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Project Profile

Mai Po Nature Reserve Infrastructure Upgrade Project

July 2017



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1 BASIC INFORMATION

1.1 Project Title

- 1.1.1 The title of the Project is “Mai Po Nature Reserve Infrastructure Upgrade Project” (“the Project”).

1.2 Purpose and Nature of the Project

- 1.2.1 Since 1984, WWF has been managing 211.7ha of the 372.1ha Mai Po Nature Reserve (MPNR). Classified as a Biodiversity Management Zone under the Mai Po Inner Deep Bay Ramsar Site Management Plan, MPNR offers benefits to wildlife and the local community through education, recreation and conservation initiatives.
- 1.2.2 Development of MPNR commenced in the 1980s with the setting-up of nature reserve and associated infrastructure, including an Mai Po Education Centre and the launch of schools programmes. In the Years 1990 to 2000, MPNR further developed its management, education and training programmes at the adjacent Peter Scott Field Studies Centre.
- 1.2.3 In recent years, the number of people visiting the MPNR has been more than 24,000 per year and continued growth in visitor numbers is anticipated. Most of the existing facilities within the MPNR have been in use for more than 20 years and are showing their age. In order to cater for an increasing number of visitors in the future, as well as ensuring that facilities within the MPNR meet the expectations of visitors, an upgrade of key infrastructure is proposed.
- 1.2.4 The aim of the Project is to provide a unique experience in educational recreation, groom local scientists and contribute to a greater understanding of the unique Mai Po environment through cutting-edge research in ecology. It is crucial to transform MPNR into a 21st Century Nature Classroom in order to facilitate this unique learning experience and effectively manage this important, world-class living ecosystem.

1.3 Name of Project Proponent

- 1.3.1 The project proponent is the World Wide Fund for Nature Hong Kong (“WWF”), which was set up in Hong Kong in 1981 and is part of the global WWF conservation organisation founded in 1961.

1.4 Location and Scale of Project

Location of Project

- 1.4.1 MPNR is located in Yuen Long District in the north of Hong Kong.
- 1.4.2 Within Yuen Long District is the 1,540ha Mai Po Inner Deep Bay Ramsar Site. This was recognised in 1995 as a “Wetland of International Importance” and acts as a key way station and wintering site along the East Asian-Australasian Flyway through which 50 million migratory waterbirds travel each year.

- 1.4.3 Within the Ramsar Site is the 427.5ha Mai Po Marshes SSSI. This comprises 372.1ha zoned as “SSSI” (Tai Long Kei and Shek Shan) and 55.4ha zoned as “SSSI(1)” (Lut Chau) on the approved Mai Po and Fairview Park Outline Zoning Plan (OZP) No. S/YL-MP/6, which was gazetted on 18 February 2005.
- 1.4.4 Within the Mai Po Marshes SSSI is the 372.1ha MPNR (corresponding to the “SSSI” (Tai Long Kei and Shek Shan) zone) and within MPNR is the 211.7ha Project Site, which is land leased by WWF from government.
- 1.4.5 To the east and south of the Project Site there is an area zoned “Conservation Area” (CA) on the OZP, in which there are a number of gei wai and commercial fish farms. The planning intention of the “CA” zone is to conserve the ecological value of wetland and fish ponds. Outside the “CA” zone to the southeast of the Project Site lies the Fairview Park residential development. To the south of the Site, at Lut Chau, there are more gei wai located in an area zoned “SSSI(1)” on the OZP. The northern and western boundary of the Project Site abut the Frontier Closed Area Boundary (boundary road and fence), beyond which are mangroves and then Deep Bay.
- 1.4.6 The Project Site and its environs are shown on **Figure 1-1**.

Scale of Project

- 1.4.7 Within the Project Site, the Mai Po Nature Reserve Infrastructure Upgrade Project will comprise one or more of the following components, which are shown on **Figure 1-2**:
1. **Refurbishment of the Mai Po Education Centre (MPEC).** While the MPEC building structure is sound, the facilities it offers are no longer considered to be adequate. Its renovation comprises internal refurbishment and the upgrade of Fire Services (FS) installations, which includes, as needed, provision of a FS Water Tank and Pump Room in an external structure adjacent to the MPEC.
 2. **Widening of the Existing Footpath.** The concrete footpath running between the MPNR entrance and the MPEC is around 1.5m wide and 925m long and is in a poor state of repair, cracked and in some places subsiding. It requires widening and maintenance to facilitate universal access for visitors. It is therefore proposed to replace the existing footpath with a new, wider footpath to provide universal access with viewing/seating areas. Where space permits, the footpath will be widened by 0.15m (to 1.65m) or 1.8m (to 3.3m).
 3. **Construction of New Tower Hide 2 (TH2).** This is a new three-storey tower hide and associated access path at Gei Wai No. 19 with 23.5m² per floor. TH2 will be used primarily by more serious bird watchers.
 4. **Expansion of Existing Tower Hide 1 (TH1).** Existing Tower Hide 1 at Gei Wai No. 8 is a three-storey structure with 23.5m² per floor but does not have the capacity to meet demand. It is therefore proposed to renovate and expand TH1 by adding an additional 35.2m² per floor. This will allow TH1 to cater for larger groups of casual visitors and school groups.
 5. **Construction of New Tower Hide “TH1E”.** This is a new three-storey tower hide and associated access path at Gei Wai No. 8 (east of Existing TH1) with 23.5m² per floor (same design as TH2). This will cater for groups of casual visitors and school groups on short trips.
 6. **Construction of New “Circular Route” Footpath.** To provide access to TH1E and/or to provide an alternative route to the MPEC, a new footpath will be constructed,

roughly parallel with the Existing Footpath but further inside the Project Site, that also provides a shorter, circular route for groups of casual visitors and school groups on short trips.

- 1.4.8 In order to provide flexibility to the Project Proponent in deciding which components to construct and when, the EIA Study will assume that all six components will be constructed concurrently and will assess the impacts from all six components as a “worst case scenario”. If, later, one or more components do not go ahead, the EIA Study (and subsequent Environmental Permit) will still remain valid for the remaining components.
- 1.4.9 *Figure 1-2* also shows indicative access routes for the movement of construction plant, equipment and materials/waste in and out of the Project Site on existing paved roads and along existing bunds (unpaved).

1.5 Number and Types of Designated Projects to be Covered by the Project Profile

- 1.5.1 The proposed Mai Po Nature Reserve Infrastructure Upgrade Project, comprising all or some of the six components listed above, and is classified as a Designated Project (DP) under Item Q.1 of Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) as follows:

“All projects including new access roads, railways, sewers, sewage treatment facilities, earthworks, dredging works and other building works **partly or wholly in an existing** or gazetted proposed country park or special area, a conservation area, an existing or gazetted proposed marine park or marine reserve, a site of cultural heritage, and a **site of special scientific interest (SSSI) ...”**

1.6 Name and Telephone Number of Contact Persons

- 1.6.1 The contact for the Project Proponent is:

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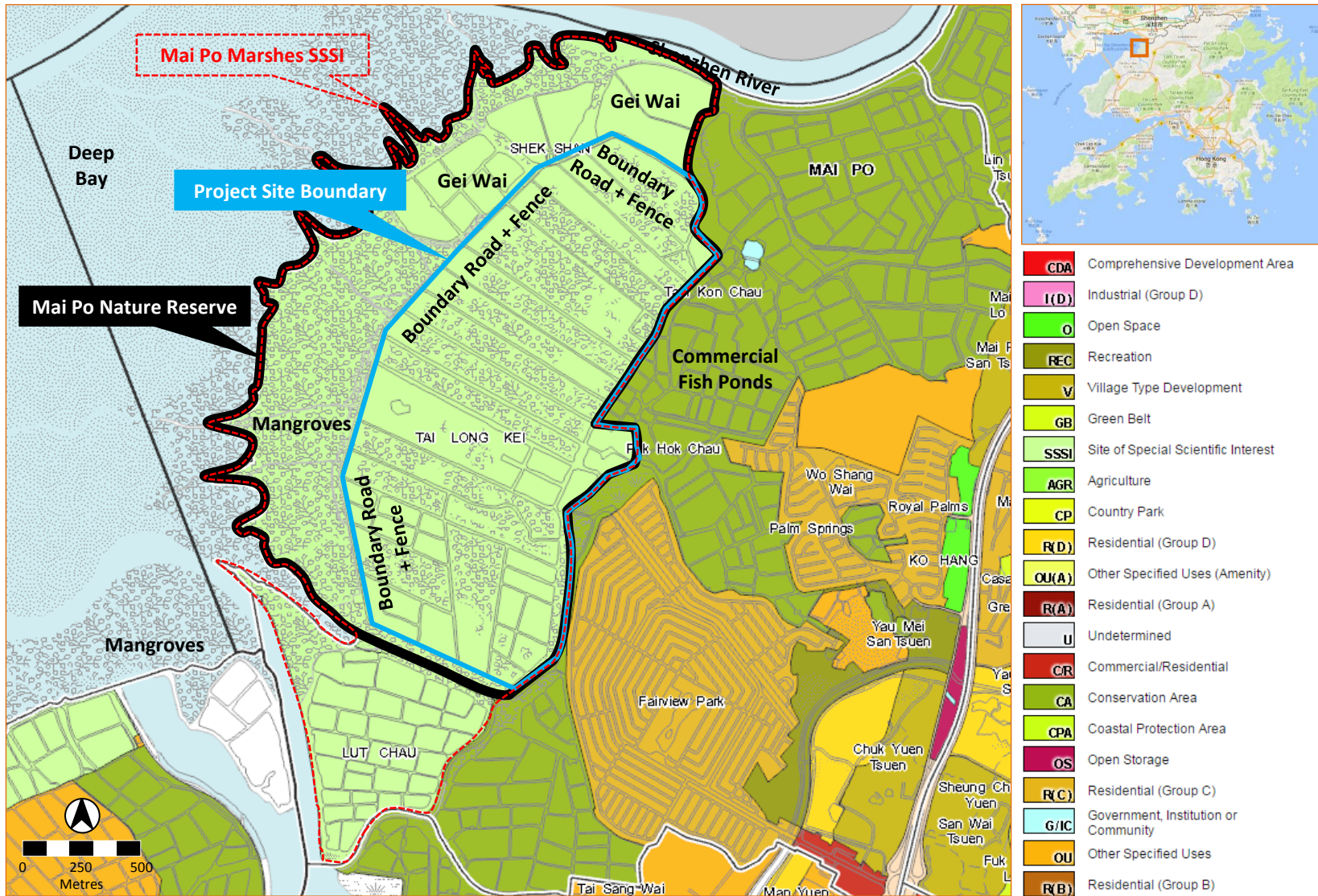
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Figure 1-1 Statutory Plan Showing Location of Project and its Environs



Source: Extract from the approved Mai Po and Fairview Park OZP No. S/YL-MP/6, from PlanD Statutory Planning Portal 2.

Figure 1-2 Components of the Project



Source: Google Earth Pro

2 OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Planning and Implementation

2.1.1 The Project Proponent has engaged consultants to carry out the following services:

- Overall Project Management
- Design and Architecture
- Quantity Surveying
- Environmental Impact Assessment
- Planning Application
- Sustainability
- Drainage and Sewerage Design
- Mechanical & Electrical Design
- Landscape Design

2.2 Project Timetable

2.2.1 The indicative Project timetable is as follows:

- All consultants were appointed by the Project Proponent in 2016.
- The Concept Design was finalised in December 2016 and detailed design is ongoing.
- Commencement of construction of the Project components is planned as follows (note that there will be no noisy construction works carried out from mid-October to mid-April as this is the most ecologically sensitive period within MPNR):
 - August 2018 to September 2019: Widening of the Existing Footpath and Construction of New “Circular Route” Footpath
 - September 2018 to August 2019: Refurbishment of the MPEC
 - April 2019 to October 2020: Expansion of Existing Tower Hide 1, construction of New Tower Hide 2 and construction of New Tower Hide “TH1E”
- Commissioning/operation of the Project components will be after completion of construction.

2.3 Interactions with Other Projects

2.3.1 The following are planned/ongoing in the vicinity of the Project :

- **Demolition and Re-construction of the Peter Scott Field Studies Centre (PSFSC) near MPNR.** The existing PSFSC is located 120m east of the Project Site in an area zoned “Government, Institution or Community” (“GIC”) on the Mai Po and Fairview Park OZP No. S/YL-MP/6. Demolition of the old building and construction of the new building is planned to start in April 2018 for re-occupation in January 2021. These works will occur during the anticipated construction period of the MPNR Upgrade.

- **Comprehensive Development at Wo Shang Wai, Yuen Long.** Located 700m east of the Project Site, this project involves residential development and associated infrastructure and a wetland restoration area with linear landscape area, occupying a total area of about 20.74ha. The project commenced in May 2010 and site formation is expected to be completed by mid-2017. Thereafter, construction of the residential development will be carried out, which is likely to occur during the anticipated construction period of the MPNR Upgrade.
- **Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in DD 104, East of Kam Pok Road, Mai Po, Yuen Long.** Located 1.2km east of the Project Site and occupying about 3.8ha between Fairview Park and Palm Springs, this project is a proposed low-rise and low-density residential development. The project has not yet started, but it is possible that some construction might occur during the anticipated construction period of the MPNR Upgrade.
- **Comprehensive Development and Wetland Protection near Yau Mei San Tsuen.** Located 1.2km east of the Project Site and occupying about 8.1ha opposite to Fairview Park, this project is a comprehensive development comprising residential use and wetland protection. The project has not yet started, but it is possible that some construction might occur during the anticipated construction period of the MPNR Upgrade.
- **Proposed Comprehensive Development with Wetland Enhancement (CDWE) at Nam Sang Wai and Lut Chau, Yuen Long.** This project comprises two sites; a comprehensive residential development at the 121ha Nam Sang Wai site, which is 1.2km south of the Project Site; and a 56ha wetland enhancement at the Lut Chau “SSSI(1)” site, which abuts the southern boundary of the Project Site. In the Project Profile (PP-461/2012), construction of the project was expected to commence in 2013 for four to five years, but the EIA Report has not yet been approved and the project has yet to commence. As such, it is unlikely that any construction will occur during the proposed anticipated period of the MPNR Upgrade.
- **Proposed Development at Fung Lok Wai, Yuen Long at Lot 1457RP in DD 123.** Located 1.5km south of the Project Site and occupying an area of 80.1ha, this project is a residential development and a Wetland Nature Reserve (“WNR”). It has been more than seven years since the EIA for this project was approved but the project has yet to commence. As such, it is unlikely that any construction will occur during the anticipated construction period of the MPNR Upgrade.

2.3.2 Any cumulative impacts from concurrent projects during the upgrading work of the Project will be considered in the EIA Study.

3 POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 Refurbishment of MPEC

3.1.1 The refurbishment of the MPEC will be carried out within the existing building envelope and will comprise Electrical and Mechanical (E&M) works; and new building works.

3.1.2 The following sequence of work for construction of the new FS water tank will be carried out externally, adjacent to the MPEC:

1. Carry out all necessary survey work, condition survey and power/utilities disconnection
2. Erect site hoarding / fencing along site boundary and erection of site office
3. Provide setting out to identify location of the new structure
4. Proceed with the excavation to the designed excavation level
5. Carry out rebar fixing work and timber formwork erection for the construction of Reinforced Concrete (RC) footing
6. Carry out rebar fixing work and timber formwork erection for the construction of RC water tank and pump room
7. Backfill and compact soil upon completion of all the RC elements
8. Installation of water tank and FS pump

3.2 Widening of the Existing Footpath

3.2.1 The widening of the existing footpath will comprise ensuring the existing bund slope (on which the footpath rests) is maintained at 30°; constructing the supporting base by using compacted soil/rock fill; and constructing the replacement footpath.

3.2.2 The following sequence of work for widening of the footpath will be carried out, section-by-section, starting in the middle of the footpath and working out towards each end:

1. Erect fencing / barrier along working area
2. Break up existing concrete paving by hydraulic breakers
3. Remove concrete debris to designated dumping area by wheel barrow
4. Fill up void by soil at ground if any and compact by impact compressor
5. Lay polyurethane sheet on top of compacted ground
6. Lay steel wire mesh and proceed with concreting, allow concrete to cure
7. Repeat step 1 to 6 for next section

3.2.3 Major equipment used will be hand-held and manual labour will be used.

3.3 Construction of New TH2

3.3.1 The following processes will be involved in the construction of New TH2, which will be a three-storey structure with the same floor area (approx. 23.5m² per floor) as Existing TH1:

1. Erect site hoarding / fencing along site boundary
2. Proceed with the dewatering of the adjacent gei wai and excavation to the design excavation level

3. Construction of RC footing
4. Construction of substructure
5. Construction of superstructure
6. Apply intumescent paint to steelwork
7. Place recycled timber deck on top of wire mesh and installation of façade and other necessary components, including handrails, wooden chairs, windows and doors

3.4 Expansion of Existing TH1

3.4.1 The following processes will be involved in the expansion of Existing TH1:

1. Carry out all necessary survey work, condition survey and power/utilities disconnection
2. Erect site hoarding / fencing along site boundary
3. Remove all detachable components from existing Tower Hide 1 building including external Onduline façade
4. Erect bamboo scaffold and protective screen around existing building
5. Install sheet pile into ground by pressing along designated alignment and toe level
6. Proceed with dewatering of the adjacent gei wai and excavation to the design excavation level upon completion of the installation of the sheet pile
7. Construction of RC footing
8. Construction of substructure
9. Construction of superstructure
10. Apply intumescent paint to the steelwork
11. Place recycled timber deck on top of wire mesh and installation of façade and other necessary components, including handrails, wooden chairs, windows and doors

3.5 Construction of New Tower Hide “TH1E”

3.5.1 This will be the same as for Construction of New TH2 (see [Section 3.3](#), above).

3.6 Construction of New “Circular Route” Footpath

3.6.1 The construction of the new “Circular Route” footpath will comprise constructing the supporting base by using compacted soil/rock fill; and constructing the new footpath.

3.6.2 The following sequence of work for constructing the new footpath will be carried out, section-by-section, starting at the Site Boundary near to the AFCD Office and working towards the New TH1E:

1. Carry out all necessary survey work
2. Erect fencing / barrier along working area
3. Remove all vegetation and compact existing ground by impact compressor
4. Lay polyurethane sheet on top of compacted ground
5. Lay steel wire mesh and proceed with concreting, allow concrete to cure
6. Repeat step 2 to 5 for next section

3.6.3 Major equipment used will be hand-held and manual labour will be used.

3.7 Summary of Potential Environmental Impacts

3.7.1 The potential environmental impacts associated with the above are summarised in **Table 3-1** below and likely impacts are assessed in the following sub-sections.

Table 3-1 Potential Sources of Environmental Impacts

Potential Impacts	Construction	Operation	Initial Assessment
Gaseous Emissions	✓	✗	No significant emissions from minor mechanical equipment
Dust	✓	✗	Potential minor emissions from earthworks and movement of equipment
Odour	✗	✗	Not anticipated
Noisy Operations	✓	✗	Potential from operation of mechanical equipment
Night-time Operations	✗	✗	Not anticipated
Traffic Generation	✓	✗	Potential from materials and equipment transport
Liquid Effluents, Discharges, or Contaminated Runoff	✓	✗	Possible chance of muddy surface water run-off into gei wei or fishponds from active construction areas
Generation of Waste or By-products	✓	✗	Debris from MPEC renovation, Tower Hide 1 and Footpath
Manufacturing, Storage, Use, Handling, Transport, or Disposal of Dangerous Goods, Hazardous Materials or Wastes	✗	✗	Not anticipated
Risk of Accidents Which Result in Pollution or Hazard	✗	✗	Not anticipated
Disposal of Spoil Material, Including Potentially Contaminated Material	✗	✗	Not anticipated
Disruption of Water Movement or Bottom Sediment	✗	✗	Not anticipated
Unsightly Visual Appearance	✓	✓	Short-term during construction but not significant in terms of landscape impact. Long-term from presence of permanent new facilities but not significant in terms of landscape impact
Ecological Impacts:			
- Terrestrial	✓	✗	Likely but not significant during construction. None anticipated (e.g. visitors) during operation
- Marine	✗	✗	Not anticipated
- Fisheries	✓	✗	Potential impacts along the footpath during widening
Cultural Heritage	✗	✗	Not anticipated

Key: ✓ = Potential to result in adverse impacts | ✗ = Not expected to result in adverse impacts

4 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 Existing and Planned Sensitive Receivers

4.1.1 **Table 4-1** describes existing and planned sensitive receivers that are located within and in the vicinity of the Project Site. **Figure 4-1** identifies the key ecological sensitive receivers within a Study Area of 500m from the boundary of the Project Site. **Figure 4-2** identifies other existing and planned sensitive receivers.

Table 4-1 Existing and Planned Sensitive Receivers

Sensitive Receivers	Initial Assessment
Residential developments temporary housing areas	<ul style="list-style-type: none"> • Fairview Park is 80m east of the Project Site • Palm Springs is 600m east of the Project Site • Royal Palms is 1.2km east of the Project Site • Mai Po Village is 2.3km east of the Project Site • Development under construction at Wo Shang Wai is 700m east of the Project Site • Proposed development in DD 104, east of Kam Pok Road, will be 1.2km east of the Project Site • Proposed development near Yau Mei San Tsuen will be 1.2km east of the Project Site • Proposed development at Nam Sang Wai and Lut Chau will be 1.2km south of the Project Site (residential component at Nam Sang Wai) • Proposed development in DD123 at Fung Lok Wai will be 1.5km south of the Project Site
Educational institutions, including schools, kindergartens and nurseries	<ul style="list-style-type: none"> • Bethel High School is located south east of Fairview Park, 1km east of the Project Site • The PSFSC is located 120m east of the Project Site but is not planned to resume operation until after completion of the Project
Health care facilities, including hospitals, clinics, and homes for the aged	None
Places of worship, including temples, churches, amphitheatre	The Yeung Hau Temple (at Mai Po Village) is more than 2.3km east of the Project Site
Agricultural areas	Numerous, surrounding the Project Site
Water courses, nullahs and confined bodies of water	There are numerous water courses and confined bodies of water (gei wei and fishponds) within and adjacent to the Project Site
Beaches, gazetted or otherwise	None
Water catchment areas and gathering grounds	None. There is a floodwater pumping station (at Mai Po Village) 2.2km east of the Project Site
Ground-water resources	None
Marine water resources including those for industrial uses, recreational uses or fisheries activities such as fishing grounds, shellfish harvesting/ culture areas, fish spawning and nursery areas or fish culture zones	<ul style="list-style-type: none"> • Deep Bay Water Control Zone • There are shellfish hatcheries within Deep Bay around 6km southwest of the Project Site

Sensitive Receivers	Initial Assessment
Industries which are sensitive to pollution	None
Airsheds with limited capacity to disperse pollution	None
Areas of conservation value, including Country Parks, Special Areas, Marine Reserves, Marine Parks, Ramsar Site, Sites of Special Scientific Interest and ecologically significant areas such as woodland, wetland and other wildlife habitats	The Project Site itself is a "SSSI", comprising ecologically significant areas such as wetland; the Project Site is part of the 1,500ha Mai Po and Inner Deep Bay wetlands, which are a Ramsar Site; and to the east and south of the Site there is an area zoned "CA".
Places of high visual value	The MPNR itself is considered to be a place of high visual value
Sites of cultural heritage	<ul style="list-style-type: none"> • The Macintosh Fort at Pak Hok Chau (one of seven observation posts built in Hong Kong between 1949 and 1953) is a Grade II Historic Building located 140m east of the Project Site • There are no declared Monuments or proposed Monuments as defined in the Antiquities and Monuments Ordinance that might be affected by the Project

4.2 Major Elements of the Surrounding Environment

4.2.1 *Table 4-2* describes major elements of the surrounding environment, both existing and past use, which might affect the Project. *Figure 4-2* identifies major elements of the surrounding environment.

Table 4-2 Major Elements of the Surrounding Environment

Major Element	Initial Assessment
Existing pollution blackspots	None
Nearby existing and/or discontinued industrial operations	None
Nearby trunk roads, and primary or secondary distributors	The New Territories Ring Road/San Tin Highway (Route 9) passes within 1.5km to the east of the Project Site
Nearby noisy commercial, community or recreational activities	Residential and commercial areas close to the Project Site (Fairview Park) are not considered to be "noisy"
Aircraft noise, helicopter noise, rail noise	None
Existing or planned waste handling, treatment and disposal facilities	None
Potentially hazardous installations	None
Noisy or dusty open storage uses	None
Existing and past land uses of the project site and environ	The Project Site has always been a wetland and other than the facilities that will be upgraded in this Project, is undeveloped with no past use; the surrounding areas are generally rural

Figure 4-1 Study Area and Key Ecological Sensitive Receivers

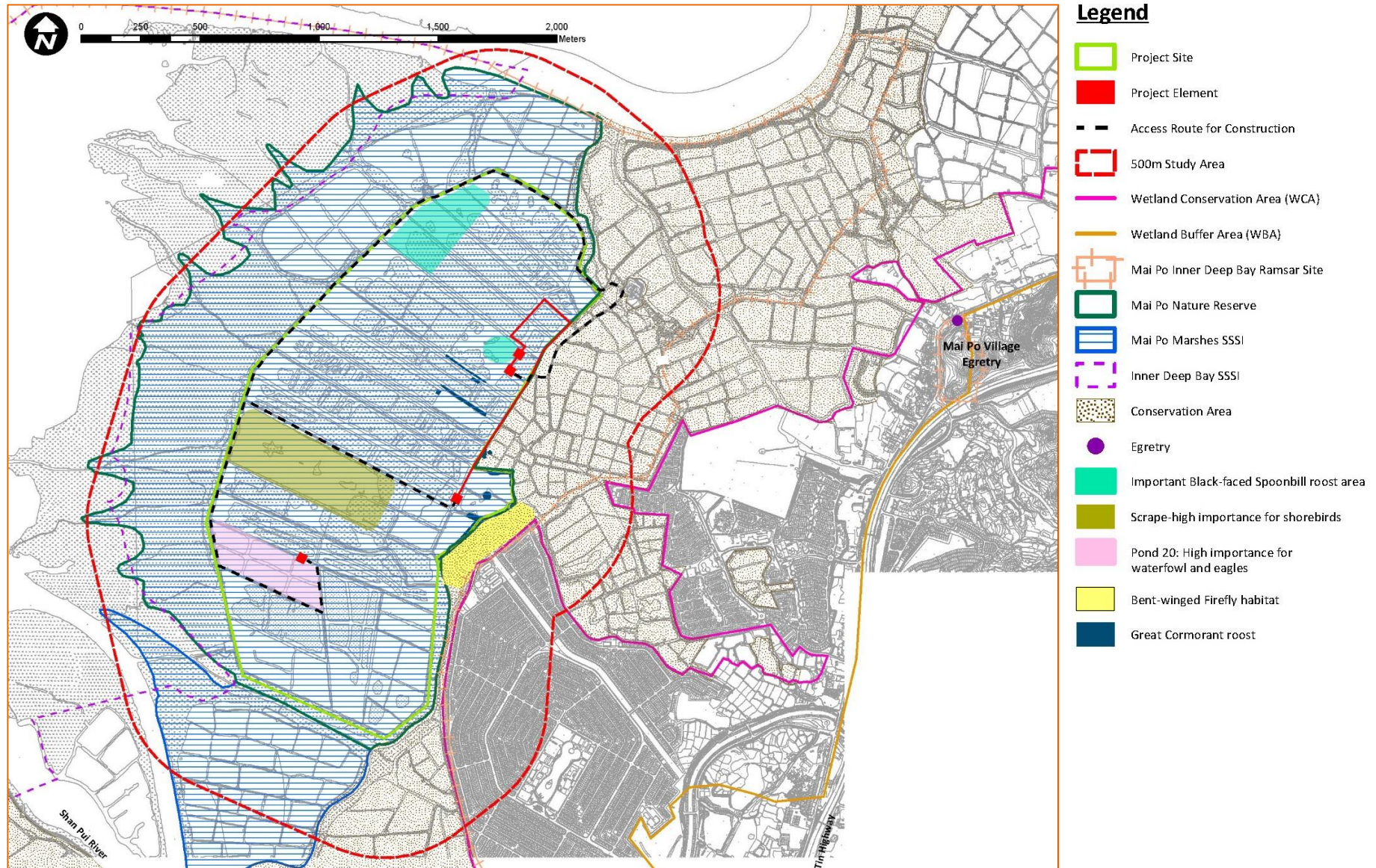
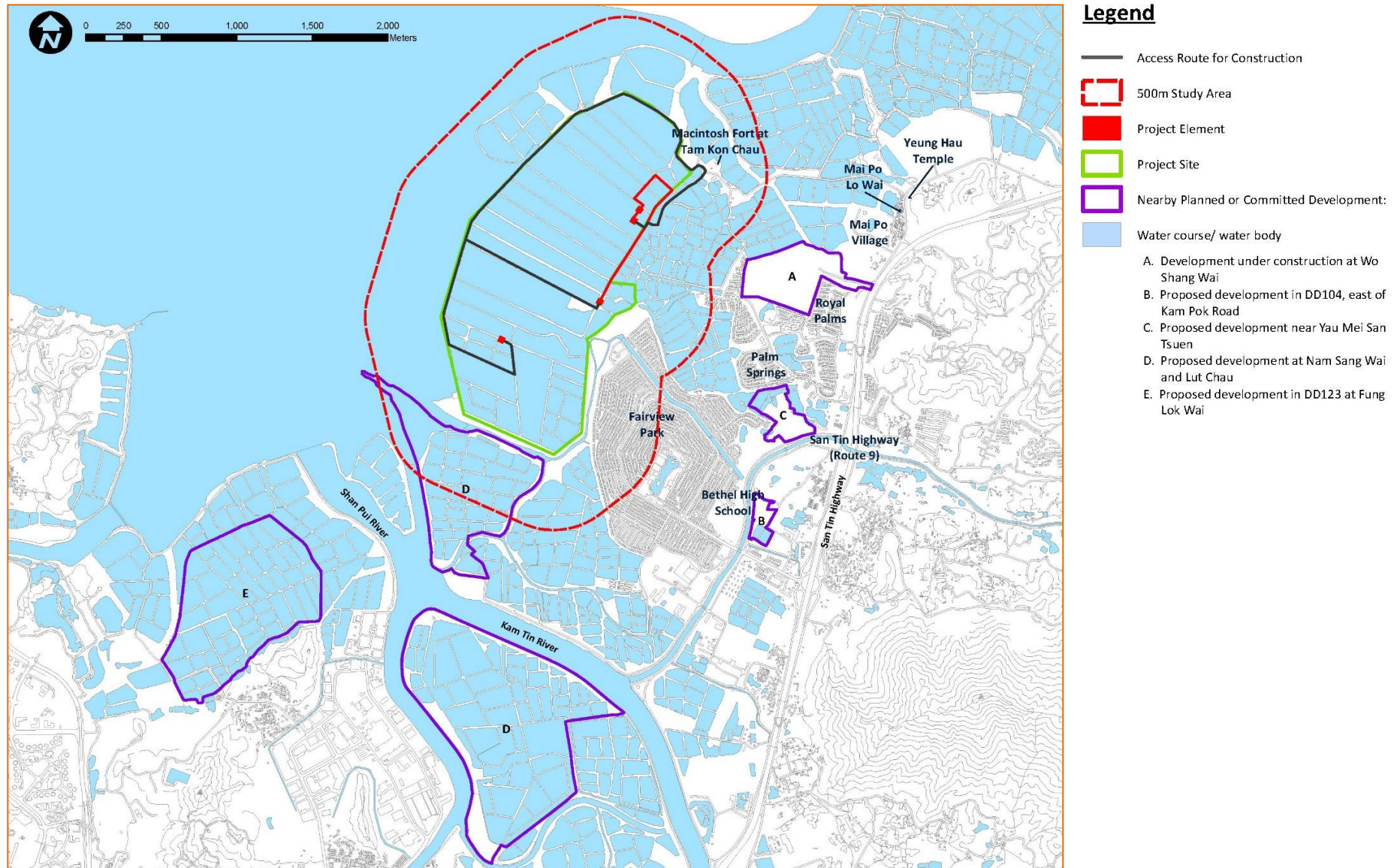


Figure 4-2 Other Sensitive Receivers and Major Elements of the Surrounding Environment



5 ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED INTO THE DESIGN AND ANY FURTHER IMPLICATIONS

5.1 Measures to Minimise Environmental Impacts

5.1.1 **Table 5-1** summarises the environmental protection measures to be incorporated into the design for the likely impacts identified in the initial assessment in **Section 3**.

Table 5-1 Environmental Protection Measures To Be Incorporated Into the Design

Environmental Impact	Proposed Environmental Protection Measures
Pollution control technology	All mechanical plant and equipment specified for use during construction will be fitted with appropriate pollution control technology to minimise gaseous emissions and noise – quiet PME and construction methods shall be specified as appropriate
Source control	The design will specify limits to vehicle speed on haul roads and will require dust materials to be covered with tarpaulin sheets when stockpiled or during transportation
Waste management systems and practices	The design will seek to balance any cut and fill operations and the works contractor(s) shall be required to prepare and implement a Waste Management Plan (WMP) that embodies best practice
Potential for waste and wastewater minimization	Waste recycling bins will be provided at strategic locations to collect and segregate waste and toilets to be provided in the MPEC shall be of “low flow” design to minimise flushing water usage, which will also result in reduced wastewater generation
Risk mitigation measures and accident emergency response plans	The works contractor(s) shall be required to prepare and implement a risk management plan to minimise risks and to prepare and implement an emergency response plan in case of accident, particularly in works areas close to gei wai and commercial fishponds
Acoustic barriers and insulation	Where needed, acoustic barriers will be provided during noisy works, particularly where these are located close to wild birds that may be disturbed by sudden noise
Buffer zones and landscaping	A landscape design shall be prepared to integrate new structures, such as the extension to Tower Hide 1, the new Tower Hide 2 and TH1E, and new Circular Route footpath with the surrounding natural landscape
Different siting of activities	<ul style="list-style-type: none"> While the location of the upgrade works are necessarily fixed, the works will be carried out during different times to account for the seasonal differences in the sensitivity of surrounding fauna, such as during breeding season and over-wintering of migrating birds – major construction will be prohibited between mid-October and mid-April for this reason Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from sensitive receivers
Site layout and building design	

Environmental Impact	Proposed Environmental Protection Measures
Retention of natural environmental features	Natural features shall be fully retained and tree felling, if required, shall be kept to a minimum
Control of construction work practices	The works contractor(s) shall be required to follow established best practice
Application of the Deep Bay Guidelines for dredging, reclamation and drainage works	There will be no dredging, reclamation or drainage works carried out
Application of Chapters 9 and 10 of the Hong Kong Planning Standards and Guidelines	<p>Chapter 9 “Environment” and Chapter 10 “Conservation” shall be fully complied with:</p> <ul style="list-style-type: none"> • Location, methodology, and sequencing proposed shall be considered to resolve unacceptable environmental impacts and arrive at an optimized, least-impact solution to completing the Project • One of the key ways to minimise the impact on ecology and to protect the migratory birds during construction, mid-October to mid-April of each year will be a work-restricted period during which construction work with heavy machinery will be prohibited

5.1.2 During construction, the following measures will be adopted to mitigate any remaining environmental impacts that cannot be designed-out:

- With the implementation of mitigation measures that are recommended in the *Air Pollution Control (Construction Dust) Regulation*, fugitive dust generation and air quality impact during construction phase can be controlled.
- The construction works shall be carried out during daytime on normal working days. The mitigation measures recommended in *ProPECC PN2/93* should be implemented where applicable.
- The construction contractor shall follow good site practice and be responsible for the design construction, operation and maintenance of all the mitigation measures as specified in *ProPECC PN 1/94* for construction site drainage.
- A WMP shall be developed by the contractor before the commencement of any construction works. The objectives of the WMP will be to identify any potential environmental impacts from the generation of waste at the Site; to recommend appropriate waste handling, collection, sorting, disposal and recycling measures in accordance with requirements of the current regulations; and to categorise and permit segregation of C&D materials (C&D) where practicable (i.e. inert C&D materials / non-inert C&D materials (or C&D waste)) for treatment and disposal considerations, i.e. reuse / recycling / public fill / landfill.

5.1.3 The following measures will be incorporated into the design to address potential impacts during the operation phase:

- Sewage from toilets at the MPEC will continue to be treated by the existing septic tank system and there will be no increase in the number of toilets provided. However, new toilets will be “low flow” designed to minimise flushing water usage, which will also result in reduced wastewater generation. There will be no increase in the quantity of sewage generated and therefore no net increase in pollution loads to Deep Bay.
- Tower Hides will be clad in dark-coloured Onduline façade, and provided with recycled timber decking to enable them to blend in with the surrounding environment.

5.2 Severity, Distribution and Duration of Environmental Effects

- 5.2.1 The works to be carried out in this Project are not major; the refurbishment of the MPEC, comprising mainly internal A&A works and construction of external FS plant; the Widening of the Existing Footpath; the Construction of New TH2; the Expansion of Existing TH1; the Construction of New “TH1E”; and the Construction of the New “Circular Route” Footpath. There will be minimal use of heavy construction plant and equipment.
- 5.2.2 Having said that, the environmental receptors surrounding the works – the wildlife in MPNR – are particularly sensitive and therefore great care will be taken in avoiding and minimising environmental impact through design and by implementation of mitigation measures during construction, including prohibiting noisy construction activities from mid-October to mid-April, which is the most ecologically sensitive period within MPNR.
- 5.2.3 The environmental effects will be limited to the areas around the six Project components and the associated haul routes for equipment, materials and waste. It is intended to use existing paved roads within the Site, predominantly the Boundary Road (which is already used by WWF vehicles and police vehicles) where wildlife is already accustomed to movement of vehicles; and to use temporary haul routes that follow existing tracks within the Site that will be upgraded as necessary to minimise fugitive dust emissions and noise – any upgrading works shall be assessed in the EIA Study.
- 5.2.4 The duration of the construction works is limited, from August 2018 to October 2020, excluding mid-October to mid-April each year, when no noisy works will be carried out.
- 5.2.5 Overall, the adverse environmental effects of the Project will be minor, short-term and restricted to specific areas within the Site that are already subject to the presence of vehicles and visitors.

5.3 Further Implications

- 5.3.1 A Project Profile entitled “An Extension to the Existing Boardwalk and New Floating Mudflat Bird-watching Hide at Mai Po Nature Reserve for Education and Conservation Purposes” (DIR-139.2006) was submitted for permission to apply directly for an EP. The works were subsequently completed. Other than this, there have been no similar works carried out in the vicinity of or within MPNR since it was originally developed.
- 5.3.2 The most similar off-site project is the development of the Hong Kong Wetland Park. An EIA for the Further Development of Tin Shui Wai was completed in March 1997 by the Territory Development Department that included Hong Kong Wetland Park.
- 5.3.3 Other projects relevant to this Project for which EIA Reports have been previously approved are listed in [Section 6](#).
- 5.3.4 There has been no public consultation on this Project to-date, however, a press-release is planned.
- 5.3.5 It is anticipated that there will be significant public interest in the Project, particularly by local environmental Non-Governmental Organisations (NGOs) and local organisations whose members use MPNR, such as the Hong Kong Bird Watching Society. Given that MPNR is part of the Mai Po Inner Deep Bay Ramsar Site, there may also be some international interest in the Project.

6 USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 The following recently approved EIA Reports are relevant to this Project:

- **EIA-242/2016: Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in DD 104, East of Kam Pok Road, Mai Po, Yuen Long.** Proposed low-rise and low-density residential on various leased lots and their adjoining Government Land in DD 104, East of Kam Pok Road in Mai Po. The Project Site will occupy about 3.8ha
 - Approved on 10 January 2017
 - Key environmental aspects addressed included air quality; noise; water quality; sewerage and sewage treatment; waste management; ecology; fisheries; and landscape and visual
 - The EIA study found that with mitigation measures in place:
 - dust levels would comply with the relevant air quality objectives/criteria under the Air Pollution Control Ordinance
 - predicted noise levels would comply with relevant noise criteria
 - no adverse water quality impact
 - no adverse environmental impacts arising from sewerage
 - no adverse waste management issues
 - surveys from 2011 to 2016 identified habitat was of “very low” ecological value and concluded no significant adverse residual ecological impact
 - insignificant fisheries impact due to loss of one abandoned fishpond
 - residual landscape and visual impacts will be acceptable
 - Measures recommended in the EIA study relevant to this Project include:
 - dust control measures required under the Air Pollution Control (Construction Dust) Regulation
 - use of quiet type equipment, scheduling of construction programme to avoid concurrent works, and provision of temporary noise barriers
 - adoption good site practice and construction of a properly designed temporary drainage system within the site
 - good site practice and adoption of a WMP for construction waste
 - use of quiet construction method and machinery/acoustic screens, erection of site hoardings outside wintering season of waterbirds between October and March and implementation of good site practice to avoid adverse impact on birds
 - preservation of existing trees, advance tree planting, limited works areas and replanting of disturbed vegetation
- **EIA-227/2015: Comprehensive Development and Wetland Protection near Yau Mei San Tsuen.** Comprehensive development and wetland protection near Yau Mei San Tsuen. The Project Site will occupy about 8.1 ha near Fairview Park.
 - Approved on 6 July 2015
 - Key environmental aspects addressed included air quality; noise; water quality; sewerage and sewage treatment; waste management; ecology; and landscape and visual
 - The EIA study found that with mitigation measures in place:
 - no unacceptable air quality impacts
 - predicted noise levels would comply with relevant noise criteria
 - no adverse water quality impact
 - no adverse environmental impacts arising from sewerage

- no adverse waste management issues
- a 12 month ecological survey programme concluded no significant adverse residual ecological impact
- residual landscape and visual impacts will be acceptable
- Measures recommended in the EIA study relevant to this Project include:
 - dust control measures required under the Air Pollution Control (Construction Dust) Regulation
 - use of quiet type equipment, scheduling of construction programme to avoid concurrent works, and provision temporary noise barriers
 - adoption good site practice and construction of a properly designed temporary drainage system within the site
 - good site practice and adoption of a WMP for construction waste
 - preservation of existing healthy unaffected trees, advance tree planting, the appropriate screening of construction works, and the control of night-time lighting
- **EIA-149/2008: Proposed Development at Fung Lok Wai, Yuen Long at Lot 1457RP in DD 123.** A residential development and a Wetland Nature Reserve (“WNR”) at the existing fishponds at Lot 1457RP in DD 123 Fung Lok Wai, Yuen Long. Located to the south of Inner Deep Bay, between Yuen Long Industrial Estate and Hong Kong Wetland Park. The Project Site will occupy about 80.1 ha.
 - Approved on 27 November 2009
 - Key environmental aspects addressed included air quality; noise; water quality; generation of biogas; sewerage and sewage treatment; waste management; landscape and visual; fisheries; and ecology
 - The EIA study found that with mitigation measures in place:
 - dust levels would be within the hourly and daily TSP limits
 - noise would be at acceptable levels
 - no adverse water quality impact
 - estimate biogas generation well below guide value stipulated in EPD’s Landfill Gas Hazard Guidance Note
 - no adverse environmental impacts to existing sewerage system
 - no waste-related regulatory non-compliance and unacceptable environmental impacts are expected
 - residual landscape and visual impacts would be acceptable
 - off-site impacts on fishponds are not predicted
 - no permanent habitat loss to ecologically valuable habitats in the Wetland Conservation Area (WCA)
 - Measures recommended in the EIA study relevant to this Project include:
 - frequent watering, enclosure of dust emission sources and establishment and use of vehicle wheel and body washing station at exit points
 - no percussive piling and compliance with Noise Control Ordinance
 - implementation of the Best Management Practices to avoid contact of pollutants with rainfall or runoff and measures to abate pollutants in the stormwater runoff; compliance with ProPECC Note PN1/94
 - good site practice and adoption recommended procedures for construction waste
 - landscape enhancement includes establishment of plantation woodland with a moderate beneficial impact

- **EIA-144/2008: Proposed Comprehensive Development at Wo Shang Wai, Yuen Long.** The project will allow wetland restoration to be realised in harmony with residential development at various lots in DD101 and DD105, Wo Shang Wai, Yuen Long. The Project Site will occupy a total area of about 20.74ha.
 - Approved on 31 July 2008
 - Key environmental aspects addressed included ecology; landscape and visual; air quality; noise; water quality; sewerage and sewage treatment; and waste management
 - The EIA study found that with mitigation measures in place:
 - no significant, long-term ecological impacts
 - outcome on landscape resources would be insubstantial and that no negative residual impact would arise
 - no adverse air quality impacts to the surroundings or nearby sensitive receivers
 - 100% compliance with the noise standards for planning purposes
 - no net increase requirement of Deep Bay will be met for water quality
 - no (net) discharge of sewage from the Project Area
 - no adverse waste management issues
 - Measures recommended in the EIA study relevant to this Project include:
 - greening, landscape planning, building setback and landscape buffer etc. to mitigate landscape and visual impacts
 - use of appropriate on-site environmental management measures to control dust
 - use of quiet plant, noise barriers and site hoardings
 - water quality impacts during the construction phase will be controlled through the implementation of good site practice; appropriate site drainage including soft landscaping and measures to prevent incursion of surface runoff from roads into the restored wetland
 - good site waste management