

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING Environmental Protection – Refuse Disposal 165DR – West New Territories landfill extension

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **165DR** as **192DR**, entitled “West New Territories landfill extension”, to Category A at an estimated cost of \$44,277.8 million in money-of-the-day prices; and
- (b) the retention of the remainder of **165DR** in Category B.

PROBLEM

The West New Territories (WENT) Landfill, the largest landfill in Hong Kong and the only one that can receive waste transported by sea, is expected to be exhausted in 2026. As the development of waste-to-energy/resources facilities takes time, we have to extend the WENT Landfill especially to meet the waste disposal needs of Hong Kong in the short to medium term.

/PROPOSAL

PROPOSAL

2. The Director of Environmental Protection, with the support of the Secretary for the Environment, proposes to upgrade part of **165DR** to Category A at an estimated cost of \$44,277.8 million in money-of-the-day (MOD) prices for the design, construction and restoration of the proposed WENT Landfill Extension.

PROJECT SCOPE AND NATURE

3. The part of **165DR** which we propose to upgrade to Category A comprises –

- (a) detailed design of the landfill and ancillary works/facilities;
- (b) site formation;
- (c) construction of basic and supporting facilities;
- (d) installation of impermeable landfill liner system;
- (e) installation of leachate collection and management system;
- (f) installation of landfill gas collection and management system;
- (g) implementation of measures to mitigate environmental impacts;
- (h) conduct of environmental monitoring and auditing;
- (i) enhancement to the environment and facilities of the local community; and
- (j) construction of restoration and aftercare facilities.

_____ The location plan and artist's impression showing the proposed works are at Enclosures 1 and 2.

4. Subject to funding approval of the Finance Committee (FC), we shall proceed with the subsequent work as soon as possible and commence the proposed project in end 2022, with a view to commencing waste intake in 2026. The whole project is expected to be completed within two years upon the filling-up of the WENT Landfill Extension.

5. We shall retain the remainder of **165DR**, i.e. the proposed road works for Nim Wan Road (South), in Category B. We have already commenced the associated planning and design work. Funding application will be made in due course upon completion of the relevant preparatory work.

JUSTIFICATION

6. On 8 February 2021, the Environment Bureau (ENB) unveiled the *Waste Blueprint for Hong Kong 2035* (the Blueprint) setting out the vision of “Waste Reduction • Resources Circulation • Zero Landfill”. In accordance with the vision and strategies laid down in the Blueprint, we will make greater efforts in mobilising the entire community to practise waste reduction, and implement multi-pronged measures, for example, taking forward various legislation proposals, implementing municipal solid waste (MSW) charging and producer responsibility schemes, expanding the central collection services for food waste and waste plastics, enhancing the community recycling network, supporting the recycling industry and strengthening our education and publicity work, so as to achieve waste reduction and recycling on a considerably larger scale. On the other hand, we will promote transformation of waste into resources and build a circular economy through the further development of waste-to-energy/resources facilities.

7. Assuming that sufficient waste-to-energy infrastructure with adequate treatment capacity can be in place by around 2035, we will no longer need to rely on landfills for direct disposal of our MSW. By then, only a small amount of waste that is non-combustible and cannot be recycled or reused will be directly disposed of at landfills.

8. Although a number of large-scale waste management facilities have already been put into operation or are under planning, we still need to have adequate landfill capacities to meet the waste disposal needs in the short to medium term before sufficient waste-to-energy/resources facilities are made available. Currently, the three strategic landfills (namely the WENT Landfill, the South East New Territories (SENT) Landfill and the North East New Territories (NENT) Landfill) together with the seven refuse transfer stations (RTS) located in Hong Kong Island, Kowloon, the

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New Territories and outlying islands are the backbone facilities for handling some 15 000 tonnes of solid waste per day (about 11 000 tonnes of MSW, 3 500 tonnes of construction waste and 500 tonnes of special waste) in Hong Kong. Amongst these facilities, the SENT Landfill receives only construction waste¹ and the NENT Landfill (located in inland Ta Kwu Ling) can receive waste via land transportation only. The WENT Landfill is the largest landfill in Hong Kong and the only one that can receive waste transported by sea.

9. Since the existing capacities of the three strategic landfills would be exhausted progressively, the FC approved in December 2014 the funding for the extension works of the SENT Landfill and the NENT Landfill², as well as a design and related consultancy study for preparation of the WENT Landfill Extension project. A consultancy study was commissioned in September 2015 to proceed with various work including preliminary design, ground investigation and related preparatory work for the WENT Landfill Extension project. The related design and investigation work have been substantially completed.

10. At present, the WENT Landfill is the largest landfill in Hong Kong and the only one that can receive waste transported by sea, handling over half of the MSW in Hong Kong (i.e. about 6 000 tonnes per day). It plays an indispensable role in the waste management strategies for Hong Kong. Given that the WENT Landfill is expected to be exhausted in 2026³ and it normally takes three to four years to
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1 Since 6 January 2016, the SENT Landfill can only receive and dispose of construction waste, which mainly includes inert materials (e.g. rock, debris, silt and concrete, etc.) and some nearly non-degradable materials (e.g. wood, bamboo, metals and packaging of construction materials, etc.). Similarly, the extension of the SENT Landfill to be commissioned will receive and dispose of construction waste only.

2 The SENT Landfill Extension project commenced in 2018 and the basic extension works is expected to be completed by the end of 2021 for reception of construction waste. The NENT Landfill Extension contract was tendered in late 2020 and is expected to be awarded by the end of 2021.

3 As of the end of 2020, the remaining capacity of the WENT Landfill was about 13.5 million cubic metres. Assuming that the operation of the WENT Landfill remains unchanged in the coming few years, we estimate that around 7 000 tonnes of solid waste per day will be received and disposed of at the Landfill (owing to the pandemic and slow down of economic activities, only about 6 400 tonnes of solid waste per day were received and disposed of at the WENT Landfill in 2020). Calculated with the assumption that 1.1 tonnes of waste will occupy 1 cubic metre of landfill capacity, we estimate that the remaining serviceable life of the WENT Landfill is about 5.8 years (= 13 500 000 cubic metres x 1.1 weight conversion factor / 7 000 tonnes / 365 days). We thus estimate that the WENT Landfill will become exhausted in 2026. The serviceable life of landfills depends on a number of variable factors, including external factors of population growth, district development, economic activities, effectiveness of waste reduction and recycling initiatives, development of other waste management infrastructure and waste-to-energy facilities, and internal ones such as landfill design, operation mode, rate of settlement, etc. As most of these factors are variable and dynamic in nature, the serviceable landfill life estimation is only for reference, which needs to be reviewed and updated from time to time according to the latest available information.

complete the basic extension works for commissioning a landfill, timely commencement of the WENT Landfill Extension works is of utmost importance.

11. Having regard to the views of local communities and taking into account that the Government is proactively planning to develop more waste-to-energy/resources facilities to handle MSW, we plan to reduce the landfill extension area from the original design of about 200 hectares (ha) to about 100 ha. The landfilling area is also halved, from the original design of around 180 ha to about 94 ha. In addition, the whole project does not require resumption of any private land or removal of existing graves and temple. We can speed up the project progress and reduce its impacts on the relevant parties. According to the currently adopted “deep bowl” design, land can be utilized more efficiently. We estimate that the landfill extension can provide a landfill capacity of around 76 million cubic metres especially to meet waste disposal needs in Hong Kong in the short to medium term.

FINANCIAL IMPLICATIONS

12. The strategic landfills now in operation are all developed in stages, based on waste intake rate, operational needs and project design. They are also filling up with waste gradually from bottom to top, in zones and phases, and with left-right balance. Since the landfills are being operated and constructed simultaneously, their construction periods are usually some 30 years or longer, which are much longer than the construction periods of a few years for general public works projects. As the geological conditions, surrounding constraints and landfill design of each landfill differ from one another, and so do the construction periods and construction costs. Regarding the WENT Landfill Extension, we preliminarily estimate that the construction period for the entire extension works (from start of site formation works till completion of restoration works for the fully filled landfill) would take more than 30 years.

13. With considerations of the extra-long construction period of the WENT Landfill Extension, the associated inflation and other factors, we estimate the capital cost of the proposed works to be \$44,277.8 million in MOD prices, broken down as follows –

/(a)

		\$ million (in MOD prices)
(a)	Design and advance works	319.4
(b)	Basic and supporting facilities	398.7
	(i) Waste reception facilities	101.4
	(ii) Water supply and drainage systems	148.6
	(iii) Ancillary works and facilities	147.7
	(iv) Furniture and equipment	1.0
(c)	Site formation works for waste reception area, landfilling area and related works site	32,319.1
	(i) Site clearance works	92.5
	(ii) Blasting, excavation works and related slope stabilisation works	30,558.1
	(iii) Fill deposition and compaction works	1,277.2
	(iv) Construction of landscaped earth bund	276.0
	(v) Modification of Tsang Kok Stream Outfall	115.3
(d)	Impermeable landfill liner system	1,631.4
(e)	Leachate collection and management system	1,528.4
	(i) Leachate collection system	617.2
	(ii) Leachate treatment and pumping system	911.2
(f)	Landfill gas collection and management system	864.1
(g)	Mitigation measures and environmental monitoring and audit for construction works	667.5
(h)	Enhancement to the environment and facilities of the local community	303.5
(i)	Restoration and aftercare facilities	1,202.5

/(j)

		\$ million (in MOD prices)
(j)	Consultants' fees for	43.6
	(i) contract administration	17.7
	(ii) management of resident site staff	25.9
(k)	Remuneration of resident site staff	974.3
(l)	Contingencies	4,025.3
Total		<hr/> 44,277.8 <hr/>

We propose to engage consultants to undertake contract administration and site supervision for the project. A breakdown of the estimate for consultants' fees and resident site staff costs by man-month is at Enclosure 3.

14. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (in MOD prices)
2022 – 2023	35.4
2023 – 2024	453.4
2024 – 2025	719.0
2025 – 2026	1,089.4
2026 – 2027	1,503.2
2027 – 2028	1,878.7
2028 – 2029	2,139.4
2029 – 2030	2,315.0
2030 – 2031	2,358.3
2031 – 2032	2,426.9

/Year

Year	\$ million (in MOD prices)
2032 – 2033	2,522.7
2033 – 2034	2,609.7
2034 – 2035	2,733.0
2035 – 2036	2,778.9
2036 – 2037	2,904.6
2037 – 2038	3,068.6
2038 – 2039	3,143.0
2039 – 2040	3,088.7
2040 – 2041	823.3
2041 – 2042	821.7
2042 – 2043	631.2
2043 – 2044	656.4
2044 – 2045	486.0
2045 – 2046	505.4
2046 – 2047	506.7
2047 – 2048	526.9
2048 – 2049	336.0
2049 – 2050	478.4
2050 – 2051	453.1
2051 – 2052	139.6

/Year

Year	\$ million (in MOD prices)
2052 – 2053	145.2
	<hr/> 44,277.8 <hr/>

15. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output. We will deliver the works and the operation of the proposed WENT Landfill Extension under the Design-Build-Operate contractual arrangements. The contract will provide for price adjustments.

16. The proposed WENT Landfill Extension, with reduced extension area, will provide a landfill capacity of 76 million cubic metres, or 810 000 cubic metres of landfill capacity per ha of waste filling area, which could have a better land utilization rate when compared with that of 180 000 to 300 000 cubic metres per ha in the extension projects of the other two landfills (namely SENT and NENT Landfills). However, owing to the blasting and significant excavation works in site formation, the associated total construction cost of WENT Landfill Extension is relatively higher. As different landfill extension projects will have different geographical conditions, surrounding constraints and landfill designs, the site formation works and costs involved may also vary significantly. For instance, the formation works for the SENT Landfill Extension project are relatively simpler whereas the site formation cost for the NENT Landfill Extension project is yet to be confirmed as which is under the tender invitation stage. Therefore, when comparing project costs, it will be more reasonable if the cost incurred for site formation works is deducted from the capital cost to arrive at the basic construction cost. The basic construction cost (after deducting the cost incurred for site formation works) for each cubic metre of landfill capacity of the WENT Landfill Extension project is thus estimated to be \$157 in MOD prices, about half of the basic capital cost for the extension projects of the other two landfills, i.e. the SENT Landfill and the NENT Landfill Extension projects.

17. We estimate that the additional annual recurrent expenditure arising from the WENT Landfill Extension to be around \$60.56 million. We will determine the related charges and fees in accordance with the "polluter pays" principle.

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PUBLIC CONSULTATION

18. Since the funding approval given by the Legislative Council for the “West New Territories landfill extension – consultants’ fees and investigations” in 2014, the ENB and the Environmental Protection Department (EPD) have been in close dialogue with various stakeholders. They include village representatives of Lung Kwu Tan Village and Ha Pak Nai Village, the Tuen Mun and Ha Tsuen Rural Committees, the Tuen Mun District Council, the Yuen Long District Council and local groups and members of various liaison groups. Communication has been maintained to collect their views on the planning and development of the WENT Landfill Extension as well as the road improvement works in the vicinity, and to facilitate their understanding of the operation of the major waste treatment facilities in the district as well as the related environmental monitoring work, thereby relieving their concerns and proactively addressing their demands.

19. To address the comments raised by local stakeholders on the mitigation measures required and the enhancement to the environment near the WENT Landfill, we have proactively responded and undertaken/planned various initiatives including the following:

- (a) **Enhancing the design of the extension** – We have substantially reduced the extension area and proposed to adopt a “deep bowl” design. A 30-meter high (equivalent to the height of a 10-storey building) landscaped earth bund will be constructed along Nim Wan Road. The excavation and landfilling will then be carried out at the back of the landscaped earth bund so as to effectively control and contain the potential nuisance of odour, dust, wastewater and noise from the landfill. The reduced extension area will enhance the efficiency of collecting landfill gas and controlling landfill gas emission, so as to contribute to the long term goal in carbon neutrality. We also plan to provide green buffer zones of 10 to 30 metres wide at the boundary area of the extension site to provide visual and environmental enhancement;
- (b) **Optimizing land resource** - We have carefully considered the extent of the landfill extension. The whole project will not involve resumption of any private land or removal of existing graves and temples. This will not only minimize the impact to the relevant parties, but also reserve valuable land resource for coping with

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the overall development and long-term demand in Hong Kong;

- (c) **Improving environmental hygiene** – To further enhance the local environment, we have stepped up the cleansing of the road section between Lung Kwu Tan Village and the Landfill, including three road sweeps and one road wash a day. In addition, we conduct deep cleansing at the road sides of Lung Kwu Tan Road section nearby Lung Kwu Tan Village from time to time, including washing and dust removal of pedestrian pavements, road-crossing islands, roadside railings and traffic signs. The EPD has also installed two sets of closed circuit televisions at Lung Mun Road and Siu Lang Shui Road for surveillance and combating illegal dumping of waste. Since the launch of the system in March 2014, the EPD has successfully made 40 prosecutions, which are effective in deterring flytipping activities;
- (d) **Enhancing water supply** – To enable more effective share-utilization of the water resources of Tai Shui Hang by the Landfill and the Ha Pak Nai Village nearby, we have repaired the water pumping system and connecting pipes to provide free water supply for the villagers regularly. In addition, we are installing a large water tank at the Landfill to ensure sufficient water supply for daily use by both Ha Pak Nai Village and the Landfill during dry seasons;
- (e) **Stepping up landscaping efforts** – We have committed to promoting the greening of the Landfill. The restoration works have been advanced and a large amount of tree seedlings have been planted at the slope facing Ha Pak Nai Village. We will soon conduct a planting trial in the Landfill with various plant species to provide a reference for large scale planting in future. We also plan to provide green buffer zones of 10 to 30 metres wide and an earth bund at the boundary area of the extension site. The greening works will be initiated at the early stage of the extension works so as to minimize the nuisance to nearby environment;

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- (f) **Reducing waste collection vehicles** – We have arranged for livestock waste collection vehicles and large government waste collection trucks not to use Lung Kwu Tan Road. The number of waste collection vehicles passing through Lung Kwu Tan has been reduced by 100 trips per day to an average of about 180 trips per day. These vehicles mainly collect odourless waste such as construction waste, wood waste and waste tyres in the vicinity of Butterfly Beach and Tuen Mun. We have also increased the proportion of MSW transported by sea to the WENT Landfill to about 90%, which is much higher than our previous pledge of no less than 80%;
- (g) **Enhancing road safety** – Since August 2013, the EPD, the Hong Kong Police Force and the Food and Environmental Hygiene Department have jointly conducted over 130 ambush operations at Lung Kwu Tan Road and Nim Wan Road to address safety and hygiene issues including overloaded vehicles, insecure load, wastewater dripping, etc. We have also installed a speed enforcement camera at Lung Kwu Tan Road to combat speeding;
- (h) **Improving local transport infrastructure** – Regarding the upgrading of Deep Bay Road, Nim Wan Road (North) and Nim Wan Road (South) to a standard single two-lane carriageway, we have completed the feasibility study and created public works project items correspondingly, and will implement the items by phases. The earliest road improvement plans for the Nim Wan Road (South) and Deep Bay Road sections will be gazetted later this year, to be followed by detailed design and related land resumption arrangements. Regarding the further proposal raised by local stakeholders on constructing a road tunnel to connect the WENT Landfill and Tuen Mun/Yuen Long, we have conducted a preliminary study on different alignment options, and the outcomes reveal different levels of difficulties and challenges. The cost-effectiveness of the proposal can hardly be established given the existing population and traffic demand within the district. Looking forward, the Civil Engineering and Development Department (CEDD) is planning to

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commission the proposed “Planning and Engineering Study for Lung Kwu Tan Reclamation and the Re-planning of Tuen Mun West Area” (the P&E Study), which will include a review of the strategic as well as local transport network. The Government will take this opportunity to re-examine the feasibility of the above-mentioned tunnel proposal, with regard to the proposed Lung Kwu Tan Reclamation and the re-planning strategy. We also note that the CEDD will explore, under the P&E Study, the construction of new roads within the reclaimed area to serve as alternatives to Lung Kwu Tan Road for use by heavy vehicles. This will help address the residents’ concerns on environmental issues arising out of heavy vehicles travelling through Lung Kwu Tan Village; and

- (i) **Reinforcing communication efforts** – We have set up a liaison group to engage all relevant local stakeholders, for whom regular meetings have been held with many site visits (e.g. the WENT Landfill, the T·PARK, the EcoPark and the WEEE·PARK) arranged to help the group members better understand the operation of the waste treatment facilities as well as the related environmental monitoring work.

20. The proposed modification of Tsang Kok Stream Outfall was gazetted on 8 and 15 January 2021 under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127). No objection was received during the 2-month statutory objection period. Upon completion of the necessary procedures, we will public gazette the notice of authorization in the Government Gazette.

21. In January and February 2021, the ENB and EPD briefed the Tuen Mun and Ha Tsuen Rural Committees, the Lung Kwu Tan and Ha Pak Nai Villages, and the five Area Committees of Tuen Mun on the future waste management strategies for Hong Kong and the latest proposal on the WENT Landfill Extension. Some village representatives opposed the extension plan, raising specific concerns on local traffic conditions and transport planning for the area, in addition to their concerns relating to landfill operation and environmental hygiene matters. The Rural Committees noted the Government’s proposal and requested the Government to improve the transport planning for the district, particularly with the commissioning

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of the Tsang Tsui Columbarium as well as the Northern Connection of the Tuen Mun-Chek Lap Kok Link. For the five Area Committees, their members generally did not object to the WENT Landfill Extension project but requested the Government to take forward several initiatives. They include enhancing the ancillary transport facilities and environmental hygiene in Tuen Mun, providing more community and recreational facilities, stepping up greening efforts, improving road cleanliness, expanding the recycling network with more recycling stores, expediting the implementation of centralized waste plastics collection services and strengthening environmental education, etc. Members were also concerned about the Government's waste recycling policies and the related operational arrangements.

22. On 22 February 2021, we consulted the Legislative Council Panel on Environmental Affairs on the project. The Panel supported in principle the submission of the project by ENB to the Public Works Subcommittee for consideration. We will provide supplementary information requested by the Panel.

23. We will continue to follow up on the stakeholders' suggestions and concerns relating to landfill operation and the related environmental impacts. We will maintain close contact with the stakeholders and strive to improve the surrounding environment of the Landfill. The road improvement works will be conducted and local residents' views on the transport planning for the area will be conveyed to relevant departments for consideration.

ENVIRONMENTAL IMPLICATIONS

24. The proposed WENT Landfill Extension project is a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). The EIA report was approved in November 2009 after consultation with the general public and the Advisory Council on the Environment. An Environmental Permit (EP) was issued in June 2010, stipulating that the project would need to comply with the requirements in accordance with the EP conditions.

25. To minimize the impact of the project on the neighbourhood, we have enhanced the design of the extension works and substantially reduced the landfill extension area by half from the original design of about 200 ha to around 100 ha. The extension part will also adopt a "deep bowl" design, which can control and handle the potential nuisances such as odour, dust, wastewater and noise generated from the landfill more effectively, and also provides visual and environmental enhancement.

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26. During the construction, a variety of mitigation measures will be implemented to control noise, dust and site run-off to levels within established standards and guidelines. The measures include control of working hours, sea transportation of materials wherever possible, use of quiet construction plant to reduce noise generation, water-spraying to reduce dust emission as well as proper containment and treatment of site run-off.

27. During the operation, we will control the size of active tipping areas, apply daily cover on waste and cover up inactive tipping areas with plastic liners to minimize odour nuisance. Besides, a condition will be included in the contract requiring the landfill contractor to cover up all (both temporary and permanent) leachate storage tanks to further control the potential odour sources.

28. The landfill design is a containment design and its impermeable bottom liner separates the waste from the nearby environment. Leachate and landfill gas (LFG) generated during biodegradation process will be contained, collected and properly treated in a controlled environment. LFG will be used to generate electricity for site operation and the leachate treatment process. Any surplus LFG will be utilized for other beneficial uses. The contained leachate will be collected by pipe networks and treated at the leachate treatment plant within the landfill. We will ensure that both LFG and leachate will have no adverse impact on the surrounding environment.

29. At the planning and schematic design stages, we will require the landfill contractor to reduce the generation of construction waste wherever possible. At the construction stage, the contractor will be required to submit for approval a waste management plan setting out appropriate mitigation measures to avoid and reduce the generation of inert construction waste, and to reuse and recycle such waste in the landfill or other suitable construction sites. We will ensure the day-to-day operations on site comply with the approved waste management plan and require the contractor to handle the inert and non-inert construction waste separately on site. We will monitor the disposal of inert and non-inert construction waste through a trip-ticket system.

30. Compensatory tree planting and greening work will be carried out in accordance with the contract to compensate for the loss of existing wood land and shrub land within the site boundary. When the landfill is fully filled and restored, the site will be planted with vegetation to match with its surrounding landform and patterns.

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31. The approved EIA report has provided a comprehensive assessment on the potential environmental impacts associated with the construction, operation, restoration and aftercare phases of the project. The assessment has concluded that, with the implementation of the proposed mitigation measures, the environmental impacts of the WENT Landfill Extension project will be controlled to levels within established standards and guidelines. We will also conduct environmental monitoring and audit to ensure the effectiveness of the proposed mitigation measures.

HERITAGE IMPLICATIONS

32. The proposed project will not affect any heritage sites, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological research value and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

33. The proposed project will only involve government land and no resumption of private land is required. No structures will be affected or have to be cleared within the site boundary. All graves near the site will not be affected by the proposed works and thus no resumption of burial ground or removal of human remains in graves, vaults or urns is required.

BACKGROUND INFORMATION

34. We upgraded **165DR** to Category B in October 2003.

35. In March 2007, we engaged consultants to carry out an engineering feasibility and EIA study for **165DR** at an estimated cost of \$14.9 million in MOD prices. We charged this amount to block allocation **Subhead 5101DX** “Environmental works, studies and investigations for items in Category D of the Public Works Programme”. The engineering feasibility and EIA study for the project was completed in February 2010.

36. In December 2014, the FC approved the upgrading of part of **165DR** as **181DR**, entitled “West New Territories Landfill Extension – consultants’ fees and investigation”, to Category A at an approved project estimate of \$38 million in MOD prices. We then commissioned a consultancy study in September 2015 to proceed with various work including preliminary design, ground investigation and related preparatory work for the extension project. The related design and investigation work have been substantially completed.

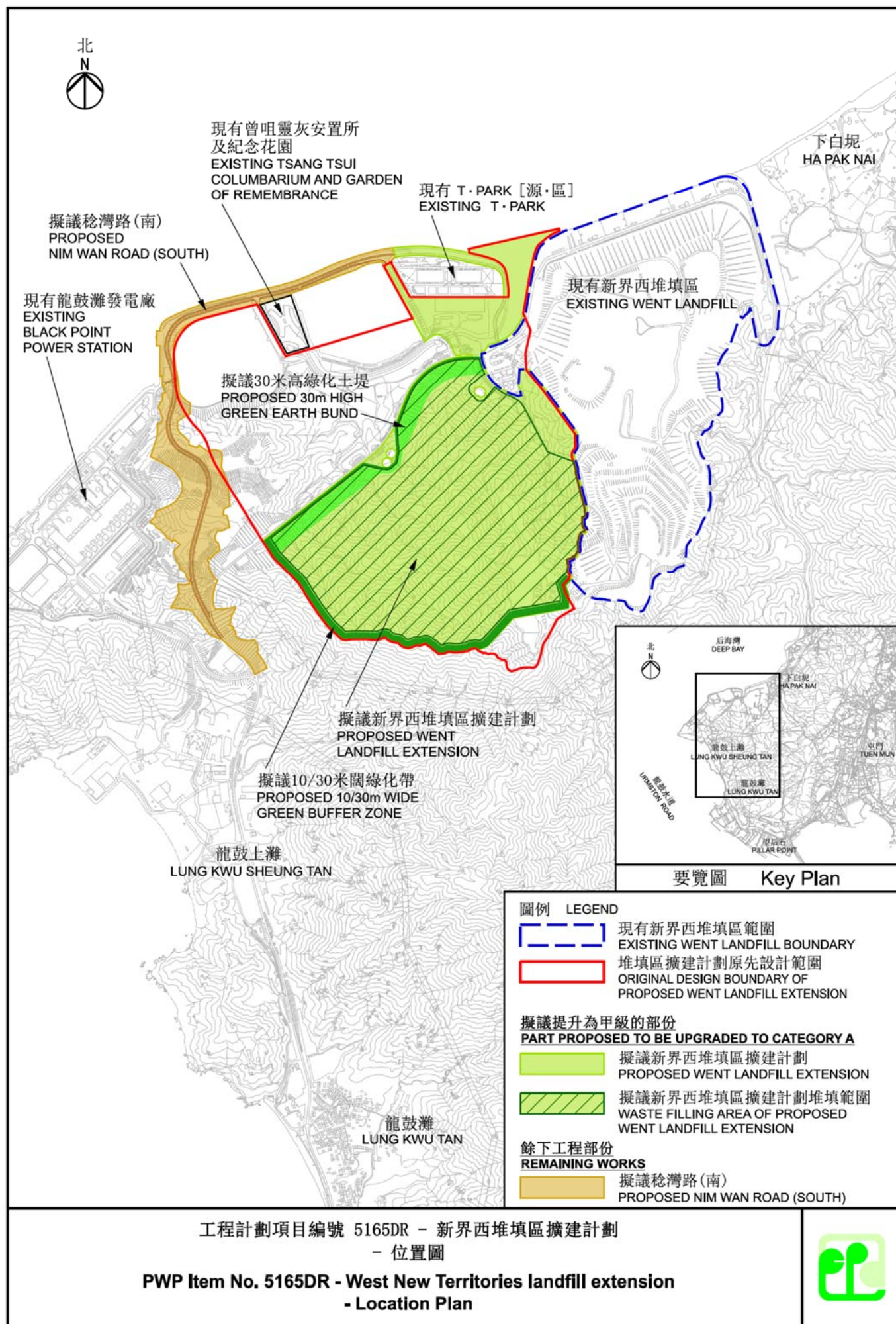
37. Of the 2 950 trees within the proposed project boundary, 160 trees will be preserved. We estimate that the proposed project will involve the removal and felling of some 2 790 trees, all are not important trees⁴. We will incorporate planting proposals as part of the project, covering 600 trees, 70 900 tree seedlings and 60 ha of grassland/shrubland subject to the final design of the project.

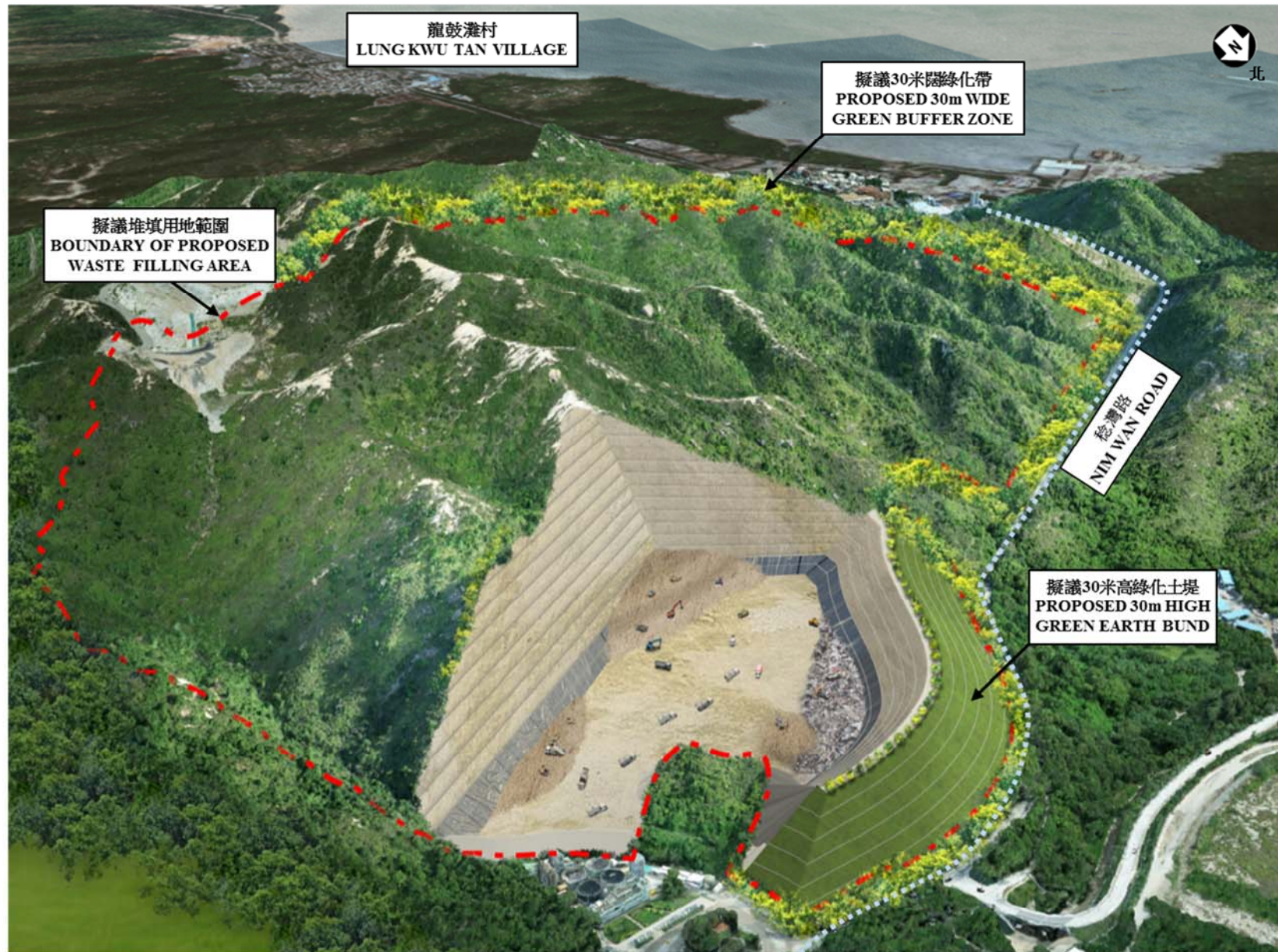
38. We estimate that the proposed works will create about 1 430 jobs (1 160 for labourers and another 270 for professional/technical staff) providing a total employment of 282 500 man-months.

Environment Bureau
March 2021

4 “Important trees” refers to trees on the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of over 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 metres.





工程計劃項目編號 5165DR - 新界西堆填區擴建計劃－構思圖
PWP Item No. 5165DR - West New Territories landfill extension – Artist's Impression



165DR – West New Territories landfill extension

Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2020 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	44	38	2.0	7.6
		Technical	32	14	2.0	1.9
					Sub-total	9.5#
(b)	Resident site staff costs (Note 3)	Professional	2 231	38	1.6	306.5
		Technical	6 334	14	1.6	306.4
					Sub-total	612.9
Comprising:-						
(i)	Consultants' fees for management of resident site staff					14.1#
(ii)	Remuneration of resident site staff					598.8#
Total						622.4

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to arrive at the full staff costs, including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month.)
2. The actual man-months and fees will only be known when we have selected the consultants through the usual competitive fee bidding system.
3. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The figures in this Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 13 of the main paper.