VISION PLANNING CONSULTANTS LTD.
弘域城市規劃顧問有限公司

Our Ref: YL-NSW/PA/FDB/22-50
Your Ref: TPB/A/YL-NSW/314
Date: 10 October, 2024

By Hand and Email
(tpbpd@pland.gov.hk)

The Secretary,
Town Planning Board,
c/o Town Planning Board Section,
Planning Department,
15/F, North Point Government Offices,
333 Java Road,
North Point,
Hong Kong.

Dear Sirs,

Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

On behalf of the Applicant, we would like to submit herewith, a total of 4 sets of the following materials to respond to comments raised by the Agriculture, Fisheries and Conservation Department ("**AFCD**"):

i. Responses-to-Comments ("**R-to-C**") Table dated 10.10.2024 (**Table A**);
ii. Updated Report of the Ecological Impact Assessment (**Annex A**);
iii. Updated Report of the Wetland Restoration Proposal (**Annex B**);
iv. Updated Report of the Planning Statement (**Annex C**); and
v. Replacement Pages (Page 2 and Plans 3d-5d) of the Visual Impact Assessment (**Annex D**).

The above updating information are solely to address AFCD's comments with respect to matters related to the Construction Phasing and Anticipated Year of Completion, these information are minor to the application and hoping that they can be exempted from publication process.

Should you have any queries with regard to the above, please do not hesitate to contact our Mr Otto Lung or the undersigned [redacted]

Thank you very much for your kind attention.

Yours faithfully,
for and on behalf of
VISION PLANNING CONSULTANTS LTD.

Kim On CHAN
Managing Director
Encl.
[KC/OL]
[YL-NSW/PA/FDB/22-50]

[redacted]

Table A: Responses-to-Comments (10.10.2024)

Departmental Comments		Applicant’s Responses
A.	**Agriculture, Fisheries and Conservation Department (received on 30.8.2024)**	
A.	**EcoIA**	
1.	Construction Programme It is noted that the period of construction of WRA has been shortened from 3 months to 2 months without any justification. Making reference to Yau Mei San Tsuen Project, 2 months of WRA construction may not be adequate. Besides, the proposed WRA should be constructed during wet season according to Section 5.1.1 of the WRP. It is noted that the establishment period is 18 months according to Table 15 but 17 months according to Section 9.3.8. Please clarify. 9.3.13: Please revise as “Following the **~~second~~ first** phase of the construction, the construction of Phase II other than superstructure, underground services and utilities, and roadworks, will commence. Unlike other construction of residential towers of other projects,”the construction of Phase II **(except the superstructure, underground services and utilities, and roadworks)** does not require any percussive piling works… During Phase II (Construction works other than superstructure, underground services and utilities, and roadworks), please consider to work on the part further away from the proposed WRA first. 9.3.15: Pleas revise as “… As the proposed WRA will start functioning after completion, where possible, the major superstructure construction of the buildings with higher disturbance located nearest to the WRA **(i.e. Phase III)** should avoid winter season that is the main period with more wildlife (i.e. waterbirds) utilizating the WRA.	Noted, the period of constriction of WRA has been lengthened to 3 months. Meanwhile, the proposed WRA will be constructed during wet season according to Section 5.1.1 of the WRP. Table 15 of the EcoIA has been revised accordingly. The establishment period of the WRA is 18 months in accordance with the Table 15 of the EcoIA. Section 9.3.8 is being revised accordingly. Noted, section 9.3.13 is being revised accordingly. Noted, during Phase II (Construction works other than superstructure, underground services and utilities, and roadworks) the associated construction works will be carried out on the part further away from the proposed WRA. Section 9.3.13 is being revised accordingly. Noted, Section 9.3.15 is revised accordingly

Departmental Comments		Applicant’s Responses
2	8.2.33 Please review whether Section 8.2.33 should be deleted given that Yellow Orange Tip was not considered as a species of conservation importance.	Noted, the Section 8.2.33 has been removed.
B.	**WRP**	
1.	5.1.2 Please revise as “The construction period will be divided into 3 phases (Figure 5.1 refers). ~~**, the construction period will be divided into 3 phases**~~, Phase I will be the construction of the WRA; Phase II is the construction of the residential portion in southwestern part of the Application Site; Phase III of building construction is the rest parts of Application Site. The wetland establishment period prior to construction, is being planned for a period of 18 months (Table 4.2 refers). During the establishment period of the WRA, the major construction works (Phase II superstructure, underground services and utilities, and roadworks, and Phase III) ~~**in close proximity to the WRA**~~ are avoided. **The major superstructure construction of the buildings with higher disturbance located nearest to the WRA (Phase III) should avoid winter season.”**	Noted, Section 5.1.2 of the WRP has been revised accordingly.
B.	**Agriculture, Fisheries and Conservation Department (received on 7.10.2024)**	
A.	**Planning Statement**	
1.	Figures 14a, 18a, 28d It is noted from the Illustrative Sections (Figures 14a, 18a) Landscape Master Plan (Figure 28d) of the Planning Statement that there are footpath and grass paver in addition to the vertical walls in between the WRA and the adjacent ponds. It seems that such design is inconsistent with the statements in EcoIA that the future bund dividing the WRA with the adjacent ponds would be of smaller width than a typical earth pond bund (S.8.3.20), making the claim that “connections with the adjacent wetlands will have mutual benefits as the WRA will extend its space in both air space and water-surface area (S.9.5.1) misleading. Apart from providing small openings on vertical wall, please consider alternative design to further minimize the fragmentation impact by increasing the connectivity between the WRA and the adjacent abandoned ponds.	Noted. Upon the approval of s.16 of planning application, the Applicant will review the proposed scheme in a holistic manner taking into account AFCD’s concern on the Landscape Master Plan at the detailed design stage. The Applicant has no objection, if the TPB considers fit, to the imposition of a planning condition in association with the AFCD’s concern if and when necessary.

Departmental Comments		Applicant’s Responses
2.	Figures 15a - 18a The bird photos and plant photos should be removed as they are not the focus of figures.	Noted, Figures 15a - 18a have been updated accordingly.
B.	**EcoIA**	
1.	S.9.5.2 ” It is not clear what situation is compared to for the sentence “The development will have wider landscape buffer. Please consider to remove the sentence.	Noted, Section 9.5.2 of the EcoIA has been revised accordingly.

Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

Ecological Impact Assessment

1. INTRODUCTION

1.1.1 The Application Site **(Figure 1)** has a total area of about 5.1ha, which is located to the north of Kam Pok Road East and about 130m to the east of an existing drainage channel (namely Ngau Tam Mei Drainage Channel). There are some abandoned ponds located within and adjacent to the Application Site.

1.1.2 The Application Site is zoned as "Other Specified Uses" annotated "Comprehensive Development to Include Wetland Restoration Area" ("OU(CDWRA)") under the OZP (S/YL-NSW/9). This zone is intended to provide incentive for the restoration of existing degraded wetlands and fish ponds through comprehensive residential and/or recreational development scheme that includes a Wetland Restoration Area. Hence, a Wetland Restoration Proposal is also submitted under the same application, to fulfil the planning intention through the provision of a wetland restoration area.

1.1.3 Currently the Application Site contains abandoned ponds and paved or vacant land area. The Application Site is outside the Wetland Conservation Area (WCA) but about 70% of the area falls within the Wetland Buffer Area (WBA).

1.1.4 This Ecological Impact Assessment (EcoIA) for the proposed project (hereafter the "Project") aims to provide essential and updated ecological information in association with the Application Site, of which the ecological baseline condition are used to perform an adequate impact assessment and develop a mitigation plan to fulfill the S16 Application requirements, and to provide ecological conservation input for the planning and design of the Project so as to be in line with the planning intention of the area.

1.1.5 A 12-month ecological survey was carried out to collect the information within the Study Area of the previous application, of which the location and area size of the Application Site are the same as that in the Application. The surveys were carried out for collecting the ecological information of the habitat, flora, and fauna. Particular focuses, including the dry season flight path of waterbird, were put on the avifauna habituated in the vicinity of Study Area and also the Application Site due to the presence of wetland habitats. Verification surveys were carried out in dry season (from December 2022 to January 2023) to verify the ecological baseline information collected in the previous ecological survey, to provide updated information for the current application. The results of the verification surveys and the adequate impact assessment are also included in this EcoIA report.

2. RELEVANT LEGISLATION AND GUIDELINES

2.1.1 The HKSAR ordinances and regulations relevant to this EcoIA include the following:

- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation, the Forestry Regulations (Cap. 96A);
- Town Planning Ordinance (Cap. 131);
- Wild Animals Protection Ordinance (WAPO, Cap. 170);
- Environmental Impact Assessment Ordinance (Cap. 499) and the associated Technical Memoranda, and
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586)

2.1.2 Ecological assessment also makes reference to the following guidelines and standards as well as international conventions:

- Hong Kong Planning Standards and Guidelines (HKPSG) Chapter 10, "Conservation";
- Town Planning Board Planning Guidelines No. 12C (TPB PG-NO. 12C) – Application for Developments Within Deep Bay Area;

- Ecological Baseline Survey For Ecological Assessment (EIAO Guidance Note No. 7/2010);
- Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys (EIAO Guidance Note No. 10/2010);
- PELB Technical Circular 1/97 / Works Branch Technical Circular 4/97, "Guidelines for Implementing the Policy on Off-site Ecological Mitigation Measures";
- ETWB Technical Circular (Works) No. 5/2005, "Protection of natural streams/rivers from adverse impacts arising from construction works";
- Relevant wildlife protection laws of the PRC;
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the "Ramsar Convention"), which requires parties to conserve and make wise use of wetland areas, particularly those supporting waterfowl populations;
- United Nations Convention on Biological Diversity, which requires parties to regulate or manage biological resources important for the conservation of biological diversity, to promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species; and
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

2.1.3 In accordance with Table 3, Annex 8 in the TM-EIAO, the ecological value of species was assessed in terms of protection status, distribution and rarity. Flora or fauna species protected by the following laws/regulations, listed under the following conventions and/or endemic to Hong Kong were considered to be species of conservation importance. However, this excludes exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower ecological value. Species which are classified by IUCN as Least Concern (LC), Near Threatened (NT), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions are not considered of conservation importance in the present study.

- Forestry Regulations (Cap. 96A) which are subsidiary legislation of the Forests and Countryside Ordinance (Cap. 96);

- Wild Animals Protection Ordinance (Cap. 170) (except birds as all wild birds are protected under the ordinance but their conservation importance is not equal)
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- Category I or II protected species in mainland China;
- Threatened Species List of China's Higher Plants (Qin *et al*. 2017);
- Red List of China's Vertebrates. (Jiang *et al*. 2016).
- The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Plant species considered 'Rare' or 'Very Rare' listed by Corlett *et al*. (2000) or Yip *et al*. (2010) where applicable; and
- Fauna species considered of concern in Fellowes *et al*. (2002).

3. KEY ECOLOGICAL RESOURCES/ISSUES

3.1.1 Key ecological resources identified include the following:

- Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA);
- Recognized sites of conservation importance, including Mai Po and Inner Deep Bay Ramsar Site, Mai Po Nature Reserve, Mai Po Village SSSI and Mai Po Marshes SSSI;
- Wetlands including active and abandoned ponds, and main drainage channels;
- Roosting, breeding and feeding sites for wetland birds; and
- Any other habitats identified as having special conservation interests

from reviewed literature or this study.

4. SURVEY METHODOLOGY

4.1.1 The Study Area for the purpose of terrestrial and aquatic ecological impact assessment includes all areas within 500m distance from the Application Site boundary **(Figure 1)**.

4.1.2 Relevant literature including previous ecological assessment reports and Hong Kong biodiversity database were reviewed. The field survey programme, with focus primarily on the Application Site and secondarily on

the Study Area, covered a 12-month period from June 2019 to May 2020, fulfilling the requirements stipulated in TPB PG-NO. 12C (i.e. covering not less than 12 months and covering both wet and dry seasons), to record ecological data within the Study Area and establish the ecological profile for incorporation into the assessment. In addition to day-time surveys, night-time surveys were also conducted to record nocturnal fauna including birds, herpetofauna and mammals.

4.1.3 Verification surveys were token place to obtain the ecological information of the Study Area and the Application Site in dry season from December 2022 to January 2023, including the ecological condition and the faunal species of the Application Site. Particular attention was paid to any faunal species of conservation importance and also the avifauna habituated in wetland habitats within the Application Site, that are most likely to be impacted by the proposed development generally. Survey methodology of each item is described in the following sections.

4.2 *HABITAT AND VEGETATION*

4.2.1 Habitats within the Study Area were mapped based on aerial photos and ground truthing. Walk-over surveys were conducted at representative areas in each habitat type. Vascular plant species in each habitat type were identified (with the aid of binoculars when necessary) and their relative abundance were recorded, with special attention to rare and protected species. Color photographs were taken of all habitats encountered on site and of ecological features of special importance. Habitat map within the Study Area was produced at the required scale using GIS software. Nomenclature of vascular plant species follows Hong Kong Herbarium (2019), whilst their rarity in Hong Kong follows Corlett *et al*. (2000) and Yip *et al*. (2010) where applicable.

4.3 *AVIFAUNA*

4.3.1 Birds within the Study Area were surveyed quantitatively in each month using transect count method. All birds seen or heard were identified and their abundance recorded. Signs of breeding (e.g. nests, recently fledged juveniles) were also recorded. As some birds (e.g., owls, nightjars) are nocturnal, night surveys were conducted. Nocturnal birds were identified by active searching using spot-light and by their calls. Ornithological nomenclature in this report followed the latest version of List of Hong Kong Birds by Hong Kong Bird Watching Society (HKBWS).

4.4 *DRY SEASON FLIGHT PATH SURVEY*

4.4.1 The site is far away from any known egretry (about 2.3km from Shan Pui River Egretry, about 2.8km from Mai Po Village Egretry and about 2.4km from Tung Shing Lane Egretry (which was abandoned in 2021 breeding season). Previous study showed that the breeding egrets from Mai Po Village Egretry flew towards Mai Po, Tam Kon Chau or other nearby wetlands to forage (ENVIRON Hong Kong Limited. 2013), while the breeding egrets from Tung Shing Lane Egretry flew towards downstream section of Kam Tin River Drainage Channel and Nam Sang Wai (AEC 2017). Hence, flight path survey only focused on the overwintering birds (i.e. dry season) instead of breeding ardeids in wet season. Flight path surveys were conducted four times in dry season between January 2020 and February 2020, which were undertaken continuously for 1.5 hours by surveyors inside the Application site. The flight paths of the major species of conservation importance over the Application Site were observed (included waterbirds, bird of prey, shorebirds, starlings). The heights and directions of flying birds observed were also recorded. Verification surveys of the dry season flight path were also taken placed from December 2022 to January 2023, to confirm if there is any major flight path crosses over the Application Site (included waterbirds, bird of prey, shorebirds, starlings).

4.5 *OTHER TERRESTRIAL FAUNA*

4.5.1 Mammals within the Study Area were surveyed qualitatively. All sightings, tracks, and signs of mammals found were recorded. As some mammal species (e.g., bats) are nocturnal, night surveys were conducted. Nocturnal mammals were searched using spot-light. Nomenclature of mammal followed Shek (2006).

4.5.2 Herpetofauna within the Study Area were surveyed qualitatively. All reptiles and amphibians sighted were recorded. As herpetofauna are mostly nocturnal, night surveys were carried out. Potential microhabitats of herpetofauna such as wall, fallen logs, litter, channel/nullah, fishpond margins, underneath of stones or other materials, artificial container (e.g., pots) were searched during surveys to locate cryptic or secretive herpetofauna species. Amphibians were also identified by their calls during night surveys. Nomenclature of amphibian followed Chan *et al*. (2005) and reptile followed Karsen *et al*. (1998).

4.5.3 Dragonflies and butterflies within the Study Area were surveyed quantitatively using the transect method. Dragonflies and butterflies observed were identified and recorded. Individuals needed to be identified in close distance were netted. Dragonflies and butterflies encountered outside survey transects but within the Study Area were also recorded in order to produce a complete species list. Nomenclature of dragonfly followed Tam *et al*. (2011) and nomenclature of butterfly followed Chan *et al*. (2011).

4.6 *AQUATIC FAUNA*

4.6.1 Aquatic fauna (such as freshwater fish and invertebrates) within the Study Area were studied once in dry season and once in wet season by direct observation only as the majority of water bodies are fishponds which are all private property. Direct observations were also made at other aquatic habitats within the Study Area.

4.6.2 Location of terrestrial fauna survey transects and sampling points of aquatic fauna survey are shown in **Figure 2**. Survey schedule between June 2019 and May 2020, and the verification for avifauna from December 2022 to January 2023 is shown in **Table 1**.

Table 1 Ecological Survey Programme

Month	2019							2020					2022	2023
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Dec	Jan
Habitat and Vegetation	√				√	√	√							√
Bird	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Bird : Dry season flight Path Survey								√	√					√
Mammal	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Herpetofauna	√	√	√	√	√	√	√	√	√	√	√	√	√	√
*Night Survey for Terrestrial Fauna				√					√			√		√
Butterfly & Dragonfly	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Aquatic fauna				√					√					√

* for mammal, bird and herpetofauna

5. RESULTS OF LITERATURE REVIEW

5.1 *RECOGNIZED SITES OF CONSERVATION IMPORTANCE / LAND ZONINGS*

5.1.1 About 70 % of the Application Site falls within the Wetland Buffer Area (WBA) **(Figure 1).** The planning intention of WBA is to protect the ecological integrity of the fishponds and wetlands within the Wetland Conservation Area (WCA) and to prevent development that would have a negative off-site impact on the ecological value of those fishponds. The Application Site is about 176m from the boundary of WCA.

5.1.2 WCA comprises of the existing and contiguous, active or abandoned fishponds in the Deep Bay Area. The planning intention of WCA is to conserve the ecological value of the fishpond which form an integral part of

the wetland ecosystem in the Deep Bay Area. A buffer area of about 500m along the landward boundary of the WCA is designated as WBA. The planning intention of WBA is to protect the ecological integrity of the fishponds and wetlands within the Wetland Conservation Area (WCA) and to prevent development that would have a negative off-site impact on the ecological value of those fishponds.

5.1.3 Regarding development application, new development within the WCA will not be allowed unless it is required to support the conservation of the ecological value of the area or the development is essential infrastructural project with overriding public interest, while development or redevelopment in the WBA would require an ecological impact assessment to demonstrate there would not be negative impacts on the ecological value of the WCA, with or without mitigation measures.

5.1.4 Other recognised sites of conservation importance in Northwest New Territories included the Mai Po Inner Deep Bay Ramsar Site, Mai Po Nature Reserve, Mai Po Marshes SSSI, Mai Po Village SSSI and Mai Po Village Egretry.

5.1.5 About 1,500ha of wetland in the Mai Po and Inner Deep Bay region was designated as a Ramsar Site on 4 September 1995. The wetland habitats in the Ramsar Site included intertidal mudflats, mangroves, tidal shrimp ponds (gei wais), fishponds and reedbeds. The site serves as an important over-wintering and refuelling station site for the migratory waterbirds.

5.1.6 Mai Po Nature Reserve comprises gei wais, fishponds and extensive area of mangroves and mudflat. This reserve provides important habitats for waterbirds and other wildlife (e.g., Eurasian Otter).

5.1.7 Mai Po Marshes SSSI was designated in 1976. It holds an important area of dwarf mangrove as well as the largest reedbeds and (semi-) tidal open water habitats derived from gei wai shrimp ponds. The productive seral community and man-made gei wai provide important foraging sites for both resident and migratory birds as well as supporting diverse fauna and flora.

The SSSI is located entirely within the Ramsar Site. This SSSI is located approximately 1.42 km from the Application Site.

5.1.8 The Mai Po Village SSSI is a piece of fung shui woodland of size about 5.3ha behind the Mai Po Village, and is about 2.84km from the boundary of the Application Site. This woodland provides nesting habitats for a number of ardeid species. It has been noted that before 2013, the nesting colony has extended to the area outside the Mai Po Village SSSI.

5.1.9 Nesting population of ardeids in Hong Kong was annually surveyed by The Hong Kong Bird Watching Society since 1998. The nesting ardeid populations at Mai Po Village Egretry between 2014 and 2021 (i.e. available information in the recent 7 years) are shown in **Table 2**. Five ardeid species have been recorded nesting in the Mai Po Village egretry since 1998. Except 2015 with one nest of Eastern Cattle Egret, only Little Egret and Chinese Pond Heron nested in this egretry between 2014 and 2021.

5.1.10 Tung Shing Lane Egretry was first reported in 2001. It is located at several trees on fishpond bunds and near village houses in Tung Shing Lane village. The TSL Egretry was the third largest egretry in 2018 census, with 84 nests which accounted for 7.8% of the total number of the nests in Hong Kong in that year (Anon 2019). However, hard pruning of trees within the nesting area in previous years was noted in the egretry in May 2019, while Typhoon Mangkhut resulted in thinning of vegetation in the same egretry (Anon 2020). According to the census data provided by HKBWS the number of ardeid nests in TSL Egretry decreased by 22.6% from 2018 to 2019 (Anon 2020). Two ardeid species were recorded nesting in this egretry between 2015 and 2020, including Little Egret and Chinese Pond Heron. This egretry however was abandoned in 2021.

Table 2a Nesting Populations of Ardeid in Mai Po Village Egretry between 2015 and 2020 (data from Anon. 2015, 2016, 2017, 2018, 2020a and 2020b, Wong and Kwok 2002, Wong 2002, Wong and Woo 2003)

Year	Little Egret	Chinese Pond Heron	Eastern Cattle Egret	Total nests (% of total in Hong Kong)
2015	104	131	1	236 (16.6%)
2016	72	130	-	202 (16.2%)
2017	99	140	-	239 (19.2%)
2018	99	123	-	222 (20.5%)
2019	91	68	-	159 (9.7%)
2020	70	43	-	113 (5.8%)
2021	54	8	-	62 (3.4%)

*There were historical records of nesting of Cattle Egret and Great Egret before 2014

Table 2b Nesting Populations of Ardeid from Tung Shing Lane Egretry between 2015 and 2020 (data extracted from Anon. 2015, 2016, 2017, 2018, 2020a and 2020b.)

Year	Little Egret	Chinese Pond Heron	Total nests (% of total in HK)
2015	30	47	77 (5.4%)
2016	20	41	61 (4.9%)
2017	21	61	82 (6.6%)
2018	49	35	84 (7.8%)
2019	27	38	65 (4.0%)
2020	16	20	36 (1.9%)

5.1.11 Foraging ecology of Little Egret and Chinese Pond Heron nesting in Mai Po Village Egretry was studied previously (Wong 2002, Young 1998, City University of Hong Kong. 2001). Fishpond was the most frequently used habitat by both species. Drained fishponds are particularly attractive to Little Egret (Young 1998). The average distances flown by Little Egret and Chinese Pond Heron were 2.1km and 1.6km respectively (Wong 2002, Young 1998). Foraging ecology of Little Egret and Chinese Pond Heron in Mai Po Village Egretry was also studied in 2011 during the EIA study of "Proposed Residential Cum Passive Recreation Development within "Recreation" Zone and "Residential (Group C)" Zone at Various Lots in DD 104, Yuen Long, N.T." (ENVIRON Hong Kong Limited. 2013). Most breeding birds of these two species took off from the Mai Po Village Egretry flew towards Mai Po, Tam Kon Chau or other nearby wetlands to forage.

Hence, the utilization of the fishponds within/near the Application Site by breeding ardeids as foraging habitats is expected to be low given their location and the abandoned status.

5.2 *REVIEW OF PREVIOUS STUDIES*

5.2.1 A study on the evaluation of measure in prevention of predation of Great Cormorant on commercial fishponds was previously conducted by AFCD between December 2006 and February 2007 (Anon. 2008) covered some of the ponds near the present Application Site, general utilization by waterbirds was also described in the study. Abundance of ardeids on these ponds was found very low (*ibid*.), probably due to the high disturbance level from the surrounding container sites at that time.

5.2.2 Ecological surveys were conducted from July 2011 to June 2012 for a previous S16 application (A/YL-NSW/216) covering the majority of the present Application Site (excluding the fishpond area). The study area was slightly smaller than the Study Area of the present Project. Seven types of habitats were identified, including Urbanised/Disturbed, Wasteland, Plantation, fishpond (active & abandoned), Flood Storage Pond, Drainage channel and Nullah. No plant species of conservation importance was recorded. Japanese Pipistrelle *Pipistrellus abramus* is the mammal species of conservation importance. Bird species of conservation importance included Little Grebe *Tachybaptus ruficollis*, Great Cormorant *Phalacrocorax carbo*, Grey Heron *Ardea cinerea*, Great Egret *Egretta alba*, Little Egret *Egretta garzetta*, Chinese Pond Heron *Ardeola bacchus*, Black-crowned Night Heron *Nyctcorax nycticorax*, Yellow Bittern *Ixobrychus sinensis*, Eurasian Wigeon *Anas penelope*, Common Teal *Anas crecca*, Northern Shoveler *Anas clypeata*, Black Kite *Milvus migrans*, Peregrine Falcon *Peregrinus falco*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, Black-winged Stilt *Himantopus himanopus*, Pied Avocet *Recurvirostra avosetta*, Pacific Golden Plover *Pluvialis dominica*, Little Ringed Plover

Charadrius dubius, Spotted Redshank *Tringa erthropus*, Marsh Sandpiper *T. stagnatilis*, Common Greenshank *T. nebularia*, Wood Sandpiper *T. glareola*, Pied Kingfisher *Ceryle rudis*, Greater Coucal *Centropus sinensis*, Red-billed Starling *Spodiopsar sericeus*, White-shouldered Starling *Sturnia sinensis* and Collared Crow *Corvus torquatus*, These bird species of conservation importance (mostly ardeids in terms of abundance) were mostly recorded in fishponds and channel/nullah. Other recorded fauna species of conservation importance included Scarlet Basker *Urothemis signata* and Coastal Glider *Macrodiplax cora*. These two dragonfly species were present in low numbers in fishponds and channel/nullah outside the Application Site.

5.2.3 The Study Area of the present Project also overlapped / near other previous EIA/EcoIA studies including:

- "Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2";
- "Construction of Cycle Tracks and the Associated Supporting Facilities From Sha Po Tsuen to Shek Sheung River";
- "Proposed Residential cum Passive Recreational Development within "Recreation" ("REC") Zone and "Residential (Group C)" Zone at Various Lots in DD 104, Yuen Long, N.T." (hereafter REC Site EIA);
- "Residential Development within R(D) Zone at Various Lots in DD104, Yuen Long, N.T." (hereafter R(D) Site EcoIA);
- "Comprehensive Development and Wetland Protection near Yau Mei San Tsuen" (hereafter Yau Mei Site EIA); and
- Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T. (hereafter East Kam Pok Site EIA)
- S16 Planning Applications for Proposed Residential Development cum Wetland Restoration Area in Lots 3719 SC RP and 3681 in

DD104, Kam Pok Road, Yuen Long, NT (hereafter West Pok Wai Site EcoIA)

5.2.4 There was no significant observation in the Study Area of the Project from the EIA studies of "Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2" (EIA-094/2004) and "Construction of Cycle Tracks and the Associated Supporting Facilities From Sha Po Tsuen to Shek Sheung River" (EIA-159/2008).

5.2.5 Twelve waterbird species of conservation importance, including Little Grebe *Tachybaptus ruficollis*, Yellow Bittern *Ixobrychus sinensis*, Eastern Cattle Egret *Bubulcus coromandus*, Great Egret *Ardea alba*, Little Egret *Egretta garzetta*, Chinese Pond Heron *Ardeola bacchus*, Black-crowned Night Heron *Nycticorax nycticorax*, Grey Heron *Ardea cinerea*, Purple Heron *Ardea purpurea*, Great Cormorant *Phalacrocorax carbo*, Black-winged Stilt *Himantopus himantopus*, Pied Kingfisher *Ceryle rudis* were recorded at the fishponds to the northeast of the Application Site during the East Kam Pok Site EIA (Ramboll 2017) and the west Pok Wai EcoIA (to support Planning Applications for Proposed Residential Development in Lot YL3719SC in DD104 Kam Pok Road). These species were present in low abundance. Little Grebe *Tachybaptus ruficollis*, Yellow Bittern *Ixobrychus sinensis*, Chinese Pond Heron *Ardeola bacchus*, Black-crowned Night Heron *Nycticorax nycticorax*, Great Egret *Ardea alba*, Little Egret *Egretta garzetta*, Great Cormorant *Phalacrocorax carbo* were recorded in the fishponds within the Application Site in Planning Applications for Proposed Residential Development in Lot YL3719SC in DD104 Kam Pok Road. Other bird species of conservation importance included Black Kite *Milvus migrans*, Eastern Buzzard *Buteo japonicus*, Peregrine Falcon *Falco peregrinus*, Greater Coucal *Centropus sinensis*, Collared Crow *Corvus torquatus*, Red-billed Starling *Spodiopsar sericeus*.

5.2.6 Flight paths of birds were conducted in the latter four EIA/EcoIA studies. The flight path surveys mainly focused on large waterbirds, which are

considered of lower flight maneuverability and hence would be more vulnerable to barrier to flight. According to the observations, there is a major flight corridor of large waterbirds above the Ngau Tam Mei Main Drainage Channel. Flight heights were described in the East Kam Pok Site EIA and R(D) Site EcoIA. The waterbirds observed in the R(D) Site EcoIA (mostly Great Cormorant) were mostly flying at heights at heights of 24m above ground (AEC 2014, Ramboll 2017). In the East Kam Pok Site EIA, large waterbird species were flying at heights ranged between 15m and 34m above ground, with a mean of 22m.

5.2.7 Part of the Ngau Tam Mei Drainage Channel within the Study Area of the current study was studied in the RD Site EIA and East Kam Pok Site EIA. Upstream section of the Ngau Tam Mei Drainage Channel outside the Study Area of the current study was studied in the R(D) Site EcoIA and Yau Mei Site EIA. High counts of ardeids (e.g., Great Egret, Little Egret) were recorded at the Ngau Tam Mei Drainage Channel during the R(D) Site EcoIA, REC Site EIA and East Kam Pok Site EIA. The endangered bird species, Black-faced Spoonbills were also recorded during the REC Site EIA and East Kam Pok Site EIA.

6. RESULTS OF FIELD SURVEYS

6.1 *HABITAT AND VEGETATION*

6.1.1 Eleven types of habitats were identified within the Study Area, namely abandoned pond, active agricultural land, active pond, developed area, drainage channel, flood storage pond, meander, nullah, plantation, wasteland and woodland **(Figure 3-1).** Representative photos of the habitats are presented in **Figure 4**. Plant species and their relative abundance within each habitat are listed in **Appendix 1**. The Application Site encompasses developed areas and abandoned ponds of varying sizes adjoining each other, with Kam Pok Road East bordering its south and Man Yuen Chuen sitting to its west. The ecological condition of the habitat and

vegetation of the Study Area was found comparable to that of the previous application.

Abandoned Pond/Inactive Pond
(Namely "Abandoned Pond")

6.1.2 Clusters of abandoned ponds with varying sizes scattered within the Study Area and were mostly fragmented from each other **(Figure 3-1)** and drained. The floristic diversity of the abandoned ponds was generally low.

6.1.3 Some abandoned ponds were drained with limited water level. *Cyclosorus interruptus*, *Ipomoea aquatica* and *Mikania micrantha*, which are competitively advantageous over native species in colonizing and establishing after the ponds were drained, readily colonized these abandoned ponds.

6.1.4 Some of the abandoned ponds were still left with water at a water level similar to that of active ponds. The bunds of these abandoned ponds were grown with fruit tree species typically associated with villages in Hong Kong, such as *Dimocarpus longan* and *Litchi chinensis*.

6.1.5 The conditions of the abandoned ponds within the Application Site were generally similar to the ones within the Study Area. However, signs of pond bund renovation, pond reprofiling, vegetation management and fisheries activities were observed recently.

Active Agricultural Land

6.1.6 Active agricultural land associated with village settlements was identified to the east of San Tam Road within the Study Area **(Figure 3-1).** Crop and fruit tree species (e.g. *Dimocarpus longan*, *Musa x paradisiaca* and *Prunus persica*) were cultivated. *Prunus persica* was abundantly cultivated in December 2019.

Active Pond

6.1.7 Active ponds operated by villagers were all outside the Application Site but within the Study Area **(Figure 3-1).** Along the bunds of the active ponds, a few fruit trees *Artocarpus heterophyllus* and *Musa* x *paradisiaca* were cultivated and vegetative cover composed of grasses and exotic weeds was formed. The active ponds observed were in groups.

Developed Area

6.1.8 Developed areas within the Study Area comprise residential properties (Fairview Park to the northwest), villages, roads, highways, nurseries with paved concrete ground, public utilities and open storage grounds **(Figure 3-1).** Major villages within the Study Area include Wing Kei Tsuen to the southwest of the Study Area and part of Mo Fan Heung to the southeast of the Study Area. Fruit trees *Dimocarpus longan* and *Litchi chinensis* were planted next to villages by villagers. Nurseries monodominantly cultivated with *Prunus persica* were observed to the east of San Tam Road within the Study Area. Subject to clearance, the margin of agricultural land was disturbed and colonized by exotic weeds like *Bidens alba*.

Drainage Channel

6.1.9 A channelized and diverted route of Kam Tin River flows from southwest to the northwest of the Study Area **(Figure 3-1).** Tributaries in the middle and lower courses of Kam Tin River were channelized in the 1990s. The widened and straightened nature of the diverted route increase the capacity of discharging rainwater and thereby alleviate flood risk. Its bed and bank of were lined with grasscrete and a series of in-channel ponds were built along it. Water levels were maintained by a dam at the confluence with the major section of Kam Tin River outside the Study Area. Paved environment resulted in low floristic diversity.

Flood Storage Pond

6.1.10 A flood storage pond is present at Pok Wai Flood Water Pumping Station **(Figure 3-1)** for controlling the quantity and quality of stormwater runoff, and thereby discharge stored upstream runoff to downstream at a limited flow rate. The bunds of the flood storage pond was readily colonized by exotic weeds in the likes of *Bidens alba*, *Lantana camara*, *Leucaena leucocephala* and *Panicum maximum*.

Meander

6.1.11 A meander flowing along the southwest of the Study Area was connected to the aforementioned channelized section of Kam Tin River **(Figure 3-1).** This meander is at the tail end of the pre-existing Kam Tin River and already exists prior to the major diversion and channelization of Kam Tin River in the 1990s.

Nullah

6.1.12 Nullahs were abundant within the Study Area **(Figure 3-1).** They were generally narrow, concrete-paved and straightened to divert water flow from Kam Tin River. Only limited usage of this habitat by fauna was observed.

Plantation

6.1.13 Plantation belts dominated by exotic tree species were in close vicinity of developed area within the Study Area **(Figure 3-1),** some of which were established on engineered slopes. The canopy was dominated by exotic, fast-growing tree species *Acacia confusa, Eucalyptus citriodora, Eucalyptus robusta, Eucalyptus tereticornis, Leucaena leucocephala and Melaleuca cajuputi subsp. cumingiana* were abundant. Ornamental and landscape species (e.g. *Calliandra haematocephala*) were occasionally planted in the understorey of the plantation stands to provide screening effect and enhance ornamental value. Weeds were heavily recruited in the

understorey and especially the edges of such stands, including Lantana camara and Panicum maximum.

Wasteland

6.1.14 Wasteland either dominated by ruderal vegetation or hardscape after massive vegetation clearance were found to the west of the Study Area **(Figure 3-1)**. Ruderal species typical of those in primary stages of vegetative succession and colonizing areas of bare or disturbed ground, were abundant. Vegetation species typically found within this degraded habitat were mostly exotic weed species, including *Bidens alba*, *Brachiaria mutica*, *Wedelia trilobata* and *Leucaena leucocephala*.

Woodland

6.1.15 A woodland hillslope to the east of San Tam Road and along the southeastern boundary of the Study Area **(Figure 3-1)** is mainly composed of native species, especially those of typical of lowland secondary forests in Hong Kong. The canopy was dominated by *Aporusa dioica*, *Ficus hispida* and *Litsea glutinosa*. The understorey of the woodland was regenerated with native shrub (particularly *Psychotria asiatica*) and climber species (e.g. *Desmos chinensis* and *Uvaria macrophylla*). Along woodland edge and where light gaps were present, *Microstegium ciliatum* rapidly formed monodominant patches and exotic weedy climber species *Bidens alba* and *Mikania micrantha* were abundant.

6.1.16 A full list of vascular flora species recorded and the relative abundance within each habitat is provided in **Appendix 1**. Of the 190 vascular plant species recorded within the Study Area during the survey period, 83 and 103 of them are native and exotic to Hong Kong respectively and the remaining four vascular plant species are of uncertain origin.

6.1.17 Though *Coccinia grandis* was considered very rare by Corlett *et al*. (2000), it is a food crop species that may be dispersed from villages nearby. Therefore, it is not regarded as a species of conservation importance.

Besides, *Lagerstroemia speciosa, Casurarina equisetifolia* and *Typha angustifolia* are listed under Cap. 96A Forestry Regulations under Forests and Countryside Ordinance and/or regarded as rare by Corlett *et al*. (2000) respectively. However, all species are exotic to Hong Kong and therefore they are not regarded as species of conservation importance. No vascular plant species of conservation importance was recorded within both Application Site and Study Area.

Table 3. Habitat types within the 500m Study Area Boundary

Habitat type	Size (ha)	
	Study Area	Application Site
Developed Area	87.57	0.2
Plantation	2.98	-
Active Agricultural Land	4.84	-
Abandoned Pond	11.41	4.9
Active Pond	7.56	-
Flood Storage Pond	1.03	-
Drainage Channel	4.97 (1.12 km)	-
Nullah	1.95 (3.22 km)	-
Meander	0.43 (0.21 Km)	-
Wasteland	4.36	-
Woodland	3.6	-
Total	**130.7**	**5.1**

6.2 *AVIFAUNA*

6.2.1 Most of the Study Area is covered by developed area, which is subjected to very high level of human disturbance and with little vegetation cover. Other habitats within the Study Area (e.g., plantation, fishpond) are fragmented and small in size. Fauna recorded in the Study Area were mostly disturbance tolerant species.

6.2.2 Sixty-nine species of bird were recorded within the Study Area during the previous survey **(Appendix 2a)**. Among the 69 bird species, 29 species are considered of conservation importance **(Table 13).** These included Little Grebe *Tachybaptus ruficollis,* Black-faced Spoonbill *Platalea minor,* Yellow

Bittern *Ixobrychus sinensis*, Black-crowned Night Heron *Nycticorax nycticorax*, Chinese Pond Heron *Ardeola bacchus*, Eastern Cattle Egret *Bubulcus coromandus*, Grey Heron *Ardea cinereal*, Great Egret *Ardea alba*, Intermediate Egret *Egretta intermedia*, Little Egret *Egretta garzetta*, Great Cormorant *Phalacrocorax carbo*, Black Kite *Milvus migrans,* Eastern Buzzard *Buteo japonicus*, Black-winged Stilt *Himantopus himantopus*, Pied Avocet *Recurvirostra avosetta*, Spotted Redshank *Tringa erythropus*, Common Redshank *Tringa tetanus*, Marsh Sandpiper *Tringa stagnatilis,* Common Greenshank *Tringa nebularia,* Wood Sandpiper *Tringa glareola,* Greater Coucal *Centropus sinensis*, White-throated Kingfisher *Halcyon smyrnensis,* Pied Kingfisher *Ceryle rudis,* Collared Crow *Corvus torquatus,* Zitting Cisticola *Cisticola juncidis,* Red-billed Starling *Spodiopsar sericeus*, White-cheeked Starling *Spodiopsar cineraceu* and White-shouldered Starling *Sturnia sinensis.*

6.2.3 Among the bird species of conservation importance recorded within the Study Area, 13 species were recorded within the Application Site. These included Little Grebe, Yellow Bittern, Chinese Pond Heron, Grey Heron, Great Egret, Little Egret, Great Cormorant, Black Kite, Eastern Buzzard, Greater Coucal, White-throated Kingfisher, Collared Crow and White-cheeked Starling. All these species were present in low abundance / recorded in low frequency. No breeding and nesting behavior were observed in the Application Site. Details of observations, protection status, distribution and commonness of these species are shown in **Table 13.**

6.2.4 Similar survey results were recorded during the verification surveys conducted between December 2022 and January 2023. 31 species were recorded within the Study Area including the Application Site, of which 12 species are considered of conservation importance (**Appendix 2b**). Only 4 new species were found during the verification survey, namely Marllard

Anas platyrhynchos, Purple Heron *Ardea purpurea*, Chinese Blackbird *Turdus mandarinus* and Eurasian Siskin *Spinus spinus*. 2 of the newly found species were recorded within the Application Site, which are Mallard, Purple Heron. Both of them are considered Regional Concern by Fellowes (2002). Pied Kingfisher is also recorded within the Application Site during the verification survey.

6.2.5 11 avifaunal species were recorded within the Application Site during the verification surveys, 8 of the species are considered of conservation importance, which are namely Little Grebe *Tachybaptus ruficollis*, Mallard *Anas platyrhynchos*, Purple Heron *Ardea purpurea*, Great Egret *Ardea alba*, Great Cormorant *Phalacrocorax carbo*, Greater Coucal *Centropus sinensis*, Pied Kingfisher *Ceryle rudis* and Collared Crow *Corvus torquatus*. Details of these species are shown in **Table 13**. The location of the species of conservation importance is summarized in **Figure 3-1**.

Dry season flight Path Survey

6.2.6 Results of the winter bird flight path surveys conducted in the dry season between January and February 2020 show that no major flight path was observed over the Application Site. A total of 17 flight lines was recorded during the survey. Only 4 species including Grey Heron, Great Egret, Little Egret and Great Cormorant, with 17 flight lines were recorded flew over the Application Site. The flight height of these species ranged between 15m and 25m above ground.

6.2.7 The results of the verification surveys of the dry season flight path in December 2022 and January 2023 show that there was no major flight was observed over the Application Site. The estimated major height of the flights was recorded are ranged 25m – 30m. The general direction of the dry season flight path is summarized in **Figure 3-2**.

6.3 *OTHER TERRESTRIAL FAUNA*

6.3.1 The ecological condition of other terrestrial faun within the Study Area and the Application Site were found comparable to that of the previous application.

Mammal

6.3.2 Three species of non-volant mammal were recorded within the Study Area **(Appendix 3).** All are considered of low conservation importance. Within the Application Site, the only non-volant mammal was domestic dog.

6.3.3 Japanese Pipistrelles were sighted within the Application Site and Study Area. Another species Short-nosed Fruit Bat *Cynopterus sphinx* were found in plantation in the Study Area (**Appendix 3)**. Details of observations, protection status, distribution and commonness of these species are shown in **Table 13.**

Herpetofauna

6.3.4 Four species of amphibian were recorded within the Application Site and Study Area **(Appendix 4).** These included Asian Common Toad *Bufo melanostictus*, Brown Tree Frog *Polypedates megacephalus*, Paddy Frog *Fejervarya limnocharis* and Gunther's Frog *Rana guentheri* are widespread and common in Hong Kong, and considered of low conservation importance (Chan et al. 2005).

6.3.5 Five species of reptile were recorded within the Study Area **(Appendix 5)**, Of which, two species were considered of conservation importance. These included Common Rat Snake *Ptyas mucosus* and Many-banded Krait *Bungarus multicinctus*. Many-banded Krait was found inside the Application Site. Details of observations, protection status, distribution and commonness of these species are shown in **Table 13.**

Butterfly and dragonfly

6.3.6 A total of 37 species of butterfly were recorded within the Study Area **(Appendix 6).** Only 2 species: Grass Demon *Udaspes folus* and White Royal *Pratapa deva* were considered of conservation importance and recorded outside Application Site in Study Area. Twenty-two species of butterfly were recorded inside Application Site.

6.3.7 For the other species of Butterfly, most are common or very common in Hong Kong (Chan et al. 2011) except Yellow Orange Tip. Details of observations, protection status, distribution and commonness of these species are shown in **Table 13.**

6.3.8 Eleven species of dragonfly were recorded within Application Site and Study Area **(Appendix 7)**. All are common or abundant in Hong Kong. Only one species Scarlet Basker *Urothemis signata* was considered of conservation importance and recorded within Application Site in Study Area. Details of observations, protection status, distribution and commonness of these species are shown in **Table 13.**

6.4 *AQUATIC FAUNA*

6.4.1 A total of 5 species of aquatic fauna were recorded within the Study Area. All the 5 species are common in Hong Kong, no species conservation importance was recorded. The aquatic fauna found within the Study Area are listed in **Appendix 8.** The ecological condition of the aquatic fauna of the Study Area was found comparable to that of the previous application.

7. EVALUATION OF HABITATS AND SPECIES

7.1.1 The ecological importance of the habitats within the Study Area was evaluated in accordance with the criteria stipulated in Annex 8 of TM-EIAO **(Tables 4 – 11).** The ecological importance of the Application Site was evaluated in **Table 12.**

7.1.2 In accordance with Table 3, Annex 8 of the TM-EIAO, the ecological value of species was assessed in terms of protection status (e.g. fauna protected

under WAPO (except birds), and flora and fauna protected under regional/global legislation/conventions), species distribution (e.g. endemic), and rarity (e.g. rare or restricted). No flora of conservation importance was recorded within the Study Area, while the list and evaluation of faunal species of conservation importance recorded within the Study Area, according to the TM-EIAO, are given in **Table 13**. The fauna species of conservation importance recorded from present ecological surveys included two mammal species, twenty-nine bird species, two reptile species, two butterfly and one dragonfly species.

Table 4 Evaluation of Developed Area (excluding Application Site) within the Study Area

Criterion	Description
Naturalness	Man-made habitat
Size	87.57ha
Diversity	Low flora diversity. Low diversity of butterfly and bird, very low diversity of dragonfly
Rarity	None for flora Fauna species of conservation importance: Grey Heron, Little Egret, Black Kite, Eastern Buzzard, Common Kestrel, Collared Crow and Japanese Pipistrelle
Re-creatability	Easy to recreate
Fragmentation	N/A
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant record. Minimal due to high level of disturbance
Age	N/A
Abundance/richness of wildlife	Low for butterfly and bird, very low for dragonfly
Overall ecological value	Very Low

Table 5 Evaluation of Plantation within the Study Area

Criterion	Description
Naturalness	Man-made (planted)
Size	A total of 2.98ha
Diversity	Low flora diversity Low diversity of butterfly and bird; Very low diversity of dragonfly
Rarity	None for flora Fauna species of conservation importance: Collared Crow and Short-nosed Fruit Bat
Re-creatability	Easy to recreate
Fragmentation	Formed thin belts along the roads
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low due to small footprint, regular maintenance and subjected to high level of disturbance from traffic
Nursery/breeding ground	No significant records. Value as breeding habitat for terrestrial fauna is low due to sparse canopy and exotic tree species composition, and subjected to high level of disturbance
Age	Young
Abundance/richness of wildlife	Low of butterfly and bird; Very low of dragonfly
Overall ecological value	Low

Table 6 Evaluation of Active Agricultural Land within the Study Area

Criterion	Description
Naturalness	Man-made habitat
Size	4.84ha
Diversity	Very low flora diversity Low diversity of bird and butterfly; Very Low diversity of dragonfly
Rarity	None for flora None for Fauna
Re-creatability	Easy to recreate
Fragmentation	Fragmented by developed area

Criterion	Description
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Limited due to human disturbance
Nursery/breeding ground	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance
Age	N/A
Abundance/richness of wildlife	Low diversity of bird and butterfly; Very Low diversity of dragonfly
Overall ecological value	Low

Table 7 Evaluation of Active Pond and Abandoned Pond (excluding Application Site) within the Study Area

Criterion	Description	
	Active Pond	Abandoned Pond
Naturalness	Man-made habitat	Man-made habitat
Size	7.56ha	6.51ha
Diversity	Low flora diversity Low to medium diversity for bird, low for butterfly and very low for dragonfly	Low flora diversity Low to medium diversity for bird, low for butterfly and very low for dragonfly
Rarity	None for flora. Fauna species of conservation importance: Little Grebe, Black-crowned Night Heron, Eastern Cattle Egret, Chinese Pond Heron, Grey Heron, Great Egret, Intermediate Egret, Little Egret, Great Cormorant, Black Kite, Peregrine Falcon, White-throated Kingfisher, Pied Kingfisher, Collared Crow, Greater Coucal, Collared Crow, Zitting Cisticola, Red-billed Starling and White-shouldered Starling	None for flora. Fauna species of conservation importance: Little Grebe, Yellow Bittern, Black-crowned Night Heron, Chinese Pond Heron, Eastern Cattle Egret, Grey Heron, Great Egret, Little Egret, Great Cormorant, Black Kite, Greater Coucal, Collared Crow, Red-billed Starling, Grass Demon and Japanese Pipistrelle; White Royal

Criterion	Description	
	Active Pond	Abandoned Pond
Re-creatability	Easy to recreate	Easy to recreate
Fragmentation	Linked to the other wetland habitats	The abandoned fishpond around the Application Site is isolated from other wetland habitats, but exist as a fairly large patch. Those at the southwest corner are linked to the other wetland habitats (e.g., Kam Tin River)
Ecological linkage	All fall within WCA	Some fall within WBA.
Potential value	The edge of water surface near the pond bunds might provide feeding habitat for waterbirds and the bund might be utilised by waterbirds as roosting habitat subject to pond bund management. Might provide more feeding habitat for waders if drained down during winter	The edge of water surface near the pond bunds might provide feeding habitat for waterbirds
Nursery/breeding ground	No significant record. Minimal as nursey/breeding ground for amphibian and/or dragonfly due to human activities and presence of cultured fish	No significant record. Potentially provide breeding habitats for amphibian and dragonfly
Age	N/A	N/A
Abundance/richness of wildlife	Low to medium abundance of bird, low abundance of butterfly and dragonfly.	Low abundance of birds, butterfly and dragonfly.
Overall ecological value	Medium	Low to medium

Table 8 Evaluation of Flood Storage Pond within the Study Area

Criterion	Description
Naturalness	Man-made habitat

Criterion	Description
Size	1.03ha
Diversity	Very low flora diversity Low diversity of bird, Very low diversity of butterfly and dragonfly
Rarity	None for flora. Fauna species of conservation importance: Grey Heron, Great Egret, Little Egret and Wood Sandpiper
Re-creatability	Easy to recreate
Fragmentation	Fragmented by developed area
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Might provide feeding habitat for wintering waterfowls if drained down during winter
Nursery/breeding ground	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance
Age	N/A
Abundance/richness of wildlife	Low for bird, very low of butterfly and dragonfly
Overall ecological value	Low

Table 9 Evaluation of Drainage Channel, Nullah and Meander within the Study Area

Criterion	Description		
	Ngau Tam Mei Drainage Channel	Nullah	Meander
Naturalness	Man-made, with natural bank and bottom	Those nullahs at the southwest corner of Study Area with natural bank and bottom The other nullah in the Study Area are man-made, with concrete bank and bottom	Natural in origin, some of them subject to tidal flow from Ngau Tam Mei Drainage Channel
Size	4.97ha (1.12km)	1.95ha (3.22km)	0.43ha (0.21km)
Diversity	Very low flora	Very low flora	Very low flora

Criterion	Description		
	Ngau Tam Mei Drainage Channel	**Nullah**	**Meander**
	diversity. Medium diversity of bird, very low diversity of dragonfly and butterfly	diversity Low diversity of bird, Very low butterfly and dragonfly	diversity Low diversity of bird, butterfly and dragonfly
Rarity	None for flora Fauna species of conservation importance: Black-faced Spoonbill, Yellow Bittern, Chinese Pond Heron, Grey Heron, Great Egret, Little Egret, Great Cormorant, Black Kite, Black-winged Stilt, Pied Avocet, Spotted Redshank, Common Redshank, Marsh Sandpiper, Common Greenshank, Wood Sandpiper, Greater Coucal, White-throated Kingfisher, Pied Kingfisher, Collared Crow, Red-billed Starling and Common Rat Snake	None for flora Fauna species of conservation importance: Chinese Pond Heron, Grey Heron, Great Egret and Little Egret	None for flora Fauna species of conservation importance: Chinese Pond Heron, Eastern Cattle Egret, Grey Heron, Little Egret and Great Cormorant
Re-creatability	Easy to recreate	Easy to recreate	Difficult to re-create. Tidal influence from Ngau Tam Mei Drainage Channel will require to be

Criterion	Description		
	Ngau Tam Mei Drainage Channel	Nullah	Meander
			reconstructed
Fragmentation	Connected to the Kam Tin River Channel.	Those nullahs at the southwest corner of Study Area exist as a single patch The other nullahs in the Study Area are fragmented by developed areas	Connected to the Ngau Tam Mei Drainage Channel.
Ecological linkage	Hydrological linked to Inner Deep Bay	Hydrological linked to Inner Deep Bay	Hydrological linked to Inner Deep Bay and Subject to tidal influence from Ngau Tam Mei Drainage Channel
Potential value	Low, but provided feeding and roosting habitat for waterbirds	Those nullahs at the southwest corner of Study Area are of low potential value due to larger size and relatively undisturbed, though with poor water quality The other nullahs in the Study Area are very low	Low to medium, but provided feeding and roosting habitat for waterbirds
Nursery/breeding ground	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance and low habitat complexity	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance and low habitat complexity	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance and low habitat complexity
Age	N/A	N/A	N/A
Abundance/richness	Low aquatic fauna	Very low aquatic	very low for bird,

Criterion	Description		
	Ngau Tam Mei Drainage Channel	Nullah	Meander
of wildlife	abundance. Low to Medium for bird, low for butterfly and very low for dragonfly	fauna abundance Very low for bird, butterfly and dragonfly	butterfly and dragonfly
Overall ecological value	Medium	Very low	Low

Table 10 Evaluation of Wasteland within the Study Area

Criterion	Description
Naturalness	Man-made habitat, mostly left abandoned
Size	4.36 ha
Diversity	Very low flora diversity Low diversity of bird, very low of butterfly and dragonfly
Rarity	None for flora. Fauna species of conservation importance: Eastern Cattle Egret, Black Kite, Greater Coucal, Collared Crow and Japanese Pipistrelle
Re-creatability	Easy to recreate
Fragmentation	Fragmented by developed area
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Limited due to human disturbance
Nursery/breeding ground	No significant record. Minimal as nursey/breeding ground due to subjected to high level of disturbance
Age	N/A
Abundance/richness of wildlife	Low for bird, very low of butterfly and dragonfly
Overall ecological value	Very Low

Table 11 Evaluation of Woodland within the Study Area

Criterion	Description
Naturalness	Natural and undergoing natural succession
Size	3.6 ha
Diversity	Low to medium of flora diversity Low diversity of bird, very low of butterfly and dragonfly
Rarity	None for flora and Fauna
Re-creatability	Readily re-created but trees need time to mature
Fragmentation	Fragmented by developed area
Ecological linkage	Linkages with existing semi-natural upland habitats.
Potential value	Potential to become more mature woodland in the absence of clearance and disturbance.
Nursery/breeding ground	No significant record, but can provide breeding habitats for mammals, birds, reptiles and butterflies
Age	Medium (around 30 years) based on tree size, woodland structure and species composition.
Abundance/richness of wildlife	Low for bird and butterfly, very low of dragonfly
Overall ecological value	Low

Table 12 Evaluation of Application Site

Criterion	Description	
	Developed Area	Abandoned Pond
Naturalness	Man-made habitat	Man-made habitat
Size	0.2ha	4.9ha
Diversity	Low flora diversity Limited diversity for butterfly, bird and dragonfly; very low for the other taxa group	Low flora diversity Low to Medium diversity for bird, low diversity for butterfly and dragonfly, very low for the other taxa group
Rarity	None for flora and fauna.	None for flora. 19 fauna species of conservation importance in total: included Little Grebe, Yellow Bittern, Chinese Pond Heron, Great Egret, Grey

Criterion	Description	
	Developed Area	**Abandoned Pond**
		Heron, Little Egret, Great Cormorant, Black Kite, Eastern Buzzard, Greater Coucal, White-throated Kingfisher, Collared Crow, White-cheeked Starling, Scarlet Basker, Many-banded Krait and Japanese Pipistrelle; Pied Kingfisher, Mallard and Purple Heron were recorded during verification surveys
Re-creatability	Easy to recreate	Easy to recreate
Fragmentation	N/A	The abandoned ponds in the Application Site linked with ponds outside the Application Site and formed a larger cluster of wetland.
Ecological linkage	Not functionally linked to habitats of conservation importance	70% abandoned pond falls within WBA. Limited linkages with adjacent habitats.
Potential value	Low	Ecological value as habitats for wetland dependent fauna (including waterbirds) would increase with appropriate management measures
Nursery/breeding ground	No significant record. Minimal due to high level of disturbance	No significant record. Might provide breeding habitat for butterfly, dragonfly and amphibian
Age	N/A	NA
Abundance/richness of wildlife	Limited abundance for butterfly, bird and dragonfly, very low for the other taxa groups	Low to medium abundance of bird (but only low abundance of bird species of conservation importance), low abundance of butterfly and dragonfly, very low for the other taxa groups
Overall ecological value	Very Low	Low to medium

Table 13 Evaluation of faunal species of conservation importance within the Study Area

Common name & Scientific name	Protection status / Concern Level				Distribution [5]	Rarity [5]	Locations / Habitats
	Local laws	Regional laws [1]	IUCN [2]/ China Red List [3]	Fellowes et al. 2002[4]			
Bird (*all wild birds are protected under Cap.170 and thus not listed individually)							
Little Grebe *Tachybaptus ruficollis*				LC	Found in Deep Bay Area.	Common resident.	Study Area : Pond & Abandoned Pond ; Application Site : Abandoned Pond
Mallard *Anas platyrhynchos*				RC	Found in Deep Bay area, Tai Lam Chung, Hok Tau Reservoirs, Tolo Harbour, Nam Chung, Long Valley, Kam Tin	Uncommon winter visitor	Application Site: Abandoned Pond
Black-faced Spoonbill *Platalea minor*		Class 2 Protected Animal of China	IUCN & China Red Data Book: Endangered	PGC	Found in Deep Bay Area.	Common winter visitor.	Study Area : Drainage Channel
Yellow Bittern *Ixobrychus sinensis*				(LC)	Found in Deep Bay area, Chek Keng, Tai Long Wan.	Uncommon summer visitor and passage migrant.	Study Area : Abandoned Pond & Drainage Channel ; Application Site : Abandoned Pond
Black-crowned Night Heron *Nycticorax nycticorax*				(LC)	Widely distributed in Hong Kong.	Common resident and winter visitor.	Study Area : Pond & Abandoned Pond
Chinese Pond Heron *Ardeola bacchus*				PRC,(RC)	Widely distributed in Hong Kong.	Common resident.	Study Area : Pond, Abandoned Pond, Meander, Nullah & Drainage Channel ; Application Site : Abandoned Pond
Eastern Cattle Egret *Bubulcus coromandus*				(LC)	Widely distributed in Hong Kong.	Resident and common passage migrant.	Study Area : Pond, Abandoned Pond, Meander & Wasteland

Common name & Scientific name	Protection status / Concern Level				Distribution [5]	Rarity [5]	Locations / Habitats
	Local laws	Regional laws [1]	IUCN [2]/ China Red List [3]	Fellowes et al. 2002[4]			
Grey Heron *Ardea cinerea*				PRC	Found in Deep Bay Area, Starling Inlet, Kowloon Park, Cape D'Aguilar.	Common winter visitor.	Study Area : Pond, Abandoned Pond, Meander, Drainage Channel, Nullah, flood storage pond ; Application Site : Abandoned Pond
Purple Heron *Ardea purpurea*				RC	Found in Deep Bay Area	Uncommon passage migrant	Application Site: Abandoned Pond
Great Egret *Ardea alba*				PRC,(RC)	Widely distributed in Hong Kong.	Common resident and winter visitor.	Study Area : Pond, Abandoned Pond, Drainage Channel, Nullah & flood storage pond ; Application Site : Abandoned Pond
Intermediate Egret *Egretta intermedia*				RC	Found in Deep Bay Area, Tai Long Wan, Starling Inlet, Tai O, Cape D'Aguilar.	Common passage migrant.	Study Area : Pond
Little Egret *Egretta garzetta*				PRC,(RC)	Widely distributed in coastal area throughout Hong Kong.	Common resident.	Study Area: Pond, Abandoned Pond, Meander, Drainage Channel, Nullah, flood storage pond and developed area; Application Site: Abandoned Pond
Great Cormorant *Phalacrocorax carbo*				PRC	Widely distributed in coastal areas throughout Hong Kong.	Common winter visitor.	Study Area: Pond, Abandoned Pond, Meander Drainage Channel and Nullah, ; Application Site: Abandoned Pond
Black Kite *Milvus migrans*	Cap. 586 (Appendix 2 of CITES)			(RC)	Widely distributed in Hong Kong.	Common resident and winter visitor.	Study Area : Pond, Drainage Channel, Wasteland & Developed Area ; Application Site : Abandoned Pond
Eastern Buzzard *Buteo japonicus*	Cap. 586 (Appendix 2 of CITES)				Widely distributed in Hong Kong.	Common winter visitor.	Application Site : Abandoned Pond

Common name & Scientific name	Protection status / Concern Level				Distribution [5]	Rarity [5]	Locations / Habitats
	Local laws	Regional laws [1]	IUCN [2]/ China Red List [3]	Fellowes et al. 2002[4]			
Black-winged Stilt *Himantopus himantopus*				RC	Found in Deep Bay Area, Long Valley, Kam Tin.	Common passage migrant.	Study Area :Drainage Channel
Pied Avocet *Recurvirostra avosetta*				RC	Found in Deep Bay Area.	Abundant winter visitor.	Study Area :Drainage Channel
Spotted Redshank *Tringa erythropus*				RC	Found in Deep Bay Area.	Abundant in winter and spring.	Study Area :Drainage Channel
Common Redshank *Tringa totanus*				RC	Found in Deep Bay Area.	Common passage migrant.	Study Area: Drainage Channel
Marsh Sandpiper *Tringa stagnatilis*				RC	Found in Deep Bay Area, Shuen Wan, Long Valley, Kam Tin, Sai Kung.	Common winter visitor and passage migrant.	Study Area :Drainage Channel
Common Greenshank *Tringa nebularia*				RC	Found in Deep Bay Area.	Abundant passage migrant and winter visitor.	Study Area : Drainage Channel
Wood Sandpiper *Tringa glareola*				LC	Widely distributed in wetland area throughout Hong Kong.	Common passage migrant and winter visitor.	Study Area: Drainage Channel and flood storage pond
Greater Coucal *Centropus sinensis*		Class 2 Protected Animal of China	China Red Data Book Status: (Vulnerable)		Widely distributed in Hong Kong.	Common resident.	Study Area: Pond, Abandoned Pond, Drainage Channel, Meander & Wasteland; Application Site: Abandoned Pond
White-throated Kingfisher *Halcyon smyrnensis*				(LC)	Widely distributed in coastal areas throughout Hong Kong	Common resident.	Study Area: Pond & Drainage Channel Application Site: Abandoned Pond
Pied Kingfisher *Ceryle rudis*				(LC)	Widely distributed in lakes and ponds throughout Hong Kong.	Uncommon resident.	Study Area: Drainage Channel and Nullah

Common name & Scientific name	Protection status / Concern Level				Distribution [5]	Rarity [5]	Locations / Habitats
	Local laws	Regional laws [1]	IUCN [2]/ China Red List [3]	Fellowes et al. 2002[4]			
Common Kestrel *Falco tinnunculus*	Cap. 586 (Appendix 2 of CITES	Class 2 Protected Animal of China			Widely distributed in Hong Kong	Common autumn migrant and winter visitor.	Study Area : Developed Area
Collared Crow *Corvus torquatus*			IUCN : Vulnerable	LC	Found in Inner Deep Bay Area, Nam Chung, Kei Ling Ha, Tai Mei Tuk, Pok Fu Lam, Chek lap Kok, Shuen Wan, Lam Tsuen.	Uncommon resident.	Study Area: Pond, Abandoned Pond, Drainage Channel, Plantation, wasteland & Developed Area; Application Site: Abandoned Pond
Zitting Cisticola *Cisticola juncidis*				LC	Widely distributed in grassland throughout Hong Kong.	Common passage migrant and winter visitor.	Study Area : Pond
Red-billed Starling *Spodiopsar sericeus*				GC	Widely distributed in Hong Kong	Common winter visitor.	Study Area: Pond, Abandoned Pond, Developed Area and Drainage Channel
White-cheeked Starling *Spodiopsar cineraceus*				PRC	Found in Deep Bay Area, Kam Tin, Long Valley.	Common winter visitor.	Study Area: Developed Area; Application Site: Abandoned Pond
White-shouldered Starling *Sturnia sinensis*				(LC)	Found in Kam Tin, Deep Bay area, Po Toi Island, Long Valley, Victoria Park, Ho Chung, Ma Tso Lung, Mui Wo, Lam Tsuen Valley.	Common passage migrant.	Study Area: Abandoned Pond
Butterfly							
Grass Demon *Udaspes folus*					Widely distributed in agricultural field throughout Hong Kong	Rare.	Study Area : Abandoned Pond

Common name & Scientific name	Protection status / Concern Level				Distribution [5]	Rarity [5]	Locations / Habitats
	Local laws	Regional laws [1]	IUCN [2]/ China Red List [3]	Fellowes et al. 2002[4]			
White Royal *Pratapa deva*					Tai Po Kau, Pokfulam, Kuk Po, Pak Sha O, Victoria Peak, Wu Kau Tang, Fung Yuen	Very rare	Study Area: Abandoned Pond
Dragonfly							
Scarlet Basker *Urothemis signata*					Common in areas containing abandoned fish ponds throughout Hong Kong	Common.	Application Site : Abandoned Pond
Retile							
Common Rat Snake *Ptyas mucosus*	Cap. 586 (Appendix 2 of CITES)		China Red Data Book Status: (Endangered)	PRC	Widely distributed throughout Hong Kong.	-	Study Area : Drainage Channel
Many-banded Krait *Bungarus multicinctus*			China Red Data Book Status: (Vulnerable)	PRC	Widely distributed in New Territories, Hong Kong Island and Lantau Island.	-	Application Site : Abandoned Pond
Mammal							
Short-nosed Fruit Bat *Cynopterus sphinx*	Cap. 170		China Red Data Book Status: (Indeterminate)		Very widely distributed in urban and countryside areas throughout Hong Kong	Very Common	Study Area : Plantation
Japanese Pipistrelle *Pipistrellus abramus*	Cap. 170				Widely distributed throughout Hong Kong.	Very Common	Study Area :Abandoned Pond & Wasteland ; Application Site : Abandoned Pond

1: AFCD (2020), 2: Wang (1998)

Level of concern: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes et al.2002).

All Birds species are list in WAPO (Cap 170.)

8. IMPACT IDENTIFICATION AND EVALUATION

8.1 *Design Concept of the Proposed Development and the Proposed Construction Works*

8.1.1 The extent of the Application Site is shown in **Figure 1**. The Application Site is zoned as "Other Specified Uses" annotated "Comprehensive Development to Include Wetland Restoration Area" ("OU(CDWRA)") under the OZP (S/YL-NSW/9). The ponds in Pok Wai have been in abandoned or non actively managed status for years, and the ecological value has been jeopardized due to lack of drain-down. The planning intention of "OU(CDWRA)" zone as stipulated in the OZP is: "to provide incentive for the restoration of degraded wetlands adjoining existing fish ponds through comprehensive residential and/or recreational development to include wetland restoration area. It is also intended to phase out existing sporadic open storage and port back-up uses on degraded wetlands." The present Project follows this planning intention, and proposes to provide residential buildings as well as a Wetland Restoration Area which will transform the existing abandoned ponds into wetlands with higher ecological functions (such as more shallow water area for waterbirds) and proper management.

8.1.2 The proposed residential development involves buildings of 5 different types of housing unit, ranging from 2 storeys to 4 storeys, with or without basement, and no piled foundation is needed. For the footings and superstructure, ordinary reinforced concrete construction will be adopted and it should not involve the heavy machinery used in the piled foundations for medium or high rise construction. The scale and extent of the current application are very similar to the previous application, thus the impacts caused by the current proposed development are also comparable to that of the previous application.

8.1.3 A Wetland Restoration Area (WRA) will be constructed in accordance with the OZP (S/YL-NSW/9). The major construction works of the WRA would only involve reprofiling of existing abandoned ponds, which is similar to

traditional fishpond maintenance works practiced in the Deep Bay area, and planting of wetland plants, which is similar to usual landscape planting.

8.1.4 The potential terrestrial and aquatic ecological impacts arising from the construction works, including loss of habitats, removal of vegetation, and disturbance to animals, were assessed with reference to the criteria stated in Annexes 8 and 16 of the TM-EIAO.

8.2 *Construction Phase Impacts*

Direct Impact - Habitat Loss

8.2.1 Loss of habitats and associated vegetation due to site formation within the Application Site will constitute the direct ecological impacts of the Project. The Application Site is partly composed of 0.2ha developed area with little vegetation cover (very low ecological value) and partly composed of 4.9ha abandoned ponds (low to medium ecological value).

8.2.2 As the developed area of the Application Site is mostly concrete-paved with little vegetation cover and low fauna diversity, additional site clearance will be minimal. The impact of the loss of this 0.2ha of developed area and their associated flora and fauna is considered **Insignificant** due to the small area affected, high level of disturbance, and very low diversity of wildlife. No mitigation for the loss of the developed area is required.

8.2.3 A total of 4.9ha abandoned ponds was identified within the Application Site. The ecological value of the abandoned ponds within the Application Site is ranked as low to medium. Although 19 species of conservation were recorded within the abandoned ponds during the 12-months survey and verification survey, they only occurred in low abundance. Besides, the abandoned ponds in Pok Wai as well as the Application Site are isolated from other wetland habitats in Deep Bay Area (i.e. surrounded by developed areas), and the abandoned ponds are degraded in terms of function and habitat quality due to overgrown by vegetation in some ponds and lack of drain-down in others. Without drain-down, while the pond

bunds are steep that could provide little foraging habitats for wading birds, the water was too deep for most of the waterbirds. Hence, the existing abandoned ponds were not considered as important foraging habitats for waterbirds, or important habitats for other fauna species of conservation importance recorded in the Study Area.

8.2.4 According to the Master Layout Plan, a portion of the existing abandoned ponds (2.43ha) within the Application Site will be converted into residential area. Due to the permanent nature of habitat loss within Wetland Buffer Area, the impact of permanent or temporary abandoned pond loss within the Application Site (i.e. 4.9ha) is considered **Moderate**. Mitigation for loss of habitat is required.

8.2.5 The remaining of the abandoned ponds (2.47ha) will be enhanced to the Wetland Restoration Area, so that habitat loss will be temporary. The major works for the Wetland Restoration Area (i.e. removal of ruderal vegetation on existing pond bunds, drain-down of existing abandoned ponds and reprofiling of the pond bunds) will be similar to traditional fishpond maintenance works practiced in the Deep Bay area. Together with the temporary loss due to the residential development, the total area of the abandoned pond within the Application Site is 4.9ha. Among the 4.9ha abandoned pond, the area with the proposed residential development will be loss permanently. As the works for the Wetland Restoration Area will be temporary, the potential impact due to temporary loss due to construction of the Wetland Restoration Area is considered **Minor**.

8.2.6 For each of the ponds lying on the Application Site boundary, they will be divided by sheet piling along the site boundary, and then only the portion of ponds within the Application Site will be drained for construction, while the portions outside the Application Sites will retain unchanged. A series of vertical concrete walls (of smaller width than the existing earth pond bunds in the ponds of Pok Wai) will be is built immediately behind the sheet piling within the Application Site. So that, the temporary loss of the portions of

the abandoned ponds outside the Application Site (~0.72 ha) is not anticipated.

8.2.7 According to the tentative phasing programme, the construction works will be completed in 2025, construction of sheet piling and the concrete wall will be conducted at the very beginning and will last for about 3 months within the wet season.

8.2.8 Area size of temporary and permanent habitat loss within the Application Site is shown in **Table 14**.

Table 14 Area size of temporary and permanent habitat loss of abandoned pond within the Application Site

Period	Temporary habitat loss (ha)	Permanent habitat loss (ha)
Construction of WRA	2.47	0
Construction of residential portion	2.43	2.43

Dust, Noise and Disturbance Impact

8.2.9 Dust will increase during construction phase, and might temporarily reduce the abundance and distribution of fauna in habitats adjacent to the works area. Unmitigated construction works create significant levels of dust under certain weather conditions due to the construction vehicles and the phenomenon of wind-blown dust from works areas. The dust would be deposited on nearby habitats, which can cause vegetation damage and, as a secondary effect, have an impact on fauna such as insects and birds. Impacts from dust deposition of these types will, however, be temporary and reversible, and standard construction best practices as mitigation measures can be implemented to negate harmful impacts. Dust deposition impacts arising from the Project, therefore, are considered **Insignificant**.

8.2.10 High level noise disturbance can potentially lead to behavioral disturbance, auditory masking, and physiological stress to wildlife. In the most serious cases, it may also lead to abandonment of preferred habitats by the wildlife if the noise disturbance is constantly present for a prolonged duration. For the present Project, utilization of habitats adjacent to the Application Site by fauna might decrease during construction phase. The significance of construction impacts will depend upon the ecological importance of the surrounding habitats, the distance between the source of noise and sensitive receivers, the type and frequency of disturbance and the tolerance of species to disturbance.

8.2.11 In the present Project, however, piling works for piled foundations, which are the major noise sources in many construction projects, are not required. Major construction activities will include excavation during footing works, materials loading/unloading, and concreting during superstructure works, which may produce noise and cause disturbance but at a much lower magnitude than percussive piling. Acoustic canvas for reduction of noise could be implemented as well. The potential impacts due to construction activities other than piling will be **Insignificant** as the construction works will be small in scale given the nature of low-rise residential building development.

8.2.12 For creating the WRA, as the reprofiling works will be similar to traditional fishpond maintenance works practiced in the Deep Bay area, it is expected the major construction machinery will be bulldozers or excavators, so that large machinery will not be involved and no obstruction of flight is anticipated. Hence, the indirect disturbance impacts due to the creation of WRA are considered **Minor.**

8.2.13 The fauna in abandoned ponds adjacent to the Application Site might be affected by construction disturbance. The conditions and habitat quality of these ponds were similar to Application Site. These ponds are isolated from other wetland habitats and were currently disturbed by the activities in the

surrounding developed area. In addition, the steep slope of some abandoned ponds, which offer little shallow water areas as foraging habitats of waterbirds. 16 bird species of conservation importance were recorded in these abandoned ponds during the 12-month survey and verification survey. Abundance of waterbirds recorded in abandoned ponds were low. As no piling works will be conducted during construction phase, the potential disturbance to abandoned ponds due to construction works is considered **Minor** in wet season and **Minor to Moderate** in dry season, if unmitigated. Utilisation of quiet machinery and construction method during construction, and erection of hoardings / noise Barriers are recommended under environmental impact assessment to reduce the potential impact.

8.2.14 As revealed by reviewed literature and ecological surveys, high counts of waterbirds (mostly ardeids) were occasionally recorded in the Ngau Tam Mei Drainage Channel during low tides of wintering season. The Ngau Tam Mei Drainage Channel is however separated from the Application Site by an existing road (Kam Pok Road) and also developed area. Given the types of construction works involved in the proposed development (mainly earth works and concreting) and the separation by existing developed areas, the potential of disturbance impacts to the Ngau Tam Mei Drainage Channel due to the construction works is considered **Minor** in wet season and **Minor to Moderate** in dry season , if unmitigated. Utilisation of quiet machinery and construction method, and erection of hoardings / Noise Barriers have been recommended under environmental impact assessment as control measure.

8.2.15 Fauna in developed area, wasteland and nullah have been habituated to disturbance and these habitats are considered with very low ecological value. Hence, the potential impacts to fauna in developed area, wasteland and nullah are ranked as **Insignificant**.

8.2.16 Good site practices will be implemented to further minimize the potential impact of construction disturbance to fauna in habitats near the Application Site during construction phase.

Surface Runoff

8.2.17 Potential impacts to nearby aquatic habitats (e.g., drainage channel, abandoned ponds, nullah) during the construction phase would mainly arise from sedimentation due to surface runoff. Sediments carried by site runoff could increase the suspended solids load in the water bodies, and could decrease dissolved oxygen levels. A lower oxygen level would affect stationary species, whilst mobile species would tend to temporarily avoid the area. The result could be a temporary reduction in aquatic life abundance, and might affect the uses as foraging and roosting habitats by waterbirds. The potential impact due to runoff is **Minor to Moderate** when without mitigation. Mitigation measures will be required, and have been recommended in Section 8.4 of this report.

8.2.18 As stated in Section 8.4 of this report, contractor(s) of this Project will prepare the temporary site drainage system; wastewater treatment facilities; and maintenance of drainage system in order to ensure that the mitigation measures are in place.

8.2.19 In addition, good site practice and precautionary measures (e.g. those in Section 8.4) will be implemented to avoid the potential impact due to runoff.

Light Glare

8.2.20 The behavior and distribution of nocturnal wildlife and night roost of birds may be affected if strong artificial lightings are present. However, there are existing artificial lightings in the surrounding areas of the Application Site. Fauna sensitive to lightings would have already avoided these areas. Besides, no night roost of birds was found near the Application Site.

Potential impact due to light glare during construction phase is considered **Insignificant**.

Potential Impacts to WRA during the construction of Residential Area

8.2.21 During the construction of the residential area, disturbance to the then-completed Wetland Restoration Area might result. The potential impacts include human and/or dog intrusion into the wetland, dumping of rubbish, spillage of chemicals and/or oil, fire hazard and discharge of grey or other water/liquid into the WRA. Besides, due to the close proximity to the proposed residential portion, other impacts due to noise, vibration, light, surface runoff, etc arising from the construction activities are also expected. Magnitude of impact from humans and dogs would depend upon frequency and number of individuals, hence the potential impact is ranked **Low to Moderate.** Magnitude of other forms of disturbance is ranked **Moderate,** if unmitigated. Phasing of the construction, good site practice and precautionary measures as well as adopting quiet machinery and construction method, and erection of hoardings / noise barriers, will be implemented to avoid the potential impact due to construction. With the implementation of these site practices, it is anticipated the potential impacts could be mitigated to acceptable level.

Potential impact on Recognized Sites of Conservation Importance

8.2.22 The Application Site is 176m away from the WCA, but about 70% of Application Site falls within the WBA. Construction works will not affect the ecological integrity of the fishponds and wetlands within WCA, or cause directly habitat loss in WCA. During the Application Site falls within the WBA, The project will, where applicable, adhere to the "no-net-loss in wetland" principle and the criteria set out for the wetland enhancement and management scheme in the TPB Guidelines No. TPB PG-No. 12C. With

the implementation of the mitigation measures described in section 8.4, there will be no adverse impact during construction phase.

8.2.23 Regarding the potential disturbance impacts during construction phase to recognised sites of conservation importance in Northwest New Territories, including the Mai Po Inner Deep Bay Ramsar Site, Mai Po Nature Reserve, Mai Po Village SSSI, Mai Po Village Egretry and Mai Po Marshes SSSI, where are more than 1.4 km from the Application Site, while Wetland Conservation Area is 176m away from the Application Site. It is considered unlikely as most of these sites of concern are far away from the Application Site, and also sheltered from the Application Site by other developed areas in between. Construction disturbance from the proposed project will be localized, reversible and short-term. The potential impact to these recognized sites of conservation importance is considered **Insignificant**.

8.2.24 The Project is not expected to cause disturbance or impact to the foraging grounds of ardeids nesting in Shan Pui River Egretry, Mai Po Village Egretry or Tung Shing Lane Egretry. There are abundant suitable wetland habitats near the Shan Pui River Egretry, in particular to the north of the egretry (BV 2021). The flight line survey by ENVIRON Hong Kong Limited (2013) showed that most breeding ardeids of Mai Po Village egretry flew to Mai Po, Tam Kon Chau or other nearby wetlands to forage, while the breeding egrets from Tung Shing Lane Egretry flew towards downstream section of Kam Tin River Drainage Channel and Nam Sang Wai (AEC 2017). The abandoned pond within the Application Site is not an important foraging habitat of ardeids due to the long distance, high level of disturbance and the absence of periodic drain-down due to abandonment. In addition, foraging habitats (e.g., fishponds) are present near the Mai Po Village egretry as well as in Nam Sang Wai and near downstream section of Kam Tin River Drainage Channel, so utilisation of habitats within the Study Area by nesting ardeids is expected to be low. Therefore, the potential impact to the egretries during construction phase is considered **Insignificant**.

8.2.25 Regarding the aquatic habitats in Deep Bay, discharge, if any, from the Project Site may cause impacts if containing pollutants. The existing ponds within Subject Site used to be commercial fishponds. At that time when drain-down of these existing ponds within the Subject Site were needed due to operational needs, water would discharge into adjacent existing drainage ditches then to the existing Ngau Tam Mei Drainage Channel without any treatment. During construction of the proposed development, construction activities will be conducted in phases. The WRA will be created first, before the construction of the residential buildings. The construction activities at the existing abandoned ponds will be scheduled to immediately after the dry season as far as possible when the water level is lowest in the year. Prior to the construction commences, water from the ponds within the WRA extent will be drained to other ponds as temporary storage. If there is still water in the WRA, the remaining water will, with the consent of the owners of those ponds sought by the Applicant, be transferred to other ponds outside the Application Site as temporary storage. The chance to drain pond water to the adjacent existing ditches would thus be low. Even if a discharge is needed, as it is expected that the water is of similar quality as when these ponds were commercial fishponds, but with less organic content as no fish feeding, it should not be a water quality issue. Besides construction site surface runoff will be controlled with proper treatment before discharge under environment impact assessment as in other construction sites, the risk of affecting aquatic habitat of Deep Bay due to surface runoff is remote.

Potential Impact on Species of Conservation Importance

8.2.26 16 waterbirds / wetland dependent bird species of conservation importance were recorded in the abandoned ponds within the Application Site during the 12-month survey and verification survey. However, these species were present in low abundance (**Table 12)**. Due to the mobility of

the birds and the suitable habitats available in the vicinity, the potential impacts to the bird species of conservation importance is considered **Minor to Moderate** without mitigation**.** Mitigation is required and is proposed in Sections on mitigation below.

8.2.27 Twenty-nine bird species of conservation importance were present in low abundance outside the Application Site but within the Study Area. Due to the mobility of the birds, low abundance of the species of conservation importance recorded and the suitable habitats available in the vicinity, the potential impacts to the bird species of conservation importance is considered **Minor** even for the bird species of conservation in the abandoned ponds next to the Application Site, but except the waterbirds in Ngau Tam Mei Drainage Channel.

8.2.28 Fauna species of conservation importance were not present in high abundance in the section of Ngau Tam Mei Drainage Channel near the Application Site. However, as revealed by reviewed literature, high counts of waterbirds (mostly ardeids) were occasionally recorded in the Ngau Tam Mei Drainage Channel in low tides during wintering season. The potential impact to waterbird species of conservation importance will be **Minor to Moderate.**

8.2.29 Only one individual of Japanese Pipistrelles was recorded foraging within the Application Site. This is the commonest bat species in Hong Kong, occurs in many types of habitats (Shek 2006) and few more individuals were also recorded in other parts of the Study Area. In fact, alternative foraging habitats (e.g., wasteland, abandoned pond) are available outside the Application Site. Hence, the potential impact to this species is considered **Insignificant**.

8.2.30 The short-nosed Fruit Bat was outside the Application site and will not be directly affected. Since the roosting site was away from the Application site

and will not be adversely affected by construction disturbance. The potential impact to this species is anticipated to be **Insignificant**.

8.2.31 Many-banded Krait was recorded within the Application Site and Common Rat Snake was recorded outside the Application site. Both species were present in low abundance. These species are widespread in Hong Kong and there are large areas of habitat in the Study Area which are suitable for these species. The potential impact to this species is anticipated to be **Insignificant**.

8.2.32 Grass Demon was recorded outside Application Site and will not be directly affected. As only one individual was recorded during the survey. The potential impact to this species is anticipated to be **Insignificant**.

8.2.33 Scarlet Basker was recorded within Application Site. There are large areas of habitat in the Study Area which are suitable for these species. As only one individual was recorded during the survey. The potential impact to this species is anticipated to be **Insignificant**.

8.3 *Operation Phase Impacts*

Human activities and Noise

8.3.1 Human activities and noise of the Application Site might potentially affect the utilization of surrounding habitats by fauna during operation phase. Firstly, the expected residential population in the Application Site will be small given the limited number of low-rise buildings (i.e. 2 to 4 storeys high low rise buildings). Large increase in human activities and the associated noise is not expected. Human activities will mainly be indoors and noise from residential houses will be mostly contained by walls of houses and screened by other houses in the Application Site. Also, the houses will be separated from the surrounding habitats by the landscape buffer and setback area. As presented in the landscape master plan, there will be a 2m perimeter landscape area around the entire Application Site with ornamental trees, shrubs and vertical green walls, and with a footpath about 6-7m behind as a setback. The residential portion will be mainly adjacent to developed areas, abandoned ponds, nullah, wasteland and

separated from the Ngau Tam Mei Drainage Channel, which is of relatively higher ecological value, by developed area.

8.3.2 The fauna in abandoned ponds adjacent to the Application Site might be affected by human activities in operation phase. There will be one major footpath/EVA inside the Application Site along the site boundary but will also be shielded from the surrounding habitats by the landscape buffer planting also along the site boundary. Abandoned ponds adjacent to the Application Site is considered of low to moderate ecological value. Also, houses in the Application Site will be separated from the nearest abandoned fishponds by landscape buffer and setback. The potential impact to these habitats and associated fauna due to human activities is ranked as **Insignificant.**

8.3.3 Fauna in developed areas, nullah and wasteland have been habituated to disturbance from noise of existing traffic and these habitats is considered of very low ecological values, and is not expected to be adversely affected by the noise from the Application Site.

8.3.4 High counts of waterbirds were occasionally recorded in the Ngau Tam Mei Drainage Channel near the Application Site at low tides in dry season. Houses in the Application Site will be at least 130m from the channel. In addition, the channel bottom of the Ngau Tam Mei Drainage Channel is lower in elevation than Kam Pok Road and developed area, and thus shielded from the Application Site by Kam Pok Road and surrounding developed area. The line of view of the birds foraging in the channel will be blocked from the human activities in the Application Site.

8.3.5 Potential impact to fauna of surrounding habitats due to human activities and noise is considered **Insignificant**.

8.3.6 The WRA is designed as a habitat for waterbirds. If there is disturbance from the residential buildings, it might potentially impact the waterbirds utilizing the WRA. There will be reed between the residential buildings and the WRA. In addition, wood trellis (of the design similar with bird hide, closely

arranged wood poles) will be provided behind the reed. For the nearest buildings (those immediately adjacent to the WRA) the windows will be opaque/translucent tempered glass to avoid bird collision, to reduce the potential disturbance on the WRA (see **Figure 5**).

8.3.7 There will be one major footpath/EVA inside the Application Site along the site boundary, but is mostly shielded from the WRA by the residential buildings, and residents on the footpath are not expected to cause disturbance impact to the WRA.

Traffic Disturbance

8.3.8 The Application Site is a planned comprehensive development site well served by the existing public road network. No new road will be required to enable the proposed development. The Project will rely on the existing roads (i.e. Kam Pok Road East) for access purpose during operation phase. In fact, habitats adjacent to the existing access roads serving the site are mainly of low ecological value (e.g. developed area, wasteland etc.). Fauna inhabiting these habitats are habituated to the existing disturbance. The potential impact to these habitats and associated fauna due to traffic noise during operation phase will be **Insignificant**.

8.3.9 The fauna in WRA or in the surrounding abandoned ponds may be affected by the future residential internal traffic. However, most of the houses are served by underground car parking space and linked with an underground vehicular access, and thus future internal traffic would be limited to near the site entrance. The potential impact to these habitats and associated fauna due to traffic during operation phase will be **Insignificant**.

Artificial Lightings

8.3.10 The behavior of nocturnal wildlife may affected by the increased residential lighting. Nocturnal animals either avoid or are attracted to lighted areas. Areas near the Application Site is mostly developed area. Residential buildings and other lighting sources have already been present in localities adjacent to the Application Site for a significant duration, and fauna inhabiting in nearby habitats have probably habituated to lighting. Other

lightings in the Application Site will only be directed to target areas (i.e., Club house facticity, access roads) and lighting will be kept to minimum lux level for safety. Potential impacts to fauna from this source are considered **Insignificant.**

8.3.11 The fauna in WRA may affected by the increased residential lighting. However, buffer zone with planting between the houses and the WRA is proposed in the surrounding wetland area, will form a barrier between the houses and the WRA. For the nearest buildings (those immediately adjacent to the WRA) the windows will be opaque/translucent tempered glass to avoid bird collision. The potential impact to these habitats and associated fauna due to lighting during operation phase will be **Insignificant.**

Runoff and Effluent Discharge

8.3.12 During the operation phase of the Project, there will be additional paved areas, roads and facilities which may contribute to an additional stormwater surface runoff due to the change of catchment characteristics.

8.3.13 Drainage system will be provided for the formed and paved road/areas in the residential potion of the proposed development to collect stormwater surface runoff. Collected surface runoff from the Application Site will be conveyed to existing government drains after passing through screening facilities. As the proposed Project is a low-density residential development, no considerable pollutants are expected on the road surface. There will be no adverse impact on water quality due to surface runoff.

8.3.14 All sewage will be properly collected by public sewer, no adverse water quality impact is expected. The potential off-site impact on the drainage channel is considered **Minor** during the operational phase of the project.

Barrier Effect to Bird Flight

8.3.15 The heights of noise barriers (ranging from 4.8m to 10.1m), fence wall (2.5m) and units of different types of unit which are ranging from 2-storeys

to 4-storeys, of the proposed project are similar to the existing buildings around the Application Site. Large waterbirds, including ardeids and Great Cormorant, which are of lower flight manoeuvrability and were recorded during the ecological survey, mainly flew along the drainage channel within the Study Area, rather than the Application Site. The dry season flight path survey results indicated that no major flight line through the Application Site, while the recorded number of birds flew over the site was low (only 17 numbers from two months) and not showing any patterns or forming a major path. This indicated that the site is not of significance for bird movement. The flight height of the small number of birds flew over the site ranged between 15m and 25m above ground. Only a very small number of buildings (i.e. the 4-storeys) has minor overlap (about 3m) with their current range of flight height. In addition, observations of previous studies showed that most large waterbirds flew at heights higher than the buildings in the Project Site. Flights of these species will not be impeded by buildings in the Application Site. The potential impact due to barrier to the flight of birds is considered **Insignificant.** Besides, the Project is not expected to cause disturbance or impact to the foraging grounds of ardeids nesting in Shan Pui River Egretry, Mai Po Village Egretry or Tung Shing Lane Egretry during the operational phase. It is noted that the tall noise barriers will be reduced / removed once all nearby open storage activities being phased out in the long-run

Noise Barrier and Bird Collision

8.3.16 The Project will provide of low-rise residential development and ancillary passive recreational facilities. In order to mitigate traffic noise and noise from industrial activities in the vicinity during the operation phase, permanent noise barriers are proposed as noise mitigation measures of the Project.

8.3.17 Noise barriers may potentially cause bird collision. However, no major flight line was observed over the Application Site during the field surveys. Birds, particularly large waterbirds, mainly flew along the Ngau Tam Mei Drainage Channel. The Application Site will be residential area during operation phase and still surrounded by urbanized/disturbed habitat during operation phase. Due to the disturbed nature of the Application Site and the surrounding areas, the Application Site is not considered as important ecological corridor. Frequent bird movement (including both land birds and waterbirds) through the Application Site is not expected.

8.3.18 Fence wall (2.5m high) and noise barriers (4.8m to 10.1m high) which composed of solid walls at base (2.5m high) and transparent panels on top are proposed along the Site boundary, The transparent part of the noise barrier will make use of non-glaring and tinted materials, putting dots or stripes on the transparent panels to reduce the risk of bird collision, particularly under dim condition (e.g., dusk and dawn). Due to disturbed nature of the area, the relative low height of noise barrier, and design adopted for the noise barrier, the potential risk of bird collision is anticipated to be **Insignificant.**

8.3.19 There is no glass curtain wall building, which is known to have bird collision risk, in the proposed development, but there would be limited small size tempered glass used for screening in some of the buildings. Though waterbirds, for which the proposed WRA is designed, normally have much lower collision risk than small-sized birds, opaque dots/lines of appropriate intervals (such as 5cm) will be incorporated on the tempered glass. These could make the glass visible to the birds and break the reflection, and have been proven effective to prevent bird collision.

Habitat Fragmentation

8.3.20 Although the abandoned ponds within the Application Site are connected to the ponds outside the Application Site to form a cluster of wetland which

supports small individuals of species of conservation importance, the abandoned ponds are surrounded by developed area or roads and isolated from other wetland habitats, and thus have already been fragmented. Fragmentation might still occur within the fragmented habitat. Currently these abandoned ponds support low to moderate abundance of birds. Frequent movement of wildlife through the Application Site in existing condition is not expected. The potential impact due to habitat fragmentation in the already fragmented habitat is considered **minor.** Besides, the layout plan has intentionally reserves the entire northern part of the Application Site as part of the WRA (without any residential buildings) to allow connection of the future WRA and the surrounding ponds, especially those to the north. As the WRA would be adjacent to the ponds outside the Application Site, and the future bund dividing the WRA with the adjacent ponds would be of smaller width than a typical earth pond bund currently occurring in the ponds of Pok Wai (both within and outside the Application Site), the connectivity of wetland between WRA and the adjacent ponds could be maintained, provision of small openings in the proposed reinforced concrete wall along the northern boundary, is being considered to facilitate the movement of small animals, including but not be limited to the amphibians and reptiles species recorded in the ecological survey.

Potential disturbance to Recognized Site of conservation Importance

8.3.21 The Project will not affect the ecological integrity of the fishponds and wetlands within the WCA during operation phase. Regarding the potential disturbance impacts during operation phase to Wetland Conservation Area, it is considered unlikely as the Project Site is separated from the WCA by long distances (more than 176 m). Disturbance of noise and artificial lighting from the residential buildings will be confined to areas adjacent to the

Project Site. The potential impact to these sites from the development project during operation phase is considered **Insignificant**.

8.3.22 Regarding the potential disturbance impacts to other recognized sites of conservation importance during operation phase (i.e. Mai Po Inner Deep Bay Ramsar Site, Mai Po Nature Reserve, Mai Po Marshes SSSI, Mai Po Village SSSI, Mai Po Village Egretry and WCA). It is considered unlikely as the Application Site is separated from these sites by long distances. Disturbance of noise and artificial lighting from the residential buildings will be confined to areas adjacent to the Application Site. The potential impact to these sites from the development project during operation phase is considered **Insignificant.**

Potential Impact on Species of Conservation Importance

8.3.23 During the operation phase, the waterbird or wetland dependent bird species of conservation importance can get benefits from the WRA, a positive impact will be induced. One butterfly and bat species were recorded within the Application Site, but due to their mobility, the proposed WRA and landscape areas as well as some developed area can provide habitat for the species. Other species of conservation importance recorded outside the Application Site are already habituated to the artificial habitat in the vicinity and hence the potential impacts to other species of conservation importance are considered **minor**.

9. MITIGATION MEASURES

9.1 *Project Design Concept*

9.1.1 The present Project follows the planning intention stated in section 8.1.1 above. It is proposed to provide a comprehensive development to include a Wetland Restoration Area through transformation of the existing abandoned ponds into wetlands with higher ecological functions (such as more shallow water area for waterbirds) and proper management.

9.2 *Impact Avoidance*

9.2.1 **Avoidance of WCA** - The Application Site is located outside the boundary of WCA. The proposed development has thus avoided encroachment on sensitive habitats such as the fishponds and wetlands in WCA.

9.2.2 **Avoidance of Additional Habitat Loss** - The Application Site will be accessed by existing road network during both construction and operation phases. There will be no impact due to temporary or permanent loss of habitats from construction of access.

9.3 *Impact Minimisation*

9.3.1 **Construction Disturbance –** Clear demarcation of the Application Site limits is required in order to minimize and contain any disturbance during the construction period.

9.3.2 Literature review and ecological surveys showed that high counts of waterbirds occasionally foraged in the Ngau Tam Mei Drainage Channel Site during low tides in winter. As proposed under environmental impact assessment, utilisation of quiet construction method and machinery will be undertaken during the whole construction period. These environmental measures could also minimize the potential disturbance to fauna in the vicinity of the Application Site from construction noise.

9.3.3 There will be two types of hoarding, perimeter hoarding and WRA hoarding. Perimeter hoarding will properly delineate the works site boundary and screen disturbance to the nearby habitats during construction phase. In order to minimize disturbance to the WRA during construction phases I and II of the residential portion that are located further away from the WRA, a protective hoarding will be erected around the WRA, screening the disturbances generated from the construction of the residential portion. To reduce the potential disturbance to wildlife utilizing habitats near the Application Site, the hoardings will be made of opaque, non-reflective

materials and painted in colour that will blend in with the environment. The workers will be instructed not to disturb any nearby habitats, and any works beyond the boundary would be strictly prohibited.

9.3.4 Standard site practice would be implemented to minimise potential impacts on the surrounding environment. Particularly for the sheet piling and construction of concrete wall separating the abandoned ponds lying outside the Site boundary, standard good site practice will be strictly followed to minimize the disturbance to water quality, including but not limited to the excessive fluid, diesel and fuel leaks and spills, proper storage of equipment and materials.

9.3.5 Dispersion of dust, noise and silty runoff generated during construction can be minimized by good site practice listed as follows.

- Regular checking should be undertaken to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas;
- Implementation of mitigation measures specified in ProPECC PN 1/94 to control site runoff and drainage at all work sites during construction;
- Implementation of noise control measures at all construction sites to reduce impacts of construction noise to wildlife habitats adjacent works areas;
- Implementation of dust control measures at all construction sites to minimise dust nuisance to adjacent wildlife habitats during construction activities;
- Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby waterbodies by rain;
- Construction effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order;
- Proper locations for discharge outlets of wastewater treatment facilities well away from the natural streams/rivers should be identified; and
- Supervisory staff should be assigned to station on site to closely supervise and monitor the works.

9.3.6 **Low-rise Building -** The layout proposed will only involve the construction of low-rise buildings with a maximum height of ranged 9m to 18m. This will minimize the potential barrier effect to bird flights.

9.3.7 **Design of Noise Barriers -** The Recommended Layout Option has the lowest overall height of noise barrier. This would minimize the potential impact of bird collision. Minimization of bird collision will also be taken into account in the design of noise barrier. The transparent part of the noise barrier will make use of non-glaring and tinted materials, putting dots or stripes on the transparent panels to reduce the risk of bird collision, particularly under dim condition (e.g., dusk and dawn) to reduce bird collision.

9.3.8 **Wetland Restoration Area** - The earth works and water filling as well as planting works of reed and submerged plants for the WRA will be conducted during the wet season of the first year of construction programme prior to the main construction works adjacent to the WRA (Phase III, **Figure 6** refers) of the proposed residential development, to avoid disturbance to the habitat within WRA before the active season of waterbirds. An 18-months establishment period covering both dry and wet season is required for the wetland as well as the reed and other vegetation to establish and provide full function of the wetland. However, the construction programme will take the potential impacts to the WRA into consideration i.e. key construction works adjacent to the WRA and the construction works for the superstructure, underground services and utilities, and roadworks of Phase II will be commenced after the WRA is well established to minimized the potential impacts to the establishment of the WRA (**Table 15** refers). Details of phasing of the construction works will be discussed in **section 9.3.11 – 9.3.14**.

Table 15 Timeline of the construction of the WRA and the Phasing of the Construction Works

Construction works of the WRA and residential portion	2025									2026											2027	
	Wet season							Dry season					Wet season							Dry Season			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Phase I - Construction of WRA (Apr 2025 – Jun 2025)																							
Installation of sheet piling to separate ponds lying on boundary																							
Drain down of Ponds																							
Construction of bunds/walls for ponds lying on boundary																							
Re-profiling earth works																							
Planting of the reed and submerged plant																							
Re-filling WRA																							
18 months establishment period of WRA (Jul 2025 – Dec 2026)																							
Establishment period of WRA																							
Phase II - Construction works other than superstructure, underground services and utilities, and roadworks (Jul 2025 – Mar 2027)																							
Phase II construction																							

Table 15 Timeline of the construction of the WRA and the Phasing of the Construction Works (cont.)

Construction works of the WRA and residential portion	2027							
	Dry season	Wet season						
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Phase II - Construction works other than superstructure, underground services and utilities, and roadworks (Jul 2025 – Mar 2027)								
Phase II construction								
Phase II - Construction works for the superstructure, underground services and utilities, and roadworks (Apr 2027 – Jul 2027)								
Phase II construction								
Phase III - Construction works of the Phase III units (Jul 2027 – Oct 2027, without overlap with Phase II)								
Phase III construction								

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9.3.9 Furthermore, a temporary hoarding around the WRA will be erected during the construction of WRA. Once the temporary hoarding is formed, the site formation and earth works for the WRA will be commenced in the wet season before the key residential development located adjacent to the WRA. In addition, no unnecessary workers or machinery will be deployed in the WRA in particular during dry season, so as to minimize disturbance impacts during the period of greatest abundance of disturbance-sensitive waterbirds.

9.3.10 During the construction period, no dogs will be allowed on the construction site to ensure that these do not provide a source of disturbance to waterbirds. Access to WRA of construction workers is not allowed unless for management and/or maintenance purposes of the WRA. Good site practice and selection of quiet equipment are expected to minimize noise impacts to waterbirds. Night-time light disturbance will be minimized by limiting the amount of lighting on the Application Site and by locating light sources far away from the adjacent ponds.

9.3.11 **Phasing of the construction works -** The construction period will be divided into 3 phases, Phase I will be the construction of the WRA; Phase II is the construction of the residential portion in western part of the Application Site; Phase III is the rest parts of the Application Site (**Figure 6** and **Table 15** refer). The potential ecological impacts could be minimized by the phasing of the construction works.

9.3.12 The WRA could minimize the impacts of temporary habitat loss of the abandoned pond during the construction phase and to ensure ample time for the establishment of the WRA itself. The primary objective is to mitigate any potential impacts on wetlands, taking into account the subsequent wetland establishment period. During the 18 months period covering both dry and wet season (Jul 2025 – Dec 2026) (**Table 15** refers) wetland establishment period prior to the construction adjacent to the WRA (Phase III), no major construction activities will take place adjacent to the WRA.

This deliberate measure is intended to minimize any disturbance to the WRA caused by the construction works associated with the residential portion of the project. By allocating a dedicated period for wetland establishment, the phasing of construction works aims to provide sufficient time for the natural processes to restore and establish the wetland ecosystem within the designated area. This period allows for the growth of wetland vegetation (especially the reed), the establishment of wildlife habitats, and the overall development of a self-sustaining wetland ecosystem. During this establishment period, the focus is on creating favorable conditions for wetland species to flourish. This may involve actions such as controlling water levels, managing soil composition, replenishment of plants and implementing measures to prevent erosion if necessary. These efforts are essential in promoting the successful establishment of the WRA and ensuring its long-term ecological viability.

9.3.13 Following the first phase of the construction, the construction of Phase II other than superstructure, underground services and utilities, and roadworks will commence (**Table 15** refers). The construction will work on the part further away from the proposed WRA first. Unlike other construction of residential towers of other projects, the construction of Phase II (except the superstructure, underground services and utilities, and roadworks) does not require any percussive piling works, which are typically the primary sources of noise in construction. Instead, the construction activities involve excavation during footing works, material loading and unloading. While these activities may generate some noise and cause disturbances, the noise level is significantly lower compared to the loud noise produced by percussive piling. Additionally, the temporary hoarding between the WRA and the residential area acts as a barrier, further reducing potential impacts. As a result, it is not expected that the construction of Phase II (except the superstructure, underground services and utilities, and

roadworks) will have significant negative effects on the establishment period of the WRA.

9.3.14 Once the establishment period is completed, the construction works of superstructure, underground services and utilities, and roadworks of Phase II will be initiated accordingly without overlap (**Table 15** refers). The construction will work on the part further away from the proposed WRA first. Once the Phase II construction is complete, Phase III construction will begin accordingly. The reedbed zone surrounding the water zones, along with the landscape planting near the WRA, and the presence of temporary hoarding between the units and the WRA, are expected to serve as buffers to mitigate disturbances during the period of construction phase.

9.3.15 The perimeter hoarding to be erected between the northern part of the WRA and the abandoned ponds to the north of the Application Site will be removed after the completion of construction of the WRA to enhance the ecological connectivity of those areas during the establishment period. While small openings will be provided in the reinforced concrete wall along the northern boundary to facilitate the movement of small animals, and the design of the openings will be provided in the detailed design stage. During the main construction phase (Phase III) for the residential development, there will be temporary WRA hoarding along the interface between the WRA and the residential area. Like the perimeter hoarding, the WRA hoardings will also be made of opaque, non-reflective materials and painted in colour that will blend in with the environment. The hoarding will reduce anthropogenic disturbance and impacts from the construction activities in the proposed residential area to the WRA. As the proposed WRA will start functioning after completion, where possible, the major superstructure construction of the buildings with higher disturbance located nearest to the WRA (i.e. Phase III) should avoid winter season that is the main period with more wildlife (i.e. waterbirds) utilizating the WRA.

9.3.16 **Operational phase of WRA** - no unsupervised public access into the WRA will be allowed to ensure that direct human disturbance to waterbirds in the wetlands will be avoided as far as possible. Reed bed will be formed along the interface between the WRA and the proposed residential area. The reed bed will minimize and screen out the disturbance to waterbirds in the open water zones. Furthermore, according to the most recent Landscape Master Plan, specific sections of partition walls measuring 5 meters and 2.5 meters in height will be strategically placed between the residential area and the WRA. These walls serve the purpose of effectively screening out any potential disturbances that may arise from the residential portion to the WRA during the operational phase, despite the fact that residential activities are generally conducted indoors and are relatively quiet. As a result, the potential impacts caused by the residential area to the WRA during the operational phase can be minimized to an acceptable level. The inclusion of these partition walls in the design plan demonstrates a proactive approach to ensuring the preservation and undisturbed functioning of the WRA in the presence of nearby residential activities.

9.3.17 **Tall noise barrier design** - To mitigate noise disturbances to the Application Site, a series of noise barriers with heights ranging from 4.8 meters to 9.4 meters will be installed around the area. These tall noise barriers have the capacity to effectively screen out noises generated outside the Application Site, such as those stemming from construction activities, open storage areas, carparks, and nearby village houses. The strategic placement of these noise barriers also took into account the ecological connectivity between the WRA and the adjacent wetland habitats. Specifically, openings have been incorporated into the noise barriers in the western and northern sections of the WRA. This design feature ensures that the connectivity between the WRA and the abandoned ponds in close proximity to it remains unobstructed, preventing any potential blockage and maintaining the ecological continuity of the wetland habitats. In addition, stickers for the

prevention of bird collision will also be applied on the tall noise barrier during the operational phase.

9.3.18 The above measures will all contribute to the minimization of potential construction disturbance to the surrounding habitats and associated fauna. With the implementation of these measures, noise and disturbance impact would be mitigated to an acceptable level and no residual impact is anticipated.

9.4 *Compensation – Created Wetland Restoration Area*

9.4.1 The mitigation objective for the Wetland Restoration Area is to follow the "no-net-loss in wetland" principle and wetland enhancement and management scheme of the TPB Guidelines (TPB PG-No. 12C). Under the guiding principles, management of the retained wetland habitat to enhance the ecological value of the habitat is proposed as part of the proposed development within the Application Site.

9.4.2 Findings from literature review and results of the surveys indicate that the overall ecological value is ranked low to moderate in the Application Site. The Application Site supported low diversity and abundance of flora and fauna. The exception was bird fauna, which was of low to moderate diversity and abundance, but most species recorded were common and widespread in the Deep Bay. Retaining certain habitats in their present form may not be the most ecologically-beneficial approach for the site (i.e. In particular, the deep water level and overgrown by vegetation, waterbird usage was limited to the limited pond edge). It is believed that habitat management can be considered to increase the ecological function of this wetland to over the existing levels. This will be achieved by provision of a greater diversity of habitats (including water zones with different water depth, wood log, island, submerge plant, and reedbed) suitable for both wetland-dependent and other taxa.

9.4.3 In order to compensate the impact and enhance the ecological value of the habitat, a total of the 2.47 ha (~48.4% of the Application Site) of abandoned ponds will be enhanced as a Wetland Restoration Area. The proposed Wetland Restoration Area is planned to be located in the middle part of the Application Site with its western side immediately next to other abandoned ponds adjacent to the northern side of the Application Site. The WRA comprises different elements to provide a variety of microhabitats i.e. shallow water, wood log, island, submerge plant and reedbed. Though smaller in size, the WRA could provide more areas which are available for usage by ardeids, by providing more shallow water areas (if the ponds are without drain down, ardeids only able to use the water edge along pond bunds. Assuming an one meter zone along the bunds, the existing shallow water area available for waterbird is about 0.22 ha, and the future WRA will provide about 0.93 ha shallow water area, it should be noted that signs of pond bund renovation, pond reprofiling, vegetation management and fisheries activities were observed in the abandoned ponds within the Application Site). In addition, the planting of riparian vegetation along the island as well as the natural substrate pond bottom which will promote the aquatic fauna community.

9.4.4 The mitigation objective for the Wetland Restoration Area is to follow the "no-net-loss in wetland" principle and wetland enhancement and management scheme of the TPB Guidelines (TPB PG-No. 12C). Under the guiding principles, management of the retained wetland habitat to enhance the ecological value of the habitat is proposed as part of the proposed development within the Application Site.

9.4.5 Loss of habitat for species of conservation importance including Little Grebe, Yellow Bittern, Chinese Pond Heron, Grey Heron, Great Egret, Little Egret, Great Cormorant, Black Kite, Eastern Buzzard, Greater Coucal, White-throated Kingfisher, Collared Crow White-cheeked Starling, Mallard and Purple Heron will be compensated by the provision of suitable habitats in

the WRA, including shallow water, wood log, island, submerge plant and reedbed, prior to the major construction works in the residential portion. Details of operation of the Wetland Restoration Area will be described in the "Section 16 Planning Application for Kam Pok Road East – Comprehensive Development to include Wetland Restoration Area – Wetland Restoration Proposal" (WRP). The wetland restoration aims to enhance the ecological value of the WRA by creating additional wetland habitats that provide resources and shelter for migratory birds and other wildlife. This expansion of suitable habitats directly benefits the WBA by extending its capacity to support a greater number of species and promoting ecological connectivity within the WCA. The restoration efforts focus on improving vegetation, water quality, and ecological processes to attract more migratory birds and enhance the overall ecological value of the WCA. Additionally, the design includes larger shallow water areas and varying water depths to provide diverse micro-habitats for waterbirds, ensuring their roosting and feeding needs are met. The mitigation target includes the presence of targeted waterbird groups/families recorded during Ecological Impact Assessment (EcoIA) after WRA establishment over a 12-month period; achieving target level of total abundance of Ardeidae (most abundant bird family during EcoIA, occurring year-round in Hong Kong, and less cryptic) within proposed WRA. Target level based on total abundance of Ardeidae species recorded during corresponding month of EcoIA ecological survey.

Table 16 Summary of Construction Phase and Operational Phase Impacts

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
Construction Phase										
Permanent habitat loss	Works areas of the proposed residential development and WRA	0.2 ha of developed area and 4.9 ha of abandoned pond (2.43 ha will be the residential protion, but 2.47 ha will become WRA)	Ecological value of developed area: very low; Abandoned pond: low to medium	Low abundance and diversity of wildlife in developed area; low to medium abundance and diversity of birds in abandoned pond	developed area: 0.2 ha; Abandoned pond: 4.9 ha;	Permanent	Not reversible	Low to moderate	Insignificant for developed area; moderate for abandoned pond.	Not required for developed area; Wetland compensation as WRA in operational phase for the loss of abandoned pond

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
Temporary habitat loss	Works areas of the residential development and WRA	2.47 ha of Abandoned pond for the WRA	Ecological value of abandoned pond: low to medium	Low abundance and diversity of wildlife in developed area; low to medium abundance and diversity of birds in abandoned pond	Abandoned pond: 2.47 ha for the WRA;	Temporary	Not reversible for those for residential development; Reversible for the WRA	Low	Minor for construction of WRA and moderate for construction of residential portion	The loss of ecological value will be fully compensated and even is expected to be increased significantly by the proposed WRA.
Dust	Construction works	Sensitive habitats near the works area	Vary with habitat types	Fauna in habitats adjacent to the works area	Vary	Temporary	Reversible	Low	Insignificant	No.
Construction Noise and other	Construction works	Sensitive habitats near	Vary with habitat types	Mainly waterbirds	Vary	Temporary	Reversible	Low as no piling	Insignificant for general	Use of quiet machinery;

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
disturbance impact		the works area							construction works (no piling is required) Minor for creation of WRA Minor for fauna in surrounding ponds and nearby drainage channel in wet season, Minor to Moderate in dry season.	Perimeter hoarding and WRA hoarding to be erected. Good site practice as required in other assessment
Surface run-off	Construction works	Wetland habitats (e.g. abandoned ponds and drainage	Vary	Aquatic fauna and wetland dependent species	Vary	Temporary	Reversible	Minor to Moderate	Minor to moderate	Follow water quality mitigation measures; standard good site practices

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
		channel)								
Light glare	Works area	Habitats surrounding and adjacent the works area	Vary	Nocturnal fauna	Vary	Temporary	Reversible	Insignificant	Insignificant	No
Impacts to WRA	Construction works for residential buildings	Future WRA	Created wetland, anticipated higher than existing abandoned fishponds	Mainly waterbirds	2.47 ha	Temporary	Reversible	Minor to moderate	Low to moderate due to human activities; Moderate due to noise, vibration, light, surface runoff etc.	Good site practice as required under other assessment; adopting quiet machinery and construction method, WRA hoarding; workers are not allowed going into the WRA unless management/maintenance purposes; phasing of the

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
										construction programme
Impacts on Species of conservation importance	Construction works and the proposed development	Fauna found within the Application Site	Very low for developed area and low to medium for abandoned ponds	Waterbirds / Wetland dependent species of conservation importance; Japanese Pipistrelles	Low	Temporary, until the WRA is ready	Reversible	Low	Minor to moderate for waterbirds found within the Application Site Insignificant for Japanese Pipistrelles	Provision of the WRA; 18-months establishment period is adopted for the WRA
		Fauna species of conservation importance outside the Application Site and abandoned	Low to medium	Waterbirds / Wetland dependent species of conservation importance	Low	Temporary	Reversible	Low	Minor	No.

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
		ponds near the Application Site.								
		Ngau Tam Mei Drainage Channel	Medium	Waterbirds / Wetland dependent species of conservation importance	Occasionally high in low tide during winter	Temporary	Reversible	Low	Minor to moderate	Follow water quality mitigation measures; standard good site practices
		Other fauna species of conservation importance outside Application Site	Vary	short-nosed Fruit Bat, Many-banded Krait, Grass Demon, Scarlet Basker	Low	Temporary	Reversible	Low	Insignificant	No
Impacts on	Construction	WBA, Mai Po	Vary, including	Mainly	Vary	Temporary	Reversible	Insignificant	Insignificant	No specific

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
recognized sites of conservation importance	works	Inner Deep Bay Ramsar Site, Mai Po Nature Reserve, Mai Po Marshes SSSI, Mai Po Village SSSI, Mai Po Village Egretry, Shan Puui River egretry, Tung Shing Lane egretry and WCA	sites of high ecological importance	waterbirds and wetland dependent species						mitigation is required given the distance and the perimeter hoarding will
Operational Phase										
Human activities	The proposed	Sensitive habitats near	Vary with	Fauna including	Vary	Permanent	Not Reversible	Low	Insignificant	No

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
and noise	development	the residential area	habitat types	those species of conservation importance						
Traffic Disturbance	The proposed development	Sensitive habitats near the residential area	Vary with habitat types	Fauna including those species of conservation importance	Vary	Permanent	Not Reversible	Low	Insignificant	No
Artificial light	The proposed development	Sensitive habitats near the potential development area	Vary	Nocturnal fauna including firefly and night roosting sites of ardeids and Great Cormorant	Vary	Permanent	Not Reversible	Low	Insignificant	No.

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
Runoff and effluent discharge	The proposed development	Wetland habitats	Vary	Aquatic fauna and wetland dependent species	Vary	Permanent	Not Reversible	Insignificant	Minor	No
Barrier effect to bird flight	The proposed development	N/A	Vary	Birds	Vary	Permanent	Not Reversible	Insignificant	Insignificant	No
Noise barrier and bird collision	The proposed development	N/A	N/A	Birds	Vary	Permanent	Not reversible	Low	Insignificant	No but the transparent part of the noise barrier will make use of non-glaring and tinted materials, putting dots, stripes and stickers on the transparent panels to reduce the risk of bird collision; strategic design of

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
										placement of tall noise barrier0.0
Habitat fragmentation	The proposed development	Surrounding Habitats	Ecological value of Abandoned pond: low to modium	Low abundance and diversity of wildlife in developed area; low to moderate abundance and diversity of wildlife in abandoned pond	Abandoned pond	Permanent	Not reversible	Minor	Minor	No
Impacts on recognized sites of conservation importance	The proposed development	WBA, Mai Po Inner Deep Bay Ramsar Site, Mai Po Nature	Vary, including sites of high ecological importance	Mainly waterbirds and wetland dependent	Vary	Permanent	Not reversible	Insignificant	Insignificant	No

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
		Reserve, Mai Po Marshes SSSI, Mai Po Village SSSI, Mai Po Village Egretry, Shan Puui River egretry, Tung Shing Lane egretry and WCA		species						
Impact on species of conservation importance	The proposed development	Species of conservation importance recorded in the vicinity of the Application Site	Vary	Species of conservation importance recorded in the vicinity of the Application Site	Vary	Permanent	Not reversible	Minor	Minor	No

9.5 *Positive Effects*

9.5.1 The design of the wetland has considered the potential connections to the adjoining wetlands. At two areas within the WRA, the WRA wetlands will be immediately adjacent to or without obstruction in between with other wetlands outside the Application Site, and can act as openings to the surrounding wetlands (see **Figure 5**). One opening is located at the northern side of the WRA, which will be near other abandoned ponds outside the Application Site in Pok Wai. The other opening is located at the western side of the WRA, which will be immediately adjacent to another WRA under a separated planning application. It is expected that with the future re-profiling, planting and management, the ecological functions of the WRA will be increased and will exceed that of the current abandoned ponds inside the Application Site. The connections with the adjacent wetlands will have mutual benefits as the WRA will extend its space in both air space and water-surface area, while the adjacent wetlands may have increase of waterbird usage given a higher quality wetland is present in the area. The WRA will also provide feeding opportunities for the waterbirds in the nearby Ngau Tam Mei Drainage Channel.

Landscape Planting

9.5.2 Vegetation cover in the Application Site will be enriched by landscape planting during operation phase. The planting of native species providing berry (e.g., *Syzygium jumbo*, *Viburnum odoratissimum*) and nectar (e.g., *Ixora chinensis*) will be recommended to enhance the food resources of birds. Nectar plants will also provide food resources for butterflies. The planting of trees will also provide roosting habitats for birds. The potential impact of replacement of existing plantation by landscape planting to birds and butterflies will be positive.

9.6 *Environmental Monitoring Programme*

9.6.1 Regular site audit will be conducted on weekly basis for checking the implementation of the proposed good site practice during construction phase.

9.6.2 Ecological monitoring of Wetland Restoration Area during both constructional phase and operation phase is proposed. Baseline surveys will be conducted prior to commencement of site construction works. Observations during construction phase monitoring will be compared against the baseline data, and the effectiveness of the recommended mitigation measures will be evaluated. Details of monitoring method will be given in the EM&A Manual during the detailed design stage. While the details of operation of the Wetland Restoration Area will be described in the "Section 16 Planning Application for For Kam Pok Road East – Comprehensive Development to include Wetland Restoration Area – Wetland Restoration Proposal ".

9.7 *Residual Impacts*

9.7.1 The residual environmental impacts refer to the net environmental impacts after the implementation of mitigation measures. With implementation of good site practice and compensation, there will be no significant residual impacts from the Project. And the loss of the 4.9 ha of abandoned ponds will be compensated by the provision of wetland restoration area which could provide more areas available for waterbirds as feeding and roosting ground. The residual ecological impacts of the project are considered acceptable.

10. *CONCLUSION*

10.1.1 About 70% of Application Site is located within WBA, but outside WCA. Habitats recorded within the Study Area included abandoned pond, active agricultural land, active pond, developed area, drainage channel, flood storage pond, meander, nullah, plantation, wasteland and woodland. Potential construction impacts include a permanent loss of 0.2 ha of developed area and 4.9 ha of abandoned ponds in which 2.47 ha will become the Wetland Restoration Area. Potential ecological impacts due to habitat loss are considered **Moderate**. Mitigation measures to minimize the

potential impact have been recommended. With mitigation measures in place, these impacts will be minimized to acceptable level. Species of conservation importance recorded during the ecological field survey within the Application Site included 16 bird species of conservation importance, 1 dragonfly, 1 reptile and 1 bat. Potential impact to these species is considered **Minor to Moderate**, and mitigation measures to minimize the potential impact have been recommended. With mitigation measures in place, these impacts will be minimized to acceptable level. The Project will follow the "no-net-loss in wetland" principle and wetland enhancement and management scheme of the TPB Guidelines (TPB PG-No. 12C).

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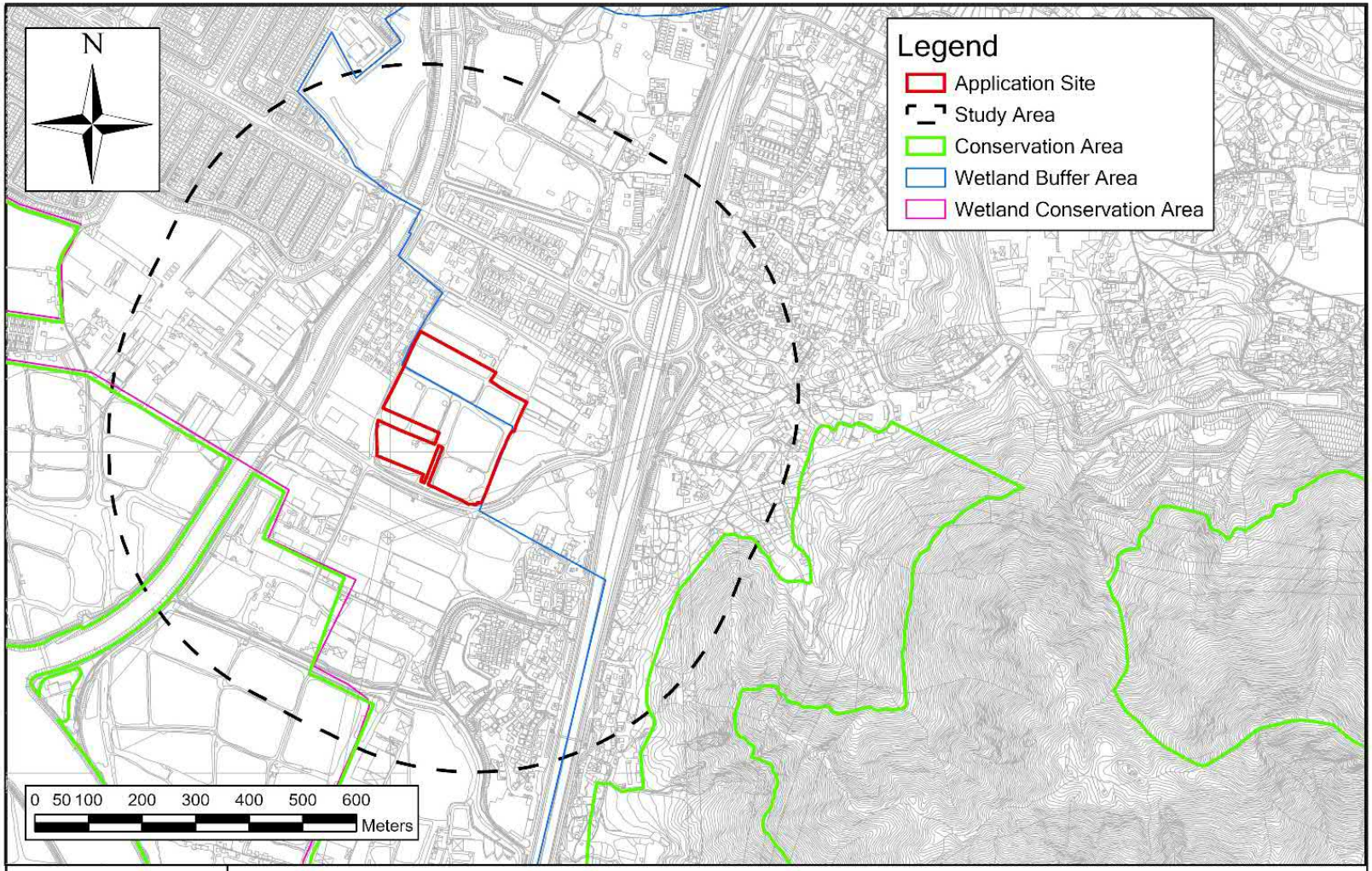
FIGURES



生態 Ecosystems Ltd. | **Figure 1** | **Locations of Application Site, Study Area and Recognized Sites of Conservation Importance within the Study Area**

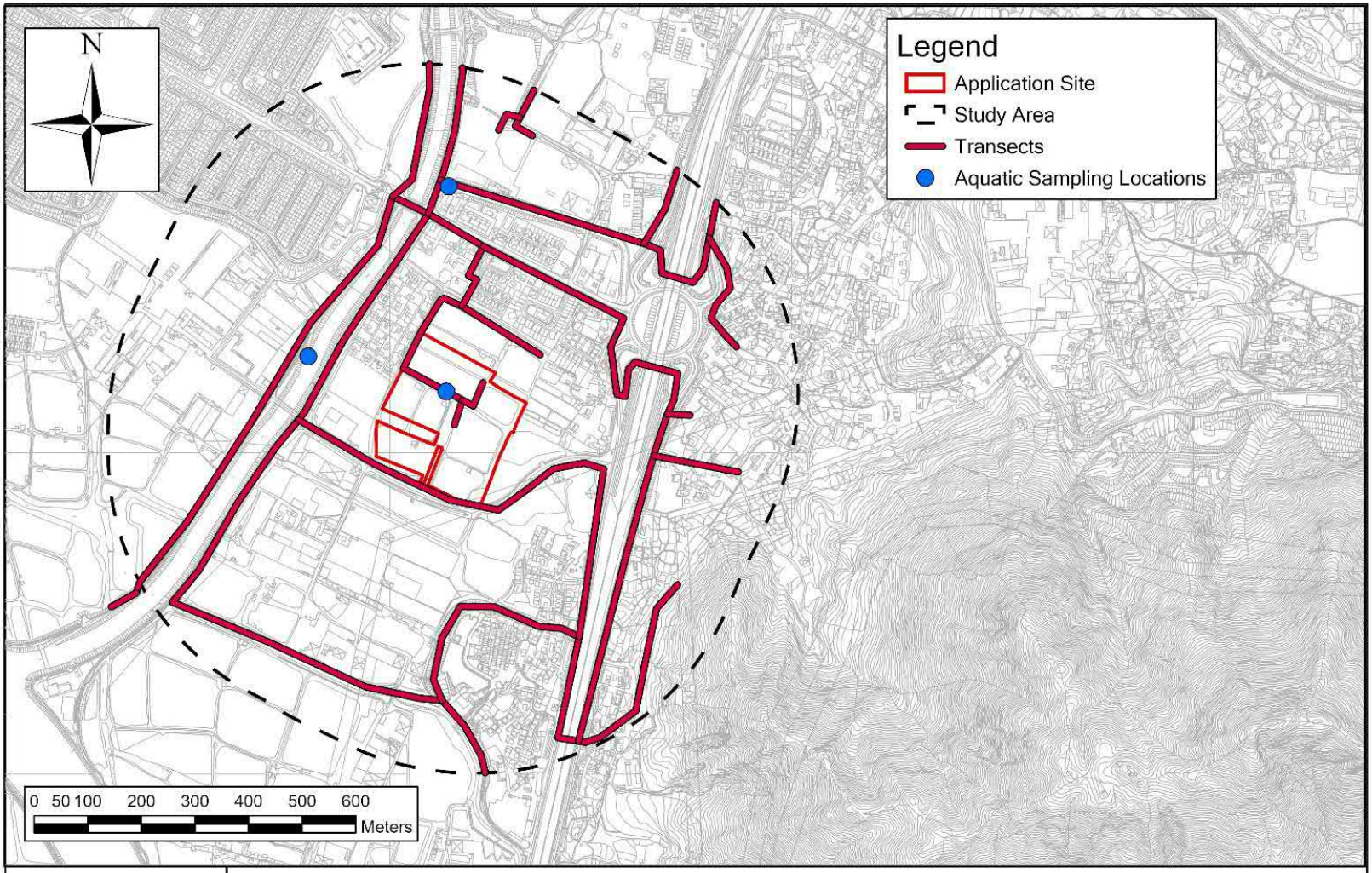


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Figure 2 Terrestrial fauna survey transects and Aquatic Sampling Locations

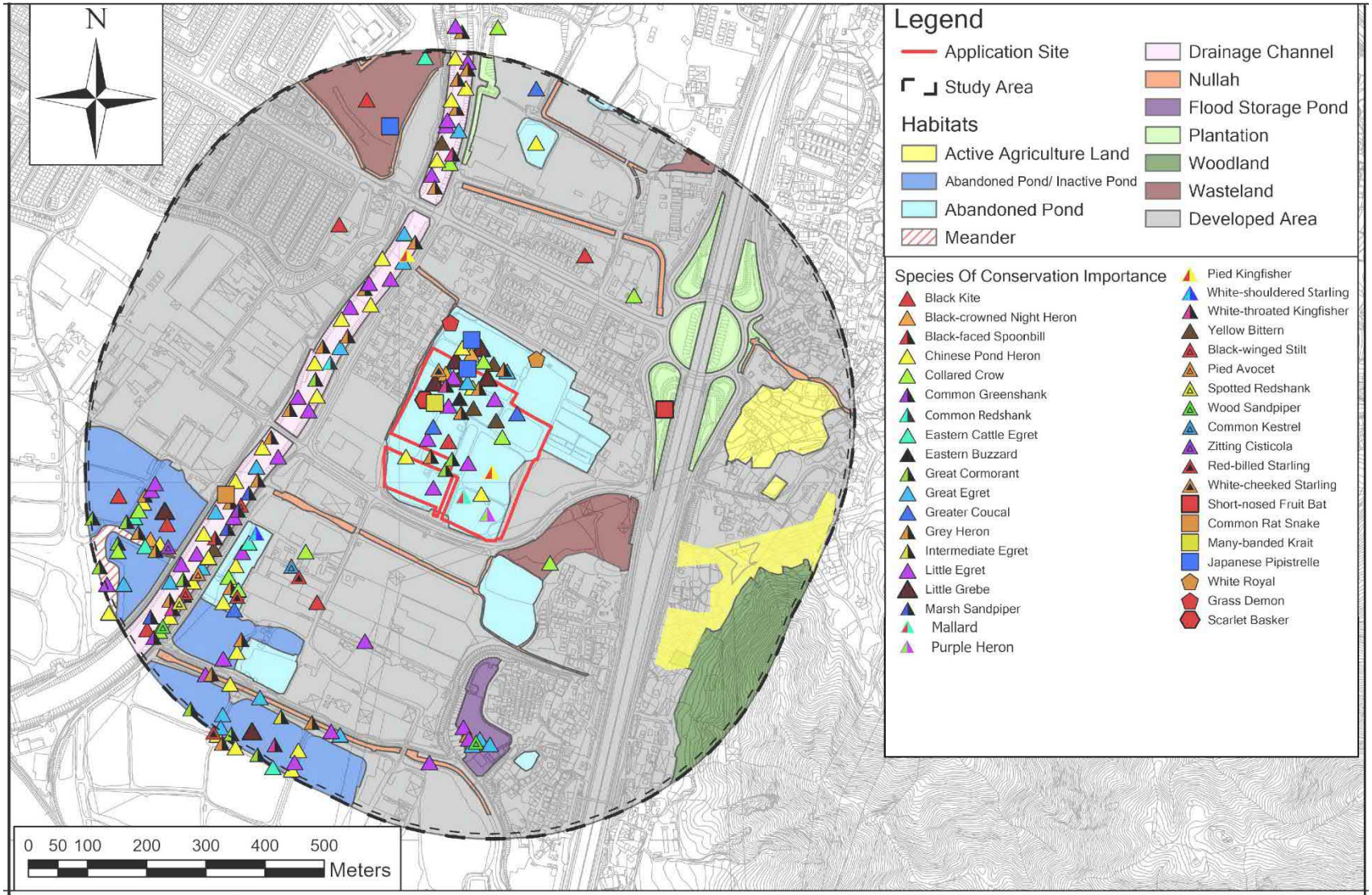

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Figure 3-1 Location of Recorded Species of Conversation Importance

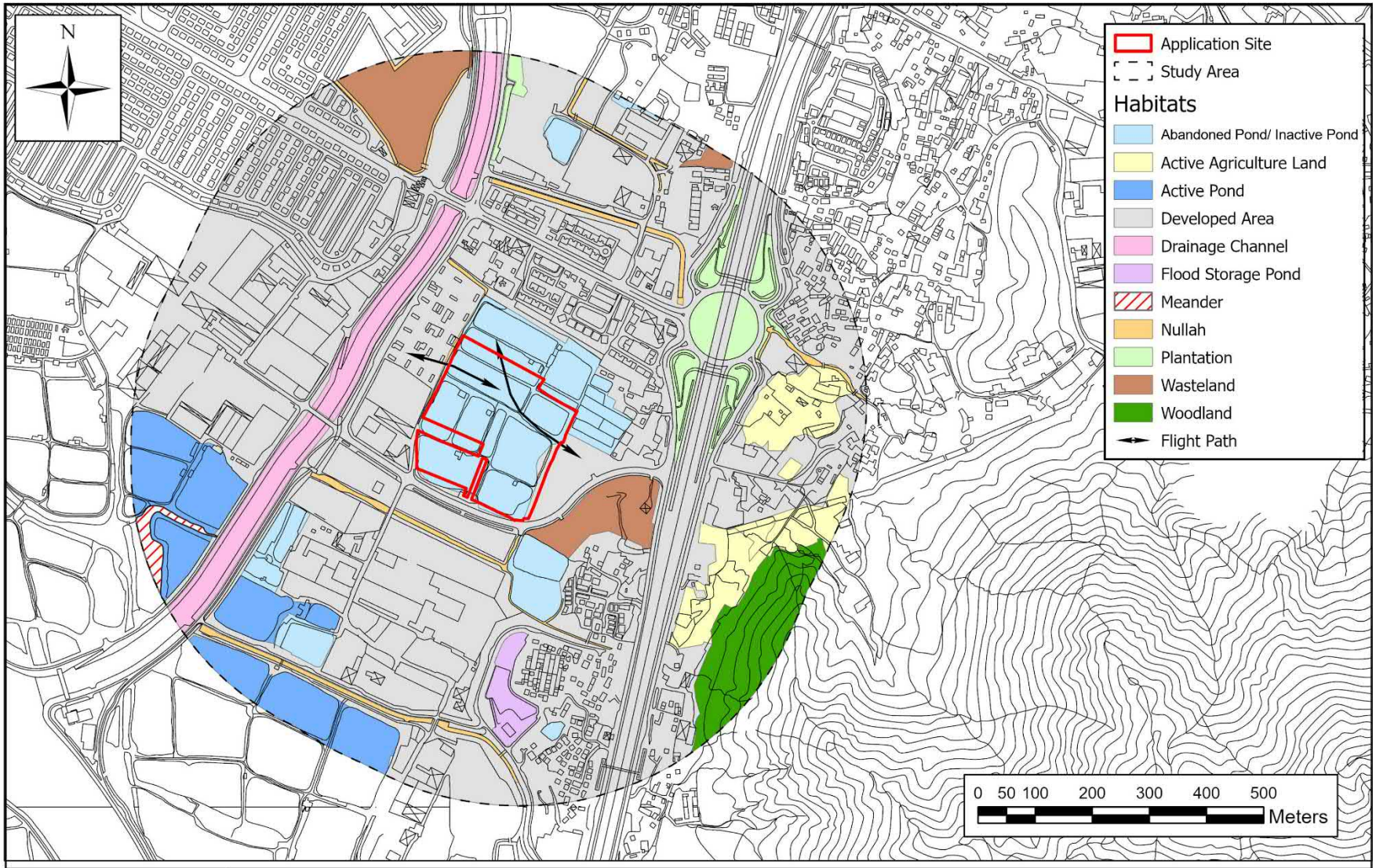

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Figure 3-2 General Direction of the Winter Bird Flight Paths

Figure 4 Photos of Habitats in the Application Site and Study Area

Application Site (Developed Area)

Application Site (Abandoned pond)

Developed Area

Plantation

Abandoned Pond

Flood Storage Pond

		
Drainage Channel	Nullah	Active Agricultural Land

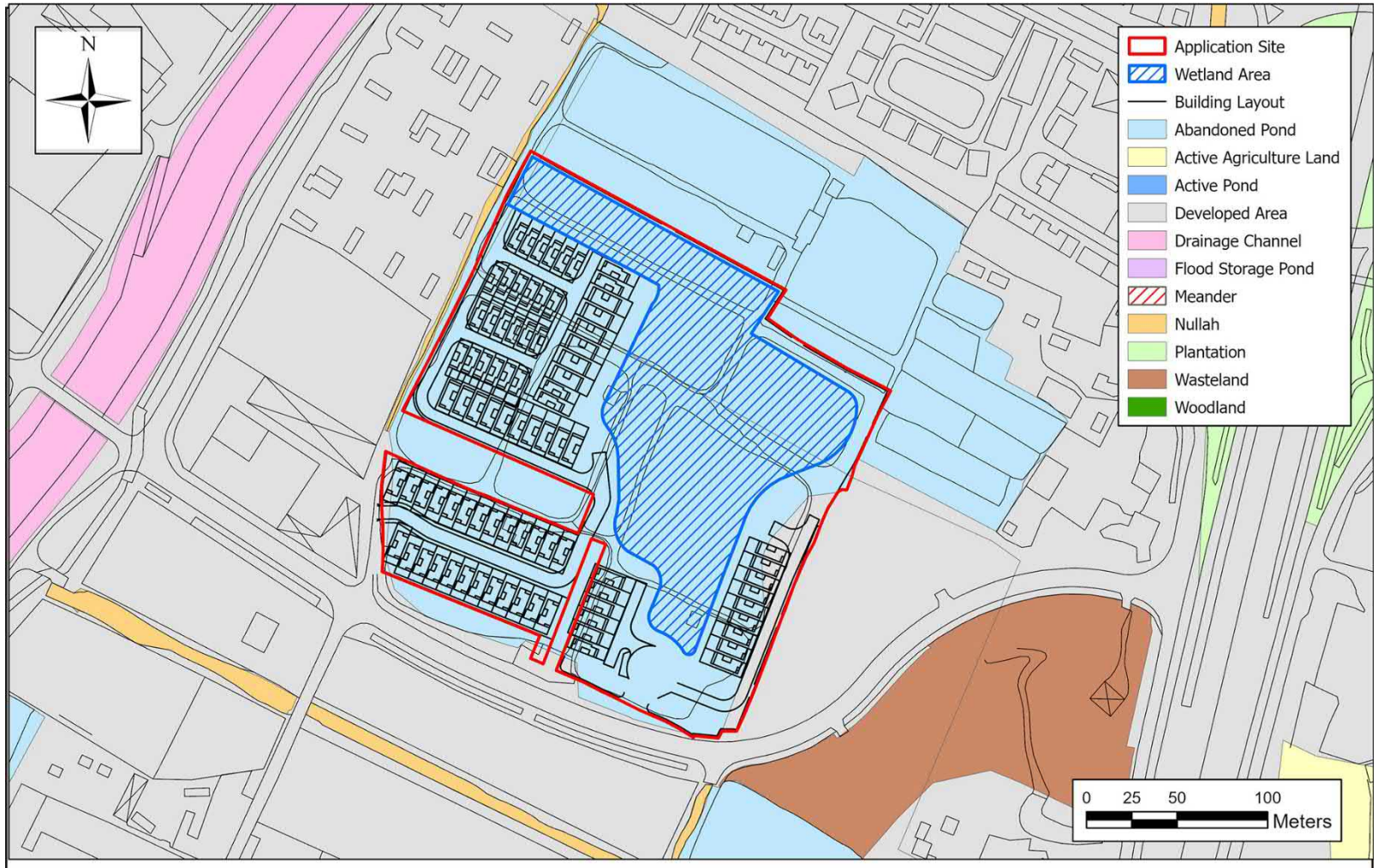

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Figure 5 Building Layout, the Wetland Restoration Area and the Existing Habitat

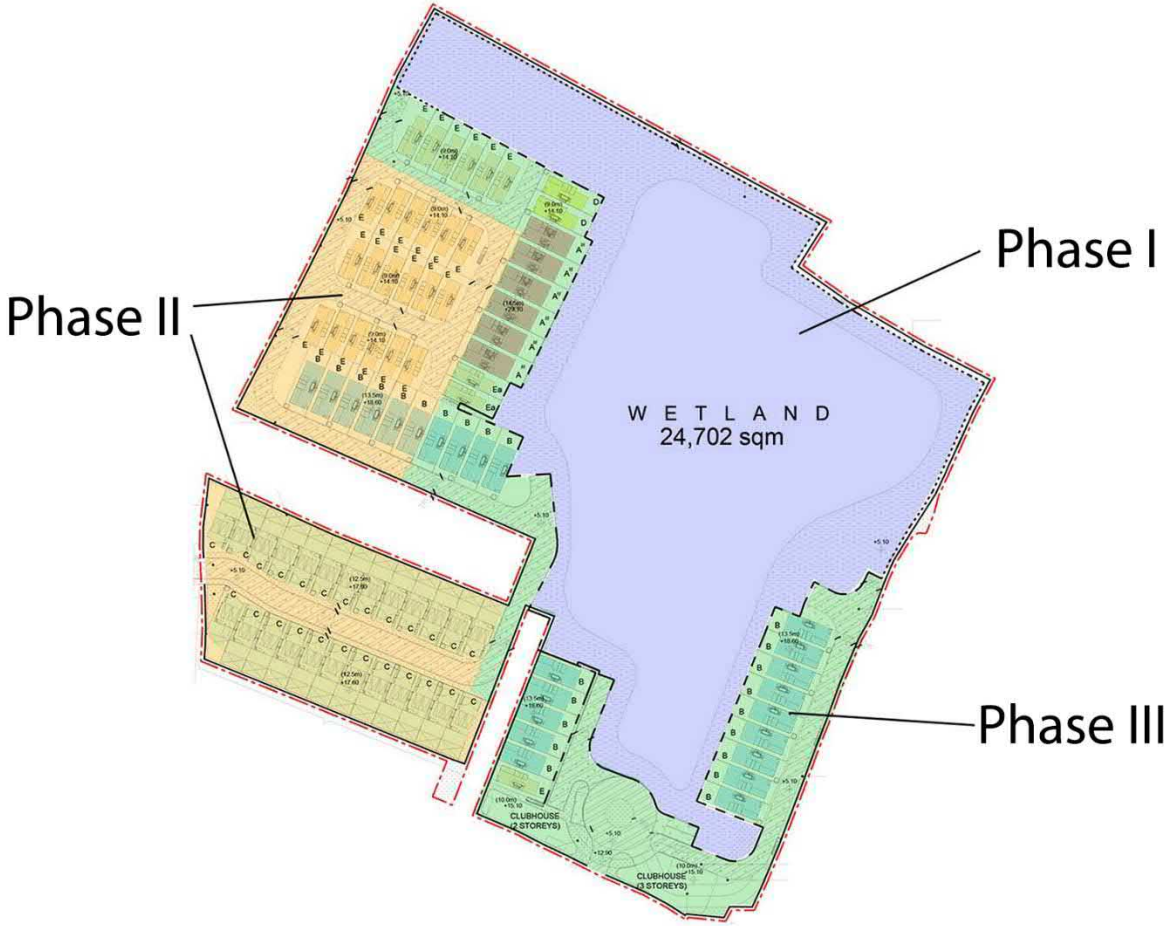

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Figure 6 Phasing of the Construction Works

APPENDIX

Appendix 1 Vascular plant species recorded within the Study Area

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Acacia auriculiformis	Tree	Exotic	-	-						O							
Acacia confusa	Tree	Exotic	-	-						S					C		
Ageratum conyzoides	Herb	Exotic	Common	-		C				C							
Albizia lebbeck	Tree	Exotic	-	-						S					C		
Aleurites moluccana	Tree	Exotic	-	-											S		
Alocasia macrorrhizos	Herb	Native	Very common	-	C		C			C					O	C	O
Aloe vera	Herb	Exotic	-	-						S							
Amaranthus viridis	Herb	Native	Very common	-		O			S								S
Aporusa dioica	Tree	Native	Very common	-						S							C
Archontophoenix alexandrae	Tree	Exotic	-	-				S		O							
Artocarpus heterophyllus	Tree	Exotic	-	-		S											
Asystasia micrantha	Herb	Exotic	-	-						C							O
Averrhoa carambola	Tree	Exotic	-	-		S											
Axonopus compressus	Herb	Exotic	Common	-											O		
Bambusa sp.	Bamboo	Unknown	-	-						S							
Bambusa ventricosa	Bamboo	Exotic	-	-											S		
Bambusa vulgaris cv. *Vittata*	Bamboo	Exotic	-	-											S		

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Bauhinia purpurea	Tree	Exotic	-	-						S					O		
Bidens alba	Herb	Exotic	Very common	-	C			C	C	C		C					O
Bischofia javanica	Tree	Native	Common	-						C					O		
Boehmeria nivea	Shrub	Exotic	Restricted	-						S					S		
Bombax ceiba	Tree	Exotic	-	-													S
Bothriochloa bladhii	Herb	Native	Very common	-						O							
Bougainvillea spectabilis	Climber	Exotic	-	-					S	C							
Brachiaria mutica	Herb	Exotic	Common	-		O				O							
Breynia fruticosa	Shrub	Native	Very common	-													S
Bridelia tomentosa	Shrub	Native	Very common	-						C					S		C
Broussonetia papyrifera	Tree	Native	Very common	-						C							S
Calliandra haematocephala	Shrub	Exotic	-	-						C					C		
Callistemon viminalis	Tree	Exotic	-	-											S		
Carica papaya	Tree	Exotic	-	-		S			S	S							
Carmona microphylla	Shrub	Exotic	-	-					S								
Caryopteris incana	Herb	Native	Common	-		S											
Caryota mitis	Tree	Exotic	-	-		S											
Casuarina equisetifolia	Tree	Exotic	Rare	-						S							
Celosia argentea	Herb	Native	Very common	-				S									
Celtis sinensis	Tree	Native	Common	-			S			C					O		

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Centotheca lappacea	Herb	Native	Common	-													S
Chloris barbata	Herb	Native	Very common	-		O											
Cinnamomum burmannii	Tree	Native	-	-											S		
Cinnamomum camphora	Tree	Native	Common	-						O							
Citrus sp.	Tree	Exotic	-	-		S				S							
Clausena lansium	Tree	Exotic	-	-		S			S	O							S
Cleistocalyx nervosum	Tree	Native	Common	-											S		
Crateva unilocularis	Tree	Exotic	-	-											S		
Cleome rutidosperma	Herb	Exotic	Restricted	-		S											
**Coccinia grandis*	Climber	Native	Very rare	-		S											
Cocculus orbiculatus	Climber	Native	Common	-						O							S
Codiaeum variegatum	Shrub	Exotic	-	-						S							
Colocasia esculenta	Herb	Exotic	-	-	O												
Commelina diffusa	Herb	Native	Common	-													
Cuscuta campestris	Herb	Native	-	-	C			C									
Cyclosorus interruptus	Herb	Native	Common	-	C												
Cyperus difformis	Herb	native	Very common	-		S											
Cyperus involucratus	Herb	Exotic	Restricted	-	O												
Cyperus malaccensis var. *brevifolius*	Herb	Native	Common	-							C						

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Delonix regia	Tree	Exotic	-	-						S					O		
Desmos chinensis	Shrub	Native	Common	-						S							C
Dicranopteris pedata	Herb	native	Very common	-													C
Digitaria sp.	Herb	Unknown	-	-		S			S	C							
Dimocarpus longan	Tree	Exotic	Restricted	-		C	O	S		C					S		C
Dioscorea alata	Climber	Exotic	-	-													
Dioscorea hamiltonii	Climber	Native	Restricted	-		S											
Dracaena fragrans	Shrub	Exotic	-	-						S							
Dracaena sanderiana	Shrub	Exotic	-	-		S											S
Drymaria cordata	Herb	Native	Common	-													O
Duranta erecta	Climber	Exotic	-	-					S						C		
Duranta repens `Variegata`	Shrub	Exotic	-	-					S	O							
Eclipta prostrata	Herb	Native	Common	-		S											
Elaeocarpus rugosus	Tree	Exotic	-	-						O							
Eleusine indica	Herb	Native	Very common	-		S											
Eleutherococcus trifoliatus	Climber	Native	Restricted	-	S	S											
Emilia sonchifolia	Herb	Native	Very common	-		S											
Epipremnum aureum	Climber	Exotic	-	-		S											
Eriobotrya japonica	Tree	Exotic	-	-						S							
Eucalyptus citriodora	Tree	Exotic	-	-											C		

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Eucalyptus robusta	Tree	Exotic	-	-											O		
Eucalyptus tereticornis	Tree	Exotic	-	-											C		
Euphorbia hirta	Herb	Exotic	Very common	-		S			S	O							
Euphorbia thymifolia	Herb	Native	Very common	-						C							
Ficus elastica	Tree	Exotic	-	-						S							
Ficus hispida	Shrub	Native	Very common	-						C							O
Ficus microcarpa	Tree	Native	Common	-						C					C		
Ficus microcarpa `Golden Leaf`	Shrub	Exotic	-	-						S							
Ficus pumila	Climber	Native	Very common	-		S									S		
Ficus subpisocarpa	Tree	Native	-	-	O	S				S							
Ficus variegata var. *chlorocarpa*	Tree	Native	Common	-						O							
Ficus virens var. *sublanceolata*	Tree	Native	Common	-											O		
Flueggea virosa	Shrub	Native	Common	-		S											
Gnetum luofuense	Climber	Native	Very common	-													S
Hedychium coronarium	Herb	Exotic	-	-	S	S											
Hedyotis corymbosa	Herb	Native	Very common	-	S					C							
Hedyotis hedyotidea	Shrub	Native	Very common	-													S

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Hibiscus rosa-sinensis	Shrub	Exotic	-	-						C					C		
Hibiscus tiliaceus	Tree	Native	Very common	-						O					S		
Hippeastrum vittatum	Herb	Exotic	-	-						S							
Hydrocotyle verticillata	Herb	Exotic	-	-										O			
Hylocereus undatus	Herb	Exotic	-	-		S			S								
Ilex pubescens	Shrub	Native	Very common	-													S
Ipomoea aquatica	Herb	Exotic	Very common	-	C												
Ipomoea batatas	Herb	Exotic	-	-		S											
Ipomoea cairica	Climber	Exotic	Very common	-				O		C			C				
Ipomoea triloba	Herb	Native	-	-	O					C							
Khaya senegalensis	Tree	Exotic	-	-											O		
Koelreuteria bipinnata	Tree	Exotic	-	-						O							
Kyllinga polyphylla	Herb	Exotic	Common	-		O											
#*Lagerstroemia speciosa*	Tree	Exotic	-	Cap. 96A						C					O		
Lantana camara	Shrub	Exotic	Very common	-	S	C		O		C		O			O		
Leucaena leucocephala	Tree	Exotic	Common	-	S					C		S	S		C	S	
Ligustrum sinense	Tree	Native	Common	-						O							S
Liquidambar formosana	Tree	Native	Common	-						S							
Liriope spicata	Herb	Native	Very common	-													S
Litchi chinensis	Tree	Exotic	Restricted	-		S	S										S

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Litsea glutinosa	Tree	Native	Very common	-													S
Litsea rotundifolia var. *oblongifolia*	Shrub	Native	Very common	-													S
Lophatherum gracile	Herb	Native	Very common	-													C
Lygodium japonicum	Herb	Native	Very common	-													O
Livistona chinensis	Tree	Exotic	-	-											O		
Macaranga tanarius var. *tomentosa*	Tree	Native	Common	-			S	O		C			S		C		
Macroptilium atropurpureum	Herb	Exotic	Common	-						O							
Macroptilium lathyroides	Herb	Exotic	Common	-						C							
Malvastrum coromandelianum	Shrub	Native	Common	-						S							
Mangifera indica	Tree	Exotic	-	-						S							
Manihot esculenta	Shrub	Exotic	-	-		S				S							
Melastoma malabathricum	Shrub	Native	Common	-													S
Melastoma sanguineum	Shrub	Native	Common	-													S
Melaleuca cajuputi subsp. cumingiana	Tree	Exotic	-	-											C		
Melia azedarach	Tree	Exotic	Common	-		O		S		C			S		O		S

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Melicope pteleifolia	Shrub	Native	Common	-													S
Microstegium ciliatum	Herb	Native	Very common	-													O
Mikania micrantha	Herb	Exotic	Very common	-	C	C	C	C		C	S				O	C	O
Mimosa pudica	Herb	Exotic	Very common	-						O					S		
Miscanthus floridulus	Herb	Native	Common	-		C				C							
Morus alba	Tree	Native	Common	-													
Murraya paniculata	Tree	Exotic	-	-		S				S							
Musa x paradisiaca	Herb	Exotic	-	-		O	O	S	S	S						S	
Mussaenda pubescens	Climber	Native	Very common	-													S
Nelumbo nucifera	Herb	Exotic	-	-	C			S									
Oplismenus compositus	Herb	Native	Very common	-						C							
Pachira aquatica	Tree	Exotic	-	-		S				S							
Paederia scandens	Climber	Native	Very common	-				O		C							
Panicum maximum	Herb	Exotic	Common	-				C		C		C	S		C		
Panicum repens	Herb	Native	Very common	-		O											
Passiflora foetida	Climber	Exotic	Very common	-	O					O							
Pennisetum alopecuroides	Herb	Native	Common	-						S							
Peperomia obtusifolia	Herb	Exotic	-	-					S								
Phragmites vallatorius	Herb	Native	Very common	-	S												
Phyllanthus reticulatus	Shrub	Native	Common	-													S

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Phyllanthus tenellus	Herb	Unknown	-	-		O											
Pinus elliottii	Tree	Exotic	-	-													S
Platycladus orientalis	Tree	Exotic	-	-													S
Plumeria rubra	Tree	Exotic	-	-		S											
Portulaca oleracea	Herb	Native	Very common	-		S											
Pouzolzia zeylanica	Herb	Native	Common	-		O											
Praxelis clematidea	Herb	Exotic	Very common	-													S
Prunus persica	Tree	Exotic	-	-					C								
Pseudocalymma alliaceum	Climber	Exotic	-	-					S								
Psidium guajava	Tree	Exotic	Common	-		S		S									
Psychotria asiatica	Tree	Native	Very common	-													O
Pteris semipinnata	Herb	Native	Very common	-													C
Pterocypsela indica	Herb	Native	Common	-						C							
Pueraria lobata var. *montana*	Climber	Native	Common	-		C											
Pyrostegia venusta	Climber	Exotic	-	-					S								
Quisqualis indica	Climber	Exotic	Restricted	-						S							
Ricinus communis	Shrub	Exotic	Restricted	-		S											
Roystonea regia	Tree	Exotic	-	-						S							
Sansevieria sp.	Herb	Exotic	-	-						S							

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area									
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Sapium sebiferum	Tree	Native	Common	-		S											
Schefflera arboricola	Climber	Exotic	-	-						O							
Sida rhombifolia	Shrub	Native	Common	-						S					O		
Solanum americanum	Herb	Exotic	-	-		C											
Solanum torvum	Shrub	Exotic	Common	-		S	S										
Solanum mammosum	Herb	Exotic	-						S								
Sonneratia caseolaris	Tree	Exotic	-	-							O						
Spathodea campanulata	Tree	Exotic	-	-											O		
Spermacoce glaber	Herb	Unknown	-	-		S											
Sporobolus fertilis	Herb	Native	Very common	-						O							
Stephania longa	Climber	Native	Common	-						S							
Syngonium podophyllum	Herb	Exotic	-	-		S				S							
Syzygium cumini	Tree	Exotic	-	-						S							
Syzygium jambos	Tree	Exotic	Common	-						O					S		S
Tetracera asiatica	Climber	Native	Very common	-													O
Trema tomentosa	Shrub	Native	Common	-						S							
Tridax procumbens	Herb	Exotic	Very common	-						C							
[#]*Typha angustifolia*	Herb	Exotic	Rare	-	C												
Uvaria macrophylla	Climber	Native	Common	-													C
Vernonia cinerea	Herb	Native	Very common	-						O							

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2]	Relative abundance in each habitat within the Application Site		Relative abundance in each habitat outside the Application Site but within the Study Area										
					AbP	DA	AbP	AcP	AAL	DA	DC	FSP	M	N	P	WA	WO
Wedelia trilobata	Herb	Exotic	Common	-	C			C		C							S
Zanthoxylum avicennae	Tree	Native	Common	-													S
Zanthoxylum nitidum	Climber	Native	Very common	-						S							

Notes:

1. Corlett *et al*. (2000). Hong Kong vascular plants: distribution and status.
2. Cap. 96A Forestry Regulations under Forests and Countryside Ordinance.

- *Though *Coccinia grandis* was considered very rare by Corlett *et al*. (2000), it is a food crop species that may be dispersed from villages nearby. Therefore, it is not regarded as a species of conservation importance.
- #*Lagerstroemia speciosa*, *Casurarina equisetifolia*and *Typha angustifolia* are listed under Cap. 96A Forestry Regulations under Forests and Countryside Ordinance and/or regarded as rare by Corlett *et al*. (2000) respectively. However, all species are exotic to Hong Kong and therefore they are not regarded as species of conservation importance.

Abbreviations:

- Habitats: AbP = Abandoned Pond; AcP = Active Pond; AAL = Active Agricultural Land; DA = Developed Area; DC = Drainage Channel; FSP = Flood Storage Pond; M = Meander; N = Nullah; P = Plantation; WA = Wasteland; WO = Woodland
- Relative abundance: C = Common; O = Occasional; S = Scarce

Appendix 2a Birds species recorded in Study Area

Scientific Name	English Name	Application Site	Study Area										Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Tachybaptus ruficollis	Little Grebe	+		+	+									**Fellowes et al. (2002): LC**		Common resident. Found in Deep Bay area.
Platalea minor	Black-faced Spoonbill						+							**Class 2 Protected Animal of China;China Red Data Book Status: (Endangered); Fellowes et al. (2002): PGC; IUCN Red List Status: ED**		Common winter visitor. Found in Deep Bay area.
Ixobrychus sinensis	Yellow Bittern	+			+		+							**Fellowes et al. (2002): (LC)**		Uncommon summer visitor and passage migrant. Found in Deep Bay area, Chek Keng, Tai Long Wan.
Nycticorax nycticorax	Black-crowned Night Heron			+	+									**Fellowes et al. (2002):(LC)**		Common resident and winter visitor. Widely distributed in Hong Kong.
Ardeola bacchus	Chinese Pond Heron	+		++	++	+	+++	+						**Fellowes et al. (2002): PRC,(RC)**		Common resident. Common resident. Widely distributed in Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Bubulcus coromandus	Eastern Cattle Egret			+	+	+						+		**Fellowes et al. (2002):(LC)**		Resident and common passage migrant. Widely distributed in Hong Kong.
Ardea cinerea	Grey Heron	+		+	+	+	+++	+	+					**Fellowes et al. (2002): PRC**		Common winter visitor. Found in Deep Bay area, Starling Inlet, Kowloon Park, Cape D'Aguilar.
Ardea alba	Great Egret	+		++	+		++ +	+	+					**Fellowes et al. (2002): PRC,(RC)**		Common resident and winter visitor. Widely distributed in Hong Kong.
Egretta intermedia	Intermediate Egret			+										**Fellowes et al. (2002): RC**		Common passage migrant. Found in Deep Bay area, Tai Long Wan, Starling Inlet, Tai O, Cape D'Aguilar.
Egretta garzetta	Little Egret	++		++	+	+	+++	+	+				+	**Fellowes et al. (2002): RC**		Common resident. Widely distributed in coastal area throughout Hong Kong.
Phalacrocorax carbo	Great Cormorant	++		+++	++	+	+							**Fellowes et al. (2002): PRC**		Common winter visitor. Widely distributed in coastal areas throughout Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Milvus migrans	Black Kite	+		+			+					+	+	**Fellowes et al. (2002): RC; Appendix 2 of CITES**	(Cap. 586)	Common resident and winter visitor. Widely distributed in Hong Kong.
Buteo japonicus	Eastern Buzzard	+												**Appendix 2 of CITES**	(Cap. 586)	Common winter visitor. Widely distributed in Hong Kong.
Amaurornis phoenicurus	White-breasted Waterhen	++		+	+	+	+					+				Common resident. Widely distributed in wetland throughout Hong Kong.
Gallinula chloropus	Common Moorhen	+			+		+									Common resident. Found in Deep Bay area, Shuen Wan, Starling Inlet.
Himantopus himantopus	Black-winged Stilt						+++							**Fellowes et al. (2002): RC**		Common passage migrant. Found in Deep Bay area, Long Valley, Kam Tin.
Recurvirostra avosetta	Pied Avocet						+							**Fellowes et al. (2002): RC**		Abundant winter visitor. Found in Deep Bay area.
Tringa erythropus	Spotted Redshank						+							**Fellowes et al. (2002): RC**		Abundant in winter and spring. Found in Deep Bay area.
Tringa totanus	Common Redshank						++							**Fellowes et al. (2002): RC**		Common passage migrant. Found in Deep Bay area.
Tringa stagnatilis	Marsh Sandpiper						+++							**Fellowes et al. (2002): RC**		Common winter visitor and passage

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
																migrant. Found in Deep Bay area, Shuen Wan, Long Valley, Kam Tin, Sai Kung.
Tringa nebularia	Common Greenshank						+							**Fellowes et al. (2002): RC**		Abundant passage migrant and winter visitor. Found in Deep Bay area.
Tringa glareola	Wood Sandpiper						+		+					**Fellowes et al. (2002): LC**		Common passage migrant and winter visitor. Widely distributed in wetland area throughout Hong Kong.
Actitis hypoleucos	Common Sandpiper	+				+	+	+								Common passage migrant and winter visitor. Widely distributed in wetland area throughout Hong Kong.
Streptopelia orientalis	Oriental Turtle Dove			+												Common winter visitor and passage migrant. Widely distributed in Hong Kong.
Streptopelia decaocto	Eurasian Collared Dove	+		+												Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai.

Scientific Name	English Name	Application Site	Study Area										Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Spilopelia chinensis	Spotted Dove	+++	+	++	+++		++	+	+	+	+	+	+++			Abundant resident. Widely distributed in Hong Kong.
Centropus sinensis	Greater Coucal	+		+	+		+					+		**Class 2 Protected Animal of China;China Red Data Book Status: (Vulnerable)**		Common resident. Widely distributed in Hong Kong.
Eudynamys scolopaceus	Asian Koel	+		+						+			+			Common resident. Widely distributed in Hong Kong.
Cacomantis merulinus	Plaintive Cuckoo												+			Uncommon summer visitor. Widely distributed in open area throughout Hong Kong.
Hierococcyx sparverioides	Large Hawk Cuckoo												+			Common passage migrant and summer visitor. Widely distributed in woodland throughout in Hong Kong.
Halcyon smyrnensis	White-throated Kingfisher	+		+			+							**Fellowes et al. (2002): LC**		Common resident. Widely distributed in coastal areas throughout Hong Kong

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Alcedo atthis	Common Kingfisher	++		+	+		+	+	+							Common passage migrant and winter visitor. Widely distributed in wetland habitat throughout Hong Kong.
Ceryle rudis	Pied Kingfisher						+							**Fellowes et al. (2002): LC**		Uncommon resident. Widely distributed in lakes and ponds throughout Hong Kong.
Falco tinnunculus	Common Kestrel												+	**Class 2 Protected Animal of China; Appendix 2 of CITES**	(Cap. 586)	Common autumn migrant and winter visitor. Widely distributed in Hong Kong
Pericrocotus speciosus	Scarlet Minivet										+					Common resident. Found in Tai Po Kau, the Peak, Lam Tsuen, Cape D'Aguilar Road, Peel Rise, Shing Mun.
Lanius schach	Long-tailed Shrike	+		+			+									Common resident. Widely distributed in open areas throughout Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Dicrurus macrocercus	Black Drongo	+		+						+			+			Common summer visitor. Widely distributed in open area throughout Hong Kong.
Cyanopica cyanus	Azure-winged Magpie			+	+											Introduced resident. Found in Mai Po.
Pica pica	Eurasian Magpie									+						Common resident. Widely distributed in Hong Kong
Corvus torquatus	Collared Crow	+		+	+		+			+		+	+	**Fellowes et al. (2002): LC; IUCN Red List Status: VU**		Uncommon resident. Found in Inner Deep Bay area, Nam Chung, Kei Ling Ha, Tai Mei Tuk, Pok Fu Lam, Chek lap Kok, Shuen Wan, Lam Tsuen.
Corvus macrorhynchos	Large-billed Crow	+									+					Common resident. Widely distributed in Hong Kong
Parus cinereus	Cinereous Tit		+				+			++	+		+			Common resident. Widely distributed in Hong Kong.
Pycnonotus jocosus	Red-whiskered Bulbul	+++	+	+++	++	+	+++	+	+++	+++	++	+++	+++			Abundant resident. Widely distributed in Hong Kong.
Pycnonotus sinensis	Chinese Bulbul	+++	+	+++	+	+	+++		+++	+++	++	++	+++			Abundant resident. Widely distributed in Hong Kong.

Scientific Name	English Name	Application Site	Study Area										Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Hemixos castanonotus	Chestnut Bulbul								+		+					Common resident and winter visitor. Widely distributed in woodland throughout Hong Kong.
Hirundo rustica	Barn Swallow	++		++	+		+			+		+	+++			Abundant passage migrant and summer visitor. Widely distributed in Hong Kong.
Phylloscopus fuscatus	Dusky Warbler	+		+	+		+					+				Common passage migrant and winter visitor. Widely distributed in shrubland and waterside vegetation throughout Hong Kong.
Phylloscopus proregulus	Pallas's Leaf Warbler								+	+						Common winter visitor. Found in woodland throughout Hong Kong.
Phylloscopus inornatus	Yellow-browed Warbler	+	+	+	+		+		+	+	+	+	+			Common winter visitor. Found in woodland throughout Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Cisticola juncidis	Zitting Cisticola			+										**Fellowes et al. (2002): LC**		Common passage migrant and winter visitor. Widely distributed in grassland throughout Hong Kong.
Prinia flaviventris	Yellow-bellied Prinia	+++		++	++	+	++		+	+	+	+				Common resident. Widely distributed in Hong Kong.
Prinia inornata	Plain Prinia	++		+	+	+	+		+		+		+			Common resident. Widely distributed in grassland throughout Hong Kong.
Orthotomus sutorius	Common Tailorbird	+++	+	++	++	+	+++	+	+	+	+	+	+			Common resident. Widely distributed in Hong Kong.
Garrulax perspicillatus	Masked Laughingthrush	++			+		+			+	+	+	+++			Abundant resident. Widely distributed in shrubland throughout Hong Kong.
Zosterops japonicus	Japanese White-eye	++	+	+	+		+++		+++	++	++	++	+++			Abundant resident. Widely distributed in Hong Kong.
Acridotheres cristatellus	Crested Myna	+++		+++	+++	+	+++		+	++	+	+	+++			Common resident. Widely distributed in Hong Kong.
Acridotheres tristis	Common Myna			+					+							Uncommon resident. Found in

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
																Mai Po, Sheung Uk Tsuen, Sheung Shui, Kam Tin, Shek Kong, Ping Shan, Mong Tseng.
Spodiopsar sericeus	Red-billed Starling			+++	+		+							**Fellowes et al. (2002): RC**		Common winter visitor. Widely distributed in Hong Kong
Spodiopsar cineraceus	White-cheeked Starling	+												**Fellowes et al. (2002): PRC**		Common winter visitor. Found in Deep Bay area, Kam Tin, Long Valley.
Gracupica nigricollis	Black-collared Starling	+++	+	+++	+++		+++		+	+	+	++	+++			Common resident. Widely distributed in Hong Kong.
Sturnia sinensis	White-shouldered Starling				+									**Fellowes et al. (2002): LC**		Common passage migrant. Found in Kam Tin, Deep Bay area, Po Toi Island, Long Valley, Victoria Park, Ho Chung, Ma Tso Lung, Mui Wo, Lam Tsuen Valley.
Copsychus saularis	Oriental Magpie Robin	++	+	+	+		+		+	+	+	+	++			Abundant resident. Widely distributed in Hong Kong.
Phoenicurus auroreus	Daurian Redstart	+	+	+	+	+	+	+		+		+	+			Common winter visitor. Widely distributed in Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Saxicola stejnegeri	Stejneger's Stonechat	+	+	+	+											Common passage migrant and winter visitor. Widely distributed in open cultivated fields throughout Hong Kong.
Aethopyga christinae	Fork-tailed Sunbird												+			Common resident. Widely distributed in Hong Kong.
Passer montanus	Eurasian Tree Sparrow	++	+	+	+++				++	+++	++	+++	+++			Abundant resident. Widely distributed in Hong Kong.
Lonchura punctulata	Scaly-breasted Munia	+++	+	++	+	+						+	++			Common resident. Widely distributed in Hong Kong
Motacilla cinerea	Grey Wagtail	+		+			+	+		+						Common passage migrant and winter visitor. Widely distributed in hill streams throughout Hong Kong.
Motacilla alba	White Wagtail	++	+	+	+	+	++	+	+			+	+			Common passage migrant and winter visitor. Widely distributed in Hong Kong.
Anthus godlewskii	Olive-backed Pipit			+												Common passage migrant and winter visitor. Widely

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
																distributed in Hong Kong.

1: AFCD (2020), 2: Wang (1998).

*All birds are protection under Cap. 170

Level of concern: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes *et al*,.2002)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO: Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 2b Birds species recorded in Study Area during verification surveys

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Tachybaptus ruficollis	Little Grebe	5												Fellowes et al. (2002): LC		Common resident. Found in Deep Bay area.
Anas platyrhynchos	Mallard	4												Fellowes et al. (2002): RC		Scarce winter visitor. Found in Deep Bay area, Tai Lam Chung, Hok Tau Reservoirs, Tolo Harbour, Nam Chung, Long Valley, Kam Tin.
Ardeola bacchus	Chinese Pond Heron							2						Fellowes et al. (2002): PRC		Common resident. Widely distributed in Hong Kong.
Ardea cinerea	Grey Heron							4						Fellowes et al. (2002): PRC		Common winter visitor. Found in Deep Bay area, Starling Inlet, Kowloon Park, Cape D'Aguilar.
Ardea purpurea	Purple Heron	1												Fellowes et al. (2002): RC		Uncommon passage migrant. Found in Deep Bay area.
Ardea alba	Great Egret	1						2						Fellowes et al. (2002): PRC		Common resident, migrant and winter visitor. Widely distributed in Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Phalacrocorax carbo	Great Cormorant	4						2						Fellowes et al. (2002): PRC		Common winter visitor. Widely distributed in coastal areas throughout Hong Kong.
Amaurornis phoenicurus	White-breasted Waterhen	2												-		Common resident. Widely distributed in wetland throughout Hong Kong.
Gallinula chloropus	Common Moorhen	14												-		Common winter visitor, resident and migrant. Found in Deep Bay area, Shuen Wan, Starling Inlet.
Spilopelia chinensis	Spotted Dove	12												-		Abundant resident. Widely distributed in Hong Kong.
Centropus sinensis	Greater Coucal	1												Class 2 Protected Animal of China;China Red Data Book Status: (Vulnerable)		Common resident. Widely distributed in Hong Kong.
Ceryle rudis	Pied Kingfisher	4						1						Fellowes et al. (2002): (LC)		Common resident. Widely distributed in lakes and ponds throughout Hong Kong.

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
Corvus torquatus	Collared Crow	2												Fellowes et al. (2002): LC; IUCN Red List Status: VU		Locally common resident. Found in Inner Deep Bay area, Nam Chung, Kei Ling Ha, Tai Mei Tuk, Pok Fu Lam, Chek lap Kok, Shuen Wan, Lam Tsuen.
Parus cinereus	Cinereous Tit												2	-		Common resident. Widely distributed in Hong Kong.
Pycnonotus jocosus	Red-whiskered Bulbul												12	-		Abundant resident. Widely distributed in Hong Kong.
Pycnonotus sinensis	Chinese Bulbul												15	-		Abundant resident. Widely distributed in Hong Kong.
Phylloscopus fuscatus	Dusky Warbler												7	-		Abundant winter visitor and migrant. Widely distributed in shrubland and waterside vegetation throughout Hong Kong.
Prinia flaviventris	Yellow-bellied Prinia												4	-		Common resident. Widely distributed in Hong Kong.
Prinia inornata	Plain Prinia												5	-		Locally common resident. Widely distributed in

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
																grassland throughout Hong Kong.
Acridotheres cristatellus	Crested Myna												20	-		Abundant resident. Widely distributed in Hong Kong.
Spodiopsar sericeus	Red-billed Starling												80	Fellowes et al. (2002): GC		Common winter visitor. Widely distributed in Hong Kong
Spodiopsar cineraceus	White-cheeked Starling												24	Fellowes et al. (2002): PRC		Common winter visitor. Found in Deep Bay area, Kam Tin, Long Valley.
Gracupica nigricollis	Black-collared Starling												10			Common resident. Widely distributed in Hong Kong.
Turdus mandarinus	Chinese Blackbird												4			Common winter visitor. Widely distributed in Hong Kong.
Copsychus saularis	Oriental Magpie Robin												5			Abundant resident. Widely distributed in Hong Kong.
Phoenicurus auroreus	Daurian Redstart												2			Common winter visitor. Widely distributed in Hong Kong.
Saxicola stejnegeri	Stejneger's Stonechat												4			Common passage migrant and winter visitor. Widely

Scientific Name	English Name	Application Site	Study Area											Conservation Status	Statutory Protection in Hong Kong*	Commonness and Distribution in Hong Kong
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA			
																distributed in open cultivated fields throughout Hong Kong.
Passer montanus	Eurasian Tree Sparrow												12			Abundant resident. Widely distributed in Hong Kong.
Lonchura punctulata	Scaly-breasted Munia												2			Common resident. Widely distributed in Hong Kong
Motacilla alba	White Wagtail												2			Common passage migrant and winter visitor. Widely distributed in Hong Kong.
Spinus spinus	Eurasian Siskin												6			Scarce winter visitor. Found in Tai Po Kau, Shek Kong, Tsim Bei Tsui, Mount Austin, Fanling Golf Course, Mai Po, Chinese University

1: AFCD (2020), 2: Wang (1998).

*All birds are protection under Cap. 170

Level of concern: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes *et al*,.2002)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO:

Woodland, WL: Wasteland, DA: Developed Area)

Appendix 3 Mammal species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Bos taurus	Domestic Ox			+													Common. Widely distributed in forested areas throughout Hong Kong, except northwest N.T. and Hong Kong Island.
Canis lupus familiaris	Domestic Dog	+			+								+				Common. Widely distributed in forested areas throughout Hong Kong.
Felis catus	Domestic Cat				+								+				Uncommon. Widely distributed in urban and forested areas throughout Hong Kong.
Cynopterus sphinx	Short-nosed Fruit Bat									+ + +				China Red Data Book Status:		(Cap. 170)	Very Common. Widely distributed in urban & forested

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
														(Indeterminate); (Cap. 170)			areas throughout Hong Kong.
Pipistrellus abramus	Japanese Pipistrelle	+			+							+		(Cap. 170)		(Cap. 170)	Very Common. Widely distributed throughout Hong Kong.

1: AFCD (2020)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO: Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 4 Amphibian species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Bufo melanostictus	Asian Common Toad	+++	+	+						+			+				Widely distributed in Hong Kong.
Fejervarya limnocharis	Paddy Frog	+															Widely distributed in Hong Kong.
Rana guentheri	Gunther's Frog	+															
Polypedates megacephalus	Brown Tree Frog	+											+				Widely distributed throughout Hong Kong.

1: AFCD (2020)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO: Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 5 Reptile species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Calotes versicolor	Changeable Lizard	+											+				Widely distributed throughout Hong Kong.
Ptyas mucosus	Common Rat Snake						+							China Red Data Book Status: (Endangered); Fellowes et al. (2002): PRC; Appendix 2 of CITES	Potential Regional Concern	(Cap. 586)	
Bungarus multicinctus	Many-banded Krait	+												China Red Data Book Status: (Vulnerable); Fellowes et al. (2002): PRC	Potential Regional Concern		Widely distributed in New Territories, Hong Kong Island and Lantau Island.
Hemidactylus bowringii	Bowring's Gecko								+								Distributed throughout Hong Kong.
Mabuya longicaudata	Long-tailed Skink												+				Widely distributed

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
																	throughout Hong Kong.

1: AFCD (2020)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO: Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 6 Butterfly species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Erionota torus	Banana Skipper	+															Uncommon. Widely distributed in agricultural field throughout Hong Kong
Udaspes folus	Grass Demon				+												Rare. Widely distributed in agricultural field throughout Hong Kong
Acytolepis puspa	Common Hedge Blue	+		+									+				Common. Widely distributed throughout Hong Kong
Chilades lajus	Lime Blue	+															Common. Widely distributed throughout Hong Kong
Everes lacturnus	Tailed Cupid	+											+				Common. Widely distributed throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Lampides boeticus	Long-tailed Blue	+															Common. Widely distributed in abandoned field throughout Hong Kong
Nacaduba kurava	Transparent 6-line Blue				+												Common. Widely distributed throughout Hong Kong
Pseudozizeeria maha	Pale Grass Blue	++	+	+					+	+			+				Very Common. Widely distributed throughout Hong Kong
Rapala manea	Slate Flash	+															Common. Widely distributed throughout Hong Kong
Spindasis lohita	Long-banded Silverline										+						Common. Common and widespread throughout Hong Kong
Abisara echerius	Plum Judy										+						Very Common. Widely distributed

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
																	throughout Hong Kong
Danaus genutia	Common Tiger						+										Common. Widely distributed throughout Hong Kong
Euploea core	Common Indian Crow	+								+							Common. Widely distributed throughout Hong Kong
Euploea midamus	Blue-spotted Crow	+								+							Very Common. Widely distributed throughout Hong Kong
Tirumala limniace	Blue Tiger	+											+				Common. Widely distributed throughout Hong Kong
Charaxes bernardus	Tawny Rajah										+		+				Common. Widely distributed throughout Hong Kong
Cupha erymanthis	Rustic									+							Very Common. Widely distributed

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
																	throughout Hong Kong
Hestina assimilis	Red Ring Skirt				+					+							Common. Widely distributed in woodland throughout Hong Kong.
Hypolimnas bolina	Great Egg-fly	+		+									+				Common. Widely distributed throughout Hong Kong
Neptis hylas	Common Sailer	+		+	+						+		+				Very Common. Widely distributed throughout Hong Kong
Rohana parisatis	Black Prince									+			+				Common. Widely distributed throughout the woodland in Hong Kong
Symbrenthia lilaea	Common Jester												+				Common. Widely distributed throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Lethe confusa	Banded Tree Brown	+					+			+	+						Common. Widely distributed in woodland throughout Hong Kong
Mycalesis mineus	Dark Brand Bush Brown	+								+	+		+				Very Common. Widely distributed throughout Hong Kong
Papilio helenus	Red Helen	+		+						+							Very Common. Widely distributed throughout Hong Kong
Papilio memnon	Great Mormon			+						+	+		+				Very Common. Widely distributed throughout Hong Kong
Papilio paris	Paris Peacock									+							Very Common. Widely distributed throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Papilio polytes	Common Mormon	+		+			+			+	+	+	+				Very Common. Widely distributed throughout Hong Kong
Papilio protenor	Spangle									+							Very Common. Widely distributed throughout Hong Kong
Catopsilia pomona	Lemon Emigrant	+		+			+				+		+				Common. Widely distributed throughout Hong Kong
Catopsilia pyranthe	Mottled Emigrant	+															Very Common. Widely distributed throughout Hong Kong
Delias pasithoe	Red-base Jezebel	+											+				Very Common. Widely distributed throughout Hong Kong
Eurema hecabe	Common Grass Yellow	+		+	+		+					+	+				Very Common. Widely

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes et al. (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
																	distributed throughout Hong Kong
Hebomoia glaucippe	Great Orange Tip	+			+					+							Common. Widely distributed throughout Hong Kong
Ixias pyrene	Yellow Orange Tip									+							Uncommon. Widely distributed throughout Hong Kong
Pieris canidia	Indian Cabbage White	+	+	+	+					+	+	+	++				Very Common. Widely distributed throughout Hong Kong
Pratapa deva	White Royal				+												Very rare. Tai Po Kau, Pokfulam, Kuk Po, Pak Sha O, Victoria Peak, Wu Kau Tang, Fung Yuen

1: AFCD (2020)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO:

Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 7 Dragonfly species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes *et al.* (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Ceriagrion auranticum	Orange-tailed Sprite	+						+									Abundant. Widely distribute in ponds and marshes throughout Hong Kong
Ischnura senegalensis	Common Bluetail	+															Abundant. Widely distribute in all wetland habitats except fast flowing rivers throughout Hong Kong
Ictinogomphus pertinax	Common Flangetail	+															Common. Widely distribute in ponds throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes *et al.* (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Brachythemis contaminata	Asian Amberwing	+															Abundant. Widely distribute in weedy ponds and sluggish streams
Crocothemis servilia	Crimson Darter	+		+	+												Abundant. Widely distribute in cultivated areas, ponds and marshes throughout the New Territories
Neurothemis fulvia	Russet Percher								+								Common. Widely distribute in cultivated areas and streams throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes *et al.* (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Orthetrum glaucum	Common Blue Skimmer	+		+													Abundant. Widely distributed in streams, conduits, drainage channels, seepages and road gutters throughout Hong Kong.
Orthetrum sabina	Green Skimmer	+			+			+									Abundant. Widely distribute in all wetland habitats throughout Hong Kong
Pantala flavescens	Wandering Glider	++					+			+			+				Abundant. Widely distribute in all wetland habitats throughout Hong Kong

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes *et al.* (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
Rhyothemis variegata arria	Variegated Flutterer	++											+				Common. Widely distribute in marshes, ponds and tanks throughout Hong Kong
Trithemis aurora	Crimson Dropwing	+															Abundant. Widely distribute in marshes, ponds, streams and ornamental ponds throughout Hong Kong
Urothemis signata	Scarlet Basker	+												Fellowes et al. (2002): LC	Local Concern		Common. Common in areas containing abandoned fish ponds

Scientific Name	Common Name	Application Site	Study Area											Conservation Status	Fellowes *et al.* (2002)	Statutory Protection in Hong Kong	Commonness and Distribution in Hong Kong[1]
		Ab Pond	Ac Agr	Ac Pond	Ab Pond	Me	DC	Nu	FSP	PL	WO	WL	DA				
																	throughout Hong Kong
Copera marginipes	Yellow Featherlegs							+									Abundant. Widely distribute in streams throughout Hong Kong

1: AFCD (2020)

Level of concern: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes *et al*,.2002)

(Habitats: Ac Agr : Active Agriculture Land, Ac Pond: Active Pond, Ab Pond: Abandoned Pond, Me: Meander, DC: Drainage Channel, FSP: Flood Storage Pond, PL: Plantation, WO: Woodland, WL: Wasteland, DA: Developed Area)

Relative Abundance: +++ = common, ++ = occasional, + = scarce

Appendix 8 Aquatic species recorded in Study Area

Scientific Name	Common Name	Application Site	Study Area
Ctenopharyngodon idellus	Grass carp	+	
Hypophthalmichthys nobilis	Big Head Carp	+	
Mugil cephalus	Grey mullet, Striped mullet		++
Oreochromis niloticus	Nile tilapia	+	+
Pomacea canaliculata	Apple snail	+	+

Relative Abundance: +++ = common, ++ = occasional, + = scarce

S16 Planning Application For
Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Po Road East, Pok Wai, Yuen Long, New Territories

Wetland Restoration Proposal

September 2024

Ecosystems Limited
生態系統顧問有限公司
Ecosystems Limited

CONTENTS

Page

1 INTRODUCTION

1.1 Background

1.1.1 The Application Site (about 5.1ha) is mostly identified as abandoned fish ponds in the EcoIA under the present application, while the remaining is composed of developed area contributed to tiny proportion. The Application Site is located to the north of Kam Pok Road East and is over 100m away from the existing drainage channel (Ngau Tam Mei Channel). Some abandoned fishponds are also located adjacent to the Application Site.

1.1.2 According to the Ecological Impact Assessment (EIAO) for the present application, the overall ecological value of these abandoned fish ponds within the Application Site is ranked as low to medium, while the developed area is very low. ”

”

1.1.3 The Application Site is zoned as “Other Specified Uses annotated “Comprehensive Development to Include Wetland Restoration Area (“OU(CDWRA)) on the Approved Nam Sheng Wai Outline Zoning Plan (No. S/YL-NSW/9) (“OZP). This zoning is intended to provide incentive for the restoration of degraded existing on-site wetlands within the Application Site through a comprehensive residential and/or recreational development to include wetland restoration area.

1.1.4 The Application Site is also partly within the Wetland Buffer Area (WBA) (about 3.4 ha of pond habitat within the Application Site is located within WBA). The intention of the WBA (i.e. a buffer area of about 500m along the landward boundary of the WCA) is to protect the ecological integrity of the fish ponds and wetlands within the WCA and prevent development that would have a negative off-site disturbance impact on the ecological value of fish ponds. As a substantial amount of the fish ponds within the 500m Study Area that were located within WBA have already been lost over time (used as open storage, car parking and residential purposes), the proposed wetland restoration area is formulated in accordance with the planning intention of “OU(CDWRA) zone under the statutory OZP with an aim to upgrade and enhance the quality of wetland area inside WBA by converting the remaining abandoned ponds at the Application Site into ecologically-enhanced wetland habitats and thus be beneficial for the intention of the WBA.

1.1.5 The proposed development proposes to create an artificial wetland of 2.47 ha within the Application Site as a wetland restoration area with ecological enhancement by creating a variety of micro-habitat, such as water zones of different water depths and island design, attracting and providing optimal habitat for the wetland-associated fauna in the proximity. With active management of the proposed WRA during operational phase, the wetland habitat of WRA could complement the ecological functions of the wetlands and fish pond in the around the Deep Bay Area as the WRA could sustainably provide food supplies (i.e. by regular fish stocking) and habitats, thus safeguarding the waterbird populations from other potential risks and is in line

with the TPB PG-No. 12C, and also the planning intention of the OU(CDWRA) zone in terms of wetland ecological function.

1.2 Purposes of this Document

1.2.1 The purpose of this document is to provide information on the design, operation procedures, and maintenance works for the proposed artificial wetlands as required under the notes of the OZP for "OU(CDWRA) zone.

1.2.2 As the main objectives of establishing the WCA and WBA aim to protect the habitats for migratory birds in Northwest New Territories (NWNT). The present wetland restoration proposal also aims to benefit to the WCA, WBA, or migratory birds. The wetland will not only enhance habitats for wildlife, but will also enhance the quality of the WBA and WCA as migratory bird habitats.

1.2.3 The wetland restoration will create additional ecologically-enhanced wetland habitats within the WRA. By increasing the availability and diversity of habitats, it will provide more resources and shelter for migratory birds and other wetland-associated wildlife. This expansion of suitable habitats within the WRA will directly benefit the WBA by extending its reach and capacity to support a greater number of species. The wetland restoration can enhance ecological connectivity within the WCA. By establishing a contiguous wetland habitat in the WRA, it will offer a connected habitats for migratory birds and other wildlife. This connectivity will contribute greater and wider movement of species, facilitates migration patterns, and supports the overall ecological functioning of the WCA.

1.2.4 The wetland restoration efforts will focus on enhancing the quality of the habitats within the WRA. This includes restoring and improving vegetation, water quality, and ecological processes. By implementing sustainable management practices and promoting ecological health, the improved habitat quality will attract more migratory birds and contribute to the overall enhancement of the WCA's ecological value. Wetland restoration involves creating or restoring wetland features such as pond of different water depths and vegetation that can provide suitable habitat for various species. By improving the quality of habitats in the restored wetlands, such as ensuring food availability, nesting sites, and shelter, the area can become more attractive to migratory birds. As a result, more birds may be inclined to use the restored wetlands as a stopover site during migration or as a breeding ground, indirectly benefiting the overall ecological value of the WCA.

1.2.5 Given the close proximity of the restoration wetland and the future residential developments, the design of the wetland should allow the colonization of wildlife, but not produce excessive nuisance to the nearby residential developments. On the other hand, disturbance from the future residence to the wildlife inside the proposed wetland should also be minimized so as a mean to maintain the functions of the wetland.

1.2.6 As the existing abandoned fish ponds are relatively deep in nature (i.e. 2m), which are not favored for the non-dabbling waterbirds, the design of the Wetland Restoration Area will provide much larger shallow water areas for the

waterbirds to roost and feeding, and also to include areas with different water depths as well as in order to provide more micro-habitable conditions for the waterbirds.

2. EXISTING SITE CONDITIONS

2.1 Ecological baseline

Ecological resources in the vicinity

2.1.1 Recognized sites of conservation importance in NWNT included the Mai Po Inner Deep Bay Ramsar Site (Mai Po Nature Reserve, Mai Po Marshes SSSI, Mai Po Village Egretry and Mai Po Village SSSI located within the Ramsar Site), Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA).

2.1.2 The Application Site falls within the WBA. The planning intention of WBA is to protect the ecological integrity of the fishponds and wetlands within the WCA and to prevent development that would have a negative off-site impact on the ecological value of those fishponds. The Application Site is about 176m from the boundary of WCA.

2.1.3 The Mai Po Village SSSI is a piece of fung shui woodland of size about 53ha behind the Mai Po Village, and is about 2.84km from the boundary of the Application Site. This woodland was once provided nesting habitats for a number of ardeid species. The ardeids are now nesting in trees near the former woodland nesting areas.

Conditions of the Application Site

2.1.4 The habitats of the Application Site composed of abandoned fish ponds and developed area. The developed area of the Application Site is mostly concrete-paved with little vegetation areas.

2.1.5 The abandoned ponds were still left with water at a water level similar to that of active ponds. The bunds of these abandoned ponds were grown with fruit tree species typically associated with villages in Hong Kong, such as *Dimocarpus longan* and *Litchi chinensis*. The fishponds in the Application Site were not drained throughout the study period, no sign of traditional fishpond management were observed during the survey period including the period of verification survey. In addition, these ponds were subjected to the disturbance from the activities in the developed area portion of the Application Site, and utilization of these ponds by high abundance and diversity of wildlife is not expected. The ecological value of the abandoned fishponds as habitats of waterbirds is not high.

2.1.6 16 bird species of conservation importance were recorded within the Application Site during the 12-month survey and verification survey. These included Little Grebe, Yellow Bittern, Chinese Pond Heron, Grey Heron, Great Egret, Little Egret, Great Cormorant, Black Kite, Eastern Buzzard, Greater Coucal, White-throated Kingfisher, Collared Crow, White-cheeked Starling, Mallard, Purple Heron and Pied Kingfisher. All these species were present in

low abundance / recorded in low frequency. No breeding and Nesting behaved was observed in Application Site.

2.2 Impact assessment

2.2.1 The potential terrestrial and aquatic ecological impacts arising from the construction works, including loss of habitats, removal of vegetation, and disturbance to animals, were assessed with reference to the criteria stated in Annexes 8 and 16 of the EIAO-TM.

2.2.2 Loss of habitats and associated vegetation due to site formation within the Application Site will constitute the direct ecological impacts of the Project. The Application Site is partly composed of developed area with little vegetation cover used for temporary storage (with very low ecological value) and partly composed of seven abandoned fish ponds (with low to medium ecological value).

2.2.3 As the developed area of the Application Site is mostly concrete-paved with little vegetation areas, there would be little need for additional site clearance. The impact of the loss of this 0.2 ha of developed area and their associated flora and fauna are considered insignificant due to the small area affected, high level of disturbance, and very low diversity of wildlife. No mitigation for the habitat loss is required.

2.2.4 A total of about 4.9 ha abandoned fishponds was existing within the Application Site. There will be permanent loss of about 2.43 ha abandoned fishponds within the Application Site, to be converted into residential area. A portion of abandoned fishponds (about 2.47 ha in size) will be included in the wetland restoration area as temporary habitats loss. As this area covers portions from seven different ponds, re-profiling would be required to be constructed before this area could form part of the wetland restoration area of the Project. The conversion might involve the removal of ruderal vegetation on existing pond bunds, drain-down of two existing ponds and reprofiling of the pond bunds. This will only result in temporary loss of the seven abandoned fishponds, but not permanent loss of habitats. There will be net-gain of shallow wetland area available for waterbirds in this Project and the Project will have positive influences after implementation.

2.3 Mitigation targets

”

2.3.1 The mitigation objective for the proposed Wetland Restoration Area is to follow the “no-net-loss in wetland principle and wetland enhancement and management scheme of the TPB Guidelines (TPB PG-No. 12C).

2.3.2 The proposed Wetland Restoration Area in the Project will be composed of areas created by conversion of 2.47 ha abandoned fishponds. Currently the ponds in the Application Site are abandoned/not actively managed for commercial fish farming and thus the ponds are left without drain down practices just as the traditional management of the other active fishponds. There is only limited area, a narrow stripe along the pond bunds currently, could be

utilized actively by waterbirds habituated in the wetland habitat in the proximity of the Study Area.

2.3.3 Shallow water region is considered more attractive to the majority of the waterbirds recorded in the Application Site, including but not limited to Grey Heron, Chinese Pond Heron and Little Egret, of which their foraging behavior are found more frequent within the shallow water region than deep water region. Details will be discussed in **section 3.4**. **Appendix 1** shows some of the waterbird species and plant species that could be attracted or planted in the WRA. The proposed restoration of wetland habitats will create more shallow water areas than the present conditions. Thus, the provision of more shallow water regions could compensate the loss of abandoned fishponds, resulting "no-net-loss in wetland in terms of enhanced ecological functions and create more microhabitats that are favorable for waterbirds.

2.3.4 Given the lack of traditional pond drain down practice and the overgrown of vegetation inside or along the bunds of the abandoned pond within the Application Site, only 16 species of bird, 1 dragonfly, 1 reptile and 1 mammal of conservation importance were recorded during the baseline survey. The provision of wetland habitats aims to provide ecological functions as well as suitable habitats for the recorded species of conservation importance.

2.3.5 It is stated that within the Application Site, there is a loss of wetland area of 2.43 ha, which represents approximately 47.6% loss of the total area of the Application Site. The mitigation target aims to address the potential impacts on wildlife in particular waterbird species due to habitat loss resulting from the proposed construction. First target is set to the presence of the targeted waterbird and the associated groups/families as recorded during the ecological surveys of Ecological Impact Assessment (EcoIA) after the establishment of the WRA throughout a 12-month period (**Table 2.1** refers).

2.3.6 16 bird species of conservation importance were recorded within the Application Site during the survey period of the Ecological Impact Assessment. The representative species under the target families/groups that were recorded within the Application Site and other habitats during the ecological survey are summarized in **Table 2.2**. Amongst the 16 bird species of conservation importance, 13 species are recorded to be scarce within the Application Site. Only 3 species were recorded to be occurred occasionally within the Application Site and thus will be considered as the Target Species, i.e. Little Egret, Little Grebe and Great Cormorant.

2.3.7 To compensate the loss of the wetland area within the Application Site, another mitigation targets is to achieve a target level of the total abundance of Ardeidae (which is the most abundant bird family recorded during EcoIA, occurring year-round in Hong Kong, and also the less cryptic waterbirds during survey, and thus considered suitable as an indicator) and also the target species mentioned in **section 2.3.6** within the Application Site. The target level is determined based on the total abundance of species recorded during the corresponding month of the EcoIA ecological survey. There will be pre-construction survey for avifauna species and non-avifauna species during the detailed design stage, details of the

target level including both species and abundance will be reviewed and subject to change according to the ecological condition of the Application Site during the detailed design stage, appropriate adjustment of the habitat design of the WRA might also be required. This guarantee the density of target waterbird families/groups and target species in wetland habitat within the Application Site, due to the substantial increase in the ecological function to be provided by the proposed WRA.

Table 2.1 List of mitigation targets of the waterbirds and the associated families/groups

No.	Waterbirds and the associated families/groups
1	Ardeidae (鷺科)
2	Podicipedidae (鸊鷉科)
3	Phalacrocoracidae (鸕鷀科)
4	Anatidae (鴨科)
5	Cuculidae (杜鵑科)
6	Alcedinidae (翠鳥科)

Table 2.2 List of representative species and Target Species under the target waterbirds and the associated families/groups recorded within Application Site

Target waterbirds families/groups	Representative species recorded within the Application Site	Target species
Ardeidae (鷺科)	Chinese Pond Heron*, Grey Heron*, Great Egret*, Little Egret*, Purple Heron*	**Little Egret***
Podicipedidae (鸊鷉科)	Little Grebe*	**Little Grebe***
Phalacrocoracidae (鸕鷀科)	Great Cormorant*	**Great Cormorant***
Anatidae (鴨科)	Mallard*	-
Cuculidae (杜鵑科)	Greater Coucal*, Plaintive Cuckoo, Large Hawk Cuckoo	-
Alcedinidae (翠鳥科)	White-throated Kingfisher*, Common Kingfisher, Pied Kingfisher*	-

Key: *Species of conservation importance

2.3.8 **Table 2.3** shows that the preferred habitats for the species and the families of waterbird recorded within the existing on-site abandoned pond. The proposed managed ponds with varied depths of water zone and reedbed can provide suitable habitats for these species. The mitigation target of the proposed WRA

is also to maintain the specific habitat condition of the preferred habitats for the wetland-associated species.

Table 2.3 The preferred habitats with condition target for the fauna taxa groups recorded within the abandoned pond of the Application Site

Taxa groups	Preferred habitats/WRA elements with condition target				Ecological considerations of the designs
	Managed pond with varied water depth	Wood log	Island	Submerge plant	
Bird	✓	✓	✓		● Shallow water zone provides feeding opportunities for non-swimming waterbirds (e.g. Cuculidae (杜鵑科) and Alcedinidae (翠鳥科)) ● Deep and middle water zones provide swimming area for dabbling waterbirds (e.g. Podicipedidae (鸊鷉科), Phalacrocoracidae (鸕鷀科) and Anatidae (鴨科)) ● Wood log and strips of island provide standing places and feeding opportunities for birds and waterbirds, including but not limited to Ardeidae (鷺科)
Dragonfly	✓	✓	✓	✓	● Ponds provide breeding and feeding habitats for dragonfly ● Wood log and island for roosting places for the dragonfly species ● Submerge plant will offer habitats for their nymphs
Reptile	✓				● Ponds provide feeding opportunities for reptile
Mammal	✓				● Habitat with water body provide feeding opportunities for bats

2.3.9 Besides, the creation of wetland habitats would also enable to provide habitats for wetland-associated dragonfly, reptile and mammal. With planting of submerge plant, reed and the soft substrate water bodies, there will be perching spots for dragonfly adults and habitats for their nymphs. Wetlands with submerge plants would also attract insects and provide feeding opportunities for amphibian, reptile and mammal.

2.3.10 In order to maintain the ecological functions of the proposed compensatory wetlands in the long run, a detailed management plan for the compensation

ponds will be submitted to the authorities during the detailed design stage. A tentative outline of the content of the plan is presented in **Table 2.4**.

Table 2.4 Outline of key items in the WRA habitat creation and management plan

Key Sections in the plan	Outline content to be further developed
Objectives	● Presents the key objectives of the plan ● Describes site conditions such as location, boundary, topography, hydrology etc. ● Summarises / updates habitat evaluation, species of conservation importance, impact evaluation
Mitigation Objectives	● Proposes management goals and objectives of the WRA, for both construction and operational phases ● Recommends suitable targets (e.g. habitat condition targets) for the WRA
Detailed Design and Construction Methods	● Design for water sources (mainly from rain water and surface runoff) ● Design for hydrology and water level based on latest site conditions ● Recommend vegetation species
Management Strategy	● Interface with the other areas of the development ● Detailed management strategy of the water levels, water quality, habitat condition and quality, trash fish size and species for fish stocking
Monitoring	● Monitoring of water level and water quality ● Monitoring of the habitat condition and quality ● Monitoring of wildlife use including bird, dragonfly, reptile and mammal

2.3.11 With the provision of the wetland habitat of a total 2.47 ha with long-term management and monitoring, and the ecological functions as habitats for waterbirds and other fauna, the ecological function lost due to the permanent habitat lost impact could be compensated and is expected to be enhanced significantly. The spirit of 'no-net-loss in wetland' principle for this 'Wetland Restoration Area' in terms of long-term ecological function offering a high quality alternative wetland habitat to replace the present abandoned and unattended ponds for providing foraging habitat in a sustainable manner under TPB PG No. 12C can also be realized in practice.

3. CONSIDERATION OF THE WETLAND RESTORATION AREA

3.1 Rationale of the wetland restoration area

3.1.1 Each wetland habitat composes a number of physical, chemical or biological components such as soil, water, plant and animal species, and nutrients. Wetlands perform certain functions such as flood control and storm water protection, generation of products such as fishery and forest resources, and provision of support for wildlife species and habitats (Davis, 1994).

3.1.2 Conventional artificial wetland systems which are being increasingly used for wastewater treatment to remove nutrients, various chemical contaminants, and

microorganisms because biological treatment is one of the most effective means for removing nitrogen (Gerba *et al*. 1999; Hamersley and Howes, 2002).

3.1.3 There are examples of artificial wetland systems to serve different functions such as aquaculture facilities (Hosokawa, 1997), recreational purposes such as swimming (Lee *et al*., 1998), as well as conservation purposes for waterbirds (Evans *et al*., 1998).

3.1.4 As there are some recognized sites of conservation importance identified within and in the vicinity of the Application Site, which provide important habitats for waterbirds and other wildlife. Hence, the wetland restoration proposal targets to provide feeding and roosting habitats for waterbirds as well as other wetland dependent wildlife.

3.2 Types of artificial wetland system for attracting waterbirds

3.2.1 Some of the Habitat Creation and Management Plans (HCMP) of wetlands such as Lok Ma Chau Spurline Wetland and Mai Po Nature Reserve were reviewed.

Lok Ma Chau Spur Line Wetland

3.2.2 As compensation for habitat loss of the Lok Ma Chau Spurline Project, an area of fishponds in Lok Ma Chau was transformed in mitigation wetlands for this purpose and a HCMP was prepared for the mitigation wetland.

3.2.3 In order to provide in-advance compensation before the construction, the mitigation wetlands were implemented in two phases, Initial Enhancement Area (IEA) which was implemented before the construction, and Ecological Enhancement Area (ECA) which replaced the IEA.

3.2.4 The above IEA cover 15.5ha and including 8 ponds. The primary objective of the management of the IEA was to increase the abundance of six target waterbird species (Great Cormorant, Great Egret, Little Egret, Grey Heron, Chinese Pond Heron and Black-faced Spoonbill) to levels double those in active fishponds of the control areas – i.e. Mai Po San Tsuen and San Tin. The target levels were considered achieved if their abundance in the IEA exceeded 160% of the mean of the control areas. The management measures implemented in the IEA include, but were not limited to the following:

- Re-profile of pond levels to create shallow feeding habitats;
- Fish stocking; and
- Management of water levels.

3.2.5 While the Ecological Compensation Areas (ECA) cover 33.1ha and including ponds and marsh. The primary objective of the management of ECA was to increase the abundance of six target waterbird species as IEA to levels double those in the control areas as IEA. The target levels were considered achieved if the abundance of the target species in the ECA exceeded 160% of the mean of

the control areas. The management measures implemented in the IEA include, but were not limited to the following:

- Enlarging small fish ponds to reduce enclosure effects;
- Re-profiling of fish pond bunds to provide shallow sloping margins to increase feeding;
- Establishing marginal emergent vegetation; and
- Manipulating fish stocking, feeding/fertilizing regimes and drain-down to optimize food availability for birds.

3.2.6 The target species and target levels were clearly stated in the HCMP, and the number of target species increased to 30 upon the operation of the ECA. This consisted of 20 birds (including the original 6 target species), one mammal and three herpetofauna species (e.g. Burmese Python). The monitoring showed that the abundance of most target species met the target levels.

Mai Po Nature Reserve

3.2.7 The Mai Po Nature Reserve (MPNR) is located in the northwestern New Territories of the HKSAR on the eastern shore of Deep Bay. It significantly supports wetland biodiversity, especially migratory waterbirds. Since 1983, it was set up and managed by the World Wide Fund for Nature Hong Kong (WWF-HK) on behalf of the Agriculture, Fisheries and Conservation Department (AFCD) of the HKSAR Government, and designated as Mai Po and Inner Deep Bay Ramsar Site in 1995.

3.2.8 The Reserve has an area of 377 ha, which composed of different habitat types, including brackish open water, rain-fed open water, reedbed, mangrove and bunds. Mangrove and brackish shrimp ponds (gei wai) in MPNR are habitats of high regional importance.

3.2.9 The MPNR is a significant site for a variety of bird species. It provides habitat to 28% of the waterbirds in the Ramsar Site, and roosting area for the majority of 20000-30000 shore birds that pass through Deep Bay annually. It is also important for the Black-faced Spoonbill (*Platalea minor*) which is globally endangered, as the Reserve supports the largest roost in Hong Kong. The globally near-threatened Collared Crow (*Corvus torquatus*) also roosts in the MPNR and its adjacent area of inter-tidal mangrove. There were 34 bird species considered as internationally important, of which four are critically endangered, including the Christmas Island Frigatebird (*Fregata andrewsi*), Siberian Crane (*Grus leucogeranus*), Spoon-billed Sandpiper (*Eurynorhynchus pygmaeus*) and Baer's Pochard (*Aythya baeri*).

3.2.10 Management work implemented in MPNR varies with the habitats and mainly include:

- Cut vegetation;
- Maintain open water by controlling the spread of emergent vegetation and desilting channels;

- Provide foraging opportunities to waterbirds by drawing down water levels in certain area ;
- Manage water levels by sluice gate operation;
- Maintain water and sediment quality by water exchange and sun-bake;
- Remove predatory fish species;
- Manage invasive climbers in mangrove tree stands;
- Cut reedbed;
- Create/repair islands; and
- Increase the area of brackish waterbird roosts by constructing earth bund sections

3.2.11 MPNR is operated as a nature reserve rather than mitigation wetland like Spurline wetland. The management work emphasizes more on creating suitable habitats or enhancing the existing habitats for wildlife. While the waterfowl abundance and diversity are constantly monitored and reviewed, numerical target levels are not adopted.

3.2.12 The management strategy of present Wetland Restoration Proposal can make reference to the management measures adopted in the above two successful artificial wetlands. The management measures implemented in the wetland of the Lok Ma Chau Spurline Wetland include the re-profile of pond levels to create shallow feeding habitats, fish stocking and management of water levels. These management measures are also adopted in the current WRP, which could maintain the wetland habitats favorable for the wetland associated species. The provision of habitats and the management measures proposed to be adopted in the current project will greatly enhance the functioning ecological value in the proposed Wetland Restoration Area when compared to the current abandoned/unattended ponds within the Application Site.

3.3 Constraint and limitation

3.3.1 The sole source of water for the wetland is rainwater. During the construction period the only rainwater available will be falling directly on the wetland. This is adequate to replenish the wetland during wetter years but may not be sufficient to permit the wetland to be refilled in years when rainfall is significantly below average. In order to resolve this potential problem it is proposed that the rainwater runoff generated from the developed parts of the Application Site will be intercepted and go through silt and grease traps before diverted to the wetland. The propose reedbed also provides ecological function of treating the wastewater runoff, to secure the water quality reaching the wetland.

3.3.2 The water quality and soil of the fish ponds within the Application Site are acidic in nature. The phenomenon is well known to fish farmers (who take routine measures to reduce acidity as a part of their standard fish farming activities). The primary source of acidity is the acid soils of the system, and the acidity may also be exacerbated by acid rainfall.

3.3.3 The following methods may be adopted to reduce the acidity in the wetland:

- Liming: liming is a traditional method of reducing pond acidity when the ponds are drained, dried and recontoured. Lime is spread over the pond base prior to refilling of water. However, application of too much will result in causing the death of aquatic life.

- Addition of organic matter: a variety of organic matter may be used to reduce acidity. Suitable materials for use in the wetland (avoiding the risk of transfer of pathogens to the site) are addition of peanut residue and use of grass cuttings.

- Transfer of water: transfer of water does not reduce acidity per se. However, mixing of water from a wetland where water quality is less acidic with one where it is more acidic will reduce acidity in the latter. Mixing of water may be considered as a management option where there is an urgent need to reduce acidity quickly or where less acid water might otherwise be lost to the system through drain-down.

3.4 Opportunities in wetland creation

3.4.1 The variety of microhabitat within the existing ponds of the Application Site is very homogenous (i.e. pond bunds and deep water region). In fact, the more the microhabitats could be created, the higher biodiversity of organisms can be attracted. According to the result of the EcoIA for present application, most of the waterbirds (e.g. ardeids, sandpipers) recorded within the Study Area are not dabbling species, existing deep water region are not suitable for them. The waterbird species recorded within the Application Site mainly fed at the edge of the waterbody where is shallow for those non-dabbling species. Hence, present Wetland Restoration Proposal could provide more area as well as more microhabitats that would be utilized by the waterbirds for roosting and feeding.

3.4.2 No reedbed has been identified within the 500m Study Area according to the EcoIA. Hence, in order to enhance the diversity of the types of habitat and ecological functions, a reedbed will be proposed in the Wetland Restoration Proposal. Reedbed provides habitats for wildlife, especially for birds, and it can filter the surface runoff of the Application Site, to protect the water quality in the proposed wetland. Besides, the drainage will eventually discharge to the drainage channel to the western side of the Application Site, where a number of bird species of conservation importance were recorded according to the EcoIA, the reedbed can further secure the water discharge to the drainage channel is filtrated naturally and will not affect the wildlife depends on the drainage channel.

3.4.3 With the implementation of the proposed WRA with ecological enhancement, active management and monitoring, the overall ecological value of the original wetland habitat (i.e. abandoned pond) within the Application Site will be increased from low to medium to **medium to high** maximally. The integrity and connectivity of wetland habitats in the vicinity will in turn be enhanced. As the Application Site is located at the fringe of the Wetland Buffer Area and is considered as remotely connected to Deep Bay Area, the creation of the WRA

can act as an enhancement to the overall ecological value of the region, given that the Application Site is already subjected to fragmentation to other wetland habitat with higher ecological value and connectivity, such as the channel habitat to the west of the Application Site and the active fishpond in the southwest of the Study Area. **Table 3.1** summarizes the wetland habitats and the corresponding ecological value before and after the wetland restoration.

Table 3.1 The summary of the ecological values of the wetland habitats before and after construction

Habitat/zone	Area (ha)	Ecological value	Impact
Before construction			
Abandoned pond	4.9	Low to medium	2.43 ha will be lost 2.47 ha will be converted to ecological enhanced wetland
After construction			
Water zones with different depths	1.36	Medium to high	Positive ecological impact with enhanced ecological connectivity and integrity in the vicinity
Reedbed zone	0.92	At least medium	Positive ecological enhancement by habitat provision
Island, Submergent plant and wood log	0.19	At least medium	Positive ecological enhancement by habitat provision

4. GENERAL LAYOUT AND DESIGN OF WETLAND SYSTEM

4.1 Location and general layout

4.1.1 The proposed artificial wetland, is planned to be located in the middle part of the Application Site with its northern sides immediately next to other abandoned fish ponds adjacent to the Application Site (**Figure 4.1**). Noise barriers are proposed to be erected along part of the Application Site boundary to screen out the disturbance from the surroundings to the WRA, with strategic opening in the northern side and southwestern side of the Application Site to allow ecological connectivity of the WRA to the surrounding wetland habitats. While noise barriers would pose little threat to waterbirds which are most larger in sizes and flying slower, stickers are still proposed to be placed on the noise barriers to prevent the collision of small-sized birds to the noise barrier. There is no blockage by the proposed development between the northern part of the WRA and the wetland habitat to the north of the Application Site. Ecological connectivity between the proposed WRA and the wetland habitat in WBA is expected to be enhanced by the WRA. In return the ecological value of the wetland habitat in the WBA will be enhanced by the establishment of WRA. The artificial wetland is about 2.47 ha (~48.4% of the Application Site) comprising different elements to provide variety of microhabitats i.e. water

zones with different water depth, wood log, island, submerge plant and reedbed. **Figure 4.1** shows the configuration of the proposed artificial wetland.

4.1.2 The surface runoff / storm water will be collected via the drainage system within the Application Site. After passing silt traps, the runoff will go into the proposed reedbed for filtering. The water will then feed the main water body of the artificial wetland. The surplus of the runoff / storm water, if any, will then discharge to the nearby drainage channel.

4.2 Wetland elements

Reedbeds

4.2.1 According to the EcoIA for the present planning application, there is no reedbed identified within the 500m Study Area. Reedbed is an important habitat in the Deep Bay area and is known to have high ecological value for a number of wetland-dependent species, including several species that are of global/regional conservation concern. Reedbed provides habitats for wildlife (e.g. birds) and creation of reedbed can provide a good habitat for cryptic species such as bitterns as a foraging and roosting grounds. The reedbed will also provide a variety of micro-habitat surrounding the water zones, which could provide increased cover and feeding habitats for mammals, insects, other invertebrates, amphibians, reptile and birds, such as bitterns, smaller herons, rails, crakes and dragonflies. The establishment of such reed species will help to enhance the overall biodiversity value of the ponds, making them more attractive habitats for a broader range of species.

4.2.2 More importantly, reedbed could provide clean up function by filtering the surface runoff, to enhance the water quality in the nearby drainage channel which are feeding ground for waterbirds. Hence, reedbed is proposed in the Wetland Restoration Proposal (~0.92ha), which will be vegetated with common reed *Phragmites australis*.

4.2.3 *Phragmites australis* is one of the most productive, perennial, widespread and variable wetland species in the world. This species can tolerate widely variable water depths and quality. They are able to grow in waterlogged soils and to tolerate seasonal water table fluctuations of one meter. This species is native to Hong Kong, and would not trigger issue about invading to other habitats in the vicinity.

Shallow water zones

4.2.4 It is widely known that water depth is an important factor affecting the utilization of wetland habitats by waterbirds (Velasquez 1992; Campos and Lekuona 1996; Ntiamoa-Baidu *et al*. 1998). Each waterbird species has a range of preferred foraging/roosting water depths. For example, Kwok (1993) reported the optimum ranges of water levels of Great Egret, Little Egret and Grey Heron in gei wais of Mai Po Nature Reserve were 41-60mm, 21-40mm and 21-40mm, respectively. Deep water pond is of limited value for foraging waterbirds except species with very long legs/necks or diving species. Shallow

water zone with about 0.2 to 0.6m depth can provide feeding area and roosting area for non-swimming water birds such as sandpipers and egrets. A total of 0.93 ha of shallow water zone (0.5m) will be provided, which is much bigger than that in the existing shallow water area (0.22 ha) within the site currently.

Deep water and medium depth zones

4.2.5 Deep water zone with about 2m depth can provide swimming area for dabbling waterbirds (e.g. Little Grebe, Cormorant as recorded in the EcoIA), together with the provision of submerge plant, aquatic life such as fish and snail can be introduced that form the food source of the waterbirds. The deep-water depth can prevent submerge plant encroachment, and it can also serve as a water reserve and prevent the wetland from drying out completely in the dry season. A total of 0.16 ha deep water zone (2m) and 0.27 ha medium depth zone (1m) will be provided.

Islands

4.2.6 Island with short grass or without vegetation can provide roosting area for water bird during high tide in Deep Bay area. The margins can provide additional foraging habitats for non-swimming water birds such as sandpipers and egrets. Belt-shape island design could increases the area of edge and margins for the usage of waterbird. Three small islands of sizes about 0.15 ha in total.

Wood logs

4.2.7 Wood log can provide perching area for water birds such as ducks. The wood log will be distributed at various locations in the wetland, mainly the areas with deeper and medium depth. Wood logs placing in the middle of the water zones also provide roosting places for the dragonfly species. A total of 0.02 ha of wood logs will be provided.

Submerged plants

4.2.8 Submerged plant can be the primary producer of the habitat and provide microhabitat for amphibians and other aquatic life. In wet season, it can also serve as a suitable breeding habitat for them. Aquatic life such as fish and snail can be introduced to become food source for water birds. By planting submerged plants and creating soft substrate water bodies, the wetland will offer perching spots for adult dragonflies and habitats for their nymphs. Wetlands with submerged plants can also attract insects and provide feeding opportunities for amphibians, reptiles and mammals.

4.2.9 Besides, submerged plant can provide additional dissolved oxygen for the wetland. *Vallisneria natans*, *Rotala indica*, *Rotala rotundifolia* will be considered. A total of 0.02 ha of submerged plants will be provided.

4.2.10 **The areas of the tentative wetland elements design within the WRA are summarized in** Table 4.1**.**

Table 4.1 Area of the tentative wetland elements design within the WRA

Wetland Elements	Area (ha)
Shallow Water Zone	0.93
Middle Depth Zone	0.27
Deep Water Zone	0.16
Reedbed	0.92
Submerge Plant	0.02
Island	0.15
Wood Log	0.02
Total	**2.47**

4.3 Creation of main waterbody

4.3.1 As the existing Application Site already consisted of abandoned fishponds, earthmoving works have been restricted to the reprofiling and modification of existing ponds rather than construction of new ponds. Most modifications would involve the combing ponds to reduce enclosure effects and to provide islands with gentle gradients, and to create shallow water zones.

4.3.2 Where ponds are joined, the bund material is lowered and side cast to create shallow sloping margins to islands and shallow water zone. The islands and the shallow water zones provide suitable feeding areas for small and non-dabbling waterbirds.

4.3.3 While the planting buffer and the submerged plant will be established by a landscape contractor. The recommended plant species for the planting buffer and the submerged plants mentioned above should be sourced with higher priority. Wood logs from not easily decomposed tree species should be considered.

4.4 Creation of reedbed

Reedbed establishment techniques

4.4.1 Previous reed planting examples worldwide were reviewed and there are different techniques for reedbed establishment, including direct seeding, transplanting seedlings, planting cuttings, planting rhizomes, rhizome mat transplants, and planting purchased seedlings. However, considering the scale of the planting, time and intensity of labour required, some of these techniques are not preferred, and two options are proposed.

4.4.2 Reeds in the form of rhizome mats will be separately planted at appropriate spacing over the wetland restoration area. Planting a small patch of reeds in an area with water will create a source of reed that can spread out through vegetative propagation into appropriately managed areas. Extent of propagation of reeds within the reedbed system will be regularly monitored after planting. If necessary, additional planting will be added.

4.4.3 Reed seedlings can be sourced from local/commercial suppliers. Individual pot-grown reeds sourced from a commercial supplier will be planted manually. To prevent introduction of invasive pest or plant species, qualified ecologist / botanist should be present to check if there are any invasive species mixed with the reed source.

4.4.4 Similar to turf transplant, the planted reed seedlings will be established in water with a target water depth of 0.5m. A planting density of 18,000 to 28,000 seedlings per hectare (0.60 – 0.75m spacing) will be used to ensure faster plant cover. The total number of seedlings needed will be between 10,620 and 16,520 individual plants, assuming planting for 0.92ha of area is required. A contingency stock of up to 30% should be included in the procurement.

4.4.5 While the earth works of the WRA and water filling will be completed within June to August. When planting is completed, water level will increase as the rainfall in wet season, and will be adjusted to about 0.5m by pumping out excessive water by submersible pumps to suppress competition of other weeds. Care should be taken not to compact the soil of the wetland restoration area during planting.

Table 4.2 Timeline of the construction of the WRA and the Residential Portion

Construction works of the WRA and residential portion	2025									2026											2027	
	Wet season							Dry season					Wet season							Dry Season			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Phase I - Construction of WRA (Apr 2025 – Jun 2025)																							
Installation of sheet piling to separate ponds lying on boundary																							
Drain down of Ponds																							
Construction of bunds/walls for ponds lying on boundary																							
Re-profiling earth works																							
Planting of the reed and submerged plant																							
Re-filling WRA																							
18 months establishment period of WRA (Jul 2025 – Dec 2026)																							
Establishment period of WRA																							
Phase II - Construction works other than superstructure, underground services and utilities, and roadworks (Jul 2025 – Mar 2027)																							
Phase II Construction																							

Table 4.2 Timeline of the construction of the WRA and the Residential Portion (cont.)

Construction works of the WRA and residential portion	2027							
	Dry season	Wet season						
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Phase II - Construction works other than superstructure, underground services and utilities, and roadworks (Jul 2025 – Mar 2027)								
Phase II Construction								
Phase II - Construction works for the superstructure, underground services and utilities, and roadworks (Apr 2027 – Jul 2027)								
Phase II construction								
Phase III - Construction works of the Phase III units (Jul 2027 – Oct 2027, without overlap with Phase II)								
Phase III construction								

4.5 Soil

4.5.1 The soil type for the substrate of the main waterbody and reedbed will be a soil mix consists of pond bund material, completely decomposed granite and river sand at a ratio 11:6:3 by volume. It is expected that the soil type is impermeable. Preferably 1,000mm thick soil mix is required for the substrate of the main waterbody and reedbed.

4.6 Fish stocking

4.6.1 Fish stocking is the process of releasing fish fry into the waterbody, to create a fish population to provide food sources for waterbirds and biological control of excessive aquatic weeds. Opportunities are reserved in the WRA for the harvesting of adult fish remaining WRA and act as the supply in the fish market regularly. A health and diverse fish population is an important part of creating an environmentally balanced wetland.

4.6.2 Species of fish would prefer those require low management efforts and the release density would be lower than the highly commercial fish pond operation in Hong Kong. For example, planktivorous fishes bighead carp, silver carp, and herbivorous fishes grass carp could feed on planktons and vegetation self colonized in the wetlands.

4.6.3 The purpose of fish stocking is to attract the waterbirds to feed and roost by providing the food source for them as well as the opportunity for fish farming and act as a supply to the fish market. Besides, fish stocking also provide side benefits such as controlling undesirable weeds, mosquitos and other aquatic pests.

4.6.4 Habitats within the proposed WRA will be monitored and managed, including areas of Deep Water Zone (2m) and Middle Water Zone (1m) will be maintained throughout the operational phase. To ensure an adequate food source for waterbirds during the dry season, fish stocking will be conducted at least once prior to the onset of the dry season. This proactive measure aims to guarantee that there is a sufficient supply of fish available within the WRA to sustain the waterbird population during this period when natural food sources may be limited. Additionally, opportunity is also reserved for the fish stocking during spring time, following traditional fish farming practice to ensure the supply of adult fish. Monitoring of the fish stocks within the WRA will be carried out throughout the dry season as well as wet season, which helps to assess the availability and abundance of fish, ensuring that the waterbirds have access to a continuous food supply and enabling any necessary interventions or adjustments to be made if needed to support the ecological balance within the WRA. The usefulness of fish stocks for birds is maximized in the way that most fishes are of suitable size to be eaten by the different types of waterbird species. By reviewing the Lok Ma Chau Loop – Ecological Mitigation/Habitat Creation and Management Plan, the existing fishponds at the Offsite Wetland Compensation Areas are enhanced to provide foraging ground and food source for target

species and the enhancement is deemed feasible. The measures and activities as stated in the Plan have been considered in the current proposed WRA.

5. ADVERSE IMPACT AND MITIGATION MEASURES

Noise

5.1.1 The reconstruction works of wetland are likely to produce noise and cause disturbance. High level noise disturbance can potentially lead to behavioral disturbance, auditory masking, and physiological stress to wildlife. In the most serious cases, it may also lead to abandonment of preferred habitats by the wildlife if the noise disturbance is constantly present for a prolonged duration. In order to mitigate the construction noise, temporary noise barriers are proposed as noise mitigation measures. The WRA should also be constructed during wet season and well established prior to main construction (Phase II superstructure, underground services and utilities, and roadworks, and Phase III) of the residential development, hence providing habitats for the migratory birds in wintering season.

5.1.2 The construction period will be divided into 3 phases (**Figure 5.1** refers)**,** Phase I will be the construction of the WRA; Phase II is the construction of the residential portion in western part of the Application Site; Phase **I**II of building construction is the rest parts of Application Site**.** The wetland establishment period prior to construction, is being planned for a period of 18 months (**Table 4.2** refers). During the establishment period of the WRA, the major construction works (Phase II superstructure, underground services and utilities, and roadworks, and Phase III) are avoided. The major superstructure construction of the buildings with higher disturbance located nearest to the WRA (Phase III) should avoid winter season.

Water Quality

5.1.3 Regarding the aquatic habitats in Deep Bay, discharge, if any, from the Application Site may cause impacts if containing pollutants. The existing ponds within Application Site used to be commercial fishponds. At that time when drain-down of these existing ponds within the Application Site were needed due to operational needs, water would discharge into adjacent existing drainage ditches then to the existing Ngau Tam Mei Drainage Channel without any treatment. During construction of the proposed development, construction activities will be conducted in phases. The WRA will be created first, before the major construction of the residential buildings. Prior to the construction commences, water from the ponds within the WRA extent will be drained to other ponds as temporary storage. If there is still water in the WRA, the remaining water will, with the consent of the owners of those ponds sought by the Applicant, be transferred to other ponds outside the Application Site as temporary storage. The chance to drain pond water to the adjacent existing ditches would thus be low. Even if a discharge is needed, as it is expected that the water is of similar quality as when these ponds were commercial fishponds,

but with less organic content as no fish feeding, it should not be a water quality issue.

Alteration of landscape

5.1.4 The landscape of existing fishponds will be reconstructed into wetland landscape. The construction works include removal of pond bunds and drain off water in the ponds. These practices are similar to the typical commercial fishponds. The area will provide more microhabitats favored for waterbirds after the restoration. The impact of landscape alteration is insignificant.

Impact to Winter Birds

5.1.5 The existing fishponds are the important wetland habitats for winter birds, serve as a roosting and foraging area for the birds. To minimize the impact of construction to winter birds, the restoration of wetland will be implemented during wet season (from April to October) before the birds arrive.

Connectivity to Other Fishponds

5.1.6 The wetland restoration area will still have ecological connectivity with other adjacent fishponds outside the Application Site, given their similar nature and little obstacles in between. To prevent the loss of the remaining parts outside Project Site of the abandoned ponds lying on the Application Site boundary, bunds will be built to separate the ponds lying across the boundary of the wetland restoration area.

6. GENERAL MAINTENANCE AND MANAGEMENT STRATEGY

6.1 Water source

6.1.1 Water source is one crucial issue for inland artificial wetland like the proposed wetland system. Based on the information from the website of the Hong Kong Observatory, the annual rainfall of Hong Kong is 2,398.5mm while the annual evaporation is 1,227.3mm, thus resulting in a net gain of about 1,150mm rainwater annually. Besides the WRA itself would receive rainwater which forms part of the water source, the rainfall in the residential areas of the Application Site will also contribute to the water sources of the WRA, together with the water-polishing effect of the reedbed surrounding the WRA. Currently the WRA occupies about 48.4% of the Application Site, but it will receive rainfall of about two times of its own area size (to take a conservative estimation, assuming not all rainfall at the residential area of the Application Site could be collected). The annual net gain of rainwater will be at least 2,300mm. This will be more than enough to achieve the desirable water depth in different parts of the WRA. No other surface or groundwater water supplies will be used for the wetland operations.

6.2 Reedbed establishment

6.2.1 A period of 12-month maintenance will be allowed for the reedbed to be developed. The extent of propagation of newly planted reedbed will be reviewed by the Contractor. The necessity of additional planting will be reviewed.

6.2.2 Horticultural maintenance operations (e.g. weeding, replacement planting) will be regularly provided by Contractor after completion of construction of the system. Visual inspection should be carried out by the Contractor to determine the health of the reed.

Vegetation maintenance

6.2.3 Survival of planted reedbed will be monitored during the maintenance period. Weeding will be conducted once every month during wet season and once every two months during dry season to control the growth of weeds which would compete with the Common Reed for water, nutrient and space until the plants are well established. During the weeding, only exotic weeds and ruderal species should be removed. Replacement planting for dead plants will also be implemented.

Water level maintenance

6.2.4 Water levels of the reedbed will be maintained at desired depths with the recommended impermeable soil type. Under normal condition, water depth of the planting zone will be about 0.5 m in reedbed. Water depths of the reedbed will be monitored by water gauge weekly. Water level will be adjusted by pumping out excessive water by submersible pumps when necessary.

6.2.5 Regular water level management in the proposed WRA will be commenced through the year, in particular during dry season, to allow waterbirds fully utilize different portion of the WRA. The details of the management regime (e.g. the target water level, frequency and duration) regarding the water level management of the WRA will be discussed in detailed design stage and also be reviewed regularly based on the results of the ecological monitoring of the WRA during the operational phase. Management Plan of Mai Po Nature Reserve is reviewed for the activities of management of the proposed WRA in the current case.

6.2.6 In addition to development projects, Nature Conservation Management Agreement (MA) projects by the Hong Kong Bird Watching Society (HKBWS) in the Ramsar Site Priority Site and the Deep Bay Wetland outside Ramsar Site Priority Site in the Northwest New Territories demonstrated successful examples of enhancement of ecological value of pond by active management. The fishponds without drain-down could have greater ecological value during the drain-down practice. Statistical analysis of the survey findings from 2012 to 2016 indicated that there were higher abundance and species richness of all bird groups during the drain-down compared to before the drain-down (**Table 6.1** refers).

Table 6.1 Survey Findings from 2012 to 2016 regarding Nature Conservation Management Agreement

	Before Drain-down	During Drain-down
Mean abundance per fishpond	6	122
Mean no. of waterbird species per fishpond	1	9
No. of waterbird species in all fishpond	38	68

6.2.7 During the dry season, the shallow water zone within the proposed WRA can fulfill a similar purpose as the drain-down practice typically employed during periods without heavy rainfall. As part of the management strategy, the shallow water zone would be naturally of a lower water level when compared with the wet season. This intentionally maintaining the water level at low would make the fish stocks within the shallow water zone more accessible to waterbirds during this time. By replicating the natural drainage patterns through the controlled management of the shallow water zone, the WRA can provide a habitat that mimics the conditions created by seasonal variations in water levels. This allows for enhanced foraging opportunities for waterbirds that depend on accessible fish stocks during the dry season.

6.3 Vegetation management (except Reedbed)

6.3.1 Vegetation should be managed in accordance with the habitat targets as follows:

- The bunds of the main waterbody should be maintained with short herbaceous vegetation (less than 10cm in height) by regular manual cutting. Shrubs and larger herbaceous vegetation should be removed, in order to maintain an open waterbody for waterbirds.
- The extent of the planting buffer should be maintained, colonization to other area should be avoided through manual removal.
- Submerged plant will be retained or planted over ~10% of the main waterbody.
- In order to minimize erosion of bunds during heavy rain (which may weaken bund structure and result in silt deposits harming pond fauna), hydroseeding of grass *Cynodon dactylon* may be used to stabilize bare bund areas.

6.3.2 The vegetation management regime is adaptive and should be reviewed annually in the light of conservation priorities and targets.

6.4 Water zone partitioning

6.4.1 To optimize the feeding opportunities for waterbirds during the dry season, a partition net will be utilized to separate the shallow water zone from the middle and deep water zones. This management approach aims to facilitate controlled feeding within the wetland area. By implementing the partition net, the availability of food sources will be ensured not only in the shallow water zone but also in the middle and deep water zones. This strategy allows for a balanced distribution of food resources throughout the different water depths, accommodating the varying foraging preferences and capabilities of different

species of waterbirds. By providing food sources in multiple zones, the partition net helps maximize the feeding potential and overall habitat quality for waterbirds during the critical dry season when food availability may be limited.

6.5 Prevention of disturbance

6.5.1 The WRA is designed as a habitat for waterbirds. If there is disturbance from the residential buildings, it might potentially impact the waterbirds utilizing the WRA. There will be reed zone of about 0.92 ha between the residential buildings and the WRA. In addition, wood trellis (of the design similar with bird hide, closely arranged wood poles) will be provided behind the reed zone. For the nearest buildings (those immediately adjacent to the WRA) the windows will be switchable glass and would not be allowed to fully open, to reduce the potential disturbance on the WRA. There will be one major footpath/EVA inside the Application Site along the site boundary, but is mostly shielded from the WRA by the residential buildings, and residents on the footpath are not expected to cause disturbance impact to the WRA.

6.5.2 The fauna in WRA may be affected by the future residential internal traffic. However, most of the houses are served by underground car parking space and linked with an underground vehicular access, and thus future internal traffic would be limited to near the site entrance. The potential impact to the WRA and associated fauna due to internal traffic during operation phase would not be significant.

6.5.3 The fauna in WRA may affected by the increased residential lighting. However, buffer zone with planting between the houses and the WRA is proposed in the surrounding wetland area, will form a barrier between the houses and the WRA. For the nearest buildings (those immediately adjacent to the WRA) the windows will be switchable glass and would not be allowed to fully open, to reduce the potential disturbance on the WRA.

6.5.4 As the proposed wetland is for conservation purpose, access to the wetland will be limited to authorized personnel. Lockable gates at access points to prevent other persons to disturb the wildlife inside the wetland. Warning signs should be erected at the potential access points to deter pedestrian trespassers.

6.5.5 Other than the planting buffer, fencing of the wetland is not required for the Wetland Restoration Proposal. However, the security of the Application Site and the possible requirement to erect permanent fencing along vulnerable boundaries will be kept under review.

7. IMPLEMENTATION, MONITORING AND CONTINGENCY MEASURE

7.1.1 The implementation of wetland restoration area should be completed before the major construction of the residential portion that are in close proximity to the WRA (Phase III). In order to minimize the impact due to construction works on

winter visitor bird species, the restoration works of wetland should be implemented during wet season.

7.1.2 Monitoring of the wetland restoration area will be conducted by a special team under the property management company. The company can hire specialists / ecologists or invite landscape contractors to implement the monitoring programme. The company may also cooperate with NGO to monitor and manage the wetland restoration area.

7.1.3 The maintenance and management strategy of the WRA includes the hiring of the conservation manager and field officer, the purchase of equipment and materials (plant material, fish, lime, and peanut residue), facility maintenance, ecological monitoring and the office administration. The detailed Scope of monitoring works included the following:

Vegetation and habitat monitoring

7.1.4 Habitat monitoring will be conducted at six monthly intervals at the end of the wet season (September) and the end of the dry season (March) by monitoring the health of reedbed, coverage of submerged plant and water level of the main waterbody and reedbed, in order to inform management actions.

7.1.5 Detailed vegetation surveys will be conducted in each habitat at six monthly intervals at the middle of the wet season (July/August) and the middle of the dry season (Dec/Jan). Transects with a fixed number of 2m x 2m quadrats will be located in major habitats in the Wetland Restoration Area. Within each 2m x 2m quadrat, all plant species will be identified to species-level and their densities will be estimated. The percentage cover of bare ground, leaf litter cover and coverage by each species will also be measured. The tallest height of each plant species will be measured to be the nearest cm. Any rare or protected species will also be identified within the quadrats. Along the fixed transects placed in the wooded bund area, all woody species and their health conditions will be recorded and assessed respectively. Exotic species within the WRA will also be surveyed during the vegetation surveys.

Fauna monitoring

7.1.6 Monitoring of families/groups of bird species is required in order to demonstrate success in the **presence** of target families/groups of bird species that were recorded during the 12-month survey conducted for the EcoIA, and also reaching the **target level** of the Ardeids in the corresponding month of the EcoIA survey month. Surveys will be undertaken monthly. During each survey visit, the surveyor will walk slowly around the perimeter of the wetland and along bunds, and will identify and enumerate all birds recorded. Surveys will commence within one hour of sunrise.

7.1.7 In addition to the bird monitoring, surveys for other fauna groups are also required to be conducted to exhibit the successfulness of the habitat condition targets. Fauna groups of dragonfly, reptile and mammal are also needed to be recorded during the monthly survey visits. For the reptile and mammal

(specifically for bats), the surveys will commence before sunset and during night time.

Fish monitoring

7.1.8 The purpose of freshwater fish survey during the operational phase is to monitor the prey availability for the waterbirds. Monitoring of freshwater fish will be conducted by throw and drag-netting at six monthly intervals at the end of the wet season (September) and the beginning and the middle of the dry season (October & December). A fishing throw-net with a mesh size of 30mm, a diameter of about 4 m and a surface area of about 14m^2 will be used to catch larger fish and a drag net of mesh size <10mm will be used to sample smaller fish. Five randomly-placed replicates with each net will be conducted in each zone. Fish will be identified to species and the weight and length recorded (if fish length is greater than 10 cm) and then released back into the wetland.

Water quality monitoring

7.1.9 In-situ water quality will be measured in each sampling location once per month. Additional measurements of these parameters should also be made in order to inform management decisions (e.g. fish re-stocking programme) and in response to unexpected events (e.g. algal blooms or fish die-offs). Parameters including temperature, pH, salinity and dissolved oxygen will be monitored.

7.1.10 In addition, every six months (at the end of the wet season and end of the dry season) water samples will be sent to a HOKLAS-accredited laboratory for analysis. Parameters including Ammoniacal nitrogen, Biochemical oxygen demand, Total oxidized nitrogen, Total phosphorus and Total reactive phosphorus (orthophosphate) will be monitored.

Action level and contingency measures

7.1.11 The action levels include but not limited to the absence of the monitoring targets during surveys, undesirable monitoring results, percentage of the vegetation coverage (planted and/or exotic species), percentage variance of water depths in each zone, habitat conditions and water quality parameters. Criteria of action levels mentioned in Development of Lok Ma Chau Loop - Ecological Mitigation/ Habitat Creation and Management Plan are also reviewed and considered.

7.1.12 Contingency measure is one of the important factors to safeguard the operation of the wetland area, particularly related to water supply, water retention, and plant growth. These include the review of management regime and other factors, the use of freshwater supply to maintain water levels within target depth if required. The water from the fresh water supply will be used to replenish the fishponds during dry seasons, ensuring that the fish have access to sufficient water for sustainable living. Effort of removal of exotic species and the replenishment of the planted flora species within the WRA will be placed if the habitat condition is considered unsatisfactory when necessary. Detail Investigation will be engaged to the detailed action level and contingency action

plan in the next stage including the Environmental Impact Assessment submission stage under EIAO. The tentative action level and contingency measures are summarized in **Table 7.1**.

Table 7.1 Tentative action level and contingency measures

Item	Monitoring	Frequency	Action Levels	Management Actions
1. Target Species Monitoring				
Target Bird family / group species	Around the perimeter of the wetland and along bunds	Monthly	Absence of the target Bird family / group species and/or Target Species throughout a year	Review adaptive management regime
Target level of abundance of Ardeidae	Around the perimeter of the wetland and along bunds	Monthly	Not meeting the target level for 3 consecutive months	Review vegetation management; Review the necessity of food prey (e.g., fish) stocking; Review of other factors (e.g., disturbance/ dogs)
2. Habitat Conditions				
Fish	Presence of fish food sources	Once in wet season; twice in dry season	Absence of any fish food sources for waterbirds	Releasing fish fry into the waterbody when necessary.
Vegetation	Reedbed species composition, coverage and planta health	Half yearly	>30% dieback of wetland vegetation < 60% of vegetation facultative or obligate wetland plants.	Review water management regime and/or water quality; Compensatory planting will be recommended when necessary.
	Presence and coverage of exotic plant species	Half yearly	>10% coverage in any habitat	Manual removal
Water depths	Monitor the water depth in each water depth zone	Weekly	>25% variance in water depth from specified levels during wet season; >50% variance in water depth of specified levels during dry season	Desilting works and review need for supplementary water supply, distribute water through drainage
Water quality	Specific water quality parameters, including but not limited to the temperature, pH value, salinity and dissolved oxygen	Monthly	Exact level will be specified during detailed design stage	If action levels are exceeded, closer water quality monitoring and the development of a contingency plan will occur to identify the cause of deterioration and implement

				necessary remedial actions.
Sediment quality	Specific sediment quality parameters, including but not limited to pH value, total organic carbon, nitrogen and phosphorus	Yearly	For surveillance	No specific action

8. FUNDING

8.1.1 To ensure the proposed wetland area could be implemented and would be operated in accordance with the above proposed long-term management, it is essential to have a mechanism to provide funding to support the cost involved and the management works to be implemented. The funding arrangement is provided in the WRA Funding Arrangement and the detailed recurrent cost for the management and maintenance of the wetland will be provided in later stage.

8.1.2 There are several approaches on arranging the funding for the construction as well as long-term operation and maintenance of wetlands. The mitigation wetlands in Lok Ma Chau as a mitigation measure for Lok Ma Chau Spur Line is directly supported and run by the Project Proponent. There are also examples of donating seed money to Environment and Conservation Fund by the Project Proponent, in an agreed amount, to support the application of annual funding for management by the future wetland operators. In some cases of residential developments, the management of the wetlands is taken up by the management company of the development.

8.1.3 In the present project, subject to the TPB / relevant Government department's agreement or further refinement, if required, the Applicant has proposed the following approach for the long-term funding arrangement for the consideration of the EPD and AFCD:

- To set up an endowment fund which would be specifically managed by an Investment Bank to provide a long-term source of funding to cover all of costs required for maintaining the WRA in accordance with all of the approval requirements to be placed on the Applicant.

8.1.4 The Applicant would set up the independent fund to own, to manage, and to operate the proposed WRA. The individual owners of the residential portion would not be liable to manage and to maintain the WRA in future.

8.1.5 Regarding the funding arrangement, the Applicant would propose to allocate an amount of approx. $3M per annum, subject to section 8.1.7, to sustain the long-term operation of the proposed WRA. The amount is anticipated to cover the implementation and operation of wetland management office as well as

maintenance and monitoring measures as mentioned in sections 6 and 7 of Wetland Restoration Proposal.

8.1.6 Upon obtaining an approval from the TPB on the present planning application and confirmation of wetland restoration proposal approach, the Applicant will further develop and refine the proposal into a detailed management and maintenance proposal. The proposed quantity and quality of vegetation and water level maintenance, as well as the proposed quantity and quality of vegetation, habitat, bird, fish as well as water quality monitoring would be further studied by specialist. The Applicant is anticipated to vary the amount of funding arrangement subject to further refinement upon detailed management and maintenance proposal.

8.1.7 Regarding the practical funding mechanism, we would target to source and lobby with Investment Banks after the approval from the TPB as well as subsequent approval from EPD on Environmental Permit, plan approval from Buildings Department and Lease modification / Land Exchange from Lands Department in order to secure the commercial details upon confirmation of development approaches.

8.1.8 The Applicant will ensure that the detailed proposal will be formulated to the satisfaction of all relevant departments prior to commencement of the project.

9. CONCLUSION ”

9.1.1 The proposed Wetland Restoration Proposal is in line with the “OU(CDWRA) zone under the OZP. This paper was prepared to fulfill the requirements in the OZP, and to provide information on the design, operation procedures, and maintenance works for the restored wetlands.

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Figure 4.1 Configuration details of the proposed wetland and the building layout

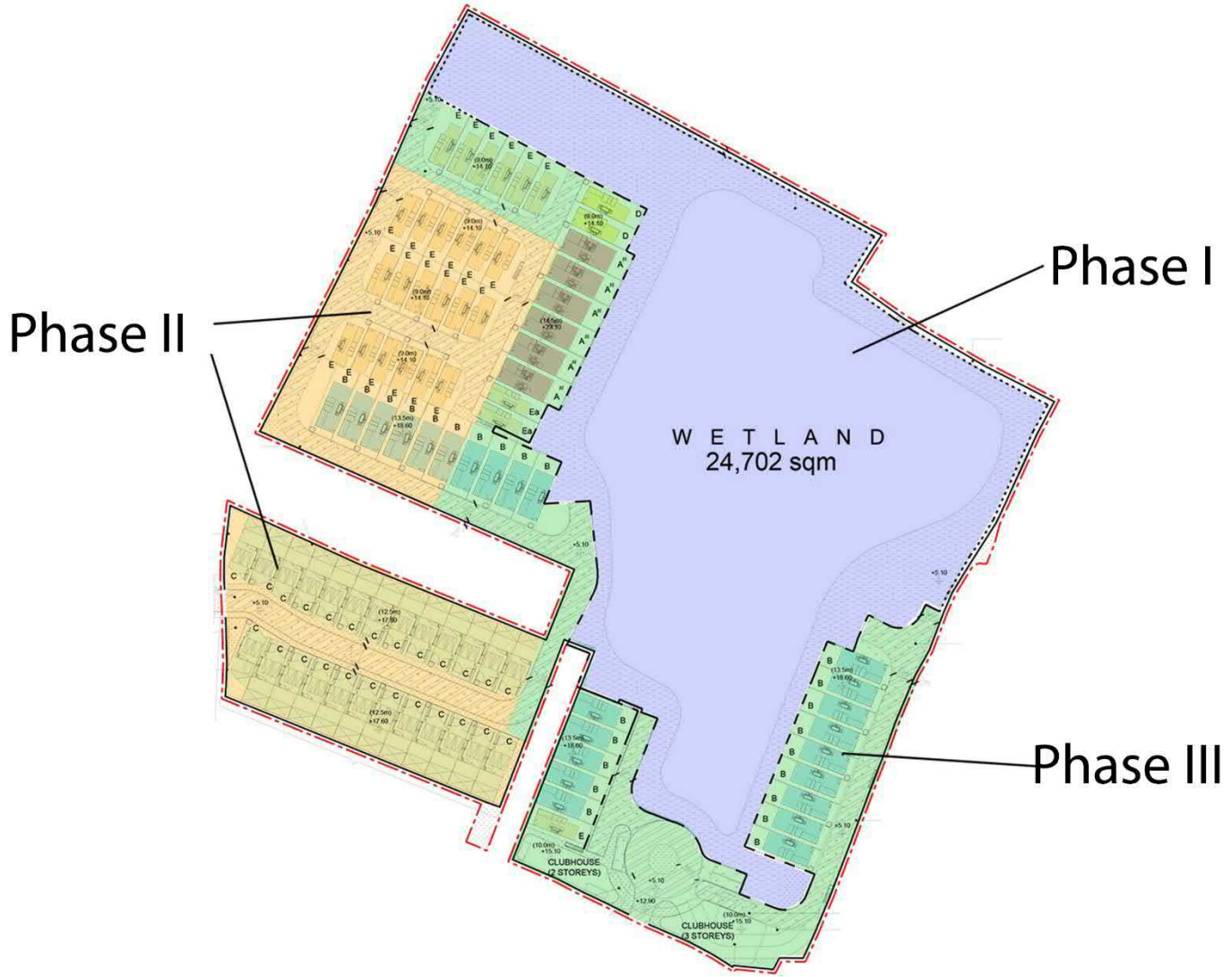

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Figure 5.1 Phasing of the Construction Works

Appendix 1 Waterbird species and plant species that could be attracted or planted in the WRA

Common Name	**Scientific Name**
Bird species	
Little Grebe	*Tachybaptus ruficollis*
Yellow Bittern	*Ixobrychus sinensis*
Great Egret	*Ardea alba*
Grey Heron	*Ardea cinerea*
Chinese Pond Heron	*Ardeola bacchus*
Little Egret	*Egretta garzetta*
Great Cormorant	*Phalacrocorax carbo*
White-throated Kingfisher	*Halcyon smyrnensis*
Plant species	
Common Reedgrass	*Phragmites australis*
Common Rush	*Juncus effusus*
Malacca Gallingale	*Cyperus malaccensis*
Round-leaved Rotala	*Rotala rotundifolia*

Planning Application for
Proposed Comprehensive Development Scheme
to include Wetland Restoration Proposal and
Proposed Filling of Ponds/Land and Excavation of Land
in "OU(CDWRA)" Zone at Various Lots in D.D. 104,
North of Kam Pok Road East, Pok Wai,
Yuen Long, New Territories

【Volume 1 of 2】

Applicant	:	Fruit Design & Build Limited
Architects	:	Atelier Global Limited
Planning Consultants	:	Vision Planning Consultants Limited
Ecological Consultants	:	Ecosystem Limited
Environmental Consultants	:	Ramboll Hong Kong Limited
Landscape Architects	:	LanDes Limited
Traffic Consultants	:	MVA Hong Kong Limited
Date of Submission	:	10 October 2024

TABLE OF CONTENTS

【Volume 1 of 2】

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

【Volume 2 of 2】

EXECUTIVE SUMMARY

The present planning application aims to seek planning permission from the Town Planning Board ("**TPB**") for a proposed comprehensive development containing 'Wetland Habitat', 'House' and 'Flat', and proposed filling of ponds/land and excavation of land in association with the proposed residential development in "**OU(CDWRA)**" zone at Lots No. 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665 RP, 3666 RP, 3675 SA, 3675 SB, 3676, 3677 SA RP (part), 3677 SB ss1, 3677 SB RP, 3678, 3679, 3680 SA, 3680 SB, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705 and 3706 in D.D. 104 (hereinafter collectively called the "**Application Site**"), north of Kam Pok Road East, Pok Wai, Yuen Long, New Territories.

With a total land area of about 51,073m^2, a plot ratio 0.4 and an average house size of about 227m^2 GFA, the proposed development comprises a total of 90 units in 84 3- to 5-storey housing blocks (i.e. 65 units in the form of 2- to 4-storey on top of 1-level of communal basement carpark and 25 in 2-storey on top of 1-level of carport) to be completed in 3 phases. The overall development is composed by two major components: (a) one is the 'Wetland Habitat' [i.e. wetland restoration area ("**WRA**")] covering about 24,702m^2 (or about 48.4% of the total site area) in land area; and (b) one is a mixture of the 'House' and 'Flat' developments [covering a total land area of about 26,371m^2 (or about 51.6% of the total site area)].

This application is a second planning submission. The proposed development scheme has incorporated the latest comments and suggestions given by the Agriculture, Fisheries and Conservation Department after the TPB's decision on the previous planning application (Application No. A/NSW/290) striking a balance between development and wetland conservation. It is fully in-line with the planning intention of the Application Site and is a compliance-based scheme in accordance with the planning requirements set out in the Draft Nam Sang Wai Outline Zoning Plan No. S/YL-NSW/9. The results of relevant impact assessments have demonstrated that the proposed scheme will not result in any significant adverse impacts on the local area with respect to traffic, drainage, sewerage, environmental, visual or ecological aspects; and it will not be subject to any significant adverse or unacceptable air quality, traffic noise or industrial noise problems generated by the surrounding developments. The approval of this application will not only represent a positive support to the present proposed compliance-based comprehensive development scheme, but will also act as an effective catalyst to speed up the redevelopment progress of the area to realise the primary planning objective of the planning intention of the area to phase out the existing sporadic brownfield (open storage-and port back-up uses) industrial activities on degraded wetlands.

內容摘要

本規劃申請旨在懇請城市規劃委員會（下稱「**城規會**」），就位於新界 元朗 塱圍錦塱路東以北，丈量約份第 104 約地段第 3655 號、第 3656 號、第 3657 號、第 3658 號、第 3659 號、第 3660 號、第 3661 號、第 3662 號、第 3663 號、第 3664 號、第 3665 號餘段、第 3666 號餘段，第 3675 號 A 分段，第 3675 號 B 分段，第 3676 號，第 3677 號 A 分段餘段(部分)，第 3677 號 B 分段第 1 小分段，第 3677 號 B 分段餘段、第 3678 號、第 3679 號、第 3680 號 A 分段、第 3680 號 B 分段、 第 3682 號、第 3683 號、第 3684 號、第 3685 號、第 3686 號、第 3687 號、第 3688 號、第 3689 號、第 3690 號、第 3691 號、第 3692 號、第 3693 號、第 3694 號、第 3695 號、第 3696 號、第 3697 號、第 3698 號、第 3699 號、第 3700 號、第 3701 號、第 3702 號、第 3703 號、第 3704 號、第 3705 號 及第 3706 號 （以下統稱為「**申請地點**」）屬於「其他指定用途」註明「綜合發展包括濕地修復區」地帶範圍內，擬議用作「濕地生境」、「屋宇」及「分層樓宇」發展，以及因落實擬議住宅發展而需要的填塘/土和挖土工程，給予規劃許可。

根據申請地點約 51,073 平方米的佔地面積，以 0.4 倍的地積比率及每單位平均建築面積為約 227 平方米來計算，擬議發展方案可以提供 84 幢三至五層高住用房屋，合共 90 的住宅單位（當中 65 個住宅單位是兩至四層高的住宅樓並座在一層共用的地下停車庫上，而 25 個單位則是兩層高住宅樓並建在一層開敞式的車房層上）。整個擬議發展方案分三個發展階期完成，並由兩個主要發展部分組成：第一部分是佔地約 24,702 平方米 （或約 48.4%） 的「濕地修復區」；第二部分是佔地約 26,371 平方米（或約 51.6%）的「屋宇」及「分層樓宇」混合式發展。

這是第二次的規劃申請。擬議的綜合發展方案，平衡了發展與保育的最大考量，及充分採納了漁農自然護理署在「城規會」對早前規劃申請(編號:A/NSW/290) 裁決後的意見和建議，是屬於完全符合申請地點土地用途的規劃意向和要求，是一個遵從規劃設定要求範圍內的發展申請方案。各項評估結果均證明了擬議綜合發展方案，是不會對當區造成任何不良或不可接受的交通、排水、排污、環境、視覺景觀或自然生態影響，同時也不會被本區鄰近現有發展影響，導致不良或不可接受的空氣污染、道路交通噪音或工業噪音問題。給予是次申請規劃許可，不僅代表對是次擬議遵從規劃設定要求範圍內的方案的正面支持外，更能成為加快落實餘下相同用途地帶的本區用地規劃意圖的主要目的，儘早優化本區現有已受破壞的濕地上零散的棕地（露天貯物及港口後勤用途）工業活動。

1. THE PURPOSE

1.1 Vision Planning Consultants Limited has been commissioned by Fruit Design and Build Limited ("**the Applicant**") to prepare and to submit the present application on its behalf. The area under application covers Lots No. 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665 RP, 3666 RP, 3675 SA, 3675 SB, 3676, 3677 SA RP (part), 3677 SB ss1, 3677 SB RP, 3678, 3679, 3680 SA, 3680 SB, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705 and 3706 in D.D. 104 (hereinafter collectively called "**Application Site**"), north of Kam Pok Road East, Pok Wai, Yuen Long, New Territories. The location and the Lot Plan of the Application Site are in **Figure 1a** and **Figure 2a** respectively.

1.2 This is a second planning submission of the Application Site to seek a permission from the Town Planning Board ("**TPB**") for the same following two items at the Application Site:

(i) a proposed comprehensive development comprises 'Wetland Habitat' [wetland restoration area ("**WRA**")] and 'House' and 'Flat' uses; and

(ii) a proposed filling of ponds/land and an excavation of land in association with the above proposed residential development.

1.3 The Application Site falls within an area zoned "Other Specified Uses" annotated "Comprehensive Development to include Wetland Restoration Area" ("**OU(CDWRA)**") on the Draft Nam Sang Wai Outline Zoning Plan No. S/YL-NSW/9 ("**OZP**") (**Figure 1a**). In the Notes of "OU(CDWRA)" zone in the OZP, 'Wetland Habitat', 'House' (other than rebuilding of New Territories Exempted House ("**NTEH**") or replacement of existing domestic building by NTEH permitted under the covering Notes)' and 'Flat' are Column 2 uses (**Appendix I**). A planning permission under section 16 of the Town Planning Ordinance ("**Ordinance**") is therefore required for the present proposed comprehensive development scheme.

1.4 In addition, Remark (e) in the Notes of "OU(CDWRA)" zone states: "*any filling of land/pond or excavation of land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the interim development permission area plan without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance*" (**Appendix I**).

1.5 In view of the above and in the very fact that the implementation of the proposed comprehensive development will inevitably require various degrees of site engineering work in relation to filling of ponds/land and excavation of land within the Application Site, another planning permission from the TPB in this particular regard is also required in the present application.

1.6 Since about 70% of the Application Site falls within the Wetland Buffer Area ("**WBA**"), the development guidelines and criteria set out in the "*Town Planning Board Guidelines for Application for Developments within Deep Bay Area under Section 16 of the Town Planning Ordinance*" ("**TPB PG-NO. 12C**") should be taken into account during planning, construction and operation phases of the proposed development.

1.7 The Application Site is the subject of a previous planning application (Application No. A/NSW/290) for the same applied uses, which was rejected by the TPB in May 2022. The present planning scheme has made the best balance between development and conservation incorporating the latest comments and suggestions given by the Agriculture, Fisheries and Conservation Department ("**AFCD**") during a period between June and October 2022 with respect to the planning and design of the overall WRA within the Application Site.

1.8 In order to facilitate Members of the TPB to have a better understanding of the present planning application in a holistic manner, this planning statement includes: a brief description of the Application Site and its surroundings, key planning considerations, design concept, a brief explanation the proposed comprehensive development scheme, including a wetland restoration proposal with indicative drawings, relevant impact assessments, landscape proposals and land use planning justifications.

2. STATUTORY PLANNING CONTROL

2.1 As mentioned in paragraph 1.3 above, the Application Site falls within an area zoned "OU(CDWRA)" on the OZP. The Notes for "OU(CDWRA)" zone in the OZP states: "*this zone is intended to provide incentive for restoration of degraded wetlands adjoining existing fish ponds through comprehensive residential and/or recreational development to include wetland restoration area...is also intended to phase out existing sporadic open storage and port back-up uses on degraded wetlands.*" (**Appendix I**).

2.2 Remark (d) in the same Notes states: "*no new development… shall result in a total*

development…in excess of a maximum plot ratio of 0.4 and a maximum building height of 6 storeys including car park…" (**Appendix I**).

2.3 Remark (g) also states: "*any filling of land/pond or excavation of land, including that to effect a change of use to any of those specified in Columns 1 and 2… shall not be undertaken or continued… without the permission of the Town Planning Board under section 16 of the Town Planning Ordinance.*" (**Appendix I**).

3. THE SITE AND ITS SURROUNDINGS

3.1 The Application Site is located within the southwestern part of semi-urbanized area in Nam Sang Wai. **Figure 3** shows the Application Site in a district-wide context in the northwestern part of the New Territories. Located about 250m to the northwest and west of the Application Site are Fairview Park and San Tin Highway; village developments, known as Pok Wai, Man Yuen Chuen and Chuk Yuen Tsuen are located to its southeast, northwest and northeast respectively; Kam Tin River (with widths ranged between about 80m and 180m) is located to its farther south and southwest; and its tributary (drainage channel about 40m in width), about 130m to the west of the Application Site, connects stream courses from the Ngau Tam Mei area to Kam Tin River.

3.2 **Figure 4** compares the aerial photos taken in 2007 and 2022 showing the changes in the conditions of the Application Site and its immediately surrounding areas. Our site inspection also observed that the Application Site has been surrounded by a mixture of uses including, but not limited to, open storages/workshops, warehouses, factories, open parking areas, vacant paved areas, residential development, shops and services, and restaurants. **Figure 5** shows the existing land-use development patterns immediately surrounding the Application Site.

3.3 Clearly, the Application Site and its surrounding ponds have already been transformed into an isolated pocket of abandoned ponds in this part of the Nam Sang Wai area (**Figure 4** and **Figure 5**). **Figure 6** shows the physical changes of the Application Site and its surrounding areas in terms of infrastructural facilities (i.e. Ngau Tam Mei Channel, Kam Pok Road East and San Tin Highways), residential developments and size of local ponds in a period between 1990 and 2022. In view of the need of daily maintenance of ponds, walking paths to enhance accessibility between ponds were formed. Understanding the concern of filling of ponds and land, the applicant has stopped the practice upon receipt of the enforcement notices on discontinuation of unauthorized developments in the concerned area on 1st December

2022 and 27th January 2023 respectively (Ref. no.: CEP/E/YL-NSW/282, CEP/E/YL-NSW/284 and CEP/E/YL-NSW/285). With respect to the enforcement notice (Ref. no.: CEP/E/YL-NSW/283), the applicant also processed on the discontinuation of storage use within the concerned area. With the receipt of reinstatement notice on removal of leftovers, debris and fill materials on the concerned area, the applicant intends to reinstate with quotations already sought from relevant contractors and tentative commencement in March 2023 and target completion in April 2023 onwards.

3.4 Kam Pok Road East was in operation to the area since the 3rd quarter of 2013. It is the only access road serves the Application Site connecting Castle Peak Road – Tam Mei Section and San Tin Highway to its east and Kam Pok Road to its west (**Figure 7**). **Figure 7** and **Figure 8** show the existing conditions in and around the Application Site.

3.5 At present, there are three franchised bus routes and four green minibus ("**GMB**") routes running along Castle Peak Road to/from Yuen Long Town Centre. Details of the existing bus route and green minibus routes are in **Appendix II** – the report of the traffic impact assessment ("**TIA**"). The provision of Kam Pok Road East has no doubt triggered the Applicant to amalgamate private lots within the Application Site to contribute effort to realise the designated land-use planning intention of the area.

3.6 The Application Site covers a total of 47 lots in D.D. 104 (paragraph 1.1 above and **Figure 2a**) and has a total land area of about 51,073m^2. Within the whole Application Site, about 49,000m^2 (or about 96%) being wetland areas (largely in water body); about 2,073m^2 (or about 4%) being paved, vacant land areas which are being occupied by some brownfield uses.

3.7 The Application Site is bounded by degraded fish ponds to its north and northeast; village development to its east; Kam Pok Road East to its south; low-rise, low density residential development to its northwest; and open storage areas to its west (**Figure 4 to Figure 8**).

3.8 The results of the trees survey (**Appendix III**) have indicated that a total of 62 trees within the Application Site have been identified. Details of the on-site surveyed trees are in **Appendix III**.

4. KEY PLANNING AND DESIGN CONSIDERATIONS

4.1 Having considered the availability of limited land resources, the site configurations,

the conditions and potential opportunities of the site and its surrounding developments, the readily available infrastructural facilities in the area, and the long-term maintenance and management of WRA, the present proposed comprehensive development scheme has taken account of, amongst others, the following considerations:

i. As shown in **Figure 2a**, the developer of the proposed development also owns the two lots marked A. However, as these private two lots are now under a legal proceeding for Adverse Possession, they have to be excluded in this application. For lots marked B, which are owned by other developer who has no intentional collaborate with our developer (several attempts to contact the developer of lots B since 2020 but in vain. Therefore, these two lots cannot be included in the application. As a result, it creates irregular-shape site configuration imposing substantial site constraints for overall planning and design;

ii. The developer of the Application Site cannot agglomerate any other land immediately adjoining the Application Site;

iii. To make the best and effective use of the land resources within the Application Site in accordance with the designated planning intention stipulated in the OZP;

iv. To provide opportunity to wider and greater connection or integration with the existing nearby wetlands and/or ecosystem taking into account the latest AFCD's comments/suggestions to optimize the opening connection of the proposed WRA with adjoining wetlands to its north;

v. To formulate a comprehensive development scheme comprising both WRA and residential development in an integrated and harmonious way to achieve a co-living (human and local wildlife) environment for all via special spatial design and/or mitigation measures;

vi. To identify the most practically suitable land-use pattern, landscaping treatments and spatial planning arrangement to integrate the residential development with a WRA but retaining a high degree of self-containment and self-protection in each area;

vii. To adopt a grade-separated circulation movement system to minimise unwanted man-made disturbances to the local wildlife activities in the WRA during operational phase, in particular the lighting and noise pollutions from taller buildings/structures (above 2/F) and road traffic movements within the

Application Site;

viii. To establish a broad long-term management and maintenance framework to guide further in-depth investigation to realise the proposed WRA at the detailed design stage with a view to ensuring the realization of the WRA in this comprehensive development could be achieved in reality;

ix. To optimise the function of the proposed wetland as one meaningful wetland habitat for the local wildlife to meet the primary planning intention of the area;

x. To convert the potential constraints into opportunities wherever physically feasible via the proposed comprehensive development scheme; and

xi. To take into account the requirements and criteria set out in the TPB PG-NO. 12C at all times during planning, construction and operation phases of the proposed development by provision of paper mitigation measures recommended in the Ecological Impact Assessment ("**EcoIA**") (**Appendix VI**).

5. COMPREHENSIVE DEVELOPMENT PROPOSALS

Overall Design Concept

5.1 On the basis of the key planning and design considerations outlined in paragraph 4.1 above, and taking account of the actual site conditions, the constraints imposed from and opportunities offered by the surrounding developments, a "Double-Screening" Biophilic Design Concept supported by a 'Grade-Separated' Movement System is then adopted.

5.2 **Figure 9a** illustrates the derivation process of the proposed comprehensive development with a wetland restoration proposal, from site appraisal, to urban design concept, and then to scheme formation. A "Double-Screening" Biophilic Design Concept aims to create two self-containment cells (one for a WRA and one for 'House' development. The functional green corridor and screening zone together serve as a double-ring protection measure: green corridor at the outer periphery of the Application Site to screen/filter off nuisance from the surrounding brownfields to the Application Site, and at the same time, to soften the proposed development for other nearby existing developments; and the inner green screening zone alongside the proposed WRA acts as a shielding transitional zone to integrate the 'House' development within the WRA, it also serves to minimise the potential human disturbance to be generated from the proposed house development.

5.3 The overall design concept has also taken account of the opportunities to connect

with the local wildlife/ecosystem in the vicinity of the Application Site, particularly the one to be served as a gateway to attract the local wildlife frequently visit Ngau Tam Mei Channel and the two nearby existing fish ponds (one to its north and one to its southeast) by provision of open eco-corridor (for wildlife in fish ponds to the north) and low-rise landscaped area (for those to the farther southeast) (**Figure 9a**).

5.4 **Figure 10** illustrates the proposed 'Grade-Separated' Movement System with vehicular movement restricted at basement level to eliminate the potential disturbance (i.e. noise, lighting and air-quality problems) generated from internal road traffic on the one hand, and, on the other hand, to release more space for landscaping treatment and pedestrian movements, as well as for provision of mitigation measures where necessary, to enhance the on-site co-living quality for all users.

5.5 On the basis of the above development concepts, an indicative Master Layout Plan ("**MLP**") of the proposed comprehensive development at the Application Site is then formulated (**Figure 11e**).

5.6 The whole development comprises of two major components: a WRA portion, and a residential ('House' and 'Flat') development portion. The total land area allocated for the proposed WRA is about 24,702m^2 (about 48.4% of the total site area); and about 26,371m^2 (i.e. about 51.6% of the total site area) for the residential development.

5.7 The proposed comprehensive development under the present application will inevitably involve filling of ponds/land and excavation of land within the Application Site to enable the implementation of the proposed development scheme.

A. INDICATIVE WETLAND RESTORATION PROPOSALS

Ecological Impact Assessment ("EcoIA") **(Appendix VI)**

5.8 The results of the EcoIA (**Appendix VI**) have concluded that about 70% of the Application Site falls within Wetland Buffer Area ("**WBA**") but outside Wetland Conservation Area ("**WCA**"). The proposed development will result in a permanent loss of 0.2 ha of on-site developed area and about 2.43 ha of abandoned ponds within the Application Site; and temporary loss of 2.47 ha of abandoned ponds within the Application Site during the formation of WRA. The loss of 2.43 ha abandoned ponds will be compensated by a new and functionally enhanced wetland restoration area which serve as a feeding and roosting ground for waterbirds and other local wildlife.

5.9 Potential ecological impacts due to habitat loss are minor to moderate. With the provision of the recommended mitigation measures in the EcoIA, these impacts will be minimized to an acceptable level. Potential impacts due to the proposed development on species of conservation interest are minor to moderate; and indirect impacts on nearby habitats and associated fauna due to the onsite construction works (i.e. noises and surface runoffs) will be minor to moderate. With the provision of the recommended mitigation measures, these potential impacts will be minimized to an acceptable level. During construction phase, the existing abandoned ponds within the Applicant Site will be demarcated by sheet piling works and only the portion of ponds within the proposed development will be drained for site formation works. With this proposed measure, it will minimise creation of any adverse impacts on the adjoining ponds immediately outside the proposed development.

5.10 The project will, where applicable, adhere to the "no-net-loss in wetland" principle and the criteria set out for the wetland enhancement and management scheme in the TPB Guidelines No. TPB PG-No. 12C. Details of the EcoIA are in **Appendix VI**.

***Indicative WRA Proposals* (Appendix V)**

5.11 Details of the indicative WRA proposal are provided in **Appendix V**. This section solely summarises the key elements of the WRA proposals. The WRA under application covers a total site area of about 24,702m^2 (or about 48.4% of the total site area) (**Figure 11e**). It is proposed to adopt a modification of the existing abandoned ponds within the Application Site. This wetland habitat is planned to be a self-contained natural-looking wetland for the local wildlife.

5.12 A total of three eco-portals are proposed in this application (i.e. one for the existing ponds to the north and north-east of the Application Site; one at the western side as an eco-gateway to connect with Ngau Tam Mei Channel providing feeding opportunities for local waterbirds; and one at the north-eastern side to connect other existing wetlands to the farther south-eastern in the vicinity of the Application Site via a green rooftop treatment) (**Figure 9a**).

5.13 The proposed on-site wetland habitat has taken into account the most practically feasible proposals to enhance its ecological values in a sustainable maintenance and management manner. In order to achieve a self-containment effect, the proposed wetland habitat will not open to the general public or the end-users of the proposed residential development, except the appointed wetland control team members or maintenance staff.

5.14 There are 7 key essential elements in the proposed WRA (**Figures 12a** – **18a**). They are:

i. **Reedbed**

About 0.92 ha of the wetland will be proposed for reedbed purposes as reedbed is an important habitat in Deep Bay, particularly for cryptic species such as bitterns as a foraging and roosting grounds, so as to provide a clean up function by filtering the surface runoff and to provide habitats for wildlife. *Phragmites australis* is one of the common reeds suitable for this wetland. This species can tolerate widely variable water depths and quality and is able to grow in waterlogged soils and is a native species in Hong Kong.

ii. **Shallow Water Zone**

As the depth of water affects directly the utilization of wetland habitats by water birds, a total of about 0.93 ha with depths ranged from 0.2m to 0.6m will be planned for the shallow water zone as feeding area and roosting area for non-swimming water birds such as sandpipers and egrets.

iii. **Deep Water and Middle Depth Water Zones**

The deep water zone (about 2m in depth) is planned as a swimming area for dabbling water birds (such as Little Grebe and Cormorant). Submerged plants, aquatic life, like fish and snails, as food sources will be introduced in this zone. This zone will also serve as a water retention area to prevent the wetland from drying out in dry season. It has been estimated that the total areas of the deepwater zone and middle depth water zone are 0.16 ha and 0.27 ha respectively.

iv. **Island**

Islands with short grasses or without vegetation can offer roosting area for water birds during high tide in Deep Bay and can serve as additional foraging habitats for non-swimming water birds, like sandpipers and egrets. The belt-shape island design can increase the area of edges and margins for the usage f waterbirds. Three islands (about 0.15 ha in total) will be provided within the wetland.

v. **Wood Log**

Wood logs provide perching area for water birds such as ducks. They will be distributed at various locations, particularly in areas with deeper and medium depths. The area with wood logs incorporated in the wetland is estimated to be

0.02 ha.

vi. **Submerged Plants**

Submerged plants are the primary element of the wetland providing microhabitat for amphibians and other aquatic life so as to provide additional dissolved oxygen for the wetland. In wet season, it will serve as a suitable breeding habitat. Recommended species are: *Vallisneria natans*, *Rotala indica* and *Rotala rotundifolia.* An area of about 0.02 ha will be planted with submerged plants.

5.15 **Table 1a** below provides the indicative land area breakdown of the proposed wetland habitat:

Table 1a Summary of Indicative Land Area Breakdown of the Proposed WRA

Item	**Land Area (ha)**
1. Reedbed	0.92 (37.2%)
2. Shallow Water Zone	0.93 (37.7%)
3. Deep Water Zone	0.16 (6.5%)
4. Middle Depth Water Zone	0.27 (10.9%)
5. Island	0.15 (6.1%)
6. Wood Logs	0.02 (0.8%)
7. Submerged Plants	0.02 (0.8%)
Total	**2.47 (100%)**

5.16 Detailed explanations and illustration diagrams about the design considerations and design concept of the proposed WRA; the actual enhancement of the function of the wetland area for the local wildlife to be achieved via the proposed WRA; an initial maintenance and management strategy to operate the proposed WRA; and a brief introduction of the broad framework establishment about the long-term maintenance and management of the WRA within the Application Site are briefly outlined in **Appendix V – the Indicative WRA Proposals**.

5.17 **Figures 12a** shows the overall schematic layout of the proposed WRA within the whole comprehensive development scheme. **Figures 13a – 18a** are the indicative section diagrams showing the physical and spatial arrangements intermixing various forms of landscaping treatments at various parts of the proposed development. More elaborated landscaping proposal and mitigation measures to protect the natural environment of the WRA are in the later sections. **Figure 19** shows the night-time mitigation measure to protect the WRA from potential human activities in the

'House' development zone.

Indicative Filling of Ponds/Land and Excavation of Land

5.18 At this early planning stage, it has been estimated that the proposed development project under application will involve (a) filling of land of about 11,553m^2 (or about 22.62% of the total site area) with a depth of 1 to 2m; (b) filling of ponds of 24,453m^2 (or about 47.88% of the total site area) with a depth of 1.5 to 2 m; and (c) excavation of land of about 10,400m^2 (or about 20.4% of the total site area) with a depth of 4.4m to 6.2m. (**Figure 38a**)

Long-term Maintenance and Management of the Wetland Restoration Area

5.19 The Applicant has committed to take up the sole responsibility for management and maintenance of the WRA in the long term through setting up an independent management company to engage relevant ecological and environmental expertise to design, build, manage and maintain the proposed WRA to the satisfaction of Director of Agricultural, Fisheries and Conservations upon approval of this planning application. Details of the **WRA Funding Arrangement** is in **Appendix XII**.

5.20 Regarding the funding arrangement, the Applicant proposes to adopt the approach of setting up an independent endowment fund managed by an Investment Bank, with allocation of an approximate amount of $3M per annum, to sustain the long-term operation of the proposed WRA. The detailed management and maintenance proposal, subject to confirmation of the approach, will be formulated at post approval stages to the satisfaction of relevant departments. More detailed funding arrangement can be ironed-out in the process of applying of application for an Environmental Permit under Environmental Impact Assessment Ordinance.

B. RESIDENTIAL DEVELOPMENT PROPOSALS

5.21 The indicative layout plans of G/F, 1/F and upper floor, and Basement of the overall proposed residential development are shown in **Figures 20c – 22c** respectively. Indicative section diagrams are in **Figures 23a – 25a**. **Figure 26a** shows the indicative typical floor layouts of the five major types of proposed residential buildings under application (i.e. Type A, Type B, Type C, Type D and Type E). **Figure 27a** shows the indicative layouts of the two proposed clubhouses.

Key Development Parameter

5.22 **Table 2e** summarises the key development parameters of the proposed residential development portion in the present planning application. With a total land area of

about 51,073m^2 and a maximum permissible plot ratio of 0.4, a total gross floor area ("**GFA**") of about 20,427m^2 will be yielded. By adopting an average house size of about 227m^2, the present proposed development scheme will provide a total of 90 housing units in 84 three to five storeys building blocks by 2027.

Table 2e Key Development Parameters of the Residential Development Portion

Item	Original MLP (a)	Revised MLP*[1]	Present MLP*[1] (b)	Difference (b)-(a)
Site Area (about)	51,073m^2 (100%)	51,073m^2 (100%)	51,073m^2 (100%)	No Change
WRA	*20,202m^2 (about 39.6%)*	*24,702m^2 (about 48.4%)*	*24,702m^2 (about 48.4%)*	+4,500*m^2* (+22.3%)
House Development	*30,871m^2 (about 60.4%)*	*26,371m^2 (about 51.6%)*	*26,371m^2 (about 51.6%)*	-4,500*m^2* (-14.6%)
Plot Ratio (PR)	Not more than 0.4	Not more than 0.4	Not more than 0.4	No Change
Gross Floor Area (GFA)				
Residential	*About 20,427m^2*	*About 20,427m^2*	*About 20,427m^2*	No Change
Clubhouse	*About 1,021m^2[GFA Exemption]*	*About 1,021m^2[GFA Exemption]*	*About 1,021m^2[GFA Exemption]*	
Site Coverage (SC)	About 21.16%	About 19.81%	About 19.81%	About -1.35%
No. of Blocks	110	84	84	-26 (-23.6%)
No. of Storeys				
Houses [Phase I]	*3 storeys including 1-storey carport*	-	-	
Houses [Phase II]	*3-5 storeys including basement*[*2]*	*3 storeys including 1-storey carport*	*3-4 storeys (Figure 11e)*	N.A.
Houses [Phase III]	-	*3-4 storeys including basement*[*2]*	*3-5 storeys including basement*[*2]*	
Houses [Phase IV]	-	*3-5 storeys including basement*[*2]*	-	
Clubhouses	*2 storeys (Western); 3 storeys (Eastern)*	*2 storeys (Western); 3 storeys (Eastern)*	*2 storeys (Western); 3 storeys (Eastern)*	
No. of Units	114	90	90	-24 (-21.1%)
Phase I	*25*	-	-	
Phase II	*89*	*25*	*49*	
Phase III	-	*30*	*41*	
Phase IV	-	*35*	-	
Average Unit Size	About 179.2m^2	About 227.0 m^2	About 227.0 m^2	About +47.8 m^2
Maximum Building Height				
Houses	*About 23.1mPD (18m)*	*About 19.6mPD*[*3](14.5m)*	*About 19.6mPD*[*3](14.5m)*	About -3.5mPD
Clubhouses	*About 15.1mPD (10m)*	*About 15.1mPD (10m)*	*About 15.1mPD (10m)*	No Change
Total Communal Open Space	About 680.5m^2	About 680.5m^2	About 561.6m^2	About -118.9m^2
Green Coverage	About 30.05% (or 15,345m^2)	About 33.79% (or 17,258m^2)	About 33.83% (or 17,278m^2)	+3.78% (+1,933m^2)
Parking Spaces and L/UL Bays				
Private Car	*239 (including 10 for visitors)*	*203 (including 10 for visitors)*	*203 (including 10 for visitors)*	-36
Motorcycle	*23*	*20*	*20*	-3
Heavy Goods Vehicle	*3*	*3*	*3*	No Change
Bicycle	*14*	*14*	*14*	No Change
Anticipated Year of Completion	2025	2025	2027	+2 year
Estimated No. of Residents*[4]	342	270	270	-72

*[1]To meet with AFCD's requirement; *[2]One level of basement car park; *[3]Floor height of G/F-2/F and 3/F are 3.5m and 4m respectively; *[4]Assume persons per unit is 3.

5.23 Among these 90 private housing units, 49 [in Phase II] are in the form of 2-storey on top of one level of carport and 2- to 3-storey buildings blocks on top of a communal basement carpark; and 41 [in Phase III] are 2- to 4-storey buildings blocks on top of a communal basement carpark (**Figures 23a** to **25a**). If the average household size per house is assumed to be 3 people, it is estimated that upon full development, the proposed development will accommodate a total of population of about 270 (i.e. 90 x 3) persons.

Internal Traffic Arrangements

5.24 Two vehicular ingress/egress entrance points are proposed (**Figure 11e** and **Figure 20c**). The primary one is planned on Kam Pok Road East at the southeastern tip of the Application Site to serve the main residential compound and the secondary one will be located at the junction of Kam Pok Road and Kam Pok Road East at the southwest of the Application Site to serve a group of 25 detached houses (**Figure 20c**).

5.25 All vehicular movements in Phase II are proposed to be carried out at a sunken level, i.e. at basement level (**Figures 22c – 25a**). The merits of this grade-separated vehicular movement system (**Figure 10**) are: (i) to minimize surface road traffic disturbances (noises, lighting and air-quality) to the WRA; (ii) to release more land area for the planting of trees and landscaping treatments for enjoyment of the local residents; and (iii) to increase the soften screening effect and to enhance the visual amenity of the proposed development as the same time.

5.26 To cater for the proposed residential development, a total of 203 carparking spaces (153 in the basement level and 50 at G/F), 20 motorcycle parking spaces, 3 loading/unloading ("**L/UL**") bays (for heavy goods vehicle) and 14 bicycle parking spaces will be provided in accordance with the requirements in the Hong Kong Planning Standards and Guidelines ("**HKPSG**") (**Figure 20c** and **Figure 22c**).

5.27 Details of internal traffic arrangements, provisions and locations of all parking facilities, internal road arrangement, emergence vehicular access ("**EVA**") and traffic impact assessments are in **Appendix II** while supplementary note for the change in development traffic generation and in parking provision is in **Appendix XI**.

***Tree Preservation and Landscape Proposal* (Appendix III) (Figures 28d to 35)**

5.28 The present proposed development will fell a total of 62 surveyed existing trees within the Application Site. To compensate the loss of these identified existing trees,

it is proposed to plant 251 heavy standard trees with average DBH of approximately 80mm within the proposed development (**Appendix III**).

5.29 The overall indicative landscape design proposals contain the following six major components (**Figures 28d – 29a**):

i. **Peripheral screening plantation**
Fence walls (2.5m tall) and noise barriers (4.8m to 10.1m tall) are proposed to be composed of solid wall at base (2.5m tall) and transparent panels on top with anti-bird collision measures; and screen planting beds with a width ranged from 1.5m to 7.5m wide alongside the outer sides the fence walls and noise barriers will be provided for ornamental trees, shrubs, groundcover and climbing plants in order to alleviate their visual intrusion (**Figures 28d, 30b-31b and 32**).

ii. **Maximisation of Greenery along Internal Access**
Trees and/or shrubs along the internal footpath/EVA, together with planting heavy standard trees along house front to create a green boulevard effect along the internal road, so as to soften the hardlines of the building structures; and propose to adopt grass pavers at various sections of EVA with sufficient loading capacity (i.e. 30 tons) to soften the hard-paved areas and to minimize the heat island effect (**Figures 28d** and **30b-31b**).

iii. **Partition Fence**
Physical barriers of 2.5m to 5m high are proposed over the Site to enhance the protection measures for the proposed WRA. A 5m high wooden fence including high wooden trellis and 2.5m high solid wall is proposed at house backyard for the houses located along the WRA (**Figure 34** and **Figure 35**) in order to alleviate noise and light impact that would be brought about by human activities. A 2.5m high wooden fence is also proposed between the vehicular access and wetland to minimise light glare from vehicles in Phase I and house development in Phase II-III (**Figures 28d** and **Figure 35**).

iv. **Planting within WRA**
To create a coexistent environment both for the WRA and the residential development within the Application Site, a natural green buffer zone (about 7.5m to 15m in width) between the WRA and the houses with riparian planting is proposed not only to enhance the biodiversity in the wetland area, but also form a natural barrier between the human and the wildlife activities; and this zone will only be accessible for the maintenance staff of the WRA to ensure no

disturbance to the wildlife within WRA by unnecessary human activities.

v. **Planting Design**

A majority of proposed plantings will be planted with heavy standard sized vegetation in local species or broad-leaf species along the internal access, common planting beds and buffer zone in the WRA and planting strips along the periphery of the Site to offer instant greening effect and to promote a tranquil and harmonic environment for the residents.

vi. **Compensatory Vegetation**

The construction of a basement car-park would require a substantial clearance of existing vegetation. A total of 251 new trees is proposed to compensate the loss of such existing tree.

5.30 The results of the landscape impact assessment have concluded that the proposed development pose no adverse landscape impact; in fact, the proposed development, with the adaptation of enhancement measures including the provision of WRA and compensatory tree planting, pose a positive overall landscape impact by enhancing the amenity value of the local Pok Wai.

5.31 An Indicative Landscape Master Plan ("**LMP**") of the proposed development is in **Figures 28d**. **Figure 29a** shows the indicative landscaping treatments in the proposed communal open space areas at the two entrance points. **Figures 32 - 35** are the indicative section diagrams showing the likely softening/screening effect of the proposed plantings and landscaping treatments in the proposed development at various locations. Details of the tree survey, tree preservation and landscape proposals and landscape impact assessment are in **Appendix III**.

5.32 **Figure 36a** is the bird's eye view of the overall proposed comprehensive scheme overlaid with an existing local context. Very obviously, the proposed development will blend in well within its surrounding setting.

Environmental Aspects

5.33 The proposed comprehensive development at the Application Site requires detailed impact assessment to examine whether it will be affected by its surrounding developments, particularly in air quality, road traffic noise and industrial noise aspects. The results of the Environmental Assessment ("**EA**") indicate that the proposed development will not generate any unacceptable air quality impacts in this part of the Nam Sang Wai area. Details of the air quality impact assessment ("**AQIA**") in **Appendix VI**.

5.34 The results of the noise impact assessment, as provided in **Appendix VI**, have concluded that with the implementation of the proposed mitigation measures, including the erection of noise barriers (ranged from 4.8m to 10.1m tall) along the site boundary, the adoption of single aspect building design, the installation of fixed windows and the placing of non-noise sensitive uses along the front facades, all selected noise sensitive receivers ("**NSRs**") within the proposed development will comply fully with the noise criteria in the HKPSG. Details of the Noise Impact Assessment ("**NIA**") are in **Appendix VI**.

5.35 It should be noted that upon implementation of all surrounding brownfield sites and village developments nearby, these tall noise barriers could be shortened or even removed completely. Therefore, the present proposed tall noise barriers will be treated as interim noise mitigation measures to strike a balance between development and wetland conservation. In order to enhance the visual effect of the proposed noise barriers, a composed of 2.5m solid wall at the base with a transparent panel on top is hence proposed (**Appendices III and IV**). The opening of the northern side of the Application Site aims to provide a seamless connection to the existing ponds and wetlands to the immediate north of the Application Site so as create a better and greater local air movements onto the proposed development.

Drainage/Sewerage Proposals

5.36 The results of the Drainage Impact Assessment ("**DIA**") have concluded that with the implementation of mitigation measures, including proposed a set of 800mm peripheral drain to divert surface runoff from the catchments and propose new drain pipes along Kam Pok Road East towards west and then to Kam Pok Road with reference to relevant comments from the Drainage Services Department ("**DSD**") on the DIA submitted for the previous planning application A/NSW/290 and temporary drainage measures to be implemented during construction stage, no insurmountable drainage impact is anticipated. Details of the DIA are in **Appendix VII**.

5.37 Taking into account DSD's comments on the Sewerage Impact Assessment ("**SIA**") submitted for the previous planning application A/NSW/290 and the proposed sewerage system in the preparation of this current SIA, it is proposed that the sewage generated from the proposed development will be discharged to an existing 225mm diameter public sewer at the south of the Application Site and proposed sewer to Nam Sang Wai Sewage Pumping Station ("**SPS**") for disposal at Yuen Long Sewage Treatment Works ("**YLSTW**").

5.38 The results of the current SIA shows that the additional sewage generation will

merely take up an insignificant portion of the design daily flow of the Nam Sang Wai SPS and the capacity of YLSTW (i.e. 0.30% and 0.18% respectively), and the existing and proposed sewers will have sufficient capacity to cater the sewage flow from the proposed development. No adverse sewerage impact due to the proposed development on the local area is anticipated. Details of the Sewerage Impact Assessment are in **Appendix VIII**.

5.39 Noting the fact that the design details of the proposed sewerage system are subject to the detailed design of the proposed development, further survey on underground utilities will be conducted during the detailed design stage for avoidance of relevant facilities. The Applicant will also consider the feasibility of connecting to public sewer, if necessary, at post approval stages if there are updated information on planned public sewers in the vicinity.

Tentative Phasing Programme

5.40 **Table 3d** summarises the tentative phasing programme of the proposed comprehensive development. The anticipated year of completion for this comprehensive development is 2027.

Table 3d Summary of Tentative Phasing Programme

	Item	**Tentative Schedule**
1.	TPB S.16 Application Approval	Aug 2024 – Oct 2024
2.	Lease Modification/General Building Plan/EIA Submission under EIAO	Nov 2024 – Mar 2025
3.	Phase I: Construction of WRA	Apr 2025 – Jun 2025
4.	Phase I: Establishment of WRA	Jul 2025 – Dec 2026
5.	Phase II: Construction of houses in western portion of the site **other than superstructure works, underground services and utilities and road works**	Jul 2025 – Mar 2027
6.	Phase II: Construction of houses in western portion of the site for **superstructure works, underground services and utilities and road works**	Apr 2027 – Jul 2027
7.	Phase III: Construction of remaining houses (Without overlap with phase II)	Jul 2027 – Oct 2027
8.	Anticipated Year of Completion	2027

6. VISUAL IMPACT ASSESSMENT

6.1 **Appendix IX** is the report of the Visual Impact Assessment ("**VIA**") of the proposed development both at local- and district-wide context. The photomontages of the proposed development at the selected public viewing points have demonstrated that the overall visual effect of the proposed development with 2- to 4- storeys (above ground) of building height on the area is ranged mostly between negligible to slightly adverse and moderately adverse.

6.2 With the provision of ample landscaped treatments inter-twined with the residential development and the natural-looking WRA, the whole development will blend in well with its surrounding rural character setting in the area. The overall visual effect due to the proposed development on this part of the Nam Sang Wai area is generally acceptable. Details of the VIA are in **Appendix IX**.

6.3 In the district-wide context the proposed development will blend in well with its surrounding developments. **Figure 36a** shows the bird's eye view of the proposed development within the existing local setting of the Nam Sang Wai area. The proposed development has demonstrated that it will be well in harmony with the overall setting in the area.

7. FISHERIES RESOURCES AND ACTIVITIES

7.1 The results of the Preliminary Fisheries Impact Assessment ("**PFIA**") have concluded that with the implementation of mitigation measures on water quality control, including the establishment of a proper drainage system for the proposed development to collect the surface runoff into the drainage ditch. Besides, the domestic sewerage will be collected by the on-site domestic sewerage system and then to convey it into the Nam Sang Wai Pumping Station. No insurmountable direct or indirect impact is anticipated to the surrounding pond culture fisheries resources and activities during the construction and operational phases of the proposed development. Details of the Preliminary Fisheries Impact Assessment are in **Appendix X**.

8. PLANNING JUSTIFICATIONS

Fully in-line with Planning Intention

8.1 The present proposed comprehensive development scheme is fully in-line with the planning intention of the area set out in the Notes of the OZP for this "OU(CDWRA)" zone: "*….this zone is intended to provide incentive for restoration of degraded wetlands adjoining existing fish ponds through comprehensive residential and/or*

recreational development to include wetland restoration area…..is also intended to phase out existing sporadic open storage and port back-up uses on degraded wetlands…." (**Appendix I**).

8.2 The present proposed comprehensive development with a plot ratio of not more than 0.4 and a maximum building height of 5 storeys is a compliance-based scheme project in accordance with the maximum permissible plot ratio and building height stipulated in the OZP as mentioned in paragraph 2.2 above.

8.3 It should be noted that when compared to the maximum permissible building height of 6 storeys, the adoption of 3 to 5 storeys in the present proposed development scheme represents the most building profile to integrate with the WRA from a standpoint of self-containment with minimal disturbances from human activities nearby. In doing so, the proposed wetland habitat will enjoy much higher degree of self-containment when compared to those 6-storey tall residential building blocks. This serves as one of the core and essential planning and design criteria for the entire comprehensive development scheme.

8.4 Relevant impact assessments have been undertaken with respect to traffic (**Appendices II and XI**), landscape proposals (**Appendix III**), ecological (**Appendices IV, V and XII**), air quality, traffic noise and industrial noise (**Appendix VI**), drainage (**Appendix VII**), sewerage (**Appendix VIII**), visual (**Appendix IX**) and fisheries **(Appendix X)** aspects to support the present development proposals.

8.5 The results of these impact assessments have demonstrated that the proposed development is feasible and will not cause any unacceptable impacts in respect of traffic, drainage, sewerage, visual or ecological aspects. No net increase of pollution load into Deep Bay due to the proposed development is anticipated. With the implementation of the recommended mitigation measures as outlined in the proposed Wetland Restoration Proposal (**Appendix V**), the whole comprehensive development scheme, if approved by the TPB, will become a positive and good planning scheme for other similar cases in this part of the Nam Sang Wai area.

Meeting Private Housing Demand

8.6 According to the data in the Hong Kong Property Review 2021 (issued by the Rating and Valuation Department)[1], the forecast numbers of private domestic units with saleable area of 100m^2 to 159.9m^2 completed in the Yuen Long District in 2021 and

[1] https://www.rvd.gov.hk/doc/en/hkpr21/PR2021_full.pdf

2022 are only 15 and 14 respectively. This clearly reflects the fact that such a limited supply of these types of private housing units in the Yuen Long District is far from meeting the needs of the community. This is particularly the case with the increasing socio-economic integration between Hong Kong and the cities of the Greater Bay Area in the coming future.

8.7 The present proposed development will produce a total of 90 housing units in 84 housing blocks with an average house size of about 227m^2, which will no doubt contribute active and positive effort to help meet the demand for such types of private housing in the community. The greater the variety of types of private housing supply exist in the community, the more the choices which will be offered to rekindle the aspirations of families in different incomes groups to become home-owners.

Meeting Government Policy Objective

8.8 In the Policy Address 2022[2], the CE further asserts that "…*the demand for private housing in the next 10 years will be 129,000 units. We will work to achieve this basic target and get sufficient land ready for providing no less than 72,000residential unit in the next five year*…." (paragraph 66). This means that some 57,000 private housing units will have to be provided between 2027 and 2031. Further to above, the CE also states: "*….apart from actively nurturing and retaining local talents, the Government will proactively trawl the world for talents……*" (paragraph 29). Noting the fact that one of the most fundamental conditions to attract talents (no matter for local or foreign talents) is the living environment and conditions.

8.9 In view of the above and having considered the biophilic design living environment of the proposed development, the approval of the present planning application with a total of 90 high-end private housing units is totally in-line with the Government policy objective to '*continue to create strong impetus for growth*' as a role to act "*as an important gateway connecting the Mainland with global market*" (paragraph 25 in Policy Address 2022).

Positive Catalyst to Speed up the Upgrading Process

8.10 It is noted that since the exhibition of the draft Nam Sang Wai OZP No. S/YL-NSW/2 on 27 October 2000, a total of 7 similar planning applications were submitted to TPB to indicate landowners' intention to implement the designated "OU(CDWRA)" zones in the Nam Sang Wai planning scheme area.

[2] https://www.policyaddress.gov.hk/2022/public/pdf/policy/policy-full_en.pdf

8.11 **Table 4** summarises the key development data of these 7 similar planning applications. **Figure 37** shows the locations of these 7 planning applications. Among these 7 similar planning applications, only 2 were approved with conditions by TPB [i.e. one applying for regularizing the existing social welfare facility (private residential care house for mentally handicapped and mentally-ill persons) under Application No. A/YL-NSW/255, and the other one, under Application No. A/YL-NSW/241, applied for a comprehensive development but, for some reasons, this site has temporarily lent to the Government to serve as Yuen Long Tam Mei Community Isolation Facility in 2022[3] and the applied development has not been realised at present]. Indeed, many of them did not provide a proper wetland habitat proposal as the one under the present application.

Table 4 Key Development Data in Other Similar Planning Applications

Application No. A/YL-NSW/	**Submission Date**	**Site Area (m^2)**	**For**	**TPB Decision Date (R/A)**
1. No. 156	24/12/2004	62,800	Comprehensive Residential Development including Wetland Restoration and Management Proposal	10/06/2005 (R)
2. No. 167	04/07/2006	1,575	Low Density Residential Development	22/09/2006 (R)
3. No. 179	25/01/2008	1,575	Proposed House Development	27/06/2008 (R)
4. No. 181	07/04/2008	9,308	Proposed Low-rise Residential Development	19/09/2008 (R)
5. No. 199	17/05/2010	1,012	Proposed House (Redevelopment Only)	16/07/2010 (R)
6. No. 241	24/06/2015	92,927.5	Proposed Comprehensive Development of an Outlet Mall with Commercial Uses and 'Agricultural Use' (Commercial Fish Ponds)	13/10/2017 (A) (valid until 13.10.2021)
7. No. 255	06/04/2017	583	Social Welfare Facility (Private Residential Care House for the Mentally Handicapped and Persons with Mental Illness)	26/05/2017 (A)

R- Rejected; A- Approved with Conditions

8.12 Compared to the above 7 similar planning applications, the present proposed comprehensive development (i.e. 'Wetland Habitat', 'House' and 'Flat' development) scheme represents the most proper and all-thought-out in accordance with the requirements and criteria set out in the OZP. If approved by TPB, the proposed comprehensive development also represents a practically feasible and implementable development project that can be realized within a short period of time.

8.13 Undoubtedly, the approval of the present application will not only stand for a positive

[3] https://www.news.gov.hk/eng/2022/03/20220324/20220324_211254_768.html

support to properly planned and all-thought-out comprehensive development to implement the specific planning intention of the Application Site, but will also act as an effective catalyst to stimulate other landowners to take actions to speed up the upgrading process in other "OU(CDWRA)" sites to phase out the sporadic non-conforming brownfield industrial activities on the degraded wetlands in this part of the Nam Sang Wai area.

8.14 In addition, the provision of a proper road system and the future public sewer mains in the area will no doubt contribute a significant effort in encourage landowners to commence to review the redevelopment potential of their land within the "OU(CDWRA)" zone.

8.15 It is a "quick-win" and "win-win" compliance-based project.

Setting a Good Precedent Case

8.16 As mentioned in paragraph 8.4 above, the present proposed comprehensive development scheme has taken full account of all relevant impact assessments as outlined in the Notes of the OZP. Based on the proposed compliance-scheme under application, the results of these impact assessments have demonstrated that with the provision of the proposed mitigation measures or timelines as recommended in those impact assessments, it is anticipated that the proposed comprehensive ('Wetland Habitat', 'House' and 'Flat') development will not generate any unacceptable or significant adverse impacts on the local area with respect to traffic, drainage, sewerage, ecological or visual aspects.

8.17 It has also demonstrated that with the implementation of proposed mitigation measures, the proposed development will not subject to any unacceptable environmental problems with respect to air quality, traffic noise or industrial noise generated by its surrounding developments.

8.18 Indeed, it is all-thought-out comprehensive development scheme in accordance with the specific planning requirements set out in the OZP.

8.19 The fundamental principle of the proposed WRA is to optimize the function of the on-site wetland to benefit the local wildlife in a self-contained manner. It will be a natural-looking WRA. The green screening zone between the WRA and the residential development will become an effective natural barrier to ensure the high degree of self-containment of the wetland habitat function of the proposed WRA with best biodiversity performance provided for the local wildlife in the long-run.

8.20 The approval of this planning application will be a good and implementable precedent case for other comprehensive development schemes in other "OU(CDWRA)" sites within the Nam Sang Wai planning scheme area.

8.21 It should be noted that the Applicant has made its best effort to maximise area of the WRA taking into account to strike a balance between the private housing development and the provision of the WRA, as well as the need to take care of those massive space requirement ancillary facilities, such as the provision of on-site EVA and open space, and to comply various building regulation including building setbacks.

9. CONCLUSION

9.1 The present application is a second submission of the Application Site to seek a planning permission from the TPB for a proposed comprehensive development containing 'Wetland Habitat' (i.e. Wetland Restoration Area), 'House' and 'Flat' uses with filling of ponds and an excavation of land in association with the proposed residential development at the Application Site.

9.2 Same as the previous planning scheme, the proposed comprehensive development comprises two main land-use items (one is the wetland restoration area and the other is the house and flat development). The present development scheme has incorporated the latest comments and suggestions given by the AFCD soon after the TPB' decision on the previous application No. A/YL-NSW/290. **Figure 39a** shows the difference of the MLP between previous application No. A/YL-NSW/290 and present application No. A/YL-NSW/314.

9.3 Upon completion of the whole development by 2027, a total of 90 housing units in 84 housing blocks in the form of 3- to 5-storey (including 1-level of car-parking) with average house size of about 227m^2 will be provided to meet the private housing demand in the community. A comprehensive all-thought-out wetland restoration area scheme (**Appendix V**) is proposed for the consideration of TPB.

9.4 It has been demonstrated that the present proposed scheme is fully in-line with the planning intention of the area (i.e., *"to restore degraded wetlands adjoining existing fish ponds through a comprehensive residential …… development to include wetland restoration area"*). The present proposed comprehensive development represents a compliance-based scheme taken full account of the planning requirements stipulated in the OZP; it will not result in any significant adverse or unacceptable impacts on the local area with respect to traffic, drainage, sewerage, ecological or visual aspects; and with the implementation of recommended mitigation measures, the proposed

development will not generate any unacceptable air quality, road traffic noise or industrial noise problems in this part of the Nam Sang Wai area.

9.5 The results of the EcoIA (**Appendix VI**) have demonstrated that with the implementation of the mitigation measures as proposed in the EcoIA, the proposed comprehensive development scheme is totally in line with the requirements and criteria set-out in the TPB PG-No. 12C.

9.6 The approval of this application represents a positive support to realise a proposed comprehensive development that will not only contribute significant effort to enhance the function of the existing on-site degraded wetlands to benefit the existing and the future local wildlife; but will also act as an effective catalyst to speed up the upgrading process to phase out the non-conforming brownfield industrial activities on degraded wetlands in other nearby "OU(CDWRA)" sites. It is a good precedent case for other similar planning applications in this part of the Nam Sang Wai area.

9.7 The overall proposed development would likely involve (a) filling of land of about 11,553m^2 (or about 22.62% of the total site area) with a depth of 1 to 2m; (b) filling of ponds of 24,453m^2 (or about 47.88% of the total site area) with a depth of 1.5 to 2 m; and (c) excavation of land of about 10,400m^2 (or about 20.4% of the total site area) with a depth of 4.4m to 6.2m.

9.8 In view of the above, we respectfully request Members of TPB to give favorable consideration to and approve the present application to allow the Applicant to carry out the subsequent refinement of the WRA proposals so as to implement the proposed comprehensive development at the Application Site.

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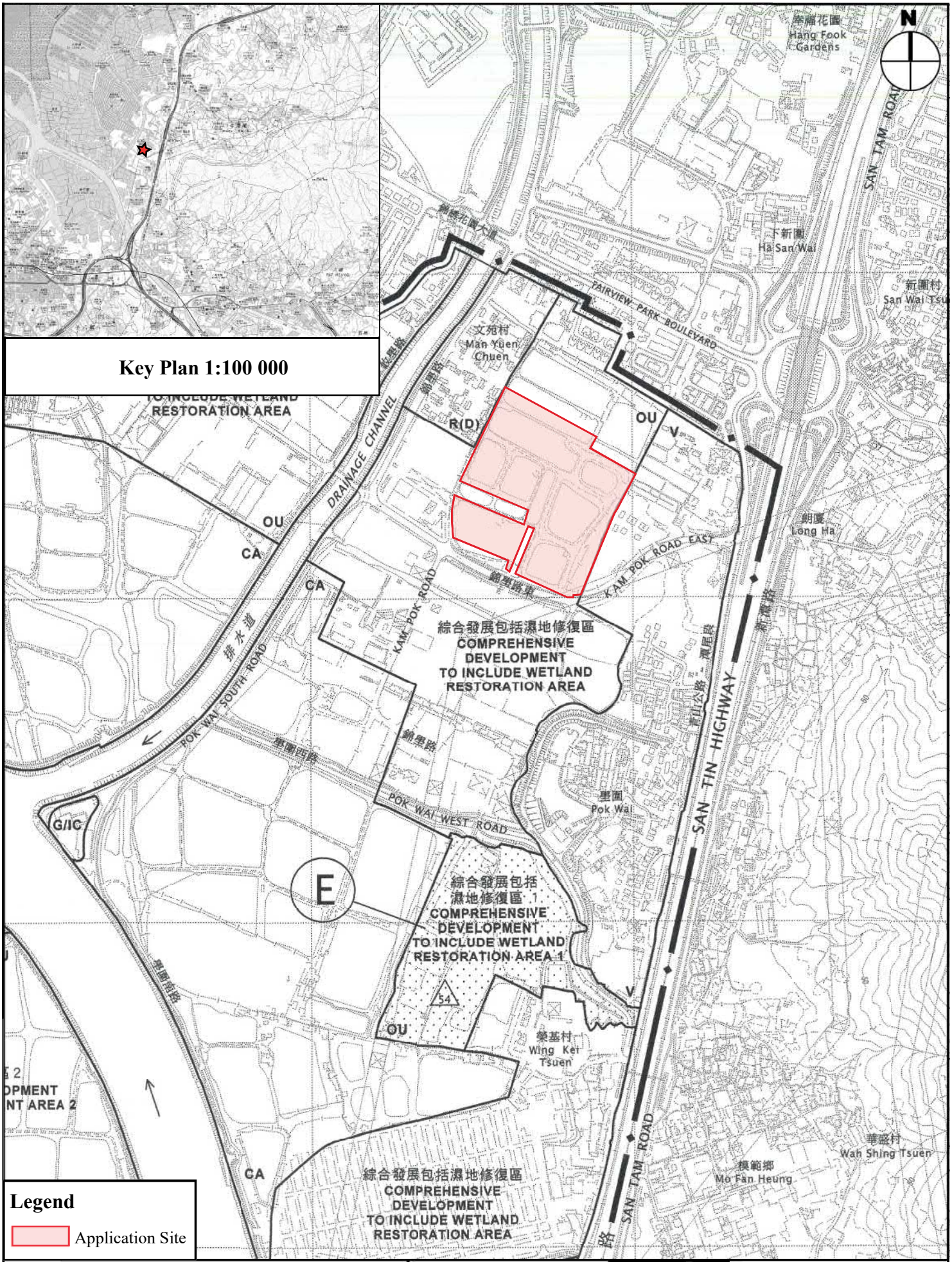
Updated on 10 October 2024



Location Plan of the Application Site
(Extracted from the Draft
Nam Sang Wai Outline Zoning Plan
No. S/YL-NSW/9))

Figure 1a

1 : 7 500

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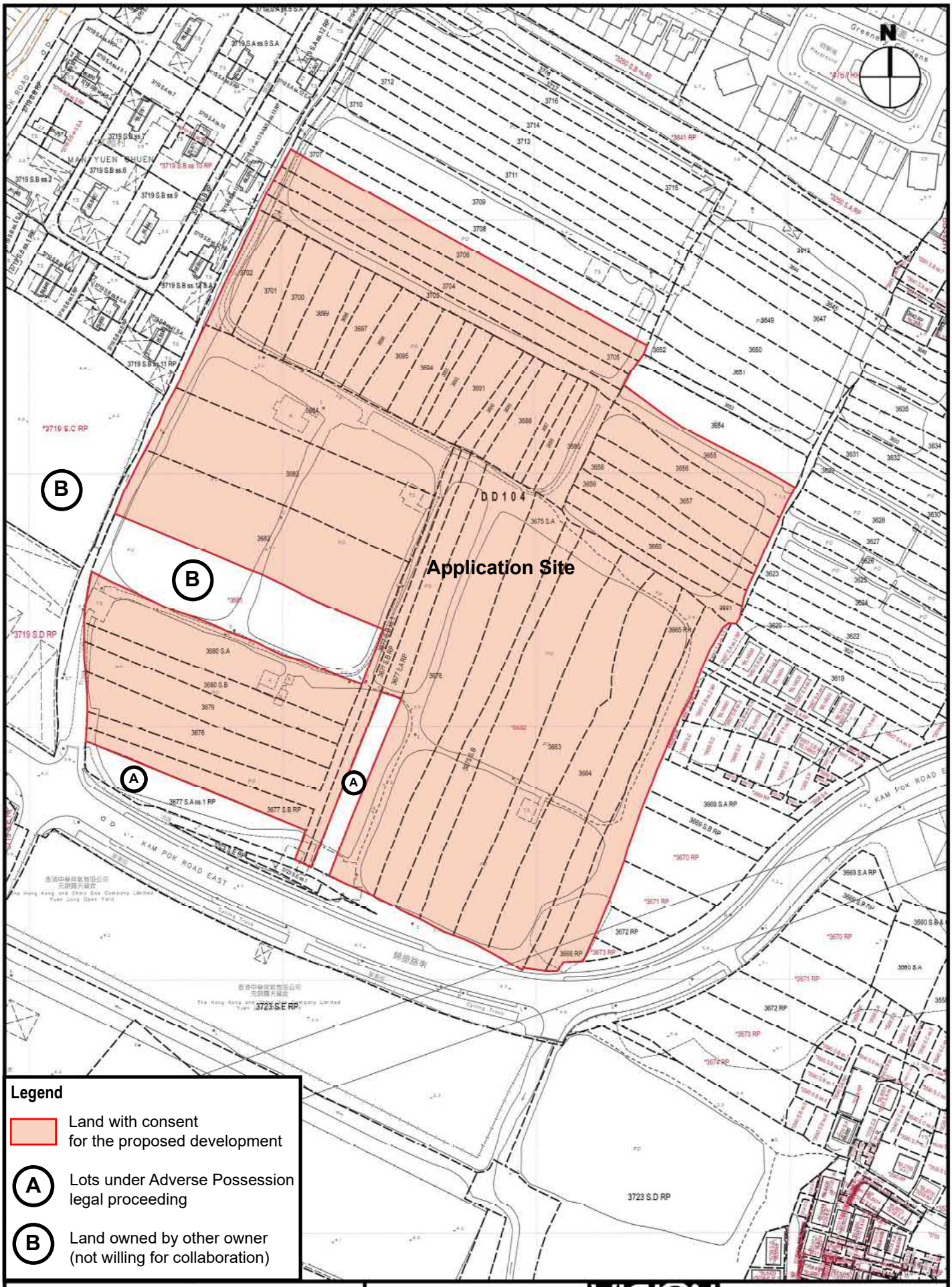
弘域城市規劃顧問有限公司
VISION PLANNING CONSULTANTS LTD.



Lot Index Plan

(Extracted from Lot Index Plan No. ags_S00000041787_0001)

Figure 2a

1: 2 000

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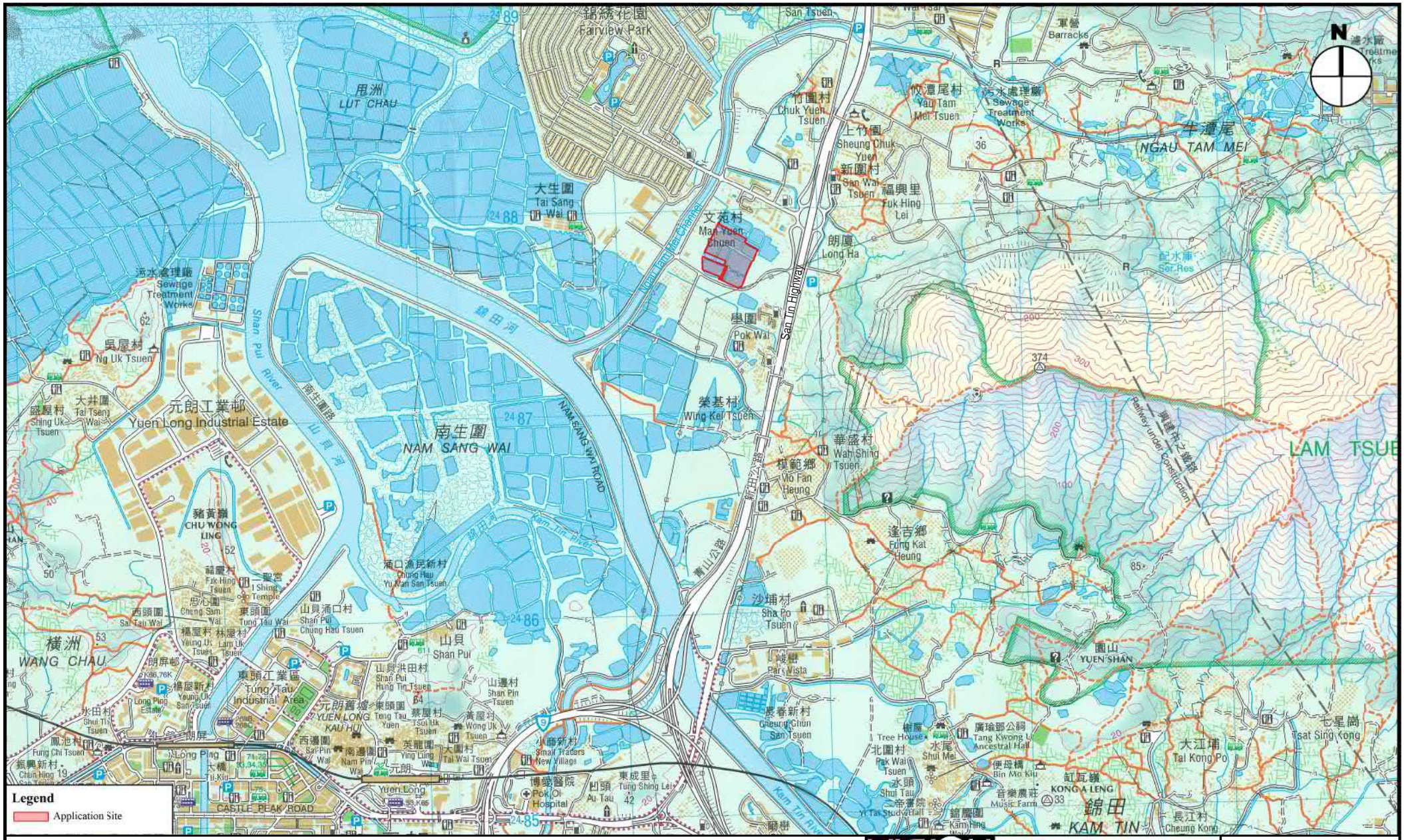

District-wide Context of the Application Site
(Extract from the Map of North West New Territories (Country Series) issued by the Survey and Mapping Office, Lands Department (2017))

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[redacted]

Figure 3

1: 25 000

Legend

Application Site

"OU(CDWRA)" Zone

Legend

Application Site

"OU(CDWRA)" Zone

Aerial Photo of the Applicant Site and its Surroundings (2007 and 2022)

(Aerial Photo No. CW76275 taken on 5 June 2007 and No. E146407C taken on 19 January 2022)

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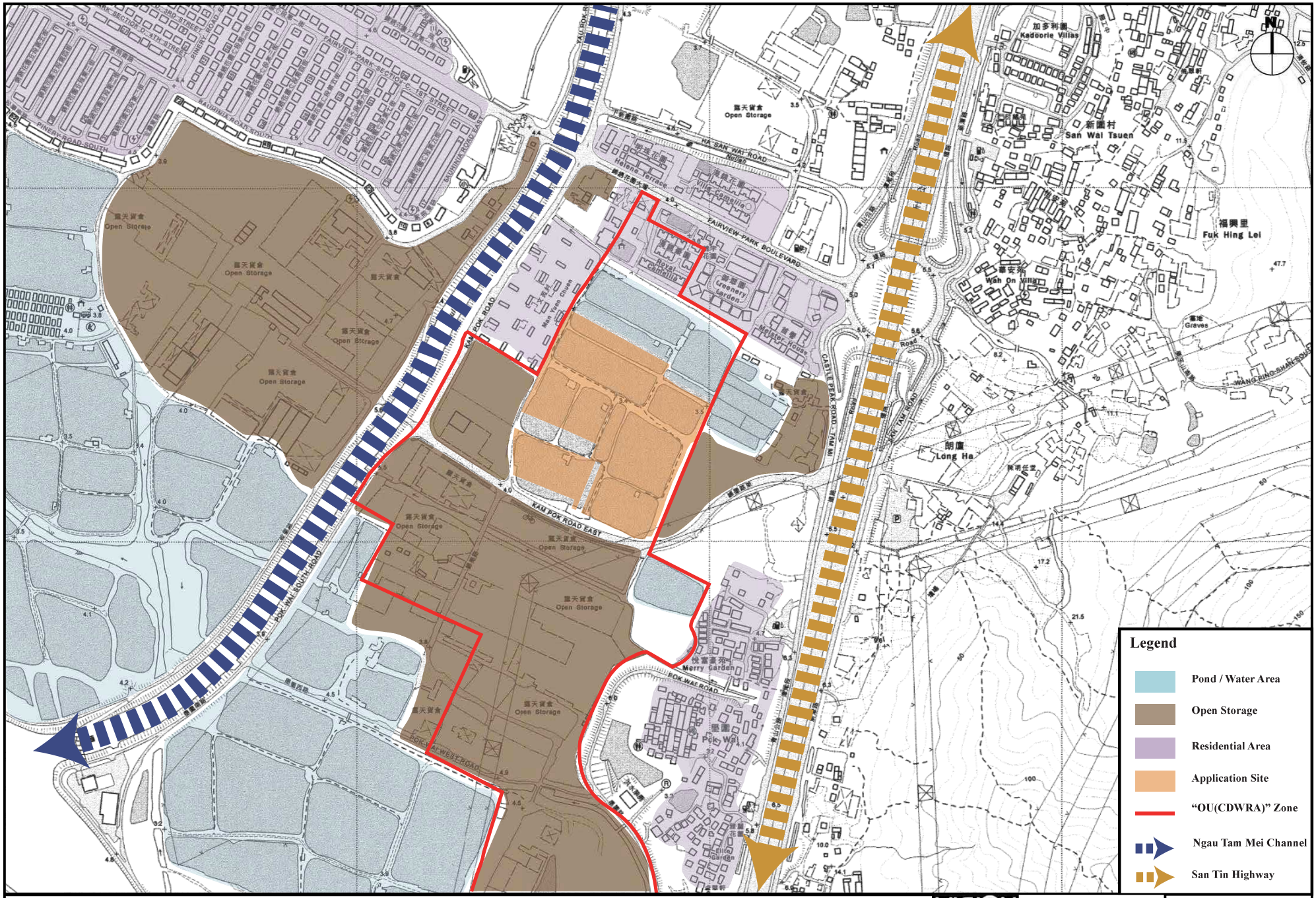
[redacted]

Figure 4

N.T.S



Existing Land Use Pattern around Application Site

(Extracted from the Government Survey Sheet No. 2-SE-C)

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[redacted]

Figure 5

1: 5 000

Picture A Aerial Photo Taken on 27 July 1990

Picture B Aerial Photo Taken on 10 July 1998

Picture C Aerial Photo Taken on 23 December 2009

Picture D Aerial Photo Taken on 8 March 2022

Legend

Application Site Boundary

Aerial Photos of the Application Site (1990, 1998, 2009 and 2022)
(AerialPhoto No. A21977 taken on 27 July 1990; CN20186 taken on 10 July 1998; CW85068 taken on 23 December 2009; and E153015C taken on 8 March 2022)

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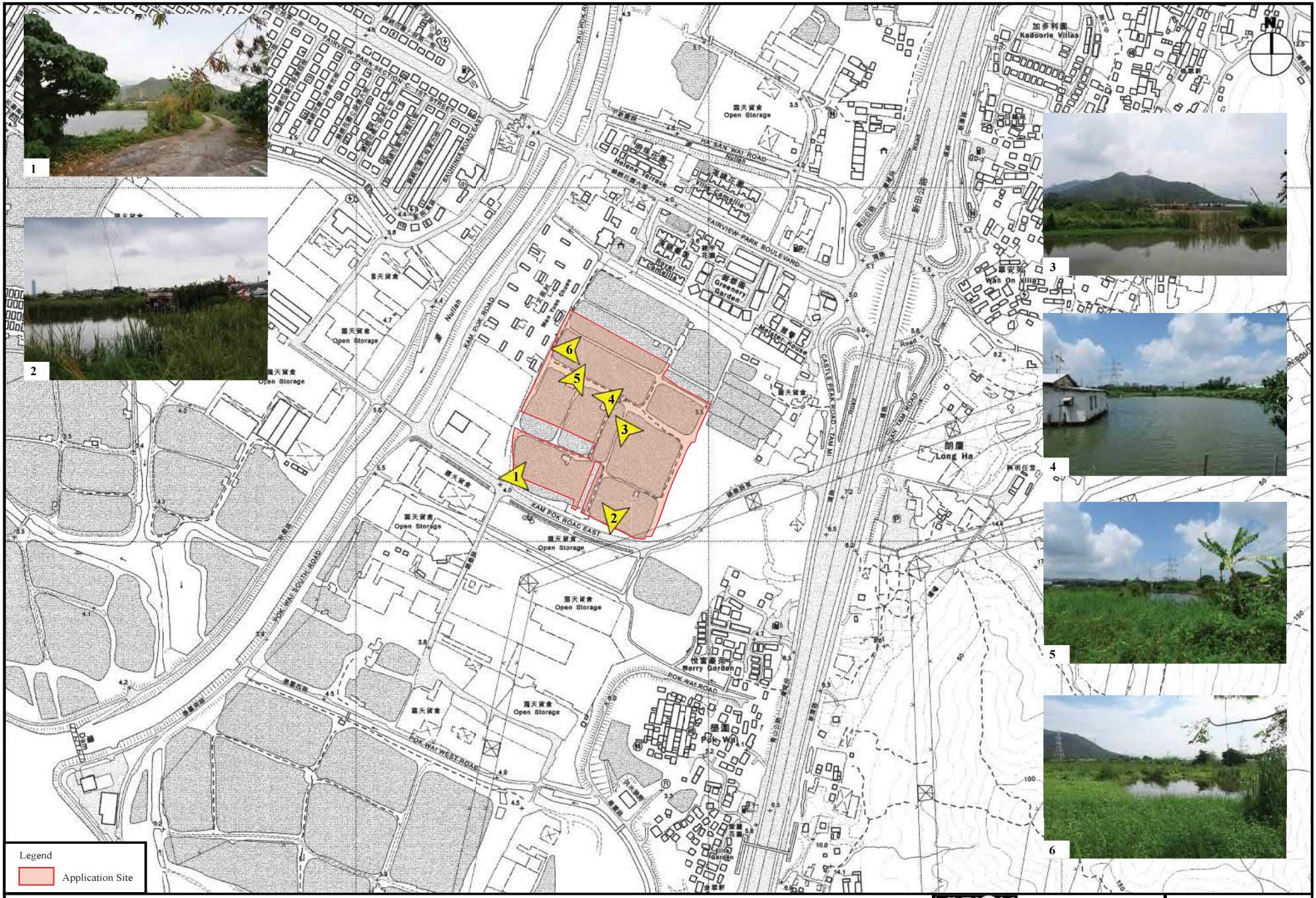
[redacted]

Figure 6

N. T. S.



Existing Conditions of the Application Site
(Extracted from the Government Survey Sheet No. 2-SE-C)

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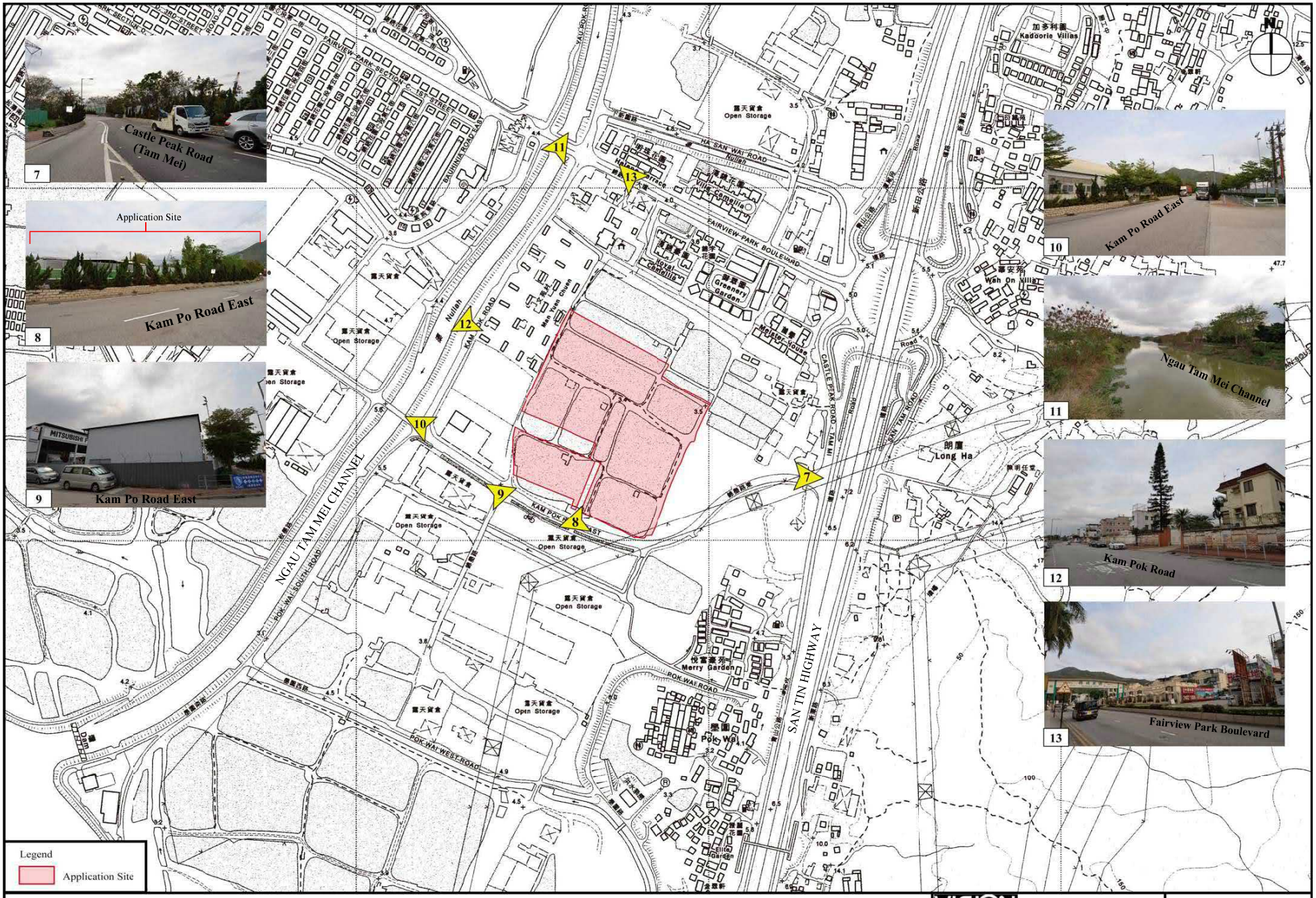
Figure 7

1: 5 000



Existing Conditions around the Site
(Extracted from the Government Survey Sheet No. 2-SE-C)

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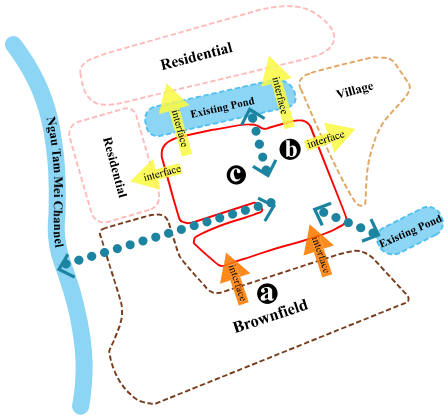
[redacted]

Figure 8

1:5 000

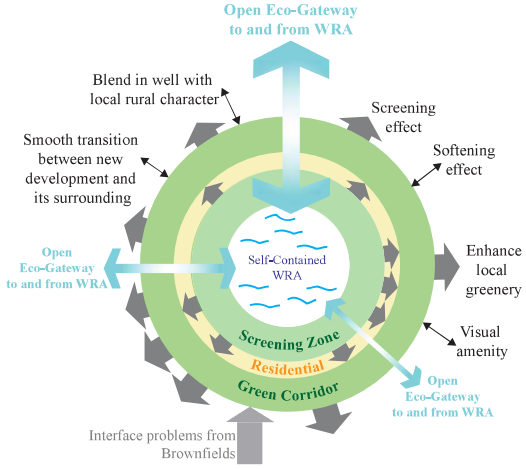
1



Site Appraisal - Basic Principles

a. Address potential interface problems from Brownfields
b. Minimise potential impact on surrounding sensitive receivers (residential and ponds)
c. Minimise potential nuisance from surroundings
d. Creation of co-living conditions for human and wildlife

2



"Double-Screening" Biophilic Design Concept

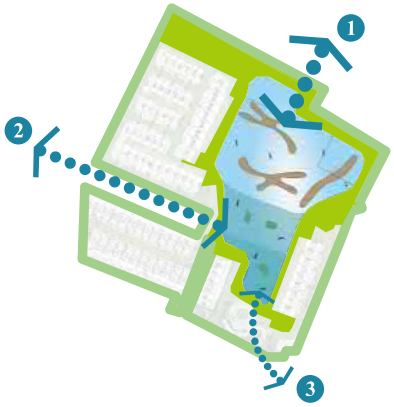
Zone 1 - Provide screening/visual amenity; and Blend in well with local rural setting
Zone 2 - Self-containment Cell with Green Buffers on two sides
Zone 3 - Self-containment Cell with Heavy Green Buffer enclosed

3

"Double-Screening" Proposal

a. Green corridor at the periphery of the site: to shield off interface problems from existing brownfields and residential developments, and the nuisance from the proposed development to the surrounding environment, and act as a functional element to link up with adjoining wetland
b. Green screening zone surrounding the WRA: to screen/filter off potential nusiance from the proposed residential development

4



Possible Wetland Eco-Connections in Three-Tier

1. Opening at the northern side to allow seamless connection to the existing ponds and wetlands to the immediate north
2. the south-western opening to allow eco-connection to the Ngau Tam Mei Channel
3. Close proximity of Subject Site to existing ponds at the southeast of the site to attract waterbirds to and from the nearby areas

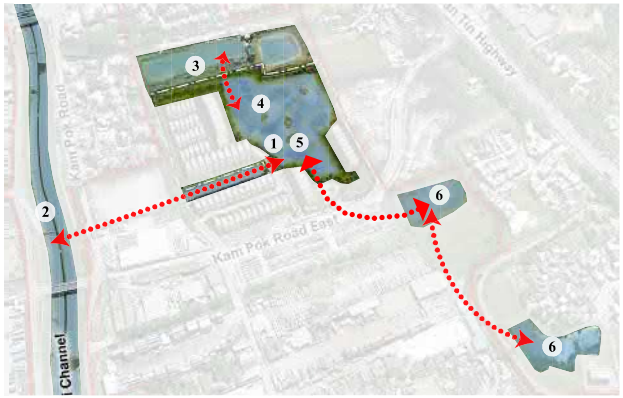
Integrated Planning in Local Context

5

Integrated Neighbourhood Spatial Planning

Adpotion of green corridors to create a "Double-Screening" effect: to establish two co-existence self-containment cells in one site blends in well with its surroundings and to enhance the functional value of the proposed WRA

6



Potential Eco-Connectivity with Proposed Development

1-2 Eco-gateway for Ngau Tam Mei Channel and Wetland Restoration Area; Attract Existing and Future Wildlife around Ngau Tam Mei Channel
3-6 Potential Wetland Eco-Connection Path
4-5 Eco-Connection Portal

Urban Design Concept

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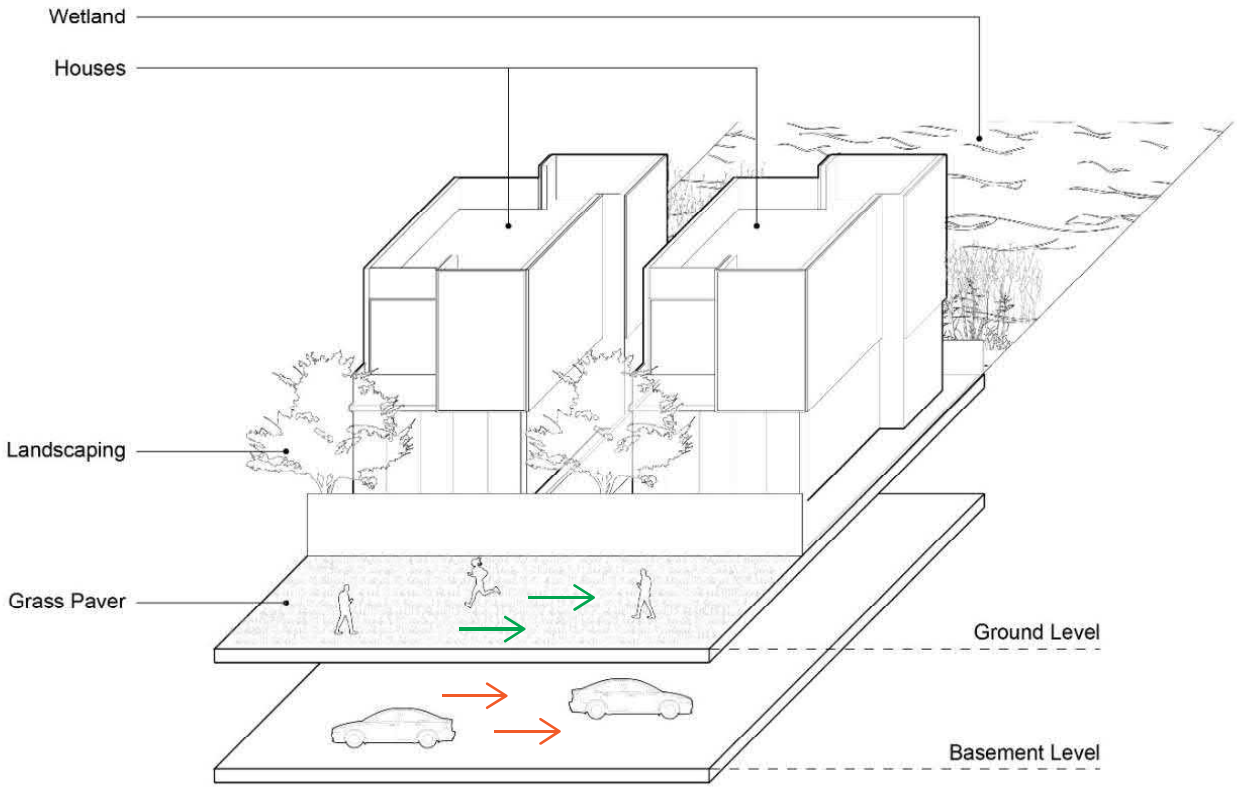
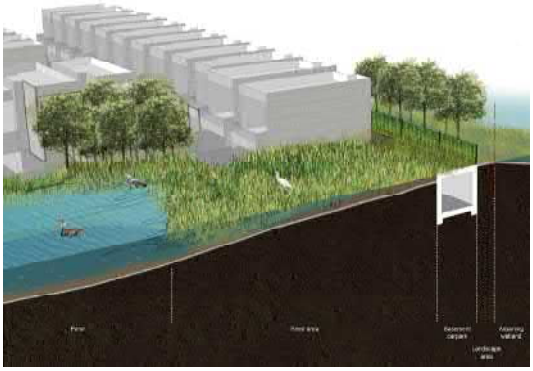
[redacted]

Figure 9a

N. T. S.





'Grade-Seperated' Movement System

i. Totally a user (human and wildlife) friendly approach.

ii. Vehicular free concept on major surface of the development to eliminate unwanted disturbances to the WRA (light and noise).

iii. Release more surface space for landscaping treatmen and human movements.

iv. Two entrances to keep vehicular movements away from the WRA.

v. To adopt a maximum building height of 3 storeys including carport/basement carpark to avoid unwanted light pollution and human activities from taller buildings so as to retain the local physical character in the area.

"Grade-Seperated" Movement System

Figure 10

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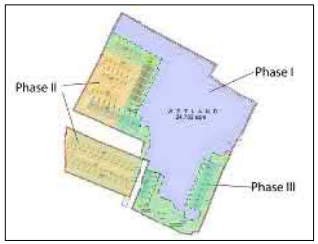


SCHEMATIC PHASING DIAGRAM

Figure 11e

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	(sqft)	NUMBER OF UNITS	GFA (sqm)
A-UPPER	229	2,465	6	1,374
A-LOWER	246	2,648	6	1,476
B	334	3,595	24	8,016
C	196	2,110	25	4,900
D	184	1,981	2	368
E	159	1,711	27	4,293
			TOTAL : 90	20,427

WETLAND AREA (PHASE I DEVELOPMENT) : 24,702 sqm (48.37% OF SITE AREA)

COMMON GREENERY AREA BREAKDOWN

• UNCOVERED HORIZONTAL PA	:	2,986 sqm
• REED ZONE	:	9,083 sqm
• GRASS PAVER	:	5,458 x 0.5 = 2,729 sqm
• VERTICAL GREENERY (ASSUME HEIGHT OF 2.5M)	:	992m x 2.5m = 2,480 sqm
TOTAL	:	17,278 sqm (33.83% OF SITE AREA)

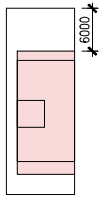
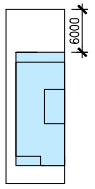
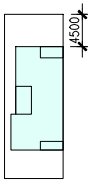
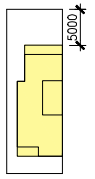
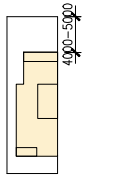
2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

2.5M TALL WOODEN TRELLIS

TREE PIT AT PRIVATE GARDEN

EVA

LIST OF HOUSING UNITS

A#(DUPLEX)	B	C	D	E & Ea*
Includes A-UPPER & A-LOWER				*Units with fixed clear glazing for bird-hide purpose
				
4 STOREYS + BASEMENT (BLDG HEIGHT: 14.5M ABOVE GROUND)	3 STOREYS + BASEMENT (BLDG HEIGHT: 13.5M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.	MASTER LAYOUT PLAN	0 10 20 40 m 1:1500 @ A3

Figure 12a Indicative MLP (Wetland Habitat)

Roadside Planting

Vertical Green Wall

Grass Paver

Reedbed

Island

Shallow Water Zone

Deep Water Zone

Wood Log

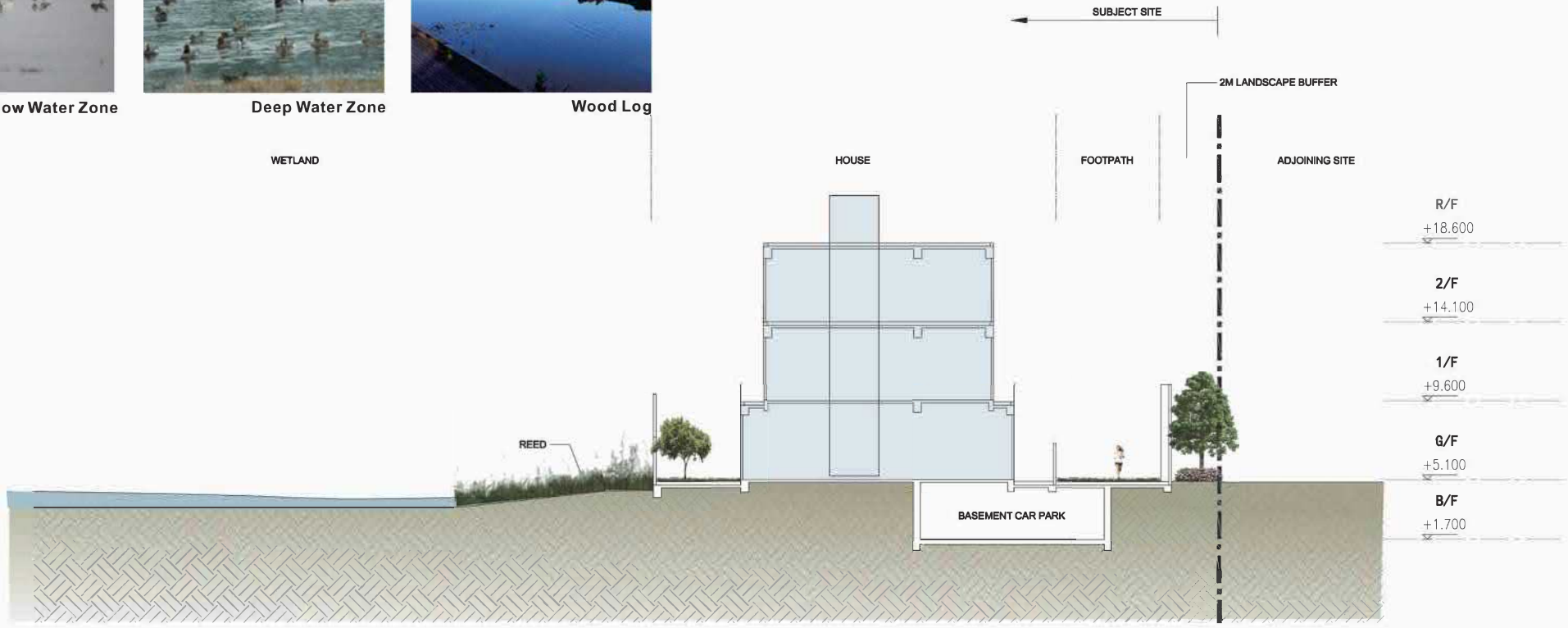


Figure 13a

ILLUSTRATIVE SECTION A-A
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

0 1 5 10
m
1:250 @ A3

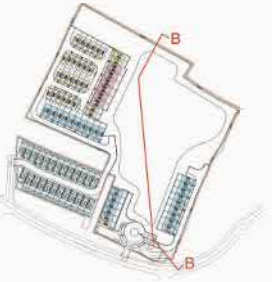
① Roadside Planting

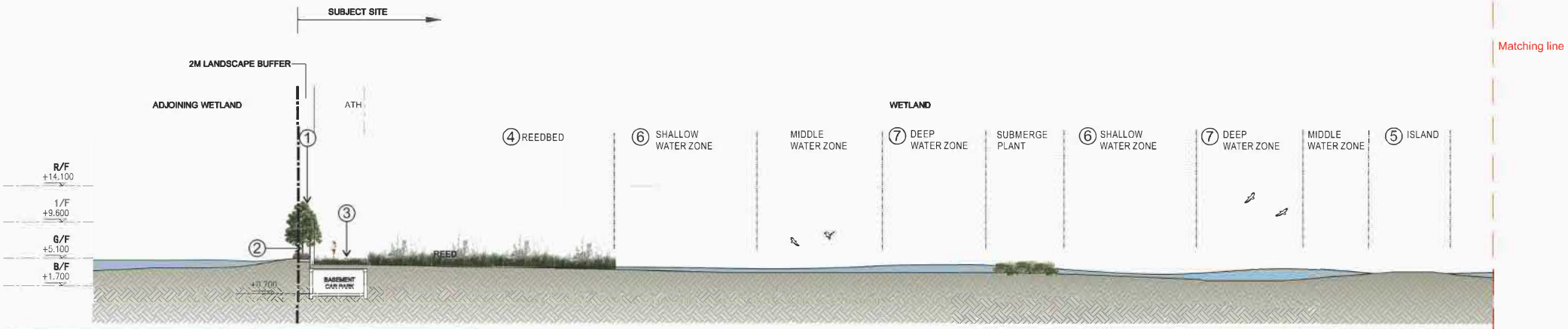
② Vertical Green Wall

③ Grass Paver

④ Reedbed

⑤ Island





⑥ Shallow Water Zone

⑦ Deep Water Zone

⑧ Wood Log

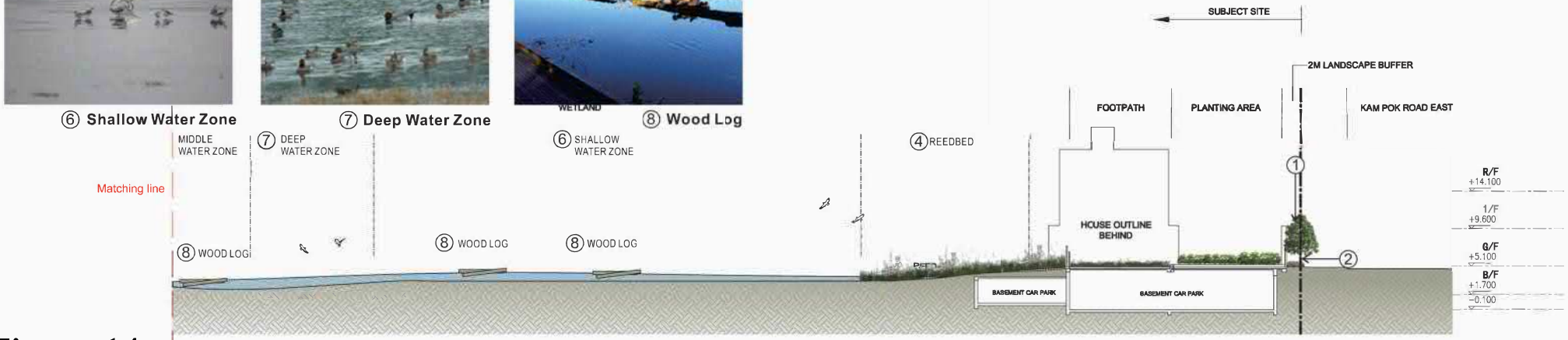


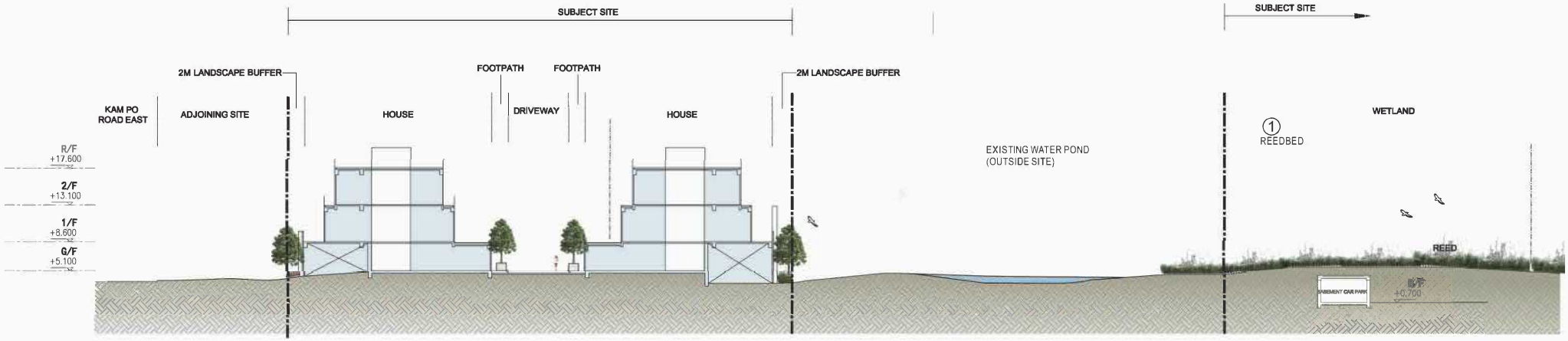
Figure 14a

ILLUSTRATIVE SECTION B-B
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

Figure 15b

ILLUSTRATIVE SECTION C-C
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

0 5 10 20
m
1:500 @ A3



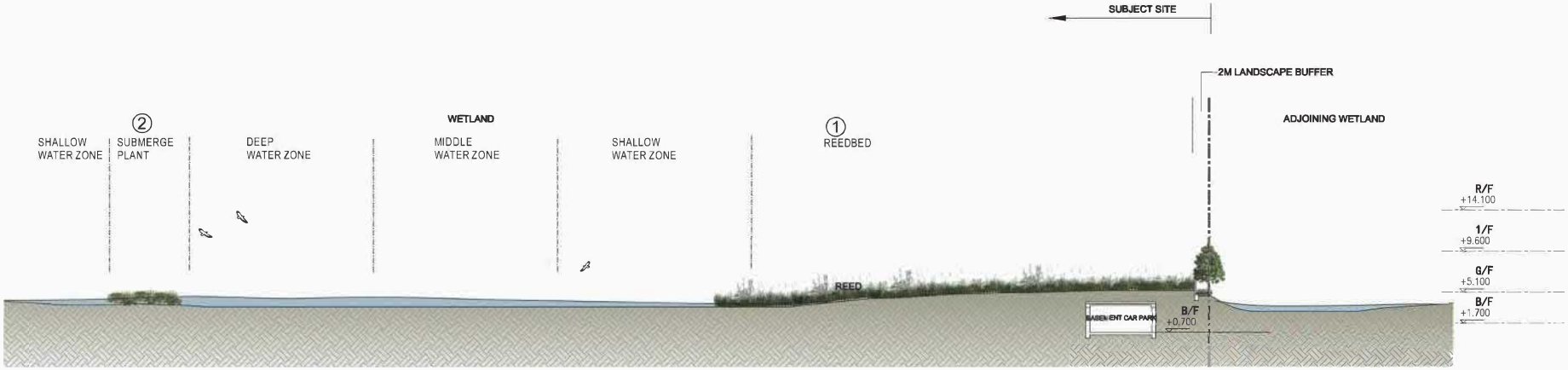


Figure 16b

ILLUSTRATIVE SECTION D-D
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

0 5 10 20
m
1:500 @ A3

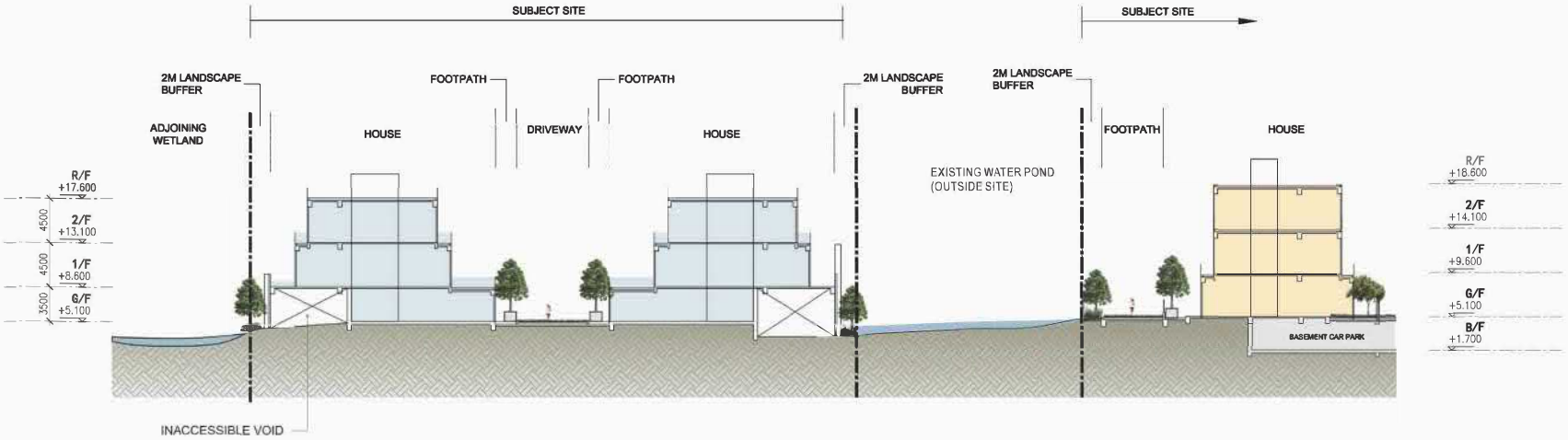


Figure 17b

ILLUSTRATIVE SECTION E-E
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

0 5 10 20
m
1:500 @ A3

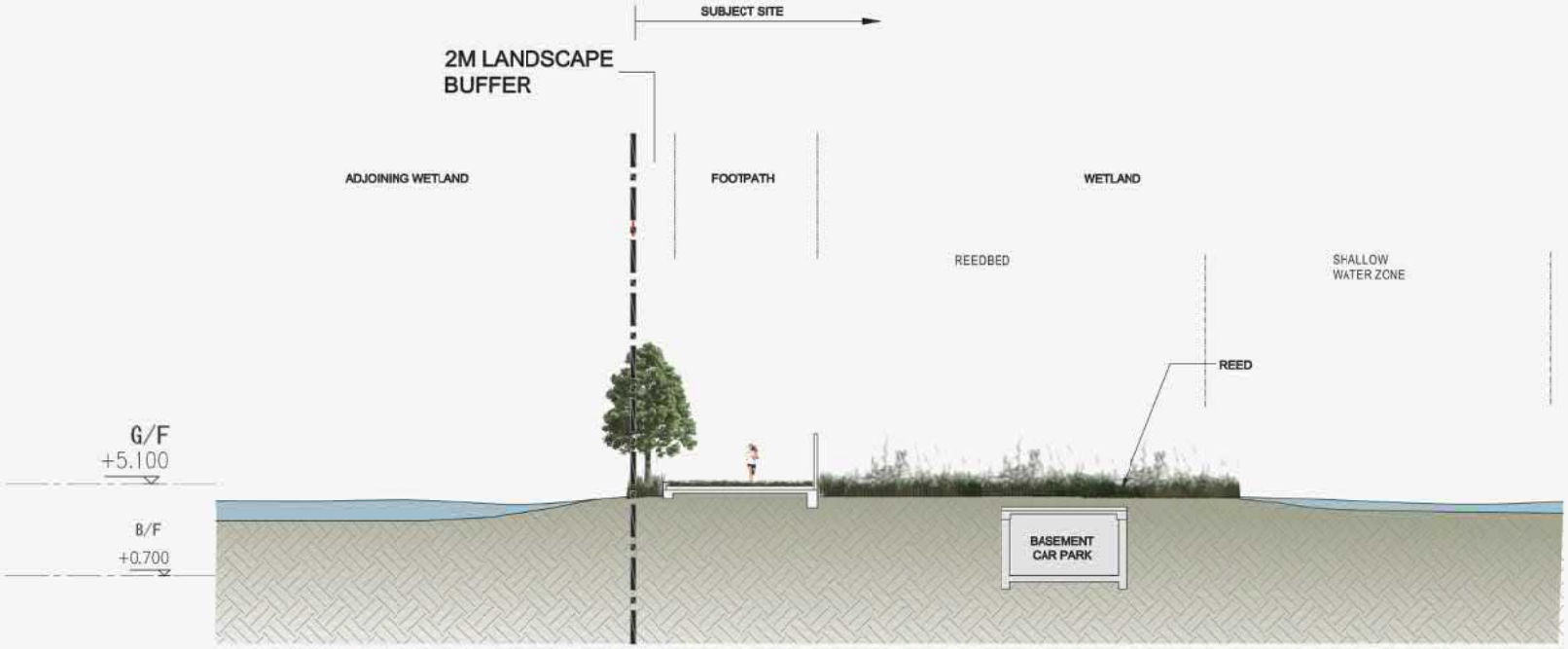
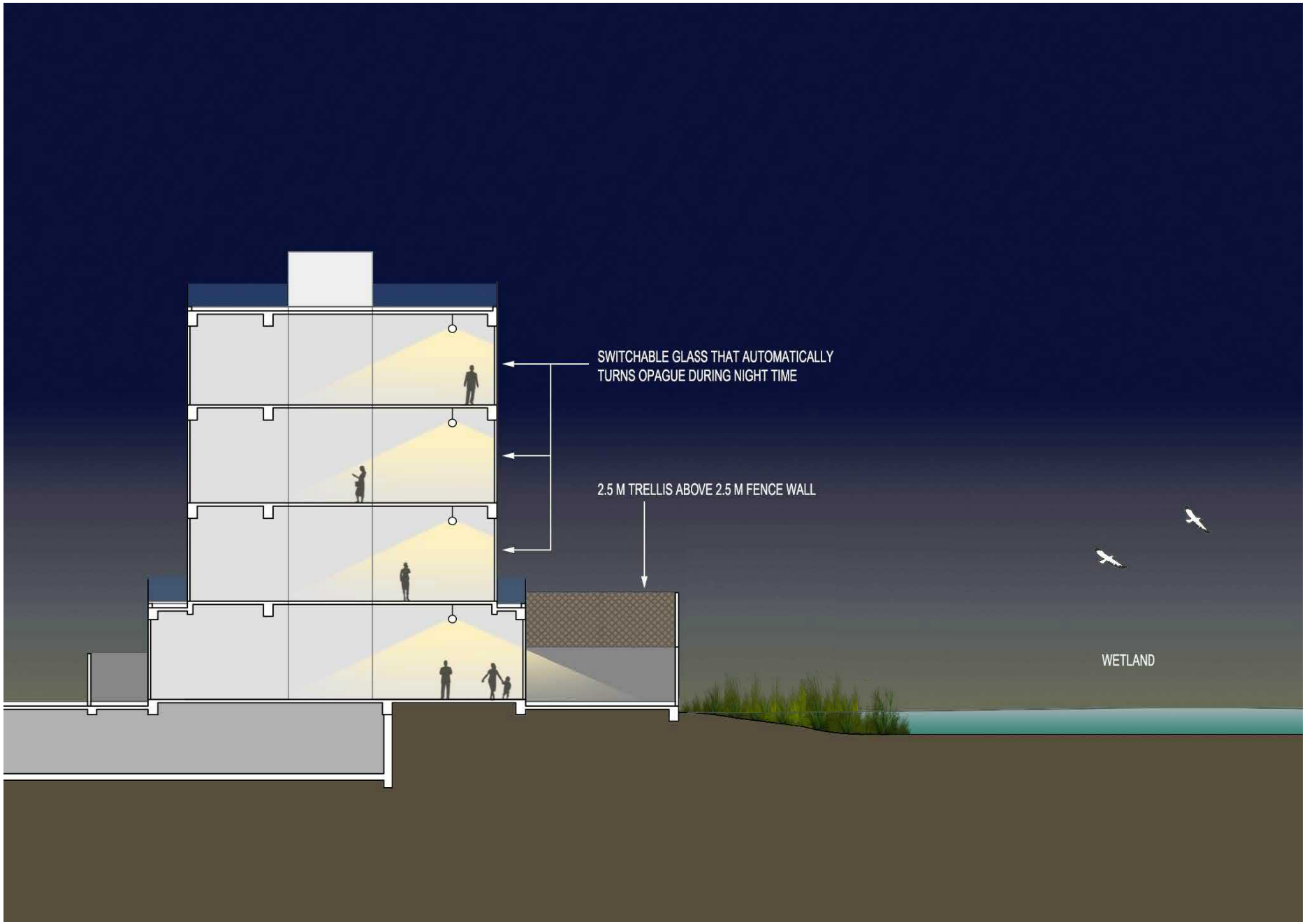


Figure 18b

ILLUSTRATIVE SECTION F-F
PROPOSED RESIDENTIAL DEVELOPMENT
AT KAM POK ROAD EAST, NAM SANG WAI, NEW TERRITORIES

0 1 5 10
m
1:250 @ A3



Night-Time Mitigation Measures

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[redacted]

Figure 19

N. T. S.

Figure 20c

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	(sqft)	NUMBER OF UNITS	GFA (sqm)
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2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

2.5M TALL WOODEN TRELLIS

TREE PIT AT PRIVATE GARDEN

EVA

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ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.	GROUND FLOOR LAYOUT PLAN	0 10 20 40 m 1:1500 @ A3

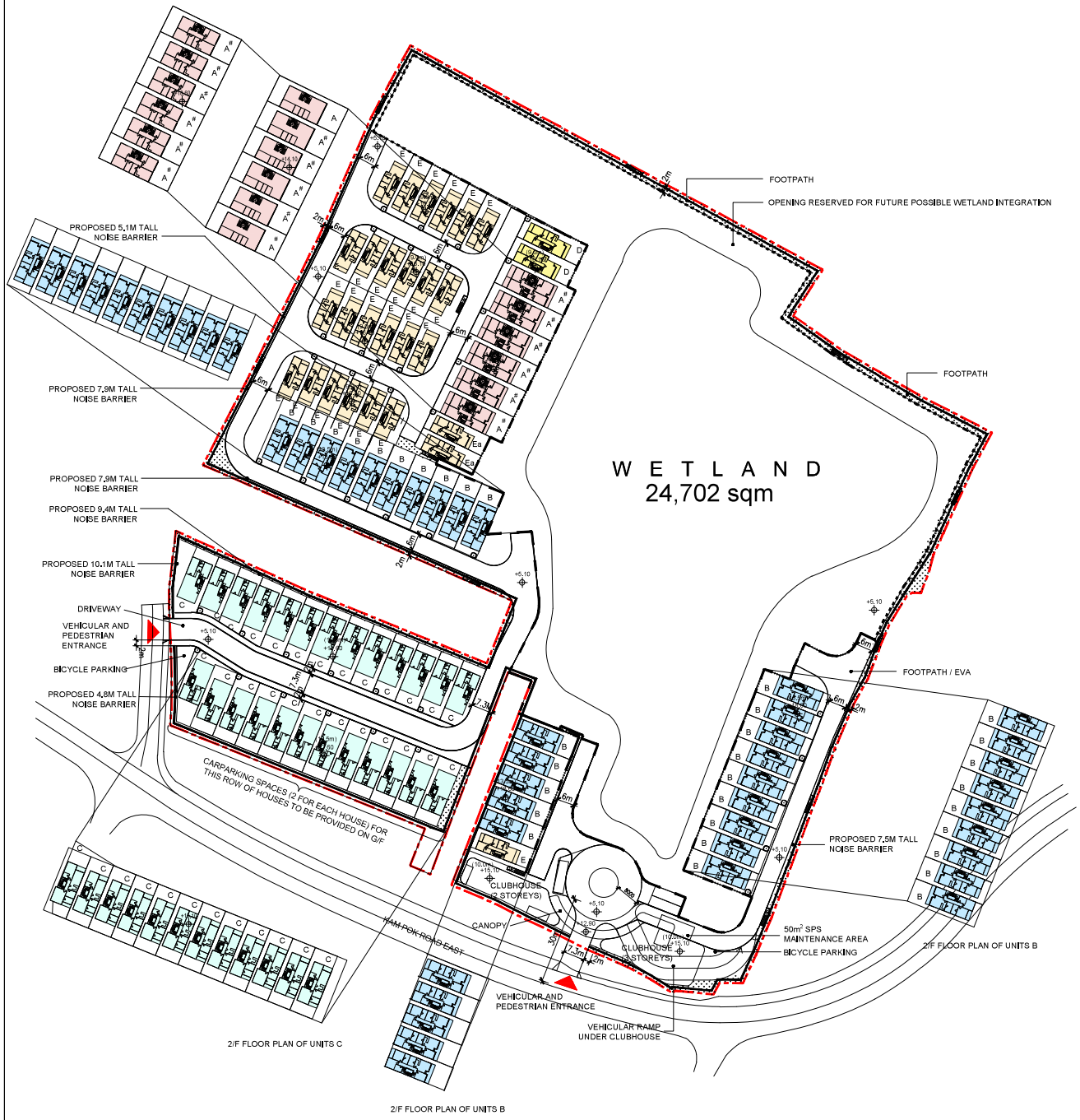

Figure 21c

ARCHITECT: ag ATELIER GLOBAL LIMITED	PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.	DRAWING TITLE: 1/F AND UPPER FLOOR LAYOUT PLAN
		0 10 20 40 m — 1:1500 @ A3

SITE AREA	:	51,073 sqm
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2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

2.5M TALL WOODEN TRELLIS

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EVA

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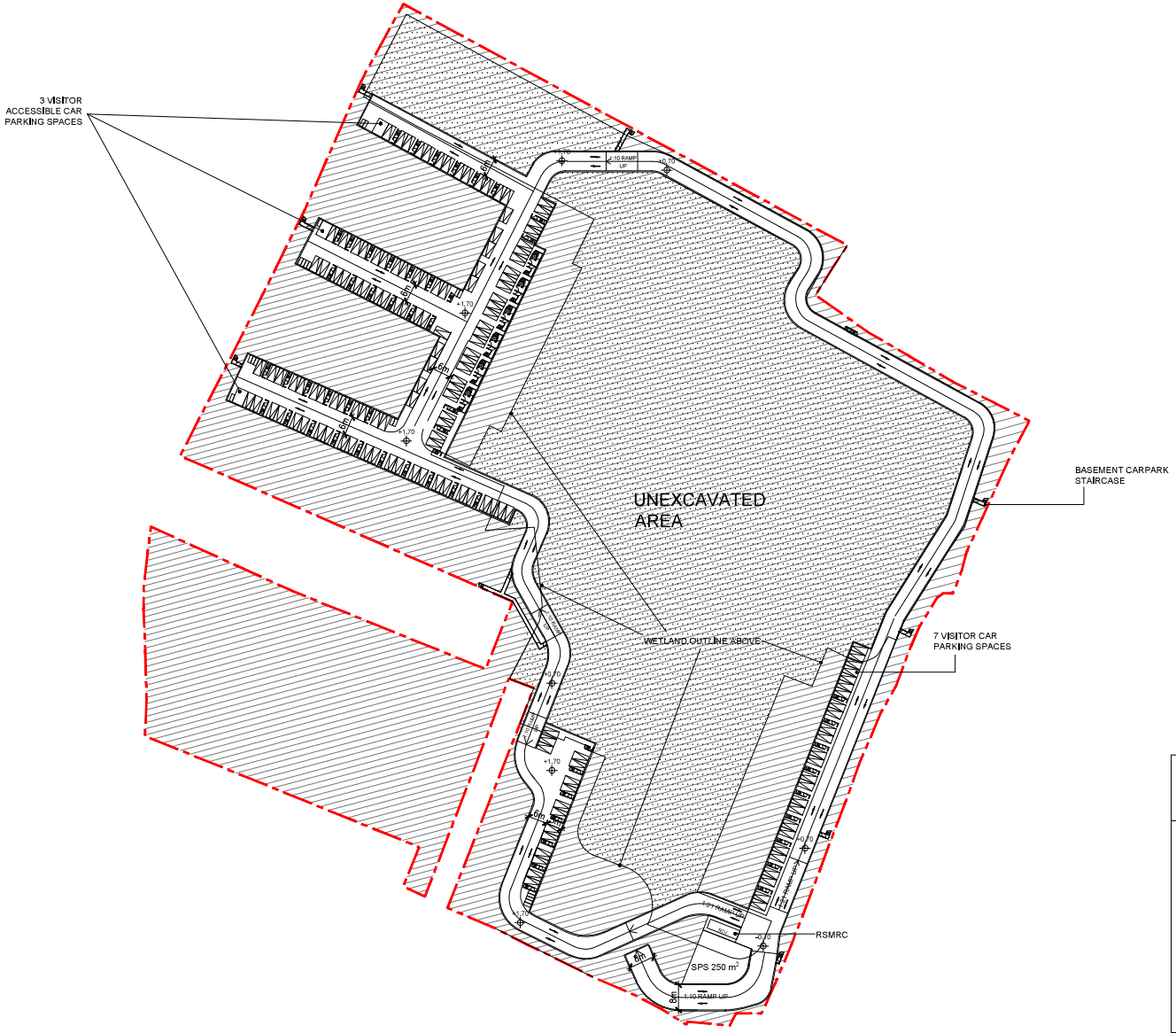
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT



NUMBER OF PRIVATE CAR PARKING SPACES = 153 (BASEMENT) + 50 (G/F)
NUMBER OF VISITOR CAR PARKING SPACES = 7 + 3 (ACCESSIBLE PARKING)

DEVELOPMENT SCHEDULE	INTERNAL TRANSPORT FACILITIES	USE	HKPSG / LEASE REQUIREMENT MIN.	MAX.
RESIDENTIAL	PRIVATE CAR PARKING SPACES	PRIVATE HOUSING		
- TOTAL GFA : 20,427 M^2		*(i) RESIDENTIAL UNITS FLAT SIZE BETWEEN 130-160 M^2*	28	49
- ACTUAL PLOT RATIO : 0.40		*(ii) RESIDENTIAL UNITS FLAT SIZE OVER 160 M^2*	82	144
- TOTAL NO. OF UNITS : 90		SUB-TOTAL	110	193
(i) FLAT SIZE BETWEEN 130 160 M^2 : 27 NOS. *(ii) FLAT SIZE OVER 160 M^2 : 63 NOS.*		REQUIRED ACCESSIBLE CAR PARKING SPACES	2	3
- NO. OF HOUSES : 90		VISITOR		
ASSUMING ONE HOUSE FOR EVERY FLAT		HOUSES	0	
		SUB-TOTAL	0	
		TOTAL	110	193
	MOTORCYCLE PARKING SPACES	TOTAL	1	2
	LOADING / UNLOADING BAY	TOTAL	2	

NUMBER OF PRIVATE CAR PARKING SPACES ON G/F: 50

WETLAND AREA ABOVE

UNEXCAVATED AREA

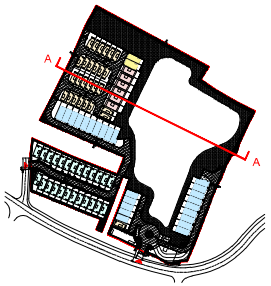
Figure 22c

ARCHITECT: ATELIER GLOBAL LIMITED

PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.

DRAWING TITLE: BASEMENT LAYOUT PLAN

0 10 20 40 m 1:1500 @ A3



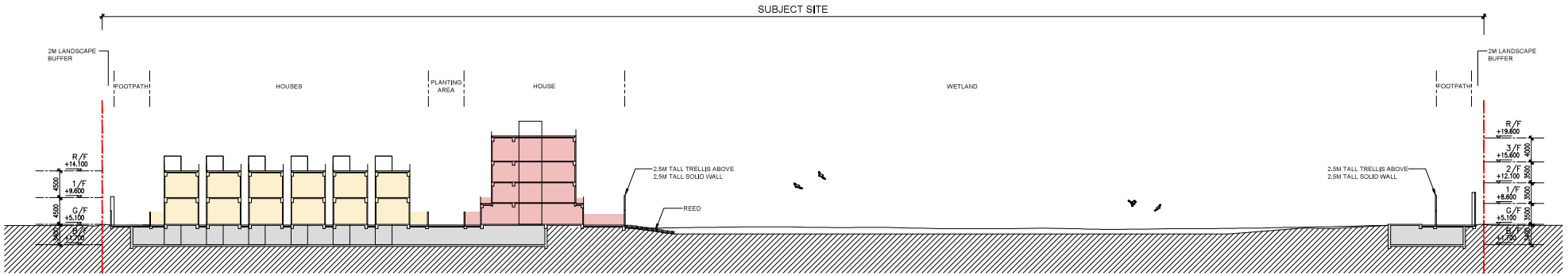
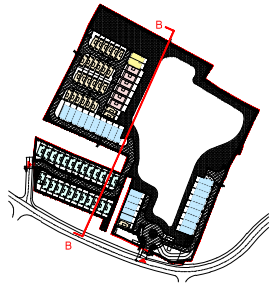


Figure 23a

ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT KAM POK ROAD EAST, NAM SANG WAI, N.T.	SECTION A-A	0 5 10 20 m 1:700 @ A3



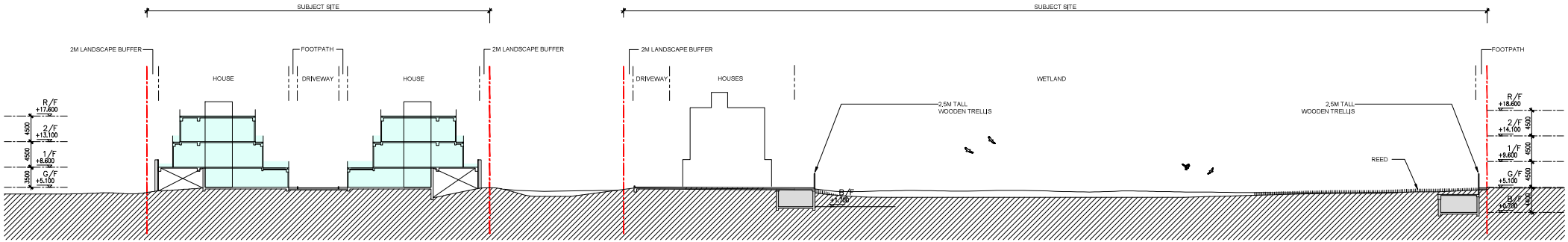
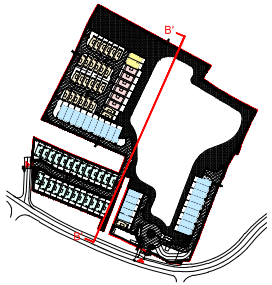


Figure 24a

ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT KAM POK ROAD EAST, NAM SANG WAI, N.T.	SECTION B-B	0 5 10 20 m 1:700 @ A3



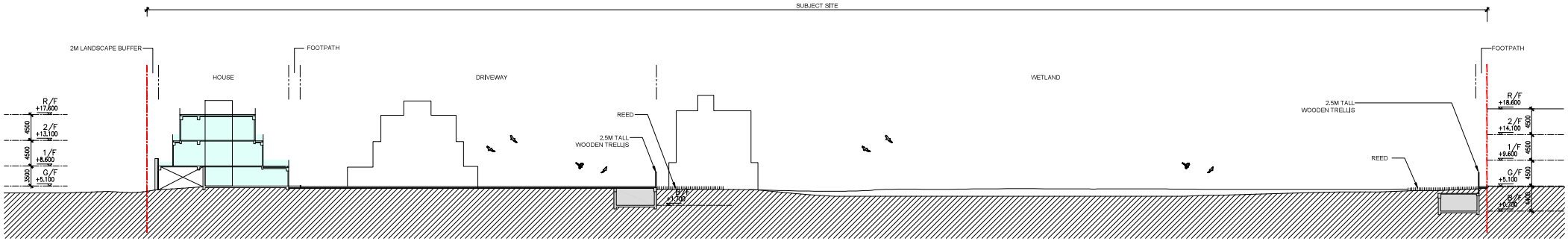
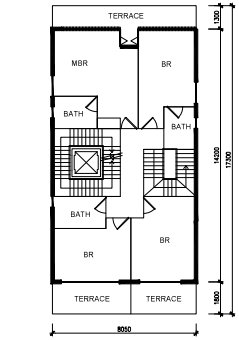


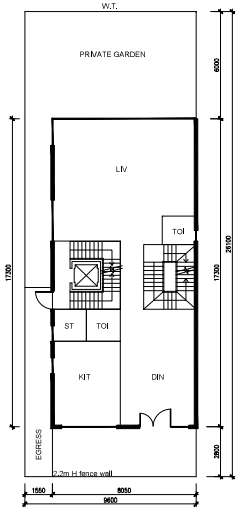
Figure 25a

ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT KAM POK ROAD EAST, NAM SANG WAI, N.T.	SECTION B'-B'	0 5 10 20 m 1:700 @ A3

UNIT A-Lower

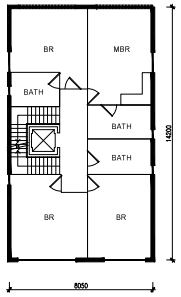


1/F

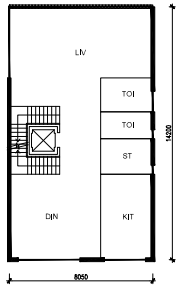


G/F

UNIT A-Upper

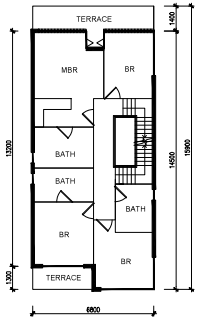


3/F
(upper level)

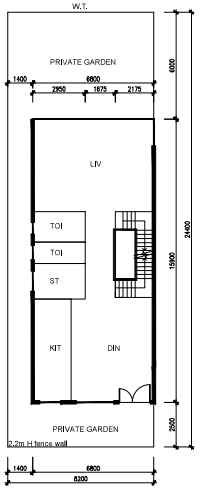


2/F
(lower level)

UNIT B

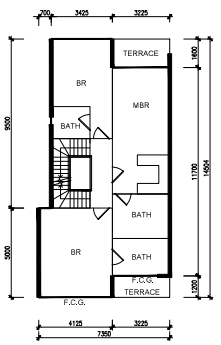


1/F & 2/F

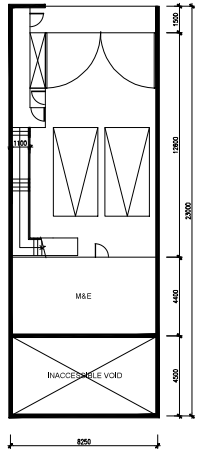


G/F

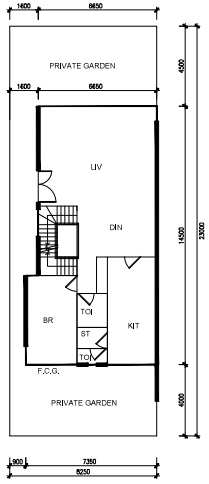
UNIT C



2/F

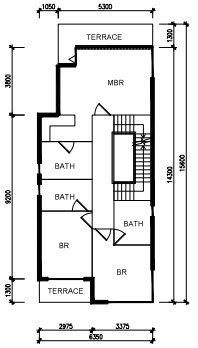


G/F

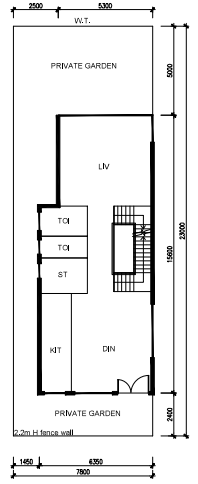


1/F

UNIT D

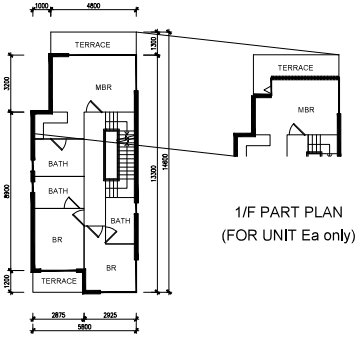


1/F



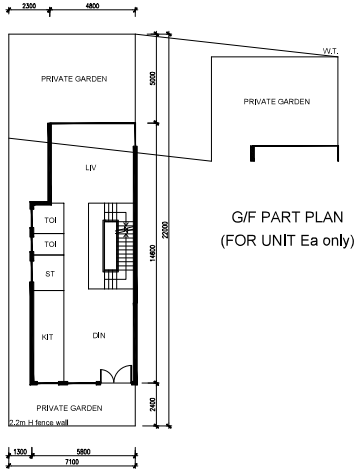
G/F

UNIT E



1/F PART PLAN
(FOR UNIT Ea only)

1/F



G/F PART PLAN
(FOR UNIT Ea only)

G/F

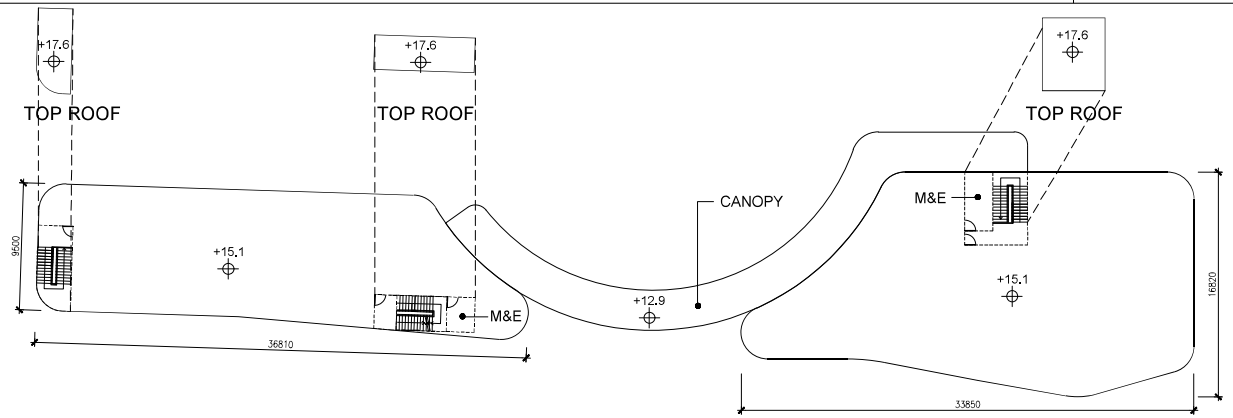
Figure 26a

INDICATIVE HOUSE LAYOUT DIAGRAM

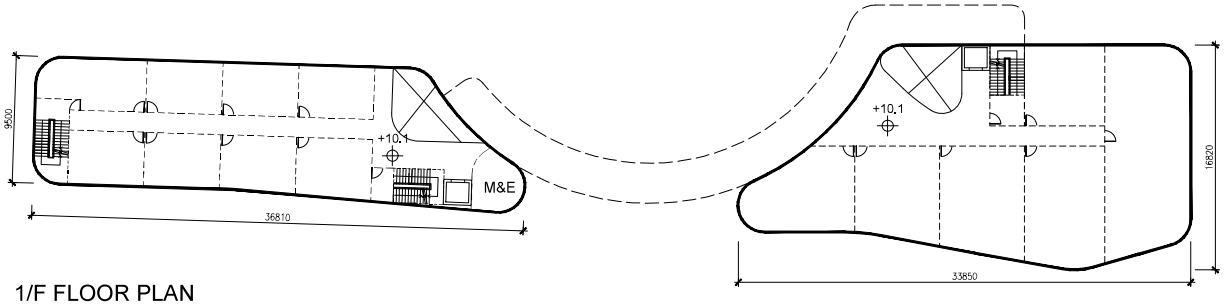
0 2 4 8
m 1:300 @ A3

LEGENDS

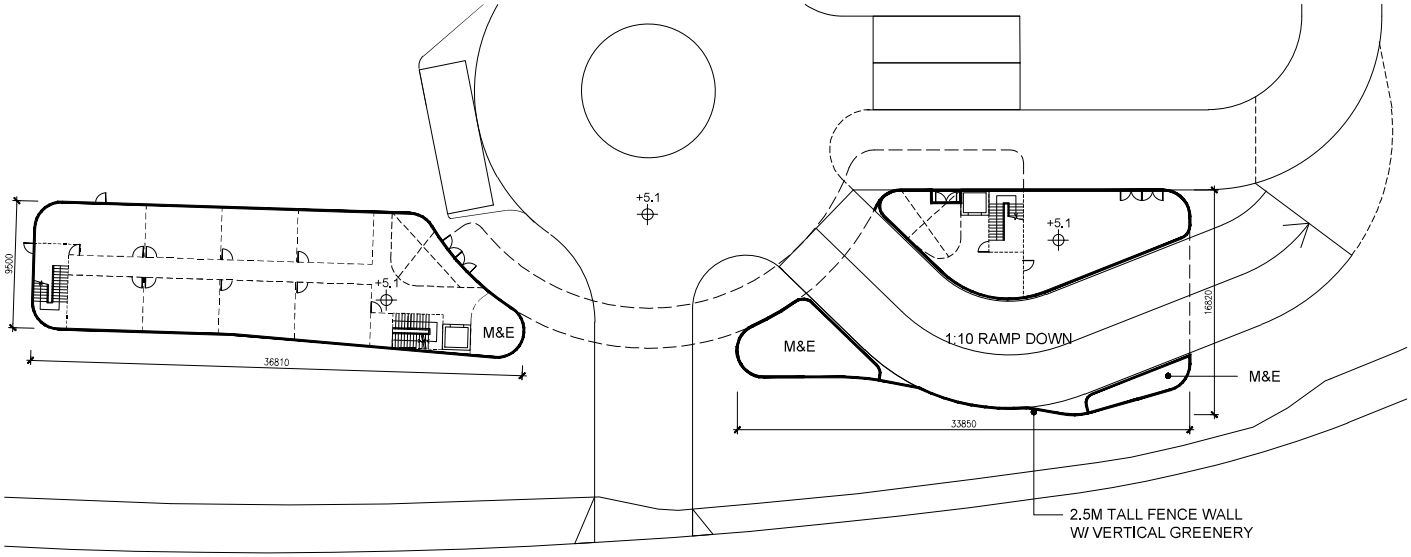
F.C.G. FIXED CLEAR GLAZING
FIXED CLEAR GLAZING FOR BIRD-HIDE PURPOSE
W.T. 2.5M TALL WOODEN TRELLIS ABOVE 2.5M TALL SOLID WALL



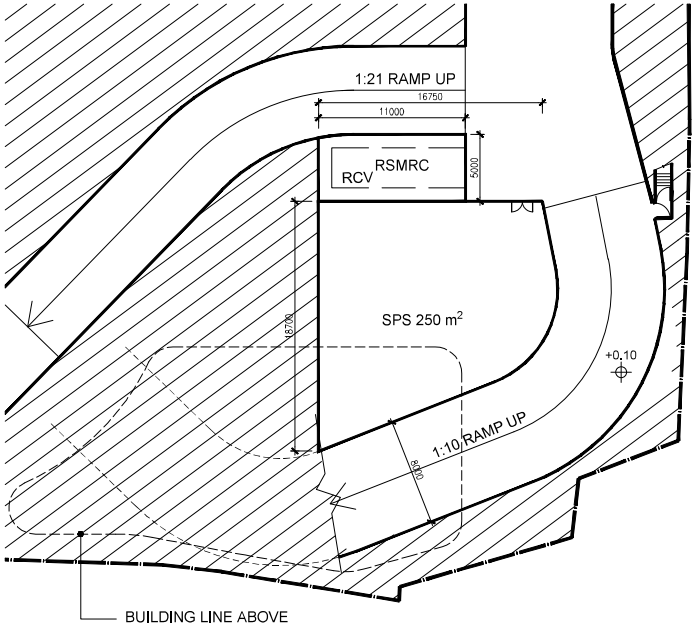
ROOF PLAN



1/F FLOOR PLAN



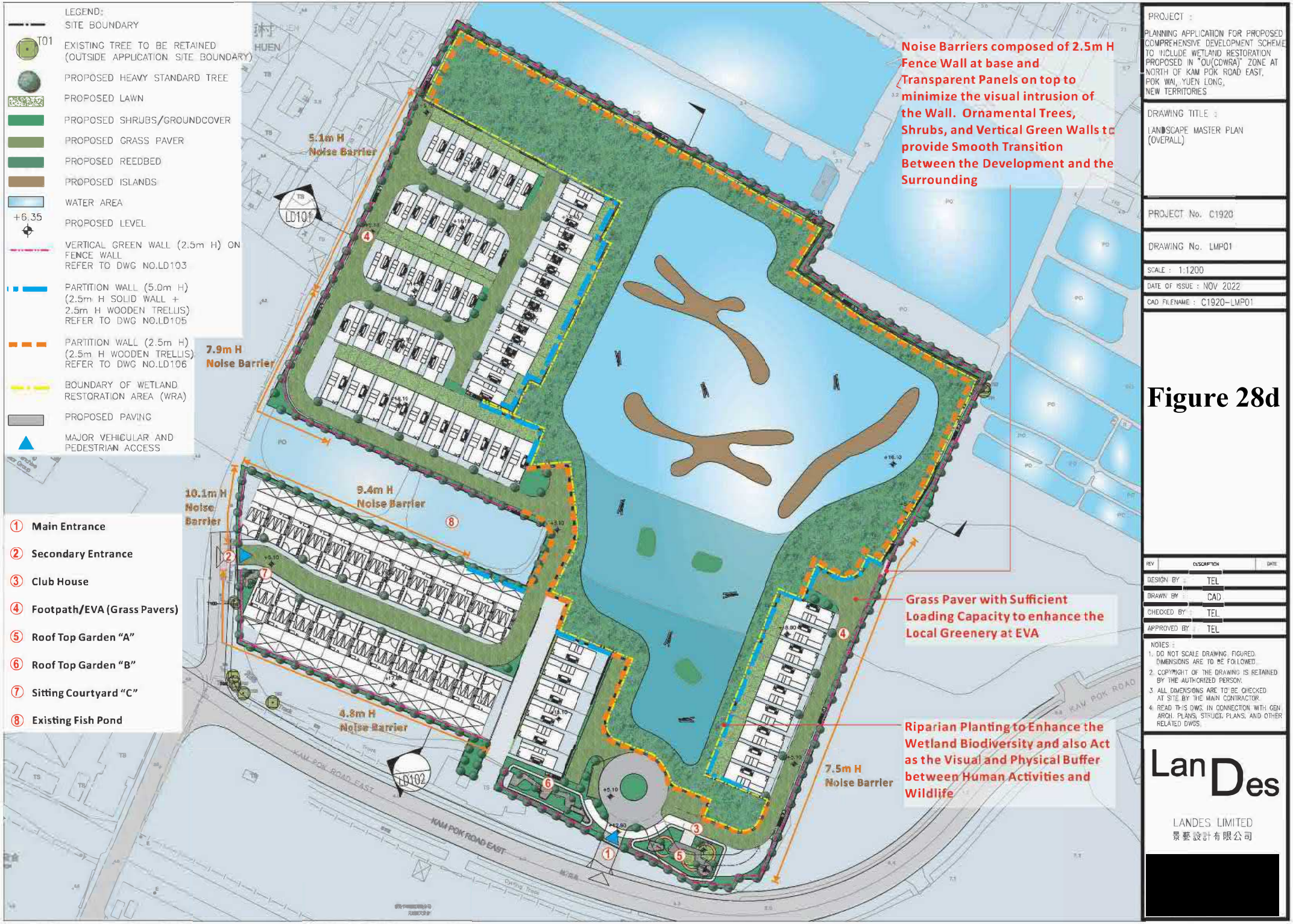
G/F FLOOR PLAN



B/F FLOOR PLAN

Figure 27a

ARCHITECT	PROJECT TITLE	DRAWING TITLE	
ATELIER GLOBAL LIMITED	PROPOSED RESIDENTIAL DEVELOPMENT AT KAM POK ROAD EAST, NAM SANG WAI, N.T.	INDICATIVE CLUBHOUSE LAYOUT DIAGRAM	0 2 4 8 m 1:400 @ A3



PROJECT :

PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

LANDSCAPE MASTER PLAN (OVERALL)

PROJECT No. C1920

DRAWING No. LMP01

SCALE : 1:1200

DATE OF ISSUE : NOV 2022

CAD FILENAME : C1920-LMP01

Figure 28d

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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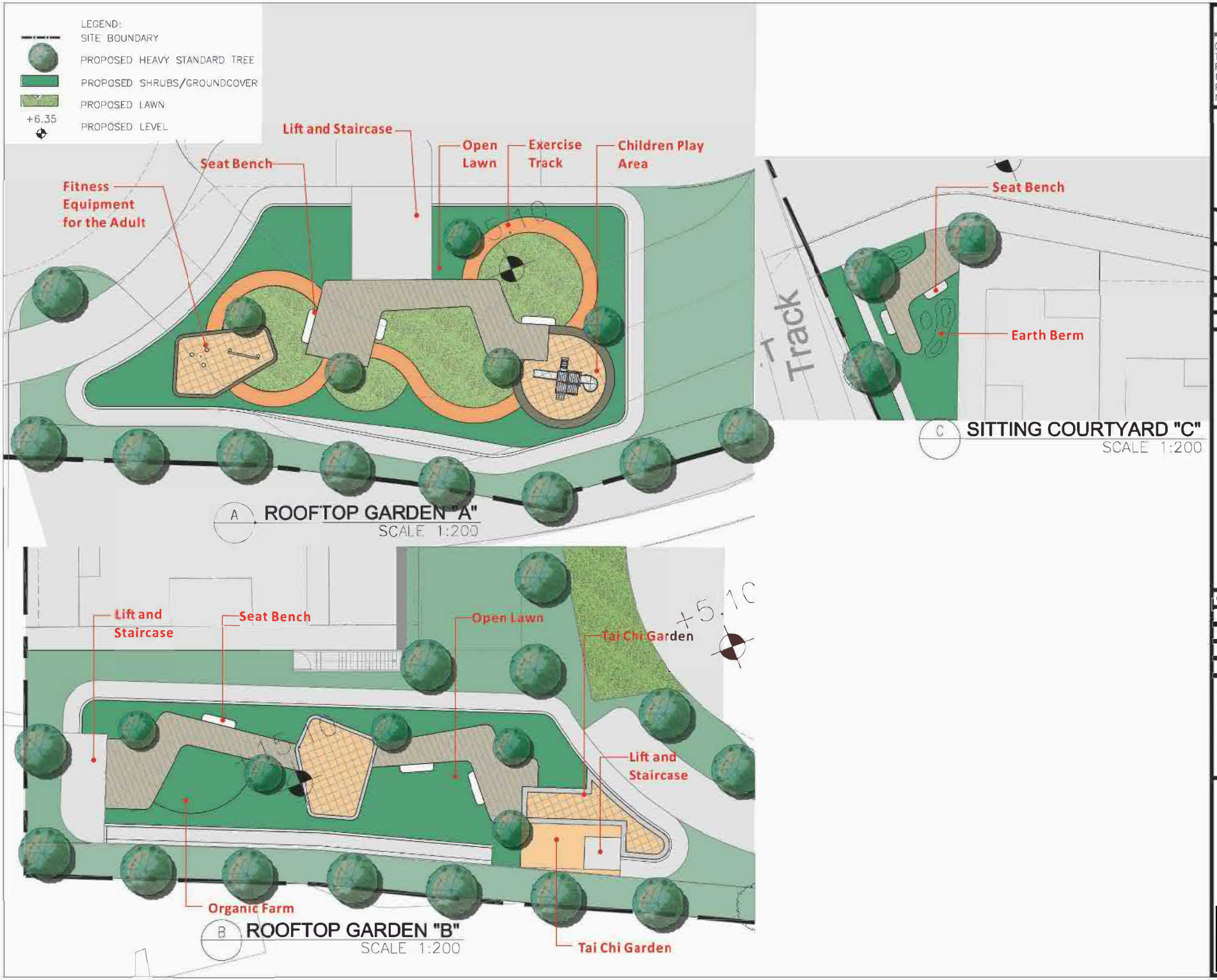
[redacted]



PROJECT :

PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM PÖK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

LANDSCAPE MASTER PLAN (COMMUNAL OPEN SPACE)

PROJECT No. C1920

DRAWING No. LMP06

SCALE : 1:200

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LMP06

Figure 29a

REV	DESCRIPTION	DATE
DESIGN BY	TEL	
DRAWN BY	CAD	
CHECKED BY	TEL	
APPROVED BY	TEL	

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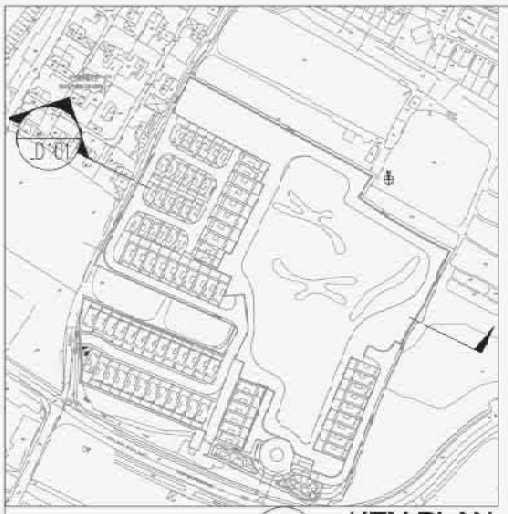
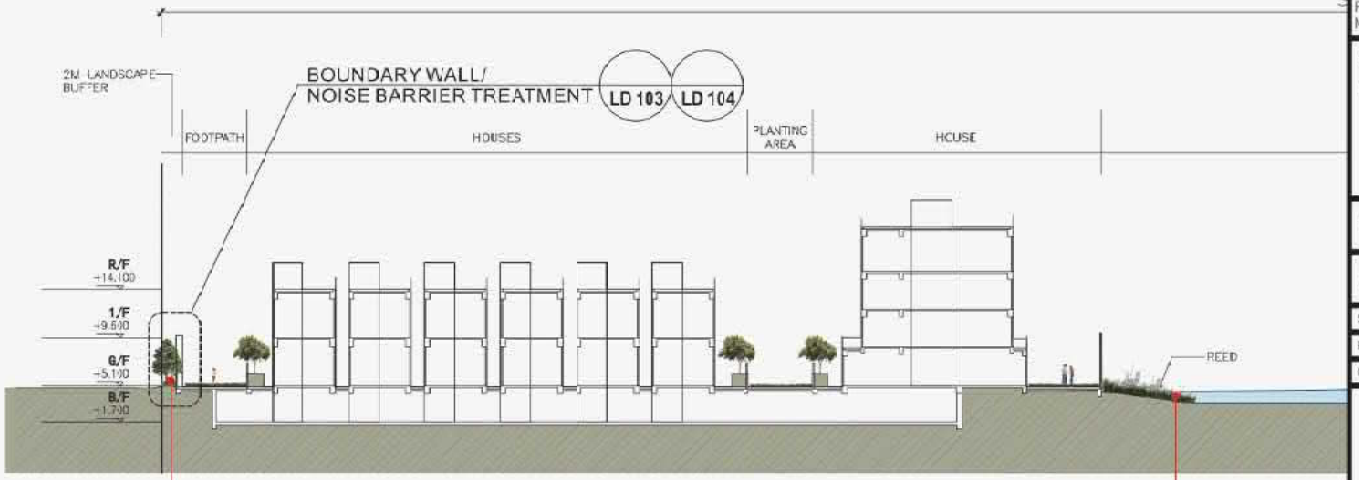
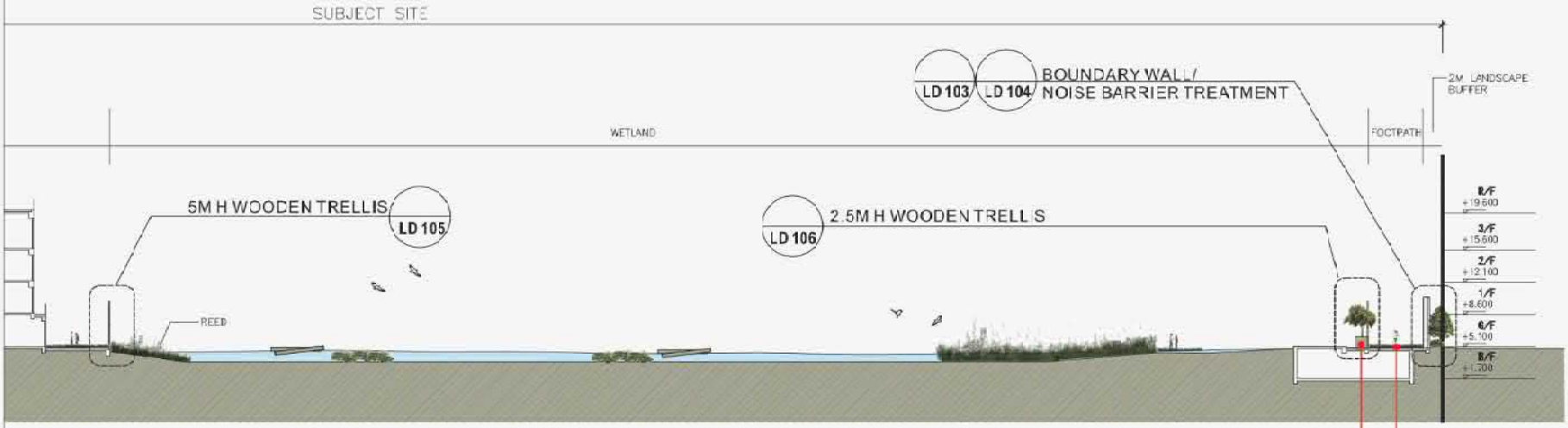


KEY PLAN
SCALE 1:4000



Provision of Ornamental Trees, Shrubs and Vertical Green Wall to Provide Smooth Transition Between the Development and Surroundings

Provision of Reedbed to Enhance the Biodiversity and Provide Visual and Physical Buffer between Human Activity and Wildlife



Provision of Heavy Standard Trees along the Internal Access to Provide Shade and Visual Amenity to the Occupants and Visitors

Provision of Grass Pavers at EVA to Enhance the Local Greenery

PROJECT :
PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
LANDSCAPE SECTION

PROJECT No. C1920

DRAWING No. LD101

SCALE : 1:500

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD101

Figure 30b

REV.	DESCRIPTION	DATE

DESIGN BY : TEL
DRAWN BY : CAD
CHECKED BY : TEL
APPROVED BY : TEL

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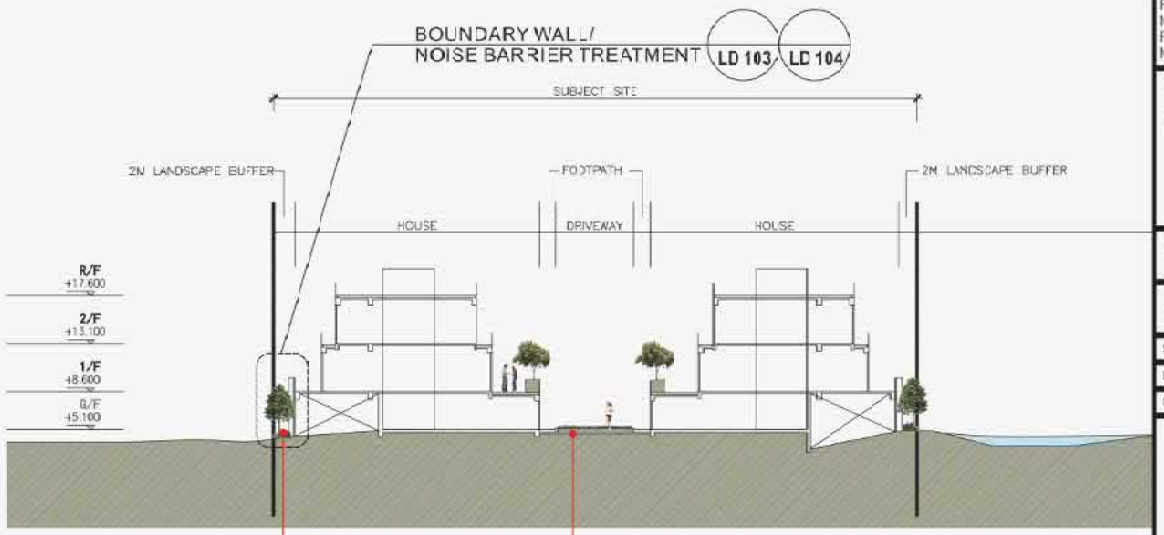
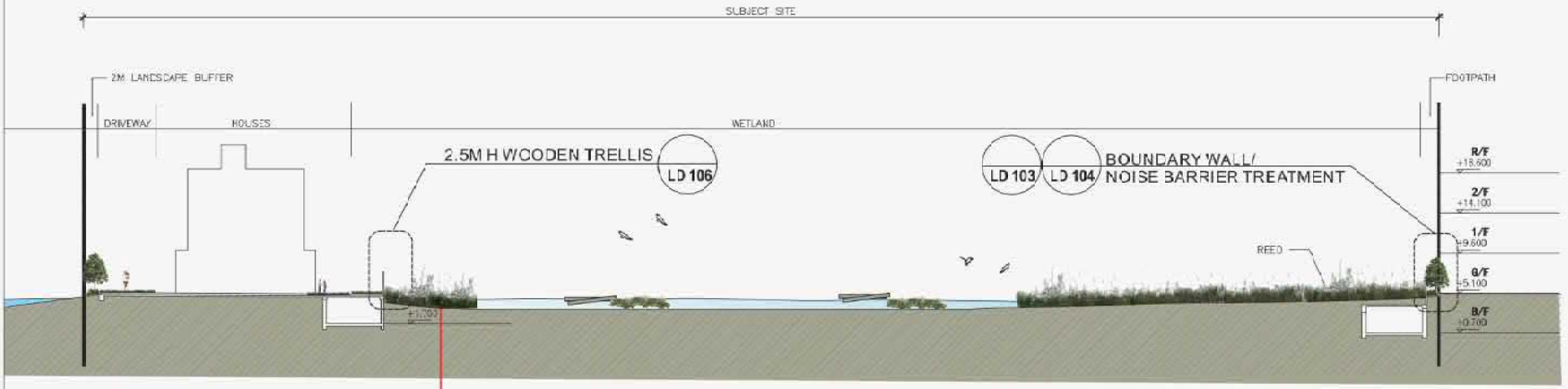
KEY PLAN
SCALE 1:4000



Provision of Ornamental Trees, Shrubs and Vertical Green Wall to Provide Smooth Transition Between the Development and Surroundings

Provision of Grass Pavers at EVA to Enhance the Local Greenery



Provision of Reedbed to Enhance the Biodiversity and Provice Visual and Physical Buffer between Human Activity and Wildlife

PROJECT :

PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OL(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

LANDSCAPE SECTION

PROJECT No. C1920

DRAWING No. LD102

SCALE : 1:500

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD102

Figure 31b

REV	DESCRIPTION	DATE

DESIGN BY : TEL
DRAWN BY : CAD
CHECKED BY : TEL
APPROVED BY : TEL

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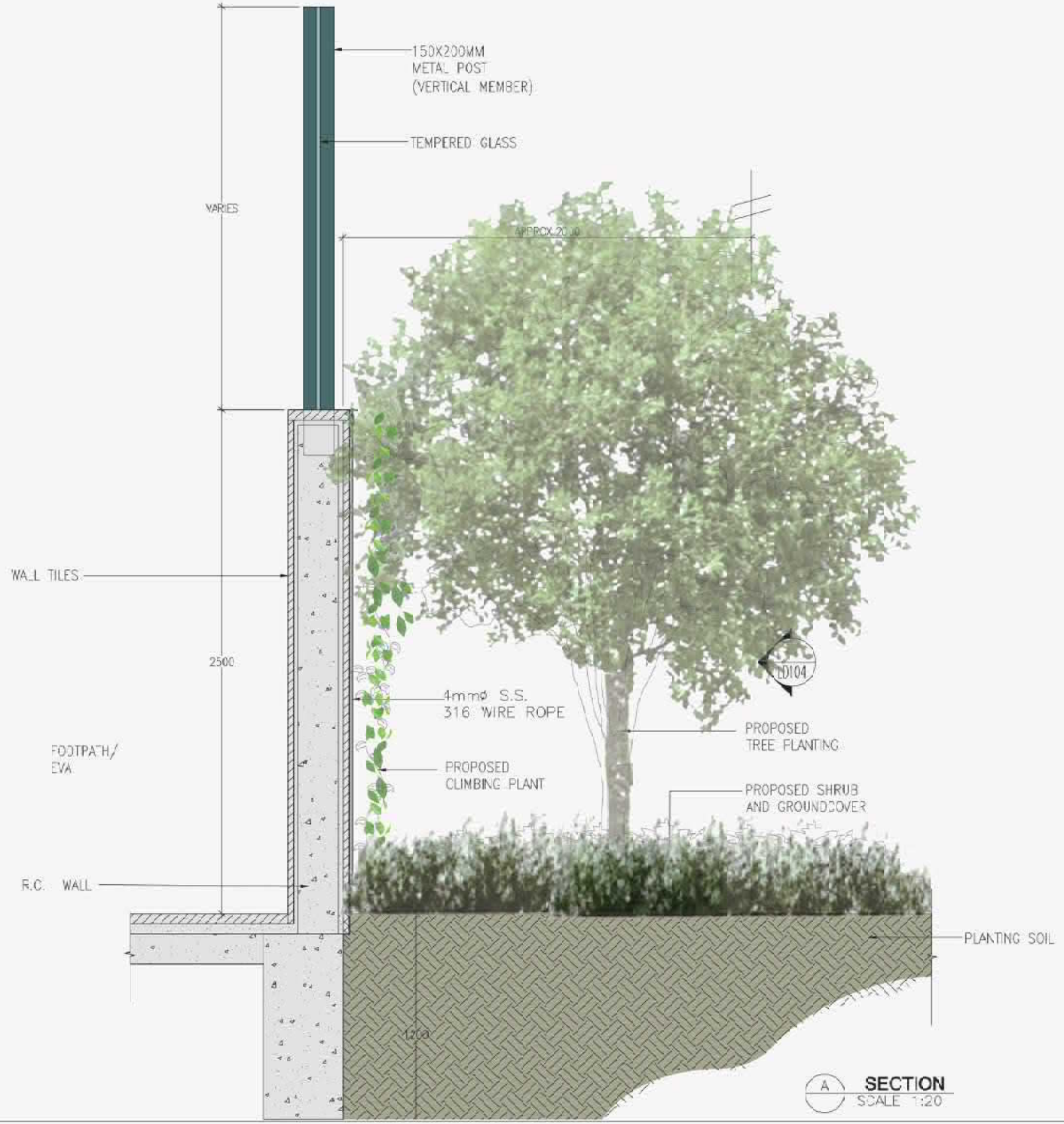

PROJECT :

PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

BOUNDARY WALL/ NOISE BARRIER DETAILS

PROJECT No. C1920

DRAWING No. LD103

SCALE : 1:20

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD103

Figure 32

REV.	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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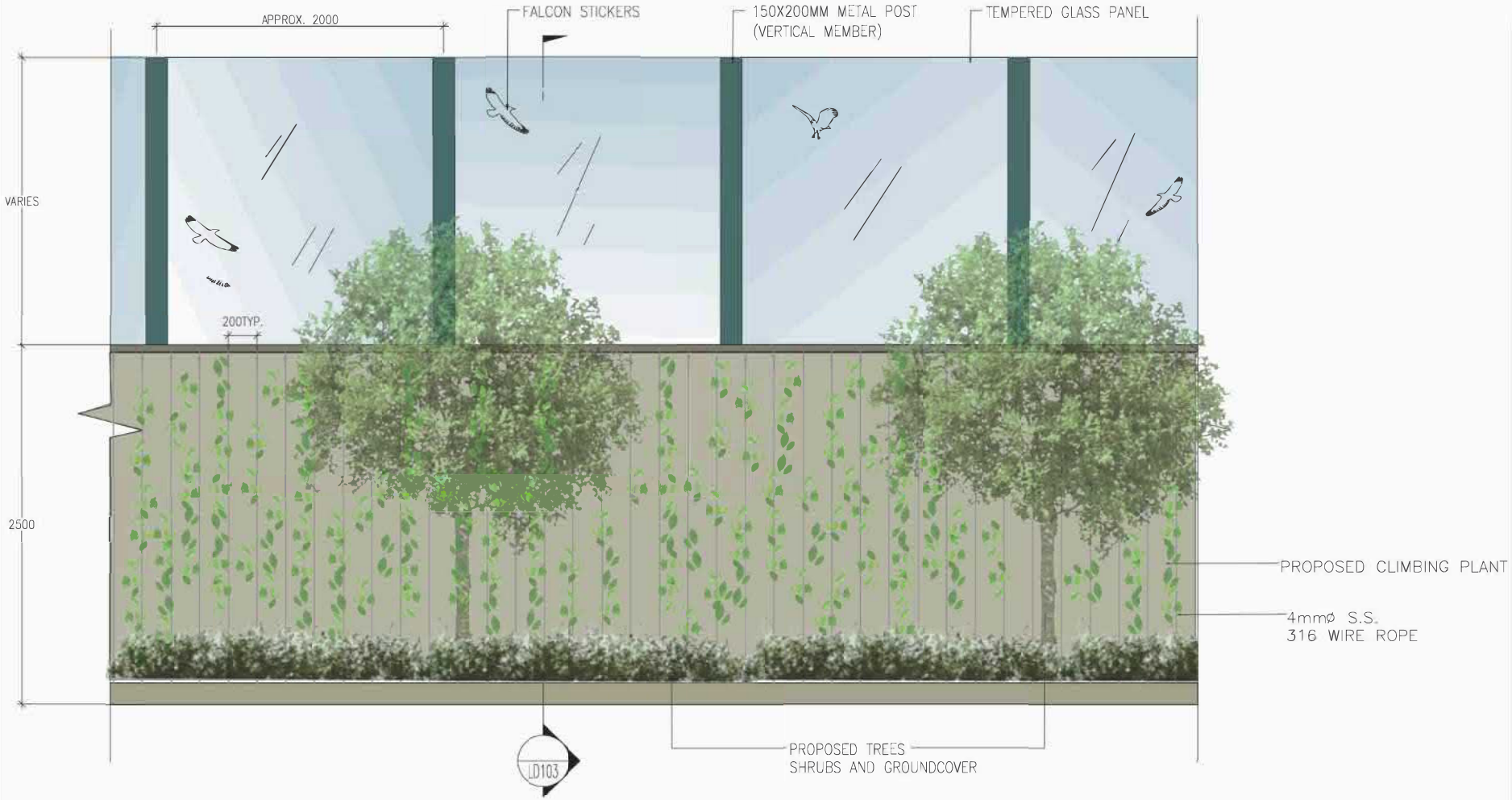

A TYPICAL ELEVATION OF VERTICAL GREEN WALL
SCALE 1:30

B REFERENCE IMAGES OF WIRE ROPE N.T.S.

PROJECT :
PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
VERTICAL GREEN WALL DETAILS

PROJECT No. C1920

DRAWING No. LD104

SCALE : 1:30

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD104

Figure 33

REV	DESCRIPTION	DATE

DESIGN BY : TEL
DRAWN BY : CAD
CHECKED BY : TEL
APPROVED BY : TEL

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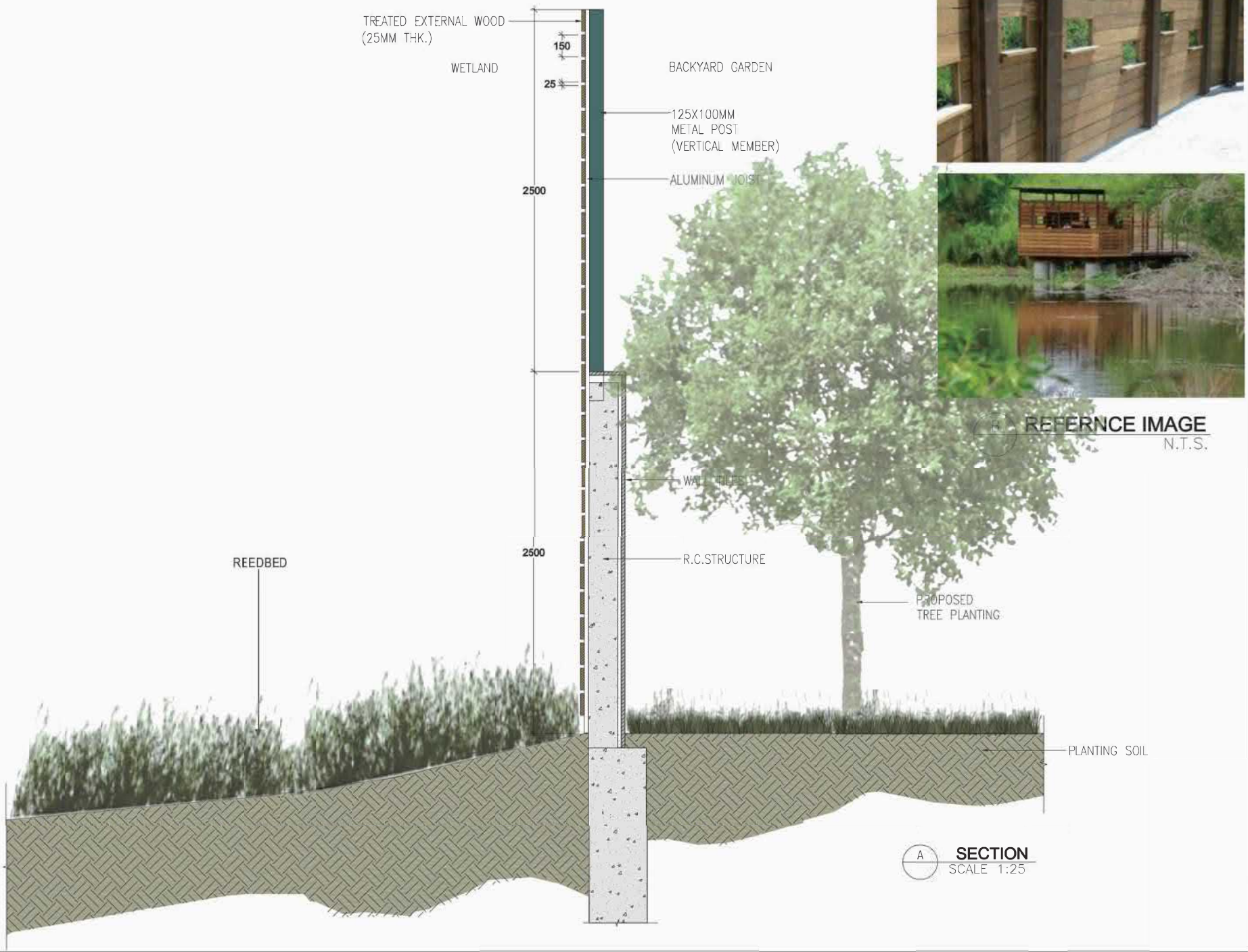

REFERNCE IMAGE
N.T.S.

A SECTION
SCALE 1:25

PROJECT :

PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

WOODEN FENCE WALL @ BACKYARD GARDEN

PROJECT No. C1920

DRAWING No. LD105

SCALE : 1:20

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD105

Figure 34

REV	DESCRIPTION	DATE

DESIGN BY : TEL
DRAWN BY : CAD
CHECKED BY : TEL
APPROVED BY : TEL

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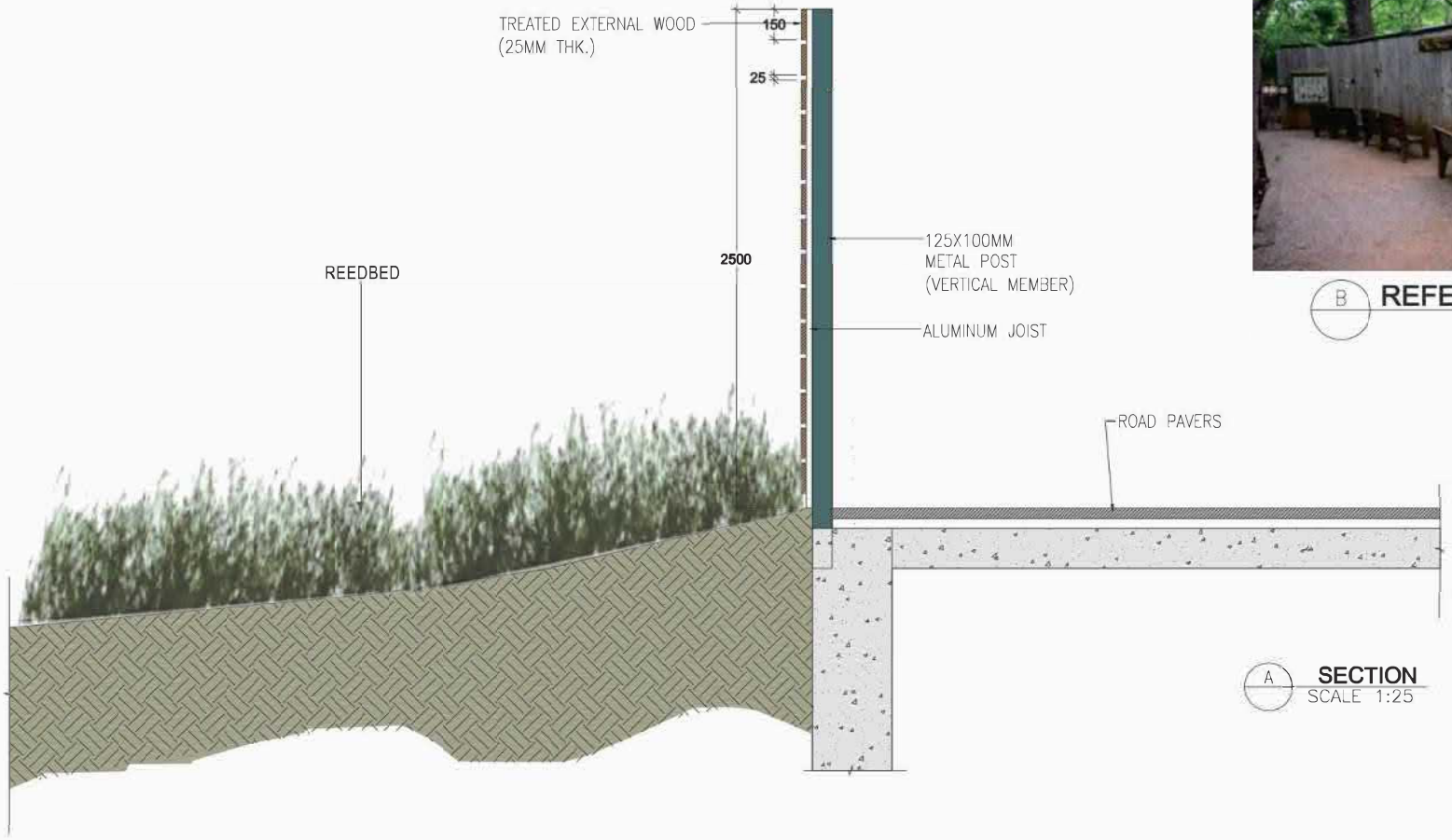
[redacted]

B REFERNCE IMAGE
N.T.S.



A SECTION
SCALE 1:25

PROJECT :
PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSED IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WA, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
WOODEN FENCE WALL ALONG THE ROAD

PROJECT No. C1920

DRAWING No. LD106

SCALE : 1:20

DATE OF ISSUE : MAR 2020

CAD FILENAME : C1920-LD106

Figure 35

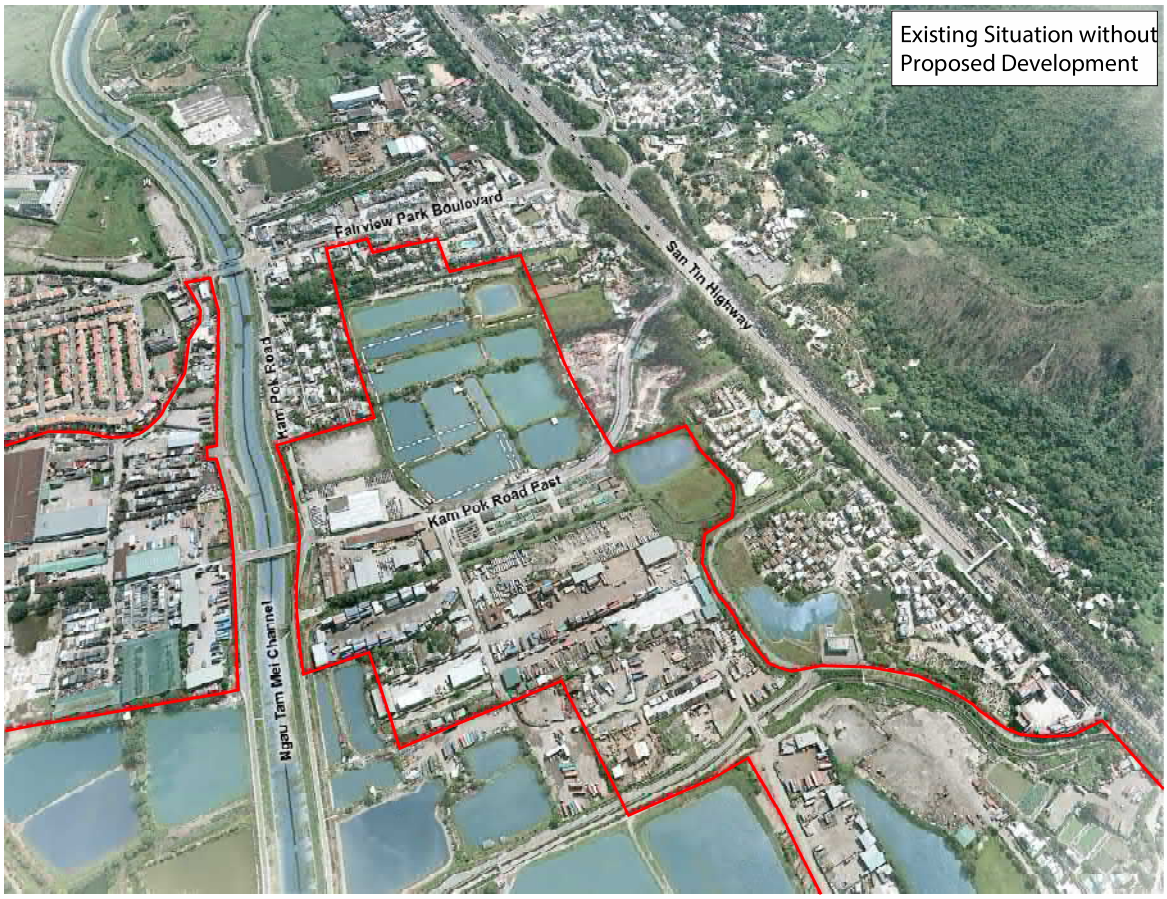
REV	DESCRIPTION	DATE

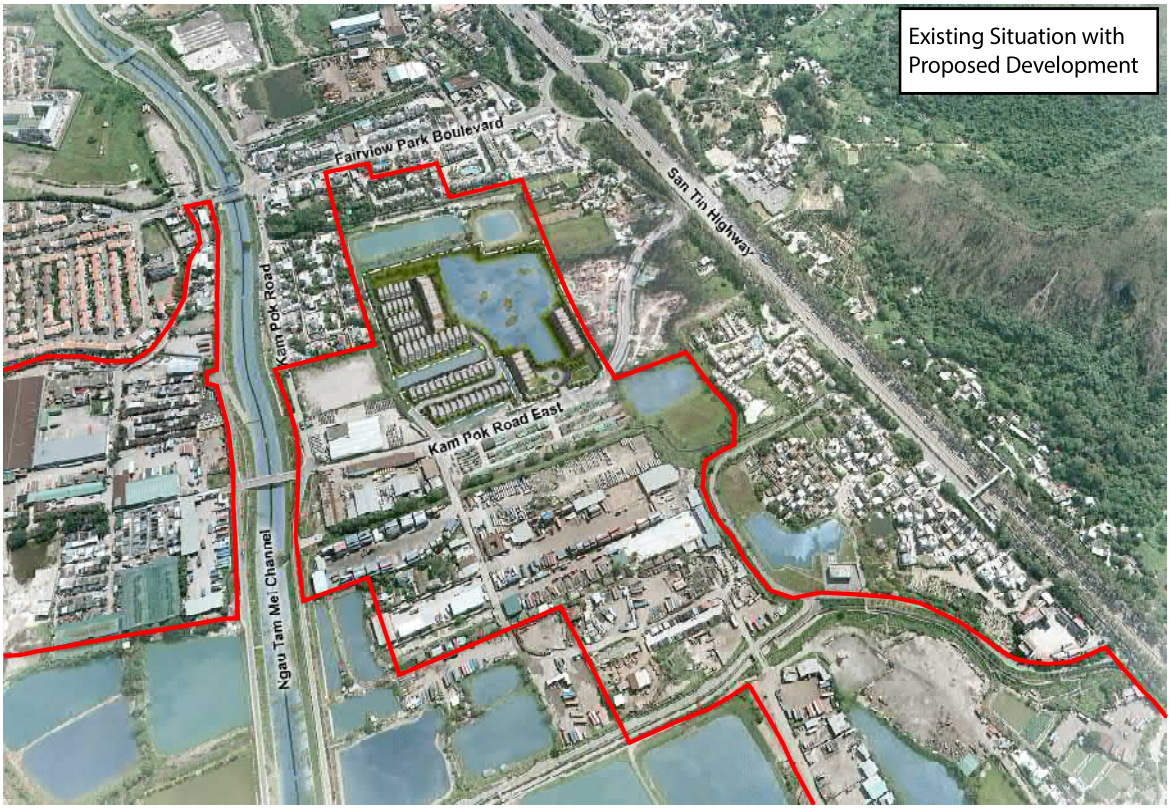
DESIGN BY : TEL
DRAWN BY : CAD
CHECKED BY : TEL
APPROVED BY : TEL

NOTES :
1. DO NOT SCALE DRAWING. FIGURED DIMENSIONS ARE TO BE FOLLOWED.
2. COPYRIGHT OF THE DRAWING IS RETAINED BY THE AUTHORIZED PERSON.
3. ALL DIMENSIONS ARE TO BE CHECKED AT SITE BY THE MAIN CONTRACTOR.
4. READ THIS DWG. IN CONNECTION WITH GEN. ARCH. PLANS, STRUCT. PLANS, AND OTHER RELATED DWGS.

LanDes
LANDES LIMITED
景藝設計有限公司

[redacted]





Legend

Application Site

"OU(CDWRA)" Zone

Indicative Bird's Eye View of the Proposed Development

(Aerial Photo No. CW76275 taken on 5 June 2007)

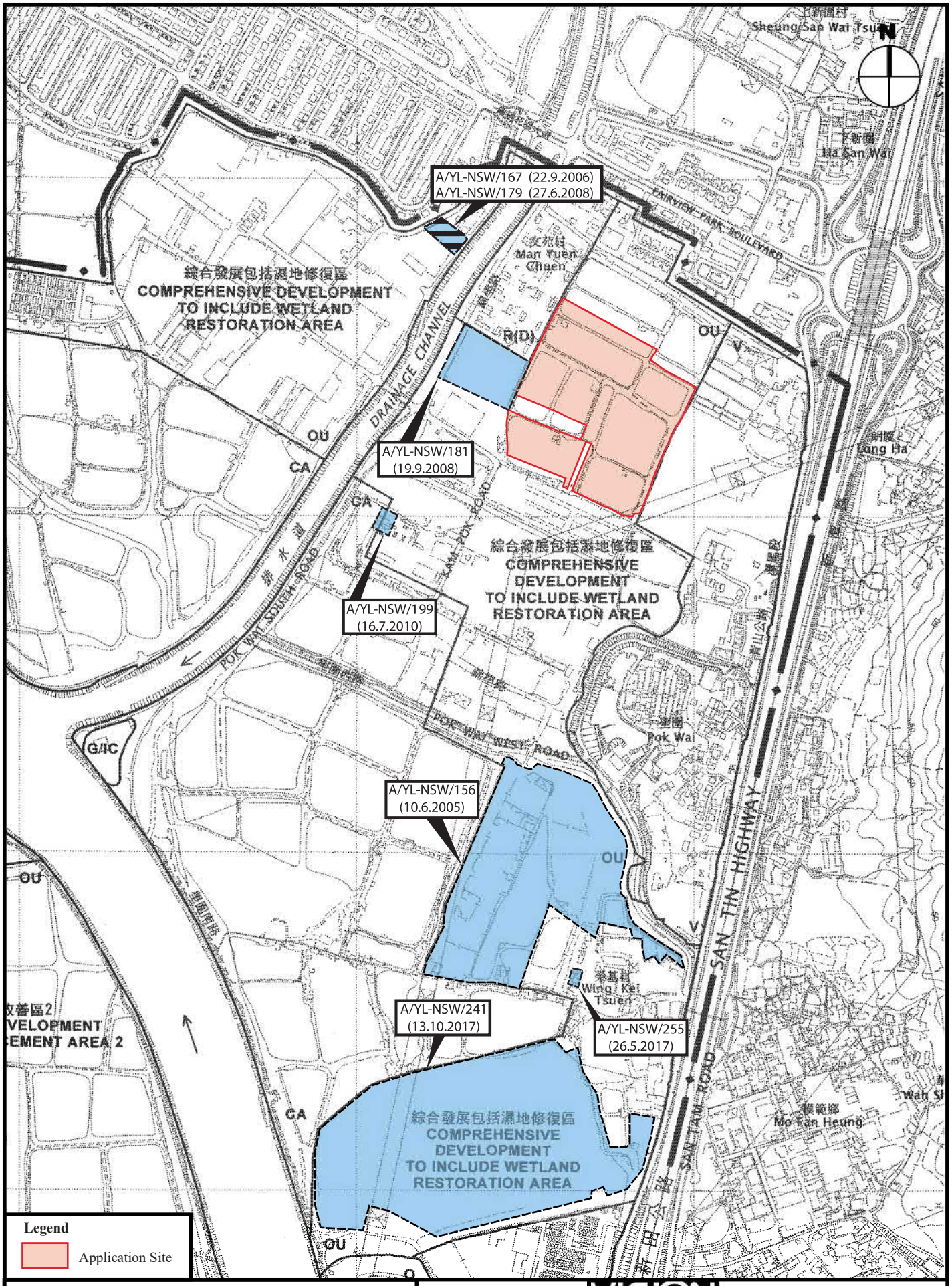
Figure 36a

VISION

弘域城市規劃顧問有限公司

VISION PLANNING CONSULTANTS LTD.

[redacted]



Similar Applications around Application Site

(Extracted from the Approved Nam Sang Wai Outline Zoning Plan No. S/YL-NSW/8)

Figure 37

1: 7 500

VISION
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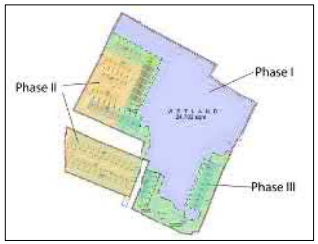
LEGEND
Excavation of Land
Filling of Pond / Land



SCHEMATIC PHASING DIAGRAM

Figure 38a

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	(sqft)	NUMBER OF UNITS	GFA (sqm)
A-UPPER	229	2,465	6	1,374
A-LOWER	246	2,648	6	1,476
B	334	3,595	24	8,016
C	196	2,110	25	4,900
D	184	1,981	2	368
E	159	1,711	27	4,293
			TOTAL : 90	20,427

WETLAND AREA (PHASE I DEVELOPMENT)	:	24,702 sqm (48.37% OF SITE AREA)

COMMON GREENERY AREA BREAKDOWN

• UNCOVERED HORIZONTAL PA	:	2,986 sqm
• REED ZONE	:	9,083 sqm
• GRASS PAVER	:	5,458 x 0.5 = 2,729 sqm
• VERTICAL GREENERY (ASSUME HEIGHT OF 2.5M)	:	992m x 2.5m = 2,480 sqm
TOTAL	:	17,278 sqm (33.83% OF SITE AREA)

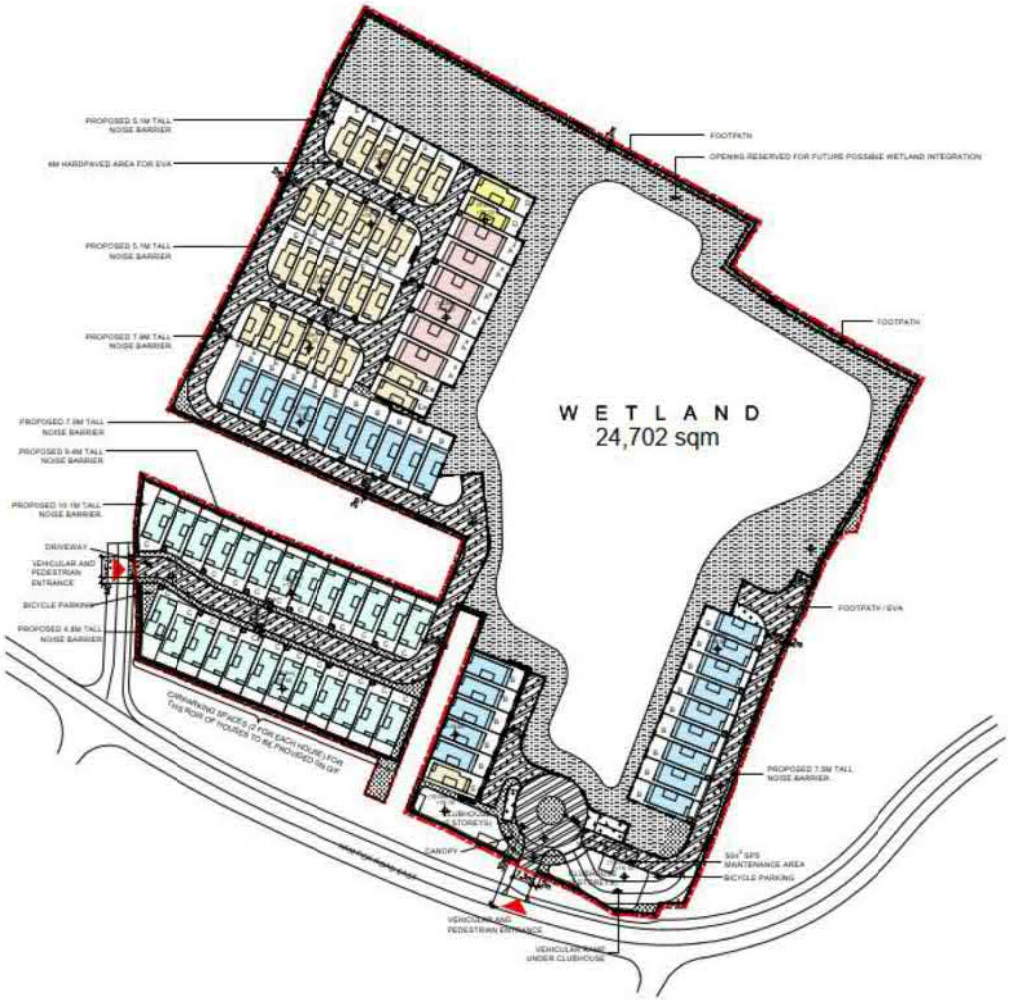
2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL
2.5M TALL WOODEN TRELLIS
TREE PIT AT PRIVATE GARDEN
EVA

LIST OF HOUSING UNITS

A#(DUPLEX)	B	C	D	E & Ea*
Includes A-UPPER & A-LOWER				*Units with fixed clear glazing for bird-hide purpose
4 STOREYS + BASEMENT (BLDG HEIGHT: 14.5M ABOVE GROUND)	3 STOREYS + BASEMENT (BLDG HEIGHT: 13.5M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

ARCHITECT: ATELIER GLOBAL LIMITED
PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.
DRAWING TITLE: MASTER LAYOUT PLAN
0 10 20 40 m
1:1500 @ A3

A/YL-NSW/314



LIST OF HOUSING UNITS				
A*(DUPLEX) Includes A-UPPER & A-LOWER	B	C	D	E & Ea* *Units with fixed clear glazing for bird-hide purpose
4 STOREYS + BASEMENT (BLDG HEIGHT: 14.5M ABOVE GROUND)	3 STOREYS + BASEMENT (BLDG HEIGHT: 13.5M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

Figure 39a

A/YL-NSW/290

WETLAND AREA : 20,200.70 sqm (39.55% OF SITE AREA)

LIST OF HOUSING UNITS

A (DUPLEX)	B, Ba & Bb	C	D	E & Ea
4 STOREYS + BASEMENT (BLDG HEIGHT: 18M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE II DEVELOPMENT	PHASE II DEVELOPMENT	PHASE I DEVELOPMENT	PHASE II DEVELOPMENT	PHASE II DEVELOPMENT

wetland restoration area. The overall land-use proportion of these two development components is around 52:48, i.e. about 26,370m^2 (approximately 52%) being allocated for house development and about 24,700m^2 (approximately 48%) being planned for wetland habitat purposes.

3.2 The present proposed development is being formulated in a comprehensive development scheme approach. There is a total of 90 private housing units with building heights ranged from 2 storeys to 4 storeys (**Plans 3d – 7b**). As shown in **Plan 3d**, a row of six 4-storey (above ground level) housing blocks is planned to be centralised at the middle of the Subject Site surrounding by 2- and 3-storey houses with a view to keep away from the existing open storage activities to its west. The remaining 2- and 3-storeys housing blocks will be located in the south-western and eastern sides of the Subject Site to allow adequate design flexibility for the proposed wetland area.

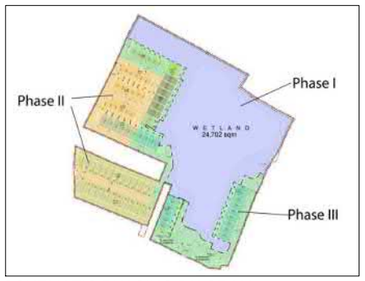
3.3 For provision of on-site carparking facilities, partly are planned in the form of carports for housing cluster at the southwestern side (**Plan 4d**) and partly are proposed at the basement level (**Plan 7b**). One 2-storey and one 3-storey (2-storey above ground with 1-storey basement) clubhouses are planned on the two sides of the main entrance point (**Plan 3d**).

3.4 Compared to the maximum permissible building height of 6 storeys including car park stipulated in the Notes of the OZP, the overall development profile of the proposed scheme by adopting 2- to 3-storey (above ground) houses surrounding a short row of 4-storey (above ground) houses represents the most compatible arrangement with its surrounding development settings in the area, in terms of visual effect.

4. SELECTION OF PUBLIC VIEWING POINTS

4.1 To assess the possible visual impact of the proposed development at this piece of wide flat land area of the Nam Sang Wai area, a total of 11 initial visually sensitive public viewing points ("**VPs**") were selected at the early assessment stage (i.e. 10 of them represent the local context and 1 for the district context) (**Plan 8c**). As the topography at this part of the Nam Sang Wai area is relatively flat and being surrounded by brownfield activities, it is rather difficult to locate any other meaningful public VPs in the local- or district-wide context.

4.2 However, after site inspections, only seven of them (i.e. VP2, VP4, VP5, VP6, VP9, VP10 and VP11) (**Plan 8c**) are considered appropriate for this VIA as the others cannot view the



SCHEMATIC PHASING DIAGRAM

Plan 3d

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	(sqft)	NUMBER OF UNITS	GFA (sqm)
A-UPPER	229	2,465	6	1,374
A-LOWER	246	2,648	6	1,476
B	334	3,595	24	8,016
C	196	2,110	25	4,900
D	184	1,981	2	368
E	159	1,711	27	4,293
			TOTAL : 90	20,427

WETLAND AREA (PHASE I DEVELOPMENT)	:	24,702 sqm (48.37% OF SITE AREA)

COMMON GREENERY AREA BREAKDOWN

• UNCOVERED HORIZONTAL PA	:	2,986 sqm
• REED ZONE	:	9,083 sqm
• GRASS PAVER	:	5,458 x 0.5 = 2,729 sqm
• VERTICAL GREENERY (ASSUME HEIGHT OF 2.5M)	:	992m x 2.5m = 2,480 sqm
TOTAL	:	17,278 sqm (33.83% OF SITE AREA)

2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

2.5M TALL WOODEN TRELLIS

TREE PIT AT PRIVATE GARDEN

EVA

LIST OF HOUSING UNITS

A# (DUPLEX)	B	C	D	E & Ea*
Includes A-UPPER & A-LOWER				*Units with fixed clear glazing for bird-hide purpose
4 STOREYS + BASEMENT (BLDG HEIGHT: 14.5M ABOVE GROUND)	3 STOREYS + BASEMENT (BLDG HEIGHT: 13.5M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

ARCHITECT: ATELIER GLOBAL LIMITED [redacted]

PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.

DRAWING TITLE: MASTER LAYOUT PLAN

0 10 20 40 m — 1:1500 @ A3

Plan 4d

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm
		CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	GFA / UNIT (sqft)	NUMBER OF UNITS	GFA (sqm)
A-UPPER	229	2,465	6	1,374
A-LOWER	246	2,648	6	1,476
B	334	3,595	24	8,016
C	196	2,110	25	4,900
D	184	1,981	2	368
E	159	1,711	27	4,293
			TOTAL : 90	20,427

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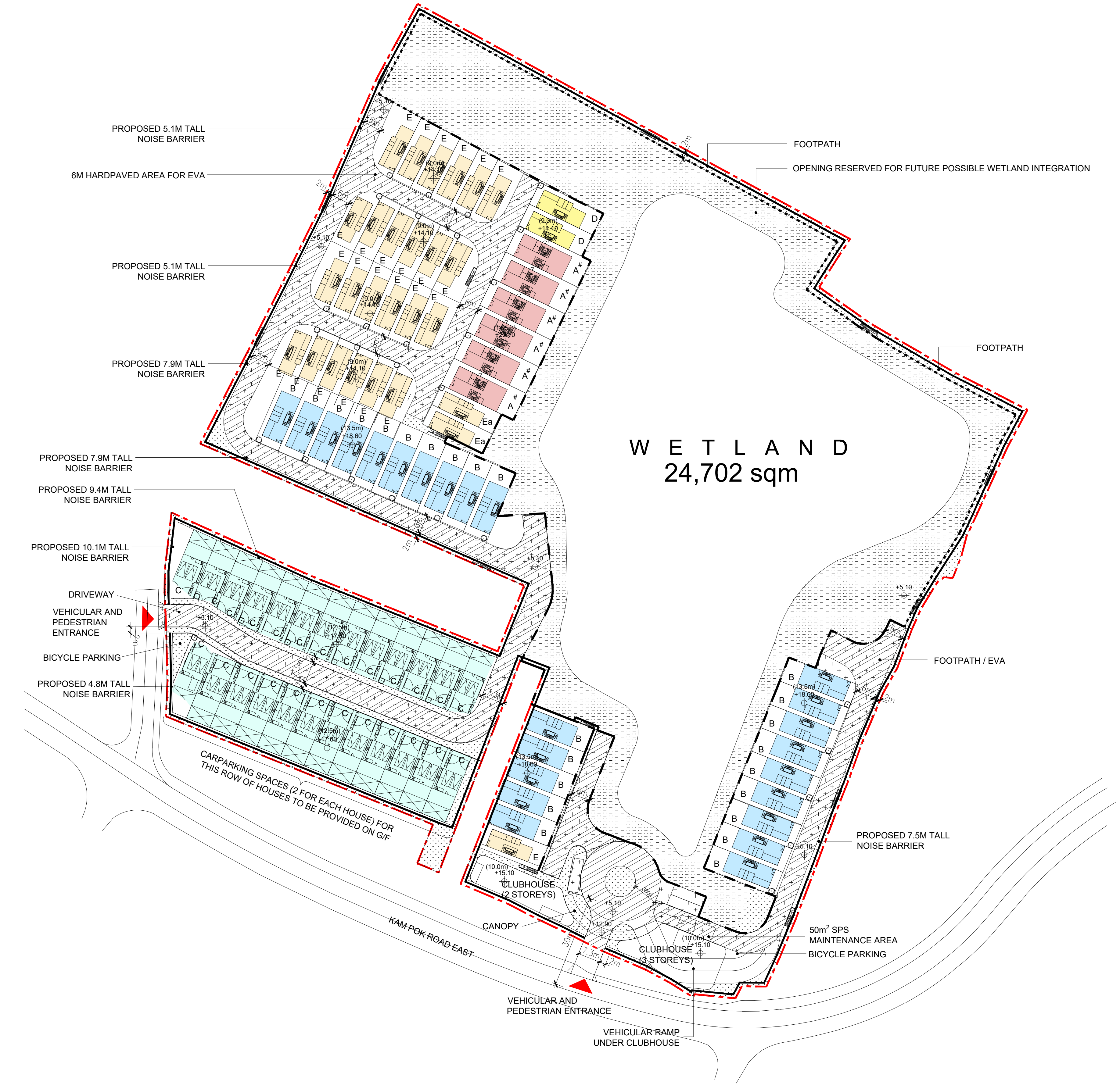
• VERTICAL GREENERY (ASSUME HEIGHT OF 2.5M)	:	992m x 2.5m = 2,480 sqm
TOTAL	:	17,278 sqm (33.83% OF SITE AREA)

2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

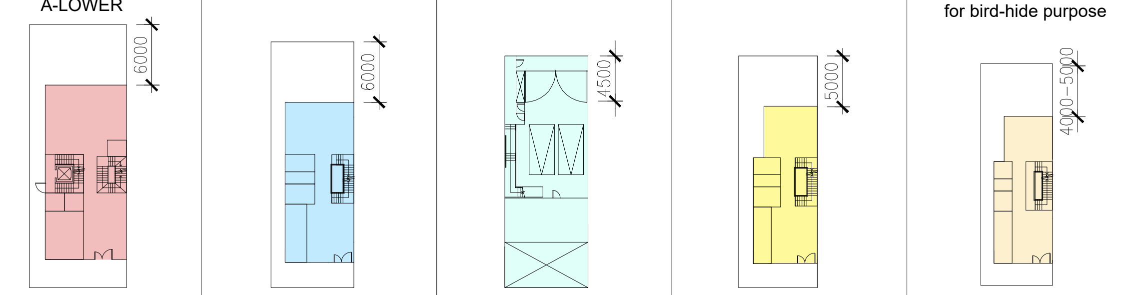
2.5M TALL WOODEN TRELLIS

TREE PIT AT PRIVATE GARDEN

EVA



LIST OF HOUSING UNITS



A# (DUPLEX)	B	C	D	E & Ea*
Includes A-UPPER & A-LOWER				*Units with fixed clear glazing for bird-hide purpose
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PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

ARCHITECT

香港匯創國際建築設計有限公司
ATELIER GLOBAL LIMITED
[redacted]

PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.

DRAWING TITLE: GROUND FLOOR LAYOUT PLAN

0 10 20 40 m 1:1500 @ A3

Plan 5d

SITE AREA	:	51,073 sqm
PLOT RATIO	:	0.4
GFA	:	RESIDENTIAL: 20,427 sqm CLUBHOUSE: 1021 sqm (5% of total GFA and to be exempted)

TYPE OF UNIT	GFA / UNIT (sqm)	GFA / UNIT (sqft)	NUMBER OF UNITS	GFA (sqm)
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A-LOWER	246	2,648	6	1,476
B	334	3,595	24	8,016
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			TOTAL : 90	20,427

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• VERTICAL GREENERY (ASSUME HEIGHT OF 2.5M)	:	992m x 2.5m = 2,480 sqm
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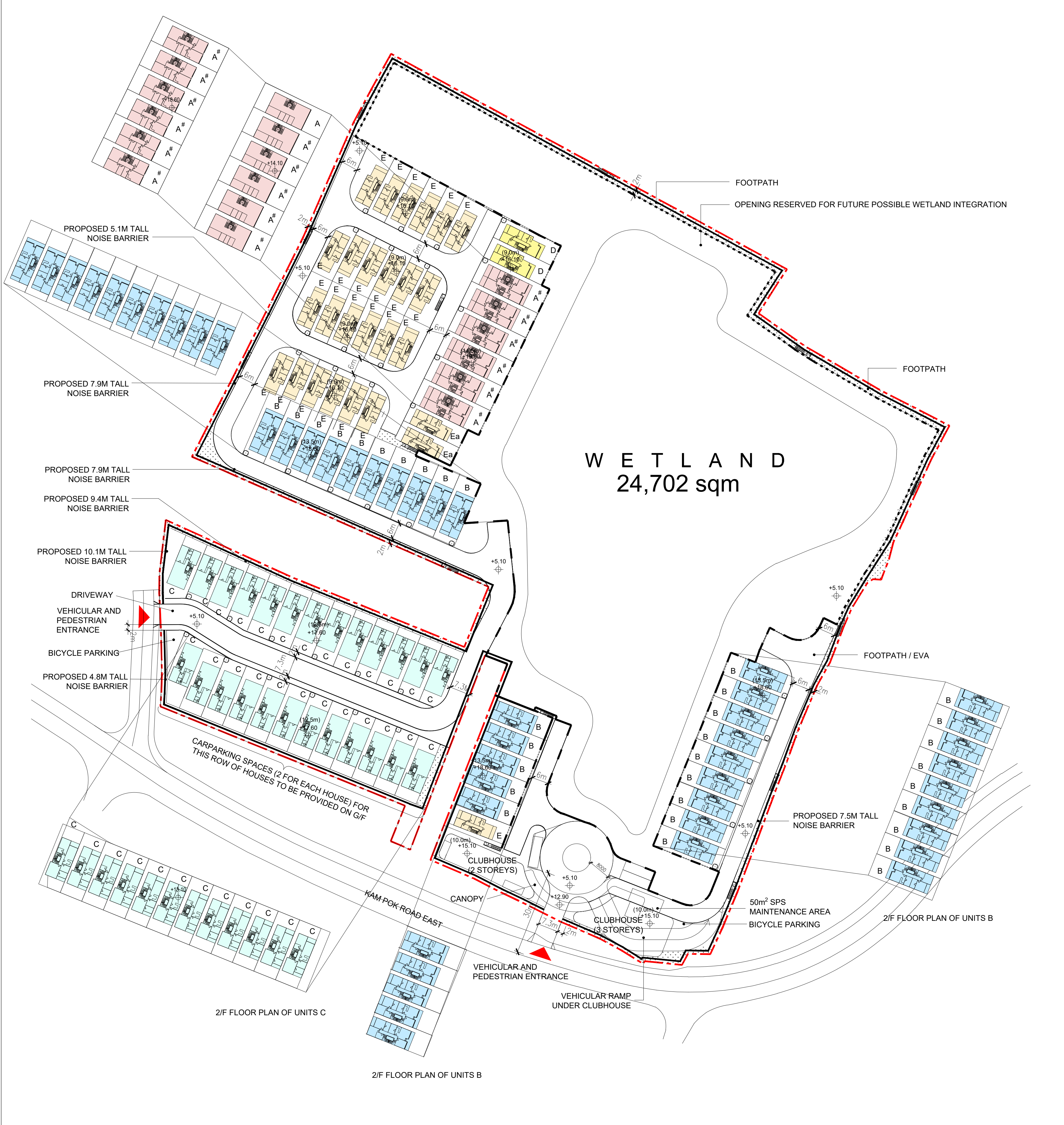
2.5M TALL WOODEN TRELLIS ABOVE 2.5 M TALL FENCE WALL

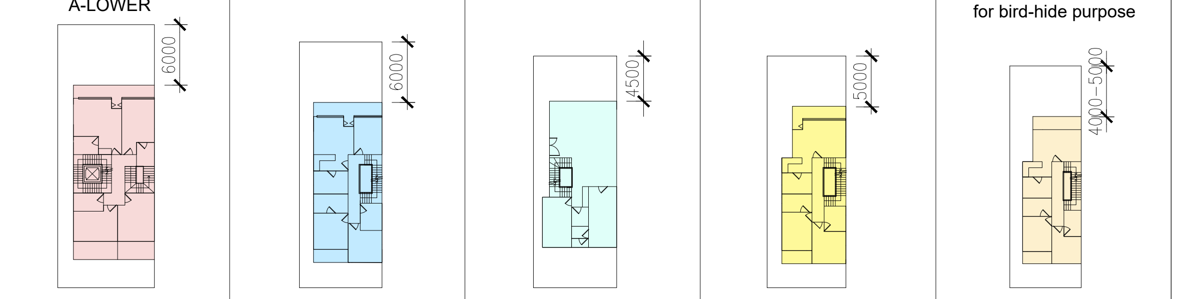
2.5M TALL WOODEN TRELLIS

TREE PIT AT PRIVATE GARDEN

EVA



LIST OF HOUSING UNITS



A# (DUPLEX)	B	C	D	E & Ea*
Includes A-UPPER & A-LOWER				*Units with fixed clear glazing for bird-hide purpose
4 STOREYS + BASEMENT (BLDG HEIGHT: 14.5M ABOVE GROUND)	3 STOREYS + BASEMENT (BLDG HEIGHT: 13.5M ABOVE GROUND)	3 STOREYS (BLDG HEIGHT: 12.5 M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)	2 STOREYS + BASEMENT (BLDG HEIGHT: 9M ABOVE GROUND)
PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT	PHASE II DEVELOPMENT	PHASE III DEVELOPMENT	PHASE II & III DEVELOPMENT

ARCHITECT	PROJECT TITLE	DRAWING TITLE		
香港雅創國際建築設計有限公司 ATELIER GLOBAL LIMITED [redacted]	PROPOSED RESIDENTIAL DEVELOPMENT AT NORTH OF KAM POK ROAD EAST, NAM SANG WAI, N.T.	1/F AND UPPER FLOOR LAYOUT PLAN	0 10 20 40 m	1:1500 @ A3