

SALE OF AGRICULTURAL LAND FOR FARM USE

(ST28D, ST3A)

CONDITIONS AND REQUIREMENTS OF RELEVANT AUTHORITIES / PUBLIC UTILITY LICENSEES (FOR SUCCESSFUL TENDERER'S INFORMATION ONLY)

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1.0 DEFINITIONS / INTERPRETATION

- 1.1 Unless the context requires otherwise, words and expressions defined in the Letter of Offer, this Agreement and the Leases shall have the same meaning when referred to herein.
- 1.2 In the event there is any conflict or inconsistency between the provisions of this Schedule and the rest of this Agreement, the latter shall to the extent of such conflict or inconsistency prevail.

2.0 GENERAL CONDITIONS AND REQUIREMENTS

- 2.1 The Successful Tenderer for ST28D and ST3A is required to ascertain the exact and detailed conditions and requirements of all relevant Authorities / public utility licensees in respect of the proposed development thereon and shall at its own cost and expense observe and comply with the same.
- 2.2 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 Successful Tenderer only. Whilst every care and attention has been taken in the compilation and preparation hereof, the Lessor does not represent or warrant that the contents herein represent all the conditions and requirements of the relevant Authorities / public utility licensees in respect of the proposed development on ST28D and ST3A or that they are free from errors or omissions whatsoever. The contents herein are subject to changes from time to time by the relevant Authorities / public utility licensees concerned. For the avoidance of any doubt, it is the Successful Tenderer's sole responsibility to obtain and ensure compliance with the latest conditions and requirements of the relevant Authorities / public utilities licensees.
- 2.3 A summary of the initial services requirements of the relevant Authorities / 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.
- 2.4 The Successful Tenderer shall ensure that the following requirements are complied with: -
- A. to consult and liaise directly with the relevant Authorities / public utility licensees regarding the actual locations of all service mains within ST28D and ST3A and on

the requirements and conditions for services diversion 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.

- B. to engage its own licensed Cable Detection Worker (“**CDW**”) / licensed Telecommunication Cable Detection Worker (“**TCDW**”) 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.
 - C. 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 proposed 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.
 - D. to ensure that the relevant Authorities / public utility licensees are allowed free and unconditional access at all times to services that are required to remain within ST28D and ST3A for the purpose of installation, maintenance, repair and improvement works and all other work and activities incidental thereto.
 - E. to make its own arrangements with the relevant Authorities / public utility licensees and pay for the costs of any diversion and/ or "capping off" of existing services, provision of service mains and connection fees if any, in connection with the proposed development.
 - F. to provide all the internal distribution for water, electricity, drainage and sanitary discharge for the proposed development.
 - G. to liaise with all the relevant Authorities / public utility licensees on upgrading the road reserves abutting ST28D and ST3A to ensure that the necessary roadside drains, sidetable, kerb, etc are carried out in accordance with the latest Road Reserve requirements.
- 2.5 The Successful Tenderer shall note that there may be sub-structures e.g. footings, piles, tree roots, etc. and other obstructions in the ground. The Successful Tenderer shall at its own cost and expense carry out its own site verification of these sub-structures and other obstructions, and ascertain its effect on the proposed development.
- 2.6 In general, no structure shall be sited close to or over existing/ proposed services. The Successful Tenderer shall comply with all the necessary requirements as stipulated by the relevant Authorities / public utility licensees.
- 2.7 The Successful Tenderer shall seek all relevant Authorities' approval on the layout plan.

3.0 NATIONAL ENVIRONMENT AGENCY (“NEA”)

3.1 General

- 3.1.1. The subject site at Sungei Tengah 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. Activity that could pose serious contamination risk to our water resources shall not be carried out. In addition, the owner/operator shall adopt and implement the Best Management Practices (BMPs) at the proposed farm to prevent pollution to the environment or nuisance impacts to people in the area.
- 3.1.2. Refuse and solid wastes (e.g. dead fish, discarded vegetable, etc.) from the proposed farm, including the sludge generated from treatment of wastewater, shall be collected, and kept in a sheltered holding area before disposal by a licensed general waste collector. The holding area shall be designed with abatement measures to control water pollution, smell/dust nuisance and pest infestation. The Successful Tenderer is reminded that refuse or solid wastes are not allowed to be disposed by throwing them into any drain, burying them on-site or using open burning method.
- 3.1.3. Sewage and used water from the proposed farm developments shall be discharged into the public sewer in accordance to the conditions and requirements imposed by the Public Utilities Board (“PUB”). The Successful Tenderer / qualified person (“QP”) should check with PUB on the point for sewer connection and the allowable discharge rate.
- 3.1.4. The emissions of air pollutants shall comply with the prevailing emission limits for air impurities as stipulated in the Environmental Protection and Management (Air Impurities) Regulations. For air impurities with no prescribed emission standards, the best practical means shall be adopted to minimize air pollution and odour nuisance.
- 3.1.5. Off-road diesel engines used in the proposed farm shall comply with the provisions and requirements as stated in the Environmental Protection and Management (Off-Road Diesel Engine Emissions) Regulations. Off-road diesel engines are any equipment or machinery with diesel engines as the main or auxiliary prime mover and not registered with the Land Transport Authority (LTA) for use on public roads. Examples include construction equipment such as cranes, excavators, forklifts, and power generators.
- 3.1.6. The noise levels measured at the boundary of the proposed farm developments should comply with the noise limits stipulated in the Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations at all times.
- 3.1.7. If there will be foul smell generated from the proposed farming activities, odour abatement facilities shall be provided to treat the foul smell from the farm. Technical details of the proposed pollution control equipment/facilities, (e.g. odour abatement facility) shall be submitted to NEA for clearance before installation. The proposed

pollution control equipment/facilities should be duly installed and ready for use before the proposed farm commences operations.

- 3.1.8. If there is existing chimney for flue gas discharge in the vicinity of the proposed site, the proposed development should not impede or obstruct the dispersion of flue gas discharged from existing chimney. i.e. the proposed development should not result that the existing chimney become non-compliance with the chimney height requirement as stated in the Singapore Standard on the Code of Practice for Pollution Control (i.e. SS593:2013).
- 3.1.9. 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 Guidelines on Boundary Noise Limits for Air-Conditioning and Mechanical Ventilation Systems in Non-Industrial Buildings, the Environmental Protection and Management Act, the Environmental Public Health Act, the Cattle Act, the Energy Conservation Act, the Radiation Protection Act and their Regulations, shall be complied with.

3.2 Particular Requirements

If living quarters (e.g. workers' dormitory/ worker quarter on farm/stay-in facilities) will be included in the proposed farm development for ST3A and ST28D, please refer to 3.2.1 and 3.2.2:

For ST28D

- 3.2.1 ST28D is located in very close proximity to the Tengah Airbase and hence is subject to very high ambient noise level attributed to the aircraft operations. Due to the relocation of Paya Lebar Air Base operations to Tengah Air Base in the near future, the subject site would be subjected to even higher noise level based on today's context. It is the operators /owner's responsibility to ensure that the workers staying in the dormitory would be sufficiently protected from loud aircraft noises. Hence, the operator/owner **is required to** incorporate Noise Mitigation Measures (NMMs) (such as concrete walls and roofs, noise fins (minimally 600mm to be effective) and laminated glass casement windows (i.e. minimally 1/2" glass, 0.03" PVB, 1/4" glass)/double-glazed casement windows (i.e. minimally monolithic 1/4" glass, 1/2" airspace, laminated 3/16" glass, 0.03" PVB, 3/16" glass)) into the design of the workers' dormitory.

The Company is required to engage an Acoustic Consultant (AC) to assess, evaluate, verify, and certify the NMMs. The Company is also required to appoint a Qualified Person (QP) to certify that the NMMs are implemented.

For ST3A

- 3.2.2 ST3A at Sungei Tengah is located in close proximity to the Tengah Air Base and hence is subjected to high ambient noise level attributed to the aircraft operations.

Due to the relocation of Paya Lebar Air Base operations to Tengah Air Base in the near future, the subject site would be subjected to even higher noise level based on today's context. It is the operators /owner's responsibility to ensure that the workers staying in the dormitory would be sufficiently protected from loud aircraft noises. Hence, the operator / owner is encouraged to incorporate Noise Mitigation Measures (NMMs) (such as noise fins and monolithic glass casement windows) into the design of the workers' dormitory.

For Vegetable Farming

- 3.2.3 If the farming activities would include the use of pesticides, only pesticides that are registered with NEA and SFA shall be used. All pesticides used for farming activities shall be stored within buildings or sheltered area equipped with leakage or spillage containment facilities. Their dosage will also have to be controlled so that it will not cause any nuisance problem to people in the vicinity or contamination problem to the surface run-off during raining.
- 3.2.4 If fertilizers would be used in proposed land-based farming, the Successful Tenderer will have to ensure that fertilizers will not be washed by rainwater or surface run-off, and discharged into any watercourse leading to raw water reservoir or to the sea. The dosage of fertilizers will also have to be controlled so that it will not cause any odour problem to people in the vicinity.

4.0 POWERGAS

4.1 General

- 4.1.1 The Successful Tenderer shall liaise with a gas retailer on the requirements for gas supply to land ST28D and ST3A. For reference, the information on gas pipeline network in Singapore and the list of gas retailers in the market can be found at <https://www.ema.gov.sg/our-energy-story/energy-market-landscape/gas> and https://www.ema.gov.sg/Licensees_Gas_Retailer.aspx.

4.2 Particular Requirements

For ST28D and ST3A

- 4.2.1 The Successful Tenderer shall purchase the gas plan from Mapping & Earthworks Administration section at 6916 5022 or email mea@spgroup.com.sg. The Successful Tenderer shall at his own cost and expense, carry out trial trench / holes to determine the exact alignment and levels of any existing gas main within the Land Parcel and in the vicinity of the Land Parcel 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 at ST28D and ST3A.
- 4.2.2 The Successful Tenderer is required to submit written notice to SP PowerGrid Ltd (Earthworks Surveillance & Patrolling section) if you intend to carry out earthworks in the vicinity of gas pipelines at least 7 working days prior to commencing the

earthworks. All necessary precautionary measures must be taken to prevent damage to our gas pipelines at the work site. For advice on gas pipe damage prevention, you may contact Earthworks Surveillance & Patrolling section during office hours at 6916 5119 or email espsection@spgroup.com.sg.

5.0 SP POWERGRID (“SPPG”)

5.1 General

- 5.1.1 The Successful Tenderer shall liaise with the Transmission Licensee authorised under the Electricity Act 2001 for the electricity supply and any other electrical provisions required for the purpose of and in connection with the proposed development on ST28D and ST3A.
- 5.1.2 The Successful Tenderer shall purchase cable plans from SP PowerGrid Ltd (“SPPG”) and engage a Licensed Cable Detection Worker to carry out detection for any underground electricity cables within ST28D and ST3A. For more information on the protection and diversion to the underground electricity cables, the Successful Tenderer can refer to SP e-Business Portal located at <https://ebiz.spgroup.com.sg/index.html>. If the existing underground electricity cables are affected by the new development, the cost of diverting the electricity cables shall be borne by the Successful Tenderer.
- 5.1.3 The Successful Tenderer shall provide electrical substation(s) within ST28D and ST3A that shall meet the technical requirements specified by the Transmission Licensee authorised under the prevailing Electricity Act 2001 for electrical supplies to the development.

5.2 Particular Requirements

For ST28D and ST3A

- 5.2.1 The existing maximum electrical load available for ST28D and ST3A without the need for a new substation is 280kVA.
- 5.2.2 Based on the information provided by SPPG, there are existing underground electricity cables in the vicinity of ST28D and ST3A. If the existing underground electricity cables are affected by the new development, the cost of diverting the electricity cables shall be borne by the Successful Tenderer.
- 5.2.3 The Successful Tenderer shall engage the services of licensed cable detection workers to carry out the cable detection work prior to the commencement of earthworks. All necessary precautionary measures must be taken to prevent damaging SPPG’s cables at the work site.
- 5.2.4 The Successful Tenderer can contact Earthworks Surveillance and Patrolling Section’s Mr Benny Quek, Principal Engineer at Tel no. 6916 5150 regarding cable damage preventive measures. The Successful Tenderer is required to submit notices

to SPPG at least 7 days prior to earthworks (including trial trenches) in the vicinity of high voltage electricity cables under the provisions of the Electricity Act.

- 5.2.5 The Successful Tenderer is advised to acquire a set of drawings for the electricity cables around the proposed work area. For further details on cable plan requests, please contact Mapping & Earthworks Administration Section at Tel No. 6916 5022 or email mea@spgroup.com.sg.
- 5.2.6 For proposed earthworks which are likely to affect the cables and need cable diversion/protection/suspension etc, after the cable detection work is done, the Successful Tenderer can request for diversion via the SP e-Business Portal located at <https://ebiz.spgroup.com.sg/index.html> or contact the following officers:
- A. For 22 kV and below cables, please contact Mr Lim Dingcai, Principal Engineer of Distribution Network (VI) Section at Tel No. 6916 5667 or email: dingcai@spgroup.com.sg.
 - B. For 66 kV cables, please contact Mr Shiva Raj, Principal Engineer of Regional Network West 66kV Section at Tel No. 69165557 or email: shivaraj@spgroup.com.sg
 - C. For 230kV and above cables, please contact Mr Mohamed Shariff Bin Mydin A S, Principal Technical Officer of Extra High Voltage Network Section at Tel No. 6916 5483 or email: mohamedshariffmydin@spgroup.com.
 - D. For cable tunnels, please contact Mr Kua Siang Meng, Principal Engineer (Facilities Management Section) at Tel No. 6916 6008 or email kuasiangmeng@spgroup.com.sg
- 5.2.7 The Successful Tenderer shall notify SP PowerGrid 6 months before the commencement of earthworks affecting distribution cables and 24 months if the work involves transmission cables (66 kV and above). The cost of cable diversion / protection / suspension incurred by SPPG shall be borne by the requesting party. The Successful Tenderer shall not commence the proposed earthworks until the affected cables are diverted/protected/suspended.
- 5.2.8 For information on substation and connection requirement, etc. for your proposal, the Successful Tenderer can consult Mr Ooi Wenyao, Principal Engineer of Distribution Planning Section at Tel No. 6916 8551 or email: wenyao@spgroup.com.sg. For matters on substations to make way for redevelopment works, please contact Mr Tan Juay Hwee, Senior Technical Officer of Distribution Planning Section at Tel No. 6916 8385 or email: tanjuayhwee@spgroup.com.sg.
- 5.2.9 For any further clarification on cable damage prevention measures, the Successful Tenderer can contact Mr Benny Quek, Principal Engineer of Earthworks Surveillance & Patrolling Section at Tel no. 6916 5150 or email: quekgh@spgroup.com.sg.

6.0 MINISTRY OF DEFENCE (“MINDEF”)

6.1 General

- 6.1.1 The Successful Tenderer shall consult MINDEF through URA – Development Control Group when the detailed development plans are available.
- 6.1.2 All capital and operating costs or expenses incurred to meet all the stipulated conditions and requirements shall be borne by the Successful Tenderer.

6.2 Particular Requirements

For ST28D and ST3A

- 6.2.1 The Successful Tenderer shall note that as ST28D and ST3A is located in proximity to Tengah Air Base, it is expected to have noise, dust and vibration, and these effects should be taken into consideration in the proposed developments, and in particular, in the design of the facilities and operating equipment. If necessary, the Successful Tenderer should assess if a noise study should be carried out. The proposal must not impose any constraint on MINDEF or curtail its existing and future developments, operations and activities in any way.
- 6.2.2 The Successful Tenderer shall ensure that all developments, structures and fixtures on ST28D and ST3A shall not exceed the maximum height of 60m Singapore Height Datum (SHD). Such developments, structures and fixtures include those on the roof tops, whether permanent, temporary, transient or stationary (including but not limited to the building superstructure, lampposts, 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.) which shall all be subject to the same height limit. Republic of Singapore Air Force's ("RSAF") clearance shall be sought for the use of construction equipment and temporary structures above 45m SHD (Email: height_control@defence.gov.sg).

For ST28D

- 6.2.3 The sites are located within Glazing Control Zone "A". All buildings/structures (in their entirety) within this Control Zone are subject to glazing control requirements if their height is more than 12m Above Ground Level. A copy of the glazing control guidelines can be obtained from BCA upon obtaining Planning Permission from the relevant authorities.
- 6.2.4 There is a need for visual controls at ST28D to shield the facilities at Tengah Air Base from external view. This can only be determined when design details such as number of storeys of the proposed development, location of openings (e.g. windows) etc. are made known to DSTA. The Successful Tenderer shall comply with the details of the visual controls as follows:
 - I. The views from windows, corridors, staircases, or any openings, or any surveillance cameras, devices or equipment (e.g. CCTVs) on the land

parcel exceeding the height of 35m to 40m SHD (indicative) must be directed away from Tengah Air Base. If necessary, the Successful Tenderer may request for the Visual Control Plan.

- II. If (I) becomes impracticable to implement, the Successful Tenderer can propose visual screening measures in the form of permanent fixtures which are impossible or difficult to remove. They can include but are not limited to the following:
 - a. Window openings are to be recessed or have fixed frosted glass panels;
 - b. Corridors, staircases, fixtures and other openings are to be provided with louvres; and
 - c. Parapet wall on the roof top should have a height of 2m for personnel and 3m for vehicles.

For ST3A

- 6.2.5 The site is located within Glazing Control Zone “A” and Zone “B”. All buildings/structures (in their entirety) within this Control Zone are subject to glazing control requirements if their height is more than 12m Above Ground Level. A copy of the glazing control guidelines can be obtained from BCA upon obtaining Planning Permission from the relevant authorities.
- 6.2.6 There is a need for visual controls at ST3A to shield the facilities at Tengah Air Base from external view. This can only be determined when design details such as number of storeys of the proposed development, location of openings (e.g. windows) etc. are made known to DSTA. The Successful Tenderer shall comply with the details of the visual controls as follows:
 - I. The views from windows, corridors, staircases, or any openings, or any surveillance cameras, devices or equipment (e.g. CCTVs) on the land parcel exceeding the height of 50m to 55m SHD (indicative) must be directed away from Tengah Air Base. If necessary, the Successful Tenderer may request for the Visual Control Plan.
 - II. If (I) becomes impracticable to implement, the Successful Tenderer can propose visual screening measures in the form of permanent fixtures which are impossible or difficult to remove. They can include but are not limited to the following:
 - a. Window openings are to be recessed or have fixed frosted glass panels;
 - b. Corridors, staircases, fixtures and other openings are to be provided with louvres; and
 - c. Parapet wall on the roof top should have a height of 2m for personnel and 3m for vehicles.

- 6.2.7 The Successful Tenderer is advised to liaise with DSTA early on the requirements for these visual controls and submit the proposal to MINDEF through DSTA for MINDEF's comments and clearance (at least 1 month in advance) at the detailed design stage and arrange for inspections) of the mock up screening measures on site before implementation.

7.0 SINGAPORE CIVIL DEFENCE FORCE ("SCDF")

7.1 General

- 7.1.1 For Fire Safety requirements, the Successful Tenderer is required to comply with the Fire Safety Act 1993 and Regulations (**Annex A**). If the Successful Tenderer has any clarifications on Fire Safety requirements, the Successful Tenderer should consult the Fire Safety Department ("**FSD**") located at SCDF Headquarters.
- 7.1.2 The Successful Tenderer shall ensure fulfilment of the necessary SCDF requirements.

8.0 LAND TRANSPORT AUTHORITY ("LTA")

8.1 General

- 8.1.1 The Successful Tenderer shall prepare/ design, submit, supervise and construct all proposed street works, as well as proposed engineering/ construction works within the road reserve in accordance with the Street Works (Private Street Works) Regulations and the following prevailing standards and code of practice:

- A. Street Work Proposals relating to Developmental Works
- B. LTA Standard Details of Road Elements
- C. Materials Workmanship Specifications for Civil and Structural Works
- D. Code of Practice for Road Opening Works
- E. Code of Practice for Traffic Control at Work Zone and
- F. Architectural Design Criteria and Civil Design Criteria

- 8.1.2 Successful Tenderer is required to submit Development Control application via CORENET to obtain LTA's clearance. LTA's Plan Compliance Division (PCD) will provide necessary requirements upon receipt of the application.

- 8.1.3 The Successful Tenderer shall abide to the following guidelines

Access point

- A. Each development shall be served by one access point only.
- B. Access point shall be taken from less major road if there are more than 2 roads abutting the site.
- C. Access point is to be located at a safe distant, at least 50m from road junction and 30m from road bends, pedestrian crossing, bus-stops, existing adjacent/opposite access points. The distant should be measured tangent-to-tangent point at the access turning road kerb.

- D. Access width and turning kerb radius should be designed according to Code of Practice (Street Work Proposal Relating to Development Works).
- E. A minimum 2 car queuing lengths shall be provided before the drop barrier, if any within the development boundary to prevent queue build-up along the public road.
- F. Access shall have sufficient line-of-sight as in accordance with LTA guidelines.
- G. Services access to bin centre and electric sub-station shall be taken from within the site. Separate access directly from the public street is not allowed, especially along major roads. The bin centre shall be designed for refuse trucks to turn around within the development and not to reverse into the site from the public roads or vice versa.
- H. Pick-up drop-off (PUDO) area within the site shall be provided.

8.2 Particular Requirements

For ST28D and ST3A

- 8.2.1 The access locations for ST28D and ST3A are sited as shown indicatively in the Control Plan set out in **Part B of Schedule 6** to this Agreement.
- 8.2.2 Prior approval from LTA is required for any deviation from the designated access points as indicated in the Control Plans set out in **Part B of Schedule 6** to this Agreement.
- 8.2.3 The proposed development shall be served by only one access point. Prior approval from LTA is required for any deviation.
- 8.2.4 Submission to LTA (Vehicle Parking) is exempted for development of land for the purpose of farming. However, the Successful Tenderer is required to have a plan for managing parking and preventing overspill onto the public roads, especially during the peak periods for ancillary uses such as F&B or a visitor centre.

9.0 NATIONAL PARKS BOARD (“NParks”)

9.1 General

- 9.1.1 The Successful Tenderer who intends to carry out any regulated activities under the Parks and Trees Act and its Regulations that arise out of or pursuant to the use of the proposed Site must seek the Commissioner of Parks and Recreation’s (“Commissioner”) approval before doing so.
 - A. Before seeking the Commissioner’s approval, the Successful Tenderer is required to consult the Commissioner, through the Greenery and Development Planning Branch at NPARKS_GDP@nparks.gov.sg lolat the planning and design stage of the development works concerning the proposed Site.
 - B. The Successful Tenderer is required to present the following at the consultation:

- I. A survey plan (survey done less than 2 years at the point of application and endorsed by a qualified surveyor) of the site and its peripheral roads, at a scale of at least 1:500. The plan must also clearly indicate the location, species, height and girth of trees at the proposed Site; and
 - II. All other relevant additional information such as plans on construction hoardings.
- 9.1.2 The Successful Tenderer shall ensure that roadside trees and green verge(s) abutting ST28D and ST3A is 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 ST28D and ST3A.
- 9.1.3 The Successful Tenderer shall replace the existing roadside trees and green verge fronting ST28D and ST3A if it is affected by the proposed 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.
- 9.1.4 The Successful Tenderer shall ensure that the green verge is kept clear and shall be free from obstructions and encumbrances at all times, including without limitation bicycles parked on the green verge or items left on the green verge.
- 9.1.5 The Successful Tenderer shall not change the soil level to the roadside planting verge without prior approval from NParks.
- 9.1.6 The Successful Tenderer shall ensure that the proposed development on ST28D and ST3A shall not encroach on the green verge(s) surrounding the proposed Site, nor shall it affect any roadside table surrounding the proposed Site.
- 9.1.7 The Successful Tenderer shall ensure that the development works are to be confined within ST28D and ST3A and working boundaries. There must not be any illegal dumping or storing of construction materials beyond the approved boundaries. The proposed development shall not encroach on the road reserve line and affect any roadside table.
- 9.1.8 The Successful Tenderer shall ensure that 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 m below ground level, and are not to slope with gradients steeper than 1:2.5.
- 9.1.9 If there is any indication that the works at the site will affect the green verge(s) / road table(s) / green buffer(s) in any way whatsoever, the Successful Tenderer must seek the Commissioner's approval as set out in Clause 9.1.1, as well as the approval of

the other applicable authorities under the relevant legislation, for the conduct of the works that will affect the green verge(s) / roadside table(s).

- 9.1.10 The Successful Tenderer shall be responsible for the maintenance of all trees, greenery, development and facilities (e.g. cleansing) within ST28D and ST3A boundary and shall ensure to upkeep and clear fallen trees, branches, leaves etc. onto the roadside table. Should the Successful Tenderer choose to set back the boundary fence/wall from the roadside drains (subject site boundary), the Successful Tenderer are still responsible for maintaining all areas before the drain.

9.2 Particular Requirement

For ST28D and ST3A

- 9.2.1 The parties (Successful Tenderer, QP and Main Contractor) related to this project will be receiving Directions issued by the Director-General/Wildlife Management ("Director-General") pursuant to section 10 of the Wildlife Act (Cap. 351), in relation to this Project. Please be reminded that all requirements stated in the said directions shall be complied with.
- 9.2.2 The parties (Successful Tenderer, QP and Main Contractor) related to this project shall note that no works shall be allowed to commence prior to issuance of directions under section 10 of the Wildlife Act.

10.0 PUBLIC UTILITIES BOARD ("PUB")

A. DRAINAGE

10.1 General

- 10.1.1 The planning, design, construction activities and procedures for plan submission shall fully comply with the requirements as 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 Public Utilities Board (PUB) website at

<https://www.pub.gov.sg/drainage/COPsurfacewaterdrainage>.

- 10.1.2 The topography of the site shall not be changed without the approval of PUB.
- 10.1.3 All affected drains and Drainage Reserves (location and alignment) and their respective sizes shall be indicated in the detailed plan drawings. Details such as inverts/copings of affected drains, adjacent ground levels and amount of soil cover shall also be indicated in the detailed submission to PUB. All drain crossings within road reserves (e.g. culverts and roadside drains) shall be clearly highlighted in the plans. Detailed proposal plans shall be submitted at the detailed planning stage for PUB's comments and clearance before the commencement of works.

- 10.1.4 The development schedule of the site shall be properly considered to avoid a situation where site and / or lands in the vicinity become "land locked" without proper drainage outlets. The runoff within, upstream of and adjacent to the sites shall be effectively drained away without causing flooding within the site and in the vicinity of the site. Any proposal to level/backfill the site shall be submitted for PUB(C&W)'s comments and clearance.
- 10.1.5 The Successful Tenderer shall reconstruct the existing drain (if any) affected by the development. Appropriate Drainage Reserves shall be set aside for drains in accordance with the prevailing Code of Practice on Surface Water Drainage. The Successful Tenderer shall consult relevant agencies including URA on the required Drainage Reserves and obtain land use approval for the DR. The new drains shall be constructed and functional prior to the development. The detailed drainage plan for the proposed drainage work shall be submitted for PUB approval before the commencement of works.
- 10.1.6 If the existing roadside drain is within the land lot to be alienated or amalgamated, the Successful Tenderer shall realign the existing roadside drain to within/about the road reserve and reconstruct the roadside drain into covered drain. The Successful Tenderer shall construct the proposed drain to the required size as determined by PUB. The detailed drainage plan shall be submitted to PUB(C&W) for approval prior to the commencement of work on site.
- 10.1.7 The existing drainage system within and in the vicinity of ST28D and ST3A shall be upgraded/ improved to cater for increased runoff from the proposed development. In addition, new drains, depending on the type and nature of the proposed development, may be built within ST28D and ST3A. Appropriate drainage reserves shall be set aside for drains in accordance with the prevailing Code of Practice on Surface Water Drainage.
- 10.1.8 The Successful Tenderer must incorporate safeguards in its design of the proposed development and also take all necessary precautions to ensure that the works / construction activities at ST28D and ST3A will not cause any damage to, affect the structural integrity of, or cause any geotechnical distress or impact on the existing drains / culverts / canals. Free flow of water in the drains shall be maintained at all times. Any damages caused to the drainage structures shall be reinstated at the service provider/ contractor's own cost to the satisfaction of PUB(C&W). The Successful Tenderer shall carry out an impact assessment to establish the influence zone of the proposed 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).
- 10.1.9 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.

- 10.1.10 The Successful Tenderer shall carry out soil instrumentation for monitoring the soil/geo-technical/structural movements or changes at and around the work-site in particularly 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 rectify immediately to the full satisfaction of PUB. Details of the contingency plan including the schedule of works and organisation chart of the developer and consultant/contractor shall be submitted to PUB before commencement of works.
- 10.1.11 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.
- 10.1.12 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. 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, postcondition survey and topography survey of the affected drains shall be submitted and PUB may request for joint site inspection of the rectification works.
- 10.1.13 The Successful Tenderer shall inform PUB in writing at least one week before the commencement of any work at the site which affects drains. PUB may require the affected drain to be upgraded in conjunction with the proposal. Please further consult PUB(C&W) with the detailed proposal for further comments.
- 10.1.14 Development sites larger than 0.2 ha are required to control the peak runoff discharge from the development site. 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 QP shall be required to submit details (calculations and/or hydraulic model results) showing how the proposed 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/ QPs can refer to the ABC Waters Guidelines and relevant chapters in the Engineering Procedures, available on the PUB website.

- 10.1.15 PUB has in 2006 launched the Active, Beautiful and Clean (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 the 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>.
- 10.1.16 PUB encourages the implementation of ABC Waters design features in the 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>. If applicable, 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 could contact Ms Ong Geok Suat (email: ong_geok_suat@pub.gov.sg) for issues related to ABC Waters design features.

10.2 Particular Requirement

For ST28D and ST3A

- 10.2.1 The minimum platform level (“**MPL**”) for ST28D and ST3A shall not be lower than 4.5m above Singapore Height Datum, or 300mm above the adjacent road/ground level for general developments, 600mm for multi-residential and commercial developments, 1m for special facilities and developments with direct or indirect linkages to underground special facilities, or any other level as determined by PUB as in stated in the latest edition of the ‘Code of Practice on Surface Water Drainage’, whichever is the highest.
- 10.2.2 In complying with the MPL requirement, thorough investigations of the site shall be conducted to determine suitable platform profiles to ensure that the runoff within, upstream of and adjacent to the subject site can be effectively drained away without causing flooding within the site and in the vicinity of the site. Any proposal to

level/backfill the subject site shall be submitted to PUB(C&W) for comments and approval.

- 10.2.3 The Successful Tenderer shall note that ST28D and ST3A is within Kranji Water Catchment. The proposed development shall not result in any loss of yield from the catchment area.
- 10.2.4 Stringent pollution control measures shall be incorporated in the design and during the construction of the proposed development.
- 10.2.5 Bulk storage of toxic and hazardous materials shall not be allowed.
- 10.2.6 All sewage and sullage water shall be discharged into a public sewer.
- 10.2.7 If there is any earth filling work at the development site, use good earth free of any debris or construction waste materials. If sand is used for backfilling, do not use marine sand. 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.
- 10.2.8 If the development site abuts a watercourse (reservoir or storm drain), the Successful Tenderer shall provide and maintain a vegetated buffer strip of minimum 2m width along the length of the boundary abutting the watercourse, within the farm development. The buffer strip can be part of the planting verge set by NParks but there shall be no agricultural activities within the buffer strip.
- 10.2.9 Water pollution control requirements as stipulated in Environmental Protection and Management Act 1999 (“**EPMA**”) shall be fully complied with. The discharge from any agricultural sites into the drainage system shall comply with Allowable Limits for Trade Effluent Discharge to Controlled Watercourses under the Environmental Protection and Management (Trade Effluent) Regulations and PUB’s discharge water quality requirements of Total Nitrogen ≤ 10 mg/L; Total Phosphorus ≤ 0.65 mg/L, Total Organic Carbon ≤ 20 mg/L and Ammonia ≤ 1 mg/L for water catchment areas.
- 10.2.10 The drains within the development site shall be regularly de-silted and maintained.
- 10.2.11 Fish ponds shall be properly and adequately designed to ensure no overflow and leakage into the storm drain.
- 10.2.12 If seawater is used in the fish farming, no seawater shall be discharged into the public sewer and storm drain. All used seawater shall be properly collected and disposed off-site.
- 10.2.13 Proper storage and disposal measures shall be taken to prevent any fish waste, dead fish, and plant waste and sludge, from entering the storm drain and reservoir.
- 10.2.14 Best management practice (BMP) is to be adopted to prevent the discharge of nutrient-rich water into the watercourse/reservoir. Such BMP could be in the form of

a cut-off drain be constructed along the boundary of farming areas to channel all runoff with high nutrient (Nitrogen and Phosphorus) to a treatment pond (as illustrated in Diagram 1) which is designed to treat the pond water to meet the discharge water quality indicated above. Alternative proposals designed and endorsed by a Qualified Person (QP) to meet the discharge water quality requirements can be submitted for PUB's approval.

- 10.2.15 A typical design of a treatment pond to treat the pond water before discharge into the storm drain is shown in Diagram 2 for reference. The design of the treatment pond with sufficient size shall be endorsed by a QP. Some suggested wetland plants that can be used at the treatment pond are shown in Table 1. Details on the construction of wetlands and vegetated swale can be found in the ABC Waters Design Guidelines at <https://www.pub.gov.sg/abcwaters/designguidelines>.
- 10.2.16 Ponds shall be regularly de-sludged and the sludge shall be disposed off-site.
- 10.2.17 No raw animal waste shall be allowed for use as fertilizer in vegetable farming activities.
- 10.2.18 All compost shall be fully composted before use and composting activities (if any) shall be carried out using proper composting facilities in roofed and curbed areas such as concrete flooring to prevent feedstocks from leaching into the ground and entering the storm drain. All feedstocks for composting shall be stored in roofed and curbed areas with impervious flooring.
- 10.2.19 Only pesticides (including herbicides) registered with SFA are allowed to be used in the agricultural activities.
- 10.2.20 All pesticides (including herbicides) shall be used in accordance with the manufacturers' recommendations and guidelines.
- 10.2.21 No fertilizers, soil amendments and pesticides (including herbicides) shall be applied within 2m of storm drain or reservoir.
- 10.2.22 Proper storage and disposal measures shall be taken to prevent any fertilizers, soil amendments, pesticides (including herbicides), and plant waste from entering storm drain. They are to be stored in roofed/properly covered areas.

For ST28D

- 10.2.23 ST28D is not affected by Drainage Reserve.

For ST3A

- 10.2.24 ST3A is not affected by Drainage Reserve.
- 10.2.25 Runoff from ST3A shall be discharged into the existing drain along Lorong Pasu. Hydraulic calculations and sub-catchment plans have to be submitted to verify the

adequacy of the existing drains along Lorong Pasu, Sungei Tengah Road and the connected pipe culvert across Sungei Tengah Road. The existing drains/culvert shall be upgraded to the required size if the existing drains/culvert is undersized.

B. USED WATER

10.3 General

- 10.3.1 The planning of the proposed development shall comply with the prevailing Code of Practice on Sewerage and Sanitary Works [thereafter referred to as the “COPSSW”].
- 10.3.2 The Successful Tenderer shall consult PUB(WRN) with the estimated used water discharge prior to site implementation.
- 10.3.3 The Successful Tenderer shall ensure that the premises is served by an adequate, effective and functional internal sanitary drainage and plumbing system and be connected to public sewers.
- 10.3.4 PUB’s approval shall be obtained for any proposed abandonment of sewers/pumping mains/manholes/chambers/drain-lines/ADCs as well as the manner in which they will be abandoned. The Successful Tenderer shall note that the upstream (inlet) and downstream (outlet) ends of the abandoned sewer connections, drain-lines, ADCs or sewers/pumping mains of all sizes shall be sealed watertight with 225mm thick brick plugs rendered with cement mortar.

All abandoned sewers/pumping mains/ADCs of diameter 300mm or larger and abandoned sewers/pumping mains/ADCs of all sizes within the road reserve shall be grouted with cement grout or other approved materials.

All abandoned manholes/chambers are to be demolished, filled up with well compacted approved material, and the manhole frames and covers removed. Details of the requirements can be found in the COPSSW and “Standard Requirements for Abandoning of Disused Sewerage System” for compliance

[https://www.pub.gov.sg/-/media/PUB/PDF/Code-of-Practices-and-Submission-Guidelines/Sewerageand-Sanitary-Works/STD_REQ_SEALING_SEWERCONN_ABANDONEDSEWERS_MANHOLE_S_PUMPING-MAINS_Apr2023_.pdf].

The abandoned sewers/pumping mains/manholes/chambers/drain-lines/ADCs, including the manner of abandonment (remove, seal, grout, partial demolition, etc.), shall be indicated on the as-built drawings submitted to PUB(WRN). The following details shall also be included:

- a. whether the abandoned sewers/pumping mains/drain-lines/ADCs are removed, grouted or sealed;
- b. For manholes/chambers that are only partially demolished with approval from PUB(WRN), the extent of demolition shall be shown;
- c. the exact extent/length of the abandoned sewers/pumping mains/drain-lines/ADCs that is removed, grouted or sealed;

- d. the exact locations of the watertight seals; and
- e. the type of watertight seals.

- 10.3.5 For minimum clearances of utilities crossing and parallel to sewers, please refer to COPSSW Section 1.2.4 c. In addition, pre- and post-construction CCTV inspection shall be carried out on the affected sewers and manholes. The CCTV reports and video shall be submitted to PUB(WRN). A WRc certified CCTV specialist contractor [<https://www.pub.gov.sg/-/media/Images/Feature/ContentPages/Public/Singapore-Water-Loop/Used-Water/RegisteredCCTVContractor.pdf>] shall be engaged to interpret, prepare, and certify CCTV reports in accordance with PUB(WRN)'s CCTV inspection requirements. Please note that the defect classification shall be in accordance with the latest edition of the WRc/WAA "Manual of Sewer Condition Classification".
- 10.3.6 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 & expense. Details of the diversion (pipe size, gradient, invert level, etc.) shall be submitted to PUB (WRN) for approval before the commencement of works.
- 10.3.7 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 development site. Such approval or consent from the land owner/authorities shall not include any conditions that require PUB to provide a letter of undertaking to divert the sewerage infrastructure in future. SLA/Developer/Successful Tenderer is to ensure that all sewerage and sanitary designs comply with PUB's COPSSW.
- 10.3.8 All sewers and manholes shall be readily accessible at all times to PUB for inspection and maintenance.
- 10.3.9 The Successful Tenderer shall check for the presence of public sewerage pipelines by referring to the Sewer 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>. The Successful Tenderer shall 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.
- 10.3.10 For clearance certificate for the proposed development/building/infrastructure/utility works and the proposed sewerage/sanitary works, the QP shall prepare plans and submit applications to PUB's Building Plan Division (BPD) via the respective CORENET X Regulatory Approval for Building Works (RABW) Gateways.
- 10.3.11 Trade effluent discharge from the proposed development into the public sewerage system shall comply with the requirements as stipulated in the Sewerage and Drainage (Trade Effluent) Regulations. Pre-treatment plant/facilities shall be installed to ensure the compliance of the trade effluent with the discharge requirements. The

Successful Tenderer shall be responsible for the provision, operation and maintenance of the pre-treatment plant/ facilities. Please refer to COPSSW Section 5 on requirements for trade effluent discharge into public sewer.

- 10.3.12 All effluent that is prohibited to be discharged into public sewer shall be disposed of in accordance with its waste classification e.g. toxic industrial waste, general waste, etc. For toxic industrial waste ("**TIW**"), the Successful Tenderer shall engage only NEA licensed TIW collector.
- 10.3.13 After obtaining Temporary Occupation Permit (TOP) for the development, the operator shall apply to PUB for a Written Approval (WA) before discharging trade effluent into public sewers. The application for WA for discharge of trade effluent into the sewer can be made online at <https://www.gobusiness.gov.sg/licences>. For further information on matters relating to trade effluent discharge, please email to PUB_WA@pub.gov.sg.
- 10.3.14 Manholes shall not be buried under any circumstances. Where there is a need to raise or lower any existing manholes, The Successful Tenderer shall liaise with PUB(WRN)'s Network Management Branch and carry out the necessary works at his own cost and expense. In Detailed Plan submissions, the QP shall provide details of the proposal including the surveyed existing manhole top and invert levels, proposed new manhole top level and manhole details (i.e. new headroom clearance from the intermediate platform, etc.). Upon completion of the manhole raising/lowering work, as-built drawings showing the surveyed final manhole top and invert levels and updated details of manhole details of the affected manholes shall be submitted to PUB(WRN). For such proposals, please contact Mr Muhd Nabil Mohd Raus (email: muhd_nabil_mohd_raus@pub.gov.sg) or Mr Aliff Sufian (email: aliff_sufian_osman_munawar@pub.gov.sg) at Tel: 6517 2230 from PUB(WRN).
- 10.3.15 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 without the approval of PUB. All proposed structures shall be kept as far away from the existing sewers as possible and no nearer than the following minimum lateral clearances (also known as sewer setback):

Sewer/Pumping Main Nominal Diameter(mm) D	Sewer Depth (m)	Minimum Distance (m)*
≤ 600	≤3	1.0
	>3 and ≤5	1.5
	>5	2.0
> 600 to 1500	All	0.5D + 2.5
>1500 to 2500		0.5D + 3
>2500		0.5D + 4
Deep Tunnel Sewerage System (DTSS)		0.5D + 6
* measured from the outer most edge of the structure, including footings and overhangs, to the centreline of the sewer pipe or DTSS.		

*Minimum distance is measured from the outer most edge of the structure, including footings and overhangs, to the centreline of the sewer pipe or DTSS. More details can be found in COPSSW Sections 1.2.4 and 1.2.5

10.3.16 Where diversion/removal of any sewer/pumping main is required, it shall be carried out by the Successful Tenderer at his own cost & expense. All lateral connections shall be picked up and must not be affected by the proposed sewer diversion. Details of the diversion (pipe size, gradient, invert level, etc) shall be submitted to PUB (WRN) for approval before the commencement of works.

10.3.17 Where there are any Specified Activities (including excavation/tunnelling/jacking/boreholes/installation of ERSS for services diversions) within the public sewer corridor [i.e. 10m for sewer/main of diameter <900mm, 20m for sewer/main of diameter ≥ 900mm and 40m for DTSS tunnel] as stipulated in COPSSW 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 make a Protection of Water and Sewer Pipes (POWS) submission via PUB's Business & Professional (B&P) Portal at <https://eservices.pub.gov.sg/bpp> prior to any commencement of the specified activities. The Applicant shall refer to COPSSW Section 2 for the technical requirements on sewer protection.

10.3.18 The Successful Tenderer shall take every measure to protect all existing sewers, particularly large (≥900mm diameter) sewers, affected by or in close proximity of the proposed works.

10.4 Particular Requirements

For ST28D

10.4.1 There are existing 300mm diameter sewers and existing internal drain-lines within/ in the vicinity of the ST28D.

- 10.4.2 ST28D is to connect to the existing ø300mm sewer along Sungei Tengah Lane using the advance drain-line connection constructed by SFA (ADC) leading to MH ID 3481521. The ADC, which has been included in the sale of the land parcel, shall become part of the development's internal sanitary plumbing and drainage system which would be owned and maintained by the owner/occupier of the completed development.

The internal sanitary plumbing and drainage system, including the ADC, serving the development shall comply fully with PUB's requirements and the COPSSW. The Successful Tenderer shall take over the ADC in its as-is condition and, at his own cost and expense, carry out all necessary rectification works on the ADC, including total reconstruction, where necessary. The internal sanitary plumbing and drainage system, including the ADC, shall be in a good working condition and is subjected to PUB's inspection and acceptance, before clearance can be issued by PUB for the completed development.

The ADC shall be considered as the Successful Tenderer's proposed work and included in the detailed sewerage/sanitary proposal for the development to be submitted to PUB(BPD) for approval. The ADC, complete with details such as pipe size, invert levels and X-Y coordinates, shall also be reflected in the sewerage/sanitary as-built drawings. The proposed sanitary/sewerage works must not start before approval is received from PUB.

The existing ADC, if is not utilised by the development, shall be abandoned and the affected manhole/sewer properly reinstated by the Successful Tenderer at his own cost and expense. Details of the proposed abandonment of the ADC and sealing of openings shall be included in the detailed sewerage/sanitary proposal for the development to be submitted to PUB(BPD) for approval.

- 10.4.3 Any facilities or buildings (e.g. toilet, wastewater treatment facility etc) where used water will be generated must be sited on high ground (> 105.7 mRL or the top level of the connecting public MH). Should such facilities/buildings be sited at ground lower than this level, ejector(s) would be required.

For ST3A

- 10.4.4 There are existing 300mm diameter sewers and existing internal drain-lines within/ in the vicinity of the ST3A.
- 10.4.5 The Successful Tenderer for ST3A shall sink a new MH to the ø300mm sewer along Lorong Pasu before the existing MH3307315.
- 10.4.6 Any facilities or buildings (e.g. toilet, wastewater treatment facility etc) where used water will be generated must be sited on high ground (> 117.2 mRL or the top level of the connecting public MH). Should such facilities/buildings be sited at ground lower than this level, ejector(s) would be required.

C. WATER SUPPLY

10.5 General

- 10.5.1 The Successful Tenderer shall liaise with the Water Supply (Network) Department of the Public Utilities Board (PUB) on the requirements for water supply to ST28D and ST3A.
- 10.5.2 The Successful Tenderer may contact PUB WSN officer at 68852475/68852477 or email to: PUB_WSN_WESTBU@pub.gov.sg for queries on matters relating to water pipes.
- 10.5.3 If water supply is required, the Successful Tenderer shall engage a Professional Engineer/Licensed Plumber to submit the Notification of WSI Works to PUB. 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.
- 10.5.4 A constant and steady supply of water may be deemed essential for such urban farming developments for their operations to be carried out satisfactorily. In view of this, an indirect water supply system incorporating water storage tanks / pumps should be adopted. As a pumping system and storage tanks are required to be installed, a Professional Engineer shall be engaged and to submit the necessary Notification together with a set of drawings to Centralised Services Department prior to commencement of the WSI works.
- 10.5.5 PUB is presently supplying NEWater for direct non-potable purposes such as for cooling towers, industrial processes, general washing, landscaping, and other non-potable purposes. All new non-domestic premises, such as commercial and industrial developments, etc, including those existing premises undergoing addition/alteration works where it is applicable to use NEWater, are therefore required to provide a dedicated NEWater pipe system now to facilitate the supply of NEWater when it becomes available in future. Provision shall also be made for a NEWater storage tank to be installed within the premises with its inlet not higher than 15 m above mean sea level and a capacity equivalent to the 1 day's non-potable water requirement. There shall be no cross connection between the PUB water and NEWater supply pipelines. Successful Tenderer/ developers / consultants may consult PUB during the pre-planning stage on the detailed requirements.
- 10.5.6 Provision shall be made by the Successful Tenderer for PUB to lay new watermains along the proposed public road reserves / sidetables to the proposed site. Please note that PUB will only lay new watermains on LTA public road reserves. If any new roads to be constructed are not LTA public road reserves, then PUB will not be laying new watermains in these roads. The Successful Tenderer will have to lay its own water service pipes to the development
- 10.5.7 The proposed farm shall be equipped with PW water tank(s) of sufficient capacity to supply the farm's PW needs for 24 hours. The farm's water supply shall be served exclusively by these tank(s) (i.e. only indirect supply is permitted), and the replenishment of water tank(s) must be conducted during off-peak periods.

10.5.8 The PW water tanks and indirect supply systems shall comply with SS636 – Code of Practice for Water Services.

10.5.8 A set of guidelines for water conservation is contained in **Annex B** hereto.

10.6 Particular Requirements

For ST28D

10.6.1 PUB can only support a PW demand of up to 0.0023 mgd at ST28D currently. The Successful Tenderer shall provide the estimated PW demands and completion date of the developments so that PUB(WSN) can advise whether the existing water supply network is able to support.

10.6.2 The Water Supply Plan (**Annex C**) shows the approximate positions of PUB's existing and proposed water main of 100 mm diameter and above in the vicinity of the proposed site. Smaller submain to customers' premises / properties are not indicated. Please determine by means of trial holes the exact alignment and levels of all existing water pipe during the design stage and let PUB(WSN) know whether they are affected by the proposed works so that PUB(WSN) can advise whether diversion is required. If diversion is required for water pipes of 300 mm dia and below, consultation must be made at least 6 months ahead and the cost of diversion of any water pipes shall be borne by the Successful Tenderer. 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 is unavoidable, please be advised to engage a qualified pipe laying contractor with CR07 work head to carry out the diversion of the affected existing watermains.

For ST3A

10.6.3 PUB can only support a PW demand of up to 0.026 mgd at ST3A currently. The Successful Tenderer shall provide the estimated PW demands and completion date of the developments so that PUB(WSN) can advise whether the existing water supply network is able to support.

10.6.4 The Water Supply Plan (**Annex D**) shows the approximate positions of PUB's existing and proposed water main of 100 mm diameter and above in the vicinity of the proposed site. Smaller submain to customers' premises / properties are not indicated. Please determine by means of trial holes the exact alignment and levels of all existing water pipe during the design stage and let PUB(WSN) know whether they are affected by the proposed works so that PUB(WSN) can advise whether diversion is required. If diversion is required for water pipes of 300 mm dia and below, consultation must be made at least 6 months ahead and the cost of diversion of any water pipes shall be borne by the Successful Tenderer. 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 is unavoidable, please be advised to engage a qualified pipe laying contractor with CR07 work head to carry out the diversion of the affected existing watermains.

For ST28D and ST3A

- 10.6.5 Appended a copy of PUB WSN Advisory-Prevention of Damage to Watermains (**Annex E**) which provides the details on the protection and submission requirements for applications to seek PUB's approval for proposed works carried out in the vicinity of PUB's water mains. This submission shall be made via PUB's online submission portal, Protection of Water and Sewer pipes (POWS) at <https://bpu.pub.gov.sg/pows>.
- 10.6.6 The latest Water Supply Plan is available on SLA's INLIS portal at <https://www.sla.gov.sg/INLIS>.
- 10.6.7 For queries on matters relating to water pipes please contact PUB WSN officer at 68852475/68852477 or email to: PUB_WSN_WESTBU@pub.gov.sg.
- 10.6.8 For Small Mains Diversion (300mm diameter & below), please contact:
North - Wang Ningxiang (email: Wang_Ningxiang@pub.gov.sg)
East - Choo Yi Xuan (Amy) (email: Choo_Yi_Xuan@pub.gov.sg)
Central & West - Suriani KAMSAN (email: Suriani_KAMSAN@pub.gov.sg)
- 10.6.9 For Large Mains Diversion (Larger than 300mm diameter), please contact:
Loh Kai Yeong (email: Loh_Kai_Yeong@pub.gov.sg) or Suriani KAMSAN (email: Suriani_KAMSAN@pub.gov.sg)

11.0 COMPLIANCE WITH TECHNICAL CONDITIONS OF RELEVANT AUTHORITIES

- 11.1 The Successful Tenderer is required to consult and comply with all the technical conditions imposed by the relevant Authorities such as the Lessor, NEA, PUB, PowerGas, SPPG, MINDEF, SCDF, LTA, NParks and the URA et cetera in respect of the farm development plan, the detailed development control and building plan stages.

ANNEX A

Fire Safety Act 1993 and Regulations

ANNEX B

Water Conservation Guidelines

ANNEX C

Water Supply Network Plan – ST28D

ANNEX D

Water Supply Network Plan – ST3A

ANNEX E

PUB(WSN) Advisory Note