

**PROPOSED EXECUTIVE CONDOMINIUM HOUSING DEVELOPMENT  
LAND PARCEL AT FERNVALE LANE**

**ADDITIONAL CONDITIONS OF TENDER  
(TECHNICAL)**

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## **PART I**

### **1.0 GENERAL**

- 1.1 The Successful Tenderer must in addition to the Particulars and Conditions of Tender, observe and comply with these Additional Conditions of Tender (Technical) in the development and lease of the Land Parcel at Fernvale Lane. The Particulars and Conditions of Tender and these Additional Conditions of Tender (Technical) shall be read in conjunction with the technical information booklet enclosed in the sale packet. The Successful Tenderer shall also comply with all applicable guidelines issued by the Competent Authorities and Public Utility Licensees. All proposals are subject to the approval of all relevant Competent Authorities and Public Utility Licensees.
- 1.2 The conditions and requirements of all relevant Competent Authorities and Public Utility Licensees set out in these Additional Conditions of Tender (Technical) and in the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees and the appendices thereto (to be complied with by the Successful Tenderer at his own cost and expense) are provided to tenderers for their information only. Whilst every care and attention has been taken in the compilation and preparation of these conditions and requirements, HDB does not warrant that they constitute an exhaustive list of the conditions and requirements of the relevant Competent Authorities and Public Utility Licensees in respect of the development or that they are free from any errors or omissions. These conditions and requirements are subject to change by the relevant Competent Authorities and Public Utility Licensees and the onus lies on the Successful Tenderer to verify these conditions and requirements with HDB, the relevant Competent Authorities and Public Utility Licensees directly and comply with their prevailing conditions and requirements.
- 1.3 The Government and HDB are not liable to any tenderer and tenderers shall not claim against the Government and/or HDB for any errors and/or omissions in and for any loss suffered by any tenderer arising directly or indirectly from the reference to, usage of and/or reliance on the contents of these Additional Conditions of Tender (Technical), the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees and appendices thereto.
- 1.4 All references to “the Successful Tenderer” herein shall be deemed to include “the approved developer” as defined in the Particulars and Conditions of Tender where the context so admits.

## **PART II**

### **2.0 PLANNING PARAMETERS**

#### **2.1 PROPOSED DEVELOPMENT**

The Land Parcel at Fernvale Lane (“the said Land”) with a site area of 17,129.9 sqm shall be for Executive Condominium Housing Development (“the said development”). The site area is the area measured up to the boundary lines as shown on the Certified Plan No. 90622.

Note: Executive Condominiums are non-landed housing developments that typically come with generous provision of communal and recreational facilities for the enjoyment of the residents.

#### **2.2 ALLOWABLE GROSS FLOOR AREA (GFA)**

The total GFA for the said development shall not exceed 47,964 sqm but shall not be less than 43,168 sqm. Based on the site area of 17,129.9 sqm, the permissible Gross Plot Ratio (GPR) should not exceed 2.8\*. The total GFA shall be computed in accordance with the Urban Redevelopment Authority’s (URA’s) Development Control Guidelines.

**The total number of dwelling units for the said development shall not exceed 504.**

\*Indicated for information of the Tenderer only.

### **2.3 BUILDING LINE / SETBACK**

The Successful Tenderer shall at all times comply with URA's and the relevant Competent Authorities' requirements on the building line setback. Notwithstanding the generality of the foregoing, the building setbacks (including basement structures) shall be based on the boundary of the said Land delineated on the Certified Plan No. 90622.

The Successful Tenderer shall conform to URA's Current Guidelines for Condominium Housing Development with regard to Building Spacing and Setback Standards.

The plot of land opposite to the western boundary of the said Land is zoned for general industrial uses (i.e. B2 uses) under the gazetted URA Master Plan 2019. As stated in the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), a minimum 100m nuisance buffer shall be maintained between the proposed residential developments (building façade) and the B2 industrial site. The Successful Tenderer shall consult JTC to confirm if any setback is required from the B2 development and can contact Ms Carmie Wong at [Carmie\\_wong@jtc.gov.sg](mailto:Carmie_wong@jtc.gov.sg).

### **2.4 BUILDING HEIGHT**

The said development shall be subject to a technical height control of 56m AMSL. The technical and storey height control of the said development is to comply with all applicable standing guidelines issued by the Competent Authorities, including URA's Development Control Guidelines. The Successful Tenderer is to check with the Competent Authorities on the standing guidelines as the guidelines are reviewed from time to time. The lowest technical and storey height control imposed by the Competent Authorities will be applicable to the said Land. The final technical and storey height are subject to the approval of the Competent Authorities.

The Successful Tenderer shall ensure that all developments, structures and fixtures on the said Land do not exceed the maximum allowable height of 56m AMSL. Such developments, structures and fixtures include those on the roof tops, whether permanent or temporary, transient or stationary (including but not limited to building superstructure, water tanks, lift motor rooms, TV antennae, cranes, maintenance equipment, lightning conductors, moving objects, vegetation, etc.) and all construction equipment and temporary structures (including but not limited to cranes, piling rigs, etc.) are subject to the same height limit. The Civil Aviation Authority Singapore's (CAAS) and the Republic of Singapore Air Force's (RSAF) clearances shall be sought for the use of crane or tall construction machineries that are above 30m and 71m AMSL respectively. The Successful Tenderer shall email RSAF at [height\\_control@defence.gov.sg](mailto:height_control@defence.gov.sg) and apply online to CAAS at [https://appserver1.caas.gov.sg/CAAS-AERIAL/jsp/enquiry\\_obstacle/index.jsp](https://appserver1.caas.gov.sg/CAAS-AERIAL/jsp/enquiry_obstacle/index.jsp).

The Successful Tenderer shall submit to the Civil Aviation Authority of Singapore (CAAS) and the Defence Science & Technology Agency (DSTA) a certified surveyor as-built plan prior to applying to the Building Control Authority (BCA) for the Temporary Occupation Permit or Certificate of Statutory Completion for the said development on the said Land.

The Successful Tenderer shall obtain CAAS' and RSAF's prior written approval before mobilising and/or installing any construction machineries on the said Land. An application to CAAS is to be submitted by the Successful Tenderer using the Crane Application Form available at URL: <http://www.caas.gov.sg/e-services-forms/e-services/application-for-obstacle-clearance>.

The Successful Tenderer is to consult URA's Development Control Group when the detailed development plans are available.

In the event where there are any communication installations on the said Land, the Successful Tenderer is advised to seek clearance from relevant agencies such as Info-communications Media Development Authority of Singapore (IMDA).

### **2.5 DEVELOPMENT CONTROL**

The said development must comply with Development Control Guidelines issued from time to time by the Competent Authority under the Planning Act (Cap 232).

The building massing and design treatment of the development must be sensitive to the surrounding environment. The layout of the building blocks shall be subject to evaluation at the Development Application stage. The Successful Tenderer can refer to URA's circular dated 4 March 2010 titled "*Sensitive Design and Development: An Industry Guide of Good Practices to Minimise Wall-like Developments*" on possible design treatment options for the development.

Where applicable, the Successful Tenderer's Qualified Person shall submit a Development Statement of Intent (DSI) together with their development proposal submitted to the Competent Authority under the Planning Act (Cap. 232) at the formal submission stage as per prevailing guidelines and circulars issued by the Competent Authority.

## 2.6 URBAN DESIGN AND ENVIRONMENT CONSIDERATIONS

The architectural solution must respect the context/built environment of the said Land in its setting.

The proposed design solution shall blend in with the surrounding developments and be conducive to the overall surrounding character/ambience.

The Successful Tenderer shall ensure that the said development and its activities will not cause any undue nuisance to the surrounding/adjacent developments in terms of noise, glare, smell and any other form of pollution.

## 2.7 PLATFORM LEVEL

The existing levels of the said Land are as shown in the Topographical Survey Plan No. 2250-CAK-TP-SK-26163-01C. The Public Utilities Board (PUB) has specified that the minimum platform level (MPL) for the said Land shall not be lower than 600mm above the adjacent road/ground level for commercial/multi-unit residential developments with basement, or any other levels as determined by PUB as in clause 2.1 of the latest Code of Practice on Surface Water Drainage (COP), whichever is highest. The final platform level is subject to the relevant Competent Authorities' approval. The Successful Tenderer shall be required to seek approvals from the relevant Competent Authorities on the platform levels before commencement of its building layout design.

All the cost and expense incurred in carrying out earth cutting and filling of the existing ground, if necessary, to the proposed platform level shall be borne by the Successful Tenderer.

In changing the platform levels, the Successful Tenderer shall ensure that the revised platform levels of the said Land shall satisfy the drainage requirements in compliance with PUB's current Codes of Practice on the Surface Water Drainage and the Sewerage & Drainage (Surface Water Drainage) Regulations. The Successful Tenderer shall also check and ensure that the revised platform level will still meet all the requirements of the relevant Competent Authorities.

The Successful Tenderer shall conduct thorough investigations of the said Land and ensure that the runoff within, upstream of and adjacent to the said Land can be effectively drained away without causing flooding within the said Land and in the vicinity of the said Land, all in compliance with the PUB's relevant Codes of Practice.

All earthworks, slope and embankments shall be contained within the boundaries of the said Land. The Successful Tenderer shall note that HDB's contractor would be carrying out earthworks within the boundaries of the said Land to facilitate the road improvement works. **The area encroaching into the said Land (as shown indicatively in the Site Plan) would be handed over to the Successful Tenderer upon completion of the works (tentatively in 1Q2021).** The Successful Tenderer shall carry out additional earthworks, where required, after the site is handed over to them to ensure that the requirements set out in Appendix C Clause 2.7 are complied with.

## 2.8 PARKING

The Successful Tenderer shall provide parking lots for the said development in accordance with the full physical parking requirements of the prevailing Parking Places (Provision of Parking Places and Parking Lots) Rules. Basement carparks shall have a setback from the boundaries according to URA's guidelines.

The design of the parking place shall include adequate spaces for vehicles to carry out furniture delivery or house-moving activities.

## **2.9 VEHICULAR INGRESS / EGRESS**

The Land Transport Authority (LTA) requires the Successful Tenderer to comply with the following requirements:

- i) The vehicular ingress / egress (the access) to the said Land shall be taken from Fernvale Lane. The approximate position of the access is as shown on the Site Plan.
- ii) Access to service areas (eg. bin centre, electrical substation, loading / unloading bays) shall be taken from within the said development. No service access will be allowed to be taken from the public roads.
- iii) To provide at least 2 car length queuing space within the said development before the guard post / drop barrier to avoid any formation of vehicular queues onto the surrounding road network.
- iv) All drop-off / pick up points are to be provided within the said development and shall be adequately designed for. It shall not affect the ingress / egress movement and shall be located further in the said development to prevent traffic queues from spilling onto the main road.
- v) Internal service driveway shall be provided within the said development with sufficient storage length to avoid spillage of vehicles onto the main public road.
- vi) The building boundary and any landscaping near access points have to be designed to provide good line of sight for pedestrians, cyclists and / or motorists.

The Successful Tenderer shall at his own cost and expense, construct the culverts for the access and hand it over to the relevant Competent Authorities for management and maintenance.

The exact location and detailed proposal for the access point and the traffic layout arrangement are subject to the requirements and approval of LTA and other relevant Competent Authorities.

Detailed plan submission, including the traffic plans for the said development showing the details of the accesses, etc., shall be made to LTA's Development Building Control (DBC) Division for review and clearance during the DC and BP stages.

As HDB's contractor will be carrying out road and drainage works along Fernvale Lane, the Successful Tenderer shall liaise with HDB's contractors and relocate the construction access when required, to facilitate HDB's road and drainage works. The Successful Tenderer is also required to liaise with the existing contractors on site on the traffic control plan at the access location.

## **2.10 CYCLING INFRASTRUCTURE AND CYCLING-RELATED REQUIREMENTS**

LTA requires the Successful Tenderer to comply with the following requirements:

### Bicycle parking facilities

- i) The Successful Tenderer is required to construct and provide a minimum number of bicycle parking spaces within the said Land at the rate of 1 space for every 6 dwelling units or prevailing requirements set out by the relevant Competent Authority at the formal submission stage.
- ii) The Successful Tenderer is required to comply in full with LTA's bicycle parking standards. A guide for Bicycle Parking and related facilities can be found in the Code of Practice for Street Works Proposals relating to Development Works and the Code of Practice for Vehicle Parking Provision in Development Proposals.

- iii) The bicycle parking lots shall be securely anchored and non-removable. The Successful Tenderer can, however, propose alternative layouts and designs for LTA's consideration and approval.

#### Wayfinding signage

- iv) The Successful Tenderer is to provide a comprehensive wayfinding system to guide residents and visitors of the said development to transportation nodes in the vicinity and towards the pedestrian and cyclist related facilities (e.g. bicycle parking) within the said development. A guide for wayfinding signage and related facilities can be found in the Code of Practice for Street Work Proposals relating to Development Works or at <https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/2016/Guide%20for%20Wayfinding%20Signage.pdf>.
- v) The Successful Tenderer shall obtain clearance from the Competent Authority on all matters related to the wayfinding system before commencing construction of the said development.

### **2.11 LOCATION OF BIN CENTRE**

The bin centre shall be sensitively located within the said Land such that it does not become a nuisance to residents in the surrounding developments. The entrance of the bin centre shall face inwards within the said development.

The Successful Tenderer shall ensure that the bin centre and its entrance area, including any parking space for refuse trucks, are located away from any adjacent landed housing estate (if any).

The service driveway for the bin centre is to be integrated within the said Land and the length of the service driveway must be able to accommodate all service vehicles.

Lush planting and / or screening shall be provided to screen the bin centre and service areas from view of the residents in the adjacent landed houses (if any), and users of the surrounding public roads and walkways.

## **PART III**

### **3.0 OTHER REQUIREMENTS**

#### **3.1 COVERED LINKWAY PROVISION**

LTA requires the Successful Tenderer to comply with the following requirements:

- i) The Successful Tenderer is required to provide a covered linkway from the pedestrian gate closest to the eastern boundary of the said development to the bus stop along Fernvale Lane as shown in the Site Plan.
- ii) The parts of the covered linkways within the road reserve are to be designed as a standalone structure, i.e. separated from the internal structures. The detailed design and construction of the covered linkways are to comply with the requirements of LTA and the relevant Competent Authorities, complete with lightings and fittings. The Successful Tenderer shall submit a detailed proposal of the covered linkways to LTA and all other relevant Authorities for approval.
- iii) The Successful Tenderer shall, at his own cost and expense, maintain the completed covered linkways to the satisfaction of the relevant Competent Authorities. LTA will only take over the portion of the covered linkways that is within the road reserve for maintenance upon the issue of Certificate of Statutory Completion (CSC).
- iv) All costs and expenses relating to the implementation of the proposed covered linkways and other incidental costs shall be borne by the Successful Tenderer.

### 3.2 PREFABRICATED PREFINISHED VOLUMETRIC CONSTRUCTION (PPVC)

LTA requires the Successful Tenderer to comply with the following requirements:

- i) Feedback related to PPVC transportation activities

Feedback related to PPVC transportation activities shall be handled by the Successful Tenderer.
- ii) Delivery of PPVC Modules
  - a. The Successful Tenderer is to obtain a permit from LTA for laden or unladen vehicles which are:
    - i. more than 2.6 metres wide; or
    - ii. with a rear overhang of 1.8 metres or 40% of the vehicle length, whichever is lesser; or
    - iii. more than its allowable weight limit
  - b. In addition to a permit, Auxiliary Police Escort, which is only allowed from 1900 hours to 0500 hours for major roads and from 2300 hours to 0500 hours for expressways, is required if the laden or unladen vehicles are:
    - i. more than 3 metres wide; or
    - ii. more than 80 tonnes in weight;
    - iii. with the overall height of more than 4.5m
  - c. The Successful Tenderer shall comply with LTA guidelines "*Special Vehicles that require Submission of Notice to LTA*".
- iii) Oversized Vehicle Delivery Operation / Access Point
  - a. Delivery and movement of heavy vehicles shall take place outside peak hours.
  - b. Strictly no parking or waiting of construction vehicles / staff vehicles by the road side.
  - c. All loading and unloading activities shall be contained within the said Land.
  - d. Marshalls shall be present to direct traffic and ensure smooth flow of vehicles along Fernvale Lane and Sengkang West Road if required.
  - e. There are existing public buses plying through this area and construction operations shall not obstruct public buses.
  - f. The Successful Tenderer / Contractors are to be reminded that right turn from Sengkang West Road into Fernvale Lane is not allowed for all vehicles except public buses. The Successful Tenderer / Contractors are to plan the traffic routes properly.

### 3.3 STORAGE AREA FOR PREFABRICATED PREFINISHED VOLUMETRIC CONSTRUCTION (PPVC) MODULES

For the purpose of adopting the PPVC method of construction, the Successful Tenderer is required to set aside some space within the said Land for storage and / or holding area for PPVC modules. No additional space outside the said Land will be granted on TOL basis for this purpose.

### 3.4 PRE- AND POST-CONSTRUCTION SURVEY

- i) The Successful Tenderer / Qualified Person in charge of the engineering works shall submit to HDB an engineering works plan before the commencement of work. The engineering works plan shall be prepared, signed and supervised by the Successful Tenderer / Qualified Person. The following shall be included in the engineering works plan:

- a) Layout plan including site boundaries and cross-sectional details of works
  - b) Layout plan and cross-sectional details of retaining structure and temporary support
  - c) Method Statement of Construction including the types of equipment to be used
  - d) Method Statement of temporary and permanent works for excavation and construction
  - e) Design calculations for work which affects HDB property
  - f) Soil investigation report of said Land
  - g) Proposal for monitoring the effect of the works on HDB property
  - h) Condition survey of HDB property including photographs by an independent party with appropriate qualifications before construction work
- ii) The Successful Tenderer / Qualified Person shall submit to HDB the condition survey of HDB property including photographs by an independent party with appropriate qualifications after construction work.

### 3.5 INSTRUMENTATION MONITORING

HDB requires the Successful Tenderer to comply with the following requirements:

- i) The Successful Tenderer / QP shall ensure that the proposed works do not affect the integrity or stability of the foundation and structure of HDB buildings. Hacking to existing HDB structures is not permitted. The minimum distance from existing edge of columns to proposed excavation / piling is 6 m. During the progress of the engineering works the Successful Tenderer / QP must provide adequate means of instrumentation to monitor the effect of the engineering works on HDB property. The Successful Tenderer / QP shall submit the type and location of such monitoring instruments and frequency of reading to HDB for clearance. The physical movement to be monitored shall include but not be limited to the following:-

- a) Lateral deflection of retaining structure;
- b) Vertical deflection of column of HDB property/building;
- c) Settlement of apron slab and beam of HDB property/building;
- d) Levels of road or carpark or sewer manhole adjacent to HDB property/building;
- e) Ground water level below/adjacent to HDB property/building;
- f) Vibration movement in HDB property/building.

The instrumentation readings shall be recorded and reviewed by the Successful Tenderer / QP, and he shall submit a report to HDB within a week of recording.

- ii) Instrumentation on Fiber Reinforced Polymer (FRP) columns (if any)  
For the purpose of instrument installation, the diameter of holes drilled must not exceed 10mm. The minimum spacing between these drilled holes is 300mm, centre-to-centre. No ram setting is allowed on the columns. Upon removal of instruments, the column surface shall be reinstated to its original form, and painted.

- iii) Alert (Trigger) and Work Suspension (Allowable) Instrumentation Level  
The Successful Tenderer / QP shall establish Alert and Work Suspension levels for the instrumentation reading of the physical movement mentioned in Appendix C Clause 3.5(i) above. These Alert and Work Suspension instrumentation level readings shall be agreed upon with HDB before the commencement of Engineering works. On reaching a Work Suspension (Allowable) level at any location on site, the Successful Tenderer / QP is required to inform HDB through handphone and email immediately and follow up with a report to HDB reviewing the movement and predicting further movement up to completion of construction. Where necessary, the Successful Tenderer / QP shall submit to HDB for clearance, a proposal to limit further movement or additional monitoring. On reaching a Work Suspension level at any location, the Successful Tenderer / QP shall cause the work to be stopped. The Successful Tenderer / QP shall immediately inform HDB and implement measures to stop further movement. The Successful Tenderer / QP shall allow the work to continue only if the measures implemented are proved to be effective. The monitoring of movements shall be inclusive of another 6 months of monitoring after end of backfilling, shall be submitted to HDB.



- iv) Piling and Pipe Jacking Works  
The Successful Tenderer / QP shall ensure that the method of piling, piling operation and pipe jacking do not affect the structural integrity or stability of the existing HDB buildings or any building under construction. Piling shall generally be constructed by non-displacement techniques such as augering. The stability of the ground shall be ensured by the use of appropriate measures designed by the Successful Tenderer / QP. Notwithstanding the method used in the piling work, the Successful Tenderer / QP shall review and closely monitor the technical parameters and Instrumentation level as stated in Appendix C Clauses 3.5(i) to 3.5(iii) above. The Successful Tenderer / QP shall ensure that the noise generated as a result of the piling work is also kept to a minimum and within the limit set by the Relevant Authority.

The Successful Tenderer / QP shall check the as-built plans on piling, footing, pile-cap and all related plans of the affected structures to ensure that their works do not encroach into existing piles, footings, pile-caps and other structures. A confirmation that such checks has been carried out shall be submitted to HDB (Building & Infrastructure Group) before work commences.

- v) Excavation Work  
The Successful Tenderer / QP shall ensure that excavation work does not cause the lowering of ground water table nor any lateral soil movement. If the lowering of ground water table or soil movement is expected, the Successful Tenderer / QP shall submit to HDB detailed calculations showing expected scale and magnitude, and the resultant load imposed on HDB building. The conditions of instrumentation and monitoring set out in Appendix C Clauses 3.5(i) to 3.5(iii) shall also apply to excavation work.

- vi) Vibration  
The Successful Tenderer / QP shall ensure that the proposed works or method of working does not cause undue vibration or unease and discomfort to HDB residents and damage to HDB property. The Successful Tenderer / QP shall take steps to minimise the magnitude and frequency of any such vibrations. If vibration is expected from the proposed works, the Successful Tenderer / QP shall submit to HDB detailed calculations showing the magnitude, frequency and the resultant load imposed on HDB property. The condition on instrumentation and monitoring contained in Appendix C Clauses 3.5(i) to 3.5(iii) above shall apply.

### **3.6 SERVICES AND SOIL REPORT**

The information on existing services and soil report is indicative only. The HDB shall not be liable for any damages suffered or expenses incurred as a result of the information given and shall not be held responsible for their accuracy. There may also be departures from the courses and there may also be other findings of which no record is held. The Successful Tenderer is advised to carry out his own site verification at his own cost.

For underground services lines, the Successful Tenderer shall also carry out his own site verification and arrange and obtain approval from the relevant Competent Authorities and pay for the cost of any diversion or provision of the services including sewer lines etc. He shall be deemed to have included in his tender price such verification and diversion of services which may affect the said development to meet the specifications of the relevant Competent Authorities.

All new services lines serving the said development shall be contained within the said Land boundaries. The approval of the relevant Competent Authorities must first be sought before any connection can be made. All costs incurred shall be borne by the Successful Tenderer.

There may be services within or near the said Land. Prospective tenderers are required to carry out due diligence by purchasing the services plans from the respective service providers. Please contact the respective Services Providers for the services plans. For plans on electrical cables and gas, please approach the following Competent Authority and Public Utility Licensee for details, as they would like to keep a record of the parties who view the plans:

## **Electricity and Gas**

### **SP PowerGrid Ltd**

Earthworks Monitoring & Cable Protection Section  
Pasir Panjang District Office  
25 Pasir Panjang Road  
Singapore 117536  
Tel: 6470 0660 / 6470 0621  
Fax: 6475 9400 / 6479 5660

More information on purchase of cable or gas pipe plans are available under contact us at <http://www.singaporepower.com.sg>

### **Singapore Telecommunications Limited (Singtel)**

Singapore Telecommunications Limited  
Outside Plant Engineering  
375 Tanjong Katong Rd, #03-00  
Blk 1 Tanjong Telecommunication Complex  
Singapore 437132  
Tel: 6342 5900 / Fax: 6440 6305  
E-mail: g-plansale@singtel.com

More information on purchase of Singtel plant route plans are available at <http://info.singtel.com/earthwork>.

## **3.7 EXISTING FOOTINGS, OBSTRUCTIONS AND OTHER MATERIALS**

There may be footings, grouted and expunged sewer pipes, grouted and expunged water pipes and other obstructions left in the ground. The Successful Tenderer shall at his own cost and expense, carry out his own site verification of the possible positions of the footings, pipes, obstructions and other materials and ascertain the effect of these on the said development.

The Successful Tenderer shall be deemed to have taken into account the costs of such verification, tests, removal of the possible footings, pipes, obstructions and other materials etc. which may affect the said development in his tender price.

## **3.8 SLOPES AND EARTH RETAINING STRUCTURES**

The Successful Tenderer shall ensure that all slopes and earth retaining structures where required shall be designed to comply with the requirements of the relevant Competent Authorities. All slopes and earth retaining structures shall be kept within the boundary of the said Land.

The Successful Tenderer shall submit the details and design calculations prepared by a Professional Engineer for any proposed slopes or earth retaining structures to HDB and to the relevant Competent Authorities for approval before commencement of works.

## **3.9 WORKING AREA**

The Successful Tenderer shall confine the construction work within the boundary of the said Land. He shall not cause obstruction to other parties who may be working around the said Land at the same time.

Hoarding shall be put up by the Successful Tenderer to ensure the safety and well being of pedestrians. These hoarding shall be maintained in good condition throughout the project completion period of the said development.

The Successful Tenderer shall note that HDB's road contractor would be carrying out road improvement works (boundary as shown indicatively in the Site Plan) until approximately 1Q2021 and hoardings would be placed by the road contractor. The Successful Tenderer shall liaise and

interface with the road contractor and shall install and / or remove existing hoardings, where necessary, to ensure that the site boundaries of both parties are fully secured at all times.

### **3.10 CLEANING AND MAINTENANCE OF ROADS AND DRAINS**

The Successful Tenderer shall maintain the cleanliness of public roads and drains used by his vehicles throughout the project completion period. He shall construct a washing bay for the cleaning of earth-laden lorries before they leave the work site and shall be responsible for cleaning up all deposits left by his vehicles on the road. The Successful Tenderer shall be responsible for paying any fines imposed by the relevant Competent Authorities e.g. Environmental Health Department, Traffic Police etc.

The Successful Tenderer shall note that a stretch of the existing drain along Fernvale Lane and Sengkang West Road (within the boundary shown indicated in the Site Plan) would be decommissioned upon the completion of the realigned drain by HDB's road contractor. If requested by HDB, the Successful Tenderer shall send a representative to attend the handing over inspection between HDB and PUB for the newly constructed drain.

The Successful Tenderer shall also liaise and interface with HDB's contractor on the diversion of the existing C7 drains within site, as shown indicatively in the Site Plan. The Successful Tenderer shall provide a copy of the approved Earth Control Measures (ECM) plan to HDB for reference, to ensure the smooth interfacing and coordination for the ECM implementation of both the Successful Tenderer and HDB.

After the completion of HDB's road works along Fernvale Lane and Sengkang West Road, the Successful Tenderer shall ensure that the ongoing construction works do not cause any damage(s) or defect(s) to the road elements (footpath, carriageway, kerbs, lane markings, etc.). Any defects arising from the Successful Tenderer's works shall be rectified within one week. The Successful Tenderer shall send a representative to attend the handing over inspection between HDB and LTA for the road works.

### **3.11 FOOTPATH DIVERSION**

The Successful Tenderer shall liaise and interface with the existing contractors on site to provide a continuous temporary footpath at all times, at areas affected by their works. The Successful Tenderer shall ensure that the width and gradient of the diverted footpath complies with the requirements of the relevant Competent Authorities.

### **3.12 PLANS OF PROPOSED DEVELOPMENT**

The Successful Tenderer shall submit DC plans and Building Plans to HDB for its endorsement on behalf of the Government as landowner before these plans are submitted to the Competent Authority for approval. The Successful Tenderer shall submit 2 extra sets of plans for HDB's retention.

The HDB shall have the right to require the Successful Tenderer to amend and modify the above mentioned plans submitted by him.

### **3.13 DEVIATIONS FROM PLANNING REQUIREMENTS**

The requirements set out in this Part relating to location, height, size, area or extent of uses, etc., are specified with a view to achieving the relevant planning objectives as outlined or indicated in the provisions in this Part. The Successful Tenderer may submit for the HDB's consideration alternative proposal to any such requirements. Where HDB is satisfied that the alternative proposal will also serve to achieve the planning objective relevant to the requirement, the Successful Tenderer may be allowed to adopt such an alternative proposal instead; in which event, the relevant provisions in this Part shall be deemed to be complied with. HDB however reserves the absolute discretion to decide whether or not to allow any alternative proposal to be adopted.

### 3.14 PUBLIC COMMUNICATIONS PLAN

The Successful Tenderer is required to carry out a public communications plan as part of the efforts to keep the local community informed of the development plans for the said Land.

The local community is defined as:

- a) all residents of HDB flats, private condominiums / flats and landed houses;
- b) Management Corporation Strata Title (MCST) Committee of private residential developments and Neighbourhood Committees; and
- c) administration of schools and other institutions

that fall within a 100m (approximate) radius of the said Land.

In addition, it shall include the local Member of Parliament (MP), Advisor, Constituency Director of the Constituency and General Manager of Town Council.

The Successful Tenderer is required to meet up with the local community (when required) to explain the internal development layout of the project and the mitigating measures.

The Successful Tenderer is required to handle any feedback from public arising from the proposed development and the associated works.

#### Stage 1: Prior to the first submission of plans to HDB for Endorsement

Prior to the erection of any hoarding or commencement of any clearance and / or tree-felling on the said Land, the Successful Tenderer shall distribute flyers to the local community containing the following information and ensure this information are accurately presented:

- a) Project information (e.g. type of development, number of units, storey height, vehicular access);
- b) Location map showing hoarding, construction access etc;
- c) Infrastructure works to be carried out and removal of existing facilities;
- d) Key milestones in the construction programme [e.g. site clearance, hoarding works, commencement and duration of piling works, expected date of issuance of Temporary Occupation Permit (TOP)];
- e) Details of proposed measures to mitigate the impact of development to the surrounding environment and users;
- f) Contact details of the Successful Tenderer for the community to highlight issues such as noise and dust arising from the construction activities, and to provide feedback on the proposal; and
- g) The hotline numbers of the relevant departments in BCA, NEA, MOM and URA.

Prior to the distribution of the flyer, the Successful Tenderer shall ensure that information as outlined above (a – g) are included in the flyer and inform the HDB on the distribution date with a copy of Form A as shown in **Appendix C (I)** and flyer.

After the distribution of the flyers, the Successful Tenderer shall submit to the HDB a duly completed Form B as shown in **Appendix C (II)**. This Form B is to be submitted together with the first submission of plans to HDB for endorsement.

Upon submission of Form B to the HDB, the Successful Tenderer may proceed with the erection of hoarding, on which the contact details of the Successful Tenderer and the hotline numbers of relevant departments in BCA, NEA and MOM shall be prominently displayed.

#### Stage 2: Prior to the submission of plans to HDB for endorsement for WP application

After the grant of Provisional Permission by the Competent Authority under the Planning Act (Cap. 232) for the proposed said development, the Successful Tenderer shall distribute additional flyers to the local community containing detailed information on the proposed development. The information to be provided shall include those in the Stage 1 flyer as well as (but not limited to) the following:

- a. Schematic site layout showing the location of building blocks and facilities such as the bin centre, electrical substation, BBQ pits, etc.; and
- b. Indicative timeframe for the community to respond to the proposal, which shall be at least 2 weeks from the date the flyers are distributed.

The Successful Tenderer is required to submit a copy of the flyer for the HDB's approval before the distribution to the local community.

At least 2 weeks after the date of distribution of flyers, the Successful Tenderer shall submit to the HDB a duly completed Form C as shown in **Appendix C (III)** and a duly completed Form D as shown in **Appendix C (IV)**, which is a final collation of the feedback received on the proposed development, if any, together with an explanation of how the development proposal seeks to sensitively address the concerns raised by the local community. Both Forms C & D are to be submitted together with the submission of plan, which shall be made no earlier than 3 weeks from the date the flyers are distributed, to the HDB for endorsement.

After the endorsement of the submission of plans by the HDB, the Successful Tenderer is required to submit to the Competent Authority a copy of Form C & D as part of the application for planning approval.

The Successful Tenderer shall not commence structural works until the Competent Authority has given written consent for the Successful Tenderer to proceed to apply to BCA for the permit to commence structural works, or has granted Written Permission under the Planning Act (Cap. 232).

**FORM A**  
**PUBLIC COMMUNICATIONS PLAN**

<b>Details of Developer</b> Company Name:  Address:  Tel no: Email:	<b>To:</b> Land Sales & Lease Administration Housing & Development Board HDB Hub 480 Lorong 6 Toa Payoh Singapore 310480	<b><u>INSTRUCTION:</u></b> This form is to be duly completed and submitted to the HDB prior to the distribution of the Stage 1 flyer.
Proposed Development: _____ _____		
Lot no.: _____ TS/MK: _____		
<b>Key milestone</b>	<b>Proposed date of commencement* (MM/YYYY)</b>	
1.	Send Stage 1 flyer to local Member of Parliament (MP) and Advisor	
2.	Distribution of Stage 1 flyer containing brief project information and contact details of parties specified	
3.	Submission of Form B	
4.	First submission of development proposal	
5.	Erection of hoarding / site clearance	
6.	Obtain grant of Provisional Permission	
7.	Send Stage 2 flyer to local Member of Parliament (MP) and Advisor	
8.	Distribution of Stage 2 flyer containing detailed project information	
9.	Submission of Form C	
10.	Submission of Form D	
11.	Construction schedule a) Piling b) Sub-structure c) Superstructure d) M&E works e) Finishes	
Name, Designation & Signature of Developer's representative		

\* Subject to changes. The HDB shall be kept informed of any changes to the public communications plan.

## FORM B

## DECLARATION BY THE DEVELOPER (FOR FIRST SUBMISSION OF PLANS TO HDB)

<b><u>INSTRUCTION:</u></b>	
This form is to be duly completed and submitted to the HDB together with the first submission of plans for HDB's endorsement, which shall be made no earlier than 1 week from the date the flyers are distributed	
<b>Details of Developer</b>	<b>To:</b>
Company Name:	Land Sales & Lease Administration
Address:	Housing & Development Board
Tel no:	HDB Hub
Email:	480 Lorong 6 Toa Payoh
	Singapore 310480
Proposed Development: _____	
Lot no.: _____ TS/MK: _____	
I, _____ (Name), _____ (Designation), hereby declare on behalf of the developer that in accordance with Condition 3.14 of the Additional Conditions of Tender, flyers containing brief information on the project and the contact details of the parties specified in the said Condition have been distributed to the local community* on _____ (Date).	
Signature:	Date:

\* Local community is defined and includes the parties specified in Condition 3.14 of the Additional Conditions of Tender

**FORM C**  
**DECLARATION BY THE DEVELOPER**

**(FOR SUBMISSION OF PLANS SUBSEQUENT TO THE GRANT OF PROVISIONAL PERMISSION)**

<p><b><u>INSTRUCTION:</u></b></p> <p>This form is to be duly completed and submitted to the HDB together with the submission of plans to HDB subsequent to the grant of Provisional Permission, which shall be made no earlier than 3 weeks from the date the flyers are distributed.</p>	
<p><b>Details of Developer</b></p> <p>Company Name:</p> <p>Address:</p> <p>Tel no:</p> <p>Email:</p>	<p><b>To:</b></p> <p>Land Sales &amp; Lease Administration Housing &amp; Development Board HDB Hub 480 Lorong 6 Toa Payoh Singapore 310480</p>
<p>Proposed Development: _____</p> <p>_____</p> <p>Lot no.: _____ TS/MK: _____</p>	
<p>I, _____ (Name), _____ (Designation), hereby declare on behalf of the developer that in accordance with Condition 3.14 of the Additional Conditions of Tender, flyers containing detailed information on the development project and the contact details of the parties specified in the said Condition have been distributed to the local community* on _____ (Date).</p>	



Details of preliminary feedback received from the local community (if any):

Signature:

Date:

*\* Local community is defined and includes the parties specified under Condition 3.14 of the Additional Conditions of Tender*

**FORM D**  
**CONSOLIDATED FEEDBACK ON PROPOSED DEVELOPMENT**

**(FOR SUBMISSION OF PLANS SUBSEQUENT TO THE PROVISIONAL PERMISSION)**

<p><b><u>INSTRUCTION:</u></b></p> <p>This form is to be duly completed and submitted to the HDB as part of the submission of the plans subsequent to the grant of the Provisional Permission, which shall be made no earlier than 3 weeks from the date the flyers are distributed.</p>	
<p><b>Details of Developer</b></p> <p>Company Name:</p> <p>Address:</p> <p>Tel no:</p> <p>Email:</p>	<p><b>To:</b></p> <p>Land Sales &amp; Lease Administration  Housing &amp; Development Board  HDB Hub  480 Lorong 6 Toa Payoh  Singapore 310480</p>
<p>DC Reference:</p> <p>_____</p> <p>Proposed Development:</p> <p>_____</p> <p>_____</p> <p>Lot no.: _____ TS/MK: _____</p>	
<p>I, _____ (Name), _____ (Designation),  hereby declare on behalf of the developer that in accordance with Condition 3.14 of the Additional Conditions of Tender, the table below has included all feedback that has been received from the local community, up to the date of the submission of this development application.</p>	

Feedback received from the local community and how the development proposal has sensitively addressed the feedback raised\*:

<b>Feedback Received from Local Community</b>	<b>Proposed Measures</b>

Signature:

Date:

\* This must include all feedback received up to the point of the submission of the plans to HDB.

**PROPOSED EXECUTIVE CONDOMINIUM HOUSING DEVELOPMENT  
LAND PARCEL AT FERVALE LANE**

**CONDITIONS AND REQUIREMENTS OF RELEVANT COMPETENT AUTHORITIES  
AND PUBLIC UTILITY LICENSEES  
(FOR INFORMATION OF TENDERERS)**

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## **1.0 DEFINITION**

The lease of the Land Parcel at Fernvale Lane ("the said Land") is subject to the Additional Conditions of Tender and the Conditions of Tender for the said Land contained in the Developer's Packet.

## **2.0 GENERAL CONDITIONS AND REQUIREMENTS**

- 2.1 The Successful Tenderer is required to consult and comply with all technical conditions imposed by the relevant authorities such as the Urban Redevelopment Authority, Land Transport Authority, National Environment Agency, Public Utilities Board, SP Power Grid and the Singapore Civil Defence Force, etc.
- 2.2 The Successful Tenderer for the said Land is required under the said Conditions of Tender to ascertain the exact and detailed conditions and requirements of all relevant Competent Authorities and Public Utility Licensees in respect of the said development thereon and shall at his own cost and expense observe and comply with the same.
- 2.3 Without affecting the generality of paragraph 2.1 above and without prejudice to the obligations of the Successful Tenderer as set out therein, the contents herein are provided for the information of the tenderers only. Whilst every care and attention has been taken in the compilation and preparation hereof, it does not warrant that the contents herein represent all the conditions and requirements of the relevant Competent Authorities and Public Utility Licensees in respect of the said development on the said Land or that they are free from errors or omissions whatsoever. The contents herein are subject to changes by the relevant Competent Authorities and Public Utility Licensees concerned and the onus lies on the Successful Tenderer to verify these conditions and requirements directly with HDB, the relevant Competent Authorities and Public Utility Licensees and comply with their prevailing conditions and requirements.
- 2.4 A summary of the initial services requirements of the relevant Competent Authorities and Public Utility Licensees is set out herein. It serves only as an indication of the possible work involved with regards to services, and is by no means exhaustive or final.
- 2.5 The Successful Tenderer shall ensure that the following requirements are complied with:
  - 2.5.1 To consult and liaise directly with the relevant Competent Authorities and Public Utility Licensees regarding the actual locations of all service mains within the said Land and on the requirements and conditions for services diversion, if any, and provision prior to the commencement of site work. All necessary precautions shall be taken by the Successful Tenderer to safeguard the service mains before they are diverted.
  - 2.5.2 To engage his own licensed Cable Detection Worker and licensed Telecommunication Cable Detection Worker to carry out cable detection and if necessary to carry out trial trenches to locate any manholes and cable routes prior to the commencement of site work. The Successful Tenderer shall bear the cost of any diversion work.
  - 2.5.3 To ensure that all service mains that do not need to be diverted are identified and provided with protection, if necessary, during the construction stage of the said development. The cost of repairs to any damaged service main as a result of work carried out by the Successful Tenderer shall be borne by the Successful Tenderer.
  - 2.5.4 To ensure that the relevant Competent Authorities and Public Utility Licensees are allowed free and unconditional access at all times to services that remain within the said Land for the purpose of installation, maintenance, repair and improvement works and all other work and activities incidental thereto.
  - 2.5.5 To make his own arrangements with the relevant Competent Authorities and Public Utility Licensees and pay for the fees and costs of any diversion and/ or "capping off" of existing services, provision of service mains and service connection, if any, in relation with the said development.
  - 2.5.6 To provide for all the internal distribution for water, electricity, drainage and sanitary discharge for the said development.

- 2.5.7 To liaise with all the relevant Competent Authorities and Public Utility Licensees on upgrading the road reserves abutting the said Land to ensure that the necessary roadside drains, sidetable, kerb, etc., are carried out in accordance with the prevailing Road Reserve requirements.
- 2.6 The Successful Tenderer shall be responsible to carry out at his own cost and expense his own site investigation to verify whether there is any sub-structure or other obstructions e.g. footings, piles, tree roots, etc., in the ground of the said Land, and ascertain their effect on the said development.
- 2.7 There may be some other existing services affected by the said development. The Successful Tenderer shall inform the relevant Competent Authorities and Public Utility Licensees immediately and bear the necessary cost of diversion and/or "capping off" of these existing services, if any.
- 2.8 In general, no structure shall be sited close to or over existing and proposed services. The Successful Tenderer shall comply with all requirements as stipulated by the relevant Competent Authorities and Public Utility Licensees.

### **3.0 REQUIREMENTS OF LAND TRANSPORT AUTHORITY (LTA)**

LTA requires the Successful Tenderer to comply with the following requirements:

- i) All proposed street works, as well as proposed engineering/construction works within the road reserve shall be prepared/designed, submitted, supervised and constructed in accordance with Street Works (Private Street Works) Regulations, Street Works (Public Street Works) Regulations and the following prevailing standards and code of practice:
  - a. Code of Practice (COP) on Street Work Proposals Relating to Development Works;
  - b. LTA Standard Details of Road Elements;
  - c. Materials & Workmanship Specifications for Civil & Structural Works;
  - d. Code of Practice for Road Opening Works;
  - e. Code of Practice for Traffic Control at Work Zone;
  - f. Architectural Design Criteria; and
  - g. Civil Design Criteria.
- ii) The technical details, extent and completion date of such works shall comply with the requirements of the LTA and other relevant Competent Authorities.
- iii) The Successful Tenderer shall at his own cost and expense, carry out all the proposed works.
- iv) The Successful Tenderer shall seek clearance from the Development & Building Control Division of LTA on the details of the development proposal during the DC, BP and Engineering Work Proposal submission stages.

### **4.0 REQUIREMENTS OF CATCHMENT AND WATERWAYS DEPARTMENT, PUBLIC UTILITIES BOARD (PUB)**

PUB requires the Successful Tenderer to comply with the following requirements:

- i) The minimum platform level (MPL) for the said Land shall not be lower than 600mm above the adjacent road/ground level for commercial / multi-unit residential developments with basement, or any other levels as determined by PUB as in clause 2.1 of the latest Code of Practice on Surface Water Drainage (COP), whichever is highest.
- ii) In complying with the MPL requirement, the Successful Tenderer shall conduct thorough investigations of the said Land and determine suitable platform profiles to ensure that the runoff within, upstream of and adjacent to the said development can be effectively drained away without causing flooding within and in the vicinity of the said Land. Any proposal to level / backfill the said Land shall be submitted to PUB for comments and approval.

- iii) The existing drainage system, including earth drains, within and in the vicinity of the said Land shall not be altered, disturbed, filled, diverted, blocked or interfered with without prior approval from PUB. Any proposal to alter / divert the drains shall be submitted to PUB early for comments and approval.
- iv) Comprehensive drainage design and drains' details in the above proposal including hydraulic calculations, backwater analysis, longitudinal sections of drains, cross sections of drains etc. and catchment plans endorsed by relevant Professional Engineer (PE) shall be separately submitted to PUB for comments and approval.
- v) The design and construction of the said development shall not cause damage to or affect the structural integrity of the roadside drain/existing drainage system.
- vi) The existing drainage systems within and in the vicinity of the said Land shall be upgraded and improved to cater for increased runoff from the said development and in accordance to the latest requirements in the Code of Practice on Surface Water Drainage (COP). In addition, new drains, contingent to the type and nature of the development may be evolved within the said Land in conjunction with the surrounding development proposals. Appropriate drainage reserves shall be set aside and secured for drains in accordance with the prevailing COP including any subsequent addenda to the COP.
- vii) Proper drainage system shall be provided at all stages of works. All proposals of drainage works shall be submitted to PUB for clearance.
- viii) The said Land is within the Punggol-Serangoon water catchment.
- ix) The said development shall not result in any loss of yield from the catchment area.
- x) Stringent pollution control measures shall be incorporated in the design and during the construction of the proposed development.
- xi) All sewage and sullage water shall be discharged into a public sewer.
- xii) Bulk storage of toxic and hazardous materials shall not be allowed.
- xiii) If there is any earth filling work at the said Land, good earth free of any debris or construction waste materials shall be used. If sand is used for backfilling, marine sand shall not be used. Only washed sand with chloride content not exceeding 0.01% (by Weight) shall be allowed. Test reports on the chloride content of the washed sand shall be submitted to PUB (C&W) for records before commencement of work.
- xiv) Raw Watermain requirements
  - a. There is a 1200mm diameter raw watermain within and in the vicinity of the said Land, along Sengkang West Road, Fernvale Lane and Yio Chu Kang Road. The exact locations and depths of the watermain, must be determined by the Successful Tenderer on site by means of trial holes before the commencement of any work in the vicinity of the watermain.
  - b. The Successful Tenderer / PEs / QPs / Contractors shall comply with the requirements stated in the prevention of damage to PUB watermains advisory notes, which can be found on the PUB website at [www.pub.gov.sg/Documents/Watermains\\_AdvisoryNotes.pdf](http://www.pub.gov.sg/Documents/Watermains_AdvisoryNotes.pdf).
  - c. Other Comments:
    - i. If pipeline diversion is necessary, the existing raw water main shall not be decommissioned till the newly diverted pipeline is laid, checked and commissioned.
    - ii. For any diversion, the finalised "As-built" drawing and design reports e.g. design calculation of thrust blocks, connections etc. are to be submitted to the relevant authority and PUB for viewing. The necessary details to be provided in the final "As-built" drawing during the official handover of diverted pipeline include the coordinates of pipeline, pipe bend, air valves, and wash-outs. The newly diverted pipeline and

appurtenances have to be properly surveyed using the SVY21 coordinate system, which is in accordance with SLA's standard.

- iii. No trees shall be planted on top or within 1m from the edge of the watermain.
- iv. PUB officers or agents (together with any heavy equipment) must be allowed unimpeded access at all times for to enter upon any part of the pipeline route within the site to inspect or excavate the ground for maintenance and repair of the raw water main.
- d. Please contact Mr. Roderick Ho (roderick\_ho@pub.gov.sg) for any clarifications on raw watermain requirements.

xv) Safeguarding of existing drains / drainage facilities during construction works

- a. The Successful Tenderer shall take due care and precautionary measures to ensure that no damage or settlement occurs to any existing drain / drainage facilities in the course of the works. The Successful Tenderer shall carry out an impact assessment to establish the influence zone of the said works which affect the existing drains and drainage facilities. The impact assessment to be submitted to PUB shall be endorsed by a qualified person (QP).
- b. Pre-work and post-work surveys shall be submitted to PUB and shall cover drains / drainage facilities in the area affected by the work (and shall extend to at least the area within the second reserve of the MRT lines - if applicable). All drains / drainage facilities shall be located and identified. The survey shall show the levels of the drains / drainage facilities and shall be accompanied by a set of photographs showing the conditions of the drains / drainage facilities. All survey work shall be carried out by a Registered Surveyor.
- c. The Successful Tenderer shall carry out soil instrumentation for monitoring of the soil / geo-technical / structural movements or changes at and around the work-site in particular existing drains/drainage facilities throughout the contract period. The Successful Tenderer shall set the critical alert levels and put in place a contingency plan to rectify any damages to the drains / drainage facilities. The soil instrumentation shall be monitored daily and weekly summary reports of the results of the soil instrumentation shall be submitted to PUB. Any breach of the alert levels and/or anomaly found in the reports shall be immediately reported to PUB and rectified immediately to the full satisfaction of PUB. Details of the contingency plan including the schedule of works and organisation chart of the Successful Tenderer and QP / contractor shall be submitted to PUB before commencement of works.
- d. In the event of breach of alert levels and / or anomaly in the soil instrumentation results, the Successful Tenderer shall alert PUB immediately and activate the contingency plan to mitigate and rectify the situation. The analysis and rectification reports of the affected drains and drainage facilities shall be submitted to PUB for comments / approval.
- e. The Successful Tenderer shall conduct a joint visual inspection and any defects identified shall be made good to the full satisfaction of PUB and shall follow up with an incident report for the affected drains and drainage facilities within 3 days including remedial / repair works. If necessary, briefing / meeting shall be conducted by the Successful Tenderer to address the damage and follow up actions to rectify the situation.
- f. The method of construction of temporary drains and / or drains affected by the works shall be submitted to PUB for comments and approval before commencement of the works. Upon completion of the works, post-condition survey and topography survey of the affected drains shall be submitted and PUB may request for joint site inspection of the rectification works.
- g. The Successful Tenderer shall inform PUB in writing at least one week before the commencement of any work at the site which affects drains.



xvi) ABC Waters Programme

PUB has in 2006 launched the Active, Beautiful and Clean Waters (ABC Waters) Programme. As part of the Programme, PUB has launched ABC Waters design guidelines which provide ideas on how natural runoff treatment systems termed ABC Waters design features such as rain gardens, vegetated swales and bioretention swales can be integrated within a development. These features detain/ slow down stormwater runoff and improve water quality by using plants and soil. They also enhance landscape and biodiversity of the development. Specific information on the design of these features can be found at the website <https://www.pub.gov.sg/abcwaters/designguidelines>.

xvii) Industrial, commercial, institutional and residential developments greater than or equal to 0.2 hectares in size are required to control the peak runoff discharged from the development sites. The maximum allowable peak runoff to be discharged to the public drains will be calculated based on a runoff coefficient of 0.55, and for design storms with a return period of 10 years and for various storm durations of up to 4 hours (inclusive). Peak runoff reduction can be achieved through the implementation of ABC Waters design features and structural detention and retention features, such as:

- a. Detention tanks;
- b. Retention / Sedimentation ponds;
- c. Wetlands;
- d. Bioretention swales;
- e. Porous pavements;
- f. Bioretention basins or rain gardens, etc.

The Qualified Person (QP) shall be required to submit details (calculations and / or hydraulic model results) showing how the said system meets the required peak runoff rates. Due consideration shall be given to meeting ABC Waters stormwater quality objectives, which will often require treatment of stormwater runoff using ABC Waters design features. For design guidance on the ABC Waters design features, the Successful Tenderer / QP can refer to the ABC Waters Guidelines and relevant chapters in the Engineering Procedures, available on the PUB website.

xviii) PUB encourages the implementation of ABC Waters design features in the said development as well as the achievement of ABC Waters certification. Information regarding ABC Waters Certification can be found via the link: <https://www.pub.gov.sg/abcwaters/certification>.

The design and construction supervision of ABC Waters design features as well as drawing up the maintenance plan for these features shall be carried out by an ABC Waters Professional.

The Successful Tenderer can contact Ms Ong Geok Suat ([ong\\_geok\\_suat@pub.gov.sg](mailto:ong_geok_suat@pub.gov.sg)) and Ms Enid Chen ([enid\\_chen@pub.gov.sg](mailto:enid_chen@pub.gov.sg)) for issues related to ABC Waters design features or certification.

xix) Effective erosion and sediment control measures shall be provided by the Successful Tenderer and the QP shall advise the Successful Tenderer to provide such effective measures and facilities with inputs from Qualified Erosion Control Professional (including site management system and perimeter cut-off drain, silt traps, storage ponds, treatment plants, etc.) to ensure clean discharge that complies with the statutory requirement. The proposed erosion and sediment control measures shall be submitted by a Qualified Erosion Control Professional (QECP) to Public Utilities Board before commencement of works. All affected watercourses shall be desilted and cleared until completion of work. For reference, the information can be found on the website [www.pub.gov.sg/drainage/earthcontrolmeasures](http://www.pub.gov.sg/drainage/earthcontrolmeasures).

xx) The planning, design, construction activities and procedures for plan submission shall comply fully with the requirements stipulated in the prevailing Code of Practice on Surface Water Drainage and the Sewerage and Drainage (Surface Water Drainage) Regulations 2007 and any subsequent addendum to the Code of Practice. The Code of Practice can be downloaded from the PUB website at [https://www.pub.gov.sg/Documents/PUB\\_COP\\_7th\\_Edition.pdf](https://www.pub.gov.sg/Documents/PUB_COP_7th_Edition.pdf).

- xxi) Please contact Mr Jaspel Tan at Tel: 6731 3453 / Mr Tan Leh Ho at Tel: 6731 3804 if any clarifications are needed.

## 5.0 REQUIREMENTS OF WATER RECLAMATION (NETWORK) DEPARTMENT, PUBLIC UTILITIES BOARD (PUB)

PUB requires the Successful Tenderer to comply with the following requirements:

- i) The planning of this project shall comply with the **Code of Practice on Sewerage and Sanitary Works 2<sup>nd</sup> Edition 2019** [hereafter referred to as the “COPSSW (2<sup>nd</sup> Ed.)”].
- ii) There are existing sewer infrastructure within / in the vicinity of the said Land
  - a. Existing 375mm, 600mm and 1500mm diameter sewers,
  - b. Abandoned 1050mm diameter sewer.
- iii) Thorough site investigation shall be carried out to determine the exact positions and levels of the existing sewerage infrastructure.
- iv) Sewer connection shall be made to the existing 600mm diameter sewer along Fernvale Lane. Details of the proposed sewer connection shall be submitted to PUB Water Reclamation Network (WRN) for approval before commencement of works.
- v) The Successful Tenderer shall be responsible for seeking approval from all relevant authorities / land owners for the proposed sewerage works to be carried out beyond the said Land. Such approval or consent from authorities shall not include any conditions that require PUB to provide a letter of undertaking to divert the sewerage infrastructure in future. The Successful Tenderer is to ensure that all sewerage and sanitary designs comply with PUB’s Code of Practice.
- vi) No building / structure / piling / retaining structure, etc. (whether temporary or permanent), except lightweight and demountable elements (such as awnings, surface drains, compound boundary wall & fencing, planting troughs and link-way shelters), shall be sited over or across any sewers / pumping mains without the approval of PUB. All proposed structures shall be kept as far away from the existing sewers / pumping mains as possible and no nearer than the following minimum lateral clearances (also known as sewer / pumping main setback):

Sewer/Pumping Main Nominal Diameter (mm), D	Sewer/ Pumping Main Depth (m)	Minimum Setback Distance (m)*
≤ 600	≤ 3	1.0
	> 3 and ≤ 5	1.5
	> 5	2.0
> 600 to 1500	All	0.5D + 2.5
*measured from the outer-most edge of the structure, including foots and overhangs, to the <b>centreline</b> of the sewer/pumping main pipe or DTSS.		

- vii) More details can be found in **COPSSW (2<sup>nd</sup> Ed.) Sections 1.2.4 and 1.2.5.**
- viii) No sewerage systems (including abandoned sewers / pumping mains, any sensors, meters, equipment, instruments, etc. within manholes) shall be altered / interfered with without the approval from PUB (WRN). Where diversion / removal of any sewer / pumping main is required, it shall be carried out by the Successful Tenderer at his own cost and expense. Details of the diversion (pipe size, gradient, invert level, etc.) shall be submitted to PUB (WRN) for approval before the commencement of works.
- ix) All sewers and manholes shall be readily accessible at all times to PUB for inspection and maintenance.

- x) All new vortex chambers shall be provided with air-tight and water-tight manhole covers. For any enquiries or clarifications, please contact Mr Peh Kok Heng (Tel: 6517 2225 or email: [PEH\\_Kok\\_Heng@pub.gov.sg](mailto:PEH_Kok_Heng@pub.gov.sg)) or Mr Zulhilmi Mohammad Arif (Tel: 6517 2215 or email: [Zulhilmi\\_MOHD\\_ARIF@pub.gov.sg](mailto:Zulhilmi_MOHD_ARIF@pub.gov.sg)) from PUB (WRN).
- xi) Where there are any Specified Activities within the public sewer corridor [i.e. 10m for sewer / main of diameter <900mm, 20m for sewer / main of diameter  $\geq$  900mm and 40m for DTSS tunnel] as stipulated in **COPSSW (2<sup>nd</sup> Ed.) Section 2.1.2**, a written approval from the Director, Water Reclamation Network (WRN) Department of PUB should first be obtained before carrying out the specified activities at the site. QP shall submit the Application Form via the Protection of Water and Sewer Pipes (POWS) at <http://bpu.pub.gov.sg/pows> prior to any commencement of the specified activities. The applicant shall refer to **COPSSW (2<sup>nd</sup> Ed.) Section 2** for the technical requirements on sewer protection.
- xii) The Successful Tenderer shall take every measure to protect all existing sewers, particularly large diameter ( $\geq$ 900mm) sewers, affected by or in close proximity of the proposed works.
- xiii) Large diameter sewers are critical pipelines that serve very large catchments. Any damage to these sewers could lead to used water overflow / leaks affecting a sizable area where the consequential pollution / environment impact could be catastrophic. In this respect, the Successful Tenderer is advised to keep the proposed works away from these critical large diameter sewers at the earliest planning stage where possible.
- xiv) For the protection of large diameter ( $\geq$ 900mm) sewers and DTSS tunnels & structures, the following shall be strictly complied with:
- a. The Successful Tenderer shall comply with PUB's requirements for protection of large diameter ( $\geq$ 900mm) sewers and DTSS tunnels & structures given in **COPSSW (2<sup>nd</sup> Ed.) Section 2.2**.
  - b. A registered surveyor shall be engaged to ascertain the exact locations of all existing sewers and the DTSS tunnel in the vicinity of the proposed works. The layout plan, cross-sectional and longitudinal details indicating the vertical and horizontal distances between the proposed works / specified activities (including tunnelling, pipe / cable laying, piles, earth retaining or any other structures, etc.) and the edges of all existing sewers / DTSS tunnel endorsed by the registered surveyor shall be submitted. *On request, PUB would provide the "as-built" DTSS tunnel X-Y coordinates/levels and details to facilitate the surveying works and preparation of the detailed plans.*
  - c. To obtain information on the alignment and details of the DTSS tunnel / structures in the vicinity of the said Land, the Successful Tenderer may liaise with and send his request to Ms Esther Yuen (email: [esther\\_yuen@pub.gov.sg](mailto:esther_yuen@pub.gov.sg)), or Mr Pham Huy Phuong (email: [pham\\_huy\\_phuong@pub.gov.sg](mailto:pham_huy_phuong@pub.gov.sg)), or Mr Goh Song Yong (email: [goh\\_song\\_yong@pub.gov.sg](mailto:goh_song_yong@pub.gov.sg)), with a copy of the purchased SIP for the area.
  - d. The detailed plans for the proposed works or specified activities must be submitted early to allow PUB (WRN) sufficient time to evaluate.
- xv) The Successful Tenderer / QP must check for the presence of public sewerage pipelines by referring to the Sewerage Information Plan (SIP) and through site investigation. The SIP is available on SLA's INLIS at <https://www.sla.gov.sg/INLIS/#/PUB/UP/Search>. Please note that the sewerage information in SIPs is indicative and for reference only. A thorough site investigation, including trial trenches, shall be carried out to determine the exact position and levels of the existing sewers.
- xvi) The guideline on '*Prevention of Damage to Public Sewerage System*' can be found in PUB's website at [https://www.pub.gov.sg/Documents/WRN\\_AdvisoryNotes.pdf](https://www.pub.gov.sg/Documents/WRN_AdvisoryNotes.pdf). The Successful Tenderer / contractor is required to submit a notification to PUB Network Management Branch (NMB) at least 7 days before the commencement of any works or specified activities within the public sewer corridor.

- xvii) Please contact Ms Wong Kar Geok Ms Wong Kar Geok at Tel: 6731 3663 / Ms Man Lai Peng at Tel: 6571 4005 if you need any clarifications.

## 6.0 REQUIREMENTS OF WATER SUPPLY (NETWORK) DEPARTMENT, PUBLIC UTILITIES BOARD (PUB)

PUB requires the Successful Tenderer to comply with the following requirements:

- i) **Water Supply Infrastructure / Land Use**
- a. Provisions shall be made by the Successful Tenderer for PUB to lay new watermains, if required, along public road reserves / sidetables to the said development. The cost for the laying of new watermains, if any, and connecting pipes to serve the said development shall be borne by the Successful Tenderer.
  - b. The affected watermains shall be diverted and the cost of diversion shall be borne by the Successful Tenderer. The cost of diversion shall be finalised upon confirmation on the length of watermains affected.
- ii) **Marking of Water pipes**
- a. The positions of all the water pipes as shown are **approximate** only. Please determine by means of trial holes the exact alignment and levels of all existing water pipes during the design stage and let PUB know whether they are affected by the proposed works so that PUB can advise whether diversion is required. If diversion is required for water pipes of 300 mm diameter and below, consultation must be made at least 6 months ahead. Diversion of PUB's existing water pipes of 500 mm and above, being PUB's vital water pipes, should be avoided unless absolutely necessary. If diversion of water pipes is required, the Successful Tenderer shall carry out the diversion works of PUB existing water pipes at his own cost and according to PUB requirements. This is to enable the Successful Tenderer / professionals to have better control of their schedule of work and ultimately timely delivery of the said development. The Successful Tenderer will need to engage a qualified contractor to carry out the diversion work. The Successful Tenderer is required to reconstitute all or some pipelines affected by the said development with new pipelines of suitable sizes, alignment and linkup points, etc. as directed by PUB, to ensure the water supply network resiliency is not compromised. PUB will work together with the Successful Tenderer / professionals for them to carry out the diversions especially for diversions within the said development.
  - b. No structure either permanent or temporary may be erected over or within 1 metre from PUB's water pipes. PUB's buried water pipes require a minimum cover of 1 metre, and the Successful Tenderer must provide adequate protection for PUB's water pipes should the cover be removed or reduced.
  - c. No services shall overcross or be erected over any water pipes. Where a cable, pipe or drain undercrosses a water pipe, a clearance of 1 metre is required. No manhole is allowed on top of any water pipes. There must be a horizontal clearance of 1 metre between the manhole and water pipes.
  - d. The Successful Tenderer shall take all necessary precautions to safeguard and to avoid damage to all water pipes. The cost of repairs to any water pipe damaged as a result of work carried out is to be borne by the party who caused the damage. The party will also be required to indemnify the PUB against all losses and claims arising from damage to water pipe. The party will also be billed for the estimated quantities of water loss from the damaged pipe. The Successful Tenderer / PEs / QPs / Contractors shall comply with the requirements stated in the prevention of damage to PUB water pipes advisory notes, which can be found on the PUB website at [www.pub.gov.sg/Documents/Watermains\\_AdvisoryNotes.pdf](http://www.pub.gov.sg/Documents/Watermains_AdvisoryNotes.pdf).
  - e. Under the Public Utilities (Protection of Water pipes infrastructure) Regulations 2017, the Successful Tenderer / PEs / QPs / Contractors shall make a submission to PUB Water Supply Network (WSN) for specified activities carried out within the

protection corridor of the water pipes prior to the commencement of works. For water pipes < 300mm dia, notification to PUB (WSN) with the required documents indicated in Pg. 2 of the above Advisory Notes will suffice. For water pipes ≥300mm dia, approval from PUB (WSN) is required prior to the commencement of works. Any person who fails to comply is guilty of an offence under the Regulation and shall be liable on conviction to a fine not exceeding \$10,000 and, in the case of a continuing offence, to a further fine not exceeding \$250 for every day or part of the day during which the offence continues after conviction. The protection corridor for water pipes is stated in the PUB water pipes advisory notes, which can be found on the PUB website at [www.pub.gov.sg/Documents/Watermains\\_AdvisoryNotes.pdf](http://www.pub.gov.sg/Documents/Watermains_AdvisoryNotes.pdf). Submission of specified activities shall be made via email to [PUB\\_WSN\\_Surveillance@pub.gov.sg](mailto:PUB_WSN_Surveillance@pub.gov.sg) or PUB's Online Submission Portal, Protection of Water and Sewer pipes (POWS). The website for POWS is <http://bpu.pub.gov.sg/pows>.

- f. In general, care should be exercised to prevent any damages to PUB's water pipes and appurtenances. PUB would like to draw attention to Section 57 of the Public Utilities Act which stipulates a duty to enquire on water pipes before any person digs, bores, trenches, grades, excavates, tunnels or breaks any ground with any mechanical equipment, tool or explosive. PUB also wish to highlight that under Section 47A of the Public Utilities Act, any person who, whether wilfully or otherwise, removes, destroys or damages or causes or permits to be removed, destroyed or damaged, any water pipes belonging to or under the management or control of the Board, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$40,000, or to imprisonment for a term not exceeding 3 months, or to both; or if the water pipes is 300 mm or more in diameter, to a fine not exceeding \$200,000, or to imprisonment for a term not exceeding 3 years, or to both. For more information on the Public Utilities Act, please refer to <http://statutes.agc.gov.sg/>.
- g. PUB's water pipe and connections must be accessible for maintenance and repair works at all times
- h. PUB's water pipe valve chambers and appurtenances shall not be covered over.
- i. PUB's water pipe shall not be subjected to more than 15 mm/s peak particle velocity for any work to be carried out in the vicinity of our water pipe and appurtenances.
- j. Please inform PUB's 24-hour Water Service & Operations Centre at Telephone No. 6521 6488 immediately in the event of damage to any water pipe.

iii) **Submission of Plans**

- a. The design of the internal water reticulation system shall comply with the Public Utilities (Water Supply) Regulations, Singapore Standard 636 - Code of Practice for Water Services and all other relevant statutory requirements. The modes of water supply to be adopted are as follows:

S/n	Height of Highest Fittings Above Mean Sea Level	Method of Supply
i)	Up to 25 metres	Direct
ii)	Above 25 metres but up to *37 metres	Indirect supply through high level storage tanks
iii)	Above 37 metres	Indirect supply through low level tank with pumping to high level tanks
(* Refers to height of inlet pipe to high level storage tanks)		

- b. Notwithstanding the above modes of supply, where water is essential for the operations of the said development, storage tanks of capacity equivalent to 1 day's

water requirements shall be provided for the purpose of maintaining a continuous supply of water in the event of supply interruptions.

- c. Where pumping system or storage tanks are required for the water services, a Professional Engineer must submit the Notification together with a set of drawings to PUB (WSN). If all the fittings in the water service installation are receiving direct water supply from PUB mains, then a licensed plumber shall be engaged to submit the Notification and a set of the drawings to PUB (WSN) prior to commencement of the installation work.
- d. Water conservation measures as stipulated in the Public Utilities (Water Supply) Regulations and Singapore Standard 636 – Code of Practice for Water Services shall be adopted.
- e. Since April 2019, PUB has mandated the sale, supply and installation of at least 2-tick water fittings in all new and existing premises undergoing Addition & Alteration works. The said development should obtain the Water Efficient Building (Basic) Certification by PUB.
- f. Unless with written permission by PUB, fixed or movable sprinklers are not allowed to be used to deliver any form of water supplied by PUB, including potable water, NEWater, raw water, effluent water, industrial water for watering any garden, lawn or other land including commercial market gardens, commercial nurseries, sports grounds, golf courses, race courses, public and club tennis courts. Where possible, the Successful Tenderer is encouraged to use drought tolerant plants.
- g. Wherever possible, alternate sources of water (such as industrial water, high grade industrial water, sea water, recycled water, rainwater and AHU condensate, etc.) should be used to meet the non-potable water requirements of the said development.
- h. Wherever possible, water recycling system should be set up to reclaim water for reuse for non-potable purposes such as production process, toilet flushing, irrigation and as cooling tower make up water, etc.
- i. Wherever possible, non-water cooled systems (such as air-cooled, refrigerant-cooled, etc.) should be used for cooling purposes.
- j. Please contact Mr Ow Zhao Hui at Tel: 6731 3934 if any clarifications are needed.

## **7.0 REQUIREMENTS OF NATIONAL PARKS BOARD (NPARKS)**

NParks requires the Successful Tenderer to comply with the following requirements:

- i) Pursuant to the Parks & Trees Act (Cap.216) read together with the Parks and Trees Regulations (Reg. 1), any tree with a girth exceeding one metre measured one metre from the ground, growing on any tree conservation area or any vacant land shall not be cut except with the prior approval of the Commissioner of Parks and Recreation.
- ii) The Successful Tenderer shall ensure that roadside trees and green verge(s) abutting the site are not to be affected, especially by vehicular ingress / egress, acceleration / deceleration / storage / vehicular lanes, services access, bus stops, and any structure required under statute to be erected to divert or reconstruct services or road features / elements, etc. Similarly, the Successful Tenderer shall ensure that pick-up/drop-off points, taxi lay-bys, loading / unloading bays and fire engine hard-standing areas are to be located within the said Land.
- iii) The Successful Tenderer shall replace the existing roadside green verge fronting the said Land if it is affected by the said development. The width of the replacement green verge should be in accordance to LTA's standard road code for that category of road or match the existing green verge along the road, whichever is wider.
- iv) There must not be any change of soil level to the roadside planting verge without prior approval from NParks.

- v) There must not be any widening and / or raising of existing carriageways and realignment of road kerbs and drains on abutting roads without prior approvals from the relevant authorities.
- vi) Development works are to be confined within the said Land and working boundaries. There must not be any illegal dumping or storing of construction materials beyond the approved boundaries. The said development shall not encroach on the road reserve line and affect any roadside table.
- vii) The Successful Tenderer shall comply with requirements for green buffers and 2-metre wide peripheral planting verges. The green buffers and peripheral planting verges must be free from any encroachment above ground, and / or any structures or services are to be recessed to at least 2-metre below ground level, and are not to slope with gradients steeper than 1:2.5.
- viii) The Successful Tenderer shall consult NParks' Greenery and Development Planning (GDP) Branch early at the planning and design stage on the felling of any trees that may be affected by the said development with a copy of recently survey plan of the said Land (of less than 2 years) and its peripheral roads, at a scale of at least 1:500, clearly indicating information of trees, such as location, species, height and girth. Relevant additional information such as plans on construction hoardings should also be submitted.
- ix) The Successful Tenderer is to consult NParks on the tree protection criteria for roadside trees during early planning and design stage.
- x) The Successful Tenderer is to inform NParks at least 8 weeks before the commencement of works for NParks to transplant/salvage existing affected plants within the said Land and / or along affected roadside tables.

Where applicable, the Successful Tenderer shall comply with planting provision and aeration requirements for open air parking at street level. More details can be viewed on NParks' website at <https://www.nparks.gov.sg/~media/nparks-real-content/partner-us/developers-architects-and-engineers/guidelines-for-greenery-provision-and-tree-conservation-for-develpt.pdf?la=en>. See Chapter 3 on "Planting Provision for Open Air Parking Area at Street Level"

- xi) Please note that there is a proposed Park Connector (PC) along the western boundary of the said Land, and a proposed park along the eastern boundary of the said Land. The Successful Tenderer is to ensure that the said development will not encroach onto the proposed Road Reserve and the PC located within it, and onto park land.

## 8.0 REQUIREMENTS OF NATIONAL ENVIRONMENT AGENCY (NEA)

NEA requires the Successful Tenderer to comply with the following requirements:

- i) The said Land is located within a water catchment area, where rainwater and surface runoff are collected in the downstream reservoir for treatment to produce drinking water by PUB. The said development shall not cause pollution directly or indirectly to the water resources. Any activity that could cause serious contamination problem to the water resources shall not be carried out. Please ensure that the requirements for developments in water catchment areas in **Appendix D (I)** are duly complied with.
- ii) Sewage and used water from the said development shall be discharged into the public sewer. The Successful Tenderer / QP shall check with PUB (Water Reclamation Network Department) on the point of sewer connection and the allowable discharge rate.
- iii) Refuse and other solid wastes generated from the said development shall be collected by a licensed general waste collector for disposal at an approved waste disposal facility. Please ensure that the proposed refuse storage and collection system (e.g. bin centre) is in compliance with the public health requirements stated in the Code of Practice on Environmental Health.

- iv) Abatement measures shall be provided for all proposed M&E equipment installed in the said development to mitigate the impact of noise, smell, fume, vapour or heat flux from operations and maintenance of these equipment on residential and noise sensitive premises. The Successful Tenderer / QP shall ensure that the noise emitted from the operations of M&E equipment installed in the said development does not cause nuisance to surrounding residential and noise sensitive premises. The Successful Tenderer / QP may take reference to the NEA's Technical Guidelines on Boundary Noise Limits for Air- Conditioning and Mechanical Ventilation Systems in Non-Industrial Buildings for the noise limits. A copy of the said Guideline may be viewed at the following web site: <https://www.nea.gov.sg/docs/default-source/default-document-library/technical-guideline-on-boundary-noise-limit-for-air-conditioning-and-mechanical-ventilation-systems-in-non-industrial-buildings---feb-2018.pdf>.
- v) The said Land abuts major roads (i.e. Yio Chu Kang Road, Sengkang West Road), and is located in the vicinity of Greenwich V, proposed industrial and residential developments. Hence, the said Land has high ambient noise level attributed to road traffic, M&E equipment operations, community events/activities carried out at Greenwich V and proposed industrial developments. The Successful Tenderer / QP is advised to factor the high ambient noise level and other nuisance impacts in the layout planning and design of the said development, such as siting the proposed residential buildings as far away as possible from the nuisances sources, and incorporate mitigation measures in the said development to mitigate noise and other nuisances impact. The Successful Tenderer / QP shall carry out a noise impact assessment (NIA) to demonstrate that the noise level at the residential building's facade would not exceed 67 dBA (Leq 1 hour) and the indoor noise level would not exceed 57 dBA (Leq 1 hour) under natural ventilated condition with windows/sliding doors fully opened. The Successful Tenderer / QP shall also inform or socialise the prospective buyers of the apartment units of the potential disamenities posed by the activities carried out in the vicinity of the said Land. Abatement measures shall be provided to further mitigate the impact if nuisance sensitive uses are included in the said development.
- vi) The said development shall comply with all the applicable requirements and provisions of the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), the Code of Practice on Environmental Health, the Code of Practice for the Control of Legionella Bacteria in Cooling Towers, the Environmental Protection and Management Act, the Environmental Public Health Act, the Radiation Protection Act, the Energy Conservation Act and their Regulations.
- vii) Under the Environmental Protection and Management (Control of Noise at Construction Sites) Regulations, construction sites within 150 m of residential estates need to comply with more stringent noise limits at construction stage especially during night time hours. Hence, the Successful Tenderer / QP shall implement noise control measures during the construction period to ensure that the noise emission levels from the building and construction activities are within noise limits and would not cause nuisance to any nearby residents. In addition, the said development is not allowed to carry out construction activities from 10pm on Saturday and eve of public holiday to 7am on the following Monday and the day after the public holiday respectively.

## **9.0 REQUIREMENTS OF FIRE SAFETY AND SHELTER DEPARTMENT (FSSD), SINGAPORE CIVIL DEFENCE FORCE (SCDF)**

SCDF requires the Successful Tenderer to comply with the Fire Safety Act and Regulations, the prevailing "Code of Practice for Fire Safety Precautions in Buildings" (Fire Code) and the relevant Codes of Practices and Guidelines. In addition, the following conditions will apply when applicable:

- i) To consult SCDF on the specific design requirements if the premises is to store, handle, use, transport or import of hazardous materials, including petrol station or CNG station which may have impact within the said development or on the surrounding existing or new developments. SCDF may impose the Quantitative Risk Assessment study (QRA) and/or additional Fire Safety requirements, or disapprove such proposal if there is possible impact within the said development or on the surrounding developments.



- ii) To consult SCDF on any specific developments or structures having impact on SCDF operations e.g. deep basement works (which are more than 4 storey or more than 24 metres in depth), tunnel or any other special developments, etc. SCDF may impose additional Fire Safety requirements.
- iii) The Successful Tenderer shall ensure that their proposal will not affect existing other surrounding developments (neighbouring) such as their exit provision, sidelane / backlane, window openings [the unprotected openings requirements, i.e. the Successful Tenderer and their Qualified Person (QP) shall strictly observe these existing conditions and provide more setback if necessary to prevent fire spread] and fire engine accessway etc. The Successful Tenderer and their QP shall consult FSSD (SCDF) directly for those new proposed building structures to be sited near to common boundary line, as additional Fire Safety requirements may be imposed.
- iv) For new road development (including road widening, realignment, road expunction & interim measures etc.), it shall not affect or encroach upon any part of existing development compounds. For public fire hydrant, the Successful Tenderer is requested to liaise with PUB directly for any proposed relocation or erection of new fire hydrant.
- v) For drainage system development (including widening, realignment, extension & interim measures, etc.), it shall not affect or encroach upon any part of existing development compounds.
- vi) Before making any commitment (purchase / occupation or rental / lease etc) or commencement of any proposal, the Successful Tenderer shall engage **Qualified Person (QP)** to carry out a feasibility study to ensure the said development and new proposals are able to comply with all the Fire Safety requirements (the current Fire Code & other relevant standards / guidelines / circulars). The feasibility study shall also ensure those existing fire safety provisions of surrounding developments are not affected. The QP will then assist them to obtain the FSSD's Plan Approval and the Fire Safety Certificate (FSC). If the Successful Tenderer has any doubts or queries regarding the fire safety requirements or plan approval procedures, the Successful Tenderer shall visit the *FSSD at SCDF Headquarters, 91 Ubi Ave 4*, for a walk-in consultation.

## 10.0 REQUIREMENTS OF BUILDING AND CONSTRUCTION AUTHORITY (BCA)

BCA requires the Successful Tenderer to comply with the following requirements:

### Buildable Design and Constructability Requirements

- i) The Successful Tenderer is required to adopt labour-efficient designs and construction technologies to achieve the Buildable Design Score and Constructability Score as set out in the Code of Practice on Buildability for the said development on the said Land.
- ii) The Buildable Design Score computes the extent of standardisation, simplicity and integrated elements applied to buildings at the design stage. It measures the potential impact of a building's design on labour usage. The higher the Buildable Design Score obtained, the easier it is to construct. The Constructability Score measures the level of adoption of labour-efficient construction methods and construction processes such as system formwork and climbable scaffolding. Higher constructability scores would translate to savings in manpower and shorter construction time. More details are available at <http://www.bca.gov.sg/BuildableDesign/legislation2011.html>.
- iii) The Successful Tenderer shall comply with the requirements, procedures, directions and requests of BCA and shall also render his full co-operation to BCA, its officers, employees and agents in relation to meeting the required Buildable Design Score and Constructability Score.

### Prefabricated Bathroom Units (PBU)

- i) The Successful Tenderer is required to adopt prefabricated bathroom units (PBUs) for 65% or more of the bathroom units in the non-landed residential component of the said

development on the said Land as stipulated under the Building Control (Buildability and Productivity) Regulations.

- ii) In situations where the PPVC modules for the residential component of the said development also contain bathroom units which conform to the latest Code of Practice on Buildability stipulated for both the PPVC and PBU units, the adoption of these modules can be counted towards meeting the required minimum levels of use for both the PPVC method and PBUs.

#### Prefabricated Prefinished Volumetric Construction (PPVC)

- i) The Successful Tenderer is required to adopt the minimum level of use of prefabricated prefinished volumetric construction as stipulated under the Building Control (Buildability and Productivity) Regulations for the said development on the said Land for Residential use.
- ii) The PPVC system adopted is to be of a **concrete system** and **must allow for flexibility for removal of internal walls** in the event the homeowners want to make any modifications to their units.

### **11.0 ELECTRICITY**

- i) The Successful Tenderer shall liaise with the Transmission Licensee authorised under the Electricity Act for the electricity supply and any other electrical provisions required for the purpose of and in connection with the said development.
- ii) The Successful Tenderer shall apply to the SP PowerGrid Ltd directly for the electrification scheme and any electrical substation, which need to be constructed within the said Land to serve the said development. The Successful Tenderer shall be deemed to have included in his tender price for the construction of the electrical substation(s).

### **12.0 TELECOMMUNICATIONS**

- i) The Successful Tenderer shall liaise with the Telecommunication System Licensee authorised under the Telecommunication Act, for the telecommunication supply to the said development.
- ii) The Successful Tenderer shall provide all facilities for telecommunication services, such as MDF room, Telecom riser ducts, lead-in pipes and manholes etc., within the said Land. All Telecom facilities shall be provided according to the prevailing Info-communications Media Development Authority of Singapore (IMDA) Code of Practice for Info-communications Facilities in Buildings.
- iii) The Successful Tenderer is advised to consult the relevant Telecommunication System Licensees (e.g. Singapore Telecommunications Ltd, StarHub Ltd, StarHub Cable Vision Ltd, NetLink Trust, SP Telecommunications Pte Ltd, etc.) early during the planning stage of the said development, on the location and diversion of existing Telecoms services.
- iv) The detailed Telecoms facilities plans for the said development shall be submitted to and duly verified by Telecommunication Facility Co-ordination Committee (TFCC) through the CORENET esubmission system, and approved by the IDA prior to the commencement of works.

### **13.0 GAS**

- i) The Successful Tenderer shall liaise with the City Gas Pte Ltd on the requirements for gas supply to the said Land.
- ii) The Successful Tenderer shall at his own cost and expense carry out trial trench / holes to determine the exact alignment and levels of any identified gas main during the design stage and ascertain whether they will be affected by the development works. If affected, the Successful Tenderer shall liaise with the Gas Transporter to request for diversion. The

Successful Tenderer shall provide a suitable diversion corridor and the proposed corridor for the gas mains diversion works must be made available without any obstructions. The Successful Tenderer shall contact [gasenquiry@spgroup.com.sg](mailto:gasenquiry@spgroup.com.sg) for diversion consultation if the gas mains are affected and bear the necessary diversion cost.

**POLLUTION CONTROL MEASURES  
FOR PROPOSED DEVELOPMENT  
WITHIN WATER CATCHMENT AREA**

**1 Storage of Toxic Chemicals**

- (a) No toxic or hazardous chemicals shall be used, stored or handled in the premises.
- (b) Storage of fuel may be allowed subject to provision of pollution control measures as stipulated in the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013).

**2 Public Sewerage System**

- (a) Public sewerage system shall be extended to serve the proposed developments.
- (b) All sewage, used water and trade effluent (e.g. wastewater) shall be collected and discharged into the public sewers in compliance with the Sewerage & Drainage Act and its Regulations.

**3 Refuse Management System**

The proposed bin centre or refuse holding area shall be designed in the manner such that refuse storage, handling and transfer activities (e.g. transfer of refuse from a collection cart to a compactor, etc.) are carried within a building equipped with pollution and nuisance control measures. In addition, all sullage water, including liquid from refuse compaction and wastewater from washing of refuse collection carts, bins, floors, etc. is to be discharged into the public sewer in accordance to the requirements imposed by PUB. The design of the refuse management system shall comply from the Code of Practice on Environmental Health.

**4 Pollution Control Measures**

The proposed developments shall be designed to ensure that all activities that generate trade effluent are carried out within buildings. All trade effluent generated shall be discharged into the public sewer in compliance with the conditions and requirements imposed by PUB, and not into any land or watercourse for storm water. In this respect, any proposed wash area in residential development, washing bay for vehicles in workshop, wash area for food preparation in eating establishment, etc. should comply with the above requirements.

**5 Pollution Control Measures at Construction Stage**

- (a) During construction stage, sewage, used water and/or trade effluent from the construction sites shall be discharged into the public sewer, and not into any watercourse for storm water or onto any land.
- (b) All washings activities shall be carried out within sheltered areas and used water and trade effluent generated shall be collected and discharged into the public sewer, and not into any watercourse for storm water or onto any land. For construction site where public sewer is not available, sewage, used water and trade effluent shall be collected in holdings tanks and subsequently, transported using a tanker or other means to a Water Reclamation Plant (WRP) approved by PUB for treatment and disposal.
- (c) No servicing and repairing of mechanical plants and equipment are allowed in the construction sites. The said servicing and repair activities should be carried at authorised workshops equipped with pollution control facilities.
- (d) Fuel storage tanks, if provided, shall be equipped with containment facilities as stipulated in the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013).
- (e) Construction site shall also comply with the earth control measures requirements as imposed by PUB.