

AGREEMENT NO. CE 17/2011 (GE)

**Identification of New Quarry Sites in Hong Kong
- Feasibility Study**

BRIEF

1. Introduction

This Brief is to be read in conjunction with the Memorandum of Agreement, the General Conditions of Employment of Engineering and Associated Consultants for a Feasibility Assignment (1997 Edition) (hereinafter called “the General Conditions of Employment”), Special Conditions of Employment, Schedule of Fees, Appendices to this Agreement and any other instructions issued by the Director’s Representative (DR).

2. Description of the Project

Background

- 2.1 Local quarries play a significant role to supply crushed rock products to the local construction industry. However, with the gradual closure of existing local quarries, the dependence on crush rock products imported from the Mainland will continue to increase. If there is no local source of crushed rock products supply, Hong Kong will have limited capacity to cope with any possible disruption in imports. Developing a new quarry to dovetail the closure of the existing local quarries will help to maintain a more steady supply and stable price of crushed rock products.
- 2.2 Lam Tei Quarry will be the only existing quarry left in Hong Kong after 2015, with rock reserves sufficient for another quarrying contract until 2022. Development of a new local quarry site is of strategic importance to Hong Kong’s construction industry in regulating crushed rock products supply. It would also enhance our capacity to recycle surplus rock generated from local construction projects for beneficial use. While it is planned that the operation of Lam Tei Quarry will continue until 2022, there is a need for the CEDD to conduct studies on development of new quarry sites to meet long-term needs.
- 2.3 In addition, a new quarry site would provide other rock-related processing services, including stockpiling and crushing surplus rock generated from construction projects, concrete batching and asphalt production. On completion of rock extraction and rehabilitation, the site could become a useful land asset ready for future development.
- 2.4 The Chief Executive has mapped out challenges in making available sufficient land to meet future demand in his Policy Address 2010-11. The new initiatives on reclamation and cavern development are strategic means to create land resources to cope with future development needs. As new reclamations need to be supported by a reliable supply of rock materials for seawall construction, this would result in increased demand for

crushed rock products supply. Cavern development would generate surplus good quality rock, which can be turned into valuable crushed rock products only if suitable rock processing facilities, such as local quarries, are available in Hong Kong.

- 2.5 In 2001, the CEDD conducted a territory-wide preliminary site search. Nineteen potential quarry sites were found, and their conditions and possible constraints were assessed (see NRR No. 1/2001 “Study on The Need for Future Quarrying in Hong Kong”). The study indicated that there are sites available with a potential for development of new quarries in Hong Kong. In order to identify suitable quarry sites and devise a Quarry Development Master Plan, a range of issues including geotechnical, planning, sustainability, environmental and traffic, etc. will have to be addressed. In addition, it is essential to solicit views, and to secure understanding and acceptance from stakeholders. These issues shall be studied under this Assignment. It is intended that on completion of the Assignment, and with endorsement from the relevant authorities and other stakeholders, the next phase of work on detailed engineering design and study would be launched on the most suitable sites identified, with a view to finalizing the design and requirements for the new quarry sites, obtaining the necessary statutory and administrative approval, and tendering.
- 2.6 At present, about 65% of the crushed rock products produced from our local quarries are aggregates used in concrete and asphalt production. The remaining 35% are other rock products, such as road sub-base, rock fill and armour rock. In this Brief, ‘crushed rock products’ refer to aggregates and other rock products produced from good quality rock source, other than from construction and demolition materials that contain rock.

3. Objectives of the Assignment

The Assignment is to assess the long-term demand and strategy for supply of crushed rock products in Hong Kong, compile a longlist of potential new quarry sites, prioritize the sites, carry out preliminary feasibility study on selected sites, and devise a Quarry Development Master Plan. It aims to identify the most suitable site (or sites, if more than one site is found to be required; for simplicity, the term ‘site’ is used in this Brief) for new quarry development including rehabilitation after quarrying, establish the feasibility of the development, and formulate the strategy and roadmap for implementation. Public engagement and consultation within the Government and with related bodies shall be carried out to gauge the views of the public and other stakeholders, and to foster their understanding and acceptance of the quarry development.

4. Description of the Assignment

- 4.1 The Assignment consists of the following key items of work:

- (a) Analyse the supply and consumption of crushed rock products in Hong Kong, and assess the long-term trend of supply and consumption.
- (b) Review the role of local quarries in crushed rock products supply and provision of rock-related processing services, and assess the need and general feasibility of development of new surface and underground quarries in Hong Kong.
- (c) Formulate the long-term strategy for supply of crushed rock products that meets the needs of sustainable development in Hong Kong, including recommendations on the future role to be played by local quarries and other measures for ensuring the reliability and quality of crushed rock products supplies.
- (d) Compile a longlist of potential new quarry sites, and prioritize the sites according to an assessment of their suitability for development.
- (e) Carry out a preliminary feasibility study on three selected quarry sites to examine the feasibility of the development of quarries at the sites, conduct preliminary design, and establish means of addressing the key issues involved in the development.
- (f) Devise a Quarry Development Master Plan.
- (g) Gauge stakeholders' views, foster their understanding and acceptance of the long-term strategy for supply of crushed rock products and the Quarry Development Master Plan including the sites identified for quarry development and the development strategy, and seek endorsement from the relevant Government bureaux, departments and related bodies.

4.2 The Consultants shall ensure that suitably experienced professionals from various disciplines who are familiar with geotechnical engineering, geology, quarrying, rock engineering, drainage, traffic, marine facilities, environmental, landscape, nature conservation, cultural heritage, sustainability, visual, land use planning, estate surveying, finance and public engagement are engaged to work on this Assignment.

5. Deliverables

5.1 Unless otherwise specified in this Brief, the Consultants shall also provide the deliverables in digital format, as detailed below:

- (a) Hard copies of the finalised versions of the following Deliverables, if any, to be delivered to the DR, shall be accompanied with a digital copy:
 - Value Management Study Report
 - Inception Report
 - Working Papers

- Technical Reports
- Preliminary Feasibility Study Report
- Preliminary Design Report
- Quarry Development Master Plan
- Public Engagement Reports and Digests
- Final Report and Executive Summary
- Drawings
- Programmes

The digital copy shall be saved in a convenient medium, such as floppy disc, ZIP disc or compact disc and kept in a protective pocket attached to the hard copy to be delivered.

- (b) When requested, the Consultants shall also provide the digital copies of the draft versions of the Deliverables in Clause 5.1(a) above.
- (c) Unless otherwise agreed by the DR, the digital copies of the Deliverables shall be in Microsoft Word 97 or 2000 format or shall be printable by Microsoft Word 97 or 2000 without loss of data and change in appearance compared with the corresponding hard copies, except that:
- Final Report and Executive Summary shall also be submitted in Acrobat format (non-raster version which allows text extraction).
 - Drawings shall conform with the Computer-Aided-Drafting Standard for Works Projects promulgated by the Works Branch of the Development Bureau.
 - Project programmes shall be in Microsoft Project 2000 (or later versions as agreed between the Employer and the Consultants from time to time).
 - Photographs, illustrations, portraits, documents provided by others and documents involving signatures, such as Design Certificates shall be scanned and saved in Encapsulated PostScript Files (EPSF), Tag Image File Format (TIFF), Graphic Interchange File Format (GIF), Joint Photographic Experts Group (JPEG), or Acrobat format.
 - Presentation materials shall be in Microsoft PowerPoint 2000 (or later versions as agreed between the Employer and the Consultants from time to time) as required by the DR.
 - All Geographic Information System (GIS) data shall be in ESRI shapefile format (.shp) and compatible with ArcGIS desktop suite or other prescribed format as required by the DR.
- (d) Upon completion of the Assignment, the Consultants shall submit to the DR five sets of compact disc(s) kept in rigid plastic cases:
- The first set of disc(s) shall contain all digital copies of the Deliverables mentioned in Clause 5.1(a); and
 - The second set of disc(s) shall contain only the Final Report and Executive Summary.

In addition, the first set of compact disc(s) shall include a digital copy of the Brief to be provided by the DR and an index file in HTML (hypertext markup language) or equivalent format containing the salient points of the Assignment and the following information about each of the digital copies provided:

- Title of the Deliverable
- Version number and date of issue of the Deliverable
- File name of the Deliverable
- Software used to create the Deliverable
- Version of the software
- Highlights of any intellectual property rights belonging to a third party

A sample of the index file is included in Appendix A.

- (e) The compact discs submitted shall be clearly labelled on the surfaces and the protective cases with the date of production of the compact discs, the agreement number and title of the Assignment, the name and logo of the Civil Engineering and Development Department, and the name and company chop of the Consultants. In addition, the spines of the cases shall be marked with the agreement number.

5.2 General

- (a) 10 hard copies of a detailed programme as referred to in Clause 8.3 of this Brief shall be submitted. Thereafter, it shall be reviewed, updated and submitted monthly or at such other intervals as required by the DR.
- (b) 20 hard copies of the Value Management (VM) Study Report on any VM workshops held as referred to in Clause 6.1.10 shall be submitted.
- (c) 20 hard copies of the Inception Report as referred to in Clause 6.1.11 shall be submitted within two weeks of the date of commencement of the Agreement. The Report shall be updated from time to time to incorporate any changes required during this Assignment.
- (d) 3 hard copies of the Quality Plan shall be submitted within two weeks of the date of commencement of the Agreement. The Consultants shall have ISO 9001:2008 certification by an accredited certifying body in accordance with the requirements of WBTC No. 13/2001 and ETWB TCW 13/2001A and maintain the certification for the whole duration of this Assignment. The scope of certification shall cover the services to be provided by the Consultants under Clause 6 of this Brief. The Consultants shall prepare a Quality Plan for the Assignment which incorporates the standards and specifications stipulated in Clause 11 of this Brief within 2 weeks of the date of commencement of the Agreement to the DR for agreement. Thereafter, it shall be reviewed, updated and submitted monthly or at such other intervals as required by the DR.

- (e) 3 hard copies of monthly progress reports and financial management reports as referred to in Clauses 9 and 10 of this Brief shall be submitted.

5.3 Item under Clause 4.1(a)

- (a) 20 hard copies of the Working Paper (WP1) on the review, update and analysis of the supply and consumption of crushed rock products in Hong Kong, and the assessment of the long-term trend of supply and consumption as referred to in Clause 6.2 before completion of this item of work.

5.4 Item under Clause 4.1(b)

- (a) 20 hard copies of the Working Paper (WP2) on the review of the role of local quarries in crushed rock products supply and provision of rock-related processing services, and the assessment on the need and general feasibility of new surface and underground quarries in Hong Kong as referred to in Clause 6.3 before completion of this item of work.

5.5 Item under Clause 4.1(c)

- (a) 20 hard copies of the Working Paper (WP3) on the formulation of the long-term strategy for supply of crushed rock products that meets the needs of sustainable development in Hong Kong, and the recommendations on the future role to be played by local quarries and other measures for ensuring the reliability and quality of crushed rock products supplies as referred to in Clause 6.4 before completion of this item of work.

5.6 Item under Clause 4.1(d)

- (a) 20 hard copies of the Working Paper (WP4) on the identification, longlisting and prioritization of the potential new quarry sites, according to an assessment of their suitability for development as referred to in Clause 6.5 before completion of this item of work.

5.7 Item under Clause 4.1(e)

- (a) 20 hard copies each of the technical reports including, but not limited to, the following: -
 - (i) Technical Report (TR1) on geotechnical assessment of the selected quarry sites as referred to in Clause 6.6.2, including the ground investigation works and laboratory tests as referred to in Clause 6.6.3, before completion of this item of work.
 - (ii) Technical Report (TR2) on strategic environmental assessment of the selected quarry sites as referred to in Clause 6.6.5 before completion of this item of work.
 - (iii) Technical Report (TR3) on sustainability assessment of the selected

quarry sites as referred to in Clause 6.6.17 to 6.6.21 before completion of this item of work.

- (iv) Technical Report (TR4) on traffic and transport impact assessment of the selected quarry sites as referred to in Clause 6.6.4 before completion of this item of work.

The Consultants shall produce other technical reports, as necessary, to facilitate the preliminary feasibility study.

- (b) 20 hard copies of the Preliminary Feasibility Study Report for the selected quarry sites based on the findings of preliminary assessments on respective aspects that affect the technical viability and stakeholders' acceptance of the quarry development of the selected sites as referred to in Clause 6.6 before completion of this item of work.
- (c) 20 hard copies of the Preliminary Design Report for quarry development at each of the selected sites after the endorsement by the relevant Government bureaux, departments and related bodies as referred to in Clauses 6.6.22 and 6.6.23 before completion of this item of work.

5.8 Item under Clause 4.1(f)

- (a) 20 hard copies of the Quarry Development Master Plan after the endorsement by the relevant Government bureaux, departments and related bodies as referred to in Clause 6.7 before completion of this item of work.

5.9 Item under Clause 4.1(g)

- (a) 20 hard copies of the Working Paper (WP5) on public engagement strategy and programme setting out detailed proposals of the public engagement activities to be undertaken as referred to in Clauses 6.8.1 and 6.8.2 before completion of this item of work.
- (b) 20 hard copies of the Public Engagement Digests including presentation, exhibition or participation materials for the public engagement activities as referred to in Clause 6.8.4 before completion of this item of work.
- (c) 20 hard copies of the Public Engagement Reports as referred to in Clause 6.8.10 before completion of this item of work.

5.10 Final Report and Executive Summary

- (a) 20 hard copies of a Final Report as referred to in Clause 6.9.1 before completion of this item of work.
- (b) 20 hard copies of an Executive Summary as referred to in Clause 6.9.2 before completion of this item of work.

- 5.11 Computer-Aided-Drafting (CAD) drawings prepared for the implementation of the Assignment shall conform to the CAD Standard for Works Projects version 1.03.00 (or later versions as agreed between the Employer and the Consultants from time to time) as posted on the website of the Works Branch of the Development Bureau: <http://www.devb-wb.gov.hk>.

6. Services to be Provided by the Consultants

6.1 General

- 6.1.1 The services to be provided by the Consultants shall be as defined in the General Conditions of Employment, Special Conditions of Employment and as amplified, extended and set out in this Brief.
- 6.1.2 The Consultants shall comply with all current Circulars, Instructions, Standards, Guides, Manuals and Technical Memoranda published by the Government of the Hong Kong Special Administrative Region, including those specified in Clause 11 of this Brief, which are relevant to the carrying out of the Assignment and as directed by the DR. In the discharge of their duties, the Consultants shall follow the latest procedures stipulated in the Integrated Management System of the CEDD.
- 6.1.3 The Consultants shall provide all necessary assistance and input to the DR for compliance with the appropriate Statutory Regulations, Government Procedures, Instructions and Circulars for implementation of the Assignment, and shall assist in answering queries on the Assignment. The Consultants shall draw to the attention of the DR the need to consider any legal implications and consequences arising out of or in relation to the implementation of the Assignment.
- 6.1.4 The Consultants shall provide all relevant information relating to the Assignment as may from time to time be required by the DR.
- 6.1.5 The Consultants shall identify, consult, liaise, co-ordinate, respond to enquiries and/or complaints and correspond directly with all relevant Government bureaux and departments/offices, utilities companies, transport operators, organisations, authorities, public or private bodies and/or individuals, consultants/agencies, contractors and developers on all matters that may be related to the implementation of the Assignment. The relevant Government bureaux and departments/offices include, but not limited to:
- (a) Agriculture, Fisheries and Conservation Department (AFCD);
 - (b) Antiquities and Monuments Office (AMO) of Leisure and Cultural Services Department (LCSD);
 - (c) Civil Aviation Department (CAD);
 - (d) Civil Engineering and Development Department (CEDD);
 - (e) Civil Engineering Office of CEDD;
 - (f) Customs and Excise Department (C&ED);

- (g) Development Bureau (DEVB);
- (h) District Lands Offices (DLO);
- (i) District Offices (DO);
- (j) Drainage Services Department (DSD);
- (k) Electrical and Mechanical Services Department (EMSD);
- (l) Environment Bureau (ENB);
- (m) Environmental Protection Department (EPD);
- (n) Fire Services Department (FSD);
- (o) Geotechnical Engineering Office (GEO) of CEDD;
- (p) Highways Department (HyD);
- (q) Hong Kong Police Force (HKPF);
- (r) Hong Kong Airport Authority (HKAA);
- (s) Housing Department (HD);
- (t) Lands Department (LandsD);
- (u) Marine Department (MD);
- (v) Planning Department (Plan D);
- (w) Security Bureau (SB);
- (x) Transport Department (TD);
- (y) Transport and Housing Bureau (THB);
- (z) Water Supplies Department (WSD);

- 6.1.6 Any correspondence, notes or minutes arising from liaison with these parties shall be copied to the DR. Any problem identified in consultation, liaison and co-ordination that may affect the Assignment or to be affected by the Assignment shall be promptly referred to the attention of the DR together with the Consultants' recommendation on how to resolve the problem.
- 6.1.7 During the Assignment, the Consultants shall take cognizance of and liaise closely with the relevant parties regarding the interface with other public works projects, developments undertaken by private sectors and public utility installation by utility undertaker.
- 6.1.8 The Consultants shall carry out the following in respect of any Excavation Permit (XP) required and issued for the ground investigation (GI) works of the Assignment:
- (a) For all excavations in unleased government lands, the Consultants shall follow the procedures stipulated in CEDD Guideline on Administration Procedures for Excavations in Unleased Government Lands under the Land (Miscellaneous Provisions) Ordinance (Cap. 28), which makes reference to HyD's Excavation Permit Processing Manual (XPPM) for "Streets Excavations" and Lands Administration Office's Technical Circular Nos. 737 & 737A and Instruction Section C-5 on LandsD's Excavation Permit for "Non-Street Excavations". The Consultants are required in the planning stage to carry out pre-registration and registration of the works in the HyD's Excavation Permit Management

System (XPMS), co-ordination, submission of Temporary Traffic Management (TTM)/Lighting, Signing and Guarding (LSG) proposals to Transport Department/Hong Kong Police Force, assessment of permit period, etc. If required by the relevant authorities, the Consultants shall carry out Traffic Impact Assessment (TIA) relating to the application. The remuneration of the Consultants' fee for the services performed in respect of TIA shall be additional Services in accordance with Clause 5 of the Schedule of Fees. In the implementation stage, the Consultants are required to provide support to the DR in the submission of Excavation Permit/Simplified Temporary Land Allocation (STLA) applications, extension of applications, making advance notification of commencement of works and notification of completion of works, monitoring of the contractor's performance in complying with the requirements, etc. The Consultants are also required to resolve any conflict cases during processing of excavation permit applications in the XPMS or STLA.

- (b) The Consultants shall nominate a professional acceptable to the Employer to be named as the contact person of the Employer in applications for excavation permits and, where applicable, emergency excavation permits pursuant to the requirements of the Land (Miscellaneous Provisions) Ordinance, Cap. 28.
- (c) The Consultants shall carry out all duties imposed upon the Employer under the Land (Miscellaneous Provisions) Ordinance, Cap. 28 or under the conditions of the excavation permits and, where applicable, emergency excavation permits in so far as such duties have not been imposed on the GI Contractor under the Ordinance or under the Contract as referred to in Clause 6.6.3 below.
- (d) Notwithstanding Sub-clause (c) above, the Consultants shall not be liable to the Employer in respect of obligations stipulated under the following conditions of the excavation permits and, where applicable, emergency excavation permits:
 - (i) the condition stipulated in the excavation permits and, where applicable, the emergency excavation permits relating to the obligation and liability of the Permittee to indemnify the Government against all losses and claims for injury or damage to any person or property, nuisance, disruption or interference whatsoever which may arise out of or in consequence of the work of the Permittee, and against all claims, demands, proceedings, damages, costs, charges or expenses whatsoever in respect thereof or in relation thereto, and
 - (ii) the condition stipulated in the excavation permits and, where applicable, emergency excavation permits relating to the obligation and liability of the Permittee to make good or pay for any works as a result of or in consequence of the work of the Permittee.
- (e) Sub-clause (d) above is without prejudice to Clause 22 of the General Conditions of Employment.
- (f) The Consultants shall ensure that the GI Contractor complies with the permit

conditions imposed by the Authority under the Land (Miscellaneous Provisions) Ordinance, Cap. 28, including those conditions stipulated in the excavation permits and, where applicable, emergency excavation permits to be observed by the Nominated Permittee or by both the Permittee and the Nominated Permittee and those stipulated in the excavation permits and, where applicable, emergency excavation permits to be observed by the Permittee but which the GI Contractor is required to comply with under the Contract.

- (g) In respect of permit conditions which are stipulated in the excavation permits and, where applicable, emergency excavation permits to be complied with by the Permittee but which are required to be complied with by the Contractor under the Contract, if notwithstanding Sub-clause (f) above the Contractor has failed to comply with these conditions, the Consultants shall take such actions so as to ensure that these conditions are complied with by the Employer in his capacity as the Permittee irrespective of whether these actions are required to be carried out by the GI Contractor under the Contract.
- (h) Sub-clauses (b) to (g) above shall apply only with respect to excavation in street maintained by the Highways Department that requires excavation permits and, where applicable, emergency excavation permits under the Ordinance for execution of the GI works.
- (i) For all the GI works under the Assignment, the Consultant shall ensure that a competent person is engaged to supervise the excavation works on behalf of the Employer, maintain a documented system for supervising the excavation works and maintain a documented system to ensure that the GI Contractor complies with his duties in relation to excavation works. The attention of the Consultants is drawn to section 10T(5) and (6) of the Land (Miscellaneous Provisions) Ordinance (Cap 28).

6.1.9 The Consultants shall liaise and assist in negotiation with the relevant parties for any re-provisioning works that may be required as a result of the Assignment.

Value Management Study

6.1.10 The Consultants shall conduct a Value Management (VM) study with adequate number of VM workshops in accordance with Clause 1.4.2 in Chapter 1 of Project Administration Handbook and any subsequent updated versions for agreement by the DR, with an aim to achieve the objectives and provides the services of the Assignment efficiently and effectively without compromising quality and standard of performance:

- (a) The Consultants be responsible for the provision and management of VM venues including video and audio equipment for all the VM workshops. The VM venues shall be convenient, comfortable and proposed by the Consultants for agreement by the DR. Offices of the participants (or their associated organizations) shall not be used as venues. The name of the VM facilitators shall be subject to prior approval of the DR. Alternative facilitators will need to be identified in case agreement cannot be reached. Once agreement has been

reached, the Consultants shall engage the facilitator who shall assist in managing the process, including pre-workshop and post-workshop activities. The scope and programme for the VM workshops are to be agreed with the DR and shall be related to key and strategic matters of the Assignment. The Report on any VM workshop shall be submitted to the DR within four weeks after each VM workshop is held.

- (b) The full costs for the VM workshops shall be borne by the Consultants. Such costs shall include the facilitators' fees (inclusive of associated expenses), venue hired, catering services, production of reports, and all administrative support throughout all the stages of each workshop.

Inception Report

6.1.11 The Consultants shall prepare an inception report for DR's approval. The inception report shall comprehensively address the following:

- (a) an understanding and appreciation of the study objectives;
- (b) study approach, detailed methodology and interfaces among different key items of work under the Assignment;
- (c) initial identification of key issues, problems and stakeholders;
- (d) strategy for public engagement (PE) exercises and consultation within Government and with related bodies, including the phasing, focus, approaches, tools, target consultees, arrangements for release of study findings, PE materials and outcome of the PE exercises and consultation, etc.;
- (e) a study programme, highlighting the schedule of work, dates of report submission and meetings of the Study Steering Group/Working Groups, and interfaces with the PE exercises;
- (f) a deliverable distribution matrix, to ensure that the deliverables will be effectively disseminated and to avoid distribution of materials to unconcerned parties; and
- (g) study management and staffing organization structure including specialists/sub-consultants, together with respective responsibilities of each of the key personnel.

6.2 Analyse the supply and consumption of crushed rock products in Hong Kong, and assess the long-term trend of supply and consumption as referred to in Clause 4.1(a)

6.2.1 The Consultants shall thoroughly review and update the findings of the previous studies and update the information contained in the previous study reports, such as

NRR No. 1/2001 and the related supplementary reports. The Consultants shall collect the relevant information from suppliers and consumers of crushed rock products, from such parties as Government departments and semi-Government and private organisations, and analyse the supply and consumption of crushed rock products for the local construction industry.

6.2.2 The Consultants shall identify the existing sources of supply of crushed rock products to Hong Kong from the Mainland and other places, and assess the prospect and reliability of continual supply from these sources and other possible future sources, with account also taken of the quality of the crushed rock products, risk of disruption in supply, and possible changes in price and their implications to the local construction industry for different credible supply-consumption scenarios.

6.2.3 The Consultants shall assess the long-term trend of supply and consumption of crushed rock products in Hong Kong, with due consideration taken of the factors that may affect the local consumption and supply, as well as possible market responses including the practicality of rock products supplier and consumers sourcing supplies outside Hong Kong. The assessment of the long-term trend should be made with respect to different time spans, such as those covering the next 5 year, 5 to 10 years, 10 to 20 years, and beyond 20 years, etc, as appropriate to cater for different scenarios and levels of uncertainty involved in the projection.

6.3 **Review the role of local quarries in crushed rock products supply and provision of rock-related processing services, and assess the need and general feasibility of new surface and underground quarries in Hong Kong as referred to in Clause 4.1(b)**

6.3.1 The Consultants shall review the role of local quarries, including, but not limited to, supplying crushed rock products for local use, regulating the market conditions in respect of cost, timeliness, quality and continuity of supply, providing rock-related processing services and other special functionalities, e.g. as casting yards and storage areas, and forming usable land that may be developed at a later stage. The review should include a diagnosis of the possible evolving role of the local quarries and their possible future role given Hong Kong's setting.

6.3.2 The Consultants shall assess the need for maintaining local quarries to help secure a reliable, steady and long-term supply of crushed rock products for the local construction industry and to provide other related or required functions, with account taken of the long-term trend of supply and consumption and the future role of the local quarries. In the assessment, the Consultants shall also examine the pros and cons of maintaining local quarries, identify strategic issues that need to be addressed, and assess the general feasibility of development and operation of new quarries in Hong Kong with due consideration of the possible technical and socio-economic constraints.

6.3.3 In assessing the general feasibility of development and operation of new quarries in Hong Kong, the consultants shall consider both surface and underground quarrying.

In respect of underground quarrying, which is new to Hong Kong, the assessment should be illustrated by an analysis of the business case for developing and operating an underground quarrying scheme at a representative site with a potential for underground quarrying. The Consultants shall identify the site for agreement by the DR.

6.4 **Formulate the long-term strategy for supply of crushed rock products that meets the needs of sustainable development in Hong Kong, including recommendations on the future role to be played by local quarries and other measures for ensuring the reliability and quality of crushed rock products supplies as referred to in Clause 4.1(c)**

6.4.1 The Consultants shall review the quarrying strategy and practice in other countries that may serve as a reference for formulating a strategy that suits Hong Kong's situation.

6.4.2 The Consultants shall develop the long-term strategy for the supply of crushed rock products and provision of rock-related processing services that meets the needs of sustainable development in Hong Kong. The consultants shall recommend the future role to be played by local quarries and the preferred ranges of the amount of local supply of crushed rock products in the different time spans referred to in Clause 6.2.3 above. Due account should also be taken of acceptance of surplus rock generated from local construction projects for processing and beneficial use, and opportunities and demand for rock-related processing services that may be provided by local quarries. The Consultants shall also identify any other measures required for ensuring the reliability of supply and quality of crushed rock products.

6.4.3 The Consultants shall review the existing charging mechanism for rock materials imported into local quarries for processing and sale, and recommend the way forward to ensure a fair policy and incentives for local quarries and site crushers in the importation of surplus, good quality rock materials generated from local construction projects for processing and beneficial re-use.

6.5 **Compile a longlist of potential new quarry sites, and prioritize the sites according to an assessment of their suitability for development as referred to in Clause 4.1(d)**

6.5.1 The Consultants shall compile a longlist of potential new quarry sites in Hong Kong, via reviewing the 19 potential quarry sites identified in NRR 1/2001 and conducting a systematic territory-wide site search to identify additional potential quarry sites. The site search should be based on, but not necessarily limited to, examination of geological and topographical maps, study of borehole records, appraisal of the site and geological conditions via interpretation of aerial photographs and supporting field reconnaissance, reviews of previous studies and available documentary records on existing and planned land-use and any proposed developments.

6.5.2 The Consultants shall formulate a methodology to assess and prioritise the potential

new quarry sites according to their suitability for quarry development (including the development of the quarry and its operation), with due account taken of the related considerations including, but not limited to, those in the geotechnical, land requirement (including land-use, availability and constraints), planning, transport and traffic, environmental, cultural heritage, sustainability, economic, social and legal aspects, as well as suggestions and comments from stakeholders. The Consultants shall collate information and carry out broad technical assessments with respect to these considerations to ascertain their suitability and priority, and identify the potential major advantages, constraints, problems and risk affecting quarry development at the sites.

6.5.3 The Consultants shall prioritise the potential sites in the longlist, make adjustments as necessary as based on the feedback obtained from stakeholders, and recommend three sites that are most prosperous for quarry development, for DR's agreement for selection for a preliminary feasibility study under Clause 6.6 below.

6.5.4 The Consultants shall submit the proposed approach for longlisting the potential new quarry sites and the methodology for prioritization of longlisted sites for agreement by the DR.

6.6 **Carry out a preliminary feasibility study on three selected quarry sites to examine the feasibility of the development of quarries at the sites, conduct preliminary design, and establish means of addressing the key issues involved in the development as referred to in Clause 4.1(e)**

6.6.1 The Consultants shall undertake a series of preliminary assessments to ascertain the feasibility of quarry development (including the development of the quarry and its operation) at three sites, which are selected by the DR as described in Clause 6.5 above. The assessments shall, in addition to the broad technical assessments on the suitability of quarry development examined in Clause 6.5.2 above, cover the relevant aspects that affect the technical viability and stakeholders' acceptance of quarry development at the selected sites, including, but not limited to, geotechnical, land requirement, planning, transport and traffic, environment, cultural heritage, sustainability, economic, social, legal, drainage and sewerage, water supply and utilities, and visual and landscape. Such assessments shall be accompanied by recommendations on the development options and the required enhancement works and mitigation measures, where appropriate. The key requirements of the preliminary assessment on respective aspects are given in the following paragraphs.

Geotechnical Assessment

6.6.2 The Consultant shall undertake a geotechnical assessment, including desk study, field reconnaissance, geological mapping and ground investigation works at appropriate scale to assess and ascertain the feasibility of the selected quarry sites with respect to geotechnical aspects.

(a) The Consultants shall assess the extent and significance of landslide hazards on natural and man-made slopes that may affect the quarry development, and to

advise any development options and other mitigation measures required to manage the risk.

- (b) The Consultants shall collect and review existing ground investigation data and other geological information to determine the extent of ground investigation required for the assessment.
- (c) The Consultants shall prepare and submit the ground investigation report to the DR on the results, findings and conclusions of the laboratory tests and investigation works carried out under Clause 6.6.3 below.
- (d) The Consultants shall assess the suitability and quantity of rock materials underlying the selected sites to estimate the reserve of rock extraction and provide data required for preliminary design.
- (e) The Consultants shall undertake a comprehensive evaluation of the existing and planned land-use, strategic and local planning, and any planning and development proposals that may affect the quarry development at sites.
- (f) The Consultants shall assess the development options and make recommendations on, having regard to settings and constraints of the sites, the quarry development layout, site formation configuration, formation levels, construction/excavation method and sequence with due consideration to the effect of blasting on the adjacent area, optimal quarry production rates, transport arrangements, and rehabilitation plans, to suit the purpose of quarrying, rock-related processing services and after-use of the quarry sites.

6.6.3 The Consultants shall plan, design and supervise the ground investigation (GI) works and laboratory testing required for the geotechnical assessment.

- (a) The GI works and laboratory testing required for the geotechnical assessment will be carried out under the term contracts administered by the Geotechnical Projects (GP) Division and the Standard and Testing (S&T) Division of the GEO respectively. The GI works shall include, but not limited to, geophysical surveys, outcrop mapping, drilling and sampling as required for the geotechnical assessment of the selected quarry sites. The Consultants shall liaise with CGE/GP to establish the programme of GI works for each of the selected quarry sites and, if necessary, revise the programme referred to in Clause 8.3 for the approval of the DR. The Consultants shall submit requests for the proposed GI works and laboratory testing to CGE/GP and CGE/S&T respectively, and obtain the necessary permissions and approvals for carrying out the GI works and laboratory testing.
- (b) The Consultants shall carry out planning and provide full-time technical supervision of GI works and appropriate level of supervision for laboratory testing for the preliminary feasibility study for the three selected sites. The supervision personnel shall be suitably qualified geologists or geotechnical engineers acceptable to the DR.

- (c) The Consultants shall prepare and submit a desk study report to describe the background information examined, the objectives and scope of the GI works and the plan of technical supervision to CGE/GP with each request for GI works.
- (d) The Consultants shall allow lead time between the submission of the requests for GI works and laboratory testing to CGE/GP and CGE/S&T respectively, and the actual commencement of the respective works and allow time required for the production of the GI and laboratory testing reports.
- (e) The Consultants shall prepare GI plans and drawings, attend site meetings and provide all pertinent information including comments on each GI Works Order prior to its issue by the GP Division.
- (f) The Consultants shall carry out all necessary checks to ensure that the proposed methods for temporary works submitted by the GI term contractor(s) do not have a detrimental effect on the permanent works and are safe in every aspect with reference to the relevant current Codes of Practice and Standards.
- (g) The Consultants shall supervise GI and laboratory testing works, check GI and laboratory testing reports (including the logging of the borehole samples) produced under the term contractors administered by the GP Division and the S&T Division of the GEO respectively, review and amend the GI and laboratory testing proposals if necessary during the execution of the GI and laboratory testing works.
- (h) The Consultants shall carry out any required monitoring of the groundwater condition subsequent to the installation of piezometers for a minimum period of one calendar year, and submit the results of the monitoring to the DR on a monthly basis or for other duration and intervals specified by the DR.

Transport and Traffic Assessment

6.6.4 The Consultants shall undertake a transport and traffic assessment to examine the adequacy of the capacity of the existing and planned transport system, and the requirements for new road connections, capacity improvements or enhancement arising out of the quarry development. All committed, planned and known transport proposals which are likely to have a bearing on the proposals, as advised by TD and HyD, shall be taken into account in the assessment. The area of influence for the traffic assessment shall include the problematic/critical road junctions and road networks nearby, which might be affected by the development, and shall be agreed by the TD and DR beforehand. In case marine transport is involved, the Consultants shall also address the related issues and seek MD's comments and agreement.

- (a) The Consultants shall propose and seek agreement from TD and DR on the methodology of traffic and transport impact assessment, including the development of local transport model for the selected quarry sites. The assumptions, parameters, model area boundary, design years, transport networks,

and base year traffic data and the associated traffic survey methodology shall be agreed by TD and DR prior to undertaking the assessment.

- (b) The Consultants shall assess and review all available information, including that of road systems, with regard to existing and future conditions, operations, facilities and arrangements which may affect or constrain the transport networks. In case of any deficiency of the available information, the Consultants shall conduct surveys or other data collection necessary for validation of the models for the preparation of traffic demand estimates and transport engineering design.
- (c) The Consultants shall assess the impact of traffic arising from quarry operation, and recommend optimum earth moving traffic/routes and accesses as well as measures to overcome the residual problems, if any. In case that the existing roads cannot cope with the anticipated construction traffic, the Consultants shall investigate and make recommendations on necessary improvements or enhancement works.

Strategic Environmental Assessment

- 6.6.5 The Consultants shall undertake a Strategic Environmental Assessment (SEA) for the selected sites to identify the potential environmental impacts arising out of the development and to integrate the consideration of environmental factors with other considerations in formulating, evaluating and refining the development options and hence formulating response plans to enhance environmental sustainability and to avoid potential environmental problems at the early planning stage.
- 6.6.6 The Consultants shall conduct the SEA with the following specific objectives and items of work:
 - (a) The Consultants shall identify sensitive receivers, and predict, assess and evaluate the potential environmental impacts on various aspects including, but not limited to, air quality, noise, water quality, waste and ecology arising from the quarry development on the sensitive receivers.
 - (b) The Consultants shall establish environmental targets in order to achieve environmental acceptability of the quarry development, and identify relevant environmental legislation, guidelines etc.
 - (c) The Consultants shall collate relevant environmental baseline information and establish baseline conditions of key environmental issues potentially affected by the quarry development.
 - (d) The Consultants shall integrate the consideration of environmental factors with other considerations in formulating the development options and response plans, and provide environmental input into the options refinement and selection process.
 - (e) The Consultants shall identify possible strategic approaches and recommend

migration measures required so as to avoid or minimise the potential environmental impacts identified and achieve compliance with the relevant ordinances, regulations and guidelines for issues related to environmental matters.

- (f) The Consultants shall determine the acceptability of the residual impacts after the implementation of the recommended mitigation measures.
- (g) The Consultants shall assess and conclude the environmental feasibility of the quarry development.
- (h) The Consultants shall identify any further investigations and studies to be carried out in the detailed design stage for addressing the environmental issues, minimizing environmental impacts, implementing suitable mitigation measures and improving their performance.

6.6.7 The Consultants shall, in consultation with EPD, determine the scope of the SEA which should, at least, cover the following aspects:

- (a) The environmental conclusion and recommendations should match the level of details to be provided in the conclusion and recommendations of the feasibility study.
- (b) The level of assessment should be such that collection of more detailed information or conducting subsequent detailed evaluation would not affect the study's environmental recommendations and conclusions. Field surveys and/or modelling work may be needed to support the environmental conclusion and recommendations following this principle.
- (c) Environmental implications and performance should cover both environmental improvements and adverse impacts, short term and long term implications, construction and operation stage impacts, on-site and off-site impacts such as due to induced and/or marine traffic, local and regional issues, residual and cumulative effects.
- (d) Information on the need and justification for the proposed quarries should be provided, in particular the information from environmental perspective and the environmental consequences of a "do-nothing" scenario and any potential environmental benefits that the proposal may bring.
- (e) Key environmental issues for the sites should be identified and the environmental impacts, including residual and cumulative, arising from the construction and operation of the project should be quantified. The evaluation on individual site should in general follow the methodologies stipulated in the "Technical Memorandum on Environmental Impact Assessment Process" (ELA-TM) and the relevant Guidance Notes. According to the ELA-TM, the environmental implications to be considered include impacts on air quality, hazard to life, noise, water quality, waste management, ecology, fisheries, landscape & visual, sites of cultural heritage and other impacts during

construction and operation of the project.

- (f) Depending on the characteristics of different sites and the proposed quarries, modelling work and assessment would be necessary to quantitatively establish the potential environmental implications of the proposal. Prior agreement of the methodologies with the relevant authorities is need.
- (g) Practicable and effective measures should be proposed to mitigate any significant environmental impacts. These measures should be taken into account when recommending the sites.
- (h) Any insurmountable environmental problems and any environmentally unacceptable or unfavourable aspects associated with the sites should be identified and considered when selecting the appropriate site(s).
- (i) Environmental issues requiring follow up should be identified to facilitate future work on the project. The recommended action together with the implementation agent(s) for the following up should be clearly stated.
- (j) Advice as to which elements of the proposed project would likely render the project into a designated project under the Environmental Impact Assessment Ordinance should be given.
- (k) The environmental and non-environmental considerations in formulating the recommendations should be summarised and discussed.
- (l) Apart from the technical report as referred to in Clause 5.7 (a)(iii), to facilitate consideration of various proposals, findings, conclusions and recommendations in the course of the study, the following technical notes should be provided at appropriate time matching the programme for the main study:
 - Strategic environmental evaluation methodology for comparing the sites and evaluating the preferred site(s)
 - Detailed methodology statements for modelling and/or field surveys should they be found necessary for the study

Drainage and Sewerage Assessment

- 6.6.8 The Consultants shall prepare an inventory of the existing and planned drainage and sewerage elements and capacities of the selected quarry sites.
- 6.6.9 The Consultants shall examine the likely impacts of the development on the drainage and sewerage conditions and the requirements for capacity improvements, based on the principles and guidelines established by the Government.
- 6.6.10 The Consultants shall study and make recommendations, if any, on (i) appropriate on-site sewerage treatment systems for any discharge from the production process of the “crushed rock products” within the site boundaries of respective selected quarry sites and/or (ii) necessary improvement and upgrading works to existing and planned drainage and sewerage systems for the development. The drainage and sewerage

assessment under Clauses 6.6.8 to 6.6.10 shall be submitted to DSD for agreement.

Water Supply and Utilities Assessment

- 6.6.11 The Consultants shall assess the existing and planned capacities of the water supply and distribution systems (including fresh/flushing and irrigation water supply, fire hydrants, service reservoirs, water treatment works, pumping stations, associated trunk transfer facilities and distribution networks etc.), telecommunication installations and power supply, and examine the impacts of the development on the capacities as well as the operation and maintenance of the existing waterworks installations, if any, located within and in the vicinity of the development. The quarry development should not adversely affect the operation and maintenance of the waterworks installation.
- 6.6.12 The Consultants shall identify the needs and provision for any new waterworks, utilities installations and other improvement works to cope with the development.

Cultural Heritage Impact Assessment

- 6.6.13 The Consultants shall identify heritage sites, heritage aspects and no-go area within the selected sites in consultation with relevant Government departments.
- 6.6.14 The Consultants shall , in consultation with AMO/LCSD, conduct a Cultural Heritage Impact Assessment with built heritage and archaeology for the selected sites based on the Guidelines for Cultural Heritage Impact Assessment prepared by AMO/LCSD and submit an impact assessment report to AMO/LCSD for agreement.

Visual and Landscape Assessment

- 6.6.15 The Consultants shall carry out a visual and landscape assessment, with supporting illustrative material including photomontages and three-dimensional graphics, to identify the visual impacts of the quarry proposal from major vantage points and recommend feasible visual enhancement/mitigation measures. The selected major vantage points and the approach of undertaking the assessment shall be agreed with the DR beforehand.
- 6.6.16 The Consultants shall undertake an appraisal of the landscape resources of the selected site focusing on the sensitivity of the landscape character and its ability to accommodate change, and identify areas for tree preservation and rehabilitation. The assessment shall quantify the potential impacts on each landscape resource as far as possible so as to illustrate the significance of such impacts arising from the implementation of the development. The Consultants shall recommend mitigation measures such as tree compensatory planting, tree preservation proposal, landscape rehabilitation and hard/soft landscape treatments to avoid or minimise the adverse impacts identified.

Sustainability Assessment

- 6.6.17 The Consultants shall, in consultation with the Environment Bureau, undertake a Sustainability Assessment (SA) using the CASET as evaluation framework to evaluate and assess the quarry development at the sites. In carrying out the assessment, the Consultants shall, based on the sustainability framework or guidelines established by the Government to assess the sustainability implications. In considering cross-sectoral issues, relevant findings from other feasibility assessments should be referred to where appropriate.
- 6.6.18 The purpose of SA is to identify, at early planning stage, the economic, social, environmental and cross-sectoral issues and implications of the quarry development at the sites, as well as the development options, with a view to facilitating decision-making and achieving the best implementation scheme.
- 6.6.19 The Consultants should collect all necessary data/information required by the CASET programme, which is underpinned by eight sustainability principles, twenty-seven (27) sustainability indicators and a set of social checklist questions. (web link : <http://www.susdev.gov.hk/html/en/su/sus.htm>).
- 6.6.20 SA should be delivered as a stand-alone document, it contains the information used as input to the CASET, any additional considerations taken, evaluation and analysis of the sustainability implications, key sustainability issues identified and conclusion. A list of discarded sustainability indicators triggered by the CASET should be included in the SA report with adequate justifications. The analysis in the SA report covers, but not limited to, the following aspects:
- (a) Environmental concerns during various implementation stages. Relevant findings from environmental assessment on areas including air quality, water quality, waste generation and disposal, dredging and reclamation, noise, landscape and cultural heritage as well as ecology should be adopted and reflected in the evaluation of the relevant indicators against the baseline data. Other triggered indicators should also be addressed in details.
 - (b) With regard to impact on social development, assessment on population impacts, community/institutional arrangements, conflicts between local residents and the proposed developments, job opportunities, community infrastructure changes are some of the concerns that should be considered. Analysis should focus on impacts on the general public at large as well as any specific issues to the local community. Views gathered during public engagement are important to gauge the social capital variance and the projection on social acceptance.
 - (c) For economic impact, a detailed cost benefit analysis of the option(s) is essential to meet the CASET's requirements and should be useful for options comparison. It is essential to address the benefit of the proposal to the community.
 - (d) Other impacts, which would be brought about during the study, should be covered in assessment.

6.6.21 The Consultants shall prepare a sustainability assessment report containing the information used as input to the CASET, any additional considerations taken, evaluation and analysis of the sustainability implications, key sustainability issues identified and conclusion. A list of discarded sustainability indicators triggered by the CASET should be included in the sustainability assessment report with adequate justifications.

Preliminary Design

6.6.22 The Consultants shall examine the development options and conduct a preliminary design for each of the three selected sites to present the quarry development scheme including rehabilitation after quarrying and address the key issues involved in the development. The Consultants shall ensure that the preliminary design is consistent with all relevant ordinances and regulations, and shall submit the layout drawings to the relevant Government departments and the DR for comment and in-principle agreement.

6.6.23 On the basis of the findings of the preliminary feasibility study and with due account taken of the suggestions and comments from stakeholders, the Consultants shall conclude the feasibility of the quarry development at the sites, the preliminary design and the means required for addressing the key issues involved in the development, as well as the recommended development schedule including the priority and timing of the sites for quarry development.

6.7 Devise a Quarry Development Master Plan as referred to in Clause 4.1(f)

6.7.1 The Consultants shall formulate a Quarry Development Master Plan to set out the strategy and roadmap for development of local quarries based on the findings of the Assignment and suggestions and comments from stakeholder. The Plan shall cover the following areas:

(a) the recommended strategy for supply of crush rock products and development of local quarries, with supporting explanations of the key data, assessments and considerations leading to strategy;

(b) the most suitable site or sites identified for quarry development and the timetable of development;

(c) the mode of operation of the quarries, such as the number, type and duration of quarry contracts, and any specific requirements on quarry production, rock-related processing services and other site usage, such as concrete batching plant and asphalt batching plant;

(d) the targeted output of quarry production and rock-related processing services associated with the quarry development;

(e) any specific planning, development, administrative and statutory conditions to be imposed on the quarry development;

(f) the scope and programme of further studies/work to be carried out for the quarry development;

(g) the estimated costs of the further studies/works for the quarry development and estimated revenue received from the development; and

(h) the other possible sites, which may be considered as alternative sites for quarry development or sites for future development.

6.7.3 The Consultants shall assist the DR to prepare submissions and briefing and presentation materials for the endorsement of the Quarry Development Master Plan by the relevant Government bureaux and departments, and related bodies.

6.7.4 The Consultants shall recommend the programme and scope of the next phase of work on detailed engineering design and study referred to in Clause 2.4 above, with a view to finalizing the design and requirements for the new quarry site, obtaining the necessary statutory and administrative approval, and tendering. The Consultants shall assist the DR in drafting the consultancy Brief on the next phase of work.

6.8 **Gauge stakeholders' views, foster their understanding and acceptance of the long-term strategy for aggregate supply and the Quarry Development Master Plan including the sites identified for quarry development and the development strategy, and seek endorsement from the relevant Government Bureaux, Departments and related bodies as referred to in Clause 4.1(g)**

6.8.1 The Consultants shall formulate a public engagement strategy and programme to enable better and early engagement of the stakeholders throughout the process of the Assignment, with a view to gauging their views and fostering their understanding and acceptability of the following outcome of the Assignment.

a) Long-term strategy for supply of crushed rock products in Hong Kong as referred to in Clause 6.4 and suitability of the longlisted potential new quarry sites as referred to in Clause 6.5; and

b) The Quarry Development Master Plan as referred to in Clause 6.7.

6.8.2 The Consultants shall propose detailed approach, public engagement activities to be undertaken and make suggestions on the documents and presentation materials to be prepared for such activities.

6.8.3 The Consultants shall draw up a list of target stakeholders, including, but not limited to, Government bureaux and departments, local communities, interested parties, concerned groups, professional institutes, green groups, statutory and advisory bodies, such as Town Planning Board and District Council of the selected quarry sites, and propose the key meeting dates of target stakeholders to be consulted.

- 6.8.4 The Consultants shall prepare and produce the Public Engagement Digests and other presentation, exhibition or participation materials, in both Chinese and English, as appropriate such as public consultation papers, technical notes, newsletters, exhibition panels, posters, and including, but not limited to, multi-media displays, internet based tools, on-line discussion boards, questionnaires, etc. to facilitate the public engagement activities.
- 6.8.5 The Consultants shall organize, make presentation and participate in the public engagement activities, record the proceedings of the events and suggest the approach to consolidate and analyse the comments/reviews received from the activities. If necessary, the public engagement programme may be extended to fit with the meeting schedule of concerned parties. Ad-hoc engagement meetings with interested parties may also be held throughout the Assignment. Subject to the approval of the DR, the Consultants shall revise and update the Assignment programme to incorporate these extensions and ad-hoc meetings. The Consultants shall also be required to make suitable amendments to the Assignment programme, findings and deliverables if necessary, depending on the outcome of the public engagement, for agreement of the DR.
- 6.8.6 The Consultants shall review the outcome of the public engagement activities and incorporate necessary refinements or amendments in the Quarry Development Master Plan.
- 6.8.7 The Consultants shall prepare the Public Engagement Reports, covering the subject of public engagement, activities undertaken and a summary of comments and views received and their responses. The Reports should also highlight the relevant comments/proposals, analyse the pros and cons of the key comments, alternative development concepts/proposals/options received and provide commentary on the suitability of incorporating them into the study process.

6.9 **Produce Final Report and Executive Summary**

- 6.9.1 The Consultants shall produce a Final Report for the whole study incorporating a consolidated compilation of the overall study process, findings and recommendations of the Assignment.
- 6.9.2 The Consultants shall prepare and submit a bilingual (Chinese and English) Executive Summary concurrently with the Final Report. The Executive Summary shall be written in simple terms and shall be bound separately.

7. **Response to Queries**

The Consultants shall respond to queries under Clause 20 of the General Conditions of Employment of Engineering and Associated Consultants for a Feasibility Assignment (1997 Edition) raised prior to a date three months after the final submission of the

deliverables required under the Agreement, or the end of the Agreement, whichever is the latest. Such date shall be confirmed in writing to the Consultants by the DR.

8. Programme of Implementation

8.1 **The due date for commencement of the Agreement is 25th October 2011.**

8.2 The Assignment shall take a total of **36 months** to complete subject to programme agreed by the DR. The Consultants shall endeavour to ensure that the Assignment is carried out in accordance with the Programme and shall submit regular programme reviews as part of the progress reports referred to in Clause 9 of this Brief.

8.3 Pursuant to Clause 26(B) of the General Conditions of Employment of Engineering and Associated Consultants for a Feasibility Assignment (1997 Edition), the Consultants shall submit the draft programme and revised draft programme and the DR shall agree or instruct, within the following periods:

Submission of the draft programme : Within 2 weeks of the date of commencement of the Agreement

Agreement of the draft programme or otherwise issue an instruction for submission of the revised draft programme : Within 2 weeks from receipt of the draft programme or instruction for submission of the revised draft programme

Submission of revised draft programme : Within 2 weeks from receipt of the instruction for submission

8.4 The draft programme and revised draft programmes shall detail the activities to be carried out, target dates for particular tasks and any decision dates that may be required for the uninterrupted progress of the Assignment. The Consultants shall discuss with the DR during the above periods to agree the timing for submission of all Deliverables, plans and drawings and other relevant documents as required by the DR for inclusion in the draft programme and revised draft programme. The draft programme or the revised draft programme accepted by the DR shall be the agreed Programme.

8.5 The Consultants shall note the following key dates, but not limited to, in drawing up the programme for this Assignment: -

- | | | |
|-----|---|--|
| (a) | Completion of review on the supply and consumption of crushed rock products as referred to in Clause 6.2; and review and recommendation on the role of local quarries and the need of new quarries, including formulation of long-term strategy for supply of crushed rock products as referred to in Clauses 6.3 & 6.4 | 4 months from the date of commencement of Agreement |
| (b) | Completion of compilation of longlisted potential sites with prioritization as referred to in Clause 6.5 | 12 months from the date of commencement of Agreement |
| (c) | Commencement of the preliminary feasibility study on three selected quarry sites as referred to in Clause 6.6 | 13 months from the date of commencement of Agreement, subject to DR's instruction to proceed |
| (d) | Completion of the preliminary feasibility study and preliminary design as referred to in Clause 6.6 | 24 months from the date of commencement of Agreement |
| (e) | Completion of Quarry Development Master Plan as referred to in Clause 6.7 | 30 months from the date of commencement of Agreement |