Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210703_M1_SS
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Date:	2021/07/03
Time: (hh:mm)	**(Ebb Tide)** M1: 9:20 M2: M3:

Action level / Limit level: **(For Flood Tide)**		DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
		AL	**LL**	**AL**	**LL**	**AL**	**LL**
	M1	2.25	1.91	59.6	64.6	59	68
	M2	1.88	1.79	43.0	52.4	81	112
	M3	3.28	3.14	74.3	78.0	104	167

Measured level of exceeded parameter: (fill in / circle as appropriate)				
M1	DO (AL / LL) : _____	**M3**	DO (AL / LL) : _____	
	NTU (AL / LL) : _____		NTU (AL / LL) : _____	
	SS (~~AL~~ / LL) : 72		SS (AL / LL) : _____	
M2	DO (AL / LL) : _____			
	NTU (AL / LL) : _____			
	SS (AL / LL) : _____			

Action taken / to be taken: (tick / circle / fill in as appropriate)	Inspection : ☑ER / IEC / Contractor is/are informed. ☑ Monitoring equipment & monitoring data are checked and confirmed without problem. ☐ In-situ measurement is repeated. ☐ Other _____ _____ _____

Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)		**DO**	**Turbidity**	**SS**
	Finding / Evidences			
	☐ Upstream Control Station exceeded AL/LL			
	☐ Station was polluted by the inflow of other construction site			
	☐ Station was polluted by the inflow of residential discharge			
	☐ Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage			
	☑ No construction activities were carried out in the vicinity of station			M1
	☐ Other _____ _____			

Notification of Water Quality Monitoring Exceedance

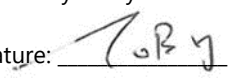
Incident Report on Action/ Limit Level Exceedance

<table>
<tr><td>Reference No.:</td><td colspan="4">IR20210703_M1_SS</td></tr>
<tr><td>Project:</td><td colspan="4">Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1</td></tr>
<tr><td>Date:</td><td colspan="4">2021/07/03</td></tr>
<tr><td rowspan="3">Conclusion:</td><td></td><td>DO</td><td>Turbidity</td><td>SS</td></tr>
<tr><td>☑ Due to change or/and influences of ambient condition in the vicinity, not Project related</td><td></td><td></td><td>M1</td></tr>
<tr><td>☐ Due to influences of construction activities under this project in the vicinity, considered to be Project related</td><td></td><td></td><td></td></tr>
<tr><td>Mitigation Measures:</td><td colspan="4">The following mitigation measures have be taken:

1. Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities;
2. The surfaces of construction site areas near the drainages was paved;
3. Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and;
4. Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding.</td></tr>
<tr><td rowspan="4">Remarks: (tick / fill in as appropriate)</td><td colspan="4">☐ Repeat in-situ measurement was done.</td></tr>
<tr><td>M1</td><td>DO : _____
NTU : _____</td><td>M3</td><td>DO : _____
NTU : _____</td></tr>
<tr><td>M2</td><td>DO : _____
NTU : _____</td><td></td><td></td></tr>
<tr><td colspan="4">☑ No major observation of upstream area was found</td></tr>
<tr><td>Attachment</td><td colspan="4">Annex A – Location of Water Quality Monitoring Stations
Annex B – Water Quality Monitoring Results
Annex C – Photo of Investigation</td></tr>
</table>

Note: The box is checked ☑ to represent the statement is applicable, and vice versa.

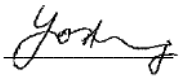
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Notes:
- Abbreviation:
DO – Dissolved Oxygen
NTU - Turbidity
SS – Suspended Solids
AL – Action Level
LL – Limit Level
ER – Engineer's Representative
IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

820400 E

820800 E

837200 N

836600 N

836000 N

LEGEND:

- SITE BOUNDARY
- 500m ASSESSMENT AREA
- PONDS
- WATER BODIES
- EXISTING AND PLANNED SEWAGE OUTFALL
- MONITORING STATION

N

M1

M2

M3

KAM TIN RIVER

SHAN PUI RIVER

YUEN LONG INDUSTRIAL ESTATE

FUK SHUN STREET

MANG LOK STREET

TAI TSENG WAI

CLIENT
委託

渠務署
Drainage Services Department

SHEET TITLE
圖紙名稱

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

Plot File by: GaoYU 12/18
PATH: P:\PROJECTS\60305478\DRAWING\REPORT\EM&A\EM&A_704.dgn

Annex B – Water Quality Monitoring Results

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement												Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	1	0.025	230	7.24	7.23	0.68	0.68	31.76	31.80	46.0	45.9	3.30	3.29	45.8	45.9	33	36
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	2			7.22		0.68		31.83		45.8		3.28		45.9		38	
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	1	0.016	220	6.96	6.96	0.65	0.65	32.40	32.40	32.5	32.5	2.55	2.55	45.8	45.8	31	33
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	2			6.96		0.65		32.40		32.5		2.55		45.8		35	
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	1	0.019	261	7.09	7.10	0.64	0.64	32.01	32.01	63.9	63.8	4.65	4.65	39.8	39.4	34	33
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	2			7.10		0.64		32.00		63.7		4.64		38.9		32	
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	1	0.054	179	7.05	7.05	0.71	0.71	31.64	31.64	35.7	35.5	2.56	2.55	46.9	45.9	72	**72**
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	2			7.05		0.71		31.64		35.3		2.53		44.9		71	
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	1	0.037	164	6.99	6.99	0.65	0.65	31.28	31.34	36.5	35.7	2.78	2.76	49.6	49.6	42	43
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	2			6.99		0.65		31.39		34.9		2.73		49.6		43	
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	1	0.038	77	7.15	7.16	0.65	0.65	31.22	31.21	36.2	38.6	2.67	2.85	49.8	49.8	31	31
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	2			7.16		0.65		31.19		40.9		3.02		49.7		31	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limti Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	55.0	59.6	81	112
M3	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	59.6	64.6	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Annex C – Photo of investigation

Date of investigation: 3 July 2021 **(Ebb Tide)**
Monitoring Station: M1

Annex D – Site Inspection

Date of site inspection: 7 July 2021
Gullies were bunded by sand bags to prevent surface runoff.

Date of site inspection: 7 July 2021
The surrounding of the construction site areas were covered by impermeable sheeting to prevent surface runoff.

Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210706_M1_SS
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Date:	2021/07/06
Time: (hh:mm)	**(Ebb Tide)** M1: 11:49 M2: M3:

Action level / Limit level: **(For Flood Tide)**

	DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
	AL	**LL**	**AL**	**LL**	**AL**	**LL**
M1	2.25	1.91	59.9	64.9	60	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Measured level of exceeded parameter: (fill in / circle as appropriate)

M1	DO (AL / LL) : _____	**M3**	DO (AL / LL) : _____
	NTU (AL / LL) : _____		NTU (AL / LL) : _____
	SS (~~AL~~ / LL) : 68		SS (AL / LL) : _____
M2	DO (AL / LL) : _____		
	NTU (AL / LL) : _____		
	SS (AL / LL) : _____		

Action taken / to be taken: (tick / circle / fill in as appropriate)

Inspection :
☑ER / IEC / Contractor is/are informed.
☑ Monitoring equipment & monitoring data are checked and confirmed without problem.
☐ In-situ measurement is repeated.
☐ Other _____

Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)

	DO	Turbidity	SS
Finding / Evidences			
☐ Upstream Control Station exceeded AL/LL			
☐ Station was polluted by the inflow of other construction site			
☐ Station was polluted by the inflow of residential discharge			
☐ Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage			
☑ No construction activities were carried out in the vicinity of station			M1
☐ Other _____			

Notification of Water Quality Monitoring Exceedance

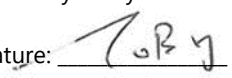
Incident Report on Action/ Limit Level Exceedance

<table>
<tr><td>Reference No.:</td><td colspan="4">IR20210706_M1_SS</td></tr>
<tr><td>Project:</td><td colspan="4">Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1</td></tr>
<tr><td>Date:</td><td colspan="4">2021/07/06</td></tr>
<tr><td rowspan="3">Conclusion:</td><td></td><td>DO</td><td>Turbidity</td><td>SS</td></tr>
<tr><td>☑ Due to change or/and influences of ambient condition in the vicinity, not Project related</td><td></td><td></td><td>M1</td></tr>
<tr><td>☐ Due to influences of construction activities under this project in the vicinity, considered to be Project related</td><td></td><td></td><td></td></tr>
<tr><td>Mitigation Measures:</td><td colspan="4">The following mitigation measures have be taken:

1. Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities;
2. The surfaces of construction site areas near the drainages was paved;
3. Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and;
4. Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding.</td></tr>
<tr><td rowspan="4">Remarks: (tick / fill in as appropriate)</td><td colspan="4">☐ Repeat in-situ measurement was done.</td></tr>
<tr><td>M1</td><td>DO : _____
NTU : _____</td><td>M3</td><td>DO : _____
NTU : _____</td></tr>
<tr><td>M2</td><td>DO : _____
NTU : _____</td><td></td><td></td></tr>
<tr><td colspan="4">☑ No major observation of upstream area was found</td></tr>
<tr><td>Attachment</td><td colspan="4">Annex A – Location of Water Quality Monitoring Stations
Annex B – Water Quality Monitoring Results
Annex C – Photo of Investigation</td></tr>
</table>

Note: The box is checked ☑ to represent the statement is applicable, and vice versa.

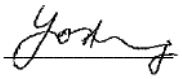
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Notes:
- Abbreviation:
DO – Dissolved Oxygen
NTU - Turbidity
SS – Suspended Solids
AL – Action Level
LL – Limit Level
ER – Engineer's Representative
IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

820400 E

820800 E

837200 N

836600 N

836000 N

LEGEND:

- SITE BOUNDARY
- 500m ASSESSMENT AREA
- PONDS
- WATER BODIES
- EXISTING AND PLANNED SEWAGE OUTFALL
- MONITORING STATION

N

M1

M2

M3

KAM TIN RIVER

SHAN PUI RIVER

YUEN LONG INDUSTRIAL ESTATE

FUK SHUN STREET

MANG LOK STREET

TAI TSENG WAI

CLIENT
委託

渠務署
Drainage Services Department

SHEET TITLE
圖紙名稱

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

Plot File by: GaoYU 12/18
PATH: P:\PROJECTS\60305478\DRAWING\REPORT\EM&A\EM&A_704.dgn

Annex B – Water Quality Monitoring Results

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement												Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	1	0.043	271	7.28	7.28	0.91	0.91	32.62	32.63	66.8	67.2	4.82	4.84	49.8	48.9	50	54
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	2			7.28		0.91		32.63		67.5		4.86		48.0		57	
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	1	0.043	257	7.29	7.29	0.82	0.82	32.64	32.64	68.8	69.0	4.95	4.96	45.7	45.8	62	64
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	2			7.29		0.82		32.64		69.2		4.97		45.9		65	
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	1	0.014	221	7.19	7.19	0.53	0.53	30.11	30.11	78.7	78.8	5.62	5.62	54.2	54.1	49	47
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	2			7.19		0.53		30.11		78.8		5.62		54.0		45	
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	1	0.262	138	7.24	7.24	1.05	1.05	32.26	32.26	47.7	47.6	3.45	3.44	58.7	58.8	64	**68**
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	2			7.24		1.04		32.25		47.4		3.43		58.9		71	
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	1	0.05	124	7.26	7.26	0.90	0.90	32.23	32.24	55.9	56.0	4.05	4.06	52.7	53.8	54	57
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	2			7.26		0.90		32.24		56.1		4.06		54.8		60	
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	1	0.008	129	7.26	7.26	0.93	0.93	32.11	32.11	50.5	50.3	3.67	3.67	46.1	46.1	44	43
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	2			7.26		0.93		32.11		50.0		3.67		46.1		42	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limti Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	58.7	63.6	81	112
M3	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	59.9	64.9	60	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Annex C – Photo of investigation

Date of investigation: 6 July 2021 **(Ebb Tide)**
Monitoring Station: M1

Annex D – Site Inspection

Date of site inspection: 15 July 2021
Gullies were bunded by sand bags to prevent surface runoff.

Date of site inspection: 15 July 2021
The surrounding of the construction site areas were covered by impermeable sheeting to prevent surface runoff.

Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210727_M1_SS
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Date:	2021/07/27
Time: (hh:mm)	**(Ebb Tide)** M1: 16:34 M2: M3:

Action level / Limit level: **(For Flood Tide)**

	DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
	AL	**LL**	**AL**	**LL**	**AL**	**LL**
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Measured level of exceeded parameter: (fill in / circle as appropriate)

M1	DO (AL / LL) : _____	**M3**	DO (AL / LL) : _____
	NTU (AL / LL) : _____		NTU (AL / LL) : _____
	SS (~~AL~~ / LL) : 70		SS (AL / LL) : _____
M2	DO (AL / LL) : _____		
	NTU (AL / LL) : _____		
	SS (AL / LL) : _____		

Action taken / to be taken: (tick / circle / fill in as appropriate)

Inspection :
☑ER / IEC / Contractor is/are informed.
☑ Monitoring equipment & monitoring data are checked and confirmed without problem.
☐ In-situ measurement is repeated.
☐ Other _____

Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)

	DO	Turbidity	SS
Finding / Evidences			
☐ Upstream Control Station exceeded AL/LL			
☐ Station was polluted by the inflow of other construction site			
☐ Station was polluted by the inflow of residential discharge			
☐ Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage			
☑ No construction activities were carried out in the vicinity of station			M1
☐ Other _____			

Notification of Water Quality Monitoring Exceedance

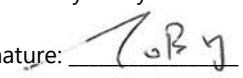
Incident Report on Action/ Limit Level Exceedance

<table>
<tr><td>Reference No.:</td><td colspan="4">IR20210727_M1_SS</td></tr>
<tr><td>Project:</td><td colspan="4">Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1</td></tr>
<tr><td>Date:</td><td colspan="4">2021/07/27</td></tr>
<tr><td rowspan="3">Conclusion:</td><td></td><td>DO</td><td>Turbidity</td><td>SS</td></tr>
<tr><td>☑ Due to change or/and influences of ambient condition in the vicinity, not Project related</td><td></td><td></td><td>M1</td></tr>
<tr><td>☐ Due to influences of construction activities under this project in the vicinity, considered to be Project related</td><td></td><td></td><td></td></tr>
<tr><td>Mitigation Measures:</td><td colspan="4">The following mitigation measures have be taken:

1. Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities;
2. The surfaces of construction site areas near the drainages was paved;
3. Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and;
4. Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding.</td></tr>
<tr><td rowspan="4">Remarks: (tick / fill in as appropriate)</td><td colspan="4">☐ Repeat in-situ measurement was done.</td></tr>
<tr><td>M1</td><td>DO : _____
NTU : _____</td><td>M3</td><td>DO : _____
NTU : _____</td></tr>
<tr><td>M2</td><td>DO : _____
NTU : _____</td><td></td><td></td></tr>
<tr><td colspan="4">☑ No major observation of upstream area was found</td></tr>
<tr><td>Attachment</td><td colspan="4">Annex A – Location of Water Quality Monitoring Stations
Annex B – Water Quality Monitoring Results
Annex C – Photo of Investigation</td></tr>
</table>

Note: The box is checked ☑ to represent the statement is applicable, and vice versa.

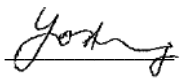
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 6/8/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 6/8/2021

Notes:
- Abbreviation:
DO – Dissolved Oxygen
NTU - Turbidity
SS – Suspended Solids
AL – Action Level
LL – Limit Level
ER – Engineer's Representative
IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

820400 E

820800 E

837200 N

836600 N

836000 N

LEGEND:

- SITE BOUNDARY
- 500m ASSESSMENT AREA
- PONDS
- WATER BODIES
- EXISTING AND PLANNED SEWAGE OUTFALL
- MONITORING STATION

N

M1

M2

M3

KAM TIN RIVER

SHAN PUI RIVER

YUEN LONG INDUSTRIAL ESTATE

FUK SHUN STREET

MANG LOK STREET

TAI TSENG WAI

CLIENT
委託

渠務署
Drainage Services Department

SHEET TITLE
圖紙名稱

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

Plot File by: GaoYU 12/18
PATH: P:\PROJECTS\60305478\DRAWING\REPORT\EM&A\EM&A_704.dgn

Annex B – Water Quality Monitoring Results

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement												Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	1	0.021	116	7.21	7.22	2.40	2.41	32.52	32.52	54.2	54.2	3.83	3.82	20.0	20.5	24	24
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	2			7.22		2.41		32.52		54.1		3.81		21.0		23	
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	1	0.165	123	7.19	7.19	2.39	2.39	32.30	32.65	50.7	50.7	3.64	3.64	19.4	19.4	30	29
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	2			7.18		2.38		33.00		50.6		3.63		19.4		27	
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	1	0.224	76	7.21	7.21	2.36	2.36	31.50	31.49	59.7	59.5	4.25	4.24	20.9	20.9	9	10
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	2			7.20		2.35		31.48		59.3		4.23		20.8		10	
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	1	0.234	233	7.24	7.24	2.31	2.31	33.01	33.01	58.9	58.8	4.18	4.17	19.9	19.9	68	**70**
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	2			7.24		2.30		33.00		58.7		4.16		19.9		72	
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	1	0.019	244	7.25	7.25	2.40	2.40	32.22	32.23	62.7	62.6	4.46	4.44	21.8	21.8	51	53
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	2			7.24		2.40		32.24		62.4		4.41		21.8		55	
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	1	0.136	257	7.14	7.14	2.11	2.12	32.67	32.68	51.2	51.0	3.69	3.68	39.0	38.4	42	44
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	2			7.13		2.12		32.68		50.8		3.66		37.8		45	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limti Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Annex C – Photo of investigation

Date of investigation: 27 July 2021 **(Ebb Tide)**
Monitoring Station: M1

Annex D – Site Inspection

Date of site inspection: 28 July 2021
Gullies were bunded by sand bags to prevent surface runoff.

Notification of Ecological Monitoring of Birds Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR202107_Species Diversity			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Survey Date:	09/07/2021 (Night time survey) and 13/07/2021 (Daytime survey)			
	Method	Parameters	Action Level	Limit Level
Action level / Limit level: (For Avifauna Communities**)**	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	Significant decline[1,2] in any of these parameters during the current monitoring month relative to the corresponding month during the baseline survey	Significant decline in any of these parameters for three consecutive months
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
		Species diversity of species with conservation importance only		
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
		Species diversity of species with conservation importance only		
Measured significant decline in abundance and/or species diversity (fill in as appropriate)	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	☐	☐
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	☐	☐
		Abundance of species with conservation importance only	☐	☐
		Species diversity of species with conservation importance only	☐	☐
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	☐	☐
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	☐	☐
		Abundance of species with conservation importance only	☐	☐
		Species diversity of species with conservation importance only	☑	☐
Action taken / to be taken[3]: (tick / circle / fill in as appropriate)	Responses: ☑ Informed IEC, ER, and Contractor. ☑ Reviewed monitoring data. ☑ Investigated possible causes of decline and identified possible source (s) of impact. Recorded in notification. ☑ Check Contractor's working methods.			

	☐ Other
Possible reason/s[4] for action or limit level Non-compliance: (tick / fill in as appropriate)	**Findings / Evidences** ☐ Construction noise disturbance ☐ Vibration disturbance from potential percussive piling works ☐ Construction lighting/glare disturbance ☐ Increased human activities ☐ Construction dust disturbance ☑ Others: The lower diversity during this period with respect to the baseline data could be due to the current dominance of Chinese Pond Heron in the community. The current dominance of this species was due to its concurrent breeding period. This dominant species could have decreased the performance of co-occurring species (Gilbert et al. 2009)[5] and forced them to utilize other areas outside the survey area, thus, made the area less diverse. Furthermore, low diversity index usually results from high dominance in the community as these are inversely related (Shaukat et al., 1978)[6].
Observations	☑ Noise levels (46.1 to 67.4 dB(A)) recorded from the different point count locations during the ecological bird monitoring are mostly low. The generally low noise levels are unlikely to cause significant impact to birds as behavioral response of some kind are more likely to occur at above 65.5 dB(A) (Wright et al. 2010)[7]. Only two stations, SP/NSW3 with 66.5 dB(A) and SP/NSW1 with 67.4 dB(A), have readings slightly above 65.5. dB(A). These stations are located across the Shan Pui River, relatively far from the construction works area; and are close to the roadsides with low to moderate traffic. During the monitoring period, passing vehicles, barking dogs, and noisy insects were noted. ☑ Environmental site audits indicated that the recommended environmental protection measures/mitigation measures to mitigate ecological impacts have been implemented. ☑ No significant decrease in abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for Transect/Point Count survey. ☑ Significant increase in species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for Transect/~~Point Count~~ survey. ☑ No significant decrease in abundance of species with conservation importance only was observed for Transect/Point Count survey. ☑ Increase in number and dominance of Chinese Pond Heron due to breeding activities
Conclusion	☑ Due to influences of external factors/ other threats, not Project related ☐ Due to influences of construction activities under this project in the vicinity, considered to be Project related
Mitigation measures	☑ Avoidance of recognized site of conservation importance ☑ Restriction of construction hours ☑ Minimizing construction noise disturbance impacts through the use of noise barriers ☑ Establishment of bird curtain
Attachment	Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations (July 2021) Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations (July 2021) Annex D – Hutcheson T-test Analysis (July 2021) Annex E – Abundance Tables Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (July 2021) Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (July 2021)

Notes:

1. Significant decline in abundance determined using two-tailed t-test, $\alpha = 0.05$
2. Significant decline in species diversity determined using the Hutcheson t-test, two-tailed
3. In accordance with Table 4.2 "Responses to Alert and Action Level for Avifauna Communities" of the Baseline Bird Survey Report
4. With reference to Table 8.34 "Summary of Potential Impacts and Mitigation Measures Requirements of the Construction of the Project" of the approved EIA Report

5. Benjamin, G., Turkington, R. and Diane S. Srivastava, D.S. 2009. Dominant Species and Diversity: Linking Relative Abundance to Controls of Species Establishment. Am. Nat. 174: 850–862.

6. Shaukat, S.S, Khairi. M.A and Khan M.A. 1978. The relationship amongst dominance, diversity and community maturity in a desert vegetation. Pak. J. Bot. 10(2):183-196

7. Wright, M.D., Goodman, P. and Cameron, T. 2010. Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl. 60:150-167

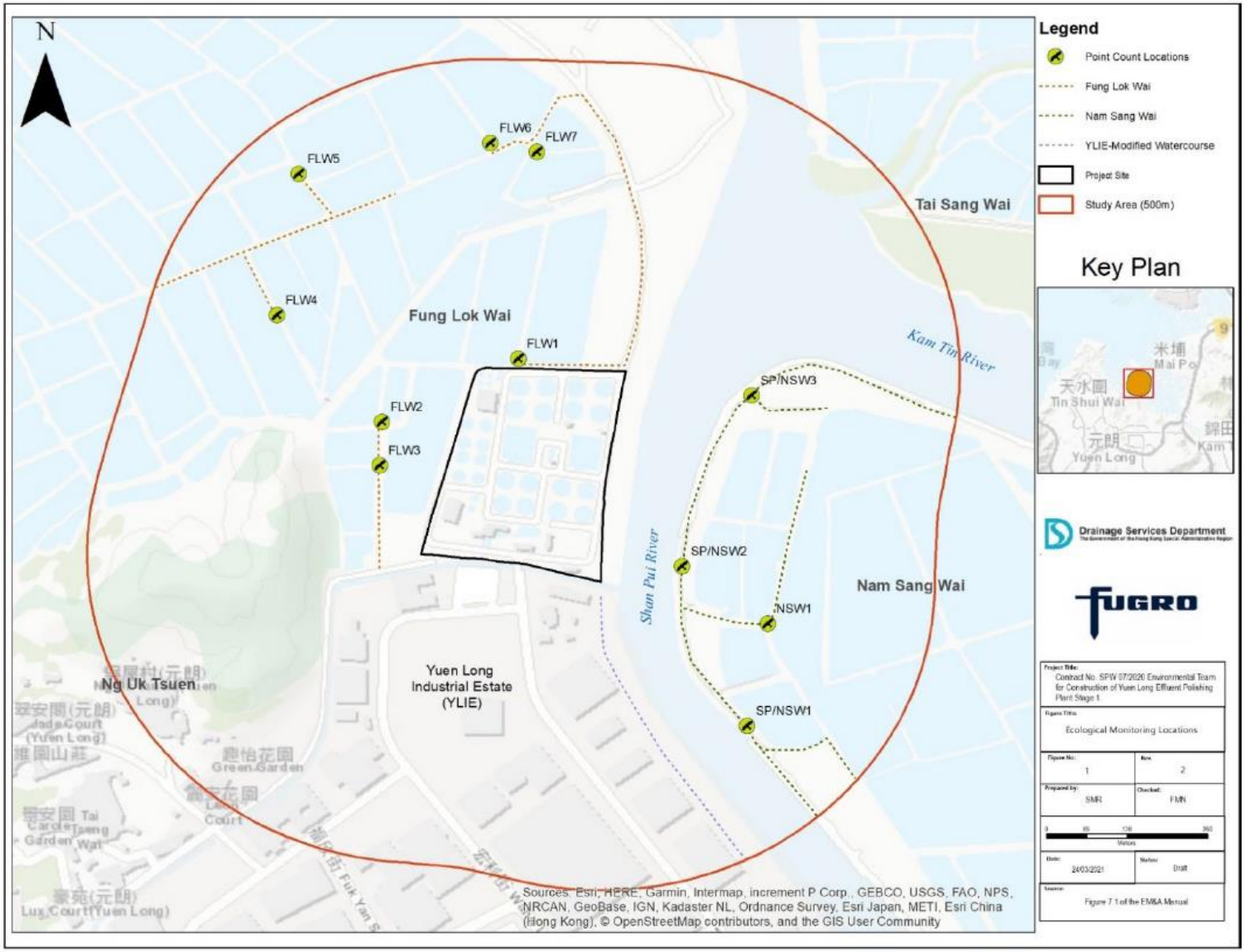
The box is checked ☑ to represent the statement is applicable, and vice versa

Abbreviation: ER – Engineer's Representative, IEC – Independent Checker

Prepared by: Fenelyn Nabuab
Designation: Ecologist
Signature: _____
Date (dd/mm/yyyy): 23/07/2021

Certified by: David Hung
Designation: Environmental Team Leader
Signature: _____
Date (dd/mm/yyyy): 23/07/2021

Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations


N
FLW6
FLW7
FLW5
FLW4
FLW1
FLW2
FLW3
Fung Lok Wai
Tai Sang Wai
Kam Tin River
SP/NSW3
SP/NSW2
NSW1
SP/NSW1
Shan Pui River
Nam Sang Wai
Yuen Long Industrial Estate (YLIE)
Ng Uk Tsuen
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), © OpenStreetMap contributors, and the GIS User Community
Legend
Point Count Locations
Fung Lok Wai
Nam Sang Wai
YLIE-Modified Watercourse
Project Site
Study Area (500m)
Key Plan
Drainage Services Department
FUGRO
Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Ecological Monitoring Locations
1
2
SMR
FMN
24/03/2021
Draft
Figure 7.1 of the EM&A Manual

FUGRO

Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations (July 2021)

Date (dd/mm/yyyy)	Daytime/Night time	Season	Area	Transect/Point Count	Point Count (Location)/ Transect Impact	Common Name	Scientific Name	Abundance	Habitat	Distribution in Hong Kong[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book [6]	Red List of China's Vertebrates [10]	IUCN Red List [7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent	Remarks
09/07/2021	Nighttime	Wet	NSW	Transect	NSW	Chinese Pond Heron	*Ardeola bacchus*	3	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	Roosting
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Chinese Pond Heron	*Ardeola bacchus*	14	Developed Area (Chinese Banyan Trees)	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Azure-winged Magpie	*Cyanopica cyanus*	4	Developed Area (Chinese Banyan Trees)	Introduced	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Grey Wagtail	*Motacilla cinerea*	1	Plantation-FLW	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Spotted Dove	*Spilopelia chinensis*	2	Plantation-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Crested Myna	*Acridotheres cristatellus*	2	Plantation-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Greater Coucal	*Centropus sinensis*	1	Pond-FLW	Common	R	-	Class II	Vulnerable	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Eurasian Tree Sparrow	*Passer montanus*	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Crested Myna	*Acridotheres cristatellus*	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Chinese Pond Heron	*Ardeola bacchus*	16	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Oriental Magpie Robin	*Copsychus saularis*	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Spotted Dove	*Spilopelia chinensis*	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Plain Prinia	*Prinia inornata*	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Crested Myna	*Acridotheres cristatellus*	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Chinese Pond Heron	*Ardeola bacchus*	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Barn Swallow	*Hirundo rustica*	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Spotted Dove	*Spilopelia chinensis*	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Red Turtle Dove	*Streptopelia tranquebarica*	1	Pond-FLW	Uncommon	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Plain Prinia	*Prinia inornata*	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Common Tailorbird	*Orthotomus sutorius*	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Chinese Bulbul	*Pycnonotus sinensis*	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Spotted Dove	*Spilopelia chinensis*	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Plain Prinia	*Prinia inornata*	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Chinese Pond Heron	*Ardeola bacchus*	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Barn Swallow	*Hirundo rustica*	3	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Chinese Pond Heron	*Ardeola bacchus*	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Oriental Magpie Robin	*Copsychus saularis*	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	White Wagtail	*Motacilla alba*	2	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eastern Yellow Wagtail	*Motacilla tschutschensis*	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	

13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Black-crowned Night Heron	*Nycticorax nycticorax*	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eurasian Tree Sparrow	*Passer montanus*	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Chinese Pond Heron	*Ardeola bacchus*	3	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Little Egret	*Egretta garzetta*	4	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Black-crowned Night Heron	*Nycticorax nycticorax*	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Crested Myna	*Acridotheres cristatellus*	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Chinese Pond Heron	*Ardeola bacchus*	5	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Greater Coucal	*Centropus sinensis*	1	Pond-FLW	Common	R	-	Class II	Vulnerable	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Masked Laughingthrush	*Garrulax perspicillatus*	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Barn Swallow	*Hirundo rustica*	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Red-throated Flycatcher	*Ficedula albicilla*	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Long-tailed Shrike	*Lanius schach*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Spotted Dove	*Spilopelia chinensis*	1	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Masked Laughingthrush	*Garrulax perspicillatus*	2	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Eurasian Tree Sparrow	*Passer montanus*	3	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Japanese White-eye	*Zosterops japonicus*	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Crested Myna	*Acridotheres cristatellus*	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Chinese Pond Heron	*Ardeola bacchus*	1	Pond-NSW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Oriental Magpie Robin	*Copsychus saularis*	1	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Masked Laughingthrush	*Garrulax perspicillatus*	5	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Black-collared Starling	*Gracupica nigricollis*	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White Wagtail	*Motacilla alba*	1	Pond-NSW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Eurasian Tree Sparrow	*Passer montanus*	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Red-whiskered Bulbul	*Pycnonotus jocosus*	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White-shouldered Starling	*Sturnia sinensis*	1	Pond-NSW	Common	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	*Prinia flaviventris*	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	*Prinia flaviventris*	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	*Egretta garzetta*	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Redshank	*Tringa totanus*	1	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Crested Myna	*Acridotheres cristatellus*	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	White-breasted Waterhen	*Amaurornis phoenicurus*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	

13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Chinese Pond Heron	*Ardeola bacchus*	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	*Egretta garzetta*	4	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Long-tailed Shrike	*Lanius schach*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Spotted Dove	*Spilopelia chinensis*	2	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Sandpiper	*Actitis hypoleucos*	1	Modified Watercourse	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Tailorbird	*Orthotomus sutorius*	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Crested Myna	*Acridotheres cristatellus*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Chinese Pond Heron	*Ardeola bacchus*	1	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Common Tailorbird	*Orthotomus sutorius*	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Red-whiskered Bulbul	*Pycnonotus jocosus*	4	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Chinese Pond Heron	*Ardeola bacchus*	5	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Crested Myna	*Acridotheres cristatellus*	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Great Egret	*Ardea alba*	2	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Red-throated Flycatcher	*Ficedula albicilla*	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-collared Starling	*Gracupica nigricollis*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Barn Swallow	*Hirundo rustica*	7	Modified Watercourse	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-crowned Night Heron	*Nycticorax nycticorax*	1	Modified Watercourse	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	*Zosterops japonicus*	3	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	*Zosterops japonicus*	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Great Egret	*Ardea alba*	1	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Chinese Pond Heron	*Ardeola bacchus*	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Little Egret	*Egretta garzetta*	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Common Moorhen	*Gallinula chloropus*	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	

Notes:
(1) All wild birds are Protected under Wild Animals Protection Ordinance (Cap. 170).
(2) AFCD (2021). Hong Kong Biodiversity Database.
(3) Carey et al. (2001): R=resident; WV=winter visitor; SV=summer visitor; PM=passage migrant; Sp=spring; A=autumn;
(4) Fellowes et al. (2002): GC=Global Concern; LC=Local Concern; RC=Regional Concern; PRC=Potential Regional Concern; PGC: Potential Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in nesting and/or roosting sites rather than in general occurrence.
(5) List of Wild Animals Under State Protection (promulgated by State Forestry Administration and Ministry of Agriculture on 14 January, 1989).
(6) Zheng, G. M. and Wang, Q. S. (1998). China Red Data Book
(7) IUCN 2021. The IUCN Red List of Threatened Species. Version 2020-3.
(9) Wetland-dependent species (including wetland-dependent species and waterbirds).
(10) Jiang et al. (2016). Red List of China's Vertebrates

Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations (July 2021)

Annex C.1. Shannon Diversity Index Values of Avifauna Species with Conservation Importance in the Different Transect Routes and Point Count Locations

Shannon Diversity Index Value of Species with Conservation Importance				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	**	0	+
P2	FLW2	0	0	=
P3	FLW3	**	**	=
P4	FLW4	0	0	=
P5	FLW5	0.64	0	-
P6	FLW6	1.1	0.68	-
P7	FLW7	1.04	0.45	-
P9	SP/NSW3	1	0.36	-
P10	SP/NSW2	0.99	0	-
P11	NSW1	1.37	0	-
P12	SP/NSW1	0.87	0.80	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	0.90	0.24	-
Nam Sang Wai	NSW	**	0	+
YLIE-CW	YLIE-CW	**	1.01	+

Note:

** no species recorded

Annex D – Summary of Hutcheson T-test Analysis (July 2021)

Hutcheson T-test formula:

$$t = \frac{H_a - H_b}{\sqrt{s^2_{H_a} + s^2_{H_b}}}$$

Annex D.1 Species Diversity of Avifauna Species with Conservation Importance – Point Count Method

Months	July 2017	July 2021
Total	80	52
N	5	5
H	1.3642	0.8480
S^2_H	0.004471	0.017709
t	3.465844	
df	78	
Crit	1.990847	
p	0.000862	
CI	0.133728	0.266153

Annex E – Abundance Tables

Annex E.1 Baseline (July 2017) consolidated abundance data of all avifauna species for point count method

Scientific Name	Abundance
Acridotheres cristatellus	7
Alcedo atthis	2
Ardea alba	24
Ardeola bacchus	18
Bubulcus coromandus	2
Caprimulgus affinis	2
Ceryle rudis	6
Copsychus saularis	3
Dicrurus macrocercus	2
Egretta garzetta	30
Garrulax perspicillatus	1
Gracupica nigricollis	5
Hirundo rustica	7
Lanius schach	2
Milvus migrans	4
Motacilla alba	1
Orthotomus sutorius	1
Passer montanus	20
Prinia flaviventris	4
Prinia inornata	4
Pycnonotus jocosus	4
Pycnonotus sinensis	1
Spilopelia chinensis	8
Streptopelia decaocto	1
Tachybaptus ruficollis	4
Zosterops japonicus	2
Grand Total	**165**

Annex E.2 Impact monitoring (July 2021) consolidated abundance data of all avifauna species for point count method

Scientific Name	Abundance
Acridotheres cristatellus	11
Actitis hypoleucos	1
Amaurornis phoenicurus	1
Ardea alba	2
Ardeola bacchus	37
Centropus sinensis	1

Scientific Name	Abundance
Copsychus saularis	6
Egretta garzetta	11
Ficedula albicilla	2
Garrulax perspicillatus	8
Gracupica nigricollis	2
Hirundo rustica	12
Lanius schach	1
Motacilla alba	3
Motacilla tschutschensis	1
Nycticorax nycticorax	3
Orthotomus sutorius	6
Passer montanus	6
Prinia flaviventris	2
Prinia inornata	4
Pycnonotus jocosus	6
Pycnonotus sinensis	2
Spilopelia chinensis	6
Streptopelia tranquebarica	1
Sturnia sinensis	1
Tringa totanus	1
Zosterops japonicus	5
Grand Total	**142**

Annex E.3 Baseline (July 2017) consolidated abundance data of conservation important avifauna species for point count method

Scientific Name	Abundance
Ardea alba	24
Ardeola bacchus	18
Egretta garzetta	30
Milvus migrans	4
Tachybaptus ruficollis	4
Grand Total	**80**

Annex E.4 Impact monitoring (July 2021) consolidated abundance data of conservation important avifauna species for point count method

Scientific Name	Abundance
Ardea alba	2
Ardeola bacchus	37
Centropus sinensis	1
Egretta garzetta	11
Tringa totanus	1
Grand Total	**52**

Annex E.5 Baseline (July 2017) consolidated abundance data of all avifauna species for transect walk method

Scientific Name	Abundance
Acridotheres cristatellus	1
Amaurornis phoenicurus	2
Ardeola bacchus	5
Bubulcus coromandus	1
Copsychus saularis	1
Cyanopica cyanus	1
Dicrurus macrocercus	1
Egretta garzetta	2
Eudynamys scolopaceus	1
Gracupica nigricollis	1
Orthotomus sutorius	3
Otus lettia	1
Parus cinereus	1
Passer montanus	3
Prinia flaviventris	2
Pycnonotus jocosus	1
Spilopelia chinensis	1
Zosterops japonicus	8
Grand Total	**36**

Annex E.6 Impact monitoring (July 2021) consolidated abundance data of all avifauna species for transect walk method

Scientific Name	Abundance
Acridotheres cristatellus	2
Ardea alba	1
Ardeola bacchus	19
Centropus sinensis	1
Cyanopica cyanus	4
Egretta garzetta	3
Ficedula albicilla	2
Gallinula chloropus	1
Garrulax perspicillatus	2
Lanius schach	1
Passer montanus	5
Spilopelia chinensis	3
Zosterops japonicus	3
Motacilla cinerea	1
Grand Total	**48**

Annex E.7 Baseline (July 2017) consolidated abundance data of conservation important avifauna species for transect walk method

Scientific Name	Abundance
Ardeola bacchus	5
Egretta garzetta	2
Otus lettia	1
Grand Total	**8**

Annex E.8 Impact monitoring (July 2021) consolidated abundance data of conservation important avifauna species for transect walk method

Scientific Name	Abundance
Ardea alba	1
Ardeola bacchus	19
Centropus sinensis	1
Egretta garzetta	3
Grand Total	**24**

Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (July 2021)

Frequency and Period	Location	Night time (09/07/2021)		Daytime (13/07/2021)	
		Start Time	L_{Aeq} (30 min) dB(A)	Start Time	L_{Aeq} (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1	22:01	51.4	09:25	46.1
	FLW2	22:15	54.9	09:40	52.6
	FLW3	22:15	57.4	09:40	46.1
	FLW4	22:45	54.9	11:05	47.5
	FLW5	22:40	50.0	11:20	49.3
	FLW6	22:30	49.3	10:38	47.9
	FLW7	22:30	50.8	10:38	47.7
	SP/NSW3	21:25	47.1	07:30	66.5[1]
	SP/NSW2	21:25	55.4	07:45	57.5
	NSW1	21:15	54.9	08:15	55
	SP/NSW1	21:05	62.0	08:00	67.4[1]

Note:

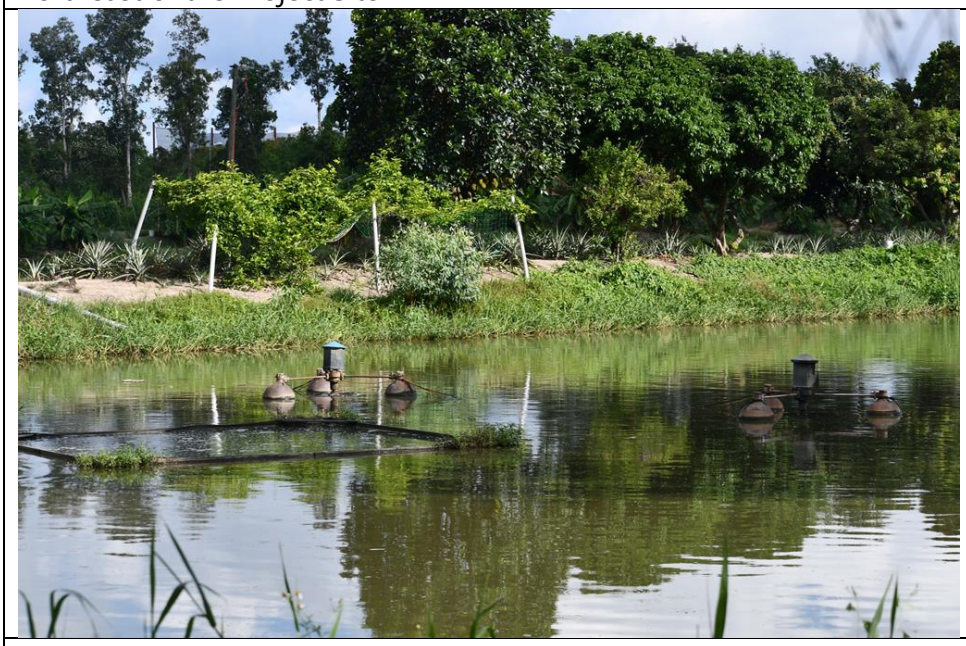
1. Close to the roadsides with low to moderate traffic. Passing vehicles, barking dogs, and noisy insects were noted during the monitoring period.

Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (July 2021)

Annex F.1. Active Pond at Fung Lok Wai, north of the Project Site

Annex F.2. Modified Watercourse, southeast of the Project Site

Annex F.3. Mangrove habitat and modified watercourse, northeast of the Project Site



Annex F.4. Active Pond at Nam Sang Wai, far east of the Project Site

Annex F.5. Fishing activity at a portion of the modified watercourse, east of the Project Site