

Our Ref.: CJO-3113

16 January 2025

The EIA Ordinance Register Office,  
Environmental Protection Department,  
27th floor, Southorn Centre,  
130 Hennessy Road,  
Wanchai, Hong Kong

**CONTRACT NO. 1/WSD/19 & 6/WSD/21**

**IN-SITU REPROVISIONING OF SHA TIN WATER  
TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND  
ANCILLARY FACILITIES  
Environmental Permit EP-494/2015**

We are enclosing the following information for your kind considerations of our application:

- (a) Three hard copies,
- (b) Two copies of the 106<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0). (Register No.: AEIAR-187/2015)

Please feel free to contact us should you need further information.

Yours sincerely,  
Acumen Environmental Engineering and Technologies Co. Ltd.



Mr. Vega Wong  
2698 8032

c.c. Water Supplies Department  
c.c. AECOM

Your ref:

Our ref: CJO-3113

**By hand**

Chief Engineer /Project Management  
Water Supplies Department  
46/F., Immigration Tower  
7 Gloucester Road, Wanchai  
(Attn: Mr. H C Wong, Heinz)

16 January 2025

Dear Sir,

**In-Situ Re provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities  
Environmental Permit EP-494/2015  
Submission of 106<sup>th</sup> monthly EM&A Report**

In accordance with the Condition 3.4 of the Environmental Permit (No. EP-494/2015), we submit herewith 3 hard copies and 2 electronic copies of the 106<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0) for your processing. I certified and confirmed the submission of this monthly EM&A Report had complied with the requirements as set out in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Yours faithfully,



**Mr. Wong, Vega, T. L.**

Environmental Team Leader

c.c. Independent Environmental Checker



Your Ref:  
Our Ref: 60479142/C/fyw25011601

**By Email**

Chief Engineer/Project Management  
Water Supplies Department  
46/F., Immigration Tower  
7 Gloucester Road, Wanchai

Attn: Mr. Edmund Huen

16 January 2024

Dear Sir,

**Contract No.1/WSD/19**

**In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities**

**Contract No.6/WSD/21**

**In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) – Administration Building**

**Submission of 106<sup>th</sup> Monthly EM&A Report for December 2024**

Reference is made to Environmental Team (ET)'s 106<sup>th</sup> Monthly EM&A Report for December 2024 (Rev. 0) submitted on 9 and 16 January 2025.

In accordance with the Condition 3.4 of the Environmental Permit (No.EP-494/2015), I verified and confirmed the submission of this Monthly EM&A Monitoring Report as compiled with the requirements as set in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully,  
AECOM Asia Co. Ltd.



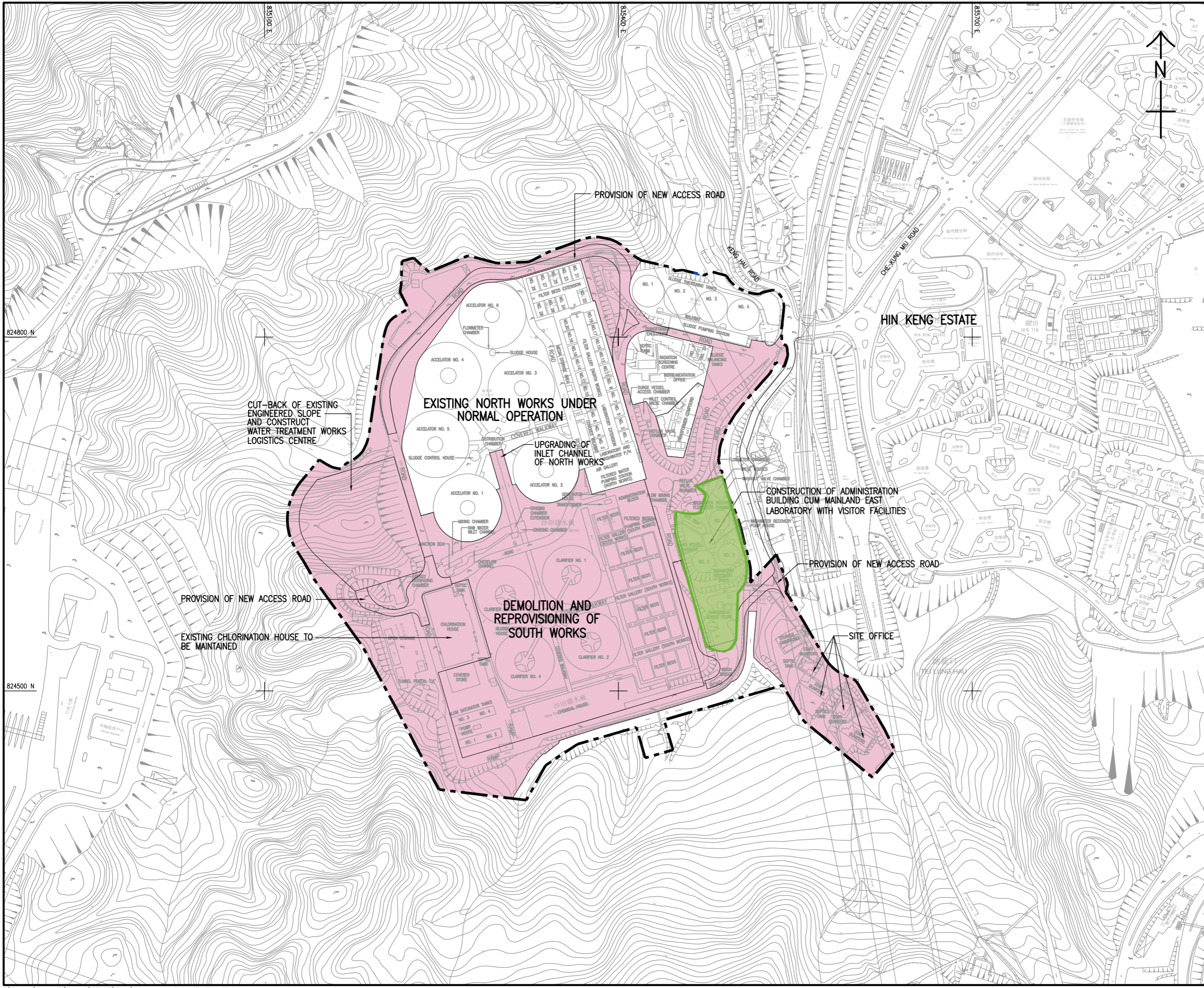
Y W Fung  
Independent Environmental Checker

c.c. Environmental Team Leader (via email)

# Appendix A

## General Layout Plan





**LEGEND:**

--- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS

WORKS AREA

1/WSD/19

6/WSD/21

**水務署**  
**WATER SUPPLIES DEPARTMENT**  
 AGREEMENT NO. CE 13/2009 (WS)  
 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS  
 DESIGN AND CONSTRUCTION

**LOCATION PLAN AND THE MAJOR SCOPE OF WORKS**

**AECOM**

DRG. NO. 60162073/EM&A/FIG 1  
 圖紙編號

DESIGNED BY	CONTRACT NO.	P. DR. APPROVED
DRAWN BY	DATE	批准人
SCALE	比例尺	
DIMENSIONS ARE IN METRES	© COPYRIGHT RESERVED 版權所有	



# Appendix B

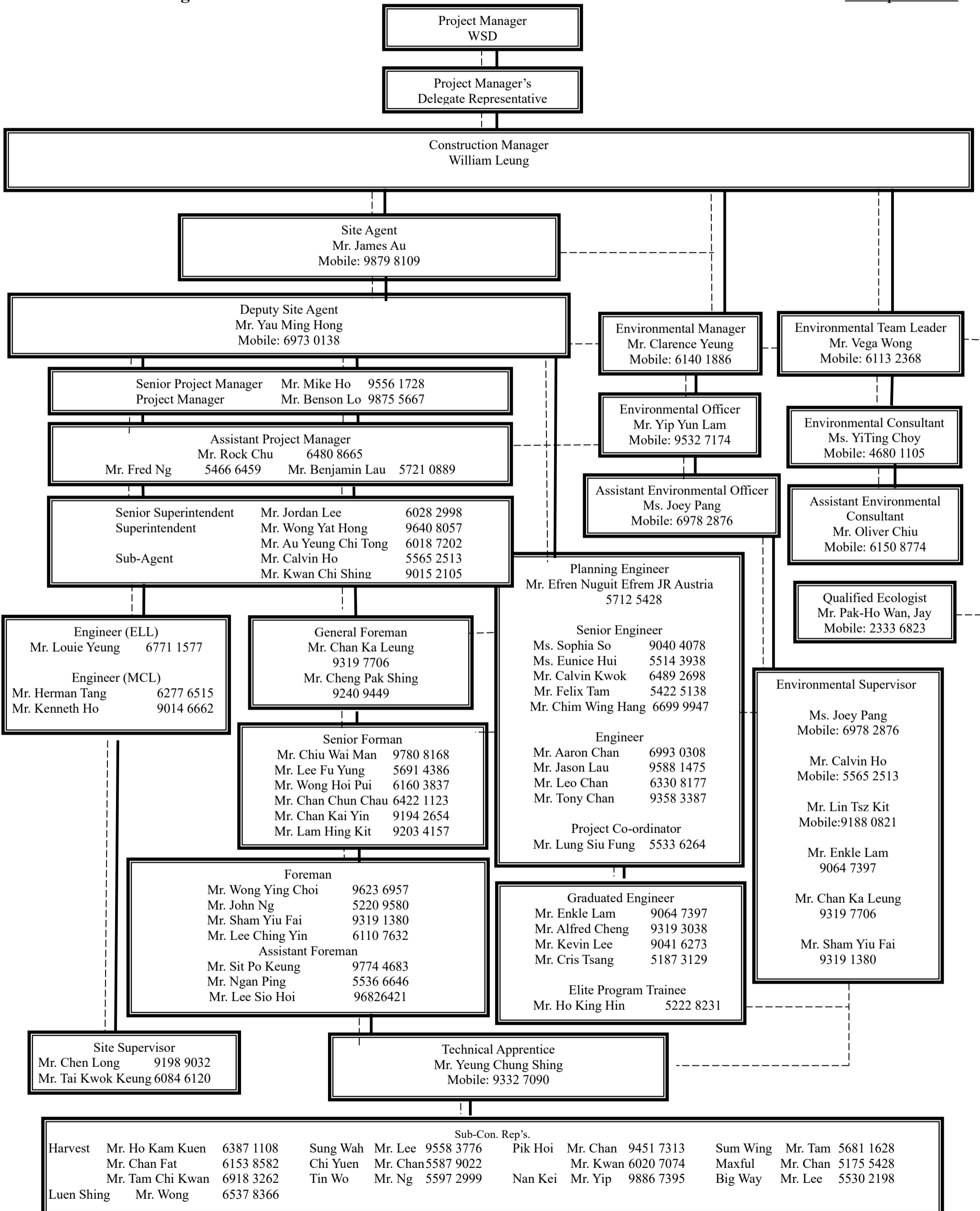
## Project Organization

In-situ Re-provisioning of Sha Tin Water Treatment Works (South Works)

- Water Treatment Works and Ancillary Facilities

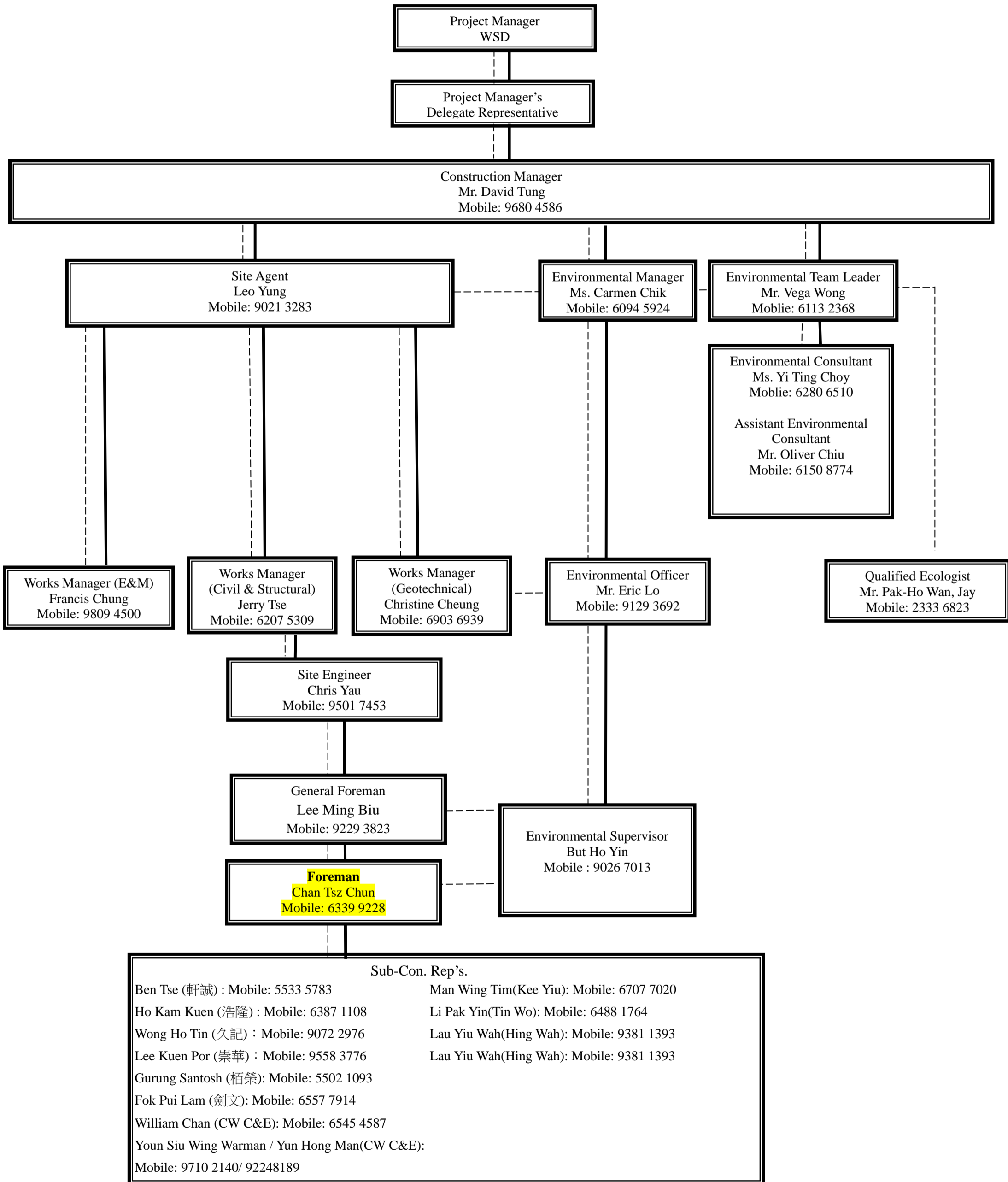
Environmental Organizational Chart

Date: 30 Apr 2024



— Authorization  
 - - - - - Communication Line

**Environmental Organizational Chart (2024.04)**



— Authorization  
 - - - - - Communication Line

# Appendix C

## Latest Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	2021				2022				2023				2024				2025				2026				2027						
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
<b>Contract No. 1/WSD/19 - Executive Summary Programme (Jan-23)</b>					3118	10-Aug-20 A	28-Mar-27																												
<b>Starting Date</b>					0	10-Aug-20 A	10-Aug-20 A																												
119.CD.GEN.10000	Starting Date	0	10-Aug-20 A																																
<b>Key date KD1</b>					411	10-Aug-20 A	24-Sep-21 A																												
119.KD.CIV.10000	M1 - M5 Diversion	411	10-Aug-20 A	24-Sep-21 A																															
<b>Section 1 of the works</b>					458	10-Aug-20 A	16-Nov-22 A																												
119.S1.CIV.10000	Temporary DG Store Construction	361	10-Aug-20 A	05-Aug-21 A																															
119.S1.CIV.10010	DG Store Demolition and Site Formation Work	97	06-Aug-21 A	16-Nov-22 A																															
<b>Section 2 of the works</b>					1883	05-Nov-20 A	31-Dec-25																												
<b>Decommissioning, Demolition and Shutdown</b>					519	05-Nov-20 A	30-Jul-22 A																												
119.S2.CIV.22000	Decommissioning, Shutdown and Demolition	519	05-Nov-20 A	30-Jul-22 A																															
<b>Temporary Washwater Equalization Tank</b>					224	25-Nov-21 A	22-Jun-22 A																												
119.S2.CIV.20180	Civil and Structural Works	92	25-Nov-21 A	26-May-22 A																															
119.S2.MEP.20130	E&M Works	67	11-Mar-22 A	22-Jun-22 A																															
<b>Stage 1 Filter</b>					1280	07-Mar-22 A	30-Sep-25																												
119.S2.CIV.20000	Pipe Pile, Excavation and Lateral Support	216	07-Mar-22 A	02-May-23																															
119.S2.CIV.20010	Civil and Structural Works	435	31-Jan-23	09-Apr-24																															
119.S2.MEP.20000	E&M Works	860	25-May-23	30-Sep-25																															
<b>Stage 2 Filter</b>					1285	15-Jan-22 A	04-Oct-25																												
119.S2.CIV.20020	Pipe Pile, Excavation and Lateral Support	168	15-Jan-22 A	05-Jun-23																															
119.S2.CIV.20030	Civil and Structural Works	373	03-Mar-23	09-Mar-24																															
119.S2.MEP.20010	E&M Works	860	29-May-23	04-Oct-25																															
<b>South Work Pumping Station</b>					1343	24-Dec-21 A	04-Oct-25																												
119.S2.CIV.20040	Pipe Pile, Excavation and Lateral Support	285	24-Dec-21 A	13-Jun-23																															
119.S2.CIV.20050	Civil and Structural Works	372	14-Jun-23	19-Jun-24																															
119.S2.MEP.20020	E&M Works	709	27-Oct-23	04-Oct-25																															
<b>Residual Management Facilities</b>					1269	12-Nov-21 A	02-Jul-25																												
119.S2.CIV.20060	Pipe Pile, Excavation and Lateral Support	365	12-Nov-21 A	23-Jun-23																															
119.S2.CIV.20070	Civil and Structural Works	350	24-Jun-23	07-Jun-24																															
119.S2.MEP.20030	E&M Works	558	23-Dec-23	02-Jul-25																															
<b>Ozone Building</b>					1310	17-Jan-22 A	29-Sep-25																												
119.S2.CIV.20080	Pipe Pile, Excavation and Lateral Support	254	17-Jan-22 A	01-Apr-23																															
119.S2.CIV.20090	Civil and Structural Works	798	02-Apr-23	07-Jun-25																															
119.S2.MEP.20040	E&M Works	718	13-Oct-23	29-Sep-25																															
<b>Flocculation and Sedimentation Tank</b>					1287	08-Feb-22 A	23-Sep-25																												
119.S2.CIV.20100	Pipe Pile, Excavation and Lateral Support	428	08-Feb-22 A	15-Sep-23																															
119.S2.CIV.20110	Civil and Structural Works	159	16-Sep-23	21-Feb-24																															
119.S2.MEP.20050	E&M Works	679	15-Nov-23	23-Sep-25																															
<b>Washwater Equalization Tank</b>					1553	02-Jan-21 A	03-Apr-25																												
119.S2.CIV.20120	Pipe Pile, Excavation and Lateral Support	386	02-Jan-21 A	15-Apr-22 A																															
119.S2.CIV.20130	Civil and Structural Works	241	30-Mar-22 A	24-Apr-23																															
119.S2.MEP.20060	E&M Works	710	25-Apr-23	03-Apr-25																															
<b>Inlet Works and New Sampling Room</b>					681	29-May-23	08-Apr-25																												
119.S2.CIV.20150	Civil and Structural Works	222	29-May-23	05-Jan-24																															
119.S2.MEP.20070	E&M Works	613	05-Aug-23	08-Apr-25																															
<b>Elevated Walkway</b>					661	22-Jan-24	12-Nov-25																												
119.S2.CIV.20160	Civil and Structural Works	542	22-Jan-24	16-Jul-25																															
119.S2.MEP.20080	E&M Works	304	13-Jan-25	12-Nov-25																															
<b>WTW Logistics Centre</b>					815	04-May-23	26-Jul-25																												
119.S2.MEP.20090	E&M Works	815	04-May-23	26-Jul-25																															
<b>Flowmeter House</b>					735	04-Mar-23	07-Mar-25																												
119.S2.MEP.20100	E&M Works	735	04-Mar-23	07-Mar-25																															
<b>New Administration Building</b>					438	29-Nov-23	08-Feb-25																												
119.S2.MEP.20110	E&M Works	438	29-Nov-23	08-Feb-25																															
119.CD.GEN.10040	Access to Portion H from 6/WSD/21	0	29-Nov-23*																																
119.S2.MEP.20120	SCADA Installation and DCS Migration	330	16-Mar-24	08-Feb-25																															
<b>Geotechnical Works</b>					379	24-Jun-23	06-Jul-24																												
119.S2.CIV.20170	Civil Works	379	24-Jun-23	06-Jul-24																															
<b>Road and Utilities</b>					1770	25-Jan-21 A	29-Nov-25																												
119.S2.CIV.21010	Drainage and Process Pipe	1178	25-Jan-21 A	15-Jul-25																															
119.S2.CIV.21030	Underground Power Supply Cable Laying	243	27-Oct-23	25-Jun-24																															
119.S2.CIV.21000	Road Works and Other Utilities	615	25-Mar-24	29-Nov-25																															
<b>Inspection and Commissioning</b>					248	28-Apr-25	31-Dec-25																												
119.S2.INS.10030	DG Inspection	52	28-Apr-25	18-Jun-25																															
119.S2.INS.10000	WSD Inspection	67	06-Jun-25	11-Aug-25																															
119.S2.INS.10020	EPD Inspection	26	14-Jun-25	09-Jul-25																															
119.S2.INS.10010	FSI Inspection	111	20-Aug-25	08-Dec-25																															
119.S2.INS.10040	Pre-commissioning Tests and Test on Completion	87	06-Oct-25	31-Dec-25																															
<b>Section 3 of the works</b>					320	23-Feb-21 A	02-Mar-22 A																												
119.S3.CIV.10000	Section 3 - Landscaping Softworks within Portion D	320	23-Feb-21 A	02-Mar-22 A																															
<b>Section 3A of the works</b>					391	29-Aug-21 A	02-Mar-22 A																												
119.S3A.CIV.10000	Section 3A - Establishment Works within Portion D	391	29-Aug-21 A	02-Mar-22 A																															
<b>Section 4 of the works</b>					81	01-Jan-26	22-Mar-26																												
119.S4.CIV.10000	Section 4 - Landscaping Softworks within Portion A&B	81	01-Jan-26	22-Mar-26																															
<b>Section 4A of the works</b>					371	23-Mar-26	28-Mar-27																												
119.S4A.CIV.10000	Section 4A - Establishment works within portion A&B	371	23-Mar-26	28-Mar-27																															
<b>Section 5 of the works</b>					2245	10-Aug-20 A	27-Jan-27																												
119.S5.CIV.10000	Section 5 - Post-planting Monitoring and Maintenance Works within Portion A, D & G	2245	10-Aug-20 A	27-Jan-27																															
<b>Section 6 of the works</b>					611	27-May-25	27-Jan-27																												
119.S6.CIV.10000	Section 6 - Extended Tests (ET) within Portion A, B & H	611	27-May-25	27-Jan-27																															
<b>Sectional Completion Dates and Key Date</b>					2011	24-Sep-21 A	28-Mar-27																												
119.CD.GEN.10010	key date KD1 - Diversion of Pipelines M1, M2, M3, M4 and M5	0		24-Sep-21 A																															
119.CD.GEN.10020	Section 1 - Relocate DG Stores, Site formation for New Administration Building	0		16-Nov-21 A																															
119.CD.GEN.10050	Section 3 - Landscaping Softworks within Portion D	0		02-Mar-22 A																															
119.CD.GEN.10060	Section 3A - Establishment Works within Portion D	0		02-Mar-22 A																															
119.CD.GEN.10030	Section 2 - Portion A&B const, E&M in portion H, Pipeline diversion M1 to M5	0		31-Dec-25*																															
119.CD.GEN.10070	Section 4 - Landscaping Softworks within Portion A&B	0		22-Mar-26																															
119.CD.GEN.10090	Section 5 - Post-planting Monitoring and Maintenance Works within Portion A, D & G	0		27-Jan-27																															
119.CD.GEN.10100	Section 6 - Extended Tests (ET) within Portion A, B & H	0		27-Jan-27																															
119.CD.GEN.10080	Section 4A - Establishment works within portion A&B	0		28-Mar-27																															



P6 ID	Activity Name	Dur.	Start	Finish	Total Float	Late Start	Late Finish	Working Calendars	2022												2023												2024												2025												2026												2027												2028																
									N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
<b>Total</b>		1633	10-Nov-21	30-Apr-26	0	10-Nov-21	30-Apr-26		[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg. (1st Programme)</b>		1633	10-Nov-21	30-Apr-26	0	10-Nov-21	30-Apr-26		[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Contract Dates</b>		1633	10-Nov-21	30-Apr-26	0	10-Nov-21	30-Apr-26	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Key Dates</b>		1268	10-Nov-21	30-Apr-25	0	10-Nov-21	30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-CD-01	Contract Date	0	10-Nov-21*		0	10-Nov-21		7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-CD-02	starting date	0	17-Nov-21		0	17-Nov-21		7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-CD-03	Completion of Date	0		30-Apr-25*	0		30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Sectional Completion</b>		365	30-Apr-25	30-Apr-26	0	30-Apr-25	30-Apr-26	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Section 1 - All Works except the Works in Section 2 &amp; 2A</b>		0	30-Apr-25	30-Apr-25	0	30-Apr-25	30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-1-01	Contractual Completion Date according to CDP1 (1260d after starting date)	0		30-Apr-25*	0		30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-1-02	Planned Completion Date	0		30-Apr-25*	0		30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Section 2 - Landscaping Softworks within Portion A</b>		0	30-Apr-25	30-Apr-25	0	30-Apr-25	30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-2-01	Contractual Completion Date according to CDP1 (1260d after starting date)	0		30-Apr-25*	0		30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-2-02	Planned Completion Date	0		30-Apr-25*	0		30-Apr-25	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Section 2A - Establishment Works within Portion A</b>		0	30-Apr-26	30-Apr-26	0	30-Apr-26	30-Apr-26	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-3-01	Contractual Completion Date according to CDP1 (1625d after starting date)	0		30-Apr-26*	0		30-Apr-26	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-SC-3-02	Planned Completion Date	0		30-Apr-26*	0		30-Apr-26	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Key Dates-1</b>		265	21-Oct-23	12-Jul-24	0	21-Oct-23	12-Jul-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>KD1 - Completion of the Works as specified in Clause PS 0.21</b>		0	21-Oct-23	21-Oct-23	0	21-Oct-23	21-Oct-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-KD-1-01	Contractual Completion Date according to CDP1 (703d after starting date)	0		21-Oct-23*	0		21-Oct-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-KD-1-02	Planned Completion Date	0		21-Oct-23*	0		21-Oct-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>KD2 - Completion of the Works as specified in Clause PS 0.22</b>		0	12-Jul-24	12-Jul-24	0	12-Jul-24	12-Jul-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-KD-2-01	Contractual Completion Date according to CDP1 (968d after starting date)	0		12-Jul-24*	0		12-Jul-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-KD-2-02	Planned Completion Date	0		12-Jul-24*	0		12-Jul-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Access Date</b>		0	17-Nov-21	17-Nov-21	118	15-Mar-22	15-Mar-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-PS-01	Portion A & Portion B	0	17-Nov-21		118	15-Mar-22		7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Major Submission / Procurement</b>		452	10-Nov-21	04-Feb-23	684	10-Nov-21	19-Dec-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Major Submission</b>		44	17-Nov-21	30-Dec-21	132	15-Dec-21	11-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-MS-01	Sub-contract Management Plan & Subletting Procedure - Submission & Approval by PM	30	17-Nov-21	16-Dec-21	28	15-Dec-21	13-Jan-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-MS-02	Safety Plan - Submission & Approval by PM	30	24-Nov-21	23-Dec-21	139	12-Apr-22	11-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-MS-03	Environmental Management Plan - Submission & Approval by PM	30	01-Dec-21	30-Dec-21	132	12-Apr-22	11-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
<b>Subletting Package</b>		452	10-Nov-21	04-Feb-23	684	10-Nov-21	19-Dec-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-00	Independent Checking Engineer/ AP/ RSE	30	17-Dec-21	15-Jan-22	118	14-Apr-22	13-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-01	Design Consultant for Foundation and ELS	30	10-Nov-21	09-Dec-21	0	10-Nov-21	09-Dec-21	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-02	Design Consultant for MIC	30	17-Dec-21	15-Jan-22	118	14-Apr-22	13-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-03	Design Consultant for Administration Building	30	17-Dec-21	15-Jan-22	145	11-May-22	09-Jun-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-04	Design Consultant for Other Permanent Structure incl. Elevated Walkways, Drainage	30	16-Jan-22	14-Feb-22	725	11-Jan-24	09-Feb-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-05	Sub-Contract for Prefabrication and Installation of MIC	60	15-Jul-22	12-Sep-22	88	11-Oct-22	09-Dec-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-06	Sub-Contract for Ground Investigation	45	15-Jan-22	28-Feb-22	28	12-Feb-22	28-Mar-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-07	Sub-Contract for Surveying & Setting-Out Works (by small work order)	30	15-Jan-22	13-Feb-22	53	09-Mar-22	07-Apr-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-08	Sub-Contract for Condition Survey Works (by small work order)	30	15-Jan-22	13-Feb-22	53	09-Mar-22	07-Apr-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-09	Sub-Contract for Refurbishment Works of PM's Site Office (by small work order)	30	15-Jan-22	13-Feb-22	1040	20-Nov-24	19-Dec-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-12	Sub-Contract for Provision of Material Hoist	60	17-Dec-21	14-Feb-22	412	02-Feb-23	02-Apr-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-13	Sub-Contract for Waterproofing Works of Administration Building	60	15-Feb-22	15-Apr-22	287	29-Nov-22	27-Jan-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-14	Sub-Contract for Provision of Furniture of Administration Building	60	16-Apr-22	14-Jun-22	729	14-Apr-24	12-Jun-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-15	Sub-Contract for ELS Works	60	17-Dec-21	14-Feb-22	129	25-Apr-22	23-Jun-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-16	Sub-Contract for Foundation Works of Administration Building	60	17-Dec-21	14-Feb-22	77	04-Mar-22	02-May-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-17	Sub-Contract for Superstructure Works of Administration Building	60	17-Dec-21	14-Feb-22	222	27-Jul-22	24-Sep-22	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-18	Sub-Contract for Mainland East Regional Lab for MIC Works	60	29-Jul-22	26-Sep-22	478	19-Nov-23	17-Jan-24	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												
WSD-P-19	Sub-Contract for BS Installation Works of Administration Building	60	15-Feb-22	15-Apr-22	361	11-Feb-23	11-Apr-23	7d/w x10	[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]												[Gantt Bar]																												

- ◆ Milestone
- ▬ Near Critical Task
- ▬ Critical Task
- ▬ Time Risk AL
- ▬ Non-Critical Task
- ▬ Finished Task
- ▬ Tasks Summary
- ▬ P6 Hammock

## FIRST PROGRAMME REV. 1 ALL ACTIVITIES



Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		



P6 ID	Activity Name	Dur.	Start	Finish	Total Float	Late Start	Late Finish	Working Calendars	2022												2023												2024												2025												2026												2027												2028																
									N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
WSD-P-20	Sub-Contract for FS Installation Works of Administration Building	60	15-Feb-22	15-Apr-22	361	11-Feb-23	11-Apr-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-21	Sub-Contract for ABWF & Fit-out Works of Administration Building	60	15-Feb-22	15-Apr-22	112	07-Jun-22	05-Aug-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-22	Sub-Contract for Cladding Installation Works of Administration Building	60	15-Feb-22	15-Apr-22	112	07-Jun-22	05-Aug-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-23	Sub-Contract for Green Roof & Landscaping Works	60	16-Apr-22	14-Jun-22	112	06-Aug-22	04-Oct-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-24	Sub-Contract for Irrigation System	60	16-Apr-22	14-Jun-22	748	03-May-24	01-Jul-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-25	Sub-Contract for Lift Installation	60	15-Feb-22	15-Apr-22	557	26-Aug-23	24-Oct-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-26	Sub-Contract for Structure Works of Elevated Walkway	60	08-Apr-22	06-Jun-22	63	10-Jun-22	08-Aug-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-27	Sub-Contract for ABWF, Fitting Out, E&M Works of Elevated Walkway	60	05-Oct-22	03-Dec-22	63	07-Dec-22	04-Feb-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Material Procurement</b>		356	14-Feb-22	04-Feb-23	557	11-Mar-22	14-Aug-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Curtain Wall/ Glazing</b>		258	16-Apr-22	29-Dec-22	271	12-Jan-23	26-Sep-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-03	Submission & Approval for Curtain Wall Material Sample & Shop Drawing	90	16-Apr-22	14-Jul-22	271	12-Jan-23	11-Apr-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-04	Glass Fabrication & Delivery for Prototype Demo	90	15-Jul-22	12-Oct-22	271	12-Apr-23	10-Jul-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-05	Visual Prototype Installation	50	13-Oct-22	01-Dec-22	271	11-Jul-23	29-Aug-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-06	Performance Test of Prototype	28	02-Dec-22	29-Dec-22	271	30-Aug-23	26-Sep-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Lift E1, E2 &amp; E3</b>		295	16-Apr-22	04-Feb-23	557	25-Oct-23	14-Aug-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-07	Drawing Submission & Approval for Lift (E1, E2 & E3)	90	16-Apr-22	14-Jul-22	557	25-Oct-23	22-Jan-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-08	Material Submission & Approval for Lift (E1, E2 & E3)	45	15-Jul-22	28-Aug-22	557	23-Jan-24	07-Mar-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-09	Material Procurement & Delivery (E1, E2 & E3)	160	29-Aug-22	04-Feb-23	557	08-Mar-24	14-Aug-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Sheetpile</b>		88	14-Feb-22	12-May-22	25	11-Mar-22	06-Jun-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-10	Material Submission & Approval	28	14-Feb-22	13-Mar-22	25	11-Mar-22	07-Apr-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-11	Material Procurement & Delivery	60	14-Mar-22	12-May-22	25	08-Apr-22	06-Jun-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>ELS Steel Member</b>		88	14-Feb-22	12-May-22	71	26-Apr-22	22-Jul-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-12	Material Submission & Approval	28	14-Feb-22	13-Mar-22	71	26-Apr-22	23-May-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-13	Material Procurement & Delivery	60	14-Mar-22	12-May-22	71	24-May-22	22-Jul-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Concrete</b>		88	14-Feb-22	12-May-22	209	11-Sep-22	07-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-14	Material Submission & Approval	28	14-Feb-22	13-Mar-22	209	11-Sep-22	08-Oct-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-15	Material Procurement & Delivery	60	14-Mar-22	12-May-22	209	09-Oct-22	07-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Rebar</b>		88	14-Feb-22	12-May-22	209	11-Sep-22	07-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-16	Material Submission & Approval	28	14-Feb-22	13-Mar-22	209	11-Sep-22	08-Oct-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-P-M-17	Material Procurement & Delivery	60	14-Mar-22	12-May-22	209	09-Oct-22	07-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Contractor's Design</b>		661	08-Dec-21	29-Sep-23	944	07-Feb-22	30-Apr-26	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-S-01	Submission & Approval for Project Design Plan	60	08-Dec-21	05-Feb-22	97	15-Mar-22	13-May-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Design for MiC</b>		210	15-Feb-22	12-Sep-22	88	14-May-22	09-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-M01	Submission & Approval for MiC Layouts Proposal (AIP)	60	15-Feb-22	15-Apr-22	88	14-May-22	12-Jul-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-M02	Submission & Approval for MiC Layouts Proposal (DDA)	90	16-Apr-22	14-Jul-22	88	13-Jul-22	10-Oct-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-M03	Submission & Approval for MiC Details (AIP)	90	16-Apr-22	14-Jul-22	88	13-Jul-22	10-Oct-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-M04	Submission & Approval for MiC Details (DDA)	60	15-Jul-22	12-Sep-22	88	11-Oct-22	09-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
<b>Design for Administration Building</b>		590	07-Feb-22	19-Sep-23	954	07-Feb-22	30-Apr-26	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB00A	Submission & Approval for ELS Works Design (AIP)	60	07-Feb-22	07-Apr-22	0	07-Feb-22	07-Apr-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB00B	Submission & Approval for ELS Works Design (DDA)	60	08-Apr-22	06-Jun-22	0	08-Apr-22	06-Jun-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB01A	Submission & Approval for Foundation Design (AIP)	60	07-Feb-22	07-Apr-22	25	04-Mar-22	02-May-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB01B	Submission & Approval for Foundation Design (DDA)	60	08-Apr-22	06-Jun-22	25	03-May-22	01-Jul-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB02A	Submission & Approval for Permanent Work Structure Design of Administration Building (AIP)	60	08-Apr-22	06-Jun-22	63	10-Jun-22	08-Aug-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB02B	Submission & Approval for Permanent Work Structure Design of Administration Building (DDA)	90	07-Jun-22	04-Sep-22	110	25-Sep-22	23-Dec-22	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB03A	Submission & Approval for BS/ FS/ Security' Design of Administration Building (AIP)	60	07-Jun-22	05-Aug-22	249	11-Feb-23	11-Apr-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB03B	Submission & Approval for BS/ FS/ Security' Design of Administration Building (DDA)	90	06-Aug-22	03-Nov-22	249	12-Apr-23	10-Jul-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB04A	Submission & Approval for Dangerous Goods Stores (AIP)	60	05-Sep-22	03-Nov-22	583	10-Apr-24	08-Jun-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB04B	Submission & Approval for Dangerous Goods Stores (DDA)	90	04-Nov-22	01-Feb-23	583	09-Jun-24	06-Sep-24	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												
WSD-D-AB05A	Submission & Approval for Mainland East Regional Laboratory (AIP)	60	07-Jun-22	05-Aug-22	470	20-Sep-23	18-Nov-23	7d/w x10	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]																												

- ◆ Milestone
- ▬ Near Critical Task
- ▬ Critical Task
- ▬ Time Risk Al.
- ▬ Non-Critical Task
- ▬ Finished Task
- ▬ Tasks Summary
- ▬ P6 Hammock

## FIRST PROGRAMME REV. 1 ALL ACTIVITIES



Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		



















P6 ID	Activity Name	Dur	Start	Finish	Total Float	Late Start	Late Finish	Working Calendars	2022 2023 2024 2025 2026 2027 2028																																																				
									N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
WSD-B-EG04	EGM - MEP Works	28	23-Mar-24	29-Apr-24	42	18-May-24	20-Jun-24	6d/w x10	EGM - MEP Works																																																				
WSD-B-EG05	EGM - Move-In Generator Equipments	6	30-Apr-24	07-May-24	42	21-Jun-24	27-Jun-24	6d/w x10	EGM - Move-In Generator Equipments																																																				
WSD-B-EG06	EGM - Final Coat to Wall & Sealer to Floor	18	08-May-24	29-May-24	42	28-Jun-24	19-Jul-24	6d/w x10	EGM - Final Coat to Wall & Sealer to Floor																																																				
WSD-B-EG07	EGM - Install Generator Equipments & Testing	28	30-May-24	03-Jul-24	42	20-Jul-24	21-Aug-24	6d/w x10	EGM - Install Generator Equipments & Testing																																																				
WSD-B-EG08	EGM - Install Doors & Ironmogery	3	04-Jul-24	06-Jul-24	42	22-Aug-24	24-Aug-24	6d/w x10	EGM - Install Doors & Ironmogery																																																				
<b>Basement - Sprinkler/FS Water Tank</b>									114	23-Mar-24	12-Aug-24	11	10-Apr-24	24-Aug-24	6d/w x10																																														
WSD-B-FS01	Sprinkler Tank/ FS Tank Room - Waterproofing & Testing	12	23-Mar-24	10-Apr-24	11	10-Apr-24	23-Apr-24	6d/w x10	Sprinkler Tank/ FS Tank Room - Waterproofing & Testing																																																				
WSD-B-FS02	Sprinkler Tank/ FS Tank Room - Plastering Works Inside Tank	12	11-Apr-24	24-Apr-24	11	24-Apr-24	08-May-24	6d/w x10	Sprinkler Tank/ FS Tank Room - Plastering Works Inside Tank																																																				
WSD-B-FS03	Sprinkler Tank/ FS Tank Room - Wall & Floor Tiling Works	24	25-Apr-24	24-May-24	11	09-May-24	06-Jun-24	6d/w x10	Sprinkler Tank/ FS Tank Room - Wall & Floor Tiling Works																																																				
WSD-B-FS04	Sprinkler Tank/ FS Tank Room - Install Equipment	60	25-May-24	05-Aug-24	11	07-Jun-24	17-Aug-24	6d/w x10	Sprinkler Tank/ FS Tank Room - Install Equipment																																																				
WSD-B-FS05	Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover	6	06-Aug-24	12-Aug-24	11	19-Aug-24	24-Aug-24	6d/w x10	Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover																																																				
<b>Basement - Office Fitting-Out</b>									92	27-Oct-23	17-Feb-24	62	11-Jan-24	06-May-24	6d/w x10																																														
WSD-B-BA-01	B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	27-Oct-23	02-Nov-23	62	11-Jan-24	17-Jan-24	6d/w x10	B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-BA-02	B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	03-Nov-23	30-Dec-23	62	18-Jan-24	16-Mar-24	6d/w x10	B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-BA-03	B/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	20-Nov-23	17-Jan-24	62	03-Feb-24	06-Apr-24	6d/w x10	B/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-BA-04	B/F Interior Decoration - Inspection/ Testing/ Defect Rectification	24	18-Jan-24	17-Feb-24	62	08-Apr-24	06-May-24	6d/w x10	B/F Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
<b>Basement - Dangerous Goods Store Fitting Out</b>									121	27-Oct-23	24-Feb-24	316	07-Sep-24	05-Jan-25	6d/w x10																																														
WSD-B-DG01	Basement Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	27-Oct-23	02-Nov-23	257	07-Sep-24	13-Sep-24	6d/w x10	Basement Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-DG02	Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	03-Nov-23	30-Dec-23	257	14-Sep-24	12-Nov-24	6d/w x10	Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-DG03	Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	20-Nov-23	17-Jan-24	257	03-Oct-24	28-Nov-24	6d/w x10	Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-DG04	Basement Interior Decoration - Inspection/ Testing/ Defect Rectification	24	18-Jan-24	17-Feb-24	257	29-Nov-24	28-Dec-24	6d/w x10	Basement Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
WSD-B-DG05	Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04	7	18-Feb-24	24-Feb-24	316	30-Dec-24	05-Jan-25	7d/w x10	Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04																																																				
<b>Ground Floor Laboratory/ Vistry Reception Facility/ Water Treatment Training Venue</b>									92	24-Oct-23	14-Feb-24	181	05-Jun-24	23-Sep-24	6d/w x10																																														
WSD-B-LG-01	G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	24-Oct-23	30-Oct-23	181	05-Jun-24	12-Jun-24	6d/w x10	G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-LG-02	G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	31-Oct-23	27-Dec-23	181	13-Jun-24	08-Aug-24	6d/w x10	G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-LG-03	G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	16-Nov-23	13-Jan-24	181	29-Jun-24	24-Aug-24	6d/w x10	G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-LG-04	G/F Interior Decoration - Inspection/ Testing/ Defect Rectification	24	15-Jan-24	14-Feb-24	181	26-Aug-24	23-Sep-24	6d/w x10	G/F Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
<b>First Floor Laboratory Fitting-Out</b>									121	24-Nov-23	23-Mar-24	79	24-Nov-23	10-Jun-24	6d/w x10																																														
WSD-B-L1-01	1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	24-Nov-23	30-Nov-23	0	24-Nov-23	30-Nov-23	6d/w x10	1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-L1-02	1/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	01-Dec-23	29-Jan-24	61	17-Feb-24	17-Apr-24	6d/w x10	1/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-L1-03	1/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	18-Dec-23	17-Feb-24	61	05-Mar-24	04-May-24	6d/w x10	1/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-L1-04	1/F Interior Decoration - Inspection/ Testing/ Defect Rectification	24	19-Feb-24	16-Mar-24	61	06-May-24	03-Jun-24	6d/w x10	1/F Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
WSD1	Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04	7	17-Mar-24	23-Mar-24	79	04-Jun-24	10-Jun-24	7d/w x10	Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04																																																				
<b>Second Floor Office Fitting-Out</b>									92	01-Dec-23	23-Mar-24	148	01-Dec-23	23-Sep-24	6d/w x10																																														
WSD-B-L2-01	2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	01-Dec-23	07-Dec-23	0	01-Dec-23	07-Dec-23	6d/w x10	2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-L2-02	2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	08-Dec-23	05-Feb-24	0	08-Dec-23	05-Feb-24	6d/w x10	2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-L2-03	2/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	27-Dec-23	24-Feb-24	56	06-Mar-24	06-May-24	6d/w x10	2/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-L2-04	2/F Interior Decoration - Inspection/ Testing/ Defect Rectification	24	26-Feb-24	23-Mar-24	148	26-Aug-24	23-Sep-24	6d/w x10	2/F Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
<b>Third Floor Office Fitting-Out</b>									186	08-Dec-23	10-Jun-24	0	30-Jan-24	10-Jun-24	6d/w x10																																														
WSD-B-L3-01	3/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works	6	08-Dec-23	14-Dec-23	42	30-Jan-24	05-Feb-24	6d/w x10	3/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works																																																				
WSD-B-L3-02	3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door	48	06-Feb-24	09-Apr-24	0	06-Feb-24	09-Apr-24	6d/w x10	3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door																																																				
WSD-B-L3-03	3/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation	48	26-Feb-24	25-Apr-24	0	26-Feb-24	25-Apr-24	6d/w x10	3/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation																																																				
WSD-B-L3-04	3/F Interior Decoration - Inspection/ Testing/ Defect Rectification	33	26-Apr-24	05-Jun-24	0	26-Apr-24	05-Jun-24	6d/w x10	3/F Interior Decoration - Inspection/ Testing/ Defect Rectification																																																				
WSD-B-L3-05	Time Risk Allowance for Third Floor Office Fitting Out	5	06-Jun-24	10-Jun-24	0	06-Jun-24	10-Jun-24	7d/w x10	Time Risk Allowance for Third Floor Office Fitting Out																																																				
<b>MEP Lift Installation (E1)</b>									173	24-Jan-24	14-Jul-24	181	25-Jul-24	11-Jan-25	6d/w x10																																														
WSD-B-LT1-01	Lift E1 - Erect Falsework & Builders Works inside Lift Shaft	48	24-Jan-24	22-Mar-24	146	25-Jul-24	19-Sep-24	6d/w x10	Lift E1 - Erect Falsework & Builders Works inside Lift Shaft																																																				
WSD-B-LT1-02	Lift E1 - Install Lift including Fitting-Out	60	23-Mar-24	21-May-24	181	20-Sep-24	18-Nov-24	7d/w x10	Lift E1 - Install Lift including Fitting-Out																																																				
WSD-B-LT1-03	Lift E1 - Testing after Power Energization	12	22-May-24	02-Jun-24	181	19-Nov-24	30-Nov-24	7d/w x10	Lift E1 - Testing after Power Energization																																																				
WSD-B-LT1-04	Lift E1 - Submit Form LE5 & Wait for EMSD Inspection	14	03-Jun-24	16-Jun-24	181	01-Dec-24	14-Dec-24	7d/w x10	Lift E1 - Submit Form LE5 & Wait for EMSD Inspection																																																				

- ◆ Milestone
- ▬ Near Critical Task
- ▬ Critical Task
- ▬ Time Risk AL
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- ▬ Tasks Summary
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# FIRST PROGRAMME REV. 1 ALL ACTIVITIES



Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		



P6 ID	Activity Name	Dur.	Start	Finish	Total Float	Late Start	Late Finish	Working Calendars	2022												2023												2024												2025												2026												2027												2028											
									N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
WSD-B-LT1-05	Lift E1 - Inspection for Lift Fitout & Issue Lift Certification LE6	28	17-Jun-24	14-Jul-24	181	15-Dec-24	11-Jan-25	7d/w x10																									█ Lift E1 - Inspection for Lift Fitout & Issue Lift Certification LE6																																																											
<b>MEP Lift Installation (E2 &amp; E3)</b>									218	24-Jan-24	28-Aug-24	136	19-Jun-24	11-Jan-25																									█ Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft																																																					
WSD-B-LT2-01	Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft	48	24-Jan-24	22-Mar-24	116	19-Jun-24	14-Aug-24	6d/w x10																									█ Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft																																																											
WSD-B-LT2-02	Lift E2 & E3 (FS) - Install Lift including Fitting-Out	60	23-Mar-24	21-May-24	145	15-Aug-24	13-Oct-24	7d/w x10																									█ Lift E2 & E3 (FS) - Install Lift including Fitting-Out																																																											
WSD-B-LT2-03	Lift E2 & E3 (FS) - Testing after Power Energization	12	31-May-24	11-Jun-24	136	14-Oct-24	25-Oct-24	7d/w x10																									█ Lift E2 & E3 (FS) - Testing after Power Energization																																																											
WSD-B-LT2-04	Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection	14	12-Jun-24	25-Jun-24	136	26-Oct-24	08-Nov-24	7d/w x10																									█ Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection																																																											
WSD-B-LT2-05	Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6	28	26-Jun-24	23-Jul-24	136	09-Nov-24	06-Dec-24	7d/w x10																									█ Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6																																																											
WSD-B-LT2-06	Dismantle Material Hoist	12	24-Jul-24	04-Aug-24	136	07-Dec-24	18-Dec-24	7d/w x10																									█ Dismantle Material Hoist																																																											
WSD-B-LT2-07	Remaining Works at Hosit Area	24	05-Aug-24	28-Aug-24	136	19-Dec-24	11-Jan-25	7d/w x10																									█ Remaining Works at Hosit Area																																																											
<b>Other Facilities</b>									88	11-Jun-24	23-Sep-24	0	11-Jun-24	23-Sep-24																									█ Fit-out & Plumber Works - Water Closet Rooms																																																					
WSD-B-OF-01	Fit-out & Plumber Works - Water Closet Rooms	88	11-Jun-24	23-Sep-24	0	11-Jun-24	23-Sep-24	6d/w x10																									█ Fit-out & Plumber Works - Water Closet Rooms																																																											
WSD-B-OF-02	FS Sprinkler Pump Room - E&M Installation of pumping system & BS Works	64	11-Jun-24	24-Aug-24	0	11-Jun-24	24-Aug-24	6d/w x10																									█ FS Sprinkler Pump Room - E&M Installation of pumping system & BS Works																																																											
WSD-B-OF-03	Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump	88	11-Jun-24	23-Sep-24	0	11-Jun-24	23-Sep-24	6d/w x10																									█ Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump																																																											
<b>Car Park - MEP Works</b>									166	13-Nov-23	06-Jun-24	90	04-Jun-24	23-Sep-24																									█ Car Park - Erect Falseworks for Builders & MEP Works																																																					
WSD-B-CP-01	Car Park - Erect Falseworks for Builders & MEP Works	12	13-Nov-23	25-Nov-23	163	04-Jun-24	18-Jun-24	6d/w x10																									█ Car Park - Erect Falseworks for Builders & MEP Works																																																											
WSD-B-CP-02	Car Park - ABWF/ MEP/ FS Works	45	27-Nov-23	20-Jan-24	163	19-Jun-24	10-Aug-24	6d/w x10																									█ Car Park - ABWF/ MEP/ FS Works																																																											
WSD-B-CP-03	Car Park - Electric Vehicle Charging Facilities	30	22-Jan-24	28-Feb-24	163	12-Aug-24	14-Sep-24	6d/w x10																									█ Car Park - Electric Vehicle Charging Facilities																																																											
WSD-B-CP-04	Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities	6	31-May-24	06-Jun-24	90	16-Sep-24	23-Sep-24	6d/w x10																									█ Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities																																																											
<b>Works for KD-1</b>									70	31-Jul-23	21-Oct-23	0	13-Sep-23	21-Oct-23																									█ ABWF & FS Works for Server Rooms/ Security Control Room																																																					
WSD-KD1-01	ABWF & FS Works for Server Rooms/ Security Control Room	32	31-Jul-23	05-Sep-23	38	13-Sep-23	21-Oct-23	6d/w x10																									█ ABWF & FS Works for Server Rooms/ Security Control Room																																																											
WSD-KD1-02	Complete the Civil, Structure Works, ABWF & FS for Server Rooms/ Security Control Room	0		05-Sep-23	38		21-Oct-23	6d/w x10																									◆ Complete the Civil, Structure Works, ABWF & FS for Server Rooms/ Security Control Room																																																											
WSD-KD1-03	ABWF & FS Works for Main Control Room	32	13-Sep-23	21-Oct-23	0	13-Sep-23	21-Oct-23	6d/w x10																									█ ABWF & FS Works for Main Control Room																																																											
WSD-KD1-04	Complete the Civil, Structure Works, ABWF & FS for Main Control Room	0		21-Oct-23	0		21-Oct-23	6d/w x10																									◆ Complete the Civil, Structure Works, ABWF & FS for Main Control Room																																																											
<b>Works for KD-2</b>									145	19-Feb-24	12-Jul-24	0	26-Apr-24	12-Jul-24																									█ Electrical Power System incl. testing for Basement																																																					
WSD-KD2-01	Electrical Power System incl. testing for Basement	48	19-Feb-24	18-Apr-24	62	07-May-24	04-Jul-24	6d/w x10																									█ Electrical Power System incl. testing for Basement																																																											
WSD-KD2-02	Electrical Power System incl. testing for Second Floor	48	26-Feb-24	25-Apr-24	56	07-May-24	04-Jul-24	6d/w x10																									█ Electrical Power System incl. testing for Second Floor																																																											
WSD-KD2-03	Electrical Power System incl. testing for Third Floor	56	26-Apr-24	04-Jul-24	0	26-Apr-24	04-Jul-24	6d/w x10																									█ Electrical Power System incl. testing for Third Floor																																																											
WSD-KD2-04	Termination of Cable to Tx after Cable Laying by 1/WSD/19	0		30-May-24	28		04-Jul-24	6d/w x10																									◆ Termination of Cable to Tx after Cable Laying by 1/WSD/19																																																											
WSD-KD2-05	Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04	8	05-Jul-24	12-Jul-24	0	05-Jul-24	12-Jul-24	7d/w x10																									█ Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04																																																											
WSD-KD2-06	Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. tes	0		12-Jul-24	0		12-Jul-24	6d/w x10																									◆ Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. testing																																																											
<b>External Works</b>									221	24-Jan-24	31-Aug-24	133	31-May-24	11-Jan-25																									█ Ext. Works - Underground Utilities Works, Drainage Works & Testing																																																					
WSD-W-X-01	Ext. Works - Underground Utilities Works, Drainage Works & Testing	72	24-Jan-24	24-Apr-24	101	31-May-24	24-Aug-24	6d/w x10																									█ Ext. Works - Underground Utilities Works, Drainage Works & Testing																																																											
WSD-W-X-02	Ext. Works - Backfilling to Ground Level	24	25-Apr-24	24-May-24	108	03-Sep-24	02-Oct-24	6d/w x10																									█ Ext. Works - Backfilling to Ground Level																																																											
WSD-W-X-03	Ext. Works - Construction of Remaining Concrete Pavement	48	25-May-24	22-Jul-24	108	03-Oct-24	28-Nov-24	6d/w x10																									█ Ext. Works - Construction of Remaining Concrete Pavement																																																											
WSD-W-X-04	Ext. Works - Construction of Staircase, ABWF	48	28-Jun-24	23-Aug-24	108	06-Nov-24	03-Jan-25	6d/w x10																									█ Ext. Works - Construction of Staircase, ABWF																																																											
WSD-W-X-05	Time Risk Allowance for External Works	8	24-Aug-24	31-Aug-24	133	04-Jan-25	11-Jan-25	7d/w x10																									█ Time Risk Allowance for External Works																																																											
<b>Testing &amp; Commissioning</b>									48	26-Aug-24	23-Oct-24	0	26-Aug-24	23-Oct-24																									█ Testing & Commissioning & fixing defects (FS - Related)																																																					
WSD-B-TC-01	Testing & Commissioning & fixing defects (FS - Related)	24	26-Aug-24	23-Sep-24	0	26-Aug-24	23-Sep-24	6d/w x10																									█ Testing & Commissioning & fixing defects (FS - Related)																																																											
WSD-B-TC-02	Testing & Commissioning & fixing defects (Non- FS - Related)	24	24-Sep-24	23-Oct-24	0	24-Sep-24	23-Oct-24	6d/w x10																									█ Testing & Commissioning & fixing defects (Non- FS - Related)																																																											
<b>Elevated Walkway No.2</b>									317	05-Oct-22	27-Oct-23	439	08-Feb-25	23-Apr-25																									◆ EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other under 1/WSD/19)																																																					
WSD-W-W2-01	EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other	0	05-Oct-22		696	08-Feb-25		6d/w x10																									◆ EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other under 1/WSD/19)																																																											
WSD-W-W2-02	EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection	12	05-Oct-22	18-Oct-22	696	08-Feb-25	21-Feb-25	6d/w x10																									█ EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection																																																											
WSD-W-W2-03	EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit)	0	31-Jul-23		465	22-Feb-25		6d/w x10																									◆ EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit)																																																											
WSD-W-W2-04	EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection	12	31-Jul-23	12-Aug-23	465	22-Feb-25	07-Mar-25	6d/w x10																									█ EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection																																																											
WSD-W-W2-11	EW No.2 - MiC Bridge Installation & Associated Connection Works	6	13-Sep-23	19-Sep-23	439	08-Mar-25	14-Mar-25	6d/w x10																									█ EW No.2 - MiC Bridge Installation & Associated Connection Works																																																											
WSD-W-W2-12	EW No.2 - Remaining ABWF, Fitout, BS Works along Mic Bridge	30	20-Sep-23	27-Oct-23	439	15-Mar-25	23-Apr-25	6d/w x10																									█ EW No.2 - Remaining ABWF, Fitout, BS Works along Mic Bridge																																																											
<b>Elevated Walkway No.1 (Structural Support only)</b>									0	21-Oct-23	21-Oct-23	444	24-Apr-25	24-Apr-25																									◆ Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on																																																					
WSD-W-W1-01	Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on	0	21-Oct-23		444	24-Apr-25		6d/w x10																									◆ Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on																																																											
<b>Inspection &amp; Approval by Government Authorities</b>									592	17-Sep-23	30-Apr-25	0	23-Apr-24	30-Apr-25																									█																																																					

- ◆ Milestone
- █ Non-Critical Task
- █ Near Critical Task
- █ Finished Task
- █ Critical Task
- █ Tasks Summary
- █ Time Risk AL
- █ P6 Hammock

**FIRST PROGRAMME REV. 1**  
**ALL ACTIVITIES**



Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		



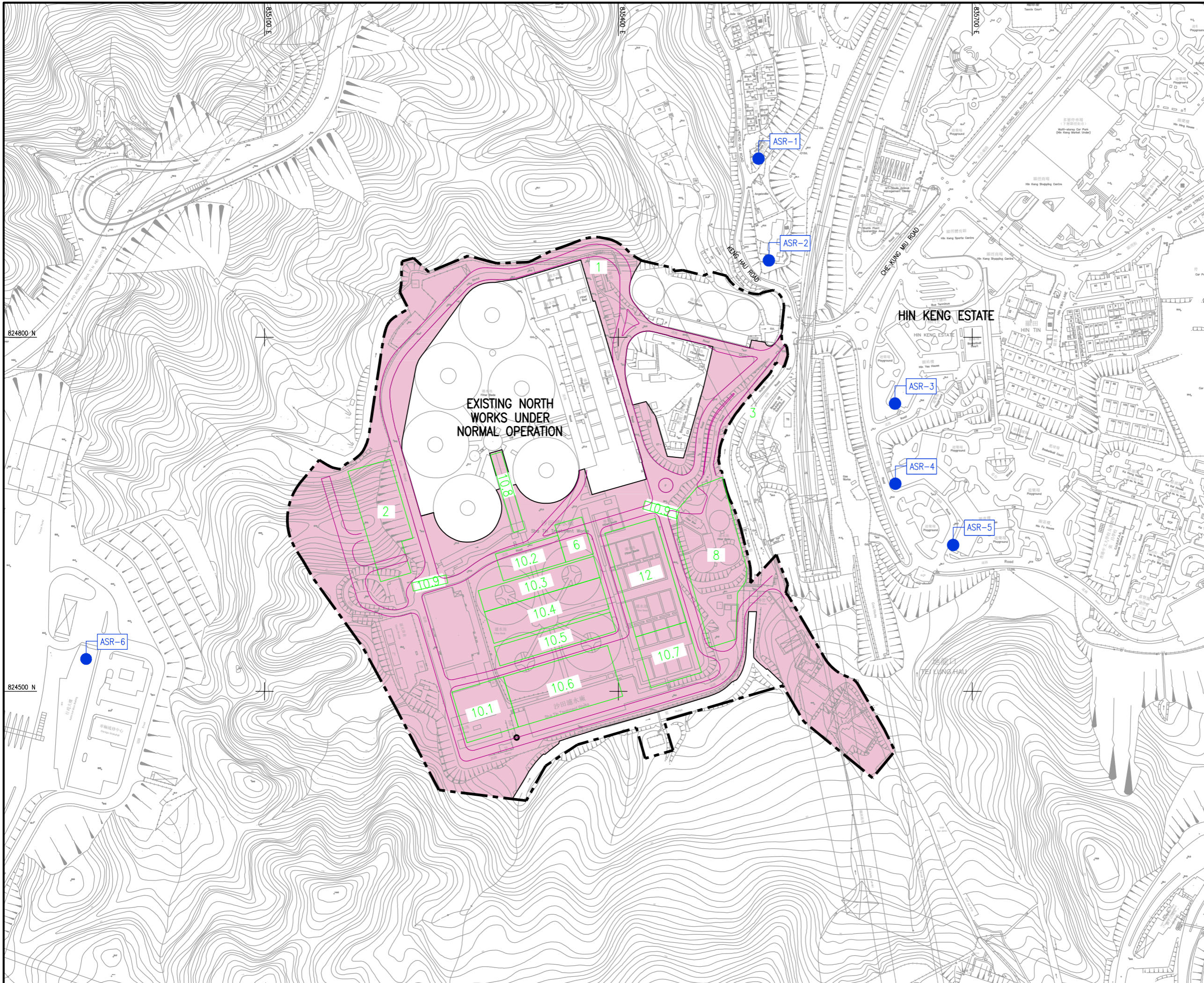




# Appendix D

## Location of Construction Activities





**LEGEND:**

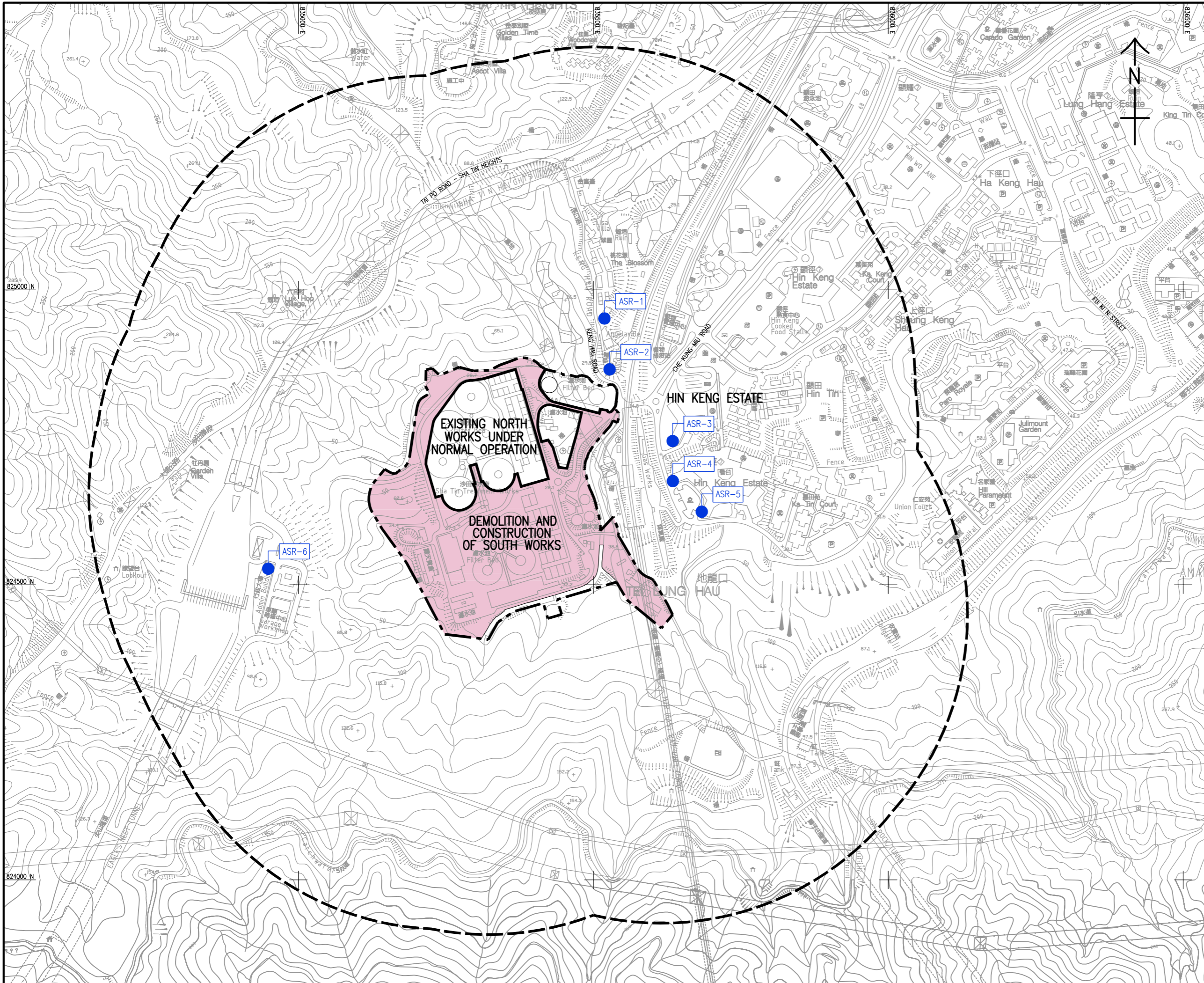
	SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
	WORKS AREA
	REPRESENTATIVE AIR SENSITIVE RECEIVERS (ASRS)
ASR-1	THE BLOSSOM PHASE 4
ASR-2	THE L LOUEY
ASR-3	HIN KENG ESTATE - HIN YAU HOUSE
ASR-4	HIN KENG ESTATE - HIN WAN HOUSE
ASR-5	HIN KENG ESTATE - HIN KWAI HOUSE
ASR-6	SHA TIN HEIGHT TUNNEL ADMINISTRATION BUILDING
	RETAINING WALL AND NEW ACCESS ROAD
	WATER TREATMENT WORKS LOGISTICS CENTRE
	UPGRADED MAIN ENTRY ROAD
	WASHWATER EQUALIZATION TANKS (NORTH WORKS)
	DEMOLITION OF EXISTING WASHWATER RECOVERY TANKS
	CONSTRUCTION OF SOUTH WORKS
	RESIDUAL MANAGEMENT FACILITIES
	PRE-OZONATION HOUSE AND COAGULATION TANKS
	FLOCCULATION TANKS
	HIGH RATE SEDIMENTATION TANKS
	INTERMEDIATE OZONATION HOUSE
	STAGE 1 BIOLOGICAL FILTERS
	SOUTH WORKS PUMPING STATION
	INLET CHANNEL STATIC MIXERS (NORTH WORKS)
	PEDESTRIAN WALKWAY
	STAGE 2 GRANULAR MEDIA FILTERS & UV REACTORS
	OPERATION OF HAUL ROAD

<p><b>水務署</b> WATER SUPPLIES DEPARTMENT</p> <p>AGREEMENT NO. CE 13/2009 (WS) IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS DESIGN AND CONSTRUCTION</p> <p><b>LOCATIONS OF CONSTRUCTION WORKS AREA</b></p> <p><b>AECOM</b></p> <p>DRG. NO. 60162073/FIGURE 4.2</p>	<table border="1"> <tr> <td>DESIGNED BY</td> <td>CONTRACT NO.</td> <td>P. NO. APPROVED</td> </tr> <tr> <td>DRAWN BY</td> <td>REVISED</td> <td>DATE</td> </tr> <tr> <td>SCALE</td> <td colspan="2">DATE</td> </tr> <tr> <td>UNIT</td> <td colspan="2">METRES</td> </tr> </table> <p>© COPYRIGHT RESERVED</p>	DESIGNED BY	CONTRACT NO.	P. NO. APPROVED	DRAWN BY	REVISED	DATE	SCALE	DATE		UNIT	METRES	
DESIGNED BY	CONTRACT NO.	P. NO. APPROVED											
DRAWN BY	REVISED	DATE											
SCALE	DATE												
UNIT	METRES												



# Appendix E

## Environmental Sensitive Receivers in the Vicinity of the Projects



- LEGEND:**
- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
  - - - STUDY AREA (500m BOUNDARY)
  - WORKS AREA
  - REPRESENTATIVE AIR SENSITIVE RECEIVERS (ASRS)
  - ASR-1 THE BLOSSOM PHASE 4
  - ASR-2 THE L LOUEY
  - ASR-3 HIN KENG ESTATE - HIN YAU HOUSE
  - ASR-4 HIN KENG ESTATE - HIN WAN HOUSE
  - ASR-5 HIN KENG ESTATE - HIN KWAI HOUSE
  - ASR-6 SHA TIN HEIGHT TUNNEL ADMINISTRATION BUILDING

REV 修訂	DESCRIPTION 內容摘要	BY 編者	CHK 校核	DATE 日期
-----------	---------------------	----------	-----------	------------

**水務署**  
**WATER SUPPLIES DEPARTMENT**  
 AGREEMENT NO. CE 13/2009 (WS)  
 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS  
 DESIGN AND CONSTRUCTION

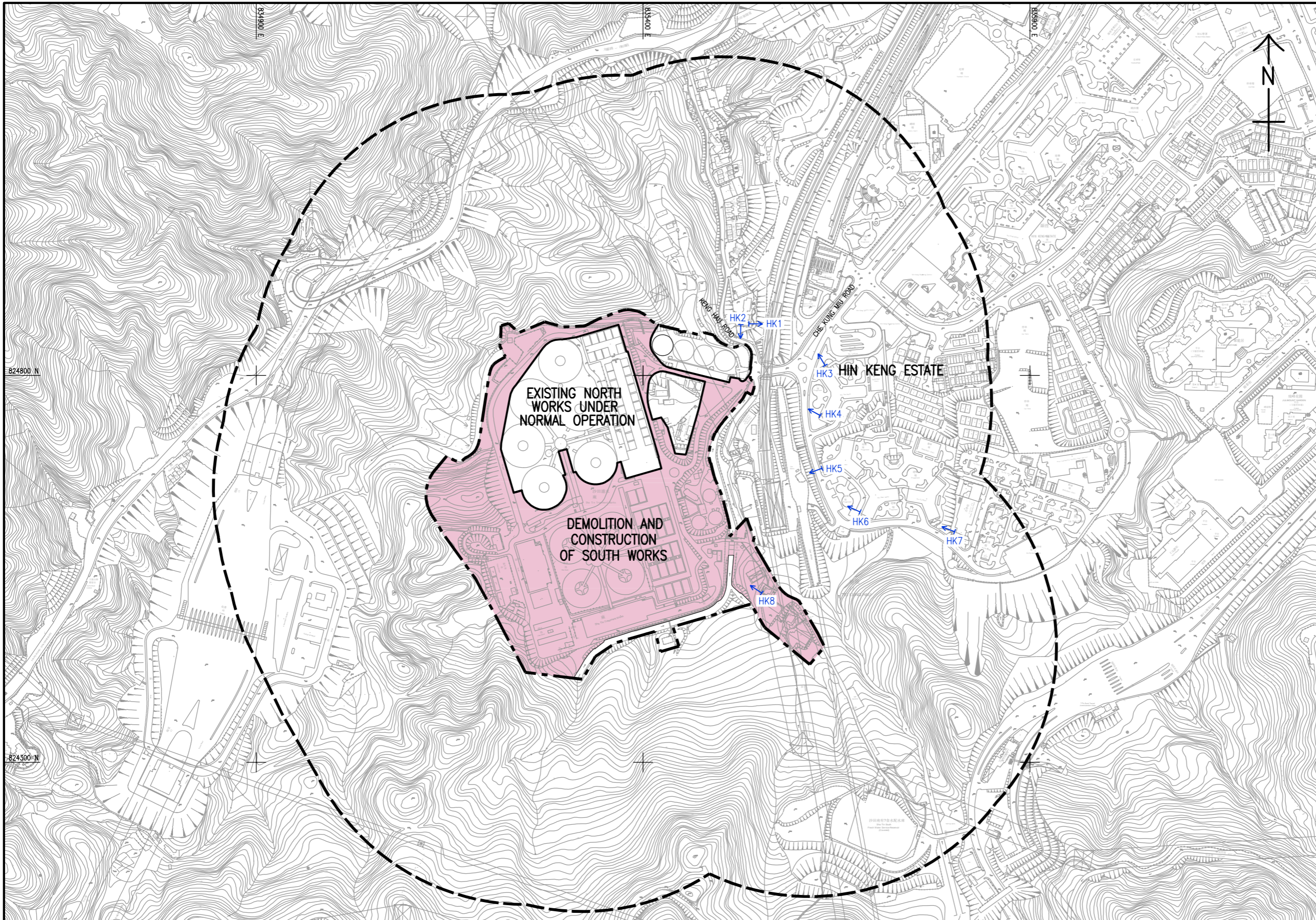
**LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS**



DRG.NO 60162073/EIA/FIG 4.1  
圖紙編號

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. No. APPROVED 批准人
DRAWN BY 繪圖	STATUS 階段	
SCALE 比例	DATE 日期	
DIMENSIONS ARE IN 尺寸單位	METRES 公尺	





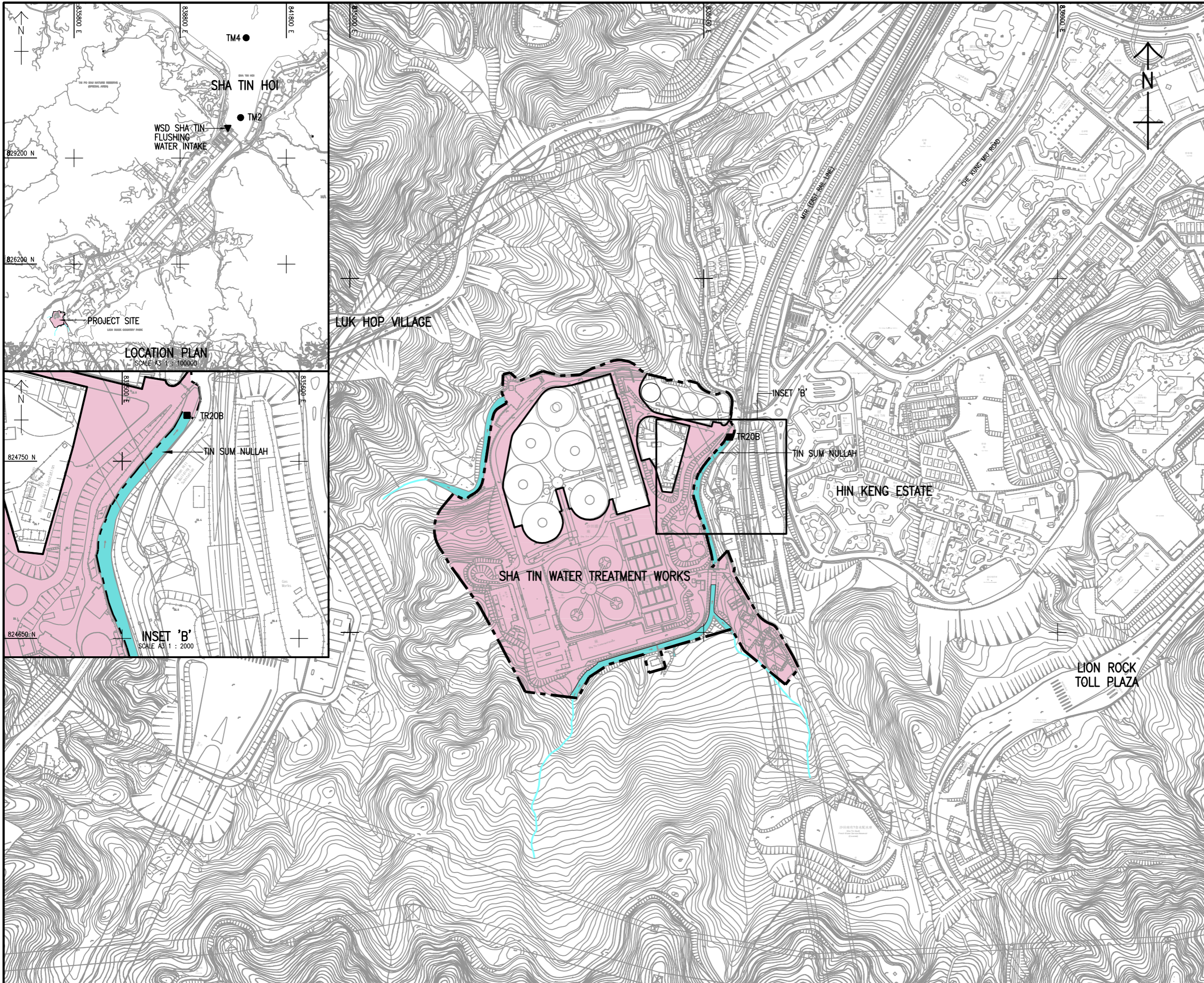
**LEGEND:**

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- 300m STUDY AREA
- WORKS AREA
- HK1 REPRESENTATIVE NOISE SENSITIVE RECEIVERS

ID	DESCRIPTION	CONSTRUCTION NOISE	OPERATIONAL FIXED PLANT NOISE
HK1	THE L LOUEY (EAST)	Y	Y
HK2	THE L LOUEY (SOUTH)	Y	Y
HK3	HIN KENG ESTATE, HIN YAU HOUSE (NORTH)	Y	Y
HK4	HIN KENG ESTATE, HIN YAU HOUSE (SOUTH)	Y	Y
HK5	HIN KENG ESTATE, HIN WAN HOUSE	Y	Y
HK6	HIN KENG ESTATE, HIN KWAI HOUSE	Y	Y
HK7	CUHKFAA THOMAS CHEUNG SCHOOL	Y	Y
HK8	SHA TIN WTW STAFF QUARTERS	Y	Y

水務署	水務署	水務署	水務署
<b>水務署</b>			
<b>WATER SUPPLIES DEPARTMENT</b>			
AGREEMENT NO. CE 13/2009 (WS)			
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS DESIGN AND CONSTRUCTION			
<b>LOCATIONS OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS</b>			
<b>AECOM</b>			
DRG. NO. 圖紙編號		60162073/EIA/FIG 5.1	
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. NO. APPROVED 圖則編號	
DRAWN BY 繪圖	SCALE 比例	DATE 日期	
SCALE A3 1 : 5000			
DIMENSIONS ARE IN METRES 尺寸單位: 公尺	© COPYRIGHT RESERVED 版權所有		





- LEGEND:**
- SITE BOUNDARY OF SHATIN WATER TREATMENT WORKS
  - WORKS AREA
  - INLAND WATER COURSE
  - EPD MARINE WATER QUALITY MONITORING STATION
  - EPD RIVER WATER QUALITY MONITORING STATION
  - WSD SHA TIN FLUSHING WATER INTAKE

REV.	DESCRIPTION	BY	CHK.	DATE

**水務署**  
**WATER SUPPLIES DEPARTMENT**  
 AGREEMENT NO. CE 13/2009 (WS)  
 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS  
 DESIGN AND CONSTRUCTION

**LOCATIONS OF WATER SENSITIVE RECEIVERS**



DRG. NO. 圖紙編號	60162073/EIA/FIG 6.1	
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. No. APPROVED 批准人
DRAWN BY 繪圖	STATUS 階段	
SCALE 比例	A3 1 : 5000	
DIMENSIONS ARE IN 尺寸單位	METRES	

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# Appendix F

## Summary of Action and Limit Levels



## Determination of Action and Limit Levels for Air Quality

Monitoring Locations	Action Level 1-hour TSP, ( $\mu\text{g}/\text{m}^3$ )	Limit Level 1-hour TSP, ( $\mu\text{g}/\text{m}^3$ )
AM1	357	500
AM2	334	500

## Determination of Action and Limit Levels for Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	0700-1900 hours on normal weekdays	
NM1	When one documented complaint is received	For domestic premises: 75 dB(A) for NM1 & NM2
NM2		
NM3		For schools: 70dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3

## Determination of Action and Limit Levels for Water Quality

Water monitoring stations	Dissolved Oxygen (mg/L)		Suspended Solids (mg/L)		Turbidity (NTU)		pH	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.6 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.6 to 11.0
M3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.6 to 8.7

*Remark: For DO, action should be taken when monitoring result of either one of the surface, middle or bottom DO is lower than the proposed Action/Limit Levels.*

# Appendix G

## Event/Action Plan

# Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues,	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and

	arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring.			4. Amend proposal as appropriate.
<b>LIMIT LEVEL</b>				
<b>Event</b>	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>
1. Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.

	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>
2. Exceedance for two or more consecutive samples	<p>1. Notify Contractor, IEC, EPD and ER;</p> <p>2. Repeat measurement to confirm findings;</p> <p>3. Increase monitoring frequency to daily;</p> <p>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</p> <p>5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken;</p> <p>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and</p> <p>7. If exceedance stops, cease additional monitoring.</p>	<p>1. Check monitoring data submitted by the ET;</p> <p>2. Check the Contractor's working method;</p> <p>3. Discuss with ET, ER, and Contractor on the potential remedial measures; and</p> <p>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</p>	<p>1. Confirm receipt of notification of exceedance in writing;</p> <p>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>3. Supervise the implementation of remedial measures; and</p> <p>4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>1. Identify source(s) and investigate the causes of exceedance;</p> <p>2. Take immediate action to avoid further exceedance;</p> <p>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</p> <p>4. Implement the agreed proposals;</p> <p>5. Revise and resubmit proposals if problem still not under control; and</p> <p>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

# Noise



EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>	<p>1. Notify the Contractor, IEC and ER;</p> <p>2. Discuss with the ER and Contractor on the remedial measures required; and</p> <p>3. Increase monitoring frequency to check mitigation effectiveness.</p>	<p>1. Review the investigation results submitted by the Contractor; and</p> <p>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</p>	<p>1. Confirm receipt of notification of complaint in writing;</p> <p>2. Review and agree on the remedial measures proposed by the Contractor; and</p> <p>3. Supervise implementation of remedial measures.</p>	<p>1. Investigate the complaint and propose remedial measures;</p> <p>2. Report the results of investigation to the IEC, ET and ER;</p> <p>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within three working days of notification; and</p> <p>4. Implement noise mitigation proposals.</p>
<b>LIMIT LEVEL</b>	<p>1. Notify the Contractor, IEC, EPD and ER;</p> <p>2. Repeat measurement to confirm findings;</p> <p>3. Increase monitoring frequency;</p> <p>4. Carry out analysis of</p>	<p>1. Check monitoring data submitted by the ET;</p> <p>2. Check the Contractor's working method;</p> <p>3. Discuss with the ER, ET and Contractor on the potential remedial measures;</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be</p>	<p>1. Identify source and investigate the causes of exceedance;</p> <p>2. Take immediate action to avoid further exceedance;</p> <p>3. Submit proposals for remedial measures to the ER</p>

	<p>Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken;</p> <p>6. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and</p> <p>7. If exceedance stops, cease</p>	<p>and</p> <p>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</p>	<p>implemented;</p> <p>3. Supervise the implementation of remedial measures; and</p> <p>4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>with copy to the IEC and ET within three working days of notification;</p> <p>4. Implement the agreed proposals;</p> <p>5. Revise and resubmit proposals if problem still not under control; and</p> <p>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>
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# Water Quality

EVENT	ACTION			
	ET Leader	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	<ul style="list-style-type: none"> <li>● Repeat <i>in situ</i> measurement to confirm findings;</li> <li>● Identify reasons for non-compliance and source(s) of impact;</li> <li>● Inform IEC and Contractor;</li> <li>● Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>● Discuss mitigation measures with IEC and Contractor;</li> <li>● Repeat measurement on next day of exceedance.</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with ET and Contractor on the mitigation measures;</li> <li>● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>● Assess the effectiveness of the Implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with IEC on the proposed mitigation measures;</li> <li>● Make agreement on the mitigation measures to be implemented.</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Inform the ER and confirm notification of the non-compliance in writing;</li> <li>● Rectify unacceptable practice;</li> <li>● Check all plant and equipment;</li> <li>● Consider changes of working methods;</li> <li>● Discuss with ET and IEC and propose mitigation measures to IEC and ER;</li> <li>● Implement the agreed mitigation measures.</li> </ul>

	<b>ET Leader</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>
Action level being exceeded by more than one consecutive sampling day	<ul style="list-style-type: none"> <li>● Repeat <i>in situ</i> measurement to confirm findings;</li> <li>● Identify reasons for non-compliance and source(s) of impact;</li> <li>● Inform IEC and Contractor;</li> <li>● Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>● Discuss mitigation measures with IEC and Contractor;</li> <li>● Ensure mitigation measures are implemented;</li> <li>● Prepare to increase the monitoring frequency to daily;</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with ET and Contractor on the mitigation measures;</li> <li>● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with IEC on the proposed mitigation measures;</li> <li>● Make agreement on the mitigation measures to be implemented;</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Inform the ER and confirm notification of the non-compliance in writing;</li> <li>● Rectify unacceptable practice;</li> <li>● Check all plant and equipment;</li> <li>● Consider changes of working methods;</li> <li>● Discuss with ET and IEC and propose mitigation measures to IEC and ER within three working days;</li> <li>● Implement the agreed mitigation measures.</li> </ul>

	<ul style="list-style-type: none"> <li>● Repeat measurement on next day of exceedance.</li> </ul>			
	<b>ET Leader</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>
Limit level being exceeded by one sampling day	<ul style="list-style-type: none"> <li>● Repeat <i>in situ</i> measurement to confirm findings;</li> <li>● Identify reasons for non-compliance and source(s) of impact;</li> <li>● Inform IEC Contractor and EPD;</li> <li>● Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>● Discuss mitigation measures with IEC, ER and Contractor;</li> <li>● Ensure mitigation measures are implemented;</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with ET and Contractor on the mitigation measures;</li> <li>● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>● Request Contractor to critically review the working methods;</li> <li>● Make agreement on the mitigation measures to be implemented;</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Inform the ER and confirm notification of the non-compliance in writing;</li> <li>● Rectify unacceptable practice;</li> <li>● Check all plant and equipment;</li> <li>● Consider changes of working methods;</li> <li>● Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days;</li> <li>● Implement the agreed mitigation measures.</li> </ul>

	<ul style="list-style-type: none"> <li>● Increase the monitoring frequency to daily until no exceedance of Limit level.</li> </ul>			
	<b>ET Leader</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>
Limit level being exceeded by more than one consecutive sampling day	<ul style="list-style-type: none"> <li>● Repeat <i>in situ</i> measurement to confirm findings;</li> <li>● Identify reasons for non-compliance and source(s) of impact;</li> <li>● Inform IEC Contractor and EPD;</li> <li>● Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>● Discuss mitigation measures with IEC, ER and Contractor;</li> <li>● Ensure mitigation measures are</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with ET and Contractor on the mitigation measures;</li> <li>● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>● Assess the effectiveness of the implemented mitigation measures.</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>● Request Contractor to critically review the working methods;</li> <li>● Make agreement on the mitigation measures to be implemented;</li> <li>● Assess the effectiveness of the implemented mitigation measures;</li> <li>● Consider and instruct, if necessary, the Contractor to slow</li> </ul>	<ul style="list-style-type: none"> <li>● Inform the ER and confirm notification of the non-compliance in writing;</li> <li>● Rectify unacceptable practice;</li> <li>● Check all plant and equipment;</li> <li>● Consider changes of working methods;</li> <li>● Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days;</li> <li>● Implement the agreed mitigation measures;</li> </ul>



	implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.		down or to stop all or part of the construction activities until no exceedance of Limit level.	<ul style="list-style-type: none"><li>● As directed by the ER, to slow down or to stop all or part of the construction activities.</li></ul>
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# Appendix H

## Impact Monitoring Schedules

Impact Monitoring Schedule for STWTW

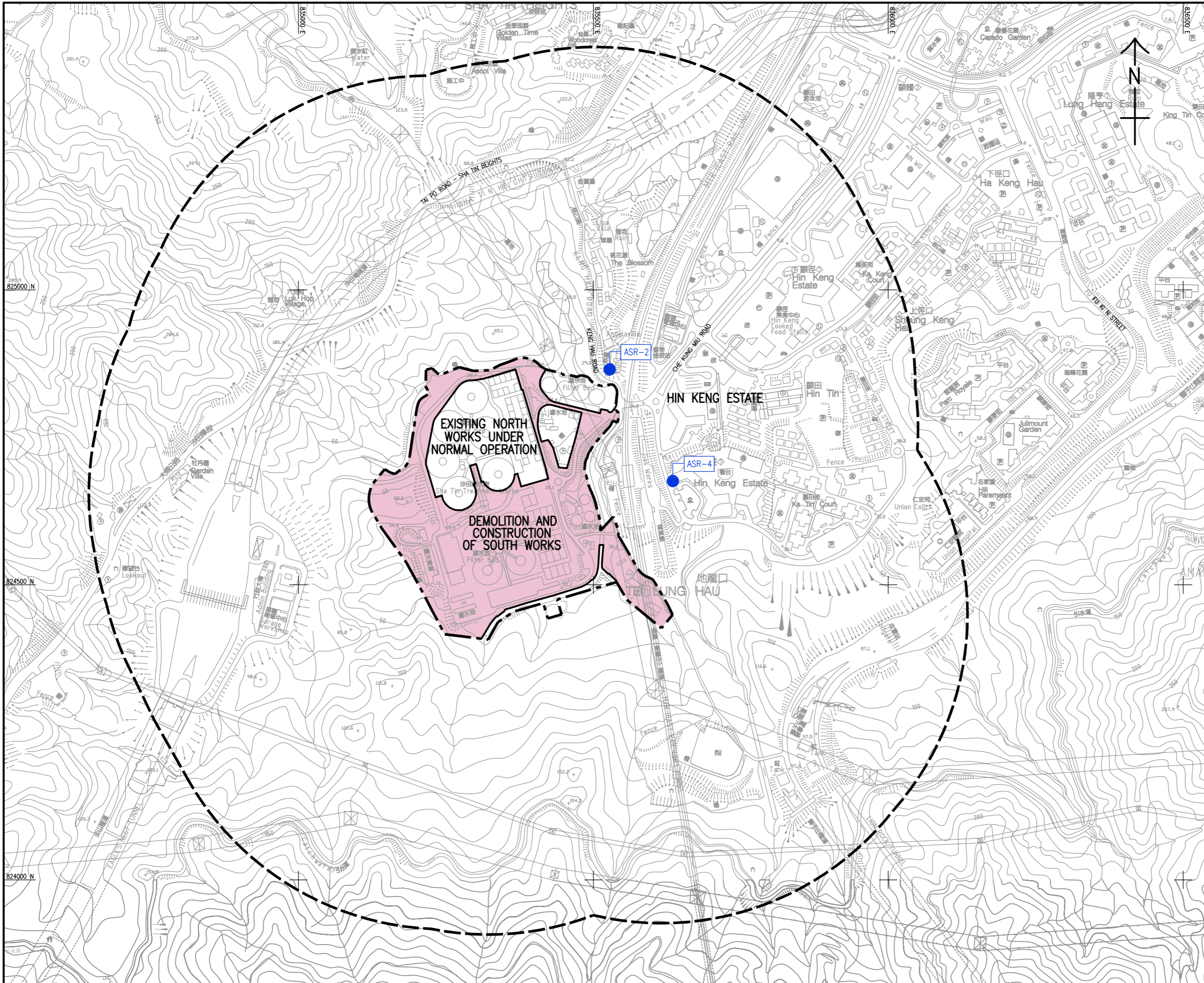
Dec-24

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
8	9	10	11	12	13	14
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
15	16	17	18	19	20	21
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
22	23	24	25	26	27	28
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	
29	30	31				
		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3				

# Appendix I

## Location Plan of Air Quality Monitoring Station





- LEGEND:**
- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
  - STUDY AREA (500m BOUNDARY)
  - WORKS AREA
  - REPRESENTATIVE AIR SENSITIVE RECEIVERS (ASRS)
  - ASR-2 THE L LOUEY
  - ASR-4 HIN KENG ESTATE - HIN WAN HOUSE

REV.	DESCRIPTION	BY	CHK.	DATE

**水務署**  
**WATER SUPPLIES DEPARTMENT**  
 AGREEMENT NO. CE 13/2009 (WS)  
 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS  
 DESIGN AND CONSTRUCTION

**LOCATIONS OF PROPOSED DUST MONITORING STATIONS**

**AECOM**

DRG. NO. 圖紙編號	60162073/EM&A/FIG 3	
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. NO. APPROVED 批准人
DRAWN BY 繪圖	DATE 日期	
SCALE 比例	A3 1 : 6000	
CONSTRUCTION AREA IN METRES 尺寸單位	© COPYRIGHT RESERVED 版權所有	

# Appendix J

## Calibration Certificates

### (Air Monitoring)



Our Ref.: AL24-545-001

3<sup>rd</sup> March 2024

### Calibration and Performance Check

#### Instrument Information

Instrument Model: PC-3A(E)  
Instrument Serial Number: JC-2001141  
Instrument Description: Nephelometer

#### Test Condition

Room Temperature 24.5 °C  
Relative Humidity 67.2 %

#### Test Specification

1. Instruction and Operation Manual of Mass Flow Controlled TSP High Volume Sampler, TE-5170X with Calibration Kit, TE-5028A, S/N :3702
2. In-house method in according to the instruction manual: The Nephelometer was compared with the calibrated Mass Flow Controlled TSP High Volume Sampler and the result was used to produce the Correlation Factor ["CF"] between the Mass Flow Controlled TSP High Volume Sampler and the Nephelometer.

#### Results

<i>Instrument</i>	<i>Reading (1)</i>	<i>Reading (2)</i>	<i>Reading (3)</i>	<i>Reading (4)</i>	<i>Reading (5)</i>
PC-3A(E) Reading (µg/m <sup>3</sup> )	79	33	115	203	68
High Volume Sampler Reading (µg/m <sup>3</sup> )	112	44	138	228	78



Checked by:

WONG TL  
Quality Manager  
Environmental Division

Our Ref.: AL24-545-003

3<sup>rd</sup> March 2024

### Calibration and Performance Check

#### Instrument Information

Instrument Model: PC-3A(E)  
Instrument Serial Number: JC-2110286  
Instrument Description: Nephelometer

#### Test Condition

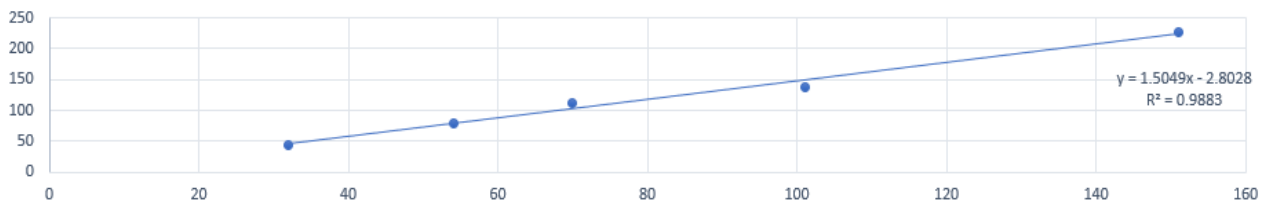
Room Temperature 24.5 °C  
Relative Humidity 67.2 %

#### Test Specification

1. Instruction and Operation Manual of Mass Flow Controlled TSP High Volume Sampler, TE-5170X with Calibration Kit, TE-5028A, S/N :3702
2. In-house method in according to the instruction manual: The Nephelometer was compared with the calibrated Mass Flow Controlled TSP High Volume Sampler and the result was used to produce the Correlation Factor ["CF"] between the Mass Flow Controlled TSP High Volume Sampler and the Nephelometer.

#### Results

<i>Instrument</i>	<i>Reading (1)</i>	<i>Reading (2)</i>	<i>Reading (3)</i>	<i>Reading (4)</i>	<i>Reading (5)</i>
PC-3A(E) Reading ( $\mu\text{g}/\text{m}^3$ )	70	32	101	151	54
High Volume Sampler Reading ( $\mu\text{g}/\text{m}^3$ )	112	44	138	228	78



Checked by:

WONG TL  
Quality Manager  
Environmental Division





## Certificate of Conformity

This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

### Methods Used in Calibration and Testing

#### Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is  $\pm 1.04\%$  within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and  $\pm 1.66\%$  within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

#### Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of  $\pm 0.05$  °C.

#### Direction / Heading

The sensitivity of the magnetic directional sensor is verified at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within  $\pm 5$  degrees.

#### Relative Humidity:

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of  $\pm 0.2\%$  RH.

#### Barometric Pressure:

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of  $\pm 0.02\%$  F.S.

#### Approved By:

Michael Naughton, Engineering Manager



SENSORS																		
SENSOR	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (H+)	RESOLUTION	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed   Air Flow	•	•	•	•	•	•	•	•	•	•	•	•	•	0.1 m/s Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 1.2 to 77.8 knots 1 ft	0.6 to 60.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 116.6 knots 0 to 12 ft	0.6 to 60.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 knots 0 to 12 ft	1 inch/25 mm diameter impeller with precision axle and low-friction 2yell® bearings. Startup speed stated as lower limit, readings may be taken down to 0.4 m/s (78 ft/min)   1.5 km/h   0.9 mph   0.4 m/s after impeller startup. Off-axis accuracy: ±1% @ 5° off-axis, ±2% @ 10° off-axis. Calibration drift < 1% after 100 hours use at 16 MPH / 7 m/s. Replacement impeller (NK-PN-0801) field install without tools. (US Patent 5,763,753). Wind speed calibration and testing should be done with impeller located at the top front face of the Kestrel.
Ambient Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	0.5 °F 0.1 °C	0.1 °F 0.1 °C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Hermetically-sealed, precision thermistor mounted externally and thermally isolated (US Patent 5,939,645) for rapid response. Airflow of 2.2 m/s (1 m/s or greater) provides fastest response and reduction in insulation effect. Calibration drift negligible. Thermistor may also be used to measure temperature of water or snow by submerging thermistor portion into material - remove impeller prior to taking submerged measurements and ensure humidity sensor membrane is free of liquid water prior to taking humidity based measurements after submersion.
Globe Temperature - Tg												•		1.4 °F 0.1 °C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in/25 mm black powder coated copper globe converted to Tg equivalent for standard 6 in/150 mm globe. Closest equivalence obtained with airflow greater than 2.2 m/s (1 m/s).
Relative Humidity				•	•	•	•	•	•	•	•	•	•	3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). To achieve stated accuracy, unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift < 2% over 24 months. Humidity sensor may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (NK-PN-0802).
Pressure				•	•	•	•	•	•	•	•	•	•	0.03 inHg 1.0 hPa/mbar 0.01 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1,000.0 hPa/mbar 4.35 to 15.95 PSI and 33.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1,654.7 hPa/mbar 0.14 to 24.0 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C	Monolithic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be recalibrated at factory or in field. Adjustable reference altitude allows display of station pressure or barometric pressure corrected to MSL. Kestrel 4200 displays pressure on a dedicated screen. Kestrel 2500 and 3500 display continuously updating three-hour barometric pressure trend indicator: rising rapidly, rising, steady, falling, falling rapidly. Kestrel 4000 series displays pressure trend through graphing function. PSI display on Kestrel 4000 series only.
Compass												•	•	5°	1° 1/16th Cardinal Scale	0 to 360°	0 to 360°	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unit's vertical position. Self-calibration routine eliminates magnetic error from batteries or unit and must be run after every full power-down (battery removal or change). Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declination/variation adjustable for True North readout.

CALCULATED MEASUREMENTS																		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (H+)	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density								•	•					0.0002 lbm³ 0.003 kg/m³	0.001 lbm³ 0.001 kg/m³	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow								•						6.71%	1 cfm 1 m³/hr 0.1 m³/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measurement and user-specified duct shape (circle or rectangle) and dimensions (units: ft, in, cm or m). Maximum duct dimension input: 258.0 in   21.5 ft   655.3 cm   6.55 m
Altitude				•	•	•	•	•	•	•	•	•	•	typical: 23.6 ft 7.2 m max: 48.2 ft 14.7 m	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level (MSL). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 890 to 1100 mBar.
Barometric Pressure				•	•	•	•	•	•	•	•	•	•	0.07 inHg 2.4 hPa/mbar 0.03 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	Air pressure that would be present in identical conditions at MSL. Station pressure compensated for local elevation provided by reference altitude. Requires accurate reference altitude to produce maximum absolute accuracy.
Crosswind & Headwind/Tailwind												•	•	7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 1.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwind/tailwind indication.
Delta T					•									3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicates evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 °C.
Density Altitude								•	•	•	•	•	•	226 ft 69 m	1 ft 1 m	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Local air density converted to equivalent elevation above sea level in a uniform layer consisting of the International Standard Atmosphere.
Dewpoint				•	•	•	•	•	•	•	•	•	•	3.4 °F 1.9 °C	0.1 °F 0.1 °C	15 to 95 % RH Refer to Range for Temperature Sensor	Temperature Relative Humidity	Temperature that a volume of air must be cooled to at constant pressure for the water vapor present to condense into dew on a solid surface. Can also be considered to be the water-air saturation temperature.
Evaporation Rate												•		0.01 lbm/hr 0.05 kg/m²/hr	0.01 lbm/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe thermometer (°F or °C, not included). Readings should be taken 20 inches above pour surface with the thermometer shaded, and averaged for 6-10 seconds using built-in averaging function.
Heat Index				•	•	•	•	•	•	•	•	•	•	7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Perceived temperature resulting from the combined effect of temperature and relative humidity. Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content   Humidity Ratio ("Grains")													•	3 gpp g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density													•	0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	The ratio, expressed as a percentage, of measured air density to the air density of a standard atmosphere as defined by the ICAO.
Thermal Work Limit (TWL)												•		10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Estimated safe maximum continuously sustainable human metabolic rate (W/m²) for the conditions and clothing factors. Based off of estimated metabolic output of typical human. On-screen zone warnings.
Outdoor Wet Bulb Globe Temperature (WBGT)													•	1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Measure of human heat stress defined as the combination of effects due to radiation, convection, and conduction. Outdoor WBGT is calculated from a weighted sum of natural wet bulb (Twb), globe temperature (Tg), and dry bulb temperature (Td). User settable on-screen warning zones.
Wet Bulb Temperature - Naturally Aspirated (Twb)													•	1.4 °F 0.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Similar to psychrometric wet-bulb temperature (see below). However, Twb only undergoes forced convection from the ambient air velocity. Twb is a measure of the evaporative cooling that the air will allow. This is accounted for by combining the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric					•	•	•	•	•	•	•	•	•	3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Temperature indicated by a sling psychrometer. Due to nature of the psychrometric ratio for a water-air system, this approximates the thermodynamic wet-bulb temperature. The thermodynamic wet-bulb temperature is the temperature a parcel of air would have if cooled adiabatically to saturation temperature via water evaporating into it.
Wind Chill				•	•	•	•	•	•	•	•	•	•	1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature	Perceived temperature resulting from combined effect of wind speed and temperature. Calculated based on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed adjusted by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground. Measurement range limited by extent of published tables.

ADDITIONAL SPECIFICATIONS														
Display & Backlight	•	•	•	•	•	•	•	•	•	•	•	•	•	Reflective 3 1/2 digit LCD. Digit height 0.29 in / 9 mm. Aviation green electroluminescent backlight. Manual activation with auto-off.
Response Time & Display Update	•	•	•	•	•	•	•	•	•	•	•	•	•	Reflective 5 digit LCD. Digit height 0.36 in / 9 mm. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Manual activation with auto-off.
Max/Avg Wind														Multi-function, multi-digit monochrome dot-matrix display. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Automatic or manual activation.
Data Storage & Graphical Display, Min/Max/Avg History							•	•	•	•	•	•	•	All measurements except those based on relative humidity respond accurately within 1 second. Relative humidity and all measurements which include RH in their calculation may require as long as 1 minute to fully equilibrate to a large change in the measurement environment. Display updates every 1 second.
Data Upload & Bluetooth® Data Connect Option														One-button clear and restart of Max Wind Gust and Average Wind measurement.
Clock / Calendar	•	•	•	•	•	•	•	•	•	•	•	•	•	Max and average wind calculation may be started and stopped independently of data logging of other values, along with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBGT, TWL, evaporation rate.
Auto Shutdown	•	•	•	•	•	•	•	•	•	•	•	•	•	Minimum, maximum, average and logged history stored and displayed for every measured value. Large capacity data logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be reset independently. Auto-store interval settable from 2 seconds to 12 hours, overwrite on or off. Logs even when display off for 1 and 2 second intervals (code version 4.18 and later). Data capacity shown.
Languages	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Certifications	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Battery Origin	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Shock Resistance	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Sealing	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Operational Temperature Limits	•	•	•	•	•	•	•	•	•	•	•	•	•	Standard Models: AAA Alkaline, two, included. Average life, 400 hours of use, reduced by backlight or Bluetooth radio transmission use.
Storage Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	MIL-STD-883C, Transient Shock, Method 516.5 Procedure IV, unit only, impact may damage replaceable impeller.
Size & Weight	•	•	•	•	•	•	•	•	•	•	•	•	•	Waterproof (IP67) and NEMA-6.

\* NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the combined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2σ).

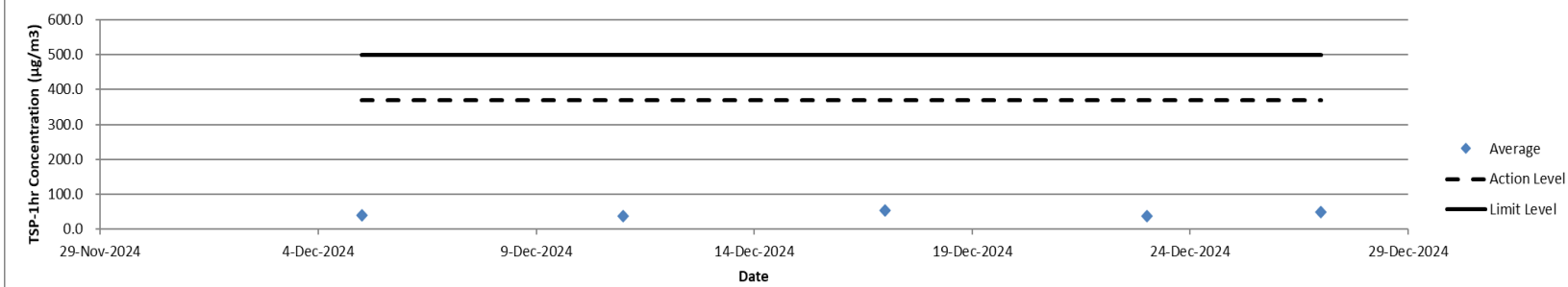
Please note, these specifications are valid for all Kestrel 4400 products and all other Kestrel 4000 series with a serial number higher than 659340. If your product has a lower serial number, please reference the previous version of the specifications.

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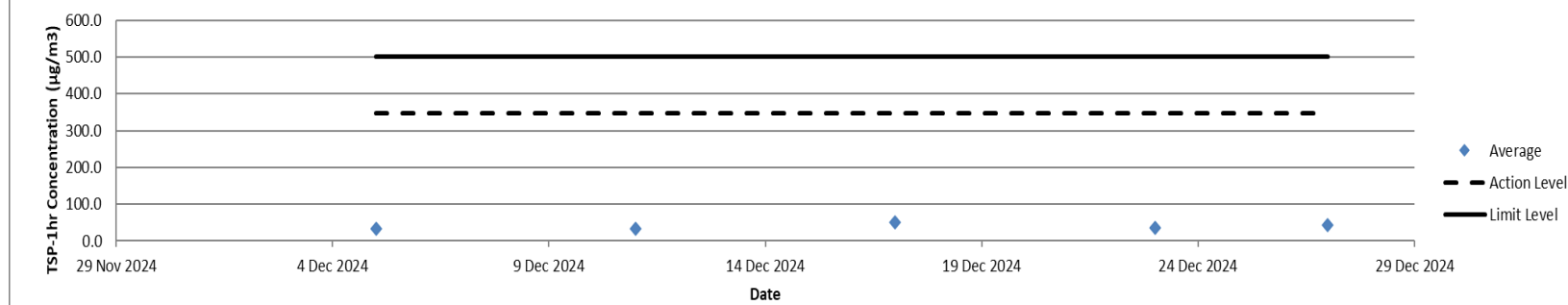
# Appendix K

## Impact Air Quality Monitoring Results and Graphical Presentation

### The Summary of TSP-1hr Concentration ( $\mu\text{g}/\text{m}^3$ ) at AM1 The L Louey



### The Summary of TSP-1hr Concentration ( $\mu\text{g}/\text{m}^3$ ) at AM2 Hin Keng Estate - Hin Wan House

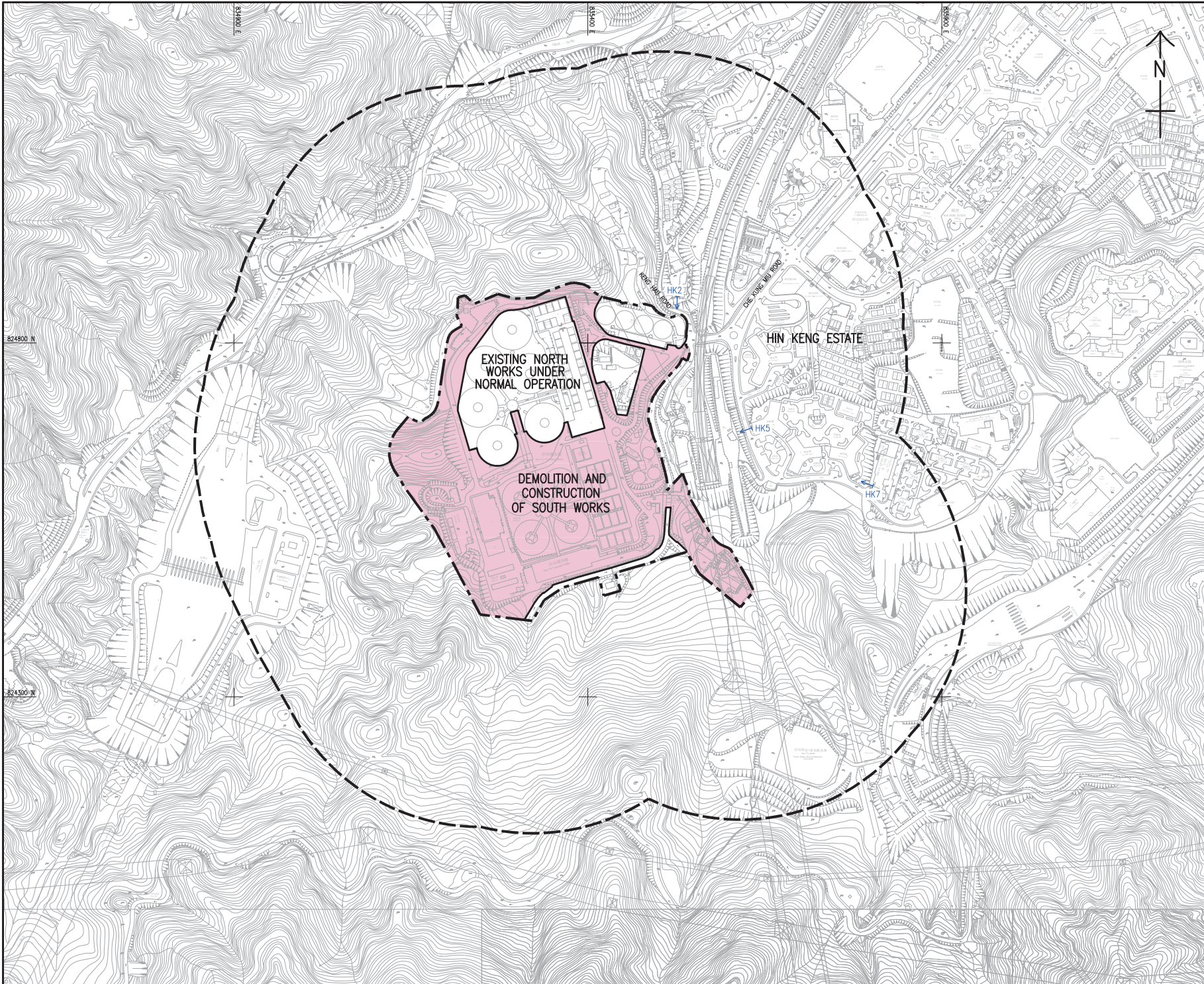




# Appendix L

## Location Plan of Noise Monitoring Station





**LEGEND:**

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- 300m STUDY AREA
- WORKS AREA
- HK2
- THE L LOUHEY (SOUTH)
- HK5
- HIN KENG ESTATE - HIN WAN HOUSE
- HK7
- CHUKFAA THOMAS CHEUNG SCHOOL

水務署  
WATER SUPPLIES DEPARTMENT

AGREEMENT NO. CE 13/2009 (WS)  
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS  
DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED NOISE MONITORING STATIONS

**AECOM**

DRG NO 60162073/EM&A/FIG 4  
圖紙編號

DESIGNED BY NHP	CHECKED BY A3 1 : 5000	DATE METRES	SCALE METRES	APPROVED BY A3 1 : 5000
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# Appendix M

## Calibration Certificates (Noise)



# Certificate of Calibration

for

Description: *Sound Level Calibrator*  
Manufacturer: *RION*  
Type No.: *NC-74*  
Serial No.: *34615222*

**Submitted by:**

Customer: *Aurecon Hong Kong Limited*  
Address: *Unit 1608, 16/F, Tower B, Manulife Financial Centre,  
223-231 Wai Yip Street, Kwun Tong,  
Kowloon, Hong Kong*

Upon receipt for calibration, the instrument was found to be:

- Within  
 Outside

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 21 March 2024

Date of calibration: 27 March 2024

Date of NEXT calibration: 26 March 2025

Calibrated by: \_\_\_\_\_  
*Calibration Technician*

Certified by: \_\_\_\_\_  
*Mr. Ng Yan Wa*  
*Laboratory Manager*

Date of issue: 27 March 2024

Certificate No.: APJ23-154-CC001



Page 1 of 2

**1. Calibration Precautions:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Specifications:**

Calibration check

**3. Calibration Conditions:**

Air Temperature: 22.5 °C  
Air Pressure: 1005 hPa  
Relative Humidity: 69.8 %

**4. Calibration Equipment:**

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV220120	HOKLAS

**5. Calibration Results**

## 5.1 Sound Pressure Level

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	94.2

Note:

The values given in this certification only related to the values measured at the time of the calibration.



Certificate No.: APJ23-154-CC001

Page 2 of 2

# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *SVANTEK*  
**Type No.:** *SVAN 971 (Serial No.: C132260)*  
**Microphone:** *ACO 7052E (Serial No.: 85230)*  
**Preamplifier:** *SVANTEK SV-18 (Serial No.: C122483)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Address:** *Unit E, 12/F, Ford Glory Plaza,  
Nos. 37-39 Wing Hong Street,  
Cheung Sha Wan, Kowloon, Hong Kong*

Upon receipt for calibration, the instrument was found to be:

- Within (31.5Hz – 8kHz)  
 Outside

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 21 December 2023

**Date of calibration:** 22 December 2023

**Date of NEXT calibration:** 21 December 2024

Calibrated by:   
Calibration Technician

Certified by:   
Mr. Ng Yan Wa  
Laboratory Manager

**Date of issue:** 22 December 2023

**Certificate No.:** APJ23-091-CC007



Page 1 of 4



**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 21.4 °C  
 Air Pressure: 1006 hPa  
 Relative Humidity: 24.7 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

**4. Calibration Results**

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-124.8	dBA SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-124.8	dBA SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
25-124.8	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

Certificate No.: APJ23-091-CC007



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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
25-124.8	dB	SPL	94	Fast	31.5	94.4	+2.0
					63	94.3	±1.5
					125	94.3	±1.5
					250	94.2	±1.4
					500	94.2	±1.4
					1000	94.0	Ref
					2000	94.0	±1.6
					4000	93.7	±1.6
				8000	90.9	+2.1; -3.1	

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
25-124.8	dBA	SPL	94	Fast	31.5	54.8	-39.4 ±2.0
					63	68.0	-26.2 ±1.5
					125	78.0	-16.1 ±1.5
					250	85.4	-8.6 ±1.4
					500	90.8	-3.2 ±1.4
					1000	94.0	Ref
					2000	95.0	+1.2 ±1.6
					4000	94.5	+1.0 ±1.6
				8000	89.8	-1.1 ±2.1; -3.1	

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
25-124.8	dBC	SPL	94	Fast	31.5	91.3	-3.0 ±2.0
					63	93.4	-0.8 ±1.5
					125	93.9	-0.2 ±1.5
					250	94.0	-0.0 ±1.4
					500	94.1	-0.0 ±1.4
					1000	94.0	Ref
					2000	93.7	-0.2 ±1.6
					4000	92.7	-0.8 ±1.6
				8000	87.9	-3.0 ±2.1; -3.1	

Certificate No.: APJ23-091-CC007



Page 3 of 4

**5. Calibration Results Applied**

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.05
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.10
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

**Note:**

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.

Certificate No.: APJ23-091-CC007



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## Certificate of Conformity

This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

### Methods Used in Calibration and Testing

#### Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is  $\pm 1.04\%$  within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and  $\pm 1.66\%$  within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

#### Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of  $\pm 0.05$  °C.

#### Direction / Heading

The sensitivity of the magnetic directional sensor is verified at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within  $\pm 5$  degrees.

#### Relative Humidity:

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of  $\pm 0.2\%$  RH.

#### Barometric Pressure:

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of  $\pm 0.02\%$  F.S.

#### Approved By:

Michael Naughton, Engineering Manager



SENSORS																		
SENSOR	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (H+)	RESOLUTION	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed   Air Flow	•	•	•	•	•	•	•	•	•	•	•	•	•	0.1 m/s Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 1.2 to 77.8 knots 1 ft	0.6 to 60.0 m/s 116 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 116.6 knots 0 to 12 ft	0.6 to 60.0 m/s 116 to 11,811 ft/min 2.2 to 216.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 knots 0 to 12 ft	1 inch/25 mm diameter impeller with precision axle and low-friction 2yell® bearings. Startup speed stated as lower limit, readings may be taken down to 0.4 m/s (79 ft/min)   1.5 km/h   0.9 mph   0.4 m/s after impeller startup. Off-axis accuracy: ±1% @ 5° off-axis; ±2% @ 10° off-axis. Calibration drift < 1% after 100 hours use at 16 MPH / 7 m/s. Replacement impeller (NK-PN-0801) field install without tools. (US Patent 5,763,753). Wind speed calibration and testing should be done with impeller located at the top front face of the Kestrel.
Ambient Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	0.5 °F 0.1 °C	0.1 °F 0.1 °C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Hermetically-sealed, precision thermistor mounted externally and thermally isolated (US Patent 5,939,645) for rapid response. Airflow of 2.2 m/s (1 m/s or greater) provides fastest response and reduction in insulation effect. Calibration drift negligible. Thermistor may also be used to measure temperature of water or snow by submerging thermistor portion into material - remove impeller prior to taking submerged measurements and ensure humidity sensor membrane is free of liquid water prior to taking humidity based measurements after submersion.
Globe Temperature - Tg												•		1.4 °F 0.1 °C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in/25 mm black powder coated copper globe converted to Tg equivalent for standard 6 in/150 mm globe. Closest equivalence obtained with airflow greater than 2.2 m/s (1 m/s).
Relative Humidity				•	•	•	•	•	•	•	•	•	•	3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). To achieve stated accuracy, unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift < 2% over 24 months. Humidity sensor may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (NK-PN-0802).
Pressure				•	•	•	•	•	•	•	•	•	•	0.03 inHg 1.0 hPa/mbar 0.01 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1,000.0 hPa/mbar 4.35 to 15.95 PSI and 33.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1,654.7 hPa/mbar 0.14 to 24.00 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C	Monolithic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be recalibrated at factory or in field. Adjustable reference altitude allows display of station pressure or barometric pressure corrected to MSL. Kestrel 4200 displays pressure on a dedicated screen. Kestrel 2500 and 3500 display continuously updating three-hour barometric pressure trend indicator: rising rapidly, rising, steady, falling, falling rapidly. Kestrel 4000 series displays pressure trend through graphing function. PSI display on Kestrel 4000 series only.
Compass												•	•	5°	1° 1/16th Cardinal Scale	0 to 360°	0 to 360°	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unit's vertical position. Self-calibration routine eliminates magnetic error from batteries or unit and must be run after every full power-down (battery removal or change). Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declination/variation adjustable for True North readout.

CALCULATED MEASUREMENTS																		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (H+)	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density									•	•				0.0002 lbm³ 0.003 kg/m³	0.001 lbm³ 0.001 kg/m³	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow									•					6.71%	1 cfm 1 m³/hr 0.1 m³/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measurement and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in   21.5 ft   655.3 cm   6.55 m
Altitude				•	•	•	•	•	•	•	•	•	•	typical: 23.6 ft 7.2 m max: 48.2 ft 14.7 m	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level (MSL). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 890 to 1100 mBar.
Barometric Pressure				•	•	•	•	•	•	•	•	•	•	0.07 inHg 2.4 hPa/mbar 0.03 PSI	0.01 inHg 0.1 hPa/mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	Air pressure that would be present in identical conditions at MSL. Station pressure compensated for local elevation provided by reference altitude. Requires accurate reference altitude to produce maximum absolute accuracy.
Crosswind & Headwind/Tailwind												•	•	7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 1.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwind/tailwind indication.
Delta T						•								3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicates evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 °C.
Density Altitude									•	•				226 ft 69 m	1 ft 1 m	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Local air density converted to equivalent elevation above sea level in a uniform layer consisting of the International Standard Atmosphere.
Dewpoint				•	•	•	•	•	•	•	•	•	•	3.4 °F 1.9 °C	0.1 °F 0.1 °C	15 to 95 % RH Refer to Range for Temperature Sensor	Temperature Relative Humidity	Temperature that a volume of air must be cooled to at constant pressure for the water vapor present to condense into dew on a solid surface. Can also be considered to be the water-air saturation temperature.
Evaporation Rate													•	0.01 lbm/hr 0.05 kg/m²/hr	0.01 lbm/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe thermometer (°F or °C, not included). Readings should be taken 20 inches above pour surface with the thermometer shaded, and averaged for 6-10 seconds using built-in averaging function.
Heat Index				•	•	•	•	•	•	•	•	•	•	7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Perceived temperature resulting from the combined effect of temperature and relative humidity. Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content   Humidity Ratio ("Grains")													•	3 gpp g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density													•	0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	The ratio, expressed as a percentage, of measured air density to the air density of a standard atmosphere as defined by the ICAO.
Thermal Work Limit (TWL)													•	10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Estimated safe maximum continuously sustainable human metabolic rate (W/m²) for the conditions and clothing factors. Based off of estimated metabolic output of typical human. On-screen zone warnings.
Outdoor Wet Bulb Globe Temperature (WBGT)													•	1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Measure of human heat stress defined as the combination of effects due to radiation, convection, and conduction. Outdoor WBGT is calculated from a weighted sum of natural wet bulb (Twb), globe temperature (Tg), and dry bulb temperature (Td). User settable on-screen warning zones.
Wet Bulb Temperature - Naturally Aspirated (Twb)													•	1.4 °F 0.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity Pressure	Similar to psychrometric wet-bulb temperature (see below). However, Twb only undergoes forced convection from the ambient air velocity. Twb is a measure of the evaporative cooling that the air will allow. This is accounted for by combining the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric													•	3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Temperature indicated by a sling psychrometer. Due to nature of the psychrometric ratio for a water-air system, this approximates the thermodynamic wet-bulb temperature. The thermodynamic wet-bulb temperature is the temperature a parcel of air would have if cooled adiabatically to saturation temperature via water evaporating into it.
Wind Chill													•	1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature	Perceived temperature resulting from combined effect of wind speed and temperature. Calculated based on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed adjusted by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground. Measurement range limited by extent of published tables.

ADDITIONAL SPECIFICATIONS														
Display & Backlight	•	•	•	•	•	•	•	•	•	•	•	•	•	Reflective 3 1/2 digit LCD. Digit height 0.29 in / 9 mm. Aviation green electroluminescent backlight. Manual activation with auto-off.
Response Time & Display Update	•	•	•	•	•	•	•	•	•	•	•	•	•	Reflective 5 digit LCD. Digit height 0.36 in / 9 mm. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Manual activation with auto-off.
Max/Avg Wind	•	•	•	•	•	•	•	•	•	•	•	•	•	Multi-function, multi-digit monochrome dot-matrix display. Choice of aviation green or visible red (NV models only) electroluminescent backlight. Automatic or manual activation.
Data Storage & Archival Display, Min/Max/Avg History							•	•	•	•	•	•	•	All measurements except those based on relative humidity respond accurately within 1 second. Relative humidity and all measurements which include RH in their calculation may require as long as 1 minute to fully equilibrate to a large change in the measurement environment. Display updates every 1 second.
Data Upload & Bluetooth® Data Connect Option													•	One-button clear and restart of Max Wind Gust and Average Wind measurement.
Clock / Calendar	•	•	•	•	•	•	•	•	•	•	•	•	•	Max and average wind calculation may be started and stopped independently of data logging of other values, along with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBGT, TWL, evaporation rate.
Auto Shutdown	•	•	•	•	•	•	•	•	•	•	•	•	•	Minimum, maximum, average and logged history stored and displayed for every measured value. Large capacity data logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be reset independently. Auto-store interval settable from 2 seconds to 12 hours, overwrite on or off. Logs even when display off for 1 and 2 second intervals (code version 4.18 and later). Data capacity shown.
Languages	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Certifications	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Battery Origin	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Shock Resistance	•	•	•	•	•	•	•	•	•	•	•	•	•	Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software.
Sealing	•	•	•	•	•	•	•	•	•	•	•	•	•	Standard Models: AAA Alkaline, two, included. Average life, 400 hours of use, reduced by backlight or Bluetooth radio transmission use.
Operational Temperature Limits	•	•	•	•	•	•	•	•	•	•	•	•	•	MIL-STD-883C, Transient Shock, Method 516.5 Procedure IV, unit only, impact may damage replaceable impeller.
Storage Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	Waterproof (IP67) and NEMA-6.
Size & Weight	•	•	•	•	•	•	•	•	•	•	•	•	•	14" F to 131" F (-10 °C to 55 °C). Measurements may be taken beyond the limits of the operational temperature range of the display and batteries by maintaining the unit within the operational range and exposing it to the more extreme environment for the minimum time necessary to take reading.

\* NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the combined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2σ).

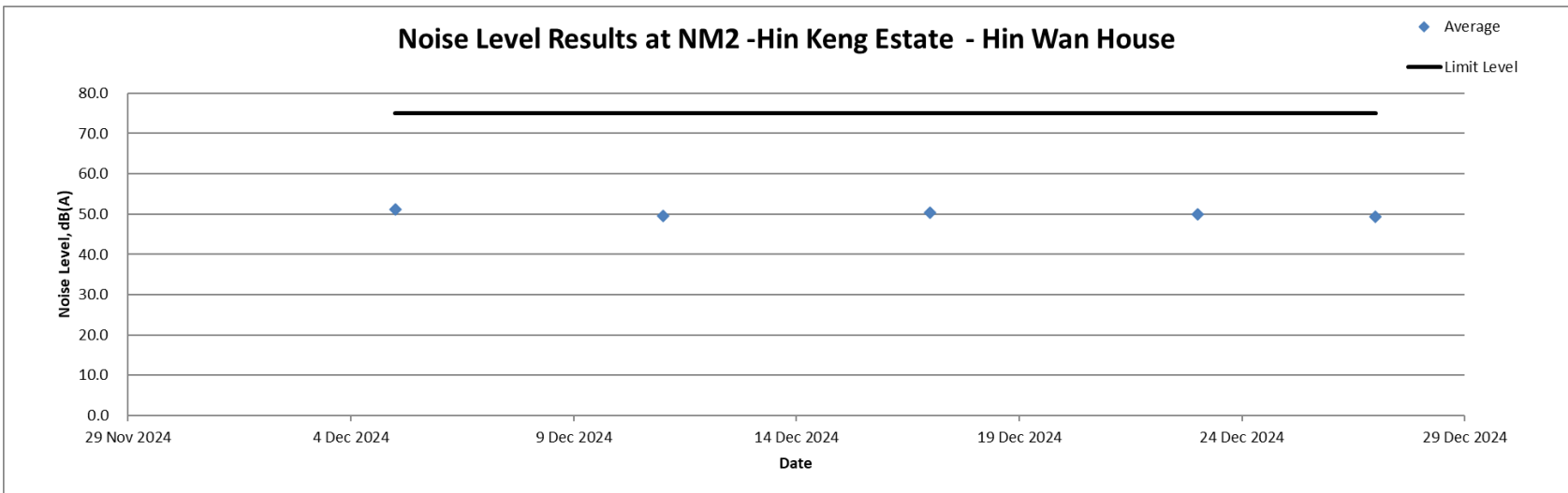
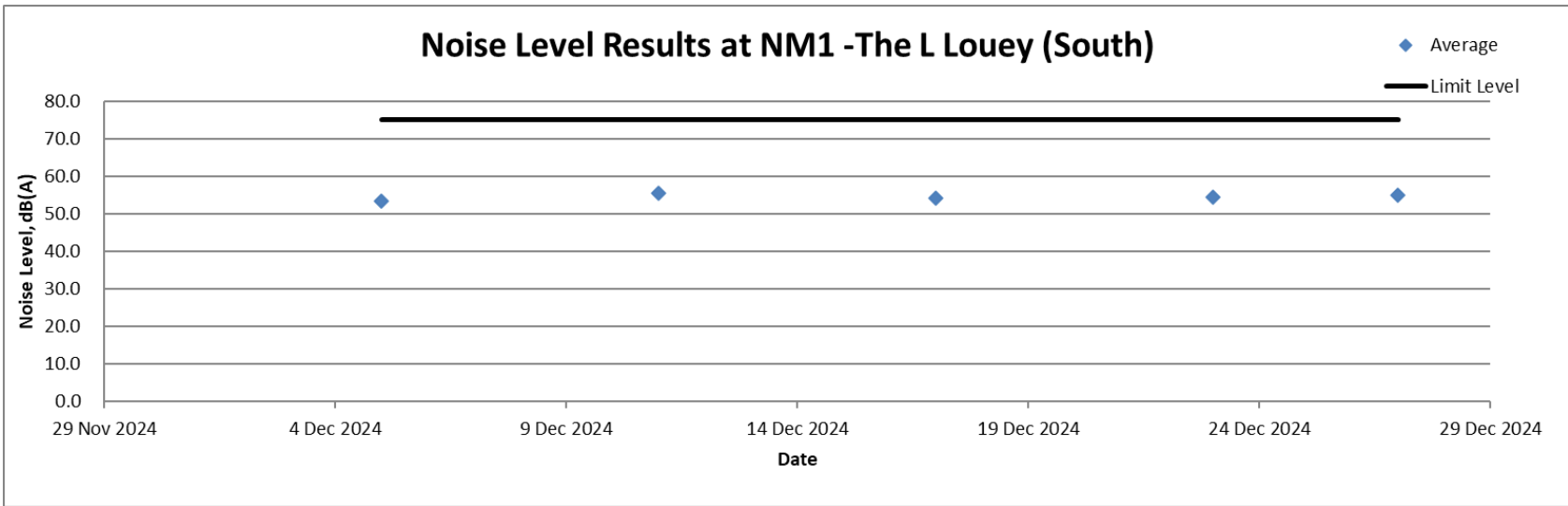
Please note, these specifications are valid for all Kestrel 4400 products and all other Kestrel 4000 series with a serial number higher than 659340. If your product has a lower serial number, please reference the previous version of the specifications.

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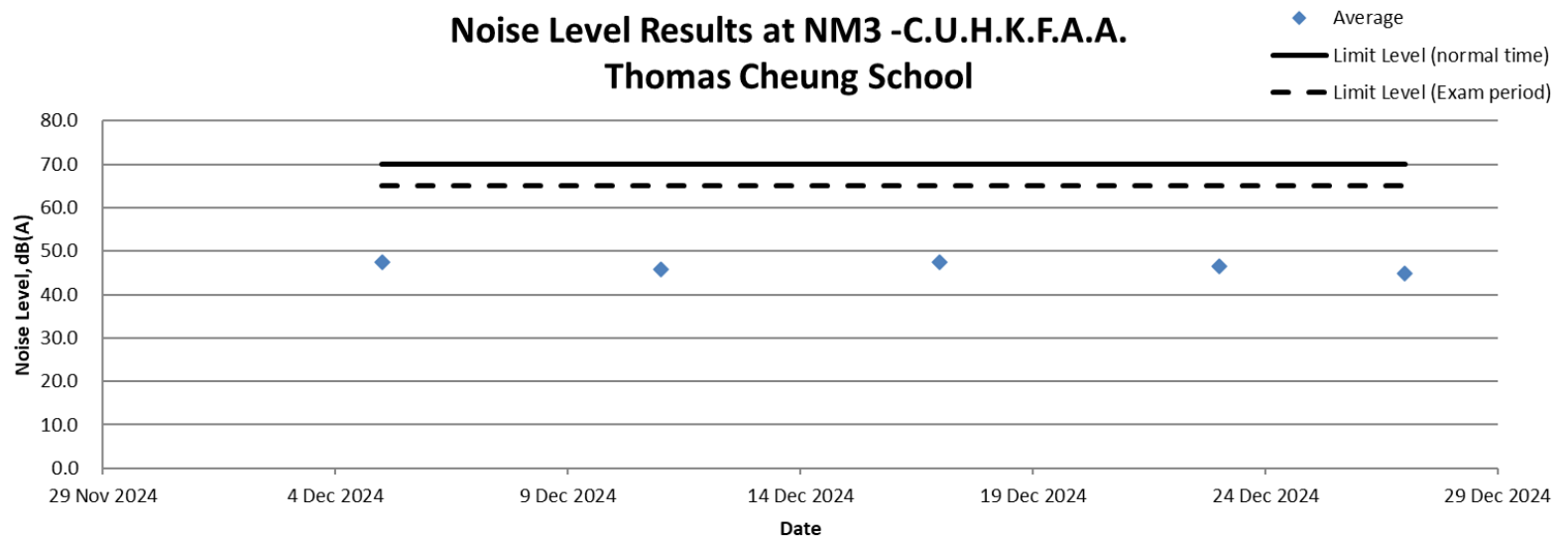
# Appendix N

## Impact Noise Monitoring Results and Graphical Presentation





### Noise Level Results at NM3 -C.U.H.K.F.A.A. Thomas Cheung School

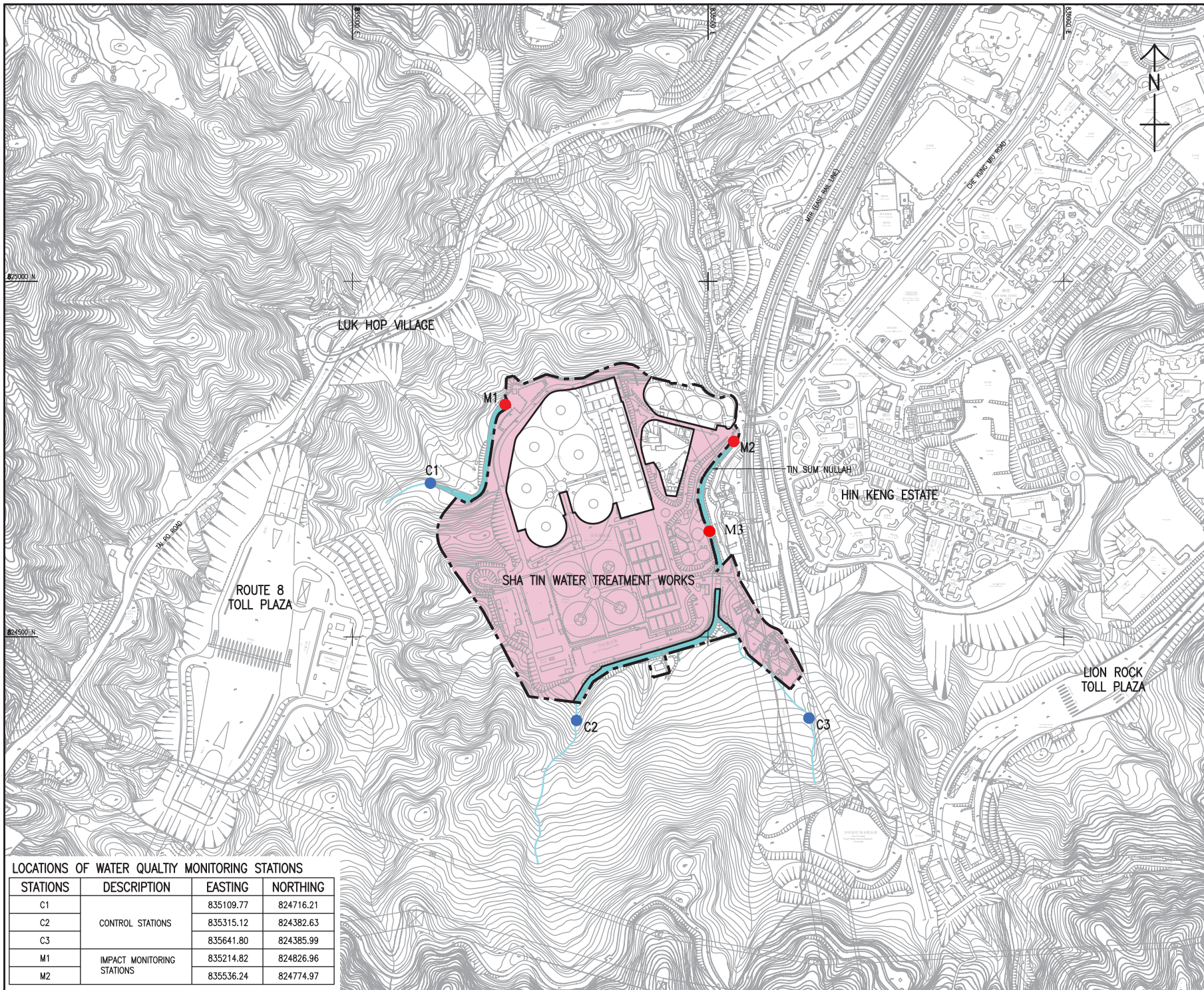


X

# Appendix O

## Location Plan of Water Quality Monitoring Station





**LEGEND:**

-  SITE BOUNDARY OF SHATIN WATER TREATMENT WORKS
-  WORKS AREA
-  INLAND WATER COURSE
-  IMPACT MONITORING STATION
-  CONTROL STATION

**LOCATIONS OF WATER QUALITY MONITORING STATIONS**

STATIONS	DESCRIPTION	EASTING	NORTHING
C1	CONTROL STATIONS	835109.77	824716.21
C2		835315.12	824382.63
C3		835641.80	824385.99
M1	IMPACT MONITORING STATIONS	835214.82	824826.96
M2		835536.24	824774.97


**水務署**  
**WATER SUPPLIES DEPARTMENT**  
 AGREEMENT NO. CE 13/2009 (WS)  
 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS--  
 SOUTH WORKS  
 DESIGN AND CONSTRUCTION

**LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS**

**AECOM**

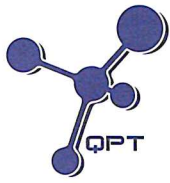
DRG NO: 60162073/EM&A/FIG 5  
 圖紙編號: 60162073/EM&A/FIG 5  
 DESIGNED BY: DXL  
 CHECKED BY: A3 1 : 5000  
 DATE: 2012-11-08 13:39 CAZP  
 METRES

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# Appendix P

## Calibration Certificate (Water Quality)



專業化驗有限公司  
QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong  
Email: info@qualityprotest.com; Website: www.qualityprotest.com  
Tel: (852) 3956 8717; Fax: (852) 3956 3928

## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD100074  
Date of Issue : 21 October 2024  
Page No. : 1 of 2

### PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

### PART B - SAMPLE INFORMATION

Name of Equipment : YSI ProDSS Multi Parameters  
Manufacturer : YSI  
Serial Number : 22D100436  
Date of Received : 17 October 2024  
Date of Calibration : 21 October 2024  
Date of Next Calibration : 20 January 2025  
Request No. : D-BD100074

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Test Parameter	Reference Method
pH value	APHA 21e 4500-H <sup>+</sup> B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure
Salinity	APHA 21e 2520 B
Dissolved oxygen	APHA 23e 4500-O G (Membrane Electrode Method)
Turbidity	APHA 21e 2130 B (Nephelometric Method)

### PART D - CALIBRATION RESULT

#### (1) pH value

Target ( pH unit )	Display Reading ( pH unit )	Tolerance	Result
4.00	4.02	0.02	Satisfactory
7.42	7.59	0.17	Satisfactory
10.01	10.19	0.18	Satisfactory

Tolerance of pH value should be less than  $\pm 0.2$  ( pH unit )

#### (2) Temperature

Reading of Ref. thermometer ( °C )	Display Reading ( °C )	Tolerance	Result
16.0	16.1	0.1	Satisfactory
25.5	25.0	-0.5	Satisfactory
40.0	39.6	-0.4	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  ( °C )

#### (3) Salinity

Expected Reading ( g/L )	Display Reading ( g/L )	Tolerance ( % )	Result
10	9.59	-4.1	Satisfactory
20	19.72	-1.4	Satisfactory
30	30.22	0.7	Satisfactory

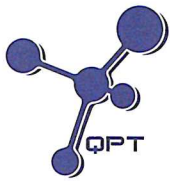
Tolerance of Salinity should be less than  $\pm 10.0$  ( % )

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED  
SIGNATORY:

  
LEE Chun-ning  
Assistant Manager





專業化驗有限公司  
QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong  
Email: info@qualityprotest.com; Website: www.qualityprotest.com  
Tel: (852) 3956 8717; Fax: (852) 3956 3928

## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD100074  
Date of Issue : 21 October 2024  
Page No. : 2 of 2

### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
7.41	7.78	0.37	Satisfactory
5.61	5.21	-0.40	Satisfactory
3.49	3.54	0.05	Satisfactory
0.56	0.11	-0.45	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm 0.5$  ( mg/L )

### (5) Turbidity

Expected Reading ( NTU )	Display Reading ( NTU )	Tolerance <sup>(a)</sup> ( % )	Result
0	0.54	--	Satisfactory
10	9.68	-3.2	Satisfactory
20	18.75	-6.3	Satisfactory
100	91.88	-8.1	Satisfactory
800	736.64	-7.9	Satisfactory

Tolerance of Turbidity should be less than  $\pm 10.0$  ( % )

<sup>(a)</sup> For 0 NTU, Display Reading should be less than 1 NTU

### Remark(s)

- The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.
- The results relate only to the calibrated equipment as received
- The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
- "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
- The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

--- END OF REPORT ---

# Appendix Q

## The Certification of Laboratory with HOKLAS accredited Analytical Tests



Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
**認可證書**

*This is to certify that*  
特此證明

**ACUMEN LABORATORY AND TESTING LIMITED**  
浩科檢測中心有限公司

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon,  
Hong Kong  
香港九龍長沙灣永康街37-39號福源廣場12樓D室

*is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017  
for performing specific laboratory activities as listed in the scope of accreditation within the test category of*  
獲香港認可處根據ISO/IEC 17025:2017認可  
進行載於認可範圍內下述測試類別中的指定實驗室活動

**Environmental Testing**  
環境測試

*This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and  
the implementation of a management system relevant to laboratory operation  
(see joint IAF-ILAC-ISO Communiqué).*

此項 ISO/IEC 17025:2017 的認可資格證明此實驗室具備指定範圍內所須的技術能力並  
實施一套與實驗室運作相關的管理體系  
(見國際認可論壇、國際實驗室認可合作組織及國際標準化組織的聯合公報)。

*The common seal of HKAS is affixed hereto by the authority of the HKAS Executive*  
現經香港認可處執行機關授權在此蓋上香港認可處的印章

  
SHUM Wai-leung, Executive Administrator  
執行幹事 沈偉良  
Issue Date : 15 November 2021  
簽發日期：二零二一年十一月十五日

Registration Number : HOKLAS 241  
註冊號碼：

Date of First Registration : 16 July 2014  
首次註冊日期：二零一四年七月十六日





# Appendix R

## Impact Water Quality Monitoring Results

Date	Time	Weather	Location	Co-ordinates		Water Depth m	Sample Depth m	Temp. °C		DO con. mg/L		Turbidity NTU		pH unit		SS mg/L
				East	North											
2/12/2024	9:45	Fine	C1	835110	824716	0.04	0.02	13.04	13.11	13.36	12.97	0	0	7.82	7.81	3.4
	10:10	Fine	C2	835403	824470	0.02	0.01	14.81	14.84	13.32	13.06	0	0	7.9	7.89	3.0
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:50	Fine	M1	835215	824827	0.8	0.4	13.94	13.98	13.66	14.14	0.43	0.42	7.93	7.92	3.0
	10:05	Fine	M2	835536	824775	0.05	0.025	15.14	15.1	13.1	13.34	0	0	8.16	8.13	2.9
	10:07	Fine	M3	835501	824648	0.02	0.01	14.86	14.88	13.82	13.94	0	0	8.08	8.07	2.7
4/12/2024	9:43	Sunny	C1	835110	824716	0.04	0.02	17.8	17.8	10.84	10.61	0	0	7.82	7.81	1.8
	10:08	Sunny	C2	835403	824470	0.02	0.01	17.24	17.23	12.63	12.76	0	0	7.91	7.9	2.5
	N/A	Sunny	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:48	Sunny	M1	835215	824827	0.8	0.4	17.84	17.85	12.14	12.07	0.25	0.25	7.86	7.85	2.5
	10:03	Sunny	M2	835536	824775	0.05	0.025	18.58	18.56	13.27	13.64	0	0	8.3	8.26	2.3
	10:05	Sunny	M3	835501	824648	0.02	0.01	17.69	16.72	14.09	13.68	0	0	8.02	8.01	2.7
6/12/2024	12:08	Fine	C1	835110	824716	0.04	0.02	14.88	14.98	11.17	11.2	0	0	7.77	7.74	2.6
	12:29	Fine	C2	835403	824470	0.02	0.01	15.4	15.45	11.44	11.06	0	0	7.88	7.9	1.9
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11:42	Fine	M1	835215	824827	0.8	0.4	15.56	15.57	13.9	13.08	0.67	0.68	8.02	7.98	2.1
	10:53	Fine	M2	835536	824775	0.05	0.025	17.08	17.13	13.81	13.74	0	0	8.18	8.17	2.5
	11:07	Fine	M3	835501	824648	0.02	0.01	15.73	15.75	14.32	14.12	0	0	8.06	8.06	2.4
9/12/2024	13:00	Fine	C1	835110	824716	0.04	0.02	13.72	13.78	12.91	12.04	0	0	7.8	7.8	2.2
	13:25	Fine	C2	835403	824470	0.02	0.01	13.98	14.06	12.71	12.03	0	0	8.1	8.09	3.1
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	13:05	Fine	M1	835215	824827	0.8	0.4	14.04	14.02	13.32	13.52	0.05	0.05	8.08	7.99	1.9
	13:20	Fine	M2	835536	824775	0.05	0.025	15.19	15.23	13.07	13.85	0	0	8.33	8.29	2.7
	13:22	Fine	M3	835501	824648	0.02	0.01	14.46	14.52	13.72	13.34	0	0	8.22	8.2	2.0
11/12/2024	9:45	Fine	C1	835110	824716	0.04	0.02	13.88	13.9	11.84	11.85	0	0	7.82	7.81	3.2
	10:10	Fine	C2	835403	824470	0.02	0.01	14.14	14.19	13.04	12.63	0	0	7.85	7.85	3.0
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:50	Fine	M1	835215	824827	0.8	0.4	14.48	14.49	13.47	13.44	0.07	0.08	7.83	7.87	3.3
	10:05	Fine	M2	835536	824775	0.05	0.025	16.23	16.31	14.62	14.09	0	0	8.32	8.23	2.2
	10:07	Fine	M3	835501	824648	0.02	0.01	14.5	14.5	14.49	14.29	0	0	8.15	8.13	2.6
13/12/2024	9:45	Fine	C1	835110	824716	0.04	0.02	13.76	13.81	11.58	11.31	0	0	7.79	7.79	2.8
	10:10	Fine	C2	835403	824470	0.02	0.01	13.51	13.56	13.4	13.23	0	0	8.05	8.04	2.8
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:50	Fine	M1	835215	824827	0.8	0.4	14.38	14.43	13.53	13.45	0.4	0.4	8.01	8.01	2.9
	10:05	Fine	M2	835536	824775	0.05	0.025	14.99	15.08	13.61	13.07	0	0	8.34	8.29	2.4
	10:07	Fine	M3	835501	824648	0.02	0.01	13.94	13.98	14.61	14.29	0	0	8.15	8.14	2.9
16/12/2024	9:41	Fine	C1	835110	824716	0.04	0.02	13.57	13.52	11.62	11.98	0	0	7.81	7.8	4.0
	10:06	Fine	C2	835403	824470	0.02	0.01	15.5	15.49	11.45	11.08	0	0	7.95	7.95	3.6
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:46	Fine	M1	835215	824827	0.8	0.4	15.84	15.86	13.86	13.43	0.2	0.2	7.89	7.88	2.4
	10:01	Fine	M2	835536	824775	0.05	0.025	17.03	16.97	14.57	14.09	0	0	8.28	8.19	1.9
	10:03	Fine	M3	835501	824648	0.02	0.01	16.66	16.64	14.19	14.11	0	0	7.93	7.94	2.3

18/12/2024	9:39	Fine	C1	835110	824716	0.04	0.02	13.57	13.61	12.53	12.99	0	0	7.8	7.81	2.6
	10:04	Fine	C2	835403	824470	0.02	0.01	16.96	16.95	11.8	11.31	0	0	7.86	7.85	3.2
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:44	Fine	M1	835215	824827	0.8	0.4	13.64	13.69	12.9	12.52	0.1	0.09	7.99	7.96	<u>3.7</u>
	9:59	Fine	M2	835536	824775	0.05	0.025	17.55	17.45	13.74	13.99	0	0	8.41	8.56	3.2
	10:01	Fine	M3	835501	824648	0.02	0.01	17.12	17.1	14.05	14.69	<b>0</b>	<b>0</b>	8.17	8.15	<u>3.7</u>
20/12/2024	13:02	Fine	C1	835110	824716	0.04	0.02	12.94	12.99	12.22	12.41	0	0	7.88	7.88	2.1
	13:27	Fine	C2	835403	824470	0.02	0.01	14.32	14.39	12.17	12.87	0	0	8.1	8.18	2.1
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	13:07	Fine	M1	835215	824827	0.8	0.4	14.78	14.81	12.49	12.76	0.47	0.48	7.94	7.93	1.8
	13:22	Fine	M2	835536	824775	0.05	0.025	16.96	16.91	14.01	14.13	0	0	8.49	8.42	1.7
	13:24	Fine	M3	835501	824648	0.02	0.01	14.92	14.93	14.19	14.31	0	0	8.31	8.29	<u>2.1</u>
23/12/2024	10:35	Fine	C1	835110	824716	0.04	0.02	10.65	10.68	13.62	13.92	0	0	7.88	7.88	1.6
	10:50	Fine	C2	835403	824470	0.02	0.01	12.45	12.5	13.91	13.13	0	0	8.01	8	1.9
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10:15	Fine	M1	835215	824827	0.8	0.4	12.43	12.7	13.07	13.03	0.25	0.25	7.96	7.96	2.6
	9:31	Fine	M2	835536	824775	0.05	0.025	13.17	13.19	14.09	14.31	0	0	8.22	8.18	2.5
	9:34	Fine	M3	835501	824648	0.02	0.01	12.53	12.59	13.11	13.89	0	0	8.12	8.1	1.9
27/12/2024	10:16	Sunny	C1	835110	824716	0.04	0.02	12.01	12.14	13.41	12.6	0.25	0.27	7.81	7.8	1.8
	10:28	Sunny	C2	835403	824470	0.02	0.01	13.45	13.46	13.3	13.1	0.18	0.19	7.92	7.91	3.9
	N/A	Sunny	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10:02	Sunny	M1	835215	824827	0.8	0.4	13.08	13.14	12.54	12.53	0.35	0.35	7.89	7.88	2.1
	9:40	Sunny	M2	835536	824775	0.05	0.025	16.02	16.04	13.09	13.83	0.44	0.5	8.24	8.17	1.7
	9:43	Sunny	M3	835501	824648	0.02	0.01	15.26	15.28	14.88	14.16	0.21	0.26	8.13	8.12	<u>2.9</u>
31/12/2024	9:44	Fine	C1	835110	824716	0.04	0.02	14.39	14.42	13.21	13.64	0.45	0.45	7.8	7.8	1.2
	10:09	Fine	C2	835403	824470	0.02	0.01	15.03	15.04	12.78	12.6	0.61	0.64	7.82	7.83	<1
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9:49	Fine	M1	835215	824827	0.8	0.4	14.44	14.46	12.86	12.76	0.91	0.94	7.93	7.93	1.8
	10:04	Fine	M2	835536	824775	0.05	0.025	15.72	15.76	12.05	11.78	0.75	0.76	8.04	8.01	<1
	10:06	Fine	M3	835501	824648	0.02	0.01	15.62	15.67	13.51	13.15	0.5	0.51	7.94	7.94	<1

Remark 1: Values that are <1 is assumed to be 1 during calculation.

Remark 2: Underlined values indicated exceedance of limit level.

Remark 3: Bold values indicated exceedance of action level.

There were 1 exceedance of Action Level and 12 exceedances of Limit Level





## Acumen Laboratory and Testing Limited

Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon  
Tel: (852) 2333 6823 Fax: (852) 2333 1316

### Test Report


Page 1 of 2

Report Number : Q240002aR242597  
Job Number : R242597  
Issue Date : 06/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1386  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 02/12/2024  
Date Samples Received : 02/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242597/1-5  
Test Period : 03/12/2024 – 04/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division

## Acumen Laboratory and Testing Limited

Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon  
Tel: (852) 2333 6823 Fax: (852) 2333 1316

### Test Report

Page 2 of 2

Report Number : Q240002aR242597  
Job Number : R242597  
Issue Date : 06/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242597/1	02/12/2024	C1	3.4
R242597/2	02/12/2024	C2	3.0
R242597/3	02/12/2024	M1	3.0
R242597/4	02/12/2024	M2	2.9
R242597/5	02/12/2024	M3	2.7

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



## Acumen Laboratory and Testing Limited

Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon  
Tel: (852) 2333 6823 Fax: (852) 2333 1316

### Test Report


Page 1 of 2

Report Number : Q240002aR242640  
Job Number : R242640  
Issue Date : 12/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1387  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 04/12/2024  
Date Samples Received : 04/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242640/1-5  
Test Period : 10/12/2024 – 11/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division



## Acumen Laboratory and Testing Limited

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### Test Report

Page 2 of 2

Report Number : Q240002aR242640  
Job Number : R242640  
Issue Date : 12/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242640/1	04/12/2024	C1	1.8
R242640/2	04/12/2024	C2	2.5
R242640/3	04/12/2024	M1	2.5
R242640/4	04/12/2024	M2	2.3
R242640/5	04/12/2024	M3	2.7

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



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## Test Report


Page 1 of 2

Report Number : Q240002aR242641  
Job Number : R242641  
Issue Date : 12/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1388  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 06/12/2024  
Date Samples Received : 06/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242641/1-5  
Test Period : 10/12/2024 – 11/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

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### Test Report

Page 2 of 2

Report Number : Q240002aR242641  
Job Number : R242641  
Issue Date : 12/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242641/1	06/12/2024	C1	2.6
R242641/2	06/12/2024	C2	1.9
R242641/3	06/12/2024	M1	2.1
R242641/4	06/12/2024	M2	2.5
R242641/5	06/12/2024	M3	2.4

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*





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### Test Report


Page 1 of 2

Report Number : Q240002aR242642  
Job Number : R242642  
Issue Date : 12/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1389  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 09/12/2024  
Date Samples Received : 09/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242642/1-5  
Test Period : 10/12/2024 – 11/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

## Acumen Laboratory and Testing Limited

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### Test Report

Page 2 of 2

Report Number : Q240002aR242642

Job Number : R242642

Issue Date : 12/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242642/1	09/12/2024	C1	2.2
R242642/2	09/12/2024	C2	3.1
R242642/3	09/12/2024	M1	1.9
R242642/4	09/12/2024	M2	2.7
R242642/5	09/12/2024	M3	2.0

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

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### Test Report


Page 1 of 2

Report Number : Q240002aR242668  
Job Number : R242668  
Issue Date : 17/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1390  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 11/12/2024  
Date Samples Received : 11/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242668/1-5  
Test Period : 16/12/2024 – 17/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division



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### Test Report

Page 2 of 2

Report Number : Q240002aR242668  
Job Number : R242668  
Issue Date : 17/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242668/1	11/12/2024	C1	3.2
R242668/2	11/12/2024	C2	3.0
R242668/3	11/12/2024	M1	3.3
R242668/4	11/12/2024	M2	2.2
R242668/5	11/12/2024	M3	2.6

Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

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## Test Report


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Report Number : Q240002aR242669  
Job Number : R242669  
Issue Date : 17/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1391  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 13/12/2024  
Date Samples Received : 13/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242669/1-5  
Test Period : 16/12/2024 – 17/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division

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Page 2 of 2

Report Number : Q240002aR242669  
Job Number : R242669  
Issue Date : 17/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242669/1	13/12/2024	C1	2.8
R242669/2	13/12/2024	C2	2.8
R242669/3	13/12/2024	M1	2.9
R242669/4	13/12/2024	M2	2.4
R242669/5	13/12/2024	M3	2.9

Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

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### Test Report


Page 1 of 2

Report Number : Q240002aR242698  
Job Number : R242698  
Issue Date : 20/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1392  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 16/12/2024  
Date Samples Received : 16/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242698/1-5  
Test Period : 18/12/2024 – 19/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division



# Acumen Laboratory and Testing Limited

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## Test Report

Page 2 of 2

Report Number : Q240002aR242698  
Job Number : R242698  
Issue Date : 20/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242698/1	16/12/2024	C1	4.0
R242698/2	16/12/2024	C2	3.6
R242698/3	16/12/2024	M1	2.4
R242698/4	16/12/2024	M2	1.9
R242698/5	16/12/2024	M3	2.3

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



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## Test Report


Page 1 of 2

Report Number : Q240002aR242699  
Job Number : R242699  
Issue Date : 20/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1393  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 18/12/2024  
Date Samples Received : 18/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242699/1-5  
Test Period : 18/12/2024 – 19/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division



## Acumen Laboratory and Testing Limited

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### Test Report

Page 2 of 2

Report Number : Q240002aR242699  
Job Number : R242699  
Issue Date : 20/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242699/1	18/12/2024	C1	2.6
R242699/2	18/12/2024	C2	3.2
R242699/3	18/12/2024	M1	3.7
R242699/4	18/12/2024	M2	3.2
R242699/5	18/12/2024	M3	3.7

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



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## Test Report


Page 1 of 2

Report Number : Q240002aR242729  
Job Number : R242729  
Issue Date : 27/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1394  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 20/12/2024  
Date Samples Received : 20/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242729/1-5  
Test Period : 23/12/2024 – 24/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division

## Acumen Laboratory and Testing Limited

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### Test Report

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Report Number : Q240002aR242729  
Job Number : R242729  
Issue Date : 27/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242729/1	20/12/2024	C1	2.1
R242729/2	20/12/2024	C2	2.1
R242729/3	20/12/2024	M1	1.8
R242729/4	20/12/2024	M2	1.7
R242729/5	20/12/2024	M3	2.1

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*





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### Test Report


Page 1 of 2

Report Number : Q240002aR242730  
Job Number : R242730  
Issue Date : 27/12/2024  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1395  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 23/12/2024  
Date Samples Received : 23/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242730/1-5  
Test Period : 23/12/2024 – 24/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division

## Acumen Laboratory and Testing Limited

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### Test Report

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Report Number : Q240002aR242730  
Job Number : R242730  
Issue Date : 27/12/2024

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242730/1	23/12/2024	C1	1.6
R242730/2	23/12/2024	C2	1.9
R242730/3	23/12/2024	M1	2.6
R242730/4	23/12/2024	M2	2.5
R242730/5	23/12/2024	M3	1.9

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



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### Test Report

Page 1 of 2


Report Number : Q240002aR242767  
Job Number : R242767  
Issue Date : 02/01/2025  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1396  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 27/12/2024  
Date Samples Received : 27/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242767/1-5  
Test Period : 30/12/2024 – 31/12/2024  
Method Used : In-house Method, QPL-15e for Total Suspended Solids

Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division



## Acumen Laboratory and Testing Limited

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### Test Report

Page 2 of 2

Report Number : Q240002aR242767  
Job Number : R242767  
Issue Date : 02/01/2025

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242767/1	27/12/2024	C1	1.8
R242767/2	27/12/2024	C2	3.9
R242767/3	27/12/2024	M1	2.1
R242767/4	27/12/2024	M2	1.7
R242767/5	27/12/2024	M3	2.9

#### Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

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### Test Report


Page 1 of 2

Report Number : Q240002aR242821  
Job Number : R242821  
Issue Date : 09/01/2025  
Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.  
Applicant Address : Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.  
Project Name : CJO-3113-1397  
Test Required : Total Suspended Solids (TSS)  
Sampling Date : 31/12/2024  
Date Samples Received : 31/12/2024  
Sample Nature : Water  
Number of Samples Received : 5  
Condition Received : Sample(s) arrived laboratory in chilled condition  
Type of Container : HDPE Plastic Bottles  
Laboratory ID : R242821/1-5  
Test Period : 07/01/2025 – 08/01/2025  
Method Used : In-house Method, QPL-15e for Total Suspended Solids  
  
Test Result : Refer to the results on page 2

*For and on behalf of*

Acumen Laboratory and Testing Limited

Authorized Signature :

  
\_\_\_\_\_  
Hui Wai Fung, Huntington  
Laboratory Manager  
Chemical and Microbiological Division

## Acumen Laboratory and Testing Limited

Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon  
Tel: (852) 2333 6823 Fax: (852) 2333 1316

### Test Report

Page 2 of 2

Report Number : Q240002aR242821  
Job Number : R242821  
Issue Date : 09/01/2025

### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242821/1	31/12/2024	C1	1.2
R242821/2	31/12/2024	C2	<1
R242821/3	31/12/2024	M1	1.8
R242821/4	31/12/2024	M2	<1
R242821/5	31/12/2024	M3	<1

Note:

1. mg/L indicates milligram per liter
2. < indicates less than.
3. Reporting limit is 2.5mg/L for 1L sample
4. Reporting limit is 1 mg/L for 2.5L sample
5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
6. The result(s) relate only to the item(s) tested.
7. The result(s) are applied only to the sample(s) received.

\*\*\*End of Report\*\*\*



# Appendix S

## Impact Monitoring report for Ecology

# **Post-Transplantation Monitoring Report**

**for Agreement No. CE 13/2009 (WS)**

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS

**Report No. 124**  
**December 2024**

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## **1. INTRODUCTION**

- 1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for “In-situ Reprovisioning of Sha Tin Water Treatment Works - South Works” (“The Project”).
- 1.2 Upon the requirement of the Environmental Permit, a detailed vegetation report presenting the baseline vegetation condition for flora species with conservation interest, transplanting and monitoring programme for the Project was prepared and approved by DEP in February 2016.
- 1.3 There were 4 flora species of conservation importance recorded in the woodland habitat within the Project Site including Ailanthus (*Ailanthus fordii*), Incense Tree (*Aquilaria sinensis*), Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle’s Claw (*Artabotrys hongkongensis*). In total, 2 nos. of Incense Tree (*Aquilaria sinensis*), 1 no. of Ailanthus (*Ailanthus fordii*) tree, 5 colonies of Lamb of Tartary (*Cibotium barometz*) and 1 no. Hong Kong Eagle’s Claw (*Artabotrys hongkongensis*) were recommended to be transplanted in the approved detailed vegetation survey report.
- 1.4 As planned in the detailed vegetation report, Incense Trees (*Aquilaria sinensis*) and an Ailanthus (*Ailanthus fordii*) tree were transplanted within existing Sha Tin Water Treatment Works (STWTW). All other shrubs including Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle’s Claw (*Artabotrys hongkongensis*) were transplanted to the hillside slope at Sha Tin South Fresh Water Service Reservoir (STSFWSR).
- 1.2 Upon the requirement of the Environmental Permit, a qualified Ecologist was commissioned to prepare a post-transplantation monitoring report to present the status (health condition and survival rate) of transplanted vegetation and submitted to the DEP.
- 1.3 Monitoring of transplanted flora would be conducted after the transplantation. The monitoring would be conducted twice per month during the first year and once per month during planting works. The parameters to be monitored would include the health condition and survival rate of the transplanted flora. Any observation or recommendation would be reported in monthly EM&A reports.
- 1.3 This Monitoring Report presents survey findings on 21 December 2024. It contains the following information:
  - Introduction (Section 1);
  - Description of Tree Monitoring Area (Section 2);
  - Monitoring Methodology (Section 3);
  - Result (Section 4);
  - Mitigation Measures (Section 5);
  - Summary (Section 6);
  - Photos (Annex I);
  - Summary table (Annex II); and
  - Typhoon information (Annex III).

## **2. DESCRIPTION OF TREE MONITORING SITE**

- 2.1 Two Incense Trees (*Aquilaria sinensis*) and an Ailanthus (*Ailanthus fordii*) tree were transplanted to the extended compensatory plantation area within existing Sha Tin Water Treatment Works (STWTW). The area was flat and without covering with concrete.
- 2.2 Lamb of Tartary (*Cibotium barometz*) was transplanted to the Sha Tin South Fresh Water Service Reservoir (STSFWSR). Ploughing was conducted before planting at this open corner of short grassland.

2.3 Other compensatory trees have been planted at STWTW and STSFWSR.

### 3. MONITORING METHODOLOGY

3.1 Site inspection was carried out by walking through the transplanting area. Health condition and survival rate were observed during inspection.

3.4 Health condition of all transplanted vegetation including trees/shrubs surveyed was evaluated according to the following criteria:

- Transplanted vegetation with good health is classified as **good**;
- Transplanted vegetation with few or no visible defects or health problems is classified as being **fair**; and
- Transplanted vegetation that is badly damaged or clearly suffering from decay, dieback or the effect of very heavy vine growth is classified as **poor**.

3.5 Survival rate for each of transplanted vegetation species would be calculated based on site observation.

### 4. RESULT

4.1 The monthly monitoring inspection was conducted on 21 December 2024.

4.2 Three trees TA572 (*Ailanthus fordii*), TA326 (*Aquilaria sinensis*) and TA327 (*Aquilaria sinensis*) were transplanted to tree compensation area within the STWTW on 20 June 2016.

4.3 The condition of TA572 was observed in fair health despite in poor form due to the damage in the two main trunks. TA327 was in fair condition. TA326, which was found to be dead during the inspection on 10 August 2017, collapsed due to big hit by the Signal No.10 typhoon Mangkhut on 16 September 2018. Tree guying cables have been installed to provide external support to the remaining two transplanted trees.

4.4 The joint site meeting with our Ecologist, Project Manager, Contractor and Landscape Contractor on 20 October 2020 revealed that the designated recipient site at STSFWSR was under excessive exposure of direct sunlight, strong winds, far from riparian zone/ moist valley and low in soil moisture. This was not a favourable microhabitat for *Cibotium barometz* to be transplanted back. The two best portions within this recipient site were a corner with shading canopy from trees on a man-made feature nearby and an understory zone of an existing tree. Mitigation measures were proposed in Section 5 to enhance a sustainable survival of *Cibotium barometz* during the post-transplantation stage.

4.5 All 27 nos. of *Cibotium barometz* transplanted from the nursery at Shui Mei Tsuen, Kam Tin were generally in fair condition at their current location at STSFWSR.

4.6 The Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016.

4.7 The transplantation of the 27 nos. of *Cibotium barometz* and the compensatory planting of TA326 and the climber *Artabotrys hongkongensis* have been conducted as detailed in **Section 5**.

4.8 Removal of weeds/exotic species/climbers on the transplanted trees has been completed despite grass recolonizes rapidly during this monitoring. Weeding and removal of invasive *Leucaena*

*leucocephala* (銀合歡) is still pending at Portion E of STSFWSR where the two patches of *Cibotium barometz* were transplanted.

- 4.9 One of the two planted climbers *Desmos chinensis* was found to be dead since the monitoring on 30 November 2022. It would be kept monitored to see if new sprouts will be emerged in the future or not.
- 4.10 The damaged protection zones for the two patches of *Cibotium barometz* were repaired as instructed, but signs of wear have started to appear during this monitoring.

## 5. MITIGATION MEASURE

- 5.1 In order to compensate for the loss of the transplanted *Artabotrys hongkongensis* which is in climber growing form, it was recommended to plant an individual of native climber species at the compensatory planting site together with compensatory tree planting. Recommended list of species is given in the Table 1 below. It was suggested that about 1 species of climber to be selected from the following list according to availability of the nursery source. The recommended plant species have been recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

**Table 1. Table for Recommended native climber species list to be planted**

Common Name	Latin Name	Chinese Name	Growing Form
Climbing Bauhinia	<i>Bauhinia glauca</i>	粉葉羊蹄甲	Climber
Spiny-fruited Vine	<i>Byttneria aspera</i>	刺果藤	Climber
Bentham's Rose-wood	<i>Dalbergia benthamii</i>	兩廣黃檀	Climber
Desmos	<i>Desmos chinensis</i>	假鷹爪	Climber
Glaucous Diploclisia	<i>Diploclisia glaucescens</i>	蒼白秤鈞風	Climber
Luofushan Joint-fir	<i>Gnetum luofuense</i>	羅浮買麻藤	Climber
Australian Cow-plant	<i>Gymnema sylvestre</i>	匙羹藤	Climber
Shining Hypserpa	<i>Hypserpa nitida</i>	夜花藤	Climber
Large-flowered Honeysuckle	<i>Lonicera macrantha</i>	大花忍冬	Climber
Splash-of-white	<i>Mussaenda pubescen</i>	玉葉金花	Climber
Rusty-haired Raspberry	<i>Rubus reflexus</i>	鏽毛莓	Climber
Sandpaper Vine	<i>Tetracera asiatica</i>	錫葉藤	Climber
Hong Kong Eagle's Claw	<i>Artabotrys hongkongensis</i>	鷹爪花	Climber

- 5.2 *Desmos chinensis* has been finalized as the candidate. Two individuals were planted at Wall C in STWTW on 1 April 2021 (**Annex I**). Construction material was also found too close to the planter of the species. An eye-catching protective fence shall be set up as a protection zone. No construction material shall be placed near/ within the protection zone.
- 5.3 All 27 nos. Lamb of Tartary (*Cibotium barometz*) were transplanted successfully back to Portion E of STSFWSR on 23 April 2021 (**Annex I**). In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/ typhoon.
- 5.4 Transplanted *Cibotium barometz* shall be watered at least once in the morning and once in the afternoon; before irrigation spray head has been installed to facilitate watering frequency whenever necessary.



- 5.5 An eye-catching protective net has been set up to enclose the 27 nos. transplanted *Cibotium barometz* (in groups when planted together) to avoid disturbance/ damage from works activities and wild boars. Any collapsed shelter and fencing shall be rectified promptly.
- 5.6 Weeding within the two protection zones of *Cibotium barometz* shall only be conducted by hand-held tools rather than grass cutting machine. No fire/ chemical weeding shall be allowed.
- 5.7 Root balls of TA572 and TA327 tree should be kept moist especially during non-raining days.
- 5.8 The Incense Tree (*Aquilaria sinensis*) tagged as TA326 was observed dead during inspection on 10 August 2017. Its DBH was measured as 346mm. In accordance with the Tree Preservation, Development Bureau Technical Circular (Works) No. 7/2015, the compensatory planting aimed to achieve the compensatory planting ratio of 1:1 in terms of aggregated DBH.
- 5.9 In total, 3 individuals of native tree species with heavy standard size were planted with 2.5-3 meters (center to center) spacing at compensatory planting site. Recommended list of species was given in the Table 2 below. It was suggested that at least 1 tree species to be selected from the following list according to availability of the nursery source. The recommended plant species was recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

**Table 2. Table for recommended native tree species list to be planted**

Common Name	Latin Name	Chinese Name	Growing Form
Ivy Tree	<i>Schefflera heptaphylla</i>	鴨腳木	Tree
Levine’s Syzygium	<i>Syzygium levinei</i>	山蒲桃	Tree
Chekiang Machilus	<i>Machilus chekiangensis</i>	浙江潤楠	Tree
Aporusa	<i>Aporusa dioica</i>	銀柴	Tree
Mountain Tallow Tree	<i>Sapium discolor</i>	山烏柏	Tree
Fragrant Litsea	<i>Litsea cubeba</i>	山蒼樹	Tree
Chinese Apea Ear-ring	<i>Archidendron lucidum</i>	亮葉猴耳環	Tree
Chinese Hackberry	<i>Celtis sinensis</i>	朴樹	Tree
Turn-in-the-wind	<i>Mallotus paniculatus</i>	白楸	Tree
Acronychia	<i>Acronychia pedunculata</i>	降真香	Tree

- 5.10 Based on the Tree Survey Report, the following trees transplanted under Contract No. 3/WSD/15 were dead. In accordance with GS 3.97 (3), replacement planting of TB0054, B0056, TB0101 and TC0138 was completed on 25 March 2021 (Annex I).
- 5.11 Two *Syzygium levinei* and one *Schefflera heptaphylla* were chosen from **Table 2** as compensation for the loss of TA326.
- 5.12 However, the two native *Syzygium levinei* (山蒲桃) were mis-planted by two exotic *Syzygium jambos* (蒲桃), of which both their Chinese names and Scientific names are different by one word.
- 5.13 The two mis-planted *Syzygium jambos* were then replaced by another native tree species *Celtis sinensis* chosen from Table 2 due to market availability at that time. Replacement work was conducted on 31 May 2021. **Table 3** summarises the final compensatory planting record for the loss of TA326.

**Table 3. Summary table of compensatory planting for the loss of TA326.**

Tree No.	Species	Compensatory/ Replacement Planting
TA326	<i>Aquilaria sinensis</i>	Compensated by 1 no. of <i>Schefflera heptaphylla</i> and 2 nos. of <i>Celtis sinensis</i>

- 5.14 With completion of compensatory planting for the loss of *Artabotrys hongkongensis* and TA0326 (*Aquilaria sinensis*), the survival of the replaced species has been monitored since then (i.e. 2 nos. of *Desmos chinensis*; 1 no. of *Schefflera heptaphylla* and 2 nos. of *Celtis sinensis*).
- 5.15 Survival of the 27 nos. of Lamb of Tartary (*Cibotium barometz*) transplanted back to STSFWSR has also been monitored. No more individual was stored at the nursery.
- 5.16 Health condition and survival rate of transplanted plants are shown in **Annex II**.

## 6. SUMMARY

- 6.1 The condition of TA572 was observed in fair health despite in poor form. TA327 was in fair condition; while already dead TA326 collapsed under Signal No. 10 typhoon Mangkhut in September 2018. Tree guying cables have been installed to provide external support to the two remaining transplanted trees. Weeding has been completed in this area.
- 6.2 Compensatory planting of TA326 has been completed on 25 March 2020 by planting two *Syzygium levinei* and one *Schefflera heptaphylla*. However, the two native *Syzygium levinei* were mis-planted by two exotic *Syzygium jambos*, which have been replaced by another native tree species *Celtis sinensis* on 31 May 2021. Weeding was completed in this area.
- 6.3 *Desmos chinensis* has been finalized as the candidate to compensate for the loss of *Artabotrys hongkongensis*. Two individuals were planted at Wall C in STWTW on 1 April 2021, but one of them was found to be dead on 30 November 2022.
- 6.4 Construction material was found too close to the planter of climber *Desmos chinensis*. An eye-catching protective fence shall be set up as a protection zone. No construction material shall be placed near/within the protection zone.
- 6.5 In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/ typhoon to the 27 nos. of transplanted *Cibotium barometz* at Portion E of STSFWSR.
- 6.6 Weeding by handheld tools within protection zone of *Cibotium barometz* is in progress.
- 6.7 Root balls of TA572 and TA327 should be kept moist especially during dry and non-raining days.
- 6.8 Signs of ploughed soil by wild boars at the two groups of transplanted *Cibotium barometz* were reported in previous monitoring. A robust fencing was then installed to protect the groups of *Cibotium barometz* from further damage caused by wild boars. However, the protection zones were damaged by unknown persons. They were then repaired temporarily and secured promptly. Surveillance cameras have been installed for detecting any suspicious persons.
- 6.9 Given that leftover/ garbage was observed near the planting area of *Cibotium barometz*, illegal feeding of wild pigs or other wild animals was suspected to occur. Warning signs of illegal feeding and plant protection zone are recommended to put along the receptor site to remind the

public in order to prevent further aggregation of wild boars in the area. Reporting the case to the relevant government department, i.e. the Agriculture, Fisheries and Conservation Department (AFCD), is suggested.

## **ANNEX I** Photo and Location Plan





Photo 1. Protection zone of the first batch of *Cibotium barometz* has been established. Weeds and the invasive *Leucaena leucocephala* (銀合歡) shall be removed and packed properly during weeding.



Photo 2. *Cibotium barometz* growing vigorously in sheltered condition.



Photo 3. Second batch of *Cibotium barometz*, where the net is slightly broken.



Photo 4. *Cibotium barometz* in fair condition. It is more exposed where light-demanding weed gradually takes over the planting site.



Photo 5. Weed growing around the second patch of *Cibotium barometz*

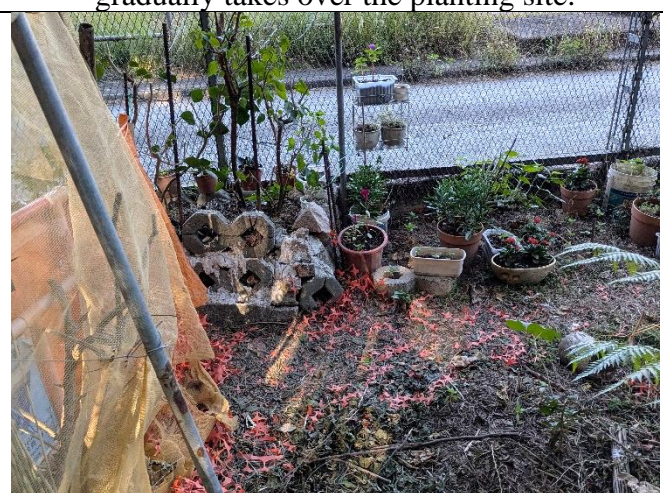


Photo 6. Landscaped planting within the protection zone



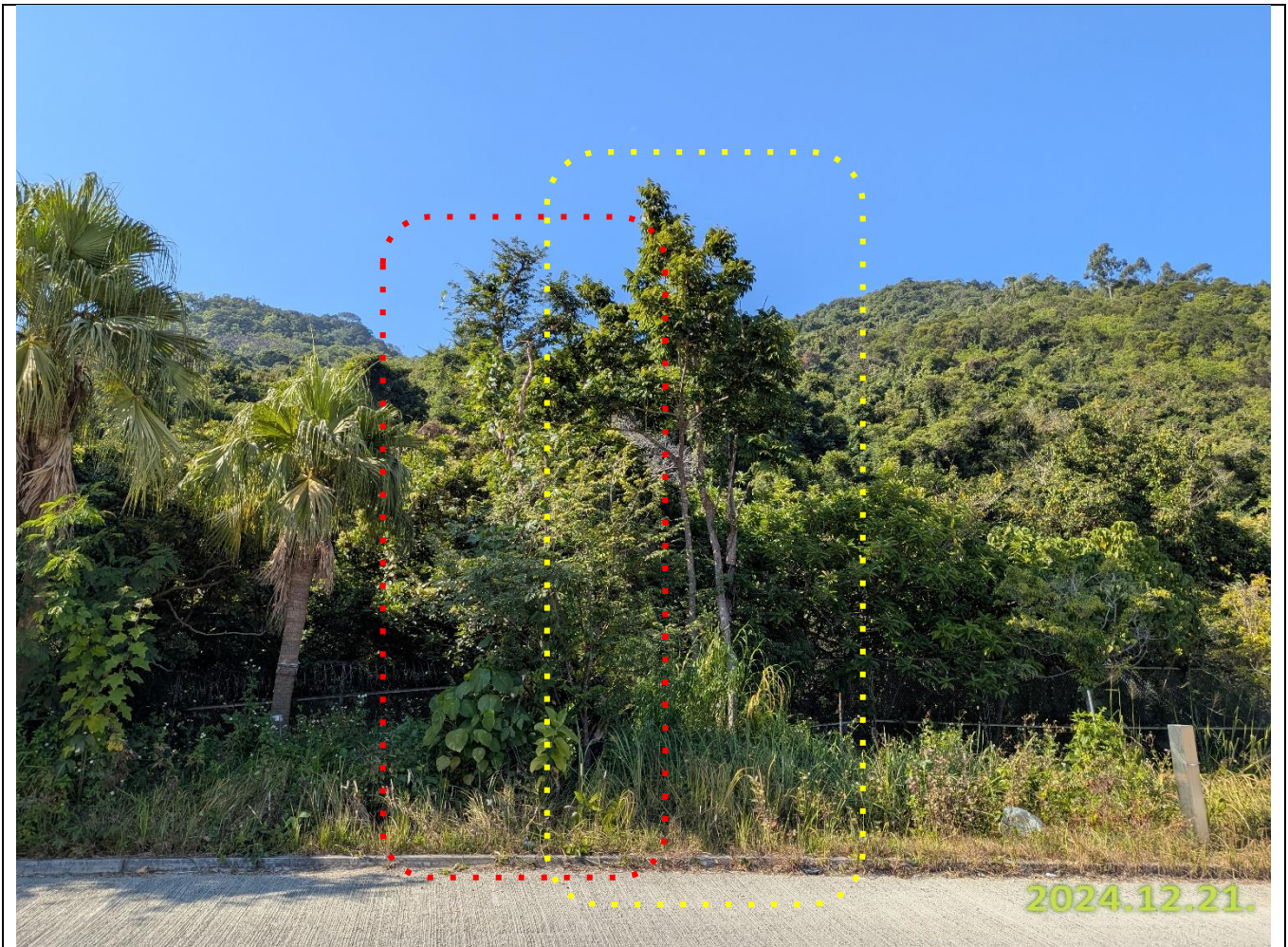


Photo 7. Transplanted Incense Tree (*Aquilaria sinensis*) – TA327 (red); and Ailanthus (*Ailanthus fordii*) – TA572 (yellow). Weeds grew vigorously around the two trees.



Photo 8. Close-up of TA327 (*Aquilaria sinensis*). Protection zone shall be rectified.



Photo 9. TA572 (*Ailanthus fordii*) was found vigorous and in generally good condition. Protection zone shall be rectified.



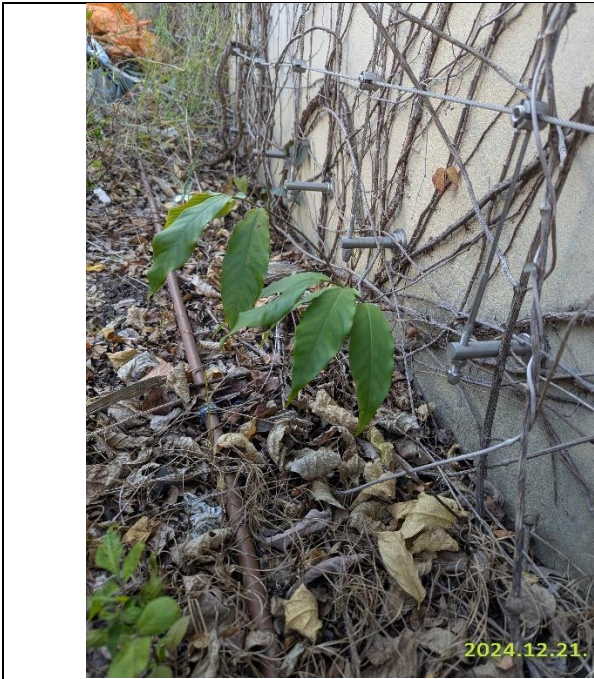


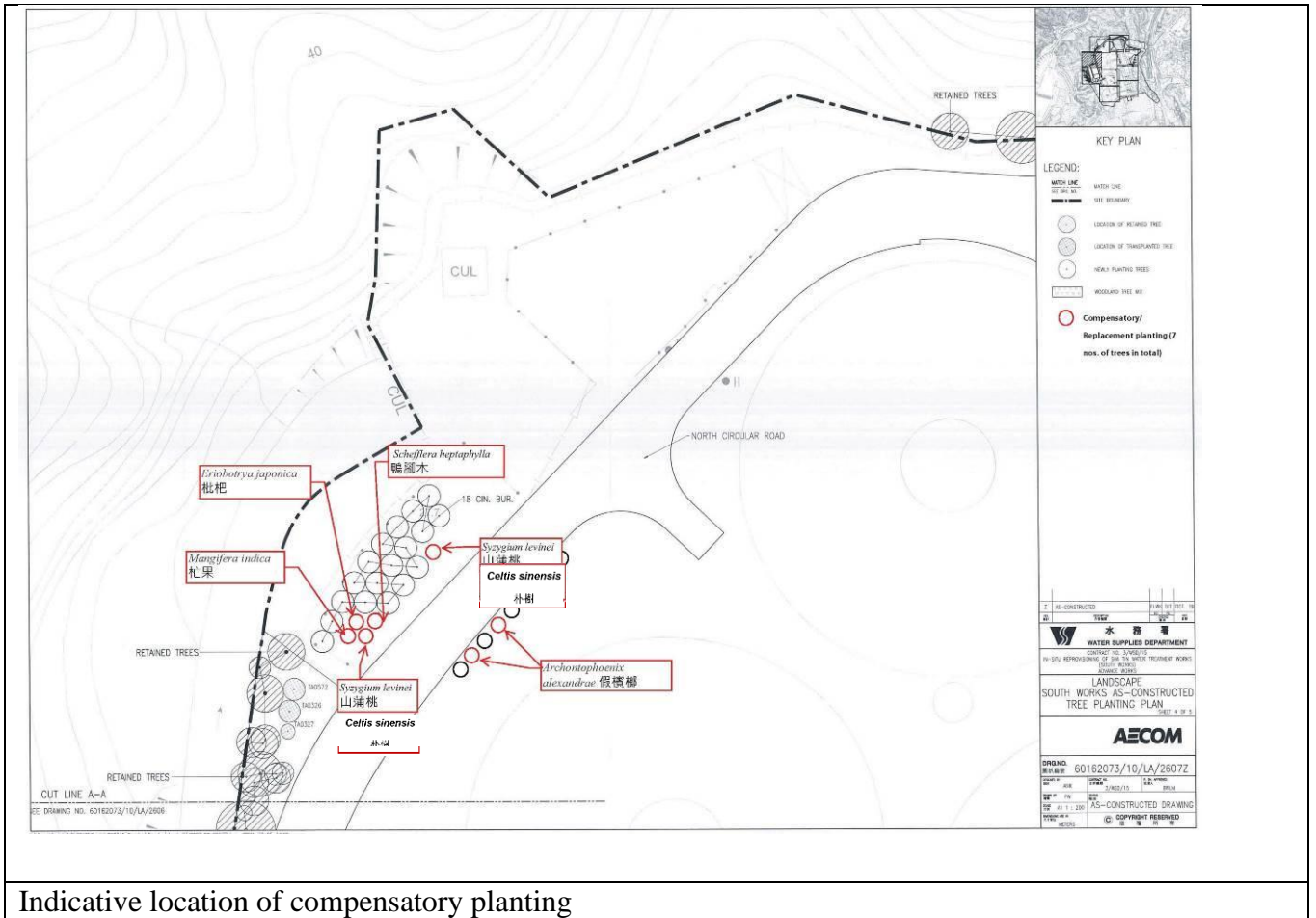
Photo 10. No construction material or equipment should put near the *Desmos chinensis*. Rubbish should be cleared.



Photo 11. *Schefflera heptaphylla* as compensatory planting of TA326; selective weeding around the planted individual suggested.



Photo 12 and 13. The two exotic *Syzygium jambos* (mis-treated as the native *Syzygium levinei*) were replaced by another native tree species *Celtis sinensis* (due to market availability) as compensatory planting of TA326. Note: *Celtis sinensis* is a deciduous species. Weeds grew vigorously around two trees; selective weeding around the planted individual suggested.



Indicative location of compensatory planting



## **ANNEX II**

Table for condition of transplanted plant

**Fern *Cibotium barometz* and climber *Desmos chinensis***

No.	Species	Condition	Alive/Dead	Remark
1	<i>Cibotium barometz</i>	Fair	Alive	<p>27 individuals were transplanted back to STSFWSR on 23 April 2021.</p> <p>A robust protection zone was set up in February 2023 to prevent the plants from further disturbance by the wild boars.</p> <p>However, one of the protection zone was taken out by unknown persons. Metal rods of another protection was also removed/ stolen.</p> <p>Any illegal feeding to wildlife by hikers shall be reported to AFCD/ hotline 1823.</p> <p>A shelter (遮光網) has been set up to provide shading and against direct hit of rainstorm/ typhoon on the plants.</p>
2	<i>Cibotium barometz</i>	Fair	Alive	
3	<i>Cibotium barometz</i>	Fair	Alive	
4	<i>Cibotium barometz</i>	Fair	Alive	
5	<i>Cibotium barometz</i>	Fair	Alive	
6	<i>Cibotium barometz</i>	Fair	Alive	
7	<i>Cibotium barometz</i>	Fair	Alive	
8	<i>Cibotium barometz</i>	Fair	Alive	
9	<i>Cibotium barometz</i>	Fair	Alive	
10	<i>Cibotium barometz</i>	Fair	Alive	
11	<i>Cibotium barometz</i>	Fair	Alive	
12	<i>Cibotium barometz</i>	Fair	Alive	
13	<i>Cibotium barometz</i>	Fair	Alive	
14	<i>Cibotium barometz</i>	Fair	Alive	
15	<i>Cibotium barometz</i>	Fair	Alive	
16	<i>Cibotium barometz</i>	Fair	Alive	
17	<i>Cibotium barometz</i>	Fair	Alive	
18	<i>Cibotium barometz</i>	Fair	Alive	
19	<i>Cibotium barometz</i>	Fair	Alive	
20	<i>Cibotium barometz</i>	Fair	Alive	
21	<i>Cibotium barometz</i>	Fair	Alive	
22	<i>Cibotium barometz</i>	Fair	Alive	
23	<i>Cibotium barometz</i>	Fair	Alive	
24	<i>Cibotium barometz</i>	Fair	Alive	
25	<i>Cibotium barometz</i>	Fair	Alive	
26	<i>Cibotium barometz</i>	Fair	Alive	
27	<i>Cibotium barometz</i>	Fair	Alive	
A shelter (遮光網) has been set up to provide shading and against direct hit of rainstorm/ typhoon on the plants.				
28	<i>Desmos chinensis</i>	Fair	Alive	<p>Two individuals were planted at Wall C in STWTW on 1 April 2021; One died and another one resprouted since monitoring made on 30 November 2022.</p>
29	<i>Desmos chinensis</i>	N/A	Dead	
Survival rate (%)			96.6	

**Transplanted/ compensatory Trees**

No.	Species	Condition	Alive/Dead	Remark
TA572	<i>Ailanthus fordii</i>	Fair	Alive	Two main trunks were broken during typhoon on 23 August 2017. Cracks and wounds observed in one of the trunks. Canopy formed by sprouts.
TA327	<i>Aquilaria sinensis</i>	Fair	Alive	Tree crown of TA327 was thinner after transplantation. Water sprouts, cracks on tree bark and wound in lower trunk observed.
N/A	<i>Celtis sinensis</i>	Fair	Alive	Compensate for TA326; <i>Syzygium jambos</i> replaced by <i>Celtis sinensis</i> on 31 May 2021.
N/A	<i>Celtis sinensis</i>	Fair	Alive	Compensate for TA326; <i>Syzygium jambos</i> replaced by <i>Celtis sinensis</i> on 31 May 2021.
N/A	<i>Schefflera heptaphylla</i>	Fair	Alive	Compensate for TA326
Survival rate (%)			100%	



# Appendix T

## Monthly Summary of Waste Flow Table

Monthly Summary Waste Flow Table for 2024

Contract No.: 1/WSD/19

Contract Title: In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)  
-Water Treatment Works and Ancillary Facilities

Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000m <sup>3</sup> )						Actual Quantities of C&D Wastes Generated				
	Total Quantity Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported C&D Material	Metals	Paper/ cardboard packaging	Plastics (bottles/containers, plastic sheets/foam package material)	Chemical Waste	Others, e.g. general refuse
	(a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )
Jan	0.34788	0.03295	0.00000	0.31494	0.00000	0.62860	0.0000	0.00000	0.00000	0.00000	0.10680
Feb	0.09509	0.00225	0.00000	0.09284	0.00000	0.62000	0.0000	0.00000	0.00000	0.00000	0.12874
Mar	0.83816	0.08496	0.00000	0.75320	0.00000	2.79876	0.0000	0.00000	0.00000	0.00000	0.16859
Apr	3.05601	0.20266	0.00000	2.82295	0.03040	2.03844	0.0000	0.00000	0.00000	0.00000	0.14051
May	8.32571	0.22706	0.00000	8.09865	0.00000	2.66160	0.0000	0.00000	0.00000	0.00000	0.17169
Jun	4.84868	0.00000	0.00000	4.84119	0.00749	1.79280	0.0000	0.00000	0.00000	0.00000	0.15890
Sub-total	17.51153	0.54988	0.00000	16.92376	0.03789	10.54020	0.00000	0.00000	0.00000	0.00000	0.87523
Jul	4.19785	0.00000	0.00000	4.19785	0.00000	2.21572	0.0000	0.00000	0.00000	0.00000	0.31002
Aug	1.99853	0.00000	0.00000	1.99853	0.00000	1.18824	0.0000	0.00000	0.00000	0.00000	0.26494
Sep	1.15082	0.00000	0.00000	1.15082	0.00000	0.87920	0.0000	0.00000	0.00000	0.00000	0.29622
Oct	1.69177	0.00000	0.00000	1.66862	0.02315	2.72300	0.0000	0.00000	0.00000	0.00000	0.76179
Nov	0.26614	0.00000	0.00000	0.26614	0.00000	0.63250	0.0000	0.00000	0.00000	0.00000	0.08042
Dec	0.89097	0.00000	0.00000	0.89097	0.00000	0.62000	0.0000	0.00000	0.00000	0.00000	0.06200
Total	27.70759	0.54988	0.00000	27.09667	0.06104	18.79886	0.00000	0.00000	0.00000	0.00000	2.65063



俊和 - 方永勝聯營  
CW - FWS JV

Name of Department: WSD

Contract No.: 6/WSD/21

Monthly Summary Waste Flow Table for 2024 (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	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2023	46681.36	0.00	0.00	25440.46	15756.27	5246.34	80.51	0.55	0.04	0.00	194.84
Jan-24	13.92	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	28.48
Feb-24	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	10.48
Mar-24	113.82	0.00	0.00	0.00	113.82	0.00	0.00	0.01	0.00	0.00	22.75
Apr-24	1237.50	0.00	0.00	0.00	1295.74	0.00	0.00	0.00	0.00	0.00	31.34
May-24	401.30	0.00	0.00	0.00	401.30	0.00	0.00	0.02	0.00	0.00	37.77
Jun-24	611.50	0.00	0.00	0.00	611.50	0.00	0.00	0.01	0.00	0.00	31.45
Sub-total	2388.55	0.00	0.00	0.00	2422.36	0.00	0.00	0.07	0.02	0.00	162.27
Jul-24	998.39	0.00	0.00	0.00	998.39	0.00	0.00	0.00	0.00	0.00	32.83
Aug-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	26.48
Sep-24	176.72	0.00	0.00	0.00	176.72	0.00	0.00	0.00	0.00	0.00	25.88
Oct-24	2304.44	0.00	0.00	0.00	2304.44	0.00	0.00	0.00	0.00	0.00	22.74
Nov-24	1719.29	0.00	0.00	0.00	1719.29	0.00	0.00	0.00	0.00	0.00	49.77
Dec-24	3290.14	0	0	0.00	3290.14	0.00	0.00	0.00	0.00	0.00	61.58
Total	58012.01	0.00	0.00	25440.46	26667.61	5246.34	80.51	0.64	0.06	0.00	576.39

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
  - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
  - (3) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.
  - (4) Conversion factors for reporting purpose:
    - in-situ: rock = 2.5 tonnes/m<sup>3</sup>; soil = 2.0 tonnes/m<sup>3</sup>
    - excavated: rock = 2.0 tonnes/m<sup>3</sup>; soil = 1.8 tonnes/m<sup>3</sup>; broken concrete and bitumen = 2.4 tonnes/m<sup>3</sup>
    - C&D Waste = 0.9 tonnes/m<sup>3</sup>; bentonite slurry = 2.8 tonnes/m<sup>3</sup>



# Appendix U

## Implementation Schedule of Environmental Mitigation Measures (EMIS)

Environmental Mitigation and Enhancement Measure Implementation Schedule at Construction Stage

EIA Ref.	Recommended Mitigation Measures	Location of the Measures	Implementation Agent	Relevant Legislation and Guidelines	Implementation Phase			Status
					D	C	O	
<b>Air Quality</b>								
4.7.1	Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.	All works areas	Contractor	Air Pollution Control Ordinance and Air Pollution Control (Construction Dust) Regulation  EM&A Manual		√		Y
4.7.1	Side enclosure and covering of any aggregate or stockpiling of dusty material to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	All works areas	Contractor			√		Y
4.7.1	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	All works areas	Contractor			√		Y
4.7.1	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.	All works areas	Contractor			√		Y
4.7.1	Imposition of speed controls for vehicles on site haul roads.	All works areas	Contractor			√		Y
4.7.1	Implement EM&A program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All works areas / Monitoring points	Contractor			√		Y
<b>Noise</b>								
5.6.4	Implement good site practices to reduce noise level	All works areas	Contractor	Noise Control Ordinance		√		Y
5.6.5	Adoption of Quiet PME	All works areas	Contractor			√		N/A
5.6.6	Use of Movable Noise Barrier	All works areas	Contractor			√		N/A
5.8	Noise monitoring	Monitoring points	Contractor			√		Y
<b>Water Quality</b>								
6.8.1	Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand	All works areas	Contractor	ProPECC PN 1/94 Construction		√		Y

	traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.			Site Drainage TM-DSS Water Pollution Control Ordinance				
6.8.2	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding.	All works areas	Contractor			√		Y
6.8.3	Temporary exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided to prevent storm run-off from washing across exposed soil surfaces.	All works area	Contractor			√		Y
6.8.4	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	All works areas	Contractor			√		N/A
6.8.5	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All works areas	Contractor			√		Y
6.8.6	Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	All works areas	Contractor			√		Y
6.8.7	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system.	All works areas	Contractor			√		Y
6.8.8	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area.	All works areas	Contractor			√		Y
6.8.9	All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains.	All works areas	Contractor			√		Y
6.8.10	Before commencing any demolition works, all drainage connections should be sealed to prevent building debris, soil, sand etc. from entering	All works areas	Contractor			√		N/A

	drains.							
6.8.11	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be tankered off site for disposal into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary.	All works areas	Contractor		√		Y	
6.8.12	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10. The neutralized wastewater should be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.	All works areas	Contractor		√		N/A	
6.8.13	All surface run-off must proper collected and discharge at designated location. The discharge quality must meet the requirements specified in the discharge license.	All works areas	Contractor		√		Y	
6.8.15	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All works areas	Contractor		√		Y	
6.8.16	Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges	All works areas	Contractor		√		Y	
6.8.17	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance.	All works areas	Contractor		√		Y	
6.8.18	Sewage generated from the workforce should be properly treated by interim treatment facilities, such as chemical toilets which are properly maintained with the employment of licensed collectors for the collection and disposal on a regular basis.	All works areas	Contractor		√		Y	
6.8.19	Adopt relevant measures stated in ETWB TC (Works) No. 5/2005 "Protection of Natural Streams/rivers from Adverse Impacts arising from Construction Works" to minimize the potential water quality impacts from the construction works near any water courses.	All works areas	Contractor		√		Y	
6.10	Water quality monitoring	Monitoring points	Contractor		√		Y	
Waste Management								



7.6.1	Appropriate waste handling, transportation and disposal methods for all waste arisings generated during the construction works for the Project should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel.	All works areas	Contractor	Waste Disposal Ordinance		√		Y
7.6.2	Implementation of good site practices for waste management	All works areas	Contractor	DEVB TCW No. 6/2010,		√		Y
7.6.3	Implementation of trip ticket system to control waste disposal	All works areas	Contractor	ETWB TCW No. 19/2005 Land		√		Y
7.6.4	Implementation of good site practices to reduce waste generations	All works areas	Contractor	(Miscellaneous Provisions) Ordinance		√		Y
7.6.5	Re-use of excavated C&D materials on site as far as practical. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process.	All works areas	Contractor	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes		√		Y
7.6.8	General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material.	All works areas	Contractor			√		N/A
7.6.9	All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste.	All works areas	Contractor			√		N/A
7.6.10	A licensed asbestos waste collector will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. Application should be submitted to EPD.	All works areas	Contractor			√		N/A
7.6.11	If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport the chemical wastes. The licensed collector shall deliver the waste to the Chemical Waste Treatment Centre at Tsing Yi, or other licenced facility, in accordance with	All works areas	Contractor			√		Y

	the Waste Disposal (Chemical Waste) (General) Regulation.							
Ecology								
8.8.1	Ecological impacts on important habitats and the associated wildlife caused by the proposed development should be mitigated and compensation approaches to the maximum practical extent	All works areas in particular important habitats All works areas	The Engineer/ Contractor	EIAO-TM EM&A Manual		√		Y
8.8.2	Reduce the amount of vegetation removal required and thereby minimize the footprint of the slope at the woodland habitat		The Engineer/ Contractor			√		Y
8.8.3	Conduct detailed vegetation survey and implement suggested measures for species of conservation importance.		The Engineer/ Contractor			√		Y
8.8.4	The affected Incense Tree and Ailanthus as mentioned in the detailed vegetation survey report within the works area will be transplanted		The Engineer/ Contractor			√		Y
8.8.5	To avoid impacts on Short-nosed Fruit Bat, the tree with records of an active roost and trees showing evidence of roosting activity should be retained where possible. Where Chinese Fan-palm ( <i>Livistona chinensis</i> ) removal is required, these should be checked by suitably qualified ecologist with over 7 years relevant experience for roosting bats prior to their removal. If roosting bats are observed, a strategy for passive removal will be agreed with the AFCD and implemented. This could include undertaking the works just after the bats have left the roost (i.e. dusk).		The Engineer/ Contractor			√		N/A
8.8.6	The inclusion of Chinese Fan-palm of similar size as the affected plant within the areas of compensatory planting or other suitable areas is recommended to replace affected specimens, and compensate for the impact to roosting opportunities for this bat species		The Engineer/ Contractor			√		N/A
8.8.7	Implement good site measures to minimize the disturbance impacts to terrestrial habitat and associated wildlife arising from the land-based construction activities.		The Engineer/ Contractor			√		Y
8.8.8	To minimize the contamination of wastewater discharge, accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as diverting the site runoff to silt trap facilities before discharging into storm drain, proper waste and dumping management and standard good site practice for land-based construction.		The Engineer/ Contractor			√		Y
8.8.9-8.8.11	Implement woodland compensation		The Engineer/ Contractor			√		N/A

Landscape and Visual								
9.8.1	Existing trees to be retained on site shall be carefully protected during construction. Trees unavoidably affected by the works shall be transplanted as far as possible.	All works areas	Contractor	DEVB TCW No. 10/2013		√		Y
	Compensatory Planting shall be provided in accordance with DEVB TCW No. 10/2013 – Tree Preservation.	All works areas	Contractor	EIAO TM		√		Y
	Control of night-time lighting glare.	All works areas	Contractor			√		Y
	Erection of decorative screen hoarding compatible with the surrounding setting.	All works areas	Contractor			√		Y
	Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	All works areas	Contractor			√		Y
Cultural Heritage								
10.6.2	Vibration monitoring at Ex KCR Beacon Hill Tunnel during piling works of Administration Building	Work site	The Engineer /Contractor			√		N/A
Land Contamination								
11.7	Identify contamination and implement appropriate remedial measures on site. Provide relevant submission and obtain approval from EPD if necessary.	All works areas	Contractor	Guidance Note for Contaminated Land Assessment and Remediation  Guidance Manual for Use of Risk based Remediation Goals for Contaminated Land Management (Guidance Manual)		√		N/A
Hazard to Life								
Table 12.22	Ensure speed limit enforcement is specified in the contractor's Method Statement to limit the speed of construction vehicles on site	All works areas	The Engineer	EIAO-TM		√		Y
	Develop an audit procedure to ensure enforcement of speed limits and to ensure adequate site access control	All works areas	The Engineer			√		Y
	Ensure construction method statement is endorsed by the Engineer (AECOM)	All works areas	The Engineer			√		Y

Ensure designated manoeuvring area for the new access road construction is away from the Chlorination House	New access road area	Contractor/ The Engineer		√		Y
Ensure that the emergency response plan and procedures (including drills) cover the reprovisioning activities	All works areas	Contractor/ The Engineer		√		Y
Safety training to be provided to construction workers and WSD/Engineer staff regarding evacuation procedures	All works area	Contractor/ The Engineer		√		Y
Ensure communication protocol is in place between construction and operation staff with regard to the change of chlorine delivery route and the switchover from the existing to new chlorinated water piping;	All works areas	Contractor/ The Engineer		√		N/A
Ensure temporary suspension of crane operation and construction truck movements during chlorine delivery	All works areas	Contractor/ The Engineer		√		Y
Provide a crash barrier between the construction site and the north side of the Chlorination House.	Chlorination House area	Contractor		√		Y
Conduct vibration monitoring at the Chlorination House during piling activities to ensure vibration levels are acceptable and will not lead to any damage of the Chlorination House	Chlorination House area	Contractor		√		Y
Civil engineering calculation to be performed to confirm differential settlement from excavation work is within acceptable limits for the Chlorination House	Chlorination House area	Contractor		√		Y
Provide settlement monitoring for the Chlorination House to ensure no subsidence occurs from nearby excavation works.	Chlorination House area	Contractor		√		Y
Confirm the chlorine concentration for the chlorinated water before the switchover from the existing to new piping. This is to avoid the potential for chlorine gas vapours being released if the concentration is too high and there is spillage during switchover	Chlorinated water piping	WSD		√		N/A
Develop an operating procedure for performing the chlorinated water switchover from the existing piping to new piping.	All works areas	Contractor/ The Engineer / WSD		√		N/A
Ensure the location/height of the lifting equipment is such there is no impact on Chlorination House/chlorine delivery route in case of falling, swinging or dropped load.	Chlorination House area	Contractor/ The Engineer		√		Y
Implement the controlled demolition of the existing E&M workshop to ensure that any steel structural elements can only fall away from the Chlorination House	Existing E&M Workshop and Chlorination House	Contractor/ The Engineer		√		N/A



		areas					
Stop any construction activities which may lead to vibrations and potential slope/boulder disturbance during the chlorine deliveries	All works areas	Contractor		√		Y	
Installation of Chlorine gas monitors with audible alarms in the relevant reprovisioning works area	Reprovisioning works areas	Contractor/ The Engineer		√		k.i.v.	
Provision of an accompanying vehicle for the chlorine truck on the WTW site and ensuring that during the chlorine drums delivery construction works are stopped and the construction workers moved away from Chlorination House	All works areas	Contractor		√		Y	
Establish a liaison between the contractor and HKCG and develop a chlorine/town gas emergency plan to ensure gas safety during the Construction Phase	Beacon Hill North Gas Offtake Station and Gas Pipelines in Old Beacon Hill Tunnel	The Engineer / Contractor / HKCG		√		k.i.v.	
Temporary suspend chlorine delivery during the short period of construction of the concerned section of elevated walkway to avoid mobile crane impact on the chlorine truck		The Engineer / Contractor		√		N/A	
Provide clear road signs for site vehicles	Chlorine delivery route and reprovisioning works access roads	The Engineer / Contractor		√		Y	
Large equipment/plant movement should be controlled by 'Permit-to-move' system	All works areas	The Engineer / Contractor / WSD		√		Y	
Define restricted zone for the equipment (i.e. keep the equipment from the Chlorination House at a safe distance). The extent of the restricted zone would be determined by the size of the equipment	Chlorination House area	The Engineer / Contractor		√		Y	
Locate the construction site office at or near property boundary away from the Chlorination House as far as possible	Construction Office area	The Engineer / Contractor		√		Y	
Entry of non-authorized personnel to the construction site to be prohibited	All works areas	Contractor		√		Y	

12.15.4, 12.18.1, 12.22.9	GPS fleet management system with driver training to help enforce truck speeds	Chlorine delivery trucks, fleet management centre	WSD / Chlorine Supply Contractor	EIAO-TM		√		k.i.v.	
	Improved clamps with independent checks to prevent load shedding	Chlorine delivery trucks				√		F	
	Installation of fire screen and larger fire extinguishers to prevent engine and wheel fires from spreading to the cargo area					√		F	
	Adoption of the chlorine delivery route from Sham Shui Kok Dock to Sha Tin WTW					√		F	
	Provision of emergency repair kit					√		F	
12.34.3 Table 12.37 & 12.38	Ban the use of retreaded tyres and perform regular visual checks on the tyres.					√		F	
	A vehicle accompanying chlorine truck along critical road sections in Sha Tin. The truck should be equipped with emergency kit, fire extinguisher, radio set for communication. The accompanying vehicle will be ahead of the chlorine truck after the vehicles entering the water treatment works site – An accompanying vehicle may provide rapid response to an incident but any action would be limited to containing a small leak.					√		F	
	Limit fuel tanks capacity at the beginning of the Project (Item 2.3 of Table 12.37 – advance measure).					√		F	
	Review the practicality of reducing combustible materials or use of fire retardant materials in the cab. (Item 2.3 of Table 12.37 – further measure)					√		k.i.v.	
	Annual periodic radiography or ultrasonic test inspections of the chlorine drums should be considered for implementation as soon as feasible (Item 3.8 of Table 12.37).	Chlorine drums					√		k.i.v.
	Implement side, front and rear crash guards with high energy absorption in coordination and accordance with the relevant authorities.	Chlorine delivery trucks				√		k.i.v.	
	Implement a sturdy steel frame to minimize the potential for chlorine release due to truck rollover					√		k.i.v.	
12.34.4	WSD will continue to keep under review the latest development of use of alternative disinfectants in water supply industry to aim at minimising on-site chlorine storage.4	Chlorine delivery Route	WSD				√		k.i.v.

	Training should be provided for the use of the GPS fleet management and improved safe driving.				√		k.i.v.
	Ensured that independent checks are performed to ensure proper chlorine drum latching and clamping.				√		F
	Chlorine truck drivers or driver attendants should be further trained to check and detect potential chlorine leaks during transport. This should include the timely application of the emergency kit.				√		k.i.v.
	Training should be provided to driver and driver attendant for the emergency use of the new 2 × 9L AFFF extinguishers.				√		F
	Induction training for new drivers and driver attendant should include familiarisation with the route, familiarisation with chlorine risks, defensive driving, application of emergency kits, use of fire extinguishers and emergency response				√		k.i.v.
	Provision of a fire screen between the cab and cargo as well as fire retardant materials for the wheel arches on the chlorine truck should be planned and provided				√		F
	To keep under review alternate chlorine receiving dock in Sha Tin/Tai Po area for chlorine delivery to STWTW.				√		k.i.v.
<p><u>Legend</u></p> <p>D – Design Phase</p> <p>C – Construction Phase</p> <p>O – Operation Phase</p> <p>Y - Compliance of Mitigation Measures</p> <p>N/A – Not Applicable in Reporting Period</p> <p>k.i.v – Keep In View</p> <p>F - Completed</p>							

# Appendix V

## Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions



**Statistical Summary of Exceedances (December 2024)**

Air Quality									
Location	Action Level			Limit Level				Total	
AM1	0			0				0	
AM2	0			0				0	
Noise									
Location	Action Level			Limit Level				Total	
NM1	0			0				0	
NM2	0			0				0	
NM3	0			0				0	
Water Quality									
Location	Action Level				Limit Level				Total
	DO	Turbidity	SS	pH	DO	Turbidity	SS	pH	
C1	0	0	0	0	0	0	0	0	0
C2	0	0	0	0	0	0	0	0	0
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
M1	0	0	1	0	0	0	1	0	2
M2	0	0	0	0	0	0	0	0	0
M3	0	0	0	0	0	0	11	0	11

*There were 1 exceedances of Action Level and 12 exceedances of Limit Level in December 2024*

**Statistical Summary of Exceedances (Cumulative)**

Air Quality									
Location	Action Level			Limit Level				Total	
AM1	0			0				0	
AM2	0			0				0	
Noise									
Location	Action Level			Limit Level				Total	
NM1	0			0				0	
NM2	0			0				0	
NM3	0			0				0	
Water Quality									
Location	Action Level				Limit Level				Total
	DO	Turbidity	SS	pH	DO	Turbidity	SS	pH	
C1	0	0	21	4	1	10	9	3	48
C2	0	1	15	1	5	9	6	1	38
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
M1	0	1	10	1	7	6	33	7	65
M2	0	0	0	0	9	3	2	0	14
M3	0	0	0	2	10	22	93	0	127

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Complaint Nature	Cumulative
1 December – 31 December 2024	0	N/A	4

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Details	Cumulative
1 December – 31 December 2024	0	N/A	0

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Details	Cumulative
1 December – 31 December 2024	0	N/A	0

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 4 December 2024

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Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 4 December 2024.  
Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.5	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.5	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.3	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.7	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 4 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 4 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.5	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.5	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.3	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.7	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 4 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 4 December 2024 to audit the site environmental performance. The finding of the inspection was summarized below:
 

6/WSD

  - I. It is observed that water accumulation that in the site area. Contractor reminded to clear it.
  - II. It is observed that waste disposal in the site area in the site area. Contractor reminded to clear it.
- 3) In our investigation on 4 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). The water accumulation was observed on the 6/WSD site area (Photo 5). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Photo Record

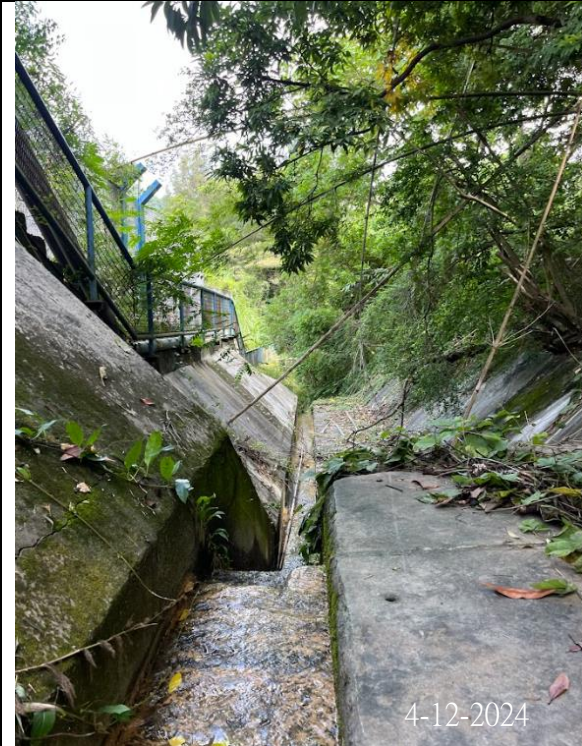


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



Photo 5 (Water accumulation on the site area at 6/WSD)



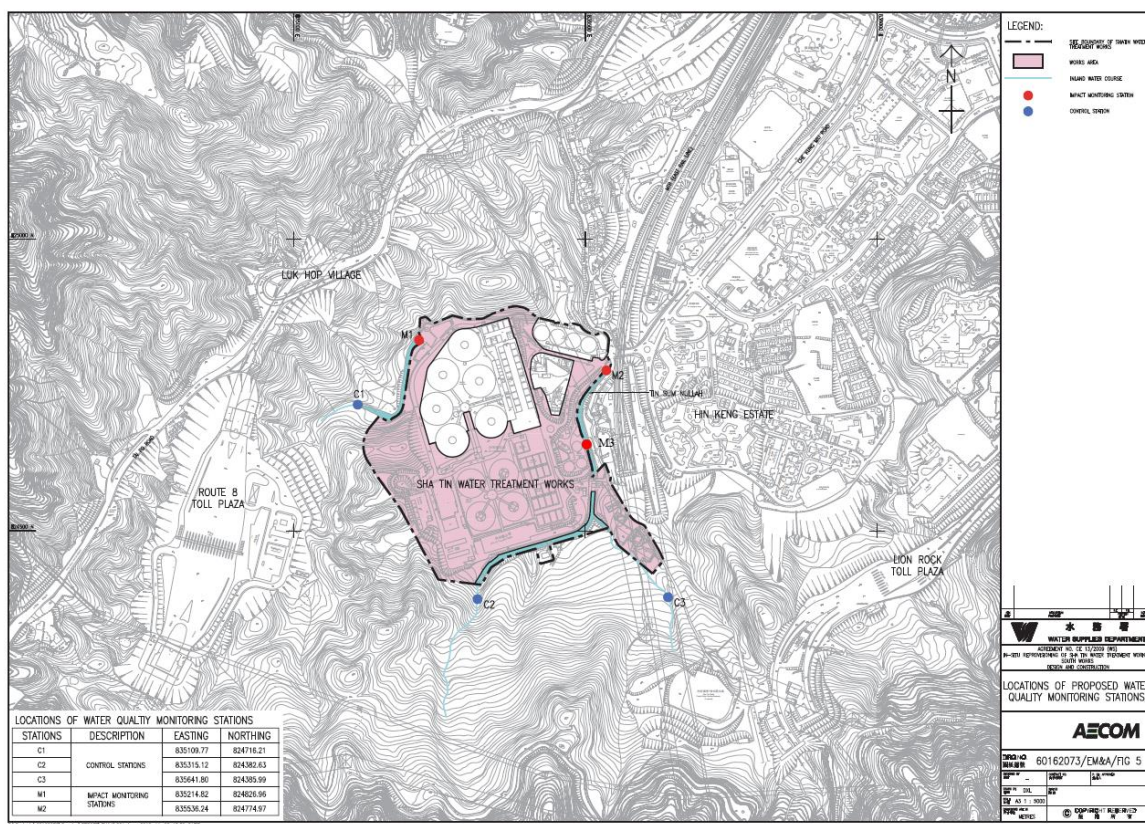


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 2 December 2024

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Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 2 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	3.4	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.0	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.0	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.9	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.7	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant



**Investigation Report on Limit Level Non-compliance on 2 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 2 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	3.4	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.0	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.0	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.9	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.7	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 2 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 4 December 2024 to audit the site environmental performance. The finding of the inspection was summarized below:
 

6/WSD

  - I. It is observed that water accumulation that in the site area. Contractor reminded to clear it.
  - II. It is observed that waste disposal in the site area in the site area. Contractor reminded to clear it.
- 3) In our investigation on 2 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). The water accumulation was observed on the 6/WSD site area (Photo 5). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

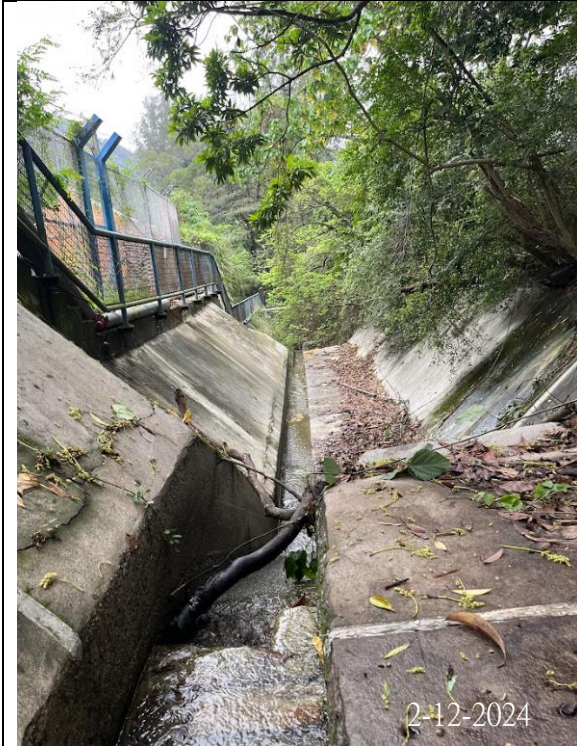


Photo 1 (M3)

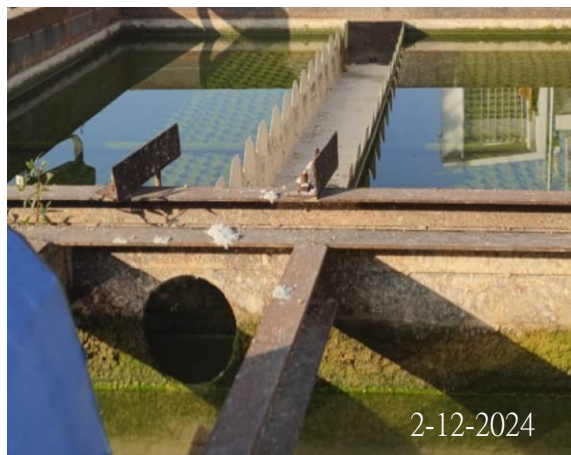


Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



Photo 5 (Water accumulation on the site area at 6/WSD)



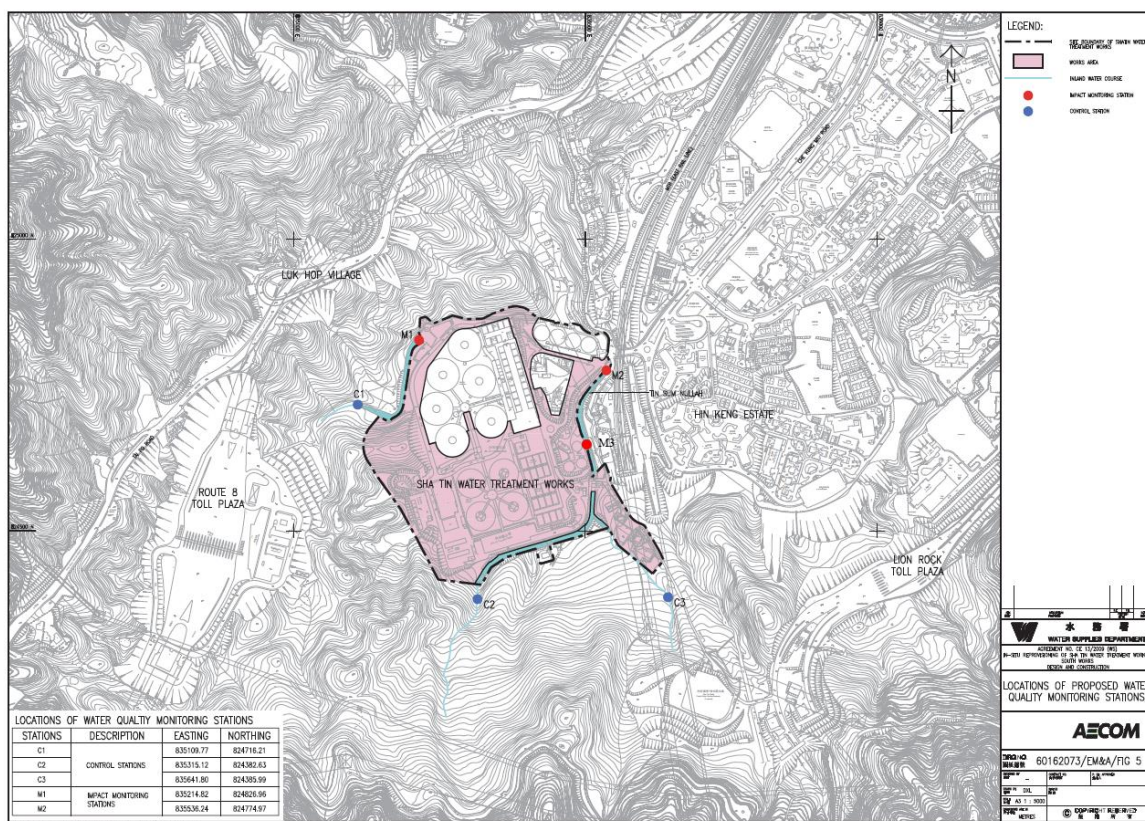


Figure 1 Location Map Water Quality Monitoring Location



To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 6 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 6 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.5	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.4	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 6 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 6 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.5	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.4	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 6 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 12 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 6 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

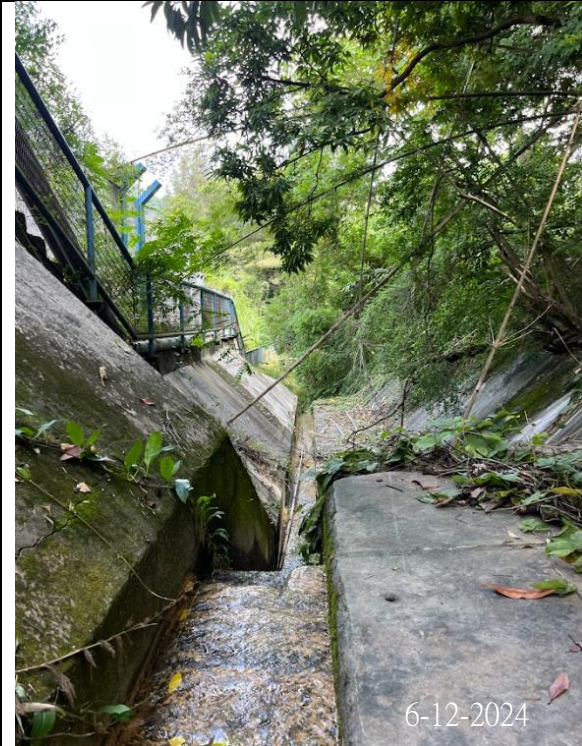


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



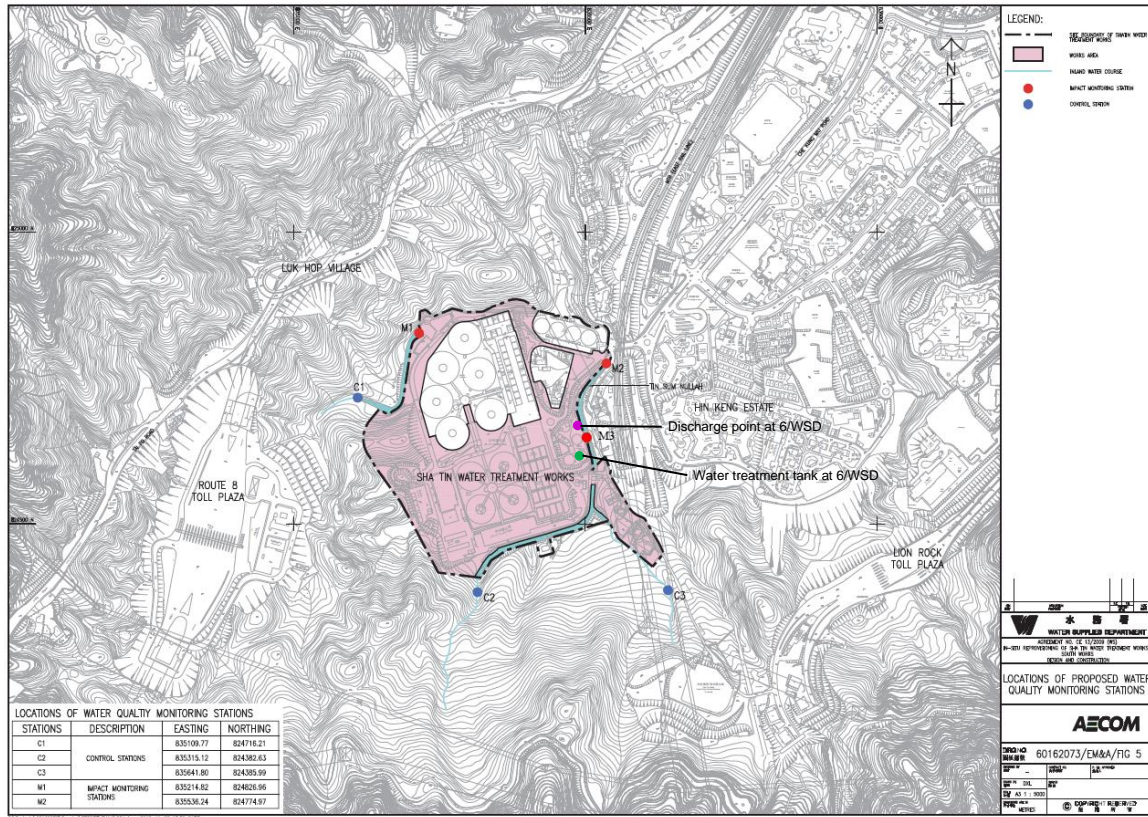


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 9 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 9 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.2	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	1.9	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.0	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 9 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 9 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.2	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	1.9	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.0	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 9 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 12 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 9 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

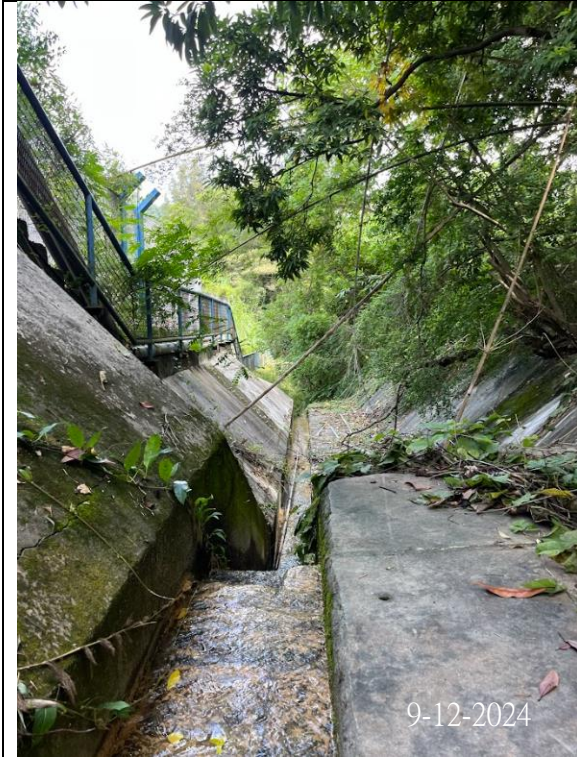


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)





Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)

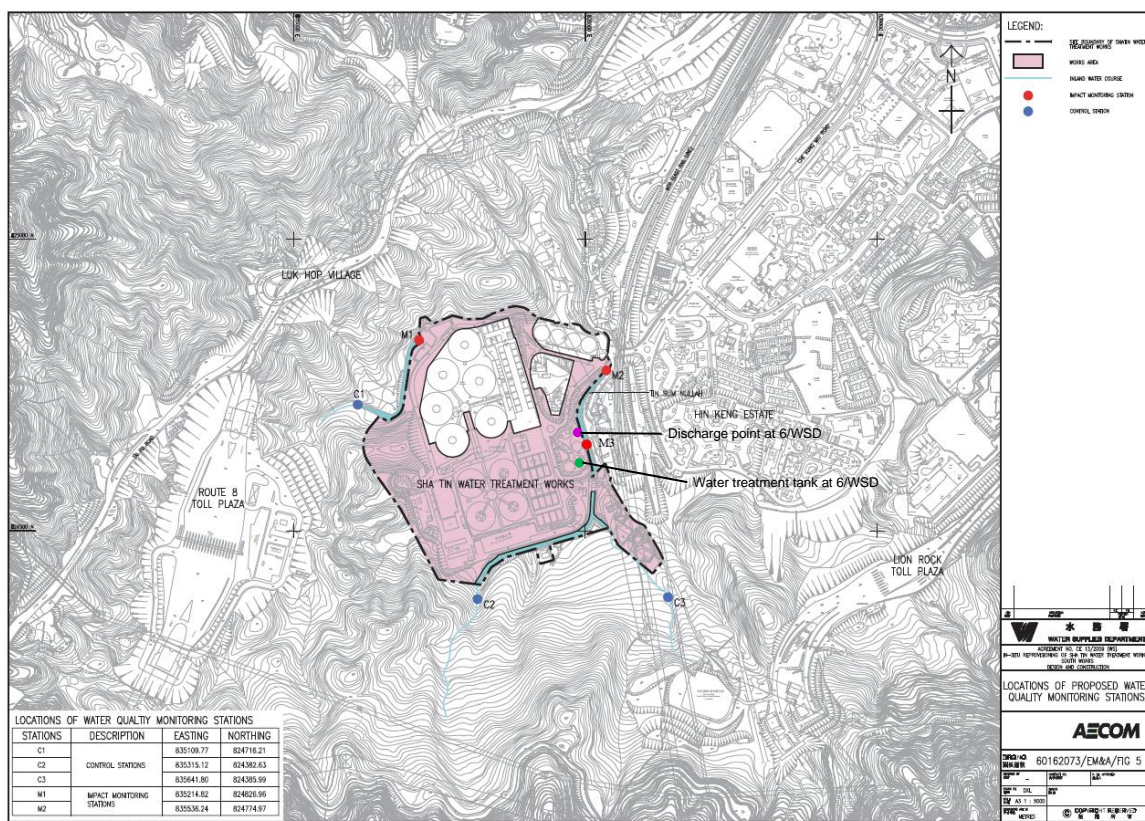


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 11 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 11 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	3.2	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.0	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.3	<1 – 4.7	Action level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.2	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.6	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Action level and Limit Level Non-compliance on 11 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 11 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	3.2	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.0	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.3	<1 – 4.7	Action level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.2	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.6	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 11 December 2024, no polluted discharge was made from construction site to Impact Monitoring Station M1 (Photo 1). The condition of water at Impact Station M1 was in order and no discharge from construction was observed (Photo 1)
- 2) According to the field observation from the Environmental Team (ET) on 11 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 2). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 2). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 3) Weekly site inspection by the Contractor and ET was conducted on 12 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 4) In our investigation on 11 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 3 & 5). No adverse water quality impact was observed during the site inspection (Photo 4). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 5) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Photo Record

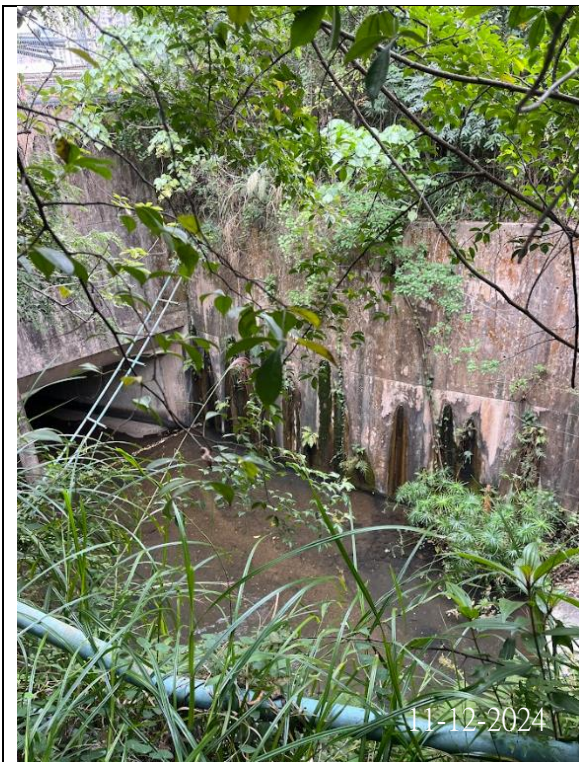


Photo 1 (M1)

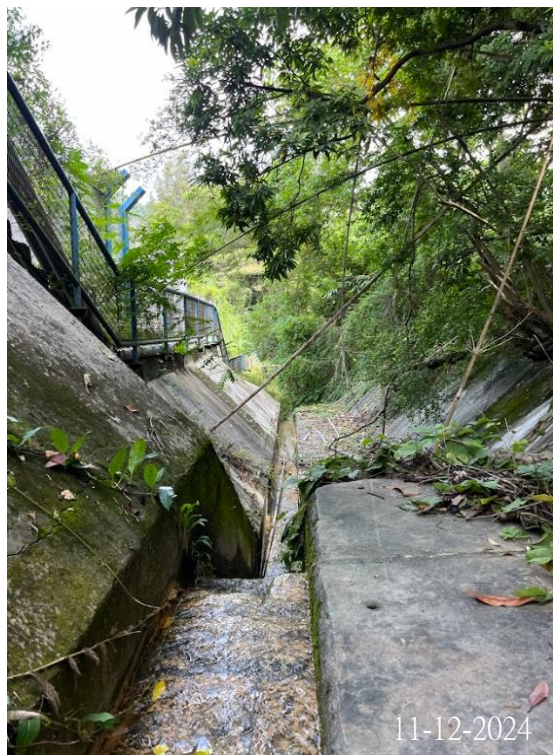


Photo 2 (M3)

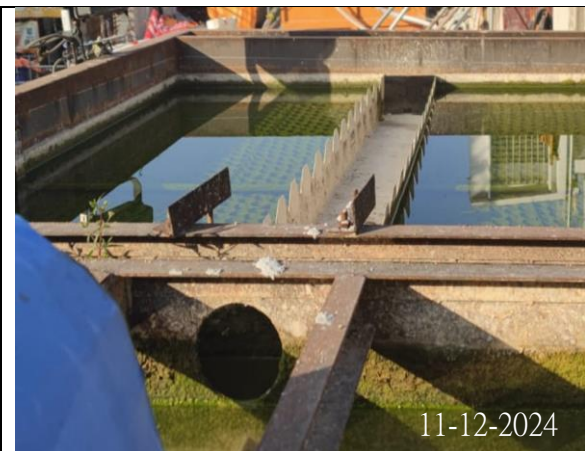


Photo 3 (Water quality of water treatment tank at 6/WSD)



Photo 4 (Discharge point at 6/WSD)



Photo 5 (Water quality of water treatment tank at 1/WSD)



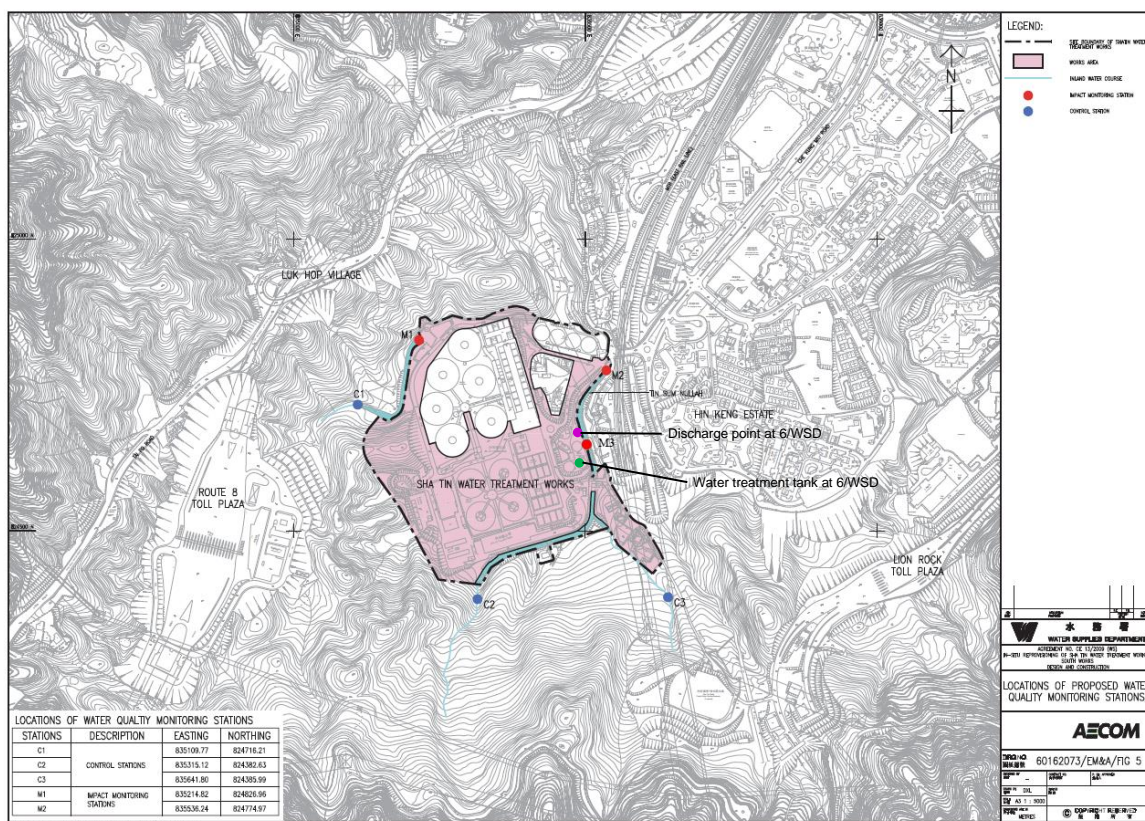


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 13 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 13 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.8	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.9	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.4	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.9	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant



**Investigation Report on Limit Level Non-compliance on 13 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 13 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.8	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.9	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.4	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.9	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 13 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 18 December 2024 to audit the site environmental performance. The finding of the inspection was summarized below:
 

6/WSD

  - I. It is observed that chemical materials are uncovered. Contractor reminded to cover it.
- 3) In our investigation on 13 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

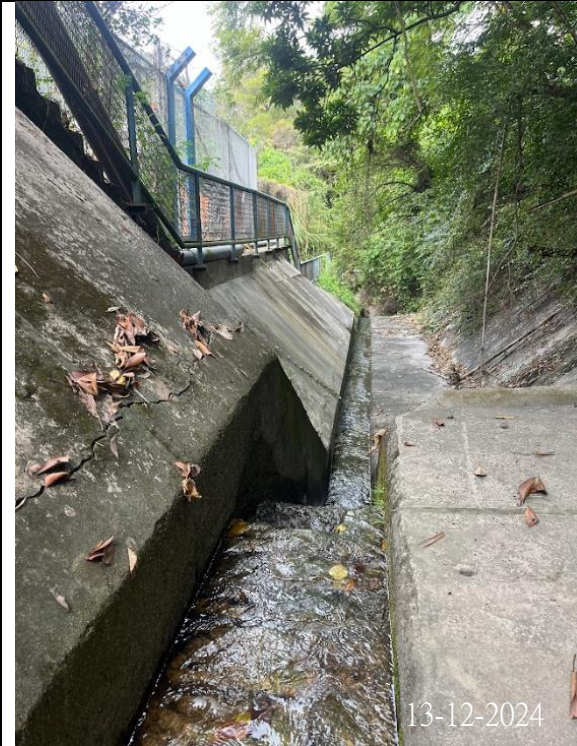


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



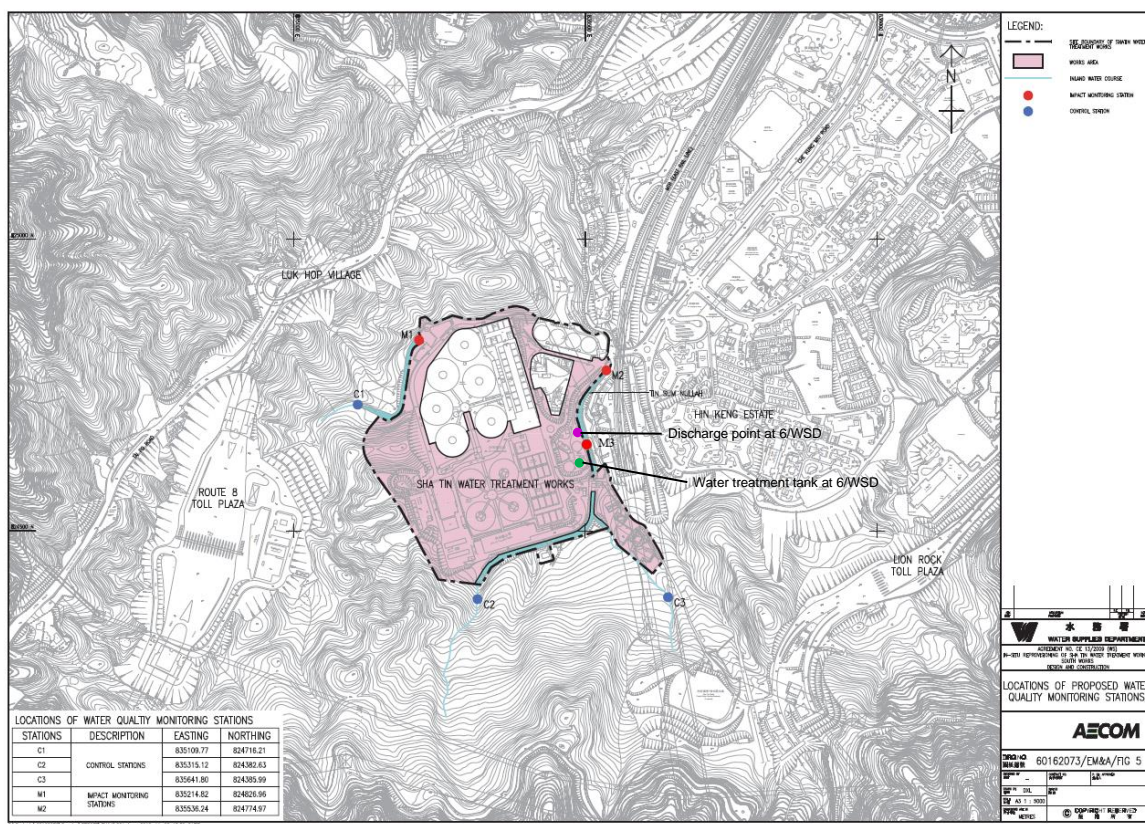


Figure 1 Location Map Water Quality Monitoring Location



To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 16 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 16 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	4.0	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.6	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.4	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.9	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.3	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 16 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 16 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	4.0	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.6	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.4	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.9	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.3	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 16 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 18 December 2024 to audit the site environmental performance. The finding of the inspection was summarized below:
 

6/WSD

  - I. It is observed that chemical materials are uncovered. Contractor reminded to cover it.
- 3) In our investigation on 16 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

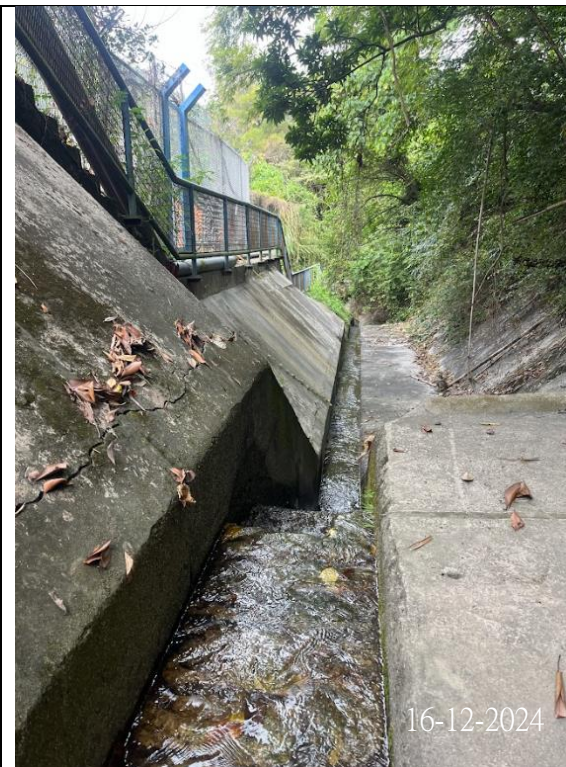


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



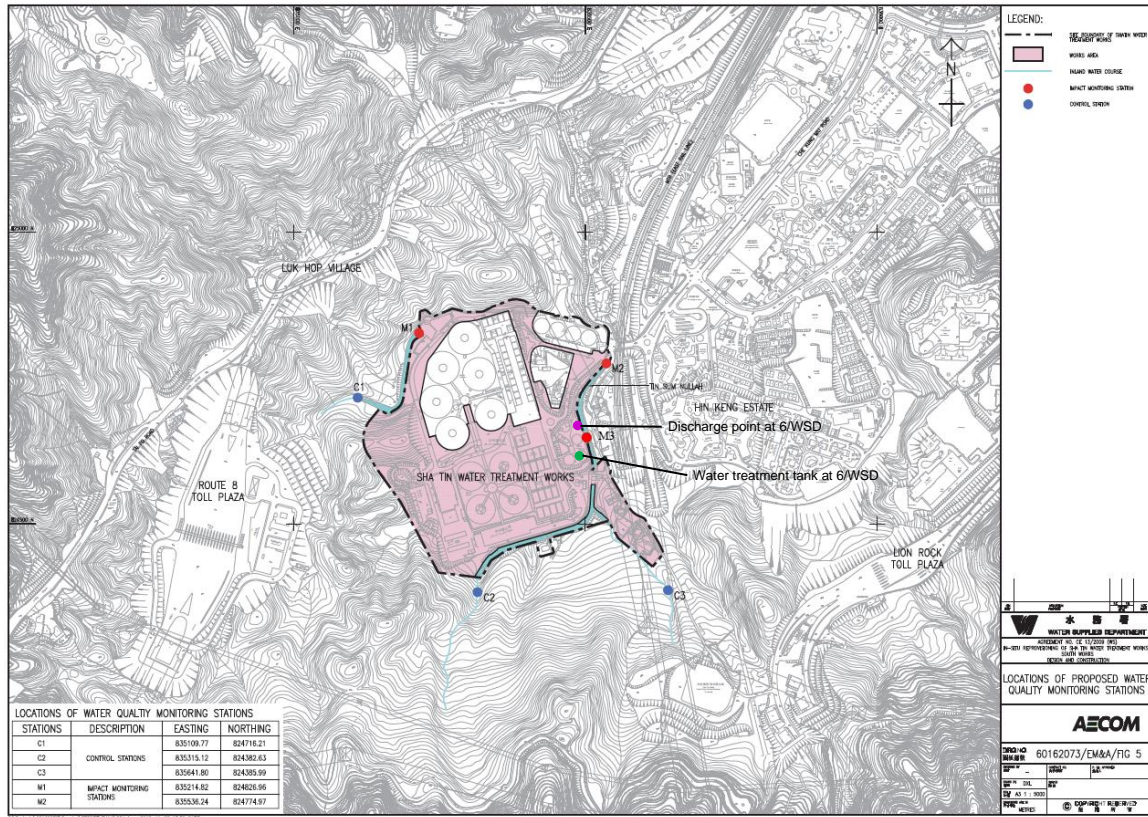


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 6 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 18 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 18 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.2	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.7	<1 – 4.7	Limit Level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	3.2	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	3.7	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 18 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 6 January 2025

**(I) Summary of exceedance on 18 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.2	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.7	<1 – 4.7	Limit Level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	3.2	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	3.7	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 18 December 2024, no polluted discharge was made from construction site to Impact Monitoring Station M1 (Photo 1). The condition of water at Impact Station M1 was in order and no discharge from construction was observed (Photo 1)
- 2) According to the field observation from the Environmental Team (ET) on 18 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 2). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 2). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 3) Weekly site inspection by the Contractor and ET was conducted on 18 December 2024 to audit the site environmental performance. The finding of the inspection was summarized below:
 

6/WSD

  - I. It is observed that chemical materials are uncovered. Contractor reminded to cover it.
- 4) In our investigation on 18 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 3 & 5). No adverse water quality impact was observed during the site inspection (Photo 4). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.

- 5) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Photo Record

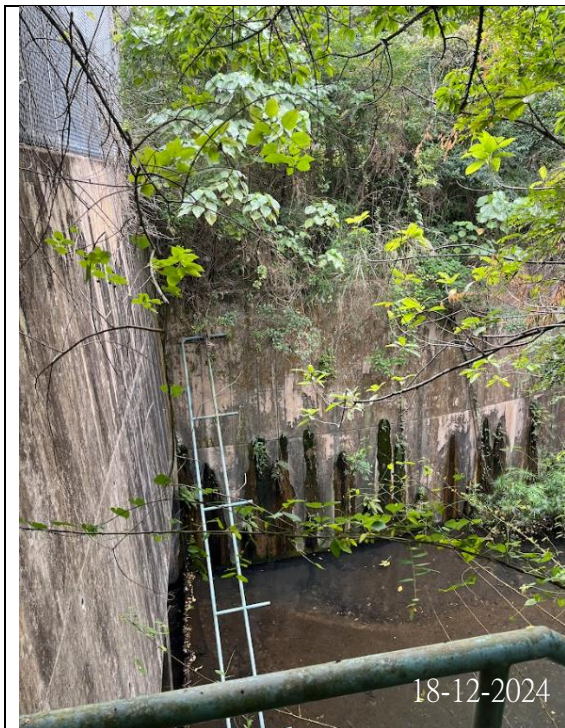


Photo 1 (M1)



Photo 2 (M3)



Photo 3 (Water quality of water treatment tank at 6/WSD)



Photo 4 (Discharge point at 6/WSD)

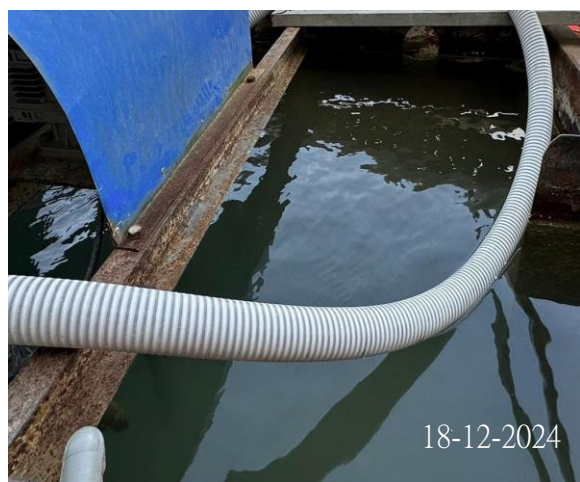


Photo 5 (Water quality of water treatment tank at 1/WSD)



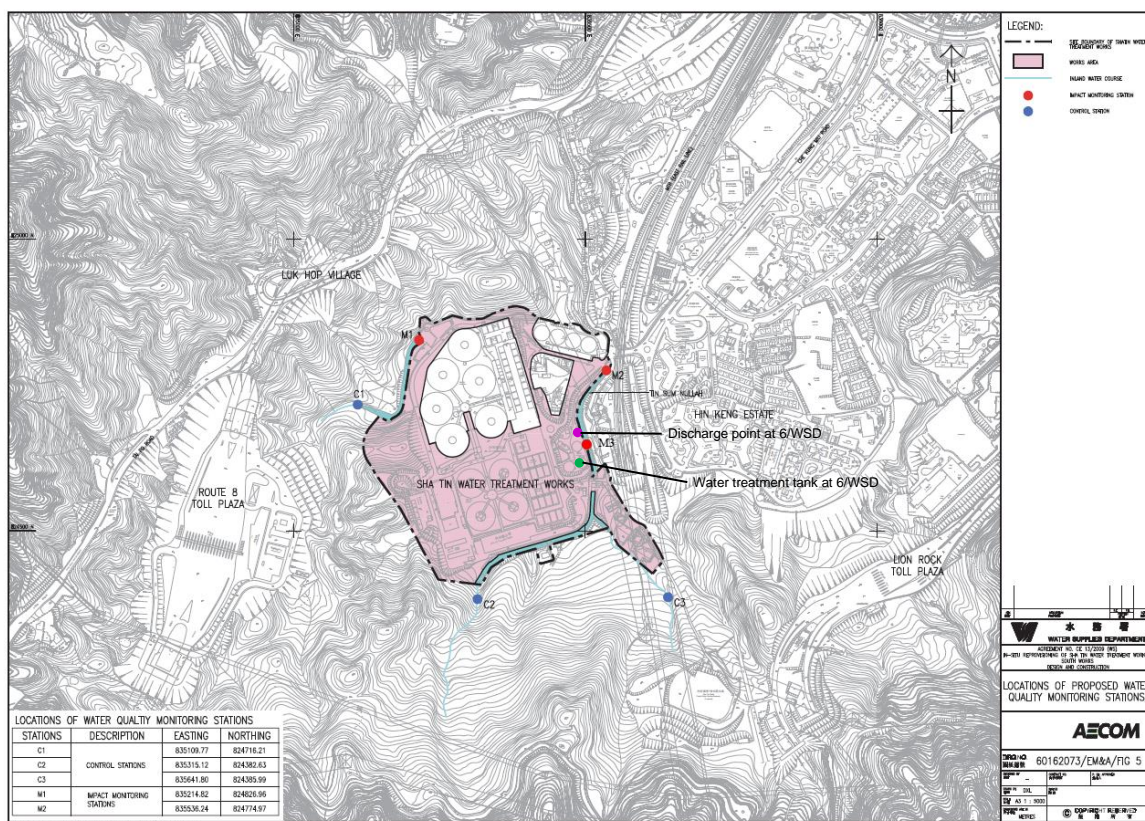


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 9 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 20 December 2024

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Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 20 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.1	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	1.8	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.1	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant



**Investigation Report on Limit Level Non-compliance on 20 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 9 January 2025

**(I) Summary of exceedance on 20 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	2.1	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	2.1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	1.8	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.1	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 20 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 23 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 20 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

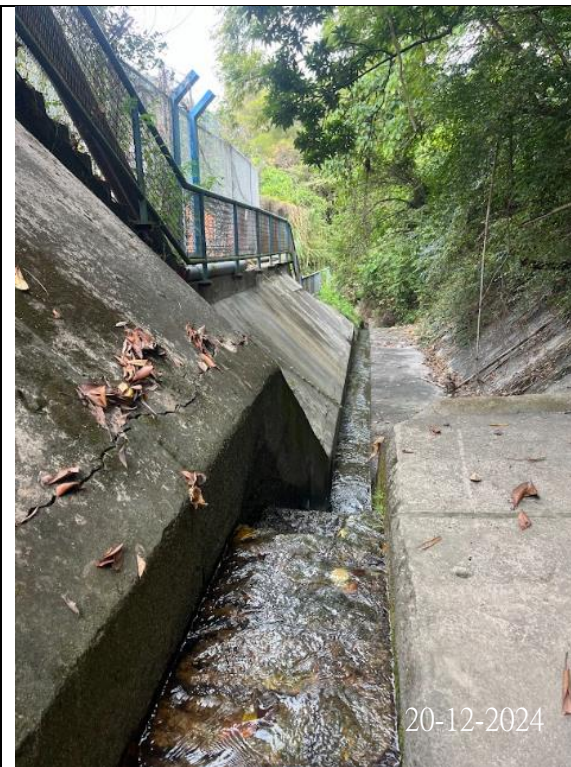


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



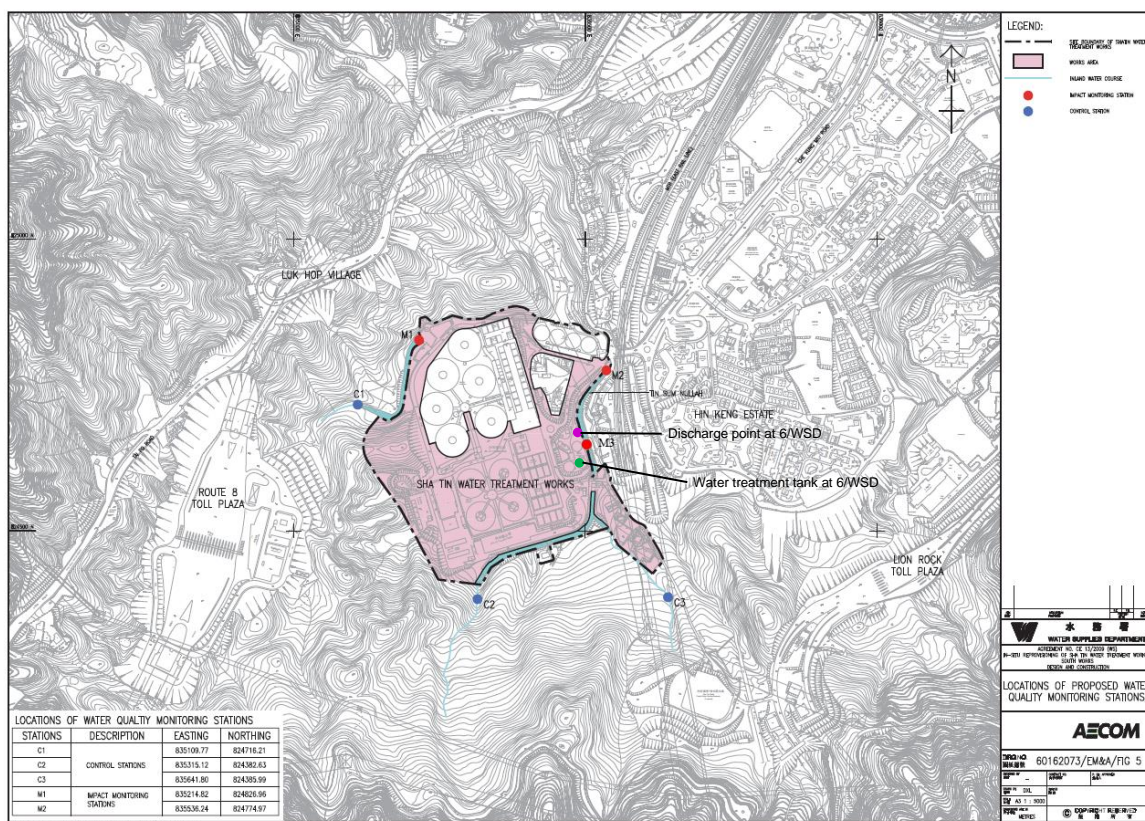


Figure 1 Location Map Water Quality Monitoring Location



To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 9 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 23 December 2024

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 23 December 2024. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.6	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.5	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	1.9	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 23 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 9 January 2025

**(I) Summary of exceedance on 23 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.6	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.6	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.5	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	1.9	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 23 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 23 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 23 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

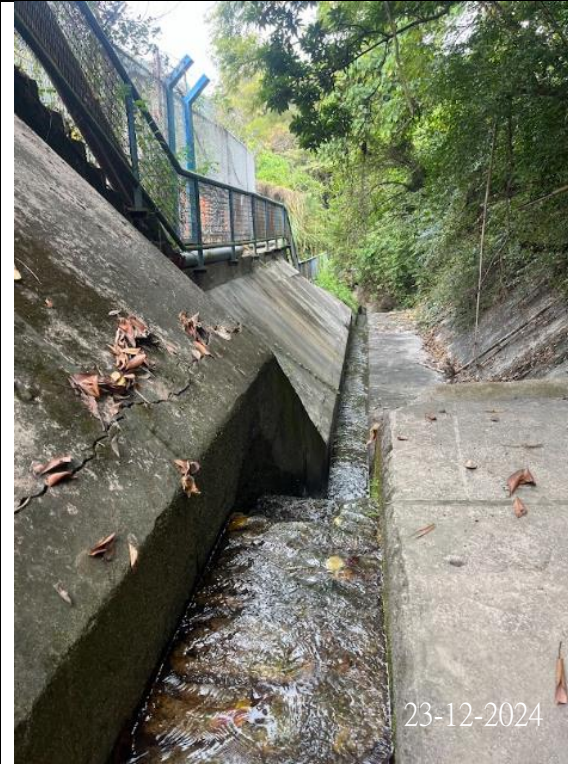


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)



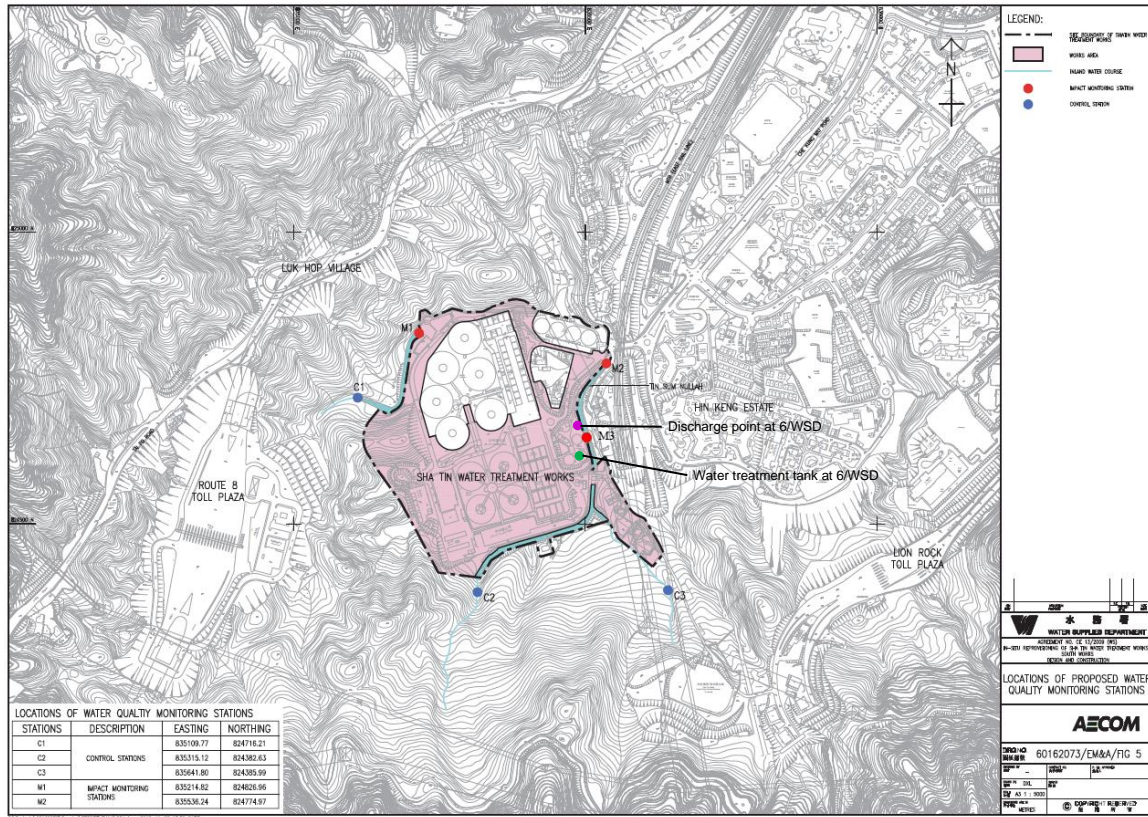


Figure 1 Location Map Water Quality Monitoring Location

To IEC (AECOM), ER (AECOM), Contractor (ATAL - CW - MH JV (ACMJV), CW-FWS JV) Fax No By-email

From Oliver Chiu Date 9 January 2025

Our Ref CJO – 3113

RE Contract No. 1/WSD/19 & 6/WSD/21  
In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities – Environmental Team  
Notification of Exceedance (NOE) for Water Quality Monitoring on 27 December 2024

---

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 27 December 2024.  
Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.9	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,  
For and on Behalf of  
Acumen Environmental Engineering & Technologies Co., Ltd.



Oliver Chiu  
Assistant Environmental Consultant

**Investigation Report on Limit Level Non-compliance on 27 December 2024**

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 9 January 2025

**(I) Summary of exceedance on 27 December 2024**

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.8	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	3.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	2.1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	1.7	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.9	<1 – 1.3	Limit Level

**(II) Investigation Results, Recommendations & Mitigation Measures**

- 1) According to the field observation from the Environmental Team (ET) on 27 December 2024, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 27 December 2024 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 27 December 2024, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.

Photo Record

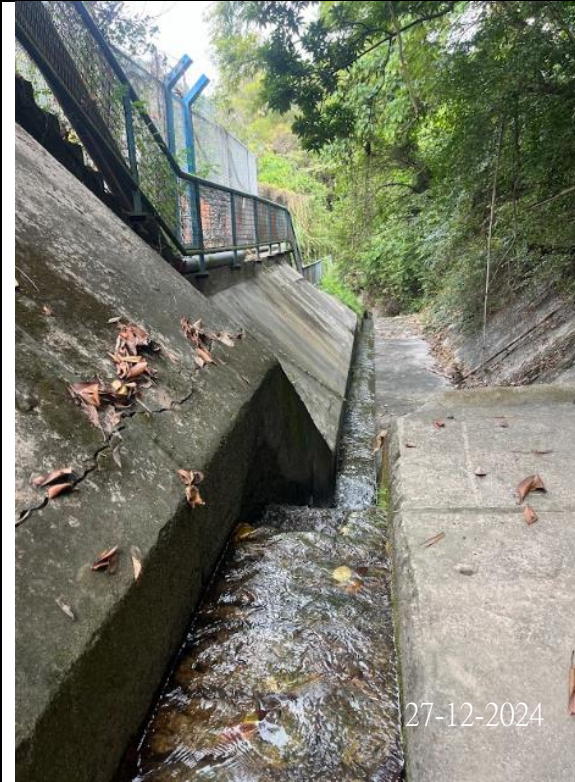


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)





Photo 3 (Discharge point at 6/WSD)



Photo 4 (Water quality of water treatment tank at 1/WSD)

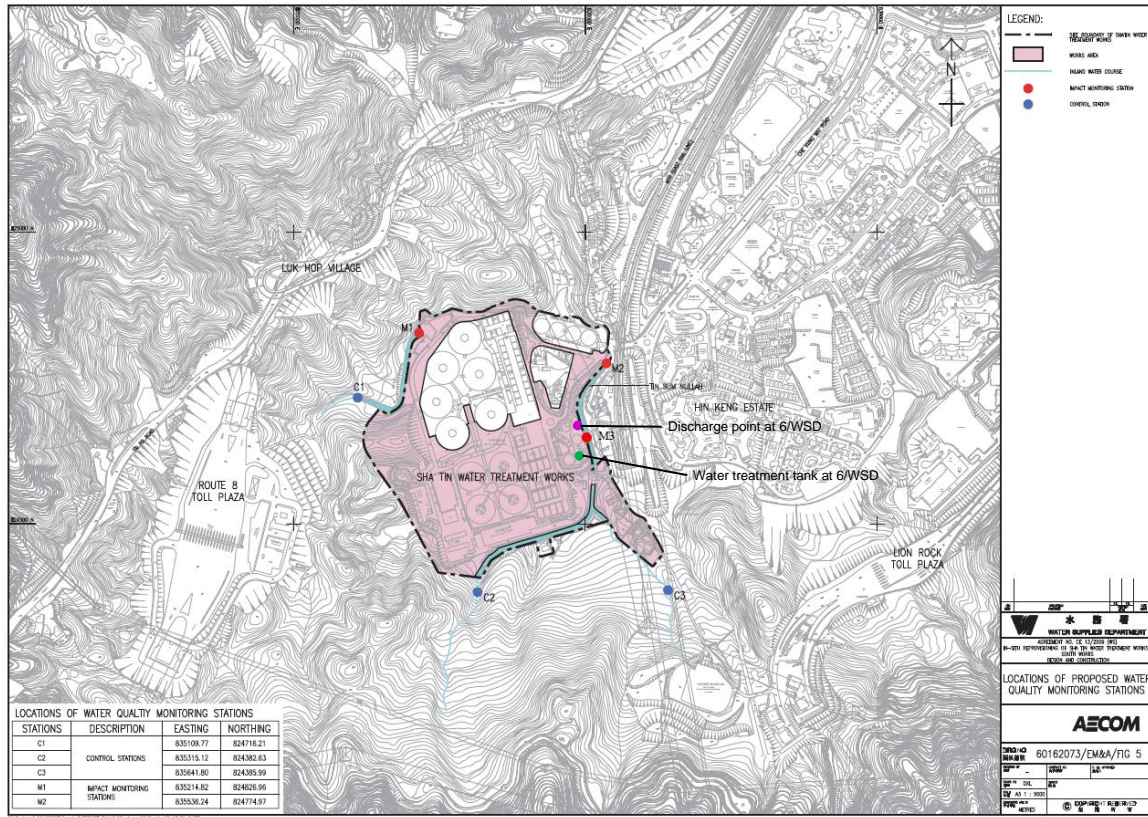


Figure 1 Location Map Water Quality Monitoring Location

# Appendix W

## Tentative Schedule of Impact Monitoring

Tentative Impact Monitoring Schedule for STWTW

Jan-25

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
				Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3
5	6	7	8	9	10	11
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3
12	13	14	15	16	17	18
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	
19	20	21	22	23	24	25
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
26	27	28	29	30	31	
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				



Tentative Impact Monitoring Schedule for STWTW

Feb-25

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
				Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3
2	3	4	5	6	7	8
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3
9	10	11	12	13	14	15
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	
16	17	18	19	20	21	22
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
23	24	25	26	27	28	
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	

Tentative Impact Monitoring Schedule for STWTW

Mar-25						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3
9	10	11	12	13	14	15
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	
16	17	18	19	20	21	22
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
23	24	25	26	27	28	29
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
30	31					
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					