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ACE-EIA Paper 3 /2026
For advice on 15 June 2026

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report

Northern Metropolis Highway – San Tin Section

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the "Northern Metropolis Highway – San Tin Section" ("the Project") submitted under Section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-322/2026). The Highways Department ("the Applicant") and its consultants will present the EIA report at the meeting of the EIA Subcommittee.

ADVICE SOUGHT

2. Members' views are sought on the findings and recommendations of the EIA report. The Director of Environmental Protection (DEP) will take into account comments from the public and the Advisory Council on the Environment in deciding whether or not to approve the EIA report under Section 8(3) of the EIAO.

BACKGROUND

3. Northern Metropolis Highway (NMH) is one of the three major road projects recommended under the Strategic Studies on Railways and Major Roads beyond 2030 (RMR2030+ Study). The 2022 Policy Address stated the NMH would be taken forward to create a highly interconnected and accessible road network, significantly driving and supporting Hong Kong's future development.

4. The NMH has an overall length of approximately 24 km and comprises four sections, namely the Tin Shui Wai Section, the San Tin Section (i.e. the Project), the

Kwu Tung Section, and the New Territories North New Town Section. The San Tin Section is tentatively scheduled for commencement of construction in Year 2027/2028, with the target of commissioning in or before 2036. The remaining NMH sections are planned for phased completion within approximately 3 to 4 years after commissioning of the San Tin Section. As part of NMH, the Project as shown in **Figure 1** comprises a dual three-lane carriageway formed by at-grade road sections, tunnels and viaducts, extending from the interchange of Yuen Long Highway / Tsing Long Highway in the west to Fanling Highway (Pak Shek Au Section) in the east, together with associated interchanges and ancillary facilities.

5. The Applicant submitted the EIA report for the Project on 16 March 2026 for approval under the EIAO. The DEP, after taking advice from relevant authorities, considered that the EIA report met the requirements of the EIA Study Brief (SB) of the Project (No. ESB-373/2025) and the Technical Memorandum on EIA Process (TM), for the purpose of its exhibition for public inspection under Section 7(4) of the EIAO.

NEED FOR THE PROJECT

6. With the progressive development of San Tin Technopole (STT) and the Ngau Tam Mei New Development Area (NDA), traffic congestion is anticipated at San Tin Highway during peak hours in 2036. The Project will alleviate this potential congestion by providing an additional traffic corridor to divert vehicular flow.

7. In the longer term, transport demand for east-west connectivity within the Northern Metropolis, as well as cross-boundary connections, is projected to increase substantially, driven by the progressive development of the Northern Metropolis and the gradual increase in residential and employment populations. The Project, together with the other three sections of the NMH, will provide an alternative route linking New Territories East and West, and thereby alleviating traffic congestion on Yuen Long Highway, San Tin Highway and Fanling Highway.

DESCRIPTION OF THE PROJECT

8. The scope of the Project is to provide a carriageway connecting Yuen Long Highway / Tsing Long Highway and Fanling Highway (Pak Shek Au Section). It comprises the following key elements, the general layout is shown in **Figure 1**.

(a) Construction of an approximately 9.0-km long dual three-lane carriageway, in the form of at-grade road / tunnel / viaduct. About half of the alignment will be in viaduct form (about 50%), followed by tunnel (about 30%) and at-grade road sections (about 20%);

(b) Construction of five interchanges located at Yuen Long Highway / Tsing Long Highway, Ngau Tam Mei NDA, STT, Fanling Highway and Kwu

Tung North NDA; and

(c) Associated junction modifications and slip roads required for the Project, civil, geotechnical, landscape, road and drainage works, ancillary buildings, traffic control and surveillance system, toll collection facilities, electrical and mechanical installations, reprovisioning of facilities affected by the proposed works, environmental mitigation measures and administration building / kiosk, portal plant building / plant room etc.

9. The Project constitutes a Designated Project by virtue of the following items in Schedule 2 of the EIAO:

(a) Item A.1 – "A carriageway for motor vehicles that is an expressway, trunk road, primary distributor road or district distributor road";

(b) Item A.7 – "A road tunnel more than 800 m in length between portals";

(c) Item I.1 – "A drainage channel or river training and diversion works located less than 300 m from the nearest boundary of an existing or planned conservation area";

(d) Item K.10 – "A depot for the storage of, or a manufacturing plant for the manufacture of, explosives (as defined by section 2 of the Dangerous Goods Ordinance (Cap. 295))"; and

(e) Item Q.1 – "Earthworks, dredging works and other building works partly or wholly in an existing or gazetted conservation area".

ENVIRONMENTAL BENEFITS

10. The EIA report concludes that the construction and operation of the Project will be in full compliance with the requirements of the EIAO, with no unacceptable residual environmental impacts. Key environmental benefits include:

(a) **Wetland Protection, Integration and Enhancement**
During the early design stage of the Project, an interchange was proposed to the west of the Ngau Tam Mei Water Treatment Works (NTMWTW), potentially affecting the scattered and fragmented wetland habitats (including ponds and marshes) of about 3 hectares (ha) in size therein. The alignment was subsequently refined with the interchange relocated to the south of the Ngau Tam Mei NDA. As a result of such relocation, these scattered and fragmented wetland habitats will not be affected. In addition, taking this as an opportunity for conservation, the Applicant will convert the adjacent village / orchard land to wetland habitats. The wetland system will be expanded to a total area of about 5 ha, thereby achieving significant

enhancement of habitat connectivity, biodiversity, and ecological carrying capacity as compared with the existing environmental conditions.

(b) **Synergistic Woodland Enhancement**
The Project will result in a loss of 17-ha of moderate ecological value woodland during construction stage of the Project. To achieve an overall gain in ecological function, a piece of woodland of the same size currently characterised by grassland or shrubland of low to low–moderate ecological value, will be established near She Leng. Together with the adjacent woodland compensation areas proposed under other projects[1], a contiguous and sizable piece of woodland of about 22 ha with a potential to achieve a moderate-high ecological value will be formed. This approach will not only fully compensate for the woodland loss caused by the Project, but also actively enhance the overall habitat quality and maximise ecological connectivity.

(c) **Enhancing the Overall Environmental Performance**
Beyond ecological mitigation, the Project will alleviate regional traffic congestion, reducing vehicle idling, fuel consumption, emissions, and noise. Therefore, the overall environmental performance will be enhanced.

CONSIDERATION OF ALTERNATIVE OPTIONS

11. The EIA has evaluated different alignment options and construction methods to avoid and minimise environmental impacts. Key approaches include:

Avoidance of Impact

12. The proposed alignment and works footprint have been carefully refined to avoid direct impacts on recognised sites of conservation importance and other ecologically sensitive area, including Lam Tsuen Country Park (LTCP) and the proposed Nam Sang Wai Wetland Conservation Park. In addition, pier locations have been carefully designed to prevent encroachment into the natural watercourse at Ngau Tam Mei which originates from the woodland within LTCP.

Minimisation of Impact

13. To prevent habitat fragmentation near LTCP, the alignment maximises viaduct sections while limiting at-grade sections to short stretches, each measuring no more than approximately 350 m. The open space beneath the viaducts facilitates wildlife movement, and the incorporation of retaining wall designs helps prevent the risk of roadkill. In addition, the separation of dual carriageways and raised viaduct levels further enhance ecological performance. For example, the viaduct level of the

[1] Other projects refer to the Lok Ma Chau Loop, STT, and the Development of the Loop – Eastern Connection Road.

slip road crossing the Kam Tin River has been adjusted to provide a headroom of approximately 10 m to 15 m. This increased clearance enhances sunlight penetration and minimises shading, thereby supporting continued ecological function beneath and adjacent to the infrastructure. The design and alignment of the Project carefully integrate and balance engineering constraints, spatial layout, and environmental concerns, thereby optimising development while fully ensuring engineering integrity and road safety.

14. Heavy traffic is anticipated along the proposed viaduct during the operational stage. Field surveys indicate that existing bridges and highways crossing the Kam Tin River, which carry substantial traffic, are regularly navigated by commuting ardeids flying above or beneath the viaduct structures. To minimise potential obstruction and disturbance to flight corridor, the proposed viaduct sections are designed to be of similar height to the existing viaduct structures of Yuen Long Highway / Tsing Long Highway. Moreover, potential bird collision risks will be mitigated through the adoption of bird-friendly design such as non-transparent and non-glaring materials for the noise barriers.

15. For tunnel construction, the Drill and Blast (D&B) method is preferred over the Tunnel Boring Machine (TBM) method to minimise the generation of construction and demolition (C&D) materials. Compared with TBM, the D&B method allows the tunnel shape to better match actual design needs, thereby avoiding unnecessary excavation and reducing the amount of C&D materials generated.

16. To minimise on-site construction activities and its associated environmental impacts, such as potential air quality and noise impact, as well as C&D material generation, precast concrete elements will be generally employed for the construction of viaducts, piles / piers, and building works.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

Ecology

17. A 12-month ecological field survey covering both dry and wet seasons was conducted by the Applicant from March 2025 to February 2026 to provide the ecological baseline information. During the survey, a total of 15 habitat types, avifauna, roosting ardeids, terrestrial mammal, herpetofauna, butterfly and odonate, firefly and freshwater community were identified within the 500 m Assessment Area. In particular, an AI-driven bird recognition system has been deployed to survey the river habitat beneath the existing viaduct structures at Kam Tin River. It was observed that, especially during dry season, the river habitat has been widely utilised by various waterbirds despite the disturbance and noise caused by the existing heavy traffic. Based on this observation, specific measures have been devised at Kam Tin River as detailed in para. 18-20 below, to ensure the construction and operation of the future viaducts of this Project will not result in adverse impact to the river habitat.

18. Recognising the ecological importance of the Kam Tin River and adjacent habitats, the viaduct crossing has been carefully designed. Specifically, the proposed piers will be aligned with those of the existing Yuen Long Highway / Tsing Long Highway, but the number of proposed piers landing at Kam Tin River will be reduced, with an estimated reduction by around 30-40% compared to that following the pier arrangement of the existing viaducts. This will result in an overall reduction in the loss of river's cross-sectional area as well as the river habitat.

19. Moreover, construction works at Kam Tin River will be phased such that no more than half of the works area will be occupied at any given time, and such area will be reinstated to their pre-construction condition before works proceed in the remaining areas. Such approach will minimise direct impacts to the river habitat, ensure sufficient foraging grounds for waterbirds, allow migration of wildlife to nearby habitats, and maintain water flow at Kam Tin River.

20. Furthermore, non-dredged construction methods will be adopted for pier and pile installation at Kam Tin River, with steel casing used to isolate piling works and control water quality impacts. During low tide level at dry season, Kam Tin River's shallow waters attract waterbirds and serve as a rich feeding ground. As such, piling works will be scheduled outside low tide period, i.e. only at high tide level of above 1.0 m above Chart Datum, when the riverbed is mostly submerged to minimise disturbance impacts to waterbirds.

21. Low to moderate ecological impacts may arise from the direct loss of about 2.81 ha of wetland habitats including marsh / reed, ponds near NTMWTW, and sections of the Kam Tin River. As stated in paragraph 10(a), a wetland system of about 5 ha will be created immediately west of NTMWTW to compensate the loss of 2.81 ha of wetland habitats. Enhancement measures will be implemented, which will include consolidating fragmented ponds of low-moderate ecological value into larger interconnected units, reprofiling bunds to form gently sloping banks and shallow foraging areas for avifauna, incorporating water control measures, and providing habitat islands or floating platforms to enhance the overall ecological diversity and function, with an aim to ultimately elevating the wetland system to high ecological value. Detailed design, management, and monitoring requirements will be set out in a Habitat Creation and Management Plan (HCMP) to be submitted to Agriculture, Fisheries and Conservation Department (AFCD) and Environmental Protection Department (EPD) for approval.

22. For the establishment of a 17-ha offsite compensatory woodland mentioned in paragraph 10(b) above, a Woodland Compensation Plan detailing the extent of woodland loss, species selection, condition of planting sites, planting scheme and schedule, fire control measures and a post-planting monitoring and maintenance programmes, etc. will be submitted to AFCD and EPD for approval.

Air Quality

23. Vehicular emissions during the operation phase have been quantitatively assessed in the EIA report. The key concerned air quality parameters are nitrogen dioxide (NO_2), respirable suspended particulates and fine suspended particulates. The assessment results indicated that all the identified existing and planned air sensitive receivers would fully comply with the prevailing Air Quality Objectives. Therefore, no adverse air quality impact is anticipated during the operation of the Project.

Road Traffic Noise

24. Road traffic noise impacts on existing and planned noise sensitive receivers (NSRs), such as domestic premises, have been quantitatively assessed in the EIA report. A comprehensive package of mitigation measures has been incorporated, comprising at-source measures (provision of low noise road surfacing and reflective / absorptive vertical and cantilevered noise barriers on the concerned road sections) and at-receiver measures (acoustic windows and acoustic balconies to be incorporated by the planned NSRs). With the proposed mitigation package in place, all the identified existing and planned noise sensitive receivers would fully comply with the statutory requirement of road traffic noise under the EIAO, and hence, no adverse road traffic noise impact is anticipated during operation of the Project.

Landscape and Visual

25. Based on the broadbrush tree survey result, while no Registered Old and Valuable Trees were identified within 100 m of the Project Boundary, 3 protected flora species[2] were observed. Subject to detailed design, priority will be given to retaining or transplanting these protected species. Though it is preliminarily estimated that about 9,050 trees will be unavoidably felled, compensatory tree planting of a ratio not less than 1:1 in terms of number will be implemented as far as practicable in accordance with Development Bureau Technical Circular (Works) No. 4/2020 – Tree Preservation. On-site compensation, including woodland mix planting on slopes and heavy standard tree planting in amenity areas, will be explored.

26. Given the scale and nature of the Project, residual landscape and visual impacts will be resulted. These impacts are localised and confined within the visual envelope, affecting few to medium numbers of public viewers, primarily along hiking trails and paths. With full implementation of recommended mitigation measures, including slope landscaping, treatment of retaining structures, and roadside planting, no unacceptable residual landscape and visual impacts are anticipated.

[2] The 3 protected flora species are *Aquilaria sinensis*, *Michelia* × *alba*, and *Khaya senegalensis*.

Other Environmental Aspects and Cumulative Impacts

27. The potential impacts of other environmental aspects including water quality, waste management, land contamination, fisheries, cultural heritage and hazard-to-life have also been assessed in the EIA report. Moreover, concurrent projects in the vicinity, including the interconnected sections (i.e. the NMH – Tin Shui Wai Section and the NMH – Kwu Tung Section), have been identified and reviewed in the EIA report. Therefore, the potential cumulative impacts arising from the construction and operation of the phased implementation of the NMH have been taken into account in the EIA study. With the implementation of recommended mitigation measures, the Project will comply with the relevant requirements of the EIA SB and the EIAO-TM and adverse environmental impacts are not anticipated.

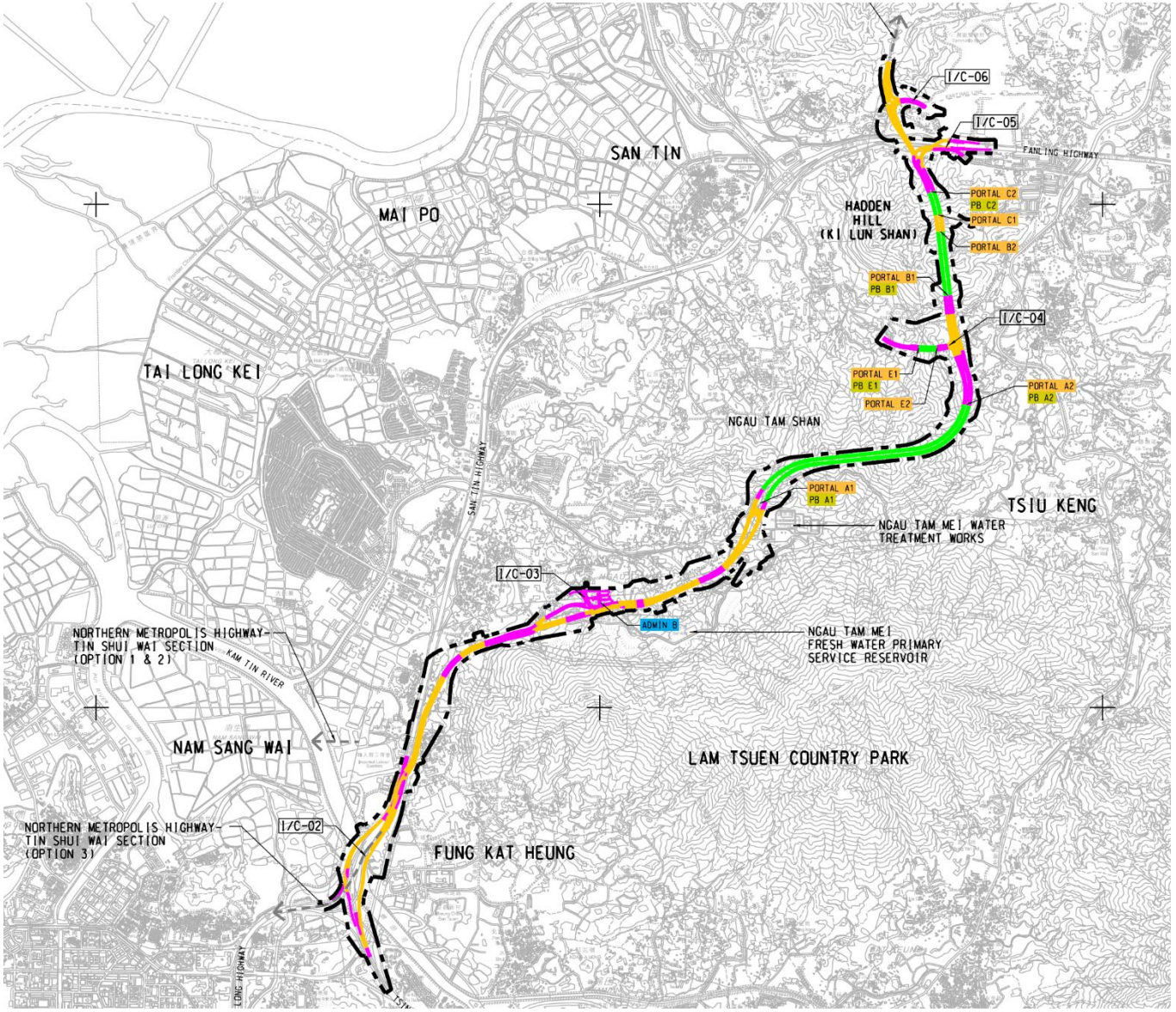
ENVIRONMENTAL MONITORING AND AUDIT

28. The EIA report has included an Environmental Monitoring and Audit (EM&A) Manual, which recommends an EM&A programme during the construction and operational phases of the Project, including construction monitoring and site audit for air quality, noise, water quality, waste management, land contamination, ecology, fisheries, landscape and visual, and cultural heritage issues. Also, the operational phase EM&A programme covers noise, water quality, ecology and the landscape and visual aspects.

PUBLIC CONSULTATION

29. The Applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 8 May 2026 to 6 June 2026. A summary of all the public comments received by EPD during the public inspection period and a gist of the main concerns raised in the public comments will be provided separately.

June 2026
Environmental Assessment Division
Environmental Protection Department



Project Title:	**Northern Metropolis Highway – San Tin Section**		
Figure 1	**Location of Designated Project** [Remark: This figure is prepared based on Figure 2.1 of the EIA report]	**EIA Application No.:** **EIA-322/2026**	