Planning and Engineering Study For Tuen Mun Areas 40 and 46 and the Adjoining Areas

Project Profile

(prepared in accordance with
the Environmental Impact Assessment Ordinance (Cap. 499))

November 2012

Civil Engineering and Development Department

Project Profile

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List of Drawings

Drawing No.

NTW Z1461 Planning and Engineering Study for Tuen Mun Areas 40 and 46 and the Adjoining Areas – Study Area

NTW Z1467 Location Plan of Landfill Areas and Site of Special Scientific Interest

1. BASIC INFORMATION

1.1 Project Title

1.1.1 Planning and Engineering Study for Tuen Mun Areas 40 and 46 and the Adjoining Areas (hereinafter named as the Project).

1.2 Purpose and Nature of Project

1.2.1 The Project is to replan the future land uses of Tuen Mun Areas 40 and 46 and the adjoining areas, which are located at the western part of Tuen Mun New Town.

1.2.2 A comprehensive planning and engineering study for Tuen Mun Areas 40 and 46 and the adjoining areas including the necessary environmental assessments and associated site investigation works will be conducted with a view to formulating and evaluating land use options, confirming the feasibility of implementing land uses and development proposals, and formulating the implementation strategies and programme for delivering the developments and infrastructure. Three Potential Development Areas (PDAs), namely Potential Development Area A (PDA-A), Potential Development Area B (PDA-B) and Potential Development Area C (PDA-C) had been identified for the Study and an application for the project, based on the project profile (No. PP-467/2012) was submitted in May 2012 by New Territories North and West Development Office (NTN&W DevO), Civil Engineering and Development Department (CEDD). An EIA study brief (No. ESB-249/2012) was issued in June 2012 by the Director of Environmental Protection Department for the project,

1.2.3 An additional PDA, namely Potential Development Area D (PDA-D) consisting of several vacant sites to the west and in close proximity to the original PDAs has recently been included in the Study for replanning its land uses and the study area boundary has also been adjusted accordingly. In view of the above changes, an application for a new EIA study brief is required.

1.3 Name of Project Proponent

1.3.1 The Project Proponent is New Territories North and West Development Office (NTN&W DevO), Civil Engineering and Development Department (CEDD) of the Government of HKSAR.

1.4 Background and Project Description

1.4.1 Tuen Mun Areas 40 and 46 are at the western part of the Tuen Mun New Town. They are sandwiched in between the new town proper to the east and an area for special industries to the west. Area 40 is a reclaimed area mainly for industrial uses. Separated by Lung Mun Road from Area 40, Area 46 consists of several platforms and vegetated slopes. Part of Area 46 falls within the former Pillar Point Valley Landfill (PPVL), for which restoration is completed and is currently under aftercare.

1.4.2 Since 1984, Area 40 has been zoned “Industrial” (“I”) on the Tuen Mun Outline Zoning Plan, and the concerned parts of Area 46 have been zoned “Other Specified Uses” annotated “Crematorium, Columbarium, Funeral Services Centre and Open Space” (“OU(C&C)”), “Government, Institution or Community” (“G/IC”), and “Green Belt” (“GB”) at the fringe.

1.4.3 Apart from the fire station, the majority of Area 40 is, at present, for temporary uses including a government laundry and private sawmills, warehouses and workshops. The sawmills were relocated from Area 18 for facilitating reclamation of the Tuen Mun New

Town proper in early 1980s. To facilitate marine transport of the logs, the sawmills are located along the waterfront of Tuen Mun Area 40.

1.4.4 According to the draft Area 46 Layout Plan which was prepared in 1980s, the area was planned for mortuary, funeral parlours, crematorium, memorial hall, and columbarium. The proposals have not been implemented. Currently, the lower platforms in Area 46 are used as a temporary golf course and temporary Government depot, whilst the remaining platforms are vacant.

1.4.5 To the west of the original PDAs near Siu Lang Shui, there are several vacant "G/IC" sites on platforms currently under short-term uses by various government departments as works areas, including one temporary plant nursery.

1.4.6 The proposed Tuen Mun and Chek Lap Kok Link (TM-CLKL), which includes a submarine tunnel, will link up the proposed Hong Kong-Zhuhai-Macao Bridge from near the Airport to Tuen Mun. An area at the waterfront of Area 40 will be reclaimed for the north tunnel landing of TM-CLKL for completion in 2017. The tunnel will then link with the elevated road across Area 40 to the proposed toll plaza in Area 46 where it will connect directly with the proposed Tuen Mun Western Bypass for completion in 2019. Areas 40 and 46 will become an important western gateway to Tuen Mun, through the northwest NT, across the Boundary and to Shenzhen.

1.4.7 The Tuen Mun District Council has all along strongly objected to the proposed crematorium, columbarium and funeral facilities in Tuen Mun Area 46. Tuen Mun Area 40 was included in the Area Assessment 2009 of Industrial Land in the Territory (Area Assessment 2009) which was completed in 2010. However, the Area Assessment 2009 recommended to retain the industrial use of the area for the time being and to undertake a land use review for Area 40 and the adjacent Area 46. Given the high proportion of Government land and the temporary nature of the existing buildings, there is potential to replan the areas for alternative uses. Initial views on the alternative uses gathered so far include: high-value-added uses such as commercial, office and hotel uses; logistics uses; the six industries (testing and certification, medical services, innovation and technology, cultural and creative industry, environmental industry and educational services) uses; and residential use, etc.

1.4.8 Given the above background, the Project would be conducted to comprehensively review the demand for various uses and the aspirations of the public, and assess the various land use options critically with a view to recommending an appropriate land use pattern for all the PDAs.

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

1.5.1 The Project is a planning and engineering study for Tuen Mun Areas 40 and 46 and the adjoining areas (the Study) with a total area of about 50.2 ha for all the PDAs. Therefore, the Project falls within Item 1 under Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO), i.e. "Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000". The Study is a Designated Project requiring an EIA report.

1.6 Name and Telephone Number of Contact Person

All queries regarding the Project can be addressed to :

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New Territories North and West Development Office

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2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Time Table

2.1.1 The Project including the EIA study is anticipated to commence in mid 2013 for completion with a study period of approximately 24 months. Outline implementation programme for developing all the PDAs will be formulated under the Study.

2.2 Interfacing with Other Projects

2.2.1 The Project may have interface with the following projects: Implementation of some of these projects has yet to be approved. This list should be re-visited during the EIA study to ensure all the latest projects available from the respective stakeholders are incorporated.

(i) Tuen Mun – Chek Lap Kok Link

(ii) Tuen Mun Western Bypass

(iii) Replacement and Rehabilitation of Watermains, Stage 3 and Stage 4

(iv) Upgrading of Pillar Point Sewage Treatment Works

(v) Sewerage in Western Tuen Mun

(vi) Cycle Tracks Connecting NWNT with NENT (Lung Kwu Tan Section)

(vii) Review and Update of the Second Railway Development Study-Feasibility Study

(viii) Greening Master Plan for New Territories North West – Investigation, Design and Construction

(ix) Extension of Tuen Mun Area 38 Fill Bank Operation

(x) Salt Water Supply for North West New Territories

(xi) Sewerage at Ka Loon Tsuen and Lung Kwu Tan, Tuen Mun – Village Sewerage in Lung Kwu Tan, Tuen Mun

(xii) Proposed incinerators for sludge treatment and municipal wastes in North West New Territories

2.2.2 The Project EIA will consider the environmental effects of the above projects on the development of all the PDAs.

3. Possible Impacts on the Environment

3.1 Air Quality

Construction Impacts

3.1.1 During construction, dust is the potential air quality impact which would be generated from construction activities such as material handling, excavation, vehicle movements and erosion of unpaved areas and stockpiles. The potential air quality impact however is anticipated to be short-term and be controlled through appropriate design and good site practice stipulated in the Air Pollution Control (Construction Dust) Regulation.

Operational Impacts

3.1.2 The major permanent sources of air pollutants are the vehicular emissions from traffic on major roads and the air pollutants emitted from the vicinity of the power plants and

industrial stationary sources. There will be vehicular emissions from the roads surrounding all the PDAs, including the Lung Mun Road and the proposed Tuen Mun-Chek Lap Kok Link and Tuen Mun Western Bypass, and all local roads.

3.2 Noise

Construction Impacts

3.2.1 The noise generated from construction activities, neighbouring concurrent construction works, piling works, construction plant, traffic along site access roads, and related powered mechanical equipment have the potential to pose adverse noise impacts to the surrounding sensitive receivers.

Operational Impacts

3.2.2 The future noise environment will be affected by road traffic noise, and fixed noise sources such as the possible recycling industry and logistic operations and industrial establishments .

3.3 Water Quality

Construction Impacts

3.3.1 The potential developments in all the PDAs will involve various construction activities undertaken at various time durations. The activities, which will have likely impact on water quality, include site formation, sediment removal, concrete washings, construction of bridges/underpass, bore piling, construction and upgrading of road network, site workshop or depot and sewage effluent from the workforce. The adverse impacts may comprise additional runoff, increase of suspended solids, pH value and turbidity levels, spillage of waste oils and generation of additional sewage and wastewater. The potential impacts on the nearby surface water associated with construction works will need to be addressed.

Operational Impacts

3.3.2 The operation of the potential development of all the PDAs will result in increases in generation of sewage, wastewater from commercial facilities and business areas as well as possible residential use, runoff from roads, railways and pedestrian walkways.

3.4 Solid Waste

Construction Phase

3.4.1 Solid wastes will mainly be generated from a wide range of construction activities such as site formation, construction of roads and drains, and construction of the potential development and infrastructure. The wastes arising from construction will largely consist of excavated and demolished C&D materials during earthworks and demolition works, chemical waste, and general refuse. The quantities of wastes to be generated during construction of the proposed developments in all the PDAs will largely depend on the programmes of various works packages and also require off-site disposal.

Operational Phase

3.4.2 The operation of the potential developments in all the PDAs and associated infrastructure will generate a significant amount of municipal solid waste. The storage and handling of this waste will have the potential to cause adverse environment impact.

3.5 Landfill Gas

3.5.1 The existing Pillar Point Valley Landfill (PPVL) and Siu Lang Shui Landfill (SLSL) are close to the PDAs. In fact, a small portion of PDA-A falls within the boundary of the PPVL and most of the portion of PDP-A, falls within the 250m Consultation Zone of PPVL. A portion of PDA-D falls within the 250m Consultation Zone of SLSL. The locations of the two landfill are shown on drawing no. NTW Z1467. As such, a landfill gas hazard assessment would need to be carried out for any development within the consultation zone. The potential impacts including the existing leachate treatment and landfill gas management facilities of the PPVL and SLSL may have on the future developments within the PDAs will need to be assessed.

3.6 Ecology

3.6.1 The western end of PDA-D is about 200m from Siu Lang Shui Site of Special Scientific Interest (SSSI) which is the largest known butterfly overwintering site in Hong Kong. Butterflies of the Family Danaidae have been recorded at the site in large numbers during winters since 1999. The location of the SSSI is also shown on drawing no. NTW Z1467. This SSSI also covers an exotic plantation of Eucalyptus torelliana (Cadaga) and Acacia confusa (Taiwan Acacia). As such, an ecological impact assessment would be carried out and the potential ecological impact associated with the construction and operation of the project would be assessed.

Construction Phase

3.6.2 During construction phase, major impacts on ecology would possibly include terrestrial habitat loss only at all the PDAs except PDA-C since Area 40 has been in use for industrial activities over a period of time. The potential impacts on the nearby SSSI associated with construction works for PDA-D will need to be addressed.

Operational Phase

3.6.3 During operational phase, potential ecological impacts will include disturbance impacts as a result of increased human activities, traffic noise, artificial lighting, etc. at development areas in all the PDAs and the surrounding habitats. The potential impacts on the nearby SSSI associated with operation phase for PDA-D will also be addressed.

3.7 Cultural Heritage

3.7.1 The topography and natural landform of most portions of Area 46 had been substantially modified. Area 40 is an area formed by reclamation. The PDA-D including several vacant "G/IC" sites on platforms formed is mostly for temporary uses such as works area and plant nursery. We checked the available information and identified no declared monuments, graded historic buildings and potential sites of archaeological interest within the Study boundary.

3.8 Land Contamination

3.8.1 There is potential for the presence of residues from small industries including small-scale vehicle repair workshops, concrete batching plant and storage sites to create an adverse impact that will need to be cleaned up during the site formation phase.

3.8.2 The land contamination issue and its impact within all the PDAs will be identified and assessed.

3.9 Landscape and Visual

3.9.1 The expected sources of landscape and visual impacts arising from the potential developments are as follows:-

Construction Phase

(i) Impacts on both landscape resources and character;

(ii) Loss of landscape elements, e.g. trees and natural topography;

(iii) Loss of visual amenity through removal of landscape elements e.g. trees;

(iv) Visual appearance of any temporary use prior to full development;

(v) Construction activities on newly formed areas and existing available land and

(vi) Obstruction of, or intrusion into views by the development.

Operational Phase

(i) Visual intrusion and obstruction created by the development and

(ii) Visual quality of the new development.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 The study area covers a coastal area at Pillar Point of Tuen Mun. On the landward side, there are PPVL, SLSL, Siu Lang Shui SSSI, service reservoir and a golf driving range. On the seaward side, there are River Trade Terminal, sewage treatment works, sawmills, workshops and storage facilities.

4.2 The major transport link to the project site is Lung Mun Road. Urmston Road would be the nearest receiving water bodies within the study area. The environmental condition in the study area is mainly influenced by traffic noise from the transport link and other noise issues such as the fixed noise sources from industrial activities located south of Lung Mun Road, while air quality is affected by vehicular and industrial emission (including emissions from the existing leachate treatment and landfill gas management facilities of PPVL and SLSL, Pillar Point Sewage Treatment Works, EcoPark, Permanent Fuel Aviation Facility, Shiu Wing Steel Mill, Green Island Cement Plant, and the Castle Peak Power Plant and Black Point Power Plant, etc.,).

4.3 The present land uses of all the PDAs will change and the future land uses will depend on the findings of the Study. Representative Noise and Air Sensitive Receivers could then be identified for environmental impact assessments during the EIA study.

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

5.1 General

5.1.1 The EIA study will investigate those environmental impacts and propose the appropriate mitigation measures with the intention that all proposals would be environmentally acceptable and cost effective. The residual impacts, if any, would be confined within the allowable limits. Environmental monitoring and auditing of potential impacts that may arise from the works of the development in all the PDAs would be provided for the construction and operational phases. Subject to the findings of the EIA study, the following mitigation measures will be incorporated in the design and construction of the Project.

5.2 Air quality

Construction Phase

5.2.1 In order to prevent adverse impacts on air quality, the control measures stipulated in the Air Pollution Control (Construction Dust) Regulations should be implemented wherever applicable, to limit the dust emissions from the site. Mitigation measures, including but not limited to the following, will be put in place.

- Stockpiles of dusty material will not extend beyond site boundaries.
- In the process of material handling, any material which has the potential to create dust will be treated with water or sprayed with a wetting agent where practicable.
- Any vehicle with an open load compartment used for transferring dusty materials off-site will be properly fitted with side and tail boards and cover.
- Stockpiles of sand and aggregate will be enclosed on three sides and water sprays will be used to dampen stored materials and when receiving raw material.
- The site will be frequently cleaned and watered to minimise fugitive dust emissions.
- Motorised vehicles on site will be restricted to a maximum speed of 15 km/hr and shall be confined to designated haul routes which will be paved or surfaced with hardcore.

Operational Phase

5.2.2 The details and extent of air quality mitigation measures will be subject to the assessment results in the EIA Study.

5.3 Noise

Construction Noise

5.3.1 In order to mitigate adverse noise impacts, the following general mitigation measures will be put in place.

- Quiet plant will be used to reduce noise generated.

- Movable and temporary barriers will be provided to screen NSRs from particular items of plant or noisy operations.
- Noise screening structures or purpose-built noise barriers will be provided along the site boundary to provide additional protection to NSRs nearby.
- Good site practices will be implemented as effective noise mitigation measures. These will include, but not limited to, locating noisy equipment and activities as far from NSRs as practical, scheduling noisy activities to minimise exposure of nearby NSRs to high levels of construction noise, proper maintenance of construction plant and devising methods of working to minimise noise impacts on the surrounding environment.

Operational Phase

5.3.2 For road traffic noise, a number of noise mitigation designs, namely traffic management measures, environmentally friendly layout design and where necessary, noise barriers, should be incorporated in the layout plan of all the PDAs. The details and extent of noise mitigation measures will be subject to the assessment results in the EIA Study.

5.3.3 For fixed noise sources, mitigation measures such as provision of buffer distance, environmentally friendly layout design should be incorporated in the layout plan of all the PDAs for mitigating noise impacts from existing/planned fixed noise sources to nearby existing/planned noise sensitive receivers (NSRs). The details and extent of noise mitigation measures will be subject to the assessment results in the EIA Study.

5.4 Water Quality

Construction Phase

5.4.1 In order to prevent adverse impacts on water quality, the following general mitigation measures will be put in place.

- Site run-off should be reduced and will be directed into temporary sand traps or other silt removal facilities before discharging into the outlets.
- Silt removal facilities will be maintained regularly.
- Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms.
- Silt curtains or sand bag barriers will be used to confine the disturbed area during sediment removal activities.
- Where possible, works entailing soil excavation will be minimised during the rainy season (April to September).
- To minimize the impacts of concrete washings, infiltration/sedimentation pits will be used to settle out the washings before treatment/re-use/discharge. If necessary, treatment units with pH adjustment will be adopted.
- Oil interceptors will be provided and properly maintained for collecting spillage or leakages from site workshops. The waste oil removed will be collected by licensed collectors.
- Mobile toilets or other appropriate means will be provided to store sewage before disposal through licensed collection agent or discharging to main sewerage system.

- For bore piling operations, the resulting suspension will be settled in sedimentation/ infiltration pit until supernatant is clear and the bentonite solids will be disposed appropriately.

Operational Phase

5.4.2 The following general mitigation measures are to be considered:

- provision of sand/silt and oil/grease traps, porous pavements and detention ponds at suitable locations to prevent ingress of pollutants to the stormwater system, which would serve to reduce the loading from the storm drains to the marine bodies outside Tuen Mun Area 40;
- construction of drainage works to prevent increased risk of flooding;
- upgrading the sewerage system for discharge into Pillar Point Sewage Treatment Works or providing other sewage treatment/disposal facilities to ensure that there is sufficient capacity to cater for increased sewage effluent flows from the developments; and
- provision of suitable measures to minimise the risk of emergency discharges of untreated sewage effluent and to ensure timely repair.

5.5 Solid Waste

Construction Phase

5.5.1 Solid waste arising from construction will largely consist of spoil generated during earthworks, and general construction waste/surplus materials (such as C&D material from demolition works, chemical waste and general refuse).

5.5.2 The following measures will be implemented to reduce the quantities of C&D material for disposal off site:

- All C&D material will be sorted and re-used wherever possible;
- Waste haulier should obtain the necessary registration and licences under the Waste Disposal Ordinance and the Waste Disposal (Chemical Waste) (General) Regulation from the Environmental Protection Department;
- Nomination of an approved person to be responsible for good site practice, arrangements for collection and effective disposal to an appropriate facility, of all waste generated at the site;
- Separation of chemical wastes for special handling and appropriate treatment at a licensed facility;
- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites);
- In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills, and control fly-tipping, a trip-ticket system shall be implemented by the Contractor, in accordance with the contract and the requirements of DEVB No. 6/2010 "Trip Ticket System for Disposal of Construction and Demolition Materials".
- A Waste Management Plan (WMP) shall be prepared and this WMP shall be submitted to the Engineer for approval. The WMP will be in accordance with ETWB TC(W) No. 19/2005 "Environmental Management on Construction Sites".

- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse of recycling of materials and their proper disposal.
- Any unused chemicals or those with remaining functional capacity shall be recycled;
- Use of reusable non-timber formwork to reduce the amount of C&D material; and
- Proper storage and site practices to minimize the potential for damage or contamination of construction materials.

Operational Phase

5.5.3 The following mitigation measures are to be considered:

- Modern waste management facilities would be investigated for the developments in all the PDAs. The facilities have potential enhancement of sanitary and environmental conditions over the conventional refuse collection points (RCP).
- The RCP should be enclosed to minimize noise, odour and visual nuisance, and it should be fitted with a de-odourizing unit and ventilation system to remove odour. Each RCP should be fitted with a water point and high pressure hose for cleansing operations, with connection to the foul sewerage system.
- Domestic waste recycling should be encouraged, with provision of collection bins at appropriate locations in all housing estates and promotion campaigns for waste paper recovery, plastic bag collection and “sort and recovery” of waste materials.

5.6 Landfill Gas

5.6.1 The need and details of landfill gas hazard assessment should follow EPD’s “Landfill Gas Hazard Assessment Guidance Note (1997)” and Professional Persons Environmental Consultative Committee (ProPECC) PN 3/96 Landfill Gas Hazard Assessment for Developments Adjacent to Landfills (1996)". Mitigation measures during construction and operational stages will be determined accordingly.

5.7 Ecology

5.7.1 The mitigation measures that are to be implemented to minimize the impacts on air quality, noise and water quality will also help to minimize any impacts on ecological resources.

5.7.2 As regards potential habitat loss, the best mitigation is avoidance and will be used wherever possible. For loss which is considered unavoidable, compensation will be provided, with the following features:-

- a variety of habitat types;
- linkage with other wetland areas and other ecological resources; and
- an acceptable size for creation of habitats and to minimize disturbance to fauna utilizing the habitat

5.7.3 Practicable mitigation measures would be proposed to avoid, minimise and/or compensate for the adverse ecological impact identified, for the construction and operation stages, to the nearby SSSI.

5.8 Cultural Heritage

5.8.1 The Project would not affect any cultural heritage in the vicinity because no declared

monuments, graded historic buildings and potential sites of archaeological interest are identified within the Study boundary. Mitigation measures are therefore not required and there are no residual impacts on cultural heritage.

5.9 Land Contamination

5.9.1 The following mitigation measures will be implemented, where appropriate, during the construction phase to minimise any potential exposure to contaminated soils or groundwater:

- Site workers should wear gloves, masks and other protective clothing where exposure to vapour or contaminated soil may be encountered;
- Contaminated materials should be removed with bulk earth movers to prevent human contact;
- Adequate washing facilities should be provided and smoking/eating should be prohibited in the area;
- Contaminated sediments which have been stockpiled or are being transported should be covered with tarpaulin;
- Leakage of pollutants or leaching from excavated soil should be prevented by storing on an impermeable surface;
- Only licensed waste haulers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of wastes does not occur; and
- The necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the *Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)*.

5.9.2 Mitigation measures will also be determined with reference to EPD's documents such as "The Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (Dec 2007)", "The Guidance Notes for Contaminated Land Assessment Remediation (Aug 2007)", and "The Practice Guide for Investigation and Remediation of Contaminated Land (Aug 2011)".

5.10 Landscape and Visual

Mitigation Measures to be Incorporated in the development layouts of all the PDAs

5.10.1 The following measures will be adopted, where appropriate, to minimize the landscape and visual impacts during the design stage.

- the urban design principles such as the density of the development and focusing the development around certain functions;
- controlling building height profiles and adopting stepped building height concept;
- responsive building massing;
- controlling the walling effect;
- preserving and establishing visual and open space linkages, including provision of view corridors and breezeways; and

- landscape design principles of preserving existing trees and vegetation and provision of buffer or screen planting, etc.

Construction Phase

5.10.2 The following general mitigation measures will be implemented, where appropriate, to alleviate the impacts for the construction phase.

- Erosion control measures should be implemented for protection of construction works and the landscape if heavy rains occur.
- Measures should be taken to store and use construction equipment and building materials where they are not visually intrusive, or easily washed away or where they produce less dust.
- Damaged vegetation and trees, not earmarked for removal, should be rectified, repaired or replaced, using the same species, size and form, to the original condition as far as possible.
- Minimization of light pollution techniques to be implemented. This includes having more lights with focused beams rather than energy wasting, floodlighting which might impact on the night-time character of the area.
- Exposed slopes should be hydroseeded as soon as upgrading works are completed; and vegetated to prevent erosion and subsequent loss of landscape resources and character; screening planting should be provided for retaining structures associated with slope works; and
- Haul roads should be rehabilitated at the earliest opportunity to be compatible with their existing surrounding landscape or planned surrounding landscape.

Operational Phase

5.10.3 The following general mitigation measures are to be considered for the operational phase.

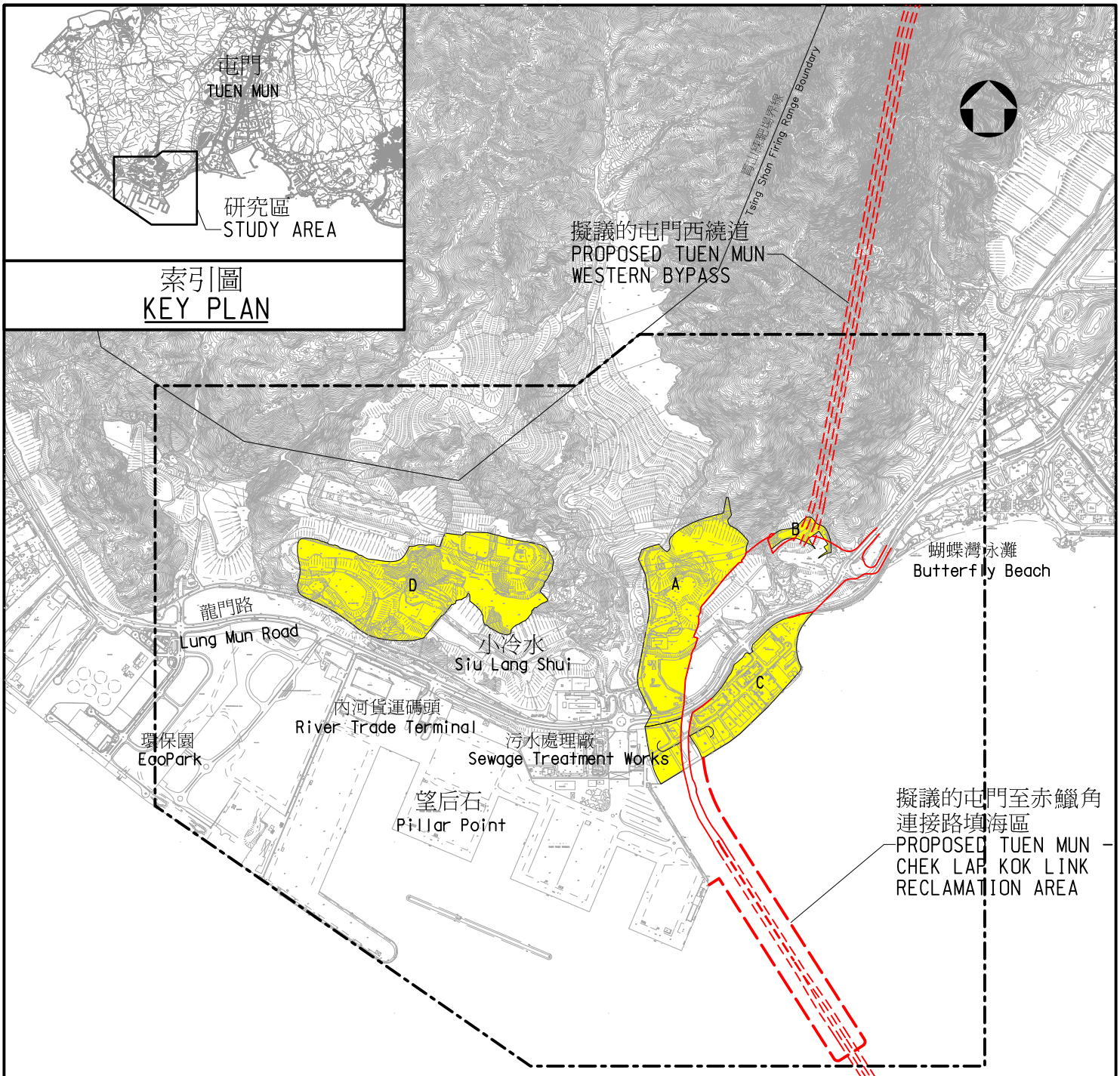
- Topsoil conservation will be practised where soil stripping is due to occur. Soil of appropriate quality will be removed and stored in an appropriate manner for reuse within the same site or in alternative locations.
- Tree transplanting and compensatory planting will mitigate the impact on the existing tree/woodland.
- Roadside planting is proposed at suitable locations to enhance local identity, if theme planting is used, and reduce visual impact through screening.
- Amenity strips will be provided to roads, wherever practicable, to mitigate their visual appearance.
- Road structures, such as pedestrian bridges, will be designed to improve the visual appearance of the road corridor.
- The visual impact of noise barriers will be mitigated by appropriate detailed design, including use of transparent panels, provision of planting on and adjacent to the barriers, appropriate colour selection of panels and supporting structure as well as design of supporting structures to incorporate a high level of quality and aesthetics.
- The landscape treatment of road embankments and soil slopes will be provided to enhance their visual appearance.

- Landscape treatment will be provided to open drainage channels, where practicable, to enhance their visual appearance.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS

No previously approved EIA report covers the full extent of the study area of the proposed Project. However, reference would be made to the following previously approved EIA reports within the study area:

Register No.	**Title**
AEIAR-146/2009	Tuen Mun – Chek Lap Kok Link
AEIAR-066/2002	Construction of Lung Kwu Chau Jetty



圖例
LEGEND:

- 研究區界線 STUDY AREA BOUNDARY
- 具發展潛力地區 POTENTIAL DEVELOPMENT AREA (PDA)
- 擬議屯門至赤鱲角連接路及屯門西繞道的示意走線 INDICATIVE ALIGNMENT OF PROPOSED TUEN MUN -CHEK LAP KOK LINK AND TUEN MUN WESTERN BYPASS

編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved
修訂 REVISION				

圖則名稱 drawing title

屯門40區及46區和毗連地區規劃及工程研究 - 研究範圍

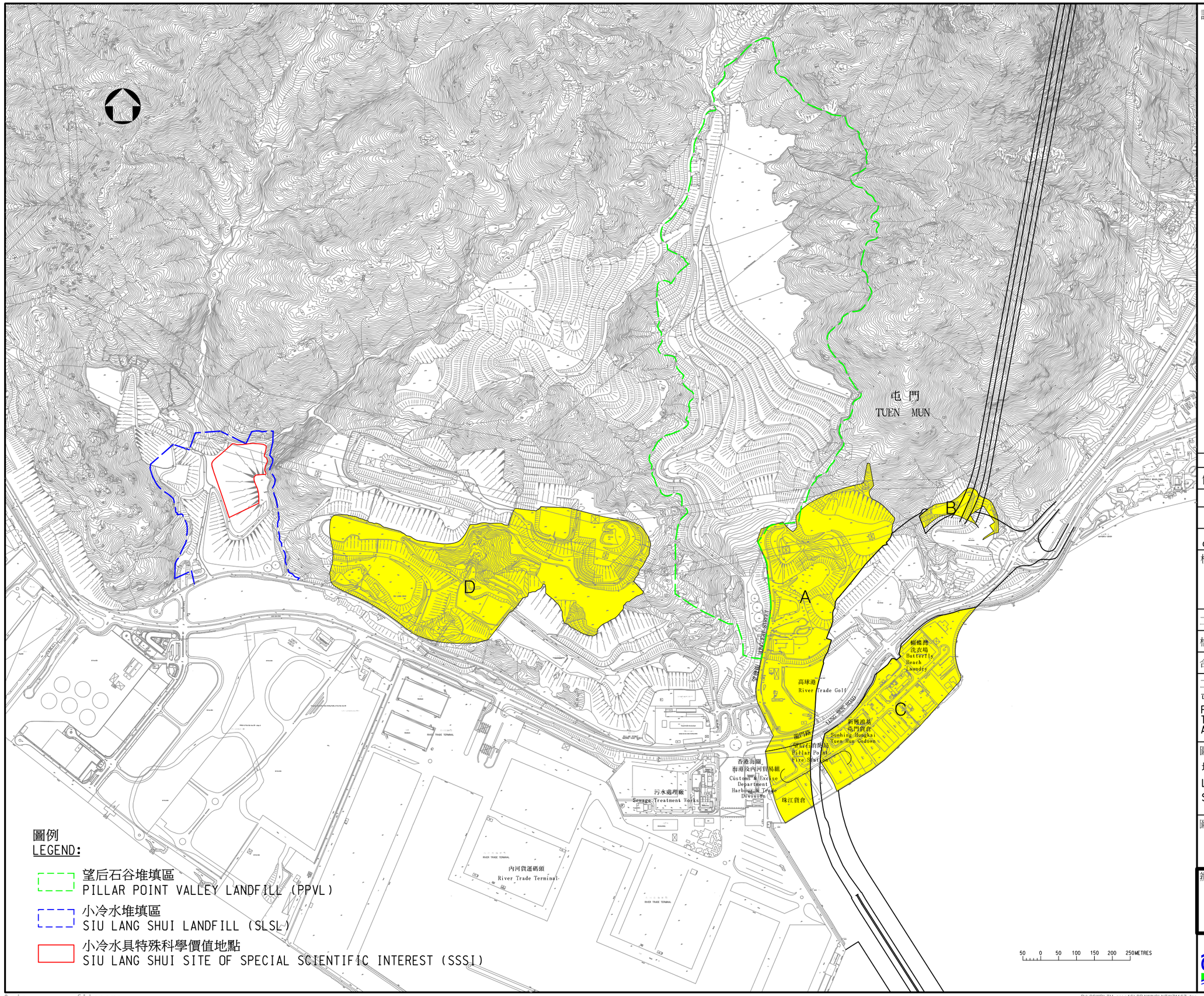
PLANNING AND ENGINEERING STUDY FOR TUEN MUN AREAS 40 AND 46 AND THE ADJOINING AREAS - STUDY AREA

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.
P.K. SO	SIGNED	07.11.2012	
核對 checked	簽署 initial	日期 date	比例 scale
W.H. LEE	SIGNED	07.11.2012	1 : 20 000
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.
W.L. LEE	SIGNED	07.11.2012	NTW Z1461

辦事處 office
新界西及北拓展處
NEW TERRITORIES NORTH AND WEST DEVELOPMENT OFFICE

土木工程拓展署
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

A4 210MM X 297MM



圖例
LEGEND:

- 望后石谷堆填區
  PILLAR POINT VALLEY LANDFILL (PPVL)
- 小冷水堆填區
  SIU LANG SHUI LANDFILL (SLSL)
- 小冷水具特殊科學價值地點
  SIU LANG SHUI SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

註釋 NOTES :

編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved

修訂 REVISION

	姓名 name	簽署 initial	日期 date
繪圖 drawn	P.K. SO	SIGNED	07.11.2012
核對 checked	W.H. LEE	SIGNED	07.11.2012

核准 approved

SIGNED 07.11.2012
W.L. LEE 日期 date

工程編號 project no.

檔案編號 file no.

合約編號 contract no.

工程名稱 project title
屯門40區及46區和毗連地區規劃及工程研究
PLANNING AND ENGINEERING STUDY FOR TUEN MUN AREAS 40 AND 46 AND THE ADJOINING AREAS

圖則名稱 drawing title
堆填區及具特殊科學價值地點位置圖
LOCATION PLAN OF LANDFILL AREAS AND SITE OF SPECIAL SCIENTIFIC INTEREST

圖則編號 drawing no.
NTW Z1467

比例 scale
AS SHOWN

辦事處 office
新界西及北拓展處
NEW TERRITORIES NORTH AND WEST DEVELOPMENT OFFICE

CEDD 土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

date filename

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A3 420MM X 297MM