



Civil Engineering and Development Department

Agreement No. CE 70/2021(HY)

**Project Name: Revised Trunk Road T4 –
Design and Construction****Monthly Ardeid Monitoring Plan
(Report Ref: MAMP - 03)**

November 2024

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This Pre-Construction Ardeid Survey Plan is prepared for Civil Engineering and Development Department (CEDD) and is given for its sole benefit in relation to and pursuant to Agreement No. CE 70/2021(HY) and may not be disclosed to, quoted to or relied upon by any person other than CEDD without our prior written consent. No person (other than CEDD) into whose possession a copy of this Report comes may rely on this Report without our express written consent and CEDD may not rely on it for any purpose other than as described above.

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Our ref.: LES/J2024-08/CS/L008
Date : 15 November 2024

By Email

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Attn: Mr. NG Chou Keen, Horace (Ch Engr / E1)

Dear Sir,

Agreement No. EDO 11/2023
Trunk Road T4 and Associated Works – Independent Environmental Checker
Verification of Monthly Ardeid Monitoring Plan (MAMP)

Reference is made to the Monthly Ardeid Monitoring Plan (Report Ref: MAMP-03, dated 14 November 2024) certified by the ET Leader. We hereby verify the captioned for submission in accordance with the approved EIA Report (Register No. AEIAR-231/2021) under Condition 2.19 of Environmental Permit No.: EP-593/2021 of the Project.

Yours faithfully,
For and On Behalf Of
Lam Environmental Services Limited

Serena Shek
Independent Environmental Checker

c.c.: AECOM

Mr. Stephen GO

By Email

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1 INTRODUCTION

1.1 Background

- 1.1.1 The proposed Revised Trunk Road T4 is part of the strategic road network connecting Sha Tin Road with Tsing Sha Highway (TSH) and Shing Mun Tunnel Road (SMTR). The Project, as a strategic route, would serve as a bypass route providing a direct connection for through traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas without the need of travelling along the existing major roads in Sha Tin Central, for example, Tai Po Road (Sha Tin Section) (TPR-ST), Tai Chung Kiu Road, etc., which are already very busy especially in peak hours. The Project will not only help to relieve traffic congestion on TPR-ST and other major roads in Sha Tin area but it also improve the capacity of major local road junctions by directing traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas away from the local road network.
- 1.1.2 An Environmental Impact Assessment (EIA)¹ study for the Project was conducted in accordance with the EIA Study Brief No. ESB-315/2019 (hereafter referred as “approved EIA”). The EIA Report and Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-231/2022) were approved under the Environmental Impact Assessment Ordinance (EIAO), with an Environmental Permit (EP) granted on 08 November 2021 (EP No: EP-593/2021).
- 1.1.3 The Project provide a direct connection for through traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas bypassing the busy at-grade road network of Sha Tin Central. Section of the proposed viaduct structure which crossing the Shing Mun River Channel (SMRC) would be located adjacent to ardeid night roosts, which recorded under the approved EIA, situated on trees planted along SMRC at the riverside between Hong Kong Heritage Museum (HKHM) and Man Lai Court (**Figure 1** refers) outside the Project boundary. According to the ecological surveys conducted in 2019 during the EIA study, this night roost comprises a group of mature trees (Chinese Banyan (*Ficus macrocarpa*), White Popinac (*Leucaena leucocephala*) and Lemon-scented Gum (*Corymbia citriodora*)), which supports night roosting ardeids, including Little Egret (*Egretta garzetta*), Great Egret (*Ardea alba*), Chinese Pond Heron (*Ardeola bacchus*) and Grey Heron (*Ardea cinerea*). Further details regarding the night roost will be provided in the respective sections below.
- 1.1.4 Mitigation measures include minimisation of glare near the night roost, good site practices and lining hoarding at the Project boundary, and restriction of working hours for construction works within 100 m from the ardeid night roost site (Dry season (Oct - Mar) 16:30 – 07:30; Wet season (Apr - Sep) 17:00-07:00) were recommended in the approved EIA Report to minimise the potential disturbance to the night roost during the construction stage. Monthly ardeid monitoring during the construction phase of the Project was also proposed.
- 1.1.5 The construction works of the Project are tentatively scheduled to commence in Feb 2025. Pursuant to Condition 2.19 of EP-593/2021, a Monthly Ardeid Monitoring Plan (MAMP), which provides the details including but not limited to the programme, methodology and location of the monthly ardeid survey, and an implementation schedule in table form to clearly list out the mitigation measures to be implemented, and the implementation party, location, timing, and environmental performance required for implementation of the mitigation measures. The MAMP shall be prepared by qualified ecologist(s) appointed under Condition 2.5 of EP-593/2021 and shall be submitted to the Director of Environmental Protection (DEP) for approval no later than 3 months before commencement of construction works of the Project.

1.2 Purpose of this Plan

- 1.2.1 This MAMP prepared by qualified ecologist presents the programme, methodology and the latest locations of the monthly ardeid monitoring, as well as an implementation schedule table including mitigation measures to be implemented, implementation party, location, timing, environmental performance required for implementation of the mitigation measures. Upon the

¹ Civil Engineering and Development Department (CEDD) (2021). Revised Trunk Road T4 in Sha Tin– EIA Report.

approval of MAMP, the monthly ardeid monitoring survey will be conducted during the construction phase accordingly.

2 MONTHLY ARDEID MONITORING

2.1 Monitoring Methodology

- 2.1.1 In accordance with the Pre-construction Ardeid Survey Plan (PASP) to be approved under EP Condition 2.17 of EP-593/2021, pre-construction ardeid surveys (PAS) should be undertaken to confirm the location of the night roost and identify new/alternative locations of ardeid night roosts (if any) prior to the construction of the Project. The confirmed location and condition of the night roost will be presented in the Pre-construction Ardeid Survey Report (PASR).
- 2.1.2 During the construction phase, monthly ardeid monitoring will be conducted in areas covering the ardeid night roosting site between Man Lai Court and HKHM, based on the confirmed location and condition of the night roost recorded from the PAS. Direct observation (with the aid of binoculars) of the night roosting ardeids will be made from the proposed vantage points, and other vantage points if new/alternative locations of ardeid night roost are identified. The location of the night roost and proposed vantage points (VP1-VP3) are shown in **Figure 1**.
- 2.1.3 Ardeid species, abundance, flight lines, locations, the tree condition and species used by night roosting ardeids will be recorded as close to the night roost(s) as possible. Observation of the flight lines (including flight direction, flight height, and returning time of the pre-roosting and roosting ardeids) will be undertaken at the proposed vantage points. Record will also be taken in case of any changes in site condition /disturbance (including both construction and non-construction related activities) observed at the monitoring locations during each monitoring visit.
- 2.1.4 The monthly ardeid monitoring will start from approximately an hour before sunset and last until nightfall, which will be the peak period of ardeid activities at the night roost and pre-roost sites. The exact sunset time of the survey will be made reference to the Hong Kong Observatory.

2.2 Monitoring Programme

- 2.2.1 The ardeid monitoring will be conducted during the construction stage of the Project (**Table 2.1** refers). The tentative construction stage would be from Q1 2025 – Q1 2030 (may subject to change based on the latest project timeline). Accordingly, the ardeid monitoring will be carried out during the construction period, which is tentatively scheduled from Feb 2025 to Mar 2030.

Table 2.1 Tentative Timeline for Ardeid Monitoring

Period of Ardeid Monitoring	Frequency of Monitoring
Carried out during the construction period. Tentatively scheduled from Feb 2025 to Mar 2030.	• Monthly

2.3 Baseline Conditions of the Night Roost

- 2.3.1 During the ardeid night roost survey conducted in between August 2019 to January 2020 for the approved EIA, the abundance of night-roost ardeids recorded at the night roost comprises Little Egret, Great Egret, Chinese Pond Heron and Grey Heron, with the majority of them being Little Egret (CEDD, 2021) (**Table 2.2** refers). The night roost was divided into Zone A to C as per the approved EIA (**Figure 1** refers), while majority of the ardeids (about 86%) was found roosting on Zone B to C. A peak count of 38 ardeids individuals were recorded in September and November 2019 and the lowest abundance of three ardeids individuals were recorded in January 2020. In addition, some individuals of Grey Heron were also observed roosting at the rooftop of HKHM. Pre-roosting behavior was also observed at channel sections close to the night roost (**Figure 1** refers) as stated in the approved EIA. Around 60% of roosting ardeids

foraged along the SMRC or temporarily perched on different trees before heading to their final roost after sunset.

Table 2.2 Number and Species of Ardeids Recorded in the Night Roost in 2019 and 2020

Ardeid Species	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	Jan 2020
Little Egret	18	29	3	31	1	3
Great Egret	8	8	12	5	1	-
Chinese Pond Heron	-	1	-	1	2	-
Grey Heron	-	-	-	1	2	-
Total	26	38	15	38	6	3

2.3.2 The PAS will be conducted between Nov 2024 and Jan 2025 according to the PASP, and the results from the PAS will be presented in the PASR. Survey findings from both EIA Study for Revised Trunk Road T4 (CEDD, 2021) and the PAS will be presented in the monthly EM&A Report as the baseline condition for monthly ardeid monitoring.

3 REPORTING AND FOLLOW-UP ACTIONS

3.1.1 According to the approved EM&A Manual of Revised Trunk Road T4, monthly EM&A reports should be submitted during the construction phase of the Project.

3.1.2 During the construction phase, findings from the monthly ardeid monitoring should be presented in the monthly EM&A report. The presented findings should include locations, tree condition and species used at the night roost, recorded ardeid species and their abundance, and flight lines, which will be evaluated with reference to the baseline survey results from the approved EIA Report and the PASR. Evaluation of the monitoring findings will determine the effectiveness of the proposed mitigation measures on the night roost. Where significant decline in the number of night-roosting ardeids occurred continuously, the cause of the decline should be identified and, if necessary, the existing implementation of mitigation measures should be reviewed carefully and additional mitigation measures should be suggested, where necessary.

3.1.3 The evaluation of the implemented mitigation measures will be made reference to the implementation schedule (**Appendix A** refers), which presents details of the proposed mitigation measures, including the implementation party, location, and timing of the measures.

3.1.4 Subject to the findings on the latest extend of the ardeid night roost from the PAS and this monthly ardeid monitoring, if any direct encroachment of construction works to ardeid roosting tree are expected to occur, remedial actions should then be recommended, where appropriate, in consultation with relevant authorities, including AFCD and EPD.

4 REFERENCE

Civil Engineering and Development Department (CEDD) (2021). Environmental Impact Assessment Study for Revised Trunk Road T4 in Sha Tin – Environmental Impact Assessment (EIA) Report and Environmental Monitoring and Audit (EM&A) Manual. Register No.: AEIAR-231/2022.

Figure

Appendix

Appendix A Implementation Schedule of Proposed Mitigation Measures related to Ardeids

EP Condition / EIA Ref.	Recommended Mitigation Measures	Objective of the Measures	Implementation & Maintenance Party	Implementation Location	Implementation Time	Environmental Performance required for Implementation of the Measures
EIA S8.11.2.1- S8.11.2.2	<p><i>Avoidance of Recognized Site of Conservation Importance and Natural Habitats</i></p> <ul style="list-style-type: none"> Avoidance of direct impact (e.g. removal or pruning of trees) on night roost ardeid site near the Hong Kong Heritage Museum (HKHM) has be undertaken through carefully design of T4 alignment. Ardeid survey before the commencement of construction works (i.e. pre-construction ardeid survey) and monthly ardeid monitoring during construction phase is recommended to confirm the extent of ardeid night roosting and the location of roosting trees. A plan detailing the ardeid survey and monitoring methodology should be submitted to and approved by AFCD. The findings of the pre-construction ardeid survey should also be submitted to and approved by AFCD, whilst the monthly ardeid monitoring data should be included in the monthly EM&A report. Provision of screening (e.g. hoarding) during construction phase is recommended to avoid any unsolicited encroachment on the ardeid night roosting site located near the Project boundary. 	To avoid direct impacts on recognized Site of Conservation Importance, species of conservation importance and natural habitats, including ardeids and ardeid night roost	Project Proponent / Contractor	Ardeid night roosting site along the section of Shing Mun River Channel between Man Lai Court and HKHM	Construction Phase	No adverse direct and indirect impact on ardeids and ardeid night roost

EP Condition / EIA Ref.	Recommended Mitigation Measures	Objective of the Measures	Implementation & Maintenance Party	Implementation Location	Implementation Time	Environmental Performance required for Implementation of the Measures
EIA S8.11.3.2-S8.11.3.3	<p>Minimizing Impacts on Ardeid Flight Path and Bird Collision</p> <ul style="list-style-type: none"> To minimize the disturbance on ardeid flight path, no semi-enclosure would be installed at the northern part of the proposed dual 2-lane flyover near HKHM, while installation and height of noise barrier at the southern part of proposed dual 2-lane flyover near the Riverpark would be minimized, as far as possible. Moreover, the piers of the proposed dual 2-lane flyover would be designed to align with the piers of the existing Lion Bridge to maintain a flight corridor under the proposed flyover. Use of tinted materials and superimposing dark patterns or strips on the barrier, as per EPD/Highways Department requirements stated in “Guidelines on Design of Noise Barriers” and “Practice Notes No. BSTR/PN/003 (Revision E). Comment from AFCD on the design of the barrier would also be sought if necessary 	To minimise impacts on ardeid flight path and bird collision	Project Proponent / Contractor	Along the proposed dual 2-lane flyover near HKHM	Construction Phase	Monthly ardeid monitoring findings within the range of survey findings taken in the EIA stage
EP 2.20, EIA S8.11.3.8-S8.11.3.10	<p>Measures to Minimize Glare and Disturbance Impacts</p> <ul style="list-style-type: none"> Implementation of mitigation measures (e.g. good site practices and lining hoarding at the Project boundary) should be considered to minimize construction impact. Considered the timing of sunset would vary throughout the year, two set of proposed restricted hours for construction works within 100 m from the ardeid night roost site would be proposed as 16:30-07:30 during dry season (October - March) and 17:00-07:00 during wet season (April - September). The intensity of light should also be controlled to the lowest possible level. Unnecessary lighting should be turned off outside working hours of the construction sites. A balance between lighting for safety and avoiding excessive lighting can be achieved through the use of directional lighting (i.e. direct lighting away from the ardeid night roosting site). 	To minimise disturbance to the night roost through control of construction works / activities	Contractor	Work sites / areas close to the night roost	Construction Phase	Monthly ardeid monitoring findings within the range of survey findings taken in the EIA stage and pre-construction ardeid surveys (PAS)