

# Notification of Ecological Monitoring of Birds Exceedance

## Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR202109_Species Abundance			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Survey Date:	15/09/2021 (Daytime survey) and 20/09/21 (Night time survey)			
Action level / Limit level: (For Avifauna Communities)	Method	Parameters	Action Level	Limit Level
	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	Significant decline <sup>1,2</sup> 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	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
Action taken / to be taken <sup>3</sup> : (tick / circle / fill in as appropriate)	Responses: <input checked="" type="checkbox"/> Informed IEC, ER, and Contractor. <input checked="" type="checkbox"/> Reviewed monitoring data. <input checked="" type="checkbox"/> Investigated possible causes of decline and identified possible source (s) of impact. Recorded in notification. <input checked="" type="checkbox"/> Check Contractor's working methods.			

	<input type="checkbox"/> Other
Possible reason/s <sup>4</sup> for action or limit level Non-compliance: (tick / fill in as appropriate)	<b>Findings / Evidences</b> <input type="checkbox"/> Construction noise disturbance <input type="checkbox"/> Vibration disturbance from potential percussive piling works <input type="checkbox"/> Construction lighting/glare disturbance <input type="checkbox"/> Increased human activities <input type="checkbox"/> Construction dust disturbance <input checked="" type="checkbox"/> Others: In the nearby Deep Bay Area it was reported that from 2000 to 2018 there has been a consistent decline in coverage of intertidal mudflat, consistent increase in coverage of mangrove and other vegetation (Sung Y-H et. al., 2021) <sup>5</sup> . Moreover, based on satellite images (2016 to 2020) the mudflat, specifically at the confluence area of Shan Pui River and Kam Tin River, adjacent to Project site was progressively invaded most probably by the fast-growing exotic mangrove species <i>Sonneratia</i> spp. as initially reported in the EIA report. The decrease in mudflat coverage may imply a decrease in foraging area for waterbirds, hence, could have led the current decrease in abundance (Point count method).
Observations	<input checked="" type="checkbox"/> Noise levels (43.7 to 61.5 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) <sup>6</sup> . There was no station with noise levels that exceeded 65.5 dB(A). <input checked="" type="checkbox"/> Environmental site audits indicated that the recommended environmental protection measures/mitigation measures to mitigate ecological impacts have been implemented. <input checked="" type="checkbox"/> No significant decrease in abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> No significant decrease in species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> No significant decrease in abundance of species with conservation importance only was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> No significant decrease in species diversity of species with conservation importance only was observed for <u>Transect/Point Count</u> survey.
Conclusion	<input checked="" type="checkbox"/> Due to influences of external factors/ other threats, not Project related <input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related
Mitigation measures	<input checked="" type="checkbox"/> Avoidance of recognized site of conservation importance <input checked="" type="checkbox"/> Restriction of construction hours <input checked="" type="checkbox"/> Minimizing construction noise disturbance impacts through the use of noise barriers <input checked="" type="checkbox"/> 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 (September 2021) Annex C – Summary of Two-tailed Unpaired T-test Analysis (September 2021) Annex D – Abundance Tables Annex E – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (September 2021) Annex F – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (September 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. Sung, Y-H, Chun-chiu Pang, Tom Chung-hoi Li, Paulina Pui Yun Wong and Yat-tung Yu. 2021. Ecological Correlates of 20-Year	

Population Trends of Wintering Waterbirds in Deep Bay, South China. Front. Ecol. Evol. <https://doi.org/10.3389/fevo.2021.658084>

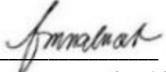
6. Wright, M.D., Goodman, P. and Cameron, T. 2010. Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl. 60:150-167

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

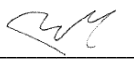
Designation: Ecologist

Signature: 

Date (dd/mm/yyyy): 05/10/2021

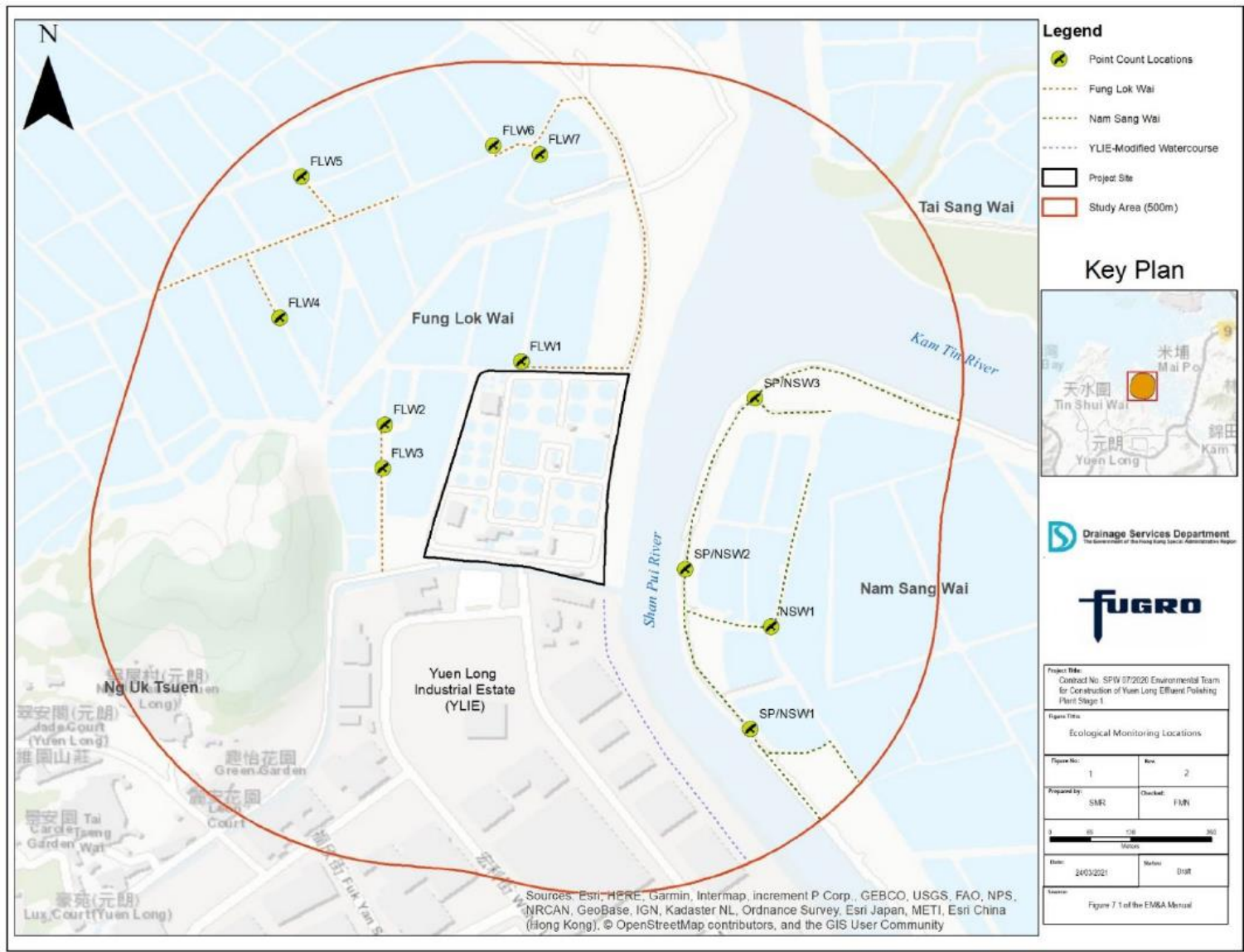
Certified by: Alvin Yu

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 05/10/2021

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  
(September 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 <sup>2</sup>	Princi pal Status <sup>3</sup>	Level of Concern <sup>4</sup>	Protectio n Status in China <sup>5</sup>	China Red Data Book <sup>6</sup>	Red List of China's Vertebrates <sup>10</sup>	IUCN Red List <sup>7</sup> (v.2020 -3)	Species of Conservation Importance	Wetland Dependent
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Crested Myna	<i>Acridotheres crisatellus</i>	4	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Great Egret	<i>Ardea alba</i>	9	Pond-FLW	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Grey Heron	<i>Ardea cinerea</i>	3	Pond-FLW	Common	WV	PRC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Eastern Cattle Egret	<i>Bubulcus coromandus</i>	2	Pond-FLW	Common	R,PM	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Whiskered Tern	<i>Chlidonias hybrida</i>	3	Pond-FLW	Uncommon	PM	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Black Drongo	<i>Dicrurus macrocerus</i>	2	Plantation- FLW	Common	SV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Little Egret	<i>Egretta garzetta</i>	9	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Black Kite	<i>Milvus migrans</i>	2	Pond-FLW	Common	R,WV	(RC)	Class II	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	White Wagtail	<i>Motacilla alba</i>	5	Pond-FLW	Common	PM,W V	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Eurasian Tree Sparrow	<i>Passer montanus</i>	7	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	FLW	Spotted Dove	<i>Spilopelia chinensis</i>	8	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW1	Little Egret	<i>Egretta garzetta</i>	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW1	Scaly-breasted Munia	<i>Lonchura punctulata</i>	3	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW1	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW2	Grey Heron	<i>Ardea cinerea</i>	1	Pond-FLW	Common	WV	PRC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	FLW2	Black Drongo	<i>Dicrurus macrocerus</i>	1	Pond-FLW	Common	SV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW2	Little Egret	<i>Egretta garzetta</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW2	Plain Prinia	<i>Prinia inornata</i>	1	Reedbed	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet	FLW	Point	FLW2	Spotted Dove	<i>Spilopelia</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N





		Season		Count			<i>chinensis</i>											
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW3	White Wagtail	<i>Motacilla alba</i>	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW3	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW4	Eastern Cattle Egret	<i>Bubulcus coromandus</i>	1	Pond-FLW	Common	R,PM	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW4	Pied Kingfisher	<i>Ceryle rudis</i>	2	Pond-FLW	Uncommon	R	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW4	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW5	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW5	Whiskered Tern	<i>Chlidonias hybrida</i>	2	Pond-FLW	Uncommon	PM	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW5	White Wagtail	<i>Motacilla alba</i>	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW5	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Great Egret	<i>Ardea alba</i>	2	Pond-FLW	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Grey Heron	<i>Ardea cinerea</i>	1	Pond-FLW	Common	WV	PRC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	FLW6	Black Drongo	<i>Dicrurus macrocercus</i>	1	Plantation-FLW	Common	SV	-	-		LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Little Egret	<i>Egretta garzetta</i>	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	White Wagtail	<i>Motacilla alba</i>	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Blue-winged Pitta	<i>Pitta moluccensis</i>	1	Pond-FLW	Vagrant	PM	-	-	-	DD	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Plain Prinia	<i>Prinia inornata</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW6	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW7	Crested Myna	<i>Acridotheres cristatellus</i>	4	Pond-FLW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW7	Great Egret	<i>Ardea alba</i>	2	Pond-FLW	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW7	Chinese Pond Heron	<i>Ardeola bacchus</i>	4	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW7	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	2	Plantation-FLW	Common	R	-	-	-	DD	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Point Count	FLW7	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y





15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Little Egret	<i>Egretta garzetta</i>	4	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Black-winged Stilt	<i>Himantopus himantopus</i>	6	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Common Greenshank	<i>Tringa nebularia</i>	4	Modified Watercourse	Abundant	PM,WV	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Japanese White-eye	<i>Zosterops japonicus</i>	3	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Barn Swallow	<i>Hirundo rustica</i>	3	Modified Watercourse	Abundant	PM,SV	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Plain Prinia	<i>Prinia inornata</i>	2	Plantation-NSW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Transect	NSW	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Crested Myna	<i>Acridotheres cristatellus</i>	2	Pond-NSW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-NSW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	White-rumped Munia	<i>Lonchura striata</i>	2	Pond-NSW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Eurasian Tree Sparrow	<i>Passer montanus</i>	4	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Plain Prinia	<i>Prinia inornata</i>	2	Pond-NSW	Common	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	NSW1	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Whiskered Tern	<i>Chlidonias hybrida</i>	2	Modified Watercourse	Uncommon	PM	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Little Egret	<i>Egretta garzetta</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Black-winged Stilt	<i>Himantopus himantopus</i>	2	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Common Greenshank	<i>Tringa nebularia</i>	4	Modified Watercourse	Abundant	PM,WV	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pied Avocet	<i>Recurvirostra avosetta</i>	4	Modified Watercourse	Abundant	WV	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Little Egret	<i>Egretta garzetta</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	3	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Black-winged Stilt	<i>Himantopus himantopus</i>	1	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW3	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet	NSW	Point	SP/NSW3	Grey Heron	<i>Ardea cinerea</i>	2	Modified	Common	WV	PRC	-	-	LC	LC	Y	Y



		Season		Count					Watercourse									
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	Little Egret	<i>Egretta garzetta</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	Black-winged Stilt	<i>Himantopus himantopus</i>	4	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	White Wagtail	<i>Motacilla alba</i>	1	Modified Watercourse	Common	PM,W V	-	-	-	LC	LC	N	N
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	Common Greenshank	<i>Tringa nebularia</i>	8	Modified Watercourse	Abundant	PM,W V	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	FLW	Transect	YLIE-CW	Common Redshank	<i>Tringa totanus</i>	2	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
15/09/2021	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Black-winged Stilt	<i>Himantopus himantopus</i>	10	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y
20/09/2021	Night time	Wet Season	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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
- : no observed individual



Annex C – Summary of Two-tailed Unpaired T-test Analysis (September 2021)

## Testing Method and Output

Two-tailed Unpaired T-test at  $\alpha=0.05$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

## Output

Abundance of all avifauna species - Point Count Method

Months	September 2016	September 2021
N	70	52
df	69	51
M	3.17	1.9
SS	889.94	112.52
S <sup>2</sup>	12.9	2.21
t-value	2.4	
p-value	0.02	
Notes: N: Number of samples/observation df: Degrees of freedom M: Mean SS: Sum of Squares S <sup>2</sup> : Measure on a random sample that is used to estimate the variance of the population		

Annex D – Abundance Tables

Annex D.1 Baseline (September 2016) consolidated abundance data of all avifauna species for point count method

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	6
<i>Actitis hypoleucos</i>	3
<i>Alcedo atthis</i>	2
<i>Amaurornis phoenicurus</i>	1
<i>Anas clypeata</i>	10
<i>Ardea alba</i>	8
<i>Ardea cinerea</i>	7
<i>Ardeola bacchus</i>	27
<i>Ceryle rudis</i>	1
<i>Chlidonias hybrida</i>	7
<i>Cisticola juncidis</i>	1
<i>Copsychus saularis</i>	2
<i>Dicrurus macrocercus</i>	6
<i>Egretta garzetta</i>	31
<i>Garrulax perspicillatus</i>	3
<i>Gracupica nigricollis</i>	11
<i>Himantopus himantopus</i>	16
<i>Hirundo rustica</i>	15
<i>Ixobrychus sinensis</i>	1
<i>Lanius cristatus</i>	1
<i>Lanius schach</i>	1
<i>Milvus migrans</i>	2
<i>Motacilla alba</i>	5
<i>Nycticorax nycticorax</i>	3
<i>Passer montanus</i>	15
<i>Phalacrocorax carbo</i>	2
<i>Prinia flaviventris</i>	1
<i>Prinia inornata</i>	1
<i>Recurvirostra avosetta</i>	3
<i>Spilopelia chinensis</i>	15
<i>Streptopelia decaocto</i>	1
<i>Streptopelia tranquebarica</i>	2
<i>Tachybaptus ruficollis</i>	11
<i>Tringa nebularia</i>	1
<b>Grand Total</b>	<b>222</b>

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

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	6
<i>Amaurornis phoenicurus</i>	2
<i>Ardea alba</i>	4
<i>Ardea cinerea</i>	4
<i>Ardeola bacchus</i>	9
<i>Bubulcus coromandus</i>	1
<i>Ceryle rudis</i>	2
<i>Chlidonias hybrida</i>	4
<i>Copsychus saularis</i>	1
<i>Dicrurus macrocercus</i>	2
<i>Egretta garzetta</i>	9
<i>Garrulax perspicillatus</i>	3
<i>Gracupica nigricollis</i>	1
<i>Himantopus himantopus</i>	13
<i>Lonchura punctulata</i>	3
<i>Lonchura striata</i>	2
<i>Motacilla alba</i>	3
<i>Passer montanus</i>	7
<i>Pitta moluccensis</i>	1
<i>Prinia flaviventris</i>	1
<i>Prinia inornata</i>	4
<i>Recurvirostra avosetta</i>	4
<i>Sitta frontalis</i>	2
<i>Spilopelia chinensis</i>	7
<i>Tringa nebularia</i>	4
<b>Grand Total</b>	<b>99</b>

Annex D.3 Baseline (September 2016) consolidated abundance data of conservation important avifauna species for point count method

Scientific Name	Abundance
<i>Anas clypeata</i>	10
<i>Ardea alba</i>	8
<i>Ardea cinerea</i>	7
<i>Ardeola bacchus</i>	27



Scientific Name	Abundance
<i>Cisticola juncidis</i>	1
<i>Egretta garzetta</i>	31
<i>Himantopus himantopus</i>	16
<i>Milvus migrans</i>	2
<i>Phalacrocorax carbo</i>	2
<i>Recurvirostra avosetta</i>	3
<i>Tachybaptus ruficollis</i>	11
<i>Tringa nebularia</i>	1
<b>Grand Total</b>	<b>119</b>

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

Scientific Name	Abundance
<i>Ardea alba</i>	4
<i>Ardea cinerea</i>	4
<i>Ardeola bacchus</i>	9
<i>Egretta garzetta</i>	9
<i>Himantopus himantopus</i>	13
<i>Recurvirostra avosetta</i>	4
<i>Tringa nebularia</i>	4
<b>Grand Total</b>	<b>47</b>

Annex D.5 Baseline (September 2016) consolidated abundance data of all avifauna species for transect walk method

Scientific Name	Abundance
<i>Amaurornis phoenicurus</i>	1
<i>Ardea alba</i>	16
<i>Ardea cinerea</i>	1
<i>Ardeola bacchus</i>	3
<i>Bubulcus coromandus</i>	14
<i>Centropus sinensis</i>	1
<i>Copsychus saularis</i>	1
<i>Cyanopica cyanus</i>	1
<i>Dicrurus hottentottus</i>	5
<i>Dicrurus macrocercus</i>	4
<i>Egretta garzetta</i>	6
<i>Garrulax perspicillatus</i>	6

Scientific Name	Abundance
<i>Gracupica nigricollis</i>	5
<i>Halcyon smyrnensis</i>	1
<i>Himantopus himantopus</i>	2
<i>Hirundo rustica</i>	5
<i>Lanius schach</i>	1
<i>Orthotomus sutorius</i>	1
<i>Phalacrocorax carbo</i>	10
<i>Prinia flaviventris</i>	3
<i>Prinia inornata</i>	2
<i>Spilopelia chinensis</i>	6
<i>Streptopelia decaocto</i>	8
<i>Streptopelia tranquebarica</i>	3
<i>Tachybaptus ruficollis</i>	5
<i>Tringa nebularia</i>	1
<i>Zosterops japonicus</i>	7
<b>Grand Total</b>	<b>119</b>

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

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	4
<i>Amaurornis phoenicurus</i>	1
<i>Ardea alba</i>	9
<i>Ardea cinerea</i>	3
<i>Ardeola bacchus</i>	6
<i>Bubulcus coromandus</i>	2
<i>Chlidonias hybrida</i>	3
<i>Copsychus saularis</i>	1
<i>Dicrurus macrocercus</i>	2
<i>Egretta garzetta</i>	15
<i>Gracupica nigricollis</i>	2
<i>Himantopus himantopus</i>	10
<i>Hirundo rustica</i>	3
<i>Milvus migrans</i>	2
<i>Motacilla alba</i>	6
<i>Passer montanus</i>	7
<i>Prinia inornata</i>	2
<i>Spilopelia chinensis</i>	8
<i>Tringa nebularia</i>	12

Scientific Name	Abundance
<i>Tringa totanus</i>	2
<i>Zosterops japonicus</i>	3
<b>Grand Total</b>	<b>103</b>

Annex D.7 Baseline (September 2016) consolidated abundance data of conservation important avifauna species for transect walk method

Scientific Name	Abundance
<i>Ardea alba</i>	16
<i>Ardea cinerea</i>	1
<i>Ardeola bacchus</i>	3
<i>Centropus sinensis</i>	1
<i>Egretta garzetta</i>	6
<i>Himantopus himantopus</i>	2
<i>Phalacrocorax carbo</i>	10
<i>Tachybaptus ruficollis</i>	5
<i>Tringa nebularia</i>	1
<b>Grand Total</b>	<b>45</b>

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

Scientific Name	Abundance
<i>Ardea alba</i>	9
<i>Ardea cinerea</i>	3
<i>Ardeola bacchus</i>	6
<i>Egretta garzetta</i>	15
<i>Himantopus himantopus</i>	10
<i>Milvus migrans</i>	2
<i>Tringa nebularia</i>	12
<i>Tringa totanus</i>	2
<b>Grand Total</b>	<b>59</b>

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

Frequency and Period	Location	Daytime (15/09/2021)		Night time (20/09/2021)	
		Start Time	L <sub>Aeq</sub> (30 min) dB(A)	Start Time	L <sub>Aeq</sub> (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1	07:50	51.9	18:36	42.3
	FLW2	07:35	49.4	18:25	42.1
	FLW3	07:35	56.3	18:25	45.2
	FLW4	08:30	47.2	18:45	48.3
	FLW5	08:45	43.7	18:52	46.2
	FLW6	09:50	55.9	18:59	48.8
	FLW7	09:50	54.8	19:14	52.4
	SP/NSW3	11:05	46.1	20:27	61.1
	SP/NSW2	11:17	52.6	20:10	59.9
	NSW1	11:17	46.7	20:17	56
	SP/NSW1	11:01	56.6	20:05	61.5

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



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



Annex F.2. Footpath immediately north of the Project Site





Annex F.3. Modified Watercourse, southeast of the Project Site



Annex F.4. Mangrove habitat and modified watercourse, northeast of the Project Site



Annex F.5. Algal bloom on an Active Pond at Fong Lok Wai, far north of the Project Site