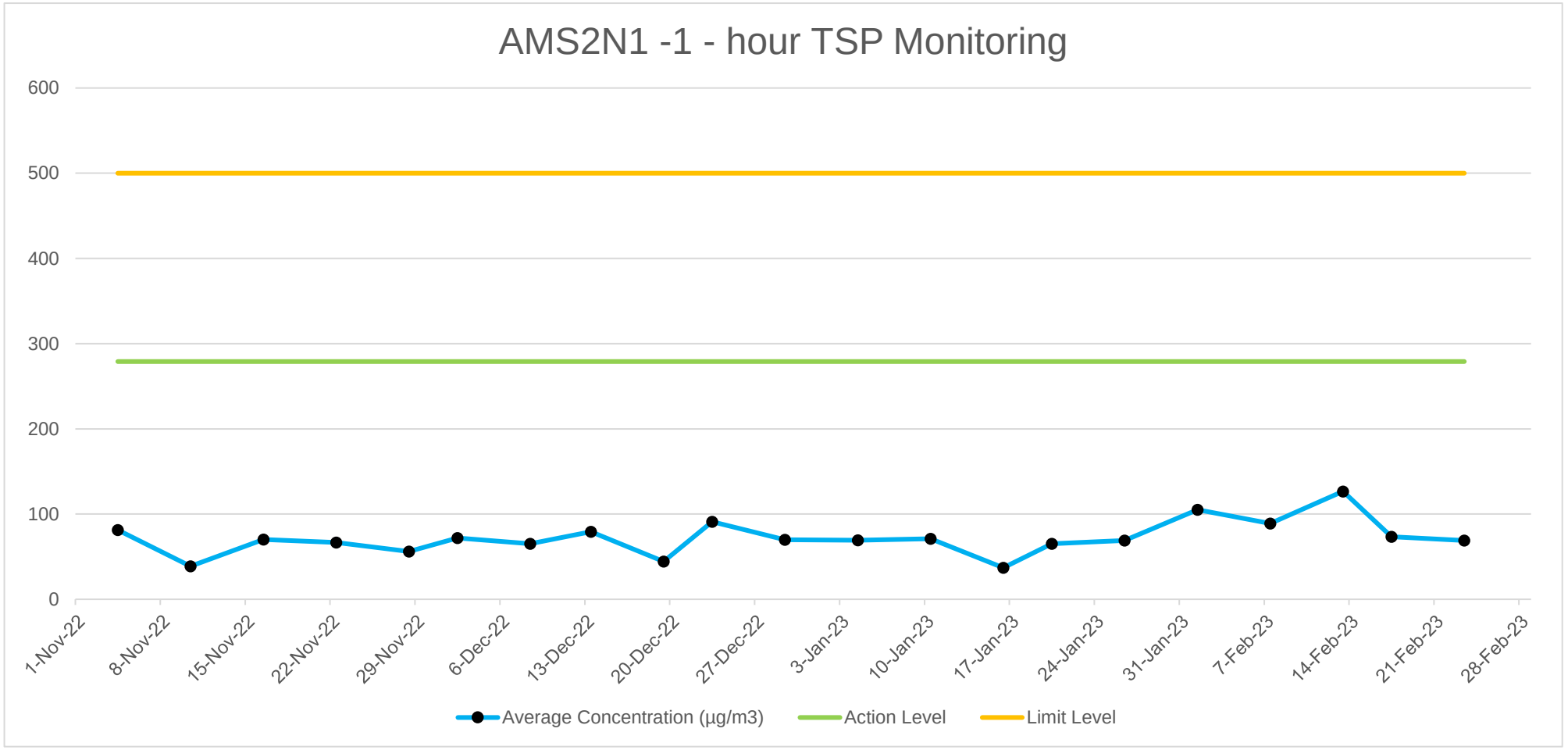
AMS2N1 – 1- hour and 24-hour TSP Monitoring

Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
2-Dec-22	Fine	72.0	70
8-Dec-22	Fine	65.3	70
13-Dec-22	Cloudy	79.3	82
19-Dec-22	Fine	44.3	40
23-Dec-22	Fine	91.0	89
29-Dec-22	Cloudy	70.0	67

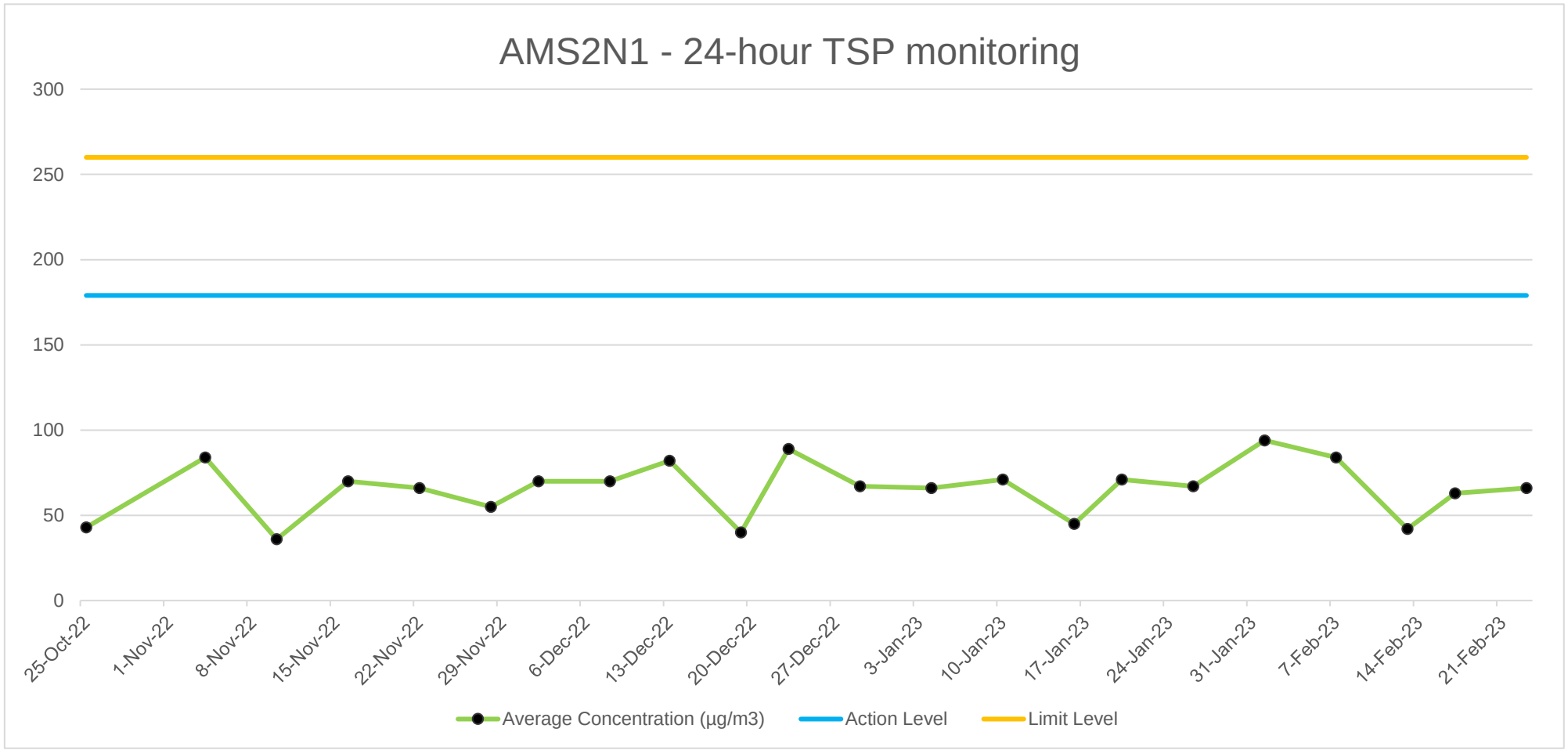
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
4-Jan-23	Cloudy	69.3	66
10-Jan-23	Cloudy	71.0	71
16-Jan-23	Cloudy	37.0	45
20-Jan-23	Fine	65.3	71
26-Jan-23	Cloudy	69.0	67

Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
1-Feb-23	Fine	105.0	94.0
7-Feb-23	Cloudy	89.0	84.0
13-Feb-23	Foggy	126.7	42.0
17-Feb-23	Fine	73.3	63.0
23-Feb-23	Fine	69.0	66.0
	Average:	75	68
	Action Level:	279	179
	Limit Level:	500	260

AMS2N- 1 – hour TSP Monitoring



AMS2N1- 24 – hour TSP Monitoring



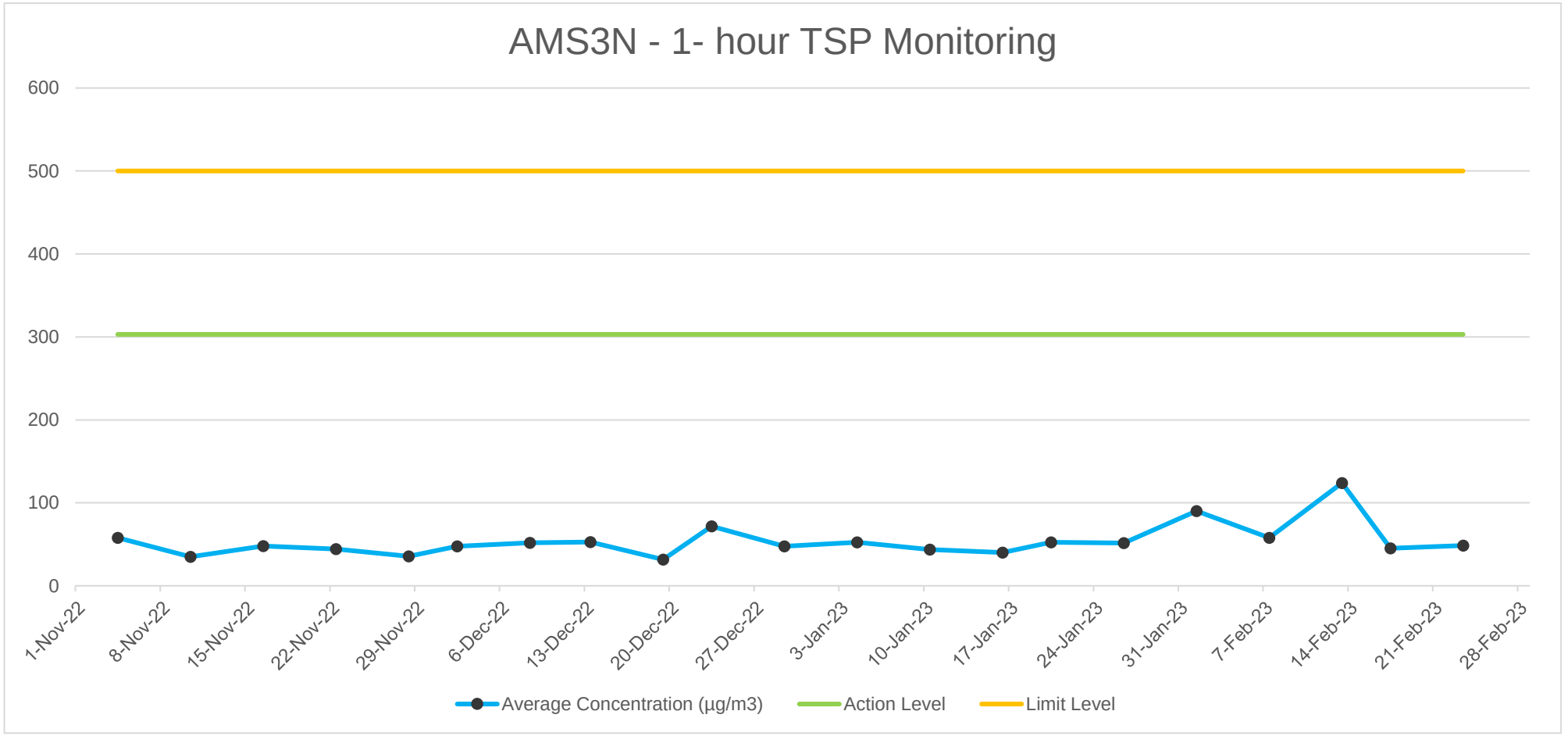
AMS3N – 1- hour and 24-hour TSP Monitoring

Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
2-Dec-22	Fine	47.7	49
8-Dec-22	Fine	52.0	49
13-Dec-22	Cloudy	52.7	53
19-Dec-22	Fine	31.7	32
23-Dec-22	Fine	71.7	71
29-Dec-22	Cloudy	47.7	48

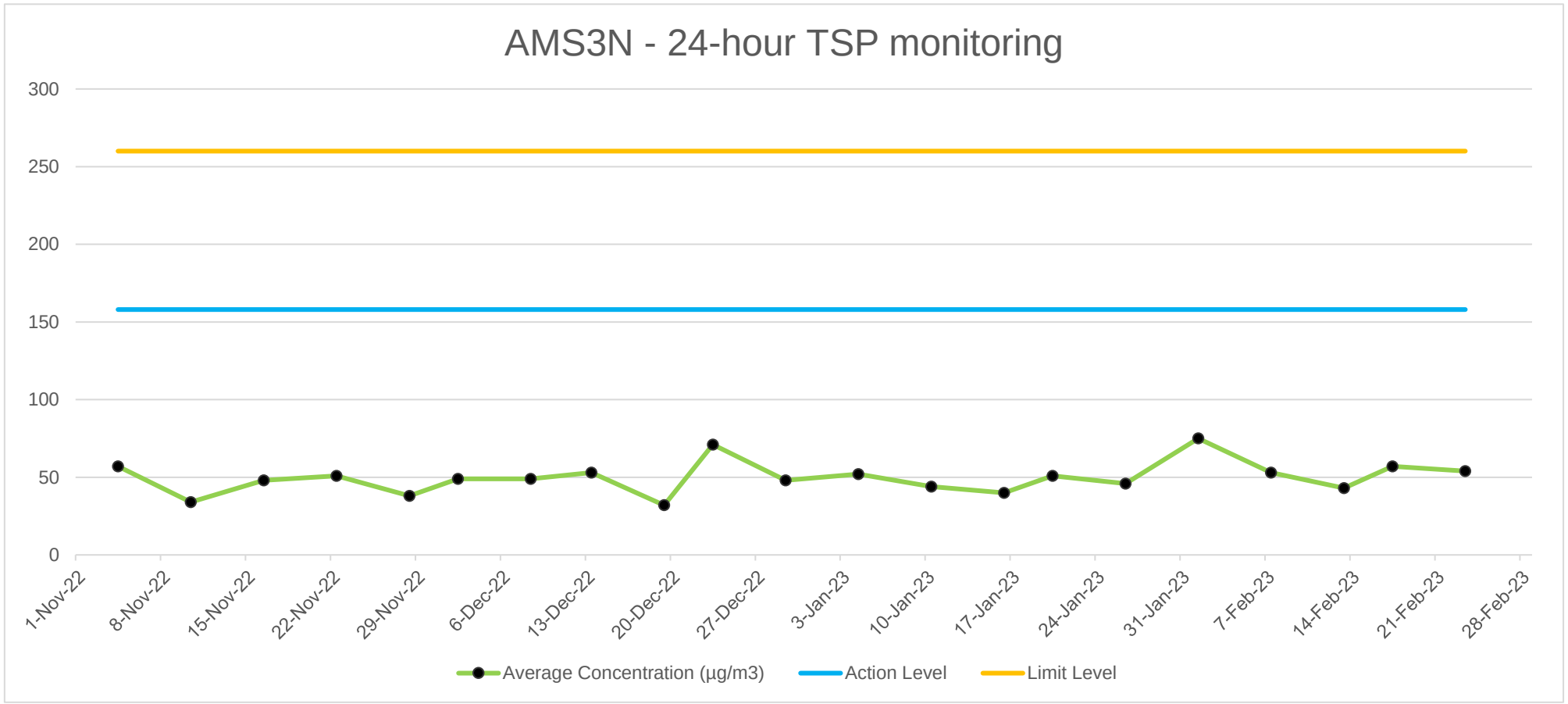
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
4-Jan-23	Cloudy	52.3	52
10-Jan-23	Cloudy	43.7	44
16-Jan-23	Cloudy	40.0	40
20-Jan-23	Fine	52.3	51
26-Jan-23	Cloudy	51.7	46

Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
1-Feb-23	Fine	90.0	75.0
7-Feb-23	Cloudy	58.0	53.0
13-Feb-23	Foggy	124.0	43.0
17-Feb-23	Fine	45.3	57.0
23-Feb-23	Fine	48.7	54.0
	Average:	57	51
	Action Level:	158	158
	Limit Level:	500	260

AMS3N- 1 – hour TSP Monitoring



AMS3N – 24-hour TSP Monitoring



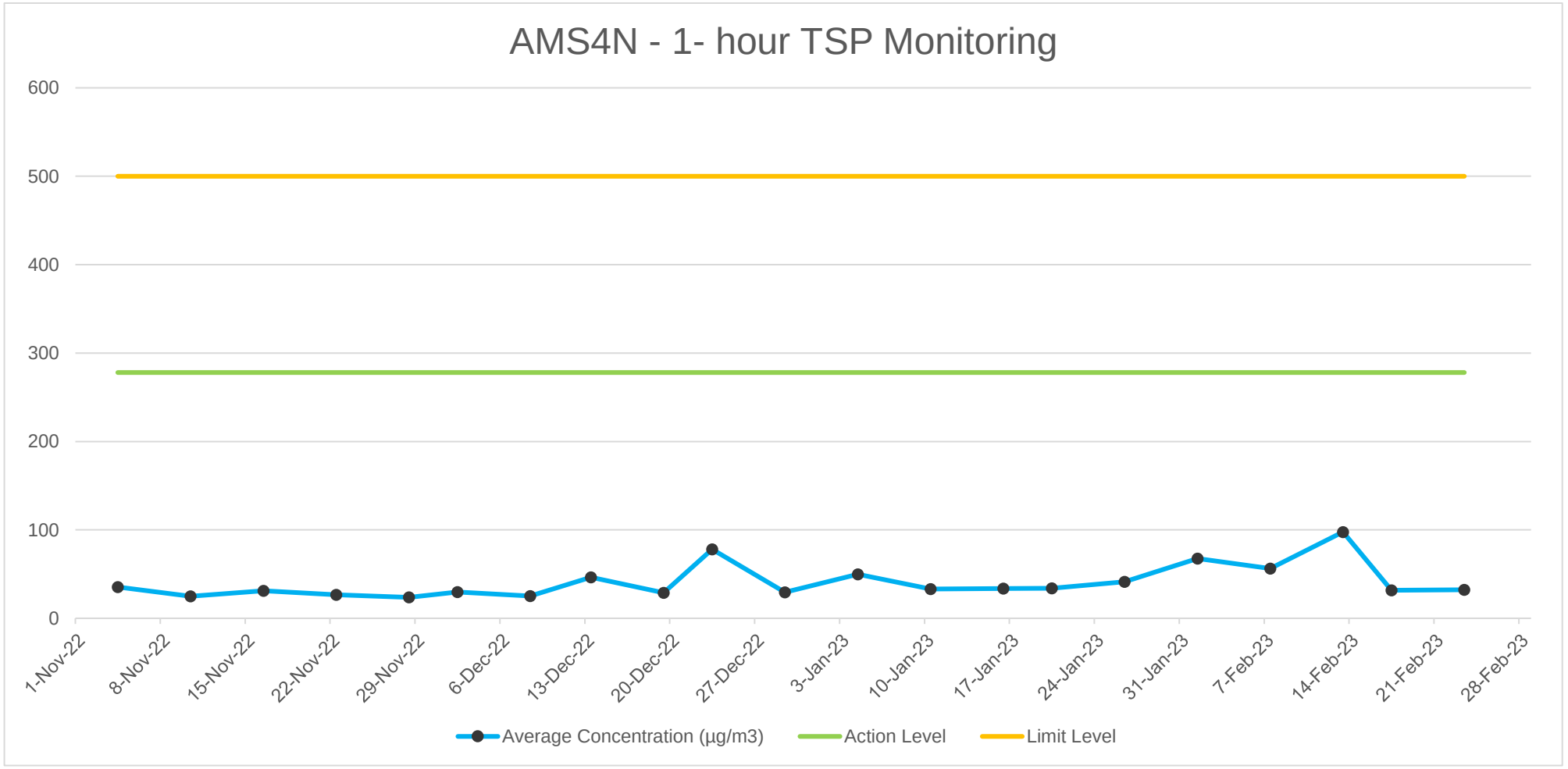
AMS4N — 1- hour and 24-hour TSP Monitoring

Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
2-Dec-22	Fine	29.7	29
8-Dec-22	Fine	25.3	29
13-Dec-22	Cloudy	46.3	47
19-Dec-22	Fine	29.0	31
23-Dec-22	Fine	78.0	87
29-Dec-22	Cloudy	29.3	28

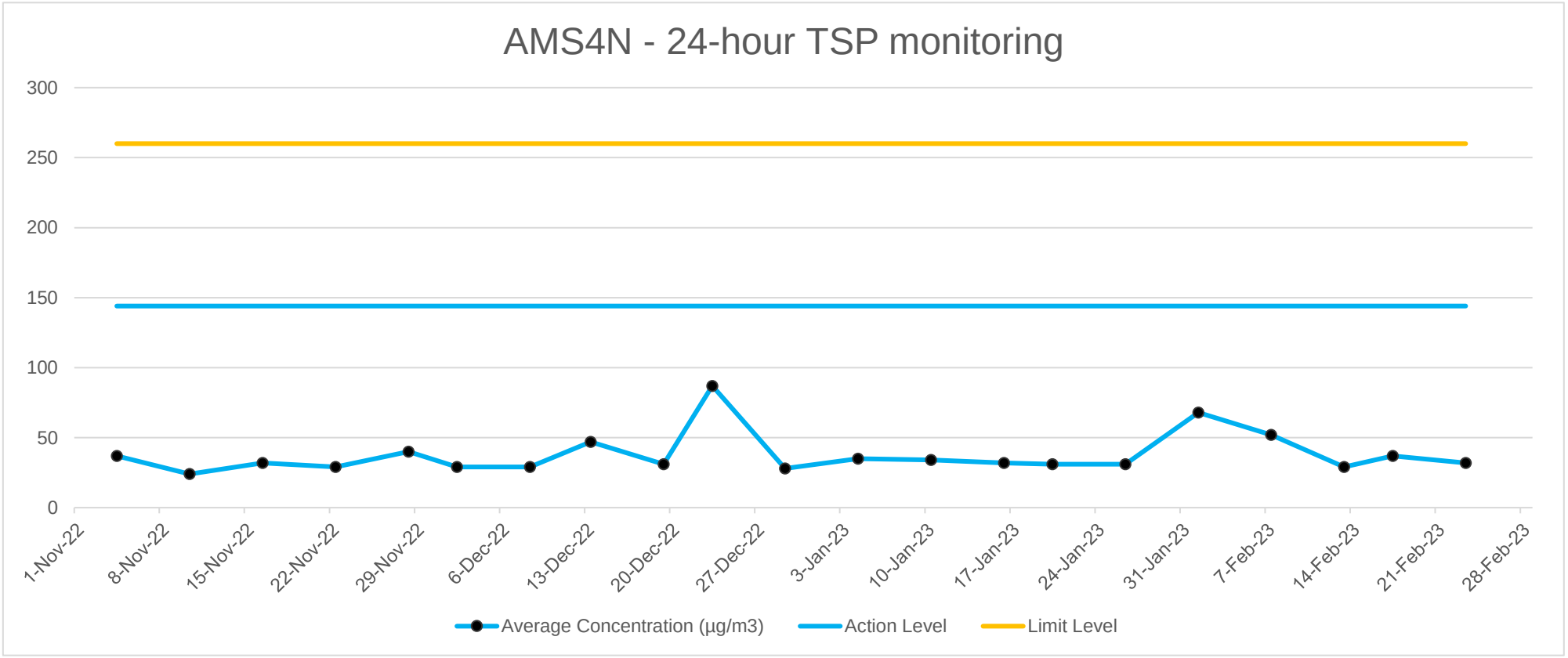
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
4-Jan-23	Cloudy	49.7	35
10-Jan-23	Cloudy	33.0	34
16-Jan-23	Cloudy	33.7	32
20-Jan-23	Fine	34.0	31
26-Jan-23	Cloudy	41.3	31

Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (μg/m3)	Average Concentration (μg/m3)
1-Feb-23	Fine	67.7	68.0
7-Feb-23	Cloudy	56.3	52.0
13-Feb-23	Foggy	97.7	29.0
17-Feb-23	Fine	31.7	37.0
23-Feb-23	Fine	32.3	32.0
	Average:	45	40
	Action Level:	278	144
	Limit Level:	500	260

AMS4N- 1 – hour TSP Monitoring



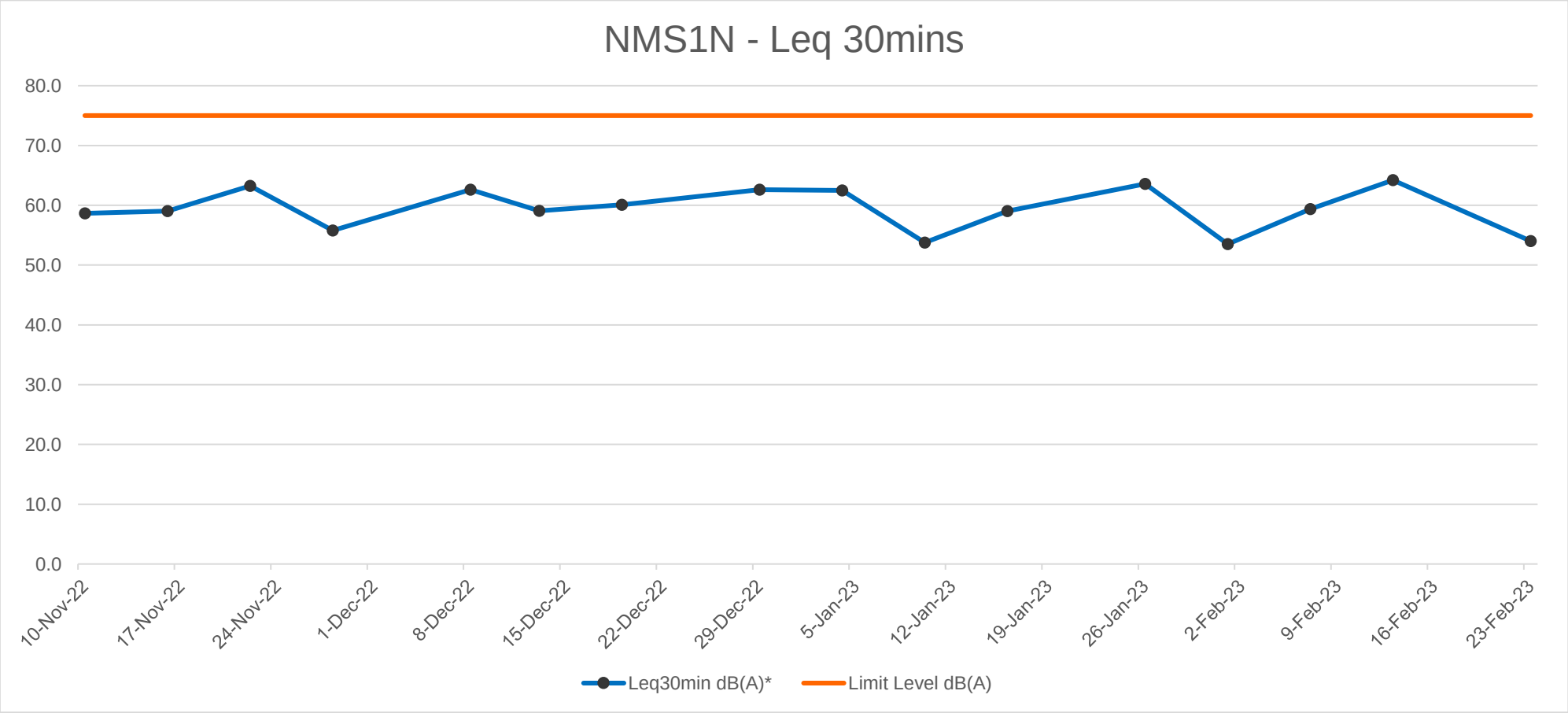
AMS4N- 24 – hour TSP Monitoring



NMS1N – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
08/12/2022	62.6	45.3	65.2	75
13/12/2022	59.1	38.5	64.5	75
19/12/2022	60.1	48.0	60.0	75
29/12/2022	62.6	45.4	65.4	75
04/01/2023	62.5	45.2	65.1	75
10/01/2023	53.7	43.2	58.6	75
16/01/2023	59.0	51.3	61.5	75
26/01/2023	63.6	46.3	66.2	75
01/02/2023	53.5	49.1	55.9	75
07/02/2023	59.4	47.1	59.5	75
13/02/2023	64.2	44.6	62.0	75
23/02/2023	54.0	48.7	57.4	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

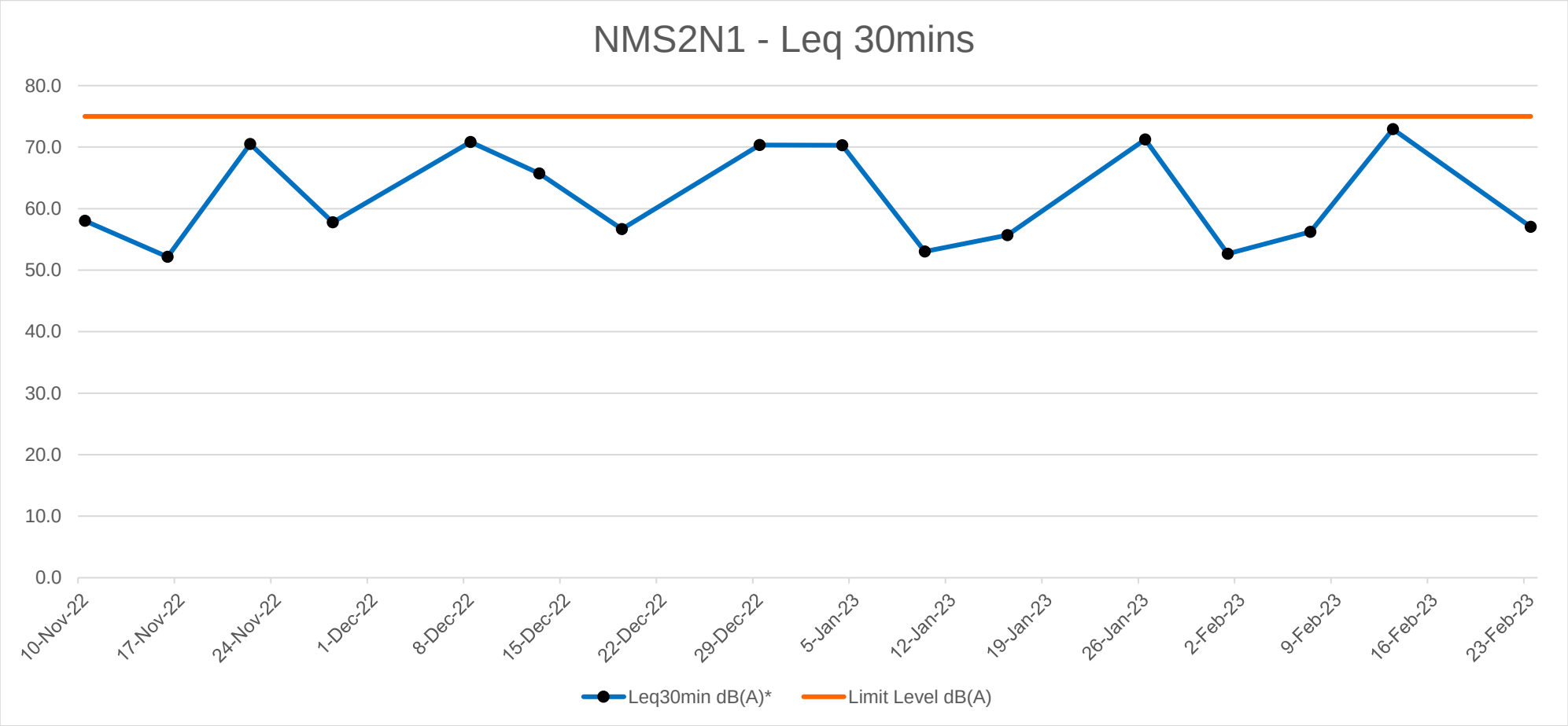
NMS1N – Leq30 Noise monitoring



NMS2N1 – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
08/12/2022	70.8	68.1	71.9	75
13/12/2022	65.7	48.6	70.0	75
19/12/2022	56.7	50.5	58.8	75
29/12/2022	70.3	67.0	71.9	75
04/01/2023	70.3	67.5	72.4	75
10/01/2023	53.0	44.5	54.8	75
16/01/2023	55.7	51.1	57.2	75
26/01/2023	71.3	67.9	75.4	75
01/02/2023	52.6	51.4	54.3	75
07/02/2023	56.2	47.6	58.4	75
13/02/2023	72.9	67.6	75.8	75
23/02/2023	57.0	45.9	60.5	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

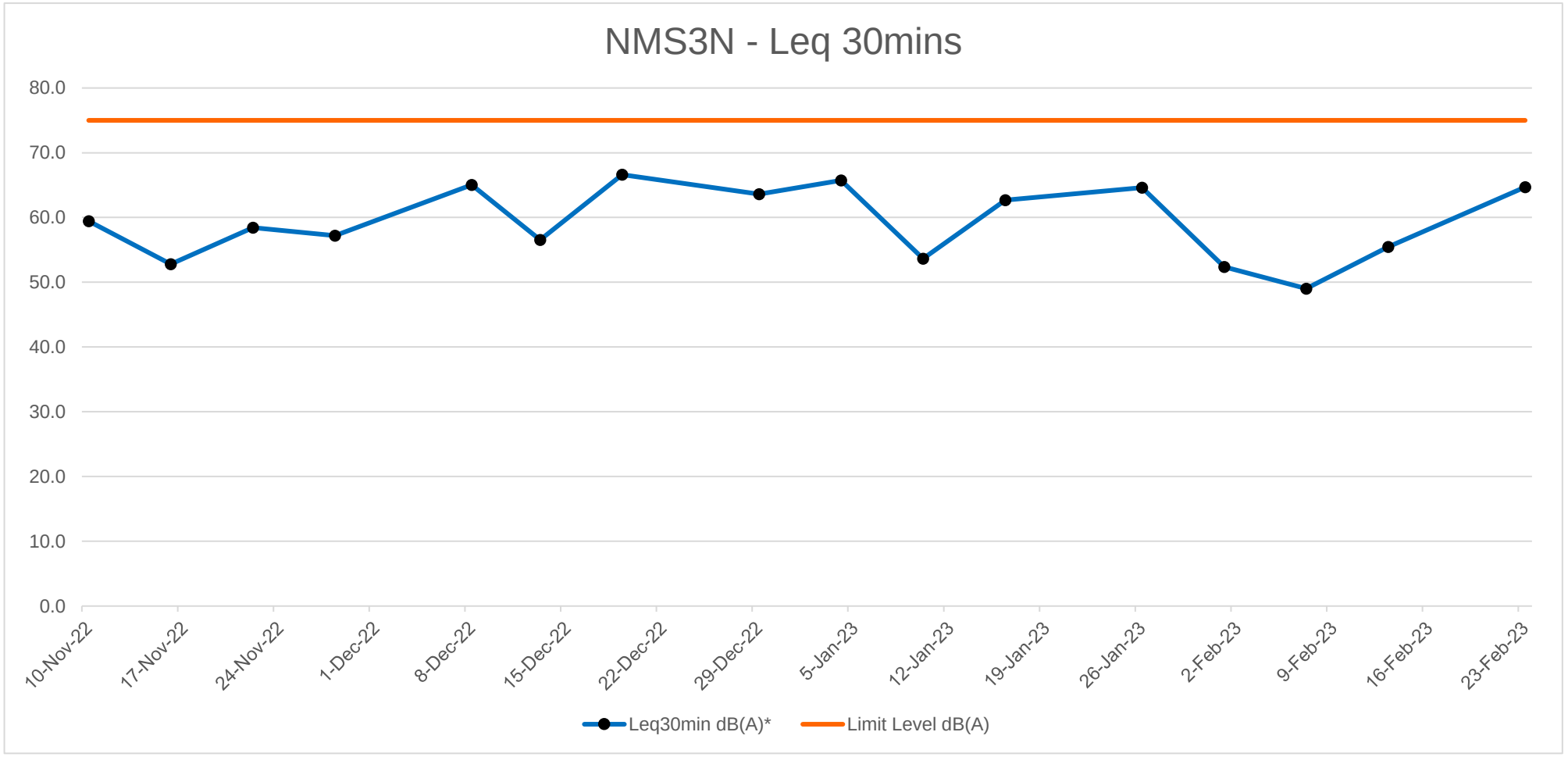
NMS2N1 – Leq30 Noise monitoring



NMS3N – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
08/12/2022	65.0	57.6	66.6	75
13/12/2022	56.5	52.4	58.3	75
19/12/2022	66.6	57.2	68.2	75
29/12/2022	63.6	57.5	65.5	75
04/01/2023	65.7	57.5	68.8	75
10/01/2023	53.6	50.3	55.6	75
16/01/2023	62.7	60.0	64.4	75
26/01/2023	64.6	58.6	66.8	75
01/02/2023	52.4	48.3	54.9	75
07/02/2023	49.0	43.7	51.4	75
13/02/2023	55.4	49.1	58.3	75
23/02/2023	64.7	52.7	66.7	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

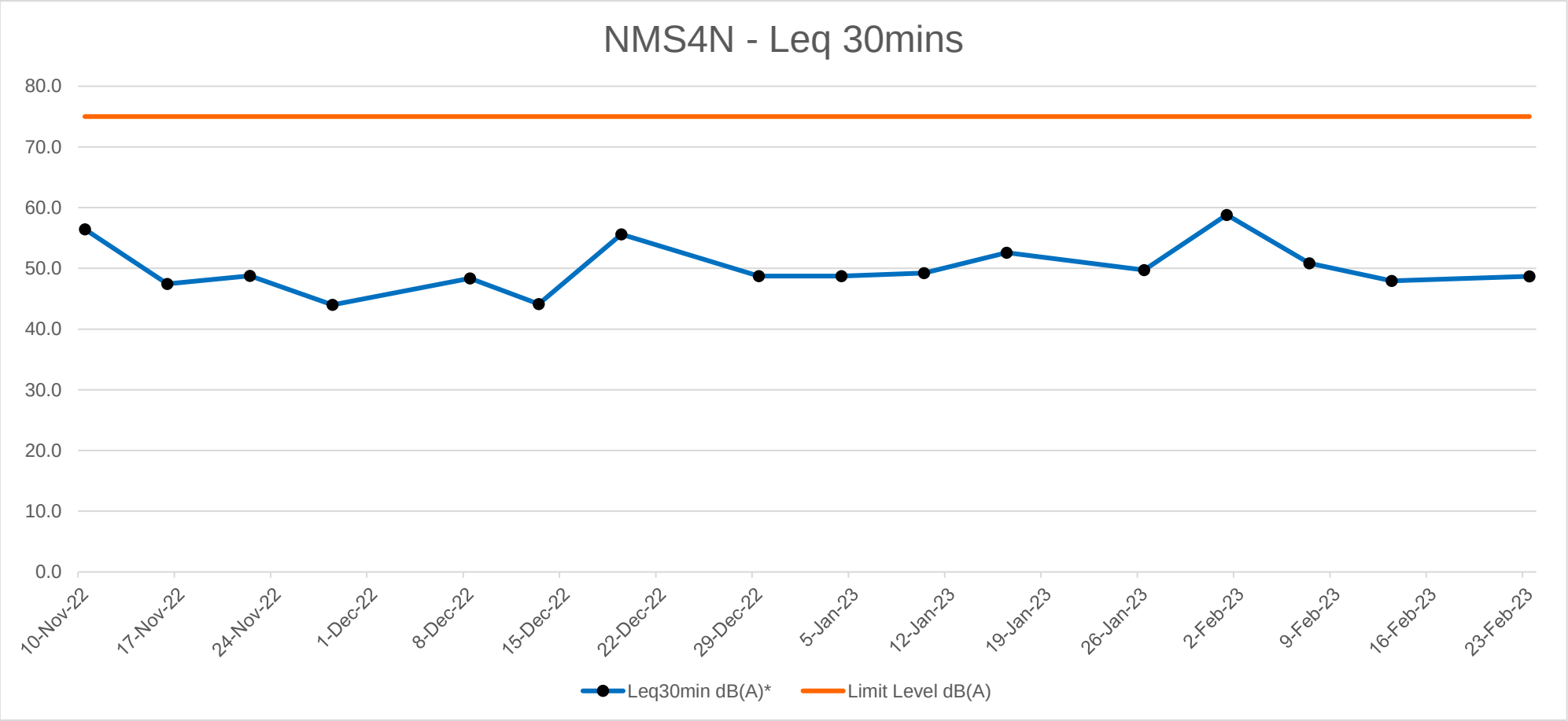
NMS3N – Leq30 Noise monitoring



NMS4N – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
08/12/2022	48.4	44.2	52.0	75
13/12/2022	44.1	41.4	45.8	75
19/12/2022	55.6	44.8	55.5	75
29/12/2022	48.7	44.2	51.3	75
04/01/2023	48.7	44.1	51.5	75
10/01/2023	49.2	41.9	53.6	75
16/01/2023	52.6	49.6	54.1	75
26/01/2023	49.7	45.2	52.5	75
01/02/2023	58.8	52.1	61.6	75
07/02/2023	50.8	46.3	53.8	75
13/02/2023	47.9	39.1	51.3	75
23/02/2023	48.7	43.6	51.3	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

NMS4N – Leq30 Noise monitoring



APPENDIX H - SUMMARY OF WASTE FLOW TABLE

Monthly Summary Waste Flow Table for 2022 Year

Month		Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (see note 3)	Chemical Waste	Other, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
Jan	0.142	0.000	0.000	0.000	0.142	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.100	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.040	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000
May	0.066	0.000	0.000	0.000	0.064	0.000	0.000	0.000	0.000	0.000	0.002
June	0.017	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000
Sub-Total	0.375	0.000	0.000	0.000	0.353	0.000	0.000	0.000	0.000	0.000	0.002
July	0.670	0.000	0.000	0.000	0.670	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.730	0.000	0.000	0.000	0.730	0.000	0.000	0.000	0.000	0.000	0.000
Sep	0.092	0.000	0.000	0.000	0.090	0.000	0.000	0.000	0.000	0.000	0.002
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.007	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.884	0.000	0.000	0.000	1.880	0.000	0.000	0.000	0.000	0.000	0.004

Note:

1) The performance targets are given in the Environmental Management Plan.
(2) The waste flow table shall also include C&D materials to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

Monthly Summary Waste Flow Table for 2023 Year

Month		Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (see note 3)	Chemical Waste	Other, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in Tonne]
Jan	0.003	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.007	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Mar											
Apr											
May											
June											
Sub-Total	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000
July											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000

Note:

1) The performance targets are given in the Environmental Management Plan.
(2) The waste flow table shall also include C&D materials to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

APPENDIX I - CUMULATIVE STATISTICS ON COMPLAINTS, NOTIFICATIONS OF SUMMONS

Appendix I - Cumulative Statistics on Complaints, Notifications of Summons, Successful Prosecutions and Public Engagement Activities

Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From	Received By	Nature of Environmental Complaint	Relevant to the Construction Work of Project Site? (Y/N)	Investigation/ Mitigation Action	Status
001	28 December 2021	EPD	ET	Waste Management	N	The investigation report was submitted on 7 January 2022	Closed

Remark: * No Notifications of Summons or Successful Prosecutions were received during the reporting period.

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions and Public Engagement Activities

Reporting Period	Complaints	Notifications of Summons and Prosecutions	Public Engagement Activities
2022/12	0	0	0
2023/01	0	0	0
2023/02	0	0	0
Cumulative Project-to-Date	1	0	0