

APPENDIX A
Environmental Impact Assessment
Non-Technical Summary

毗鄰攸美新村的綜合發展及濕地保護計劃 Comprehensive Development and Wetland Protection Near Yau Mei San Tsuen

環境影響評估**非技術摘要**
Environmental Impact Assessment
Non-Technical Summary

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1.0 PURPOSE OF NON-TECHNICAL SUMMARY AND CONTENT

Purpose

This non-technical summary (NTS) aims to provide a concise reader-friendly understanding of the results of the environmental impact assessment (EIA) that has been undertaken for a proposed wetland conservation and residential development project located near Yau Mei San Tsuen. Comprehensive technical details of the assessment can be found in the full EIA Report should readers require further detail. The NTS describes the following:

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2.0 PROACTIVE PHILOSOPHY



Figure 2.1 Proposed Development Blending in the Natural Environment

The Planning intention of this zone is to allow all consideration of comprehensive low-density residential development or redevelopment provided that all the existing continuous and contiguous fish ponds within the zone are protected and conserved.

Source: Mai Po & Fairview Park OZP S/YL-MP/6

Proactive Philosophy

It is a common misunderstanding that wetland conservation can only take place if no development is permitted. In reality, a do-nothing approach may lead to further decline in ecological value. This can be caused by commercial farming activity located on dry agricultural land abutting wetland areas. In the instance of the subject project site either the intensification or abandonment of farming activity will have adverse impacts on the adjoining Deep Bay Wetland System. To avoid this, a holistic approach has been adopted in the current statutory town plan to achieve specific conservation and protection objectives through incentive mechanisms. Passive planning intentions on control cannot, however, ensure sustainable use of wetlands by waterbirds, and may result in a lack of management of abandoned ponds. To materialise the planned objectives, a comprehensive development proposal has been 'implanted'.

This adopts 3 basic principles:

- **Wetland Conservation:** The proposal enshrines and emphasises the conservation, enhancement and management of the wetland within the site;
- **Sustainable Land Use Planning:** Philosophy of permitting low impact residential / recreation development in exchange for long term commitment.
- **Long Term Capability:** The comprehensive development proposal adheres to the Government statutory town plan to make use of the existing dry agriculture land of low to moderate ecological value for low-density residential development to support the future management.

3.0 THE SITE LOCATION AT THE LANDWARD FRINGE OF DEEP BAY

The Project Area is located in the North West New Territories (NWNT) at the landward fringe of the Deep Bay wetland approximately 1,000m from the Mai Po Nature Reserve (see **Figure 3.1**). Fairview Park and Palm Springs, and rural houses are also located close to the Mai Po Nature Reserve. The site also lies adjacent to the Ngau Tam Mei Drainage Channel and the San Tin Highway.

Disused fish ponds are currently located in the northern portion of the site and abandoned dry farm land in the southern portion. The present degraded and neglected conditions previously on site will be reconciled by the proposed development, ecological, and other enhancement initiatives described in this summary. These will transform the site into an area principally made up of wetland protection supported by a suburban settlement (see **Figure 3.2**).

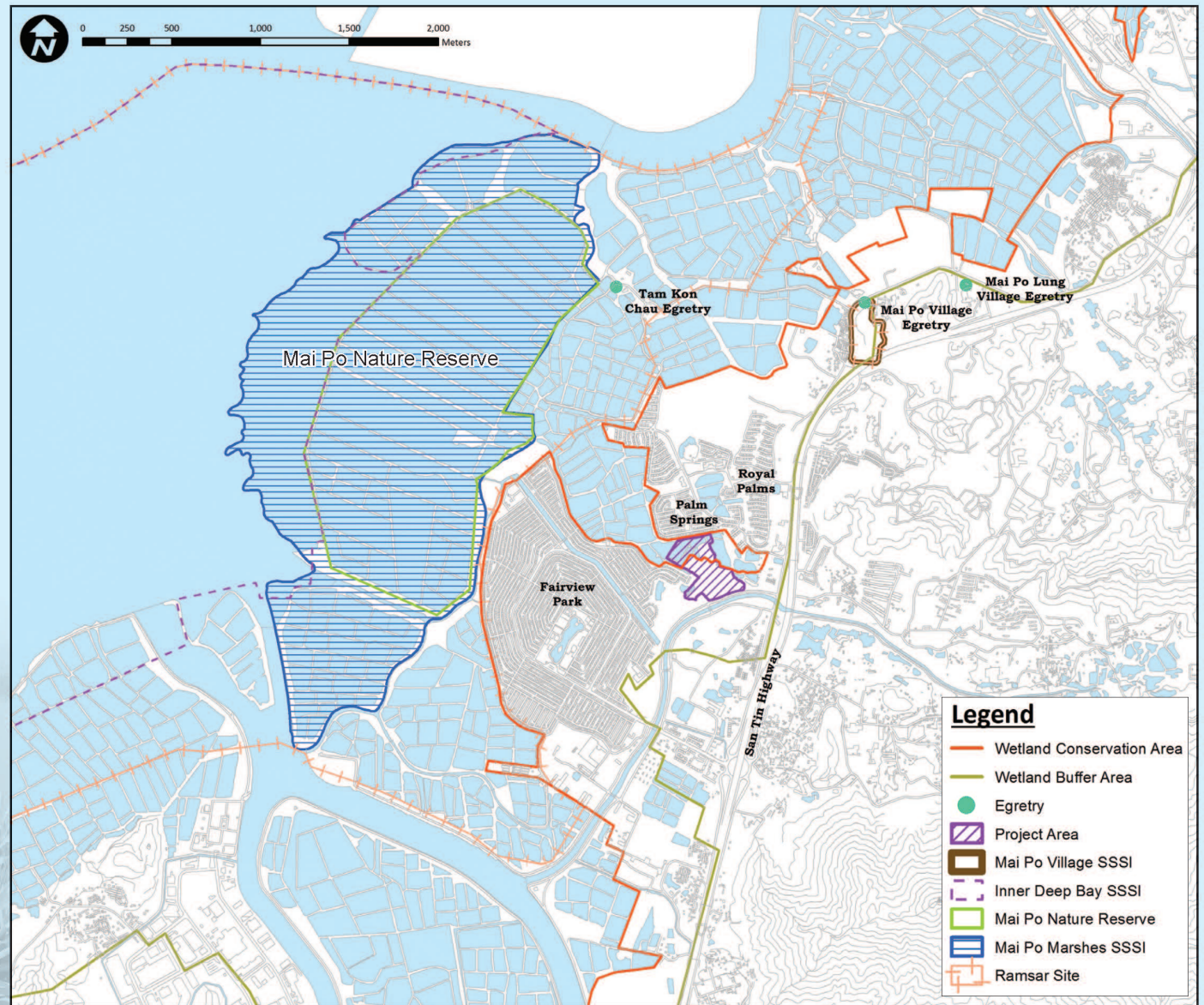


Figure 3.1 Site Location and its Land Use Context

3.0 THE SITE LOCATION AT THE LANDWARD FRINGE OF DEEP BAY



Figure 3.2 Site Location

4.0 ALTERNATIVE PLANNING PROPOSALS AND THEIR RATIONALE

Several approaches with and without development have been investigated and discussed in connection with the site during under the EIA and Continuous Public Involvement process. In a 'do-nothing' situation, it was determined that the ecological value of the Site would continue to decline. The present dry agriculture areas are low to moderate ecological value and have little capability to generate wetland fauna. As-of-right agricultural use may involve draining, dredging, uncontrolled drainage diversion and biological/chemical impacts which would eventually jeopardise the wetland eco-system. The abandoned ponds would silt up, and be colonized by vegetation (including invasive weed species) and would also gradually dry out if there were no proper management. Accordingly, there are all kinds of uncertainties and potential ecological risks associated with this approach. Intervention to ensure that this situation would not occur would require public sector intervention. It is most unlikely that government would intervene in this regard. As such there needs to be a solution whereby the private sector is incentivised to implement measures that will promote ecological conservation and enhancement. It was consequently advocated that this sort of approach be pursued.

The recommended approach and layout therefore incorporates further protection of the fish ponds at Wetland Conservation Area by providing additional habitats. It is also proposed that ecological linkages are enhanced. This approach incorporates the enhancement of wetland habitats and the provision of low-density residential development. The latter provides a means through which enhancement works can be financed and the long-term conservation and management of the restored wetland areas in conformity with TPB Planning Guideline No.12C can be secured. The proposed scheme will involve the provision of wetland habitats between the wetland areas in the east and the provision of buffer planting in the west. A Wetland and a Visual Buffer will be provided to the south of the

Wetland Restoration Area (within the Wetland Buffer Area) to further protect the Wetland Conservation Area in compliance with TPB Planning Guideline No.12C and the planning intentions advocated under the prevailing statutory planning framework (see Section 5.0 following). The project proponent has therefore utilised this option for the purposes of the environmental impact assessment.



5.0 LAND USE PLANNING AND WETLAND PROTECTION REQUIREMENTS

5.1 Meeting Planned Objectives of Town Planning Board

As noted above the future of the Wetland Conservation Area (WCA) relies on the success of proactive approach as promulgated in the statutory town plan (Mai Po & Fairview Park Outline Zoning Plan No. S/YL-MP/6, the OZP). The planning intention advocated under the prevailing statutory plan is to provide incentives to land owners to commit in long-term conservation and management of fish ponds by permitting compatible low-density residential development adjacent to the ponds subject to planning conditions under the control zoning “Other Specified Uses (Comprehensive Development and Wetland Protection Area)”, OU (CDWPA) in (Figure 5.1). The key planned objectives outlined in the Notes accompanying the OZP state that there should be:

‘no-net-loss in wetland’, ‘no pond filling’ and ‘no decline in wetland function of the fish ponds within or near the development site.’

and

‘to allow consideration of comprehensive low-density residential development or redevelopment provided that all the existing continuous and contiguous fish ponds are protected and conserved.’

The scheme described and depicted in this NTS fully conforms to this planning intention and provides a means through which conservation measures can be implemented managed and maintained.

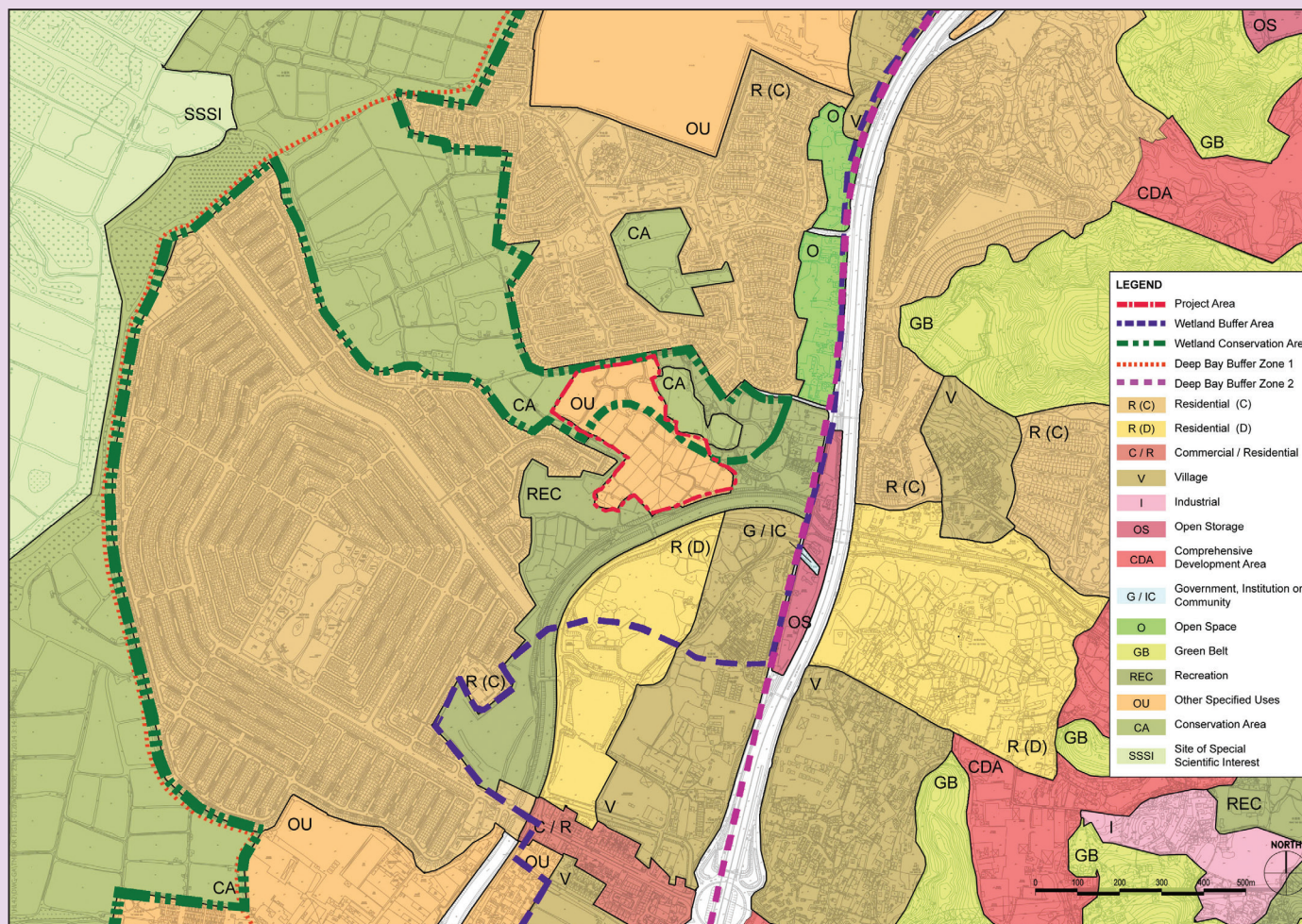


Figure 5.1 Approved Mai Po & Fairview Park OZP No. S/YL-MP/6 Gazetted on 18/02/2005

5.2 Problems with Existing Wetland

The current fish pond habitat in the subject site was originally a man-made habitat created for fish farming. The ponds were subsequently abandoned due to the decline in the fishing industry. As noted under Section 4.0 without active management of the water level and vegetation control, the fish ponds will progressively dry

and become subject to invasion by exotic and weedy, herbaceous vegetation through natural successions. Possible **transition into non-wetland habitats** such as grassland and scrubland of low ecological value are likely to result over time. The transition is likely to be unavoidable if not irreversible. From a conservation perspective this would be **undesirable**.

6.0 THE DEVELOPMENT PROPOSAL AND THE MANAGEMENT PLAN

6.1 Development vs Conservation

There is no conflict between development and wetland. The low-density development is designed as a low impact community that incorporates a buffer zone to separate regional transport infrastructure and proposed and existing suburban developments. The wetland buffer proposed in the development reinforces the separation of human activities from the natural environment. Many proactive design measures have been adopted to design out adverse impacts that could have risen from the scheme (Figure 6.1). These include the provision of private backyards to set back development from proposed conservation areas. This will ameliorate disturbance to the Wetland Restoration Area (WRA). Site level differences have also been utilised to strengthen separation and to restrict access to the WRA. An eco-linkage between the wetland and the new eco-habitat in the drainage channel has also been introduced to promote continuity of areas committed to ecological conservation and enhancement (Figure 6.2).

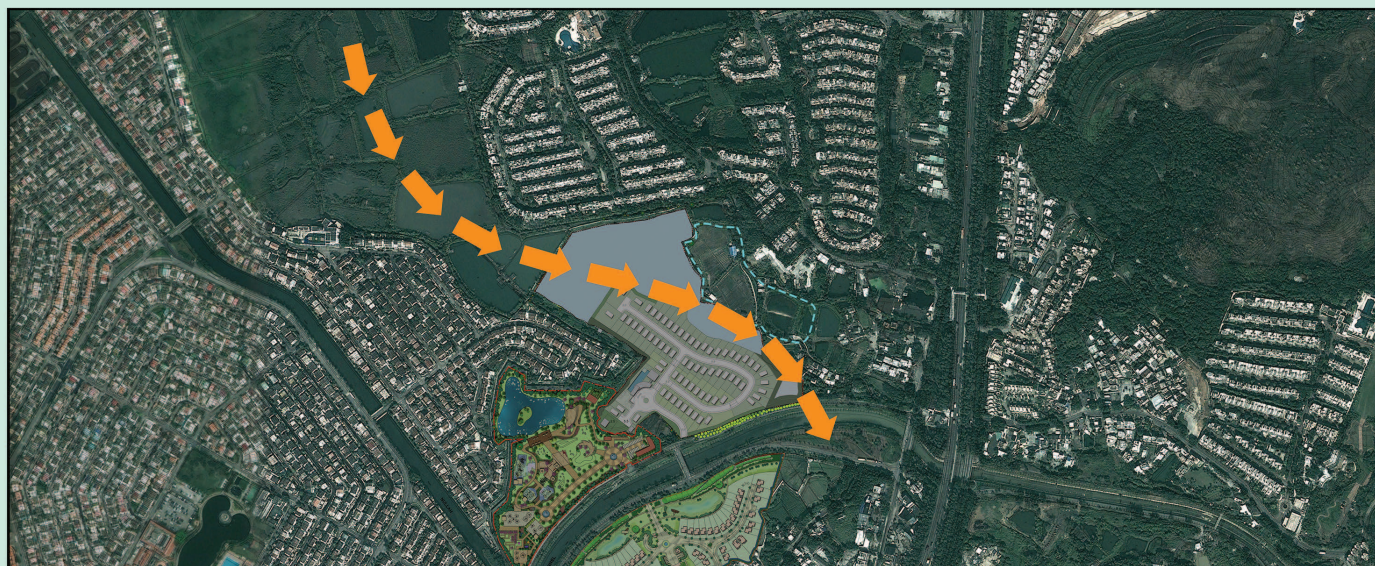


Figure 6.2 Eco-linkage

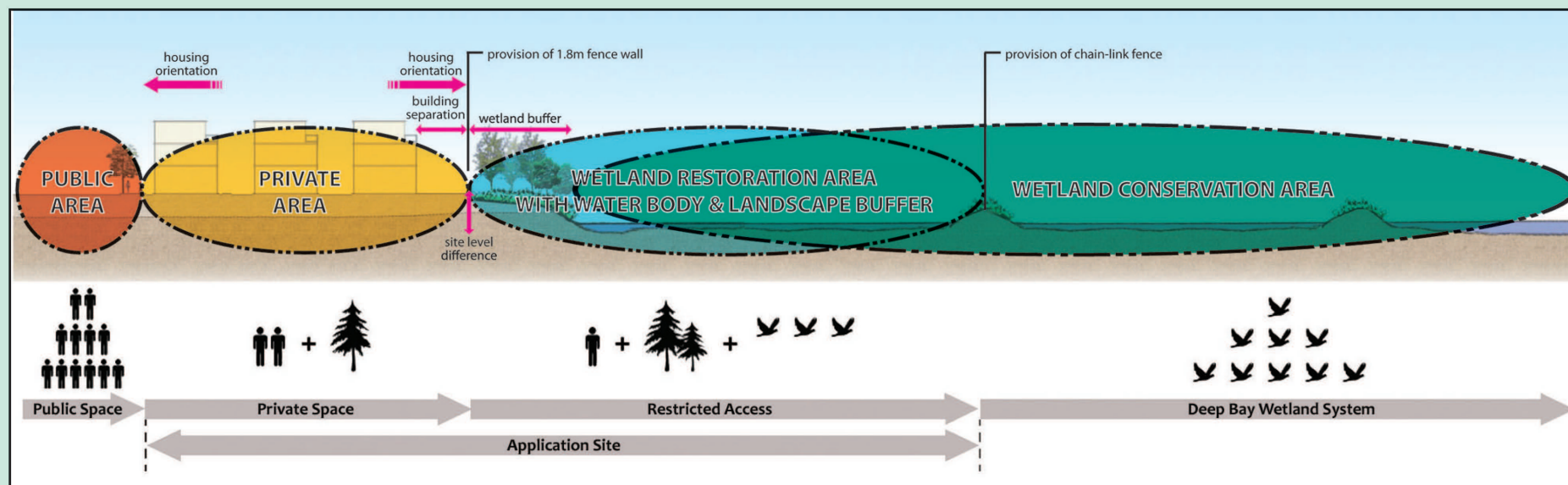


Figure 6.1 Proactive Design to Reduce the Human Disturbance

6.0 THE DEVELOPMENT PROPOSAL AND THE MANAGEMENT PLAN

6.2 Proposal Overview

It is intended that development on site will be limited to a low-density residential development with a plot ratio of 0.2 (3-storey houses). These will only be developed on the dry land. The volume of development will provide sufficient incentive to provide for the financing of the long-term conservation and management for the WRA. This could not be facilitated by any lesser magnitude of development.

A proposed WRA of 3.8ha in extent will protect and conserve all fish ponds on the site (**Figure 6.3**). The proposal for the WRA includes wetland & buffer planting to increase the wetland area and its conservation functions. The total area available for conservation will be increased from an existing area of some 3.0ha to a future to some 3.8ha (i.e. 27% increase in area). The new area, as noted, earlier will be subject to active and ongoing future management. The proposed ecological connection between wetland habitat ponds in the WCA and the Ngau Tam Mei Drainage Channel will include a 0.2ha area of reed buffer planting.

6.3 Sustainable Management Plan

To ensure the wetland protection is effective, a long term management mechanism must be put in place. Different approaches of funding and managing the wetland have been explored, and agreement will be reached with Government. Until such time of agreement, the Project Proponent will provide an undertaking to assume the responsibilities of the funding, implementation, management and maintenance of the WRA as part of the development.



Figure 6.3 Comprehensive Development Proposal

7.0 CONTINUOUS PUBLIC INVOLVEMENT (CPI)

7.1 Engagement of Key Stakeholders

Consultations with local Non-Governmental Organisations (NGO's) concerned with the environment and local residents on the development were undertaken at an early stage in 2008. These will be continued after the implementation of the Project. This initiative is to ensure concerns have been addressed in the early stage of planning. Meetings with concerned NGO's were held as early as mid-2008 to obtain their views and identify their key concerns on the proposed development. The nearby local residents such as those at Fairview Park, Palm Springs, Royal Palms and the Yau Mei San Tsuen have been consulted. Some of the respondents provided positive responses. Others were more cautious in their comments. On-going stakeholders' views are to be solicited at the subsequent development stages including submission, construction and operation of the project.



8.0 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

8.1 Designated Project under the EIAO

The Environmental Impact Assessment Ordinance (EIAO) requires residential or recreational developments within Deep Bay Buffer Zones 1 or 2 to carry out environmental impact assessment (EIA). The project consists of a comprehensive development and is subject to the provisions of the EIAO (An EIA report has been prepared). The potential environmental issues associated with the construction and operation of the Project have been assessed and addressed. Key findings are summarised in the following sections.

8.2 Air Quality

The nearby community will be concerned about air quality mainly during construction phase of the Project. Fugitive dust emissions are envisaged from site formation works and various mitigation measures will be implemented to mitigate dust levels to meet the latest air quality objectives (AQOs)/ EIAO-TM criteria. Their effectiveness has been verified through the use of quantitative air quality models (**Figure 8.1**) and the Environmental Protection Department (EPD) has been consulted.

8.3 Noise

It is expected that if uncontrolled construction activities may generate adverse noise impacts. A combination of noise mitigation measures will be applied to ensure compliance with the relevant construction noise criteria (**Figure 8.2**). No adverse construction noise impacts are anticipated to arise from the Project including the nearby projects being implemented concurrently. The noise generated due to an increase in traffic will be reduced through layout design measures such as set backs and separation distances. The on-site sewage treatment plant (STP) will be treated with acoustic louvers and silencers. It is estimated that there will be no adverse noise impact with the implementation of the recommended noise mitigation measures.

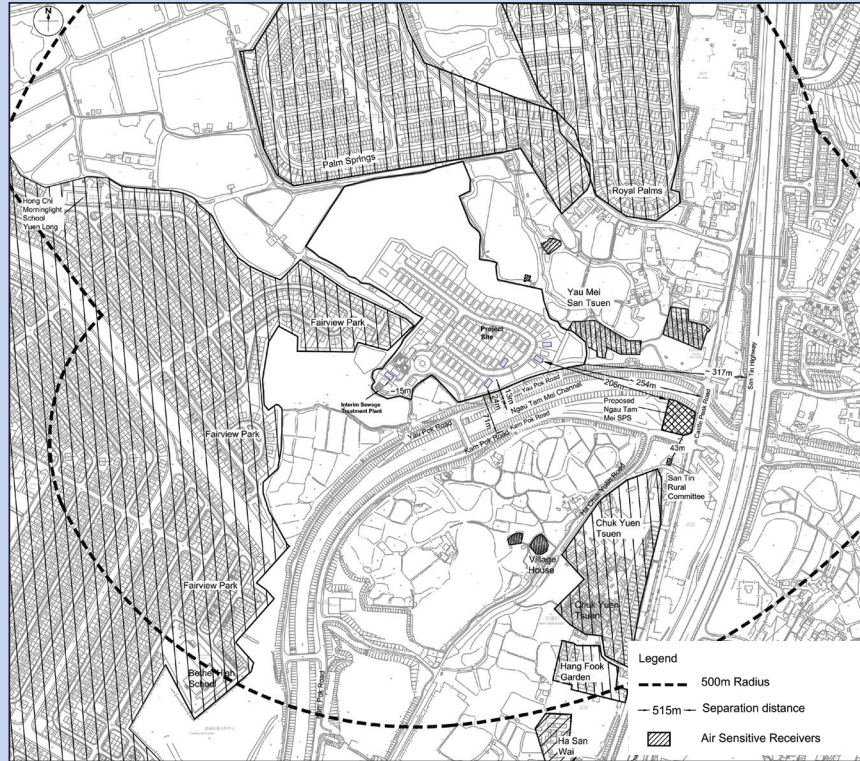


Figure 8.1 Location of Air Sensitive Receivers taken into Consideration during EIA Process and the Environmental Protection Department (EPD) has been consulted

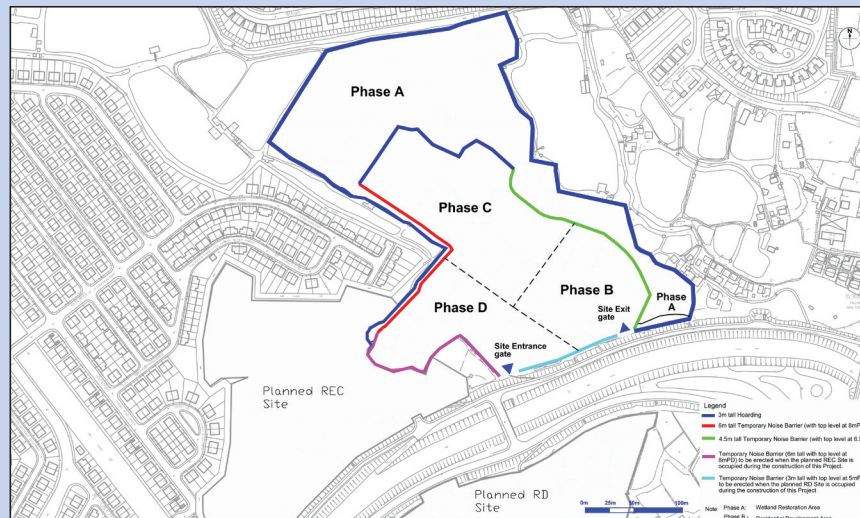


Figure 8.2 Mitigation Measures for Temporary Construction Noise

8.0 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

8.4 Water Quality

The Project will involve land-based construction works only. There will be a need to address surface runoff and soil erosion of exposed surfaces (**Figure 8.3**). A basic peripheral drainage system will be installed before the commencement of construction. Basic peripheral site drainage channel with sand/ silt removal facilities will be installed before the commencement of the construction. In addition, further peripheral site drainage channel with sand/ silt removal facilities will also be provided along the edge of residential portion during its construction to ensure no off-site spillage of runoff.

After population in-take, surface runoff will be discharged into Ngau Tam Mei Drainage Channel with no adverse water quality impact and the capacity of the Ngau Tam Mei Drainage Channel can handle. The discharge of treated effluent from the interim STP will meet the discharge criteria and there will be no net increase in pollution loading to the Ngau Tam Mei Drainage Channel and the Deep Bay.

8.5 Sewerage and Sewage Treatment

An on-site sewage treatment facility will be installed to handle the sewage until a connection to a public sewer is available. Taking account of the no-net increase in pollution loading to Deep Bay principle, the proposed interim sewage treatment facility will comprise of a MBR/RO system which can produce effluent that can meet the Group C Inland and Coastal Discharge Standard and exceed the requirements of the drinking water standards stipulated in WHO guideline. Once the few existing villagers and farmers have abandoned the project area, the existing situation will be improved as upon implementation, untreated sewerage will not be discharged into the WCA (**Figure 8.4**).

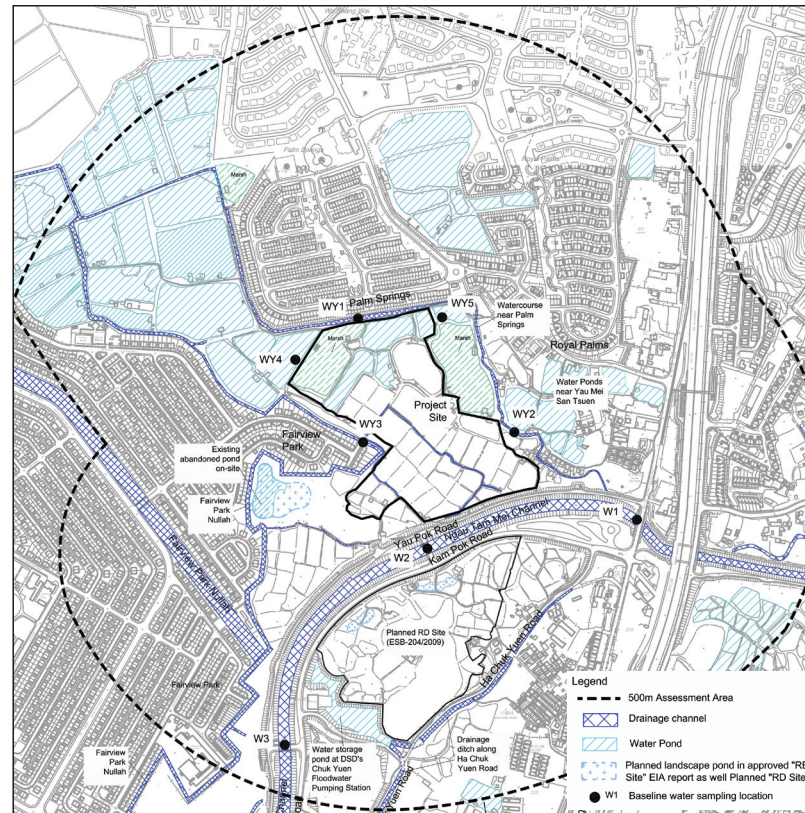


Figure 8.3 Location of Water Quality Surveys taken into Consideration during EIA process

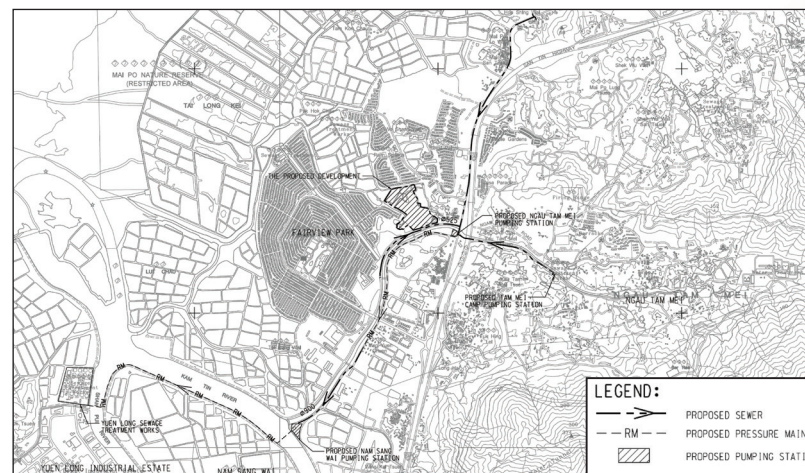


Figure 8.4 Government Proposed Sewerage Connection

8.0 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

8.6 Waste Management

The waste will be reduced through recovery, reuse or recycling. Environmental mitigation measures and good site practice have been recommended in the EIA report to mitigate environmental impacts.

8.7 Ecology

There are 3 key proactive actions to be implemented.

(1) Establishment of a 3.8ha Wetland Restoration Area (WRA), including 0.2ha of Wetland and Visual Buffer; thus there will be a net increase in the area of wetland of 0.8ha (a 27% increase). Habitats to be restored and enhanced in the WRA will include ponds with deep and shallow water zones, marsh, reed, bamboo, gravel (non-vegetated area), grassy bund and buffer planting. All habitats have been carefully chosen to provide suitable conditions for the wetland fauna (waterbirds, amphibians and dragonflies) which currently use the Project Area (Figure 8.5).

(2) A linkage between ponds to the north and the Ngau Tam Mei Drainage Channel to the south has been provided. This will ensure that flight-lines for waterbirds flying between these areas will not be impeded and that they will be permanently protected.

(3) An area of temporary wetland enhancement is also provided during the construction and establishment periods of the WRA to further minimize the possible impact of direct habitat loss for wildlife. The construction of WRA will be completed before the construction works within the residential portion commences to mitigate direct disturbance to birds during the construction phase.



Figure 8.5 Proposed WRA and Eco-link



8.0 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

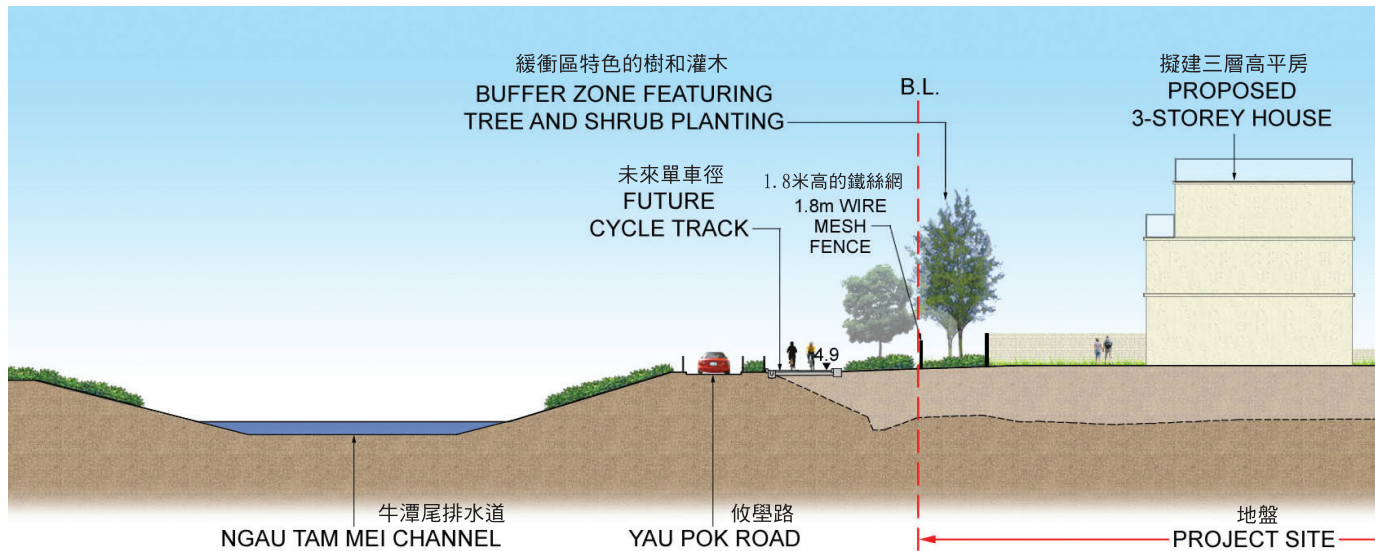


Figure 8.6 Proposed Landscape Buffer along the Boundary of the Project Site

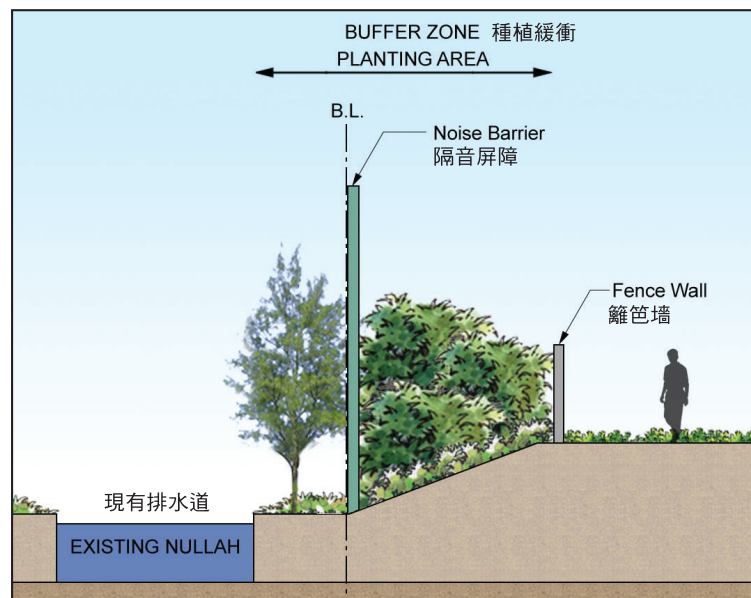


Figure 8.7 Illustrative Section of Noise Barrier Buffered & Visually Enhanced by Peripheral Planting

8.8 Fisheries

No active fish ponds will be affected by the Project.

8.9 Cultural Heritage

The assessment area has determined that no sites of archaeological interest or areas of archaeological potential are located within the project site. The only potential cultural resource identified is an ancestral hall at existing Wo Shang Wai village 450m north of the Project Site beyond existing major residential developments such as Palm Springs and Royal Palms. The ancestral hall is not a graded historic building, and has already been modified with modern structures, which is also located beyond the Project Area.

8.10 Landscape and Visual

The change in the landscape and visual character of the Site needs a detailed action plan to minimise the impacts. The actions include preservation of existing healthy unaffected trees, advance tree planting, the appropriate screening of construction works, and, the control of night-time lighting. The temporary noise barriers (approximately respectively 3m, 4.5m and 6m high; **Figures 8.7**) are proposed along the southern part of the development. The temporary noise barrier design will incorporate finishes, such as opaque and non-reflective material utilising colors that are sympathetic to the surrounding environment. The form of treatment will be sensitively selected to reduce visual impact and to avoid bird strikes.

After the population in-take, impacts will be mitigated by new, healthy planting and buffer planting along the boundary (**Figures 8.6**). The restored wetland/ pond will uplift the overall landscape amenity. The visual impact of the 1.8m high perimeter wall and 1.8m high wire mesh will be mitigated by considered landscape treatments (**Figures 8.8**).

8.0 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

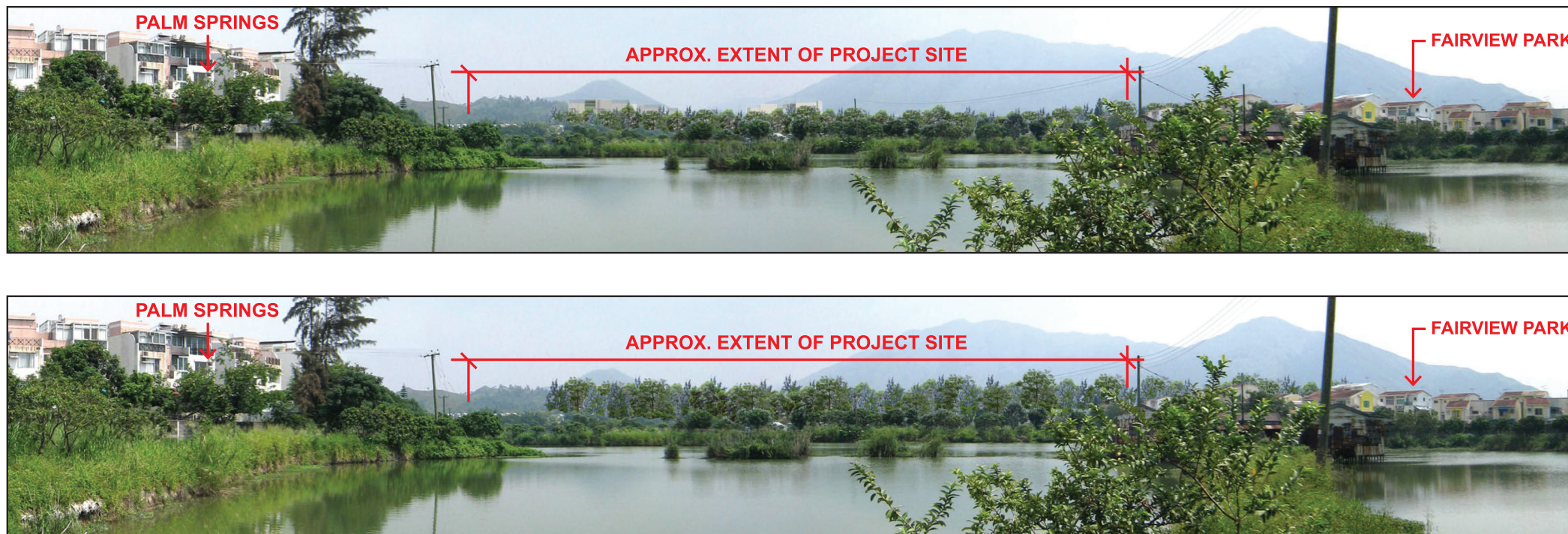


Figure 8.8 Landscape and Visual Mitigation Measure - Photomontage

9.0 THE IMPORTANCE OF ENVIRONMENTAL MONITORING AND AUDIT

The success of the proposed comprehensive development also depends on the effectiveness of the environmental monitoring and audit (EM&A) programme. An EM&A mechanism is to ensure compliance and effectiveness of the recommended mitigation measures. An Environmental Team (ET) comprising suitably qualified staff and specialists will be appointed to carry out the recommended mitigation works while an Independent Environmental Checker (IEC) will monitor the performance (see **Figure 9.1**).

Details of the EM&A programme, mitigation measures required during construction and operational phases, and requirements have been provided in the EM&A Manual of the EIA report.

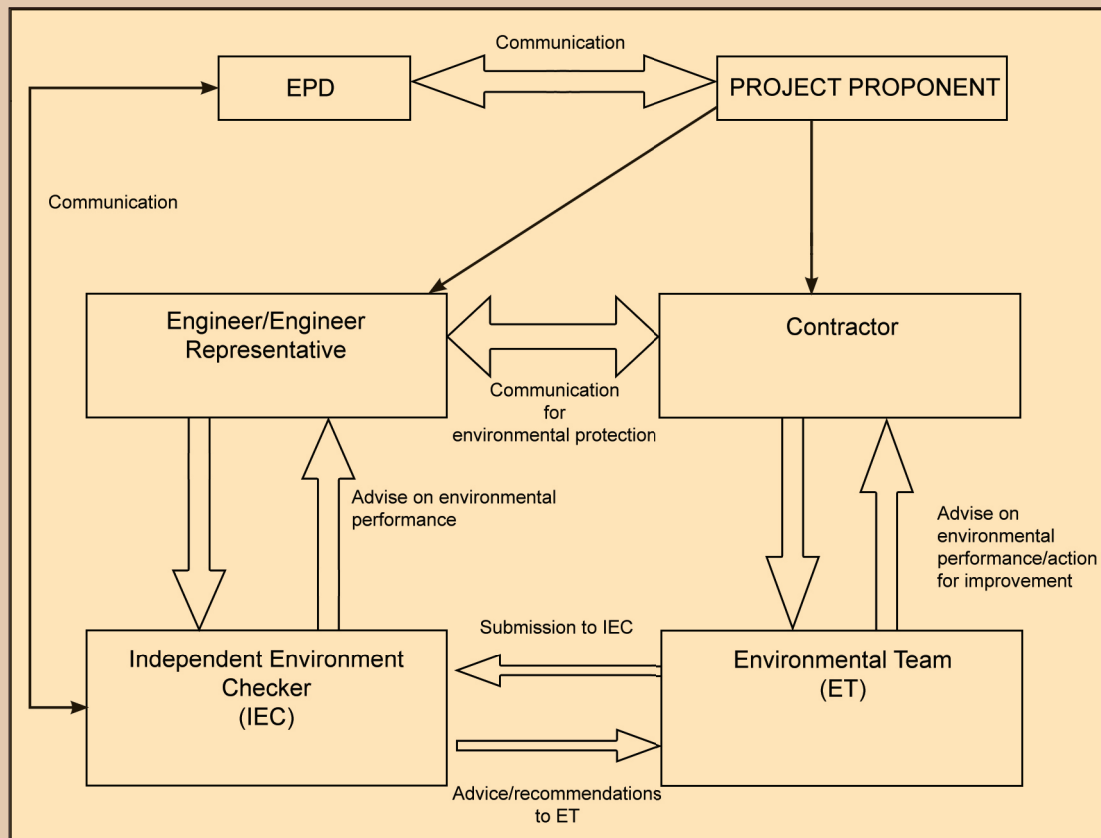


Figure 9.1 EM&A Monitoring Diagram



10.0 OVERVIEW

The Project Proponent has placed significant emphasis on the realisation of 3 basic principles applicable wetland conservation, sustainable land use planning, and long term capability. The EIA Study has predicted that after the adoption of appropriate mitigation measures, there would be no adverse residual impacts. The Project will realize the following benefits:

- As well as demonstrating that there will be no adverse environment impacts, the Project will realise planned objectives and environmental gains in terms of increase in wetland areas and its function, and enhanced ecological connectivity with the hinterland;
- There is no-net-loss in wetland, no pond filling, no decline in wetland functions, no-net increase in pollution loading to Deep Bay and the existing continuous and contiguous fish ponds are protected and conserved; and
- The proposals will also safeguard wetland protection and ensure long term maintenance, management and funding;

In terms of planning control of the mitigation measures, the proposed development is further subject to the planning approval process under the Town Planning Ordinance. The Project Proponent will continue with the CPI process and will consider any room for improvements. This will ensure a comprehensively transparent planning and development process which will contribute to the success of the wetland protection in accordance with the planning intention of TPB PG No. 12C.

