CONSTRUCTION AND DEMOLITION MATERIAL MANAGEMENT PLAN (C&DMMP)

1 PURPOSE OF C&DMMP

1.1 The Construction & Demolition Material Management Plan (C&DMMP) has been prepared according to the guidelines and requirements under Environment, Transport and Works Bureau Technical Circular (Works) ETWB TC(W) No. 33/2002 Management of Construction and Demolition Material including Rock. Its purposes are:

- To encourage the proper methods of reuse, reduction, recycling, handling, storage, transportation and disposal of construction and demolition (C&D) material generated from the project as far as possible;

- To estimate the quantities of C&D material generated and their time of generation;

- To clarify the waste management requirements specified under the Environmental Impact Assessment for this Project; and

- To provide the Contractor with information in order to facilitate them in the preparation of a Waste Management Plan

2 BACKGROUND

2.1 The Stormwater Drainage Master Plan (DMP) Study in Northern Hong Kong Island commissioned by DSD indicated that drainage systems in Northern Hong Kong Island were not adequate to meet current flood protection standards. The DMP recommend a series of drainage improvement works including the “Drainage improvement in Northern Hong Kong Island - Hong Kong West drainage tunnel”.

2.2 A Preliminary Project Feasibly Study (PPFS) for “Drainage improvement in Northern Hong Kong Island - Hong Kong West drainage tunnel” was undertaken and completed in March 1999. The PPFS concluded that the construction of the tunnel should be implemented to alleviate the flooding risk in Northern Hong Kong Island.

2.3 In October 2002, DSD commissioned Black & Veatch Hong Kong Ltd. (BV) to undertake the Drainage Improvement in Northern Hong Kong Island - Hong Kong West and Lower Catchment Improvement - Investigation Study to review and develop the previous work. This requires a review of the extent, alignment, profile and sections of the lower catchment drainage improvement works and drainage tunnels, as well as the number and locations of intake shafts, emergency exits and the associated drainage structures. Site investigations, property and damage assessment surveys, physical-modelling tests, environmental impact assessments, and development of preliminary designs are also undertaken as part of the Assignment.
3 SCOPE OF PROJECT

3.1 Surface water falling within the northern catchment of Hong Kong Island is intercepted by a series of drainage culverts running through the urban area that ultimately discharge into Victoria Harbour. The system is overloaded and flooding can occur in extreme conditions. However, much of the catchment is outside the urban area and the objective of the drainage improvement scheme studied here is to intercept surface water before it enters the urban area and direct it to an outfall on the west-side of Hong Kong Island. This will reduce the flows in the lower catchment and reduce flooding frequency in the urban area.

3.2 The Project is located at the fringe of the urban areas at the midlevels of the western Hong Kong Island. While the underground tunnel alignment traverses the Tai Tam, Aberdeen, Pok Fu Lam and Lung Fu Shan Country Parks, the tunnel portals and intake shafts are outside of these Parks.

3.3 This Project comprises the following elements:

- 2 sections of main drainage tunnel; a tunnel of about 4.36 kilometers in length and 6.25 meters in diameter from Tai Hang Road to Wan Chai Gap, and a tunnel of about 6.14 kilometers in length and 7.25 meters in diameter from Wan Chai Gap to Sandy Bay;
- Adits of about 7.5 kilometers in length and 2.3 meters in diameter connecting various intakes and the main drainage tunnel;
- 35 inlet structures that will intercept existing flows and divert them via up to 35 dropshafts to the drainage tunnel. The dropshafts will include maintenance platform, inlet chamber, bar screen, grit trap, low flow bypass and vortex;
- Two tunnel portals at the east and west end of the tunnel alignment, including an energy dissipating structure at the western portal and vehicle accesses for maintenance purposes for both the eastern and western portals.

The layout plans showing the tunnel/adit alignments are enclosed in Annex 1.

3.4 The project is classified as “designated” project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO).

4 IMPLEMENTATION PROGRAMME

4.1 The construction of proposed tunnel is scheduled to commence in May 2007, and is expected to be completed by November 2011. The construction period is expected to take approximately 55 months. A copy of construction programme with critical paths shown is enclosed in Annex 2.

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1 The catchment is enclosed by the ridgelines running between Jardines Lookout in the east through Mount Butler, Mount Cameron, Mount Gough and the Peak.
5 DEVELOPMENT CONSTRAINTS

5.1 The major development constraints are as follows:

(a) Traffic impact,
(b) Existing buildings, structures and other land constraints;
(c) Utilities and services including watermains tunnels, gas main tunnels, WSD’s plants, electricity, telecommunication, drainage and sewerage,
(d) Environmental considerations including air pollution impact, noise pollution impact, ecology, water quality, visual impact, and cultural heritage,
(e) Aberdeen Tunnel, and
(f) Disused Air Raid Precaution Tunnel underneath Kennedy Road.
(g) Possible interface with other Projects including:

(i) Adaptive Reuse Development Project of Haw Par Mansion (Leisure and Cultural Services Department / Antiquities & Monuments Office);
(ii) Route 4 (formerly Route 7) – Section between Kennedy Town and Aberdeen (Highways Department / Major Works);
(iii) Queen Mary Hospital Redevelopment (Queen Mary Hospital);
(iv) Option A of Agreement No. 42/2001 – Environmental and Engineering Feasibility Assessment Studies in relation to the Way Forward of the Harbour Area Treatment Scheme (Environmental Protection Department);
(v) West Island Line & South Island Line (MTRC);
(vi) Shatin-Central Link (KCRC)
(vii) Development of Victoria Barracks (Asia Society);
(viii) Proposed pedestrian connection linking the Cyberport development and the coastline areas;
(ix) PWP Item No. 9043WS – Upgrading of Wan Chai salt water supply system;
(x) Contract No. 4/WSD/03 - Construction of Magazine Gap Road No. 3 Fresh Water Service Reservoir and Associated Mainlaying (Water Supplies Department);
(xi) PWP Item No. 9076WC Improvement to Hong Kong Central Mid Level and High Level areas Water Supply – Remaining Works (Water Supplies Department);
(xii) Cyberport Development at Telegraphy Bay;
(xiii) PWP Item No. 559 TH/B – Stubbs Road Widening and Improvement (Highways Department);
(xiv) PWP No. Item 200 TH/B – Kennedy Road Improvements and Queen’s Lines Link (Highways Department);
(xv) PWP No. Item 693 TH/B – Improvement to Junction of Magazine Gap Road and May Road (Highways Department);
(xvi) Millennium Master Plan for the Western Expansion to University Campus (The University of Hong Kong);
(xvii) PWP Item 4104CD/B - Drainage improvement in Northern Hong Kong Island - Lower Catchment (Drainage Services Department);
5.2 The alignments of drainage tunnel and lower catchment drainage improvement works have been carefully designed to minimize traffic disruption and environmental impact, and to avoid utility conflicts and encroachment of private lots. So the constraints in (a) to (f) above can be overcome. Regarding the possible interfaces with the aforesaid or other Projects (g)(i) to (g)(xx) above, close liaison with concerned authorities would be maintained and it is considered that these constraints can be resolved.

6 DEVELOPMENT OPTIONS

Strategic Options

6.1 A number of alternative strategic options have been considered for providing the recommended flood protection standard to the study area. The investigated options which have been identified based on the need to control runoff and flooding within the urbanized environment of the study area are:

1. Reduce flows entering the drainage system (runoff control)
2. Attenuate stormwater flow (retention)
3. Increase conveyance capacity of existing drainage systems
4. Flow diversion
5. Overland flow control
6. Mechanical pumping
7. Flood proofing

6.2 Runoff control is used to reduce the peak runoff generated from a rainfall event through increased vegetation cover, storage in surface depressions, infiltration into the soil, etc. This method is most effective at controlling the peak runoff generated during smaller rainstorm event. Within Hong Kong Island, the availability of land for implementing runoff control measures is extremely limited.

6.3 Attenuation refers to the temporary storage of water such that the peak outflow is less than the peak inflow. Methods of retention storage include construction basins (impounding reservoirs, cavern storage), roof top storage, ditch, dry and wet ponds, etc. The volumes of water associated with extreme rainfall events are very large and accordingly, the volume of storage required for effective flood control would be large. Within the Study Area, there are no areas suitable for large storage basins.

6.4 Conveyance capacity improvement refers to increasing the size of the existing system
so as to enable the design flows to safely pass. This is the most common method for increasing the capacity of urban drainage systems. Increasing the size of the existing drainage pipes would necessarily cause considerable disruption as existing drainage systems are dug up and replaced. In addition, there are a number of other utilities and underground obstructions which could make construction in these urban areas very expensive and disruptive. This option can therefore be considered for limited areas but not as a solution for the entire Study Area.

6.5 Flow diversion involves interception of the flows and channelling them through a new route to the sea. This option would require substantial engineering works. For urban areas like Northern Hong Kong Island, flow diversion would require the new route to be constructed within an underground tunnel to minimize the impact of construction.

6.6 Overland flow control is essentially controlled flooding. For this option, flooding would be allowed to occur but the flood waters would be channelled at surface level along specially designed flood routes. Currently there is a lack of space within Hong Kong to construct such flood routes and the suddenness of flooding means that public safety could not be guaranteed.

6.7 Mechanical pumping could be used for increasing the rate of discharge to the sea. This is effective for local areas where the flooding is due to limited discharge rates rather than the capacity of the existing system; as is generally the case for the Study Area. However, there is lack of space within Hong Kong from Causeway Bay via Central to Western to build the pumping stations and the associated pipework.

6.8 The flood proofing techniques involve relocating existing structures from flood plain to a flood-free area, raising the existing building levels above the maximum expected flood level, constructing small bunds and walls to enclose individual buildings or small clusters from flooding, installing watertight barrier or closures at the access or exterior doors as dry flood proofing measure or simply altering and re-organizing space for most susceptible items at a less damageable locations to reduce flood damage. However, safety could only be assured for a certain shallow depth and clean up cost would be presented for this option. Hence this option will not be adopted in the Study Area.

6.9 Assessment of the options for Hong Kong Island has demonstrated that diversion of the flood flows through a tunnel is the preferred option as it effectively deals with the large volumes of water whilst minimizing the impact on the property, people and the environment. Limited improvements to urban drainage have been recommended to deal with the most problematic flood prone areas.

6.10 Having regard that the minimum hydraulic capacity requirement of the drainage tunnel will vary along the section of tunnel, the optimum size of the tunnel is selected. The upstream section of the tunnel is 6.25m in diameter from Tai Hang Road to Wan Chai Gap while the downstream section is 7.25m in diameter from Wan Chai Gap to Sandy Bay. This will substantially reduce the amount of C&D materials generated from the excavation of tunnel.
Options of Construction Techniques

Main Tunnel Construction

6.11 Tunnel boring machines (TBM) will operate from the Eastern and Western portals to form the tunnel. Spoil will be removed from the portals and temporarily stored in works areas at the portals prior to disposal off-site. There will be intermediate construction sites in the urban area where inlet structures will be constructed. The resultant size of the excavated rock is around 40cm³. Since there will be no significant amount of ground improvement works, the content of foaming agent, if any, in the excavated rock should be minimal.

6.12 TBM is commonly used for the excavation of longer tunnels. The advantages of excavation by TBM, compared with alternative methods for rock excavation, are high production rates, a controlled excavation profile, low vibration and noise generated. Given the length of the main tunnel, the unit cost for excavation using a TBM is comparatively favorable over other methods of excavation. TBM construction is therefore proposed for the main tunnel excavation.

6.13 A number of other construction methods have been considered including drill and blast, chemical blasting, and mechanical and non-explosive systems.

6.14 Excavation by blasting is not a continuous operation and consequently has lower production rates than TBM excavation. Moreover, blasting results in greater vibration, dust and noise than TBM excavation. In view of the above, drilling and blasting will not be adopted for excavation of main tunnel.

6.15 Using chemical explosives is subject to the same restrictions as conventional blasting. The cost of the chemical explosives is greater and the blast cycle takes longer than that for conventional blasting. For the above reasons, the use of chemical blasting for the construction of tunnel is considered not suitable.

6.16 Mechanical and non-explosive systems are generally more expensive than TBM excavation. Production rates are also lower than blasting. Hence, it is unlikely to employ these methods for excavation of main tunnel.

Adit Tunnel Construction

6.17 Drill and blast is commonly used for excavation of hard rock tunnels which is small in size and short in length. It is relative cheap method of construction when compared with TBM excavation. This method is also less restricted by site condition for equipment set-up. Drill and blast is therefore proposed for the adit excavation.

6.18 As mentioned above, given the short length of adit (within hundreds of meters), the adit construction by TBM would be comparatively more expensive. In addition, the restricted site condition render difficult set-up arrangements and long time required for
assembly. It is therefore considered unlikely that these will be constructed using TBMs.

6.19 Mechanical and non-explosive systems are more expensive and time consuming than drill and blast method. Hence, it is unlikely to employ these methods for excavation of adit.

**Options of Tunnel Alignments**

6.20 In choosing the most suitable tunnel alignment, seven tunnel alignments (i.e. Options 1, 3, 9, 11, 21, 23 and 29) running from a tunnel portal close to the site of the Haw Par Mansion in Tai Hang and following a westward route beneath Hong Kong Island to a discharge portal at the west end of Hong Kong Island were identified. Intakes were identified on drainage paths that intersect with the alignment where flows are intercepted and directed to the tunnel. The layout of the seven tunnel alignments are shown in Annex 3.

6.21 Option 1 is based on the alignment recommended in the PPFS but with the sharp bends removed and replaced with smooth curves feasible for tunneling using TBM.

6.22 The alignment for Option 3 is similar to that for Option 1 except the outlet is situated at the headland between south of Sandy Bay and north of Telegraph Bay next to Cyberport.

6.23 The horizontal alignment of Option 9 has been aligned to avoid encroachment into private lots and with allowance for construction tolerance.

6.24 The alignment of Option 11 is similar to that for Option 9 except the segment of alignment near Queen Mary Hospital in the Pok Fu Lam area which has a larger radius bends.

6.25 The horizontal alignment of Option 21 has been aligned to avoid encroachment into private lots and with allowance for minimal protection zone of one tunnel diameter from private lots wherever possible at either side of the tunnel.

6.26 The alignment of Option 23 is similar to that for Option 21 except the segment of alignment near Queen Mary Hospital in the Pok Fu Lam which has a larger radius bends.

6.27 The horizontal alignment of Option 29 is aligned to avoid encroachment into private lots and with allowance for maximal protection zone of 100m from the tunnel center line to private lots wherever possible.

6.28 The seven options were compared and evaluated in the following aspects:

- Drainage performance
- Engineering
• Planning and Land Matters
• Environmental Issues
• Implementation Programme
• Cost
• Public Views
• Overall Project Risk

6.29 The estimated volume of C&D materials to be excavated for the 7 alignments is listed in Table E1.

Table E1

<table>
<thead>
<tr>
<th></th>
<th>Option 1</th>
<th>Option 3</th>
<th>Option 9</th>
<th>Option 11</th>
<th>Option 21</th>
<th>Option 23</th>
<th>Option 29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generated Volume (m³) Rock</td>
<td>624,373</td>
<td>640,379</td>
<td>557,568</td>
<td>526,404</td>
<td>560,551</td>
<td>532,898</td>
<td>520,549</td>
</tr>
<tr>
<td>Soft Material 2,295</td>
<td>2,454</td>
<td>1,393</td>
<td>1,410</td>
<td>1,393</td>
<td>1,415</td>
<td>1,491</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>626,668</td>
<td>642,833</td>
<td>558,961</td>
<td>527,814</td>
<td>561,944</td>
<td>534,313</td>
<td><strong>522,040</strong></td>
</tr>
</tbody>
</table>

6.30 Option 29 is adopted because of the following reasons:

• Better ground conditions with favourable permeability would be encountered
• Access available for outlet at Cyberport (at grade from an existing DSD access road)
• No major existing utilities and facilities conflict with the proposed tunnel and intake shafts.
• No encroachment into private lots with the largest protection zone
• No need for creation of Drainage Tunnel (Statutory Easements) Ordinance
• Less interface with the planned projects
• Minimum potential construction noise and fugitive dust impacts to the residential units.
• Can be built in compliance with the timeframe mentioned in the Brief
• Attract least public comment and objections
• Least overall project risk
• Least amount of C&D materials generated

7 MANAGEMENT OF C&D MATERIAL

7.1 Construction activities include excavation with spoil generated and site formation at proposed drainage tunnel. An initial estimate of total volume of excavated material likely to be generated from the construction works is given in Table E2.
Table E2
Estimated Total Quantity of C&D Material Generated during the Construction of TBM Tunnel, Intake Shafts and Adits

<table>
<thead>
<tr>
<th>Works Item</th>
<th>Expected Main Excavation Period</th>
<th>Non-Inert C&amp;D Materials A (m³)</th>
<th>Inert C&amp;D Material</th>
<th>Total, A+B+C+D Material per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBM Tunnel</td>
<td>Early Jun 08 to Mid Aug 10</td>
<td>2,035</td>
<td>476,382</td>
<td>478,417</td>
</tr>
<tr>
<td></td>
<td>(26.5 Months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Shafts and adits</td>
<td>End Aug 08 to Early June 11</td>
<td>700</td>
<td>38,667</td>
<td>46,358</td>
</tr>
<tr>
<td></td>
<td>(33 months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>2,735</td>
<td>515,049</td>
<td>524,775</td>
</tr>
</tbody>
</table>

Note: (B+C+D=522,040) equals to the inert C&D materials generated as presented in Table E1 under Option 29

7.2 Approximate 1,300m³ inert C&D material will be reused for landscaping works of the drainage tunnel project and approximate 520,740 (=524,775-1,300-2,735) m³ will be transported off site for public fill or reuse on other projects.

7.3 Ways to minimize the generation of C&D material on site

- Well defined programming of works,
- Good site management to minimize over ordering and cross contamination,
- Use of metal formwork,
- Use of excavated material for earthfilling as far as possible,
- Use of excavated soft material for landscaping works as far as possible,
- Use precast units formed off-site to minimise the amount of C&D materials generated on site,
- Examine and approve the types of chemicals to be used to ensure the generation of chemical wastes would be minimized, and

7.4 Ways to maximize the reuse of inert C&D material including soil or rock on site

- Excavated soil and rock generated from site should be reused within the site as far as possible.
- Sorting should be carried out on site and separate into C&D material into public fill and C&D waste and sorting of C&D material by category to facilitate reuse/recycling/return.
- Good condition timber should be reused for several times
- Remaining reusable wooden material shall be sorted and used at other construction sites by the same contractor or sold to other construction sites
- Contractor should reuse or recycle construction/demolition waste with recyclable values such as reinforcement bars, steel mesh etc. These wastes should either be
reused on site or collected by outside licensed waste recycling agents.

7.5 Ways to maximize the use of recycled C&D material

- Dry concrete waste will be sorted out from other wastes and recycled at recycling plant at Tuen Mun Area 38 to form aggregates for road sub-base.
- Paper/cardboard, metal, others (e.g. plastic, foam board etc) should be collected and delivered to local recycling factories.

7.6 Hong Kong Government is actively discussing with the State Administration of the PRC the implementation details of beneficial reuse of public fill from Hong Kong in Mainland reclamation projects. These discussions are presently ongoing.

7.7 Under the contract, the contractor will be required to minimize the generation of C&D material and reuse it on site through the following:-

(a) to plan in the design and construction, methods to minimize the generation of C&D material;
(b) to submit a Waste Management Plan (WMP) in accordance with Environment Transport and Works Bureau Technical Circular (ETWBTC) No. 15/2003 or any superseding circular(s);
(c) to reuse recycled aggregates in accordance with ETWBTC No. 12/2002 or any superseding circular(s);
(d) to observe the requirements of the Trip-Ticket System, stipulated in ETWBTC No. 12/2004 or any superseding circular(s), for disposal of C&D material;
(e) to incorporate a Waste Management System into the WMP for effective management and control of C&D materials to avoid/reduce/minimize the generation of C&D material during construction.

7.8 For C&D waste, the contractor will be required to properly sort into inert C&D materials, metals, timber and other non-inert C&D waste in the workplace to prevent cross-contamination. To meet the proposed Construction Waste Disposal Charging Scheme (being studied by the HKSAR), each load of construction waste delivered to landfill for disposal must not contain more than 50% by weight of inert construction waste and each load of construction waste delivered to a public fill reception facility for disposal must consist entirely of inert construction waste.

7.9 In addition, DSD will conduct site inspection to monitor the contractors’ performance in the implementation of the WMP and other relevant specified requirements.
8 CONCLUSION

8.1 The selected tunnel size and alignment will generate the minimum excavated material in comparison with other option alignments.

8.2 It is estimated that about 524,775 m³ of C&D material will be generated by the project as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Reuse on site (m³)</th>
<th>Dispose at land fill (m³)</th>
<th>Dispose at public fill outlet facility (m³)</th>
<th>Total generated (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Inert C&amp;D Materials</td>
<td>0</td>
<td>2,735</td>
<td>0</td>
<td>2,735</td>
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<tr>
<td>Soft Material</td>
<td>1,300</td>
<td>0</td>
<td>191</td>
<td>1,491</td>
</tr>
<tr>
<td>Inert C&amp;D Materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade II or above rock</td>
<td>0</td>
<td>0</td>
<td>515,049</td>
<td>515,049</td>
</tr>
<tr>
<td>Grade III or below rock</td>
<td>0</td>
<td>0</td>
<td>5,500</td>
<td>5,500</td>
</tr>
<tr>
<td>Total</td>
<td>1,300</td>
<td>2,735</td>
<td>520,740</td>
<td>524,775</td>
</tr>
</tbody>
</table>

8.3 If appropriate management measures are implemented properly during the handling, collection and disposal of C&D material, the residual environmental impacts would be reduced to acceptable levels.

8.4 This C&DMMP summarize the expected quantities of gross and surplus wastes likely to arise from the implementation of the Project and feasible ways to minimize, re-use, recycle and appropriately dispose surplus C&D materials.

8.5 The management measures to be adopted for C&D materials can be enforced by incorporating them into a waste management plan as part of the contract document. Environmental monitoring and audit will be necessary to ensure the proper implementation of proposed measures during the construction phase of the Project.

9 RECOMMENDATION

9.1 In accordance with the requirements stipulated in the ETWB TCW No. 33/2002, it is recommended that Project Office and the supervising Consultant of this Project should monitor the implementation of this C&DMMP and prepare half yearly status report and submit to Public Fill committee (PFC) for their information. The requirements of the status report are detailed in the Technical Circular.

9.2 It is recommended that this C&DMMP should be reviewed regularly by both the Project Office, the supervising Consultant, and the Contractor(s) of the Project, and any necessary amendment and updates should be recorded properly.

9.3 The Contractor will be provided with information from the C&DMMP in order to facilitate them in the preparation of the Waste Management Plan, which is required under the Environmental, Transport and Works Bureau Technical Circular (Works) No. 15/2003 – Waste Management on Construction Sites. As part of the Waste Management Plan, the Contractor shall establish a mechanism to record the quantities of C&D
materials generated each month and report the quantities to the Project Office. In addition, the Contractor shall provide estimated quantities of C&D materials that will be generated each year from the site. The Contractor is also required to set up disposal recording system as part of the Waste Management Plan by adopting the trip-ticket system as stipulated in ETWB TCW No. 12/2004, in order to ensure proper disposal of C&D materials at designated outlets.

- End -
Annex 1

Layout Plan of Tunnel
Annex 2

Construction Program
DRAINAGE IMPROVEMENT IN NORTHERN HONG KONG ISLAND - HONG KONG WEST DRAINAGE TUNNEL
<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Description</th>
<th>Rem Dur</th>
<th>Early Start</th>
<th>Early Finish</th>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>0087</td>
<td>Excavation of Spillway</td>
<td>21</td>
<td>05 MAY 11</td>
<td>26 MAY 11</td>
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<td></td>
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</tr>
<tr>
<td>0108</td>
<td>Remove Temporary Pier</td>
<td>21</td>
<td>05 MAY 11</td>
<td>26 MAY 11</td>
<td></td>
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<tr>
<td>0088</td>
<td>Cofferdam</td>
<td>5</td>
<td>26 MAY 11</td>
<td>31 MAY 11</td>
<td></td>
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<tr>
<td>0089</td>
<td>Excavation of Stilling Basin</td>
<td>21</td>
<td>31 MAY 11</td>
<td>21 JUN 11</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0090</td>
<td>Concreting of Spillway Base</td>
<td>35</td>
<td>26 MAY 11</td>
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<td></td>
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<tr>
<td>0091</td>
<td>Concreting of Spillway Walls</td>
<td>35</td>
<td>30 JUN 11</td>
<td>04 AUG 11</td>
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<td>Backfill</td>
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<td>04 AUG 11</td>
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<td>Concreting of Spillway Soffit</td>
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<td>Remove Cofferdam</td>
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DRAINAGE IMPROVEMENT IN NORTHERN HONG KONG ISLAND -
HONG KONG WEST DRAINAGE TUNNEL

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Annex 3

Layout of Different Alignments of Tunnel