Dated 29 September 2022

SALE OF SITE
FOR ASSISTED LIVING DEVELOPMENT
AT PARRY AVENUE

TECHNICAL CONDITIONS OF TENDER

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PART I

1.0 GENERAL

1.1 The Urban Redevelopment Authority ("the Authority" or "URA"), acting as agent for and on behalf of the Government of the Republic of Singapore ("the Government"), is inviting offers for lease by tender for the said land at Parry Avenue ("Land Parcel") for an assisted living development.

1.2 The Ministry of Health ("MOH"), which oversees the planning and development of aged care services for Singapore's ageing population, is the lead Ministry for this tender.

1.3 The lease and development of the Land Parcel is subject to these Technical Conditions of Tender and the Conditions of Tender contained in the eDeveloper's Packet. In these Technical Conditions of Tender, where the context so admits, the expression "the Authority" includes the Government.

1.4 The Successful Tenderer shall in addition to the Conditions of Tender observe and comply with these Technical Conditions of Tender. The Conditions of Tender and these Technical Conditions of Tender are to be read together with the Control Plans and the requirements of MOH for the Land Parcel as supplied in the eDeveloper's Packet.

PART II

2.0 PLANNING CONCEPT

<u>Site Context</u>

2.1 The Land Parcel is located along Parry Avenue and comprises a cluster of former school buildings. It is planned to be developed into an assisted living development that aims to expand the range of housing options available to our seniors today.

2.2 The Land Parcel is also located close to the Kovan Neighbourhood Centre and is well-connected to major arterial roads such as Upper Serangoon Road and Yio Chu Kang Road. The Land Parcel also enjoys easy access to all parts of the island via the Kovan Mass Rapid Transit (MRT) Station along the North-East Line (NEL).

Vision

2.3 The Land Parcel is envisaged to be developed into an assisted living development, which integrates senior-friendly housing with care services that can be scaled according to seniors' changing care needs. The aim is to offer seniors a living environment that enables independence and create opportunities for social bonding. The proposed development shall also include nursing home care that provides a seamless transition of care for residents who may develop higher care needs over time.

PART III

3.0 SUMMARY OF PLANNING REQUIREMENTS

3.1 A summary of the planning requirements is set out in Table 1. The detailed planning requirements are set out in Part IV.

Table 1 – Summary of Planning Requirements for the Land Parcel

PARAMETERS	PROVISIONS / REQUIREMENTS
Site Area	12,912.1 m^2
Land use/Zoning	Residential
Type of Proposed Housing Development	Assisted Living Development i.e. a residential development that caters to seniors, including those needing assistance with Activities of Daily Living. + All residents residing within the subject development must fulfill a minimum stay duration of 3 months. Land subdivision of the Land Parcel is not allowed. Strata subdivision of the development on the Land Parcel is not allowed.
Allowable Housing Form	Flats or a combination of Flats and landed houses
Permissible Gross Floor Area (GFA) and allowable uses	Maximum GFA: 18,077 m^2 Minimum GFA: 16,270 m^2 • At least 60% of the maximum permissible GFA for the development shall be for Assisted Living use including individual Assisted Living units and communal spaces. • At least 20% of the maximum permissible GFA shall be for Health and Medical Care (H&MC) use, which includes the mandatory provision of at least 100 nursing home beds. • The maximum permissible GFA for commercial uses is 300 m^2. (Restaurant uses are not to exceed 50 m^2). To refer to Condition 4.2 for the details.

PARAMETERS	PROVISIONS / REQUIREMENTS
Average Unit Size	The Assisted Living units are to be self-contained with attached bathroom and kitchenette/kitchen. These units in the development are to achieve an average unit size of at least 32 m^2 (nett)[1].
Building Height	Maximum 5 storeys
Building Setback	Minimum 10m along all common boundaries abutting existing residential developments. Minimum 4.7m along common boundary with the proposed Neighbourhood Park.
Universal Design	Compliance with the following design requirements: a. BCA's Code on Accessibility in the Built Environment; b. Minimum internal corridor clear width of 1.8m; c. Minimise level differences within the same floor and where level differences cannot be avoided, ramps shall be provided; and d. Accesses to individual units shall have adequate weather protection.

+ To refer to Condition 5.6 of the Service Level Deed (Annex H) on MOH's admission criteria for Assisted Living Clients, one of which specifies that only persons aged 65 years and above are eligible for admission for the Assisted Living development.

PART IV

4.0 PLANNING REQUIREMENTS

4.1 General Guidelines

4.1.1 The Planning and Urban Design Requirements as set out in Part IV are to be read in conjunction with the Control Plans and the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees provided in the eDeveloper's Packet.

Development Control

4.1.2 The Successful Tenderer shall comply with the Development Control (DC) Guidelines issued or may be issued by the Competent Authority under the Planning Act 1998, unless otherwise stated in the Technical Conditions of Tender.

4.1.3 In addition, regardless of when the development application is submitted to URA, the Successful Tenderer shall comply with the revised Gross Floor Area (GFA) and strata area definitions as set out in the circular "Harmonisation of floor area definitions by URA, SLA, BCA and SCDF" issued on 1 September 2022.

4.1.4 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 1998

[1] Nett area refers to the internal area excluding balconies and AC ledges.

at the formal submission stage as per prevailing guidelines and circulars issued by the Competent Authority.

Access into State Land

4.1.5 For the purpose of entering State Land to do any works for the purpose of or in relation to the proposed development as may be required under these present Technical Conditions of Tender or Conditions of Tender, the Successful Tenderer shall obtain a Temporary Occupation Licence (TOL) from the Singapore Land Authority (SLA) for use of the State Land. The TOL may be granted on such terms and conditions and subject to the payment of such charges and fees as the SLA may determine.

Deviations from Planning Requirements

4.1.6 The requirements set out in this Part relating to location, height, size, area or extent of uses, etc. are specified with a view to achieve the relevant planning objectives as outlined or indicated in the provisions in this Part. The Successful Tenderer may submit for the Authority's consideration alternative proposal to any such requirements. Where the Authority 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 alternative proposals instead, in which event the relevant provisions in this Part shall be deemed to be complied with. The Authority however has the absolute discretion to decide whether to allow any alternative proposal to be adopted.

Existing Underground Structures

4.1.7 The Successful Tenderer shall be responsible, at his own cost and expense, to carry out his own site investigation to verify whether there is any substructure or other obstructions e.g. footings, piles, tree roots, etc. in the ground of the Land Parcel, and ascertain their effect on the proposed development, including the removal of such sub-structure or obstructions, if necessary. The Successful Tenderer shall be deemed to have notice of any sub-structure or other obstructions in the ground of the Land Parcel and shall not raise any objection or requisition whatsoever in respect of any such sub-structure or other obstructions.

4.2 Land Use and Quantum

4.2.1 The maximum permissible Gross Floor Area (GFA) for the development on the Land Parcel shall be 18,077 m^2 and the total GFA to be built is not to be less than 16,270 m^2.

4.2.2 At least 60% of the maximum permissible GFA for the development shall be for Assisted Living use including the individual Assisted Living units and communal spaces.

4.2.3 At least 20% of the maximum permissible GFA shall be for Health and Medical Care (H&MC) use. This includes the mandatory provision of at least 100 nursing home beds. Where possible, nursing home beds should be designed to face away from adjacent residences.

4.2.4 Commercial uses can be provided up to a maximum GFA of 300 m^2. Restaurant uses (including any outdoor refreshment area(s)) can be provided as part of these commercial uses up to a maximum GFA of 50 m^2 to ensure that it does not generate any dis-amenity to the surrounding residential estate or adversely affect the vehicular traffic situation in the area. The proposed Neighbourhood Park is to provide amenities for the proposed development and the surrounding community.

4.2.5 After fulfilling the requirements listed in Conditions 4.2.1 to 4.2.4, any remaining GFA can be used for any one or more of the following uses:

a. Assisted Living use;
b. Health and medical care use including nursing home and/or centre-based aged care services; and
c. Other non-commercial, ancillary institutional uses and/or compatible uses (exclude funeral parlour and columbarium) of such type(s) as may be approved by the Competent Authority under the Planning Act 1998 and clearances from the relevant agencies.

4.2.6 All tenderers are advised to carry out their own simulation studies to ascertain the achievable GFA for the proposed development, particularly if any additional bonus GFA allowable under the prevailing Development Control Guidelines can be included in the development. Such simulation studies should take into account all relevant considerations including the technical height constraint and existing ground conditions of the Land Parcel as well as the possible need to provide basements.

4.3 Assisted Living Development

4.3.1 Tenderers shall propose new and innovative assisted living models for the proposed development ("assisted living models"). The assisted living models as agreed between the Successful Tenderer and MOH (see Annex G on MOH's requirements) shall be incorporated into Annex A1 (Specifications for Assisted Living model) of the Service Level Deed (substantially in the form attached at Annex H) to be signed by the Government (as represented by MOH) and the Successful Tenderer in pursuant to Condition 8.1 of the Conditions of Tender.

4.4 Land Subdivision and Strata Subdivision

4.4.1 Land subdivision of the Land Parcel is not allowed.

4.4.2 Strata subdivision of the development on the Land Parcel is not allowed.

4.5 Average Unit Size

4.5.1 The average unit size of the self-contained Assisted Living units is to be at least 32 m^2 nett in internal area.

4.6 Building Form and Massing

4.6.1 The building form and massing of the proposed development shall be designed to respond and relate sensitively to the surrounding context and ensure that it does not create a wall-like effect when viewed from all elevations, in particular the elevation along Parry Avenue.

4.6.2 The building massing of the proposed development shall be laid out in an appropriate form and scale to provide a human-scale experience. Its architectural design and treatment shall also respond suitably to the tropical climate.

4.6.3 Vehicular access to and from any basement levels is to be integrated within the building envelope and appropriately screened from the adjacent landed homes with lush planting. Any basement car parking shall be fully submerged underground and landscape decks shall not be allowed.

4.6.4 To contribute to Singapore's identity and positioning as a "City in Nature" and to provide communal spaces for the building occupants, the Successful Tenderer is strongly encouraged to accommodate features such as open spaces, courtyards, sky terraces, balconies, roof gardens and sky-gardens within the proposed development. Where provided, these areas are to be integrated as part of the overall form and architectural treatment of the building.

<u>Building Facades</u>

4.6.5 Tropical design strategies shall be adopted for façade design of the proposed development to respond appropriately to Singapore's tropical climate. These shall include well-articulated facade with a good proportion of solid (walls) and voids (fenestration), and elements of tropical architecture such as sky terraces, balconies, sun-shading louvres, deep recesses, window ledges, roof terraces, communal planter boxes and vertical green walls. Full glass façades are not allowed.

4.6.6 All services areas, including the refuse bin centre, mechanical and electrical plant, air-conditioning edges, service balconies, ventilation shafts, etc., are to be located away from the surrounding residential areas and be visually well-screened.

4.7 Building Height

4.7.1 The proposed development may be built up to a maximum of 5 storeys, subject to the prevailing Development Control Guidelines issued by the Competent Authority under the Planning Act 1998.

4.7.2 All construction equipment and temporary structures, such as cranes, piling rigs, etc., as well as permanent structures, such as water tanks, mechanical and electrical (M&E) equipment, lift motor rooms, TV antennae, etc., are subject to the maximum allowable height control of 64m SHD, and are to comply with the requirements of the relevant Competent Authorities. The Successful Tenderer shall obtain written approval from Civil Aviation Authority Singapore (CAAS) prior to mobilising and/or installing any construction equipment. In addition, the Successful Tenderer shall seek clearance from Republic of Singapore Airforce (RSAF) for the use of construction equipment and temporary structures above 48m SHD.

4.8 Building Setback and Pedestrian Network

4.8.1 The Successful Tenderer shall provide a minimum 10m building setback along all common boundaries abutting existing residential developments along Kang Choo Bin Walk, Parry View and Poh Huat Road as indicated in the Control Plan. This setback shall include a minimum 2m wide planting verge for lush landscaping to ensure privacy between the proposed development and existing residential developments.

4.8.2 The Successful Tenderer shall design the proposed development to be fenceless at the common boundary with the proposed Neighbourhood Park to facilitate seamless connectivity and integration of activities. The Successful Tenderer is to provide activity-generating uses (AGU) along this fenceless frontage as shown indicatively on the Control Plan and as set out in Condition 4.2.4. These AGU are to be accessible to both residents of the assisted living development and the general public.

4.8.3 The Successful Tenderer shall provide a minimum 4.7m building setback along the fenceless frontage between the assisted living development and the proposed park.

4.8.4 The Successful Tenderer shall also provide a minimum 3.6m wide covered walkway along this frontage, as indicatively shown on the Control Plans. This covered walkway is to provide sheltered access to the AGU and to the various access points of the development.

4.9 Building Platform Level

4.9.1 The minimum platform level for the proposed development shall comply with the requirements of the relevant Competent Authority.

4.9.2 The Successful Tenderer shall address any level differences between the required road works and 30 Parry Avenue with sensitive landscape treatment. Where possible, the Successful Tenderer is to avoid erecting retaining walls and consider measures such as slopes and berms. These retaining structures shall be located out of the Road Reserve Line. The Successful Tenderer is to coordinate with SLA and all relevant agencies on the implementation works.

4.10 Basement Levels

4.10.1 Basement and permanent subterranean structures, including service and car parking areas, are allowed within the Land Parcel and may extend up to the site boundary, subject to the prevailing Development Control Guidelines issued by the Competent Authority under the Planning Act and the technical requirements of the relevant Competent Authorities. All excavation works are to comply with the requirements of the relevant Competent Authorities and the Public Utility Licensees.

4.11 Greenery Replacement and Landscaping

<u>Landscaping and Landscape Replacement Areas</u>

4.11.1 The Successful Tenderer is also strongly encouraged to provide balconies, roof terraces and roof gardens that are lushly landscaped, and vertical greenery within the proposed development. These areas are to be integrated as part of the overall form and architectural treatment of the building.

4.11.2 The prevailing Development Control Guidelines issued by the Competent Authority under the Planning Act 1998 on the GFA exemption of sky terraces and roof gardens as well as the provision of additional GFA for balconies will apply.

4.11.3 The Successful Tenderer shall include a minimum 2m wide planting verge for lush landscaping within the building setback to ensure privacy between the proposed development and existing residential developments.

4.11.4 The proposed development shall include Landscape Replacement Areas (LRAs) equivalent to 30% of the site area of the Land Parcel, which shall be used for softscape (permanent planting). In addition, on-ground greenery provided shall be equivalent to 20% of the site area of the Land Parcel shall be provided.

4.11.5 The proposed development is to include a meaningful and contiguous landscaped area that is accessible for public use.

4.12 Universal Design

4.12.1 To provide an environment which encourages seniors to live independently, the Successful Tenderer shall comply with the following design requirements:

a. BCA's Code on Accessibility in the Built Environment;
b. Minimum internal corridor clear width of 1.8m;
c. Minimise level differences within the same floor and where level differences cannot be avoided, ramps shall be provided and;
d. Accesses to individual units shall have adequate weather protection.

4.12.2 The Successful Tenderer is strongly encouraged to include other universal design features for an elder-friendly housing development. Please refer to the Singapore Standard SS605 – A Guide for Age-Friendly Homes and Universal Design Guide 2015.

4.13 Roofscape and Screening

4.13.1 Any M&E equipment, water tanks, air-conditioning ledges, above ground multi-storey car parking areas, etc., are to be fully integrated within the building envelope and be visually well-screened from the top and on all sides.

4.13.2 The performance requirements for the screening of the services are as follows:

a. To be screened from the top and on all sides;
b. The spacing between the trellis or louvre elements is to be equal to or less than their depth;
c. The elements are to be orientated to cut off views from the street level and surrounding buildings; and
d. The openings in perforated panels are to be evenly distributed with a porosity (i.e. percentage of void-to-solid) equal to or less than 25%. The width / diameter of the openings shall not exceed 30 mm.

4.13.3 Given its proximity to existing residential developments, any at-grade and / or above-grade carpark structures shall be screened with vertical greenery, subject to the requirements of the Authority and the relevant Competent Authorities.

4.14 Vehicular and Servicing Access

<u>Vehicular Access</u>

4.14.1 The Successful Tenderer shall locate the service areas, electrical substation(s), refuse bin centre and passenger drop-off / pick-up points within the Land Parcel. Vehicular access to the development and these service areas, if required, shall be taken via the new 18.6m local access road with cul-

de-sac off Parry Avenue to be constructed by the Successful Tenderer; as shown indicatively in the Control Plan.

4.14.2 All vehicular lay-bys, ingress/egress and taxi stand and pick-up/dropoff (PUDO) points, external ramps to service areas, car parks and all associated structures to the car parking facilities, are to be located within the site boundary and be well-integrated with the overall architectural treatment and building form of the proposed development and visually well-screened, subject to the approval of LTA, the Authority and the relevant Competent Authorities at the formal submission stage.

4.14.3 The Successful Tenderer is encouraged to develop a proposal with parking facility that is suitably located within the basement of the proposed development, or an at-grade parking facility located away from existing residences to ensure that it does not pose dis-amenity to surrounding residents. Openings for the at-grade carpark facility are to face away from the existing landed housing.

4.14.4 The detailed proposal for the access points and traffic layout plans for the development will be subject to the requirements and approval of the Authority, LTA and the relevant Competent Authorities at the formal submission stage and as set out in Section 7.0 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees.

Service Areas

4.14.5 Sufficient service areas, including bin centre, loading / unloading areas, etc., are to be provided within the proposed development to meet the needs of the proposed uses.

4.14.6 The Successful Tenderer shall ensure that access to service areas (e.g. bin centre, electrical substation, loading and unloading areas) is taken from within the proposed development. Service access taken directly from the public roads will not be allowed. All loading / unloading areas are to be designed as sheltered and enclosed to minimize noise generated from the loading and unloading activities and to ensure that there is no conflict between collection of refuse and loading & unloading activities. Loading bay barriers are to be located within the proposed development to prevent traffic queuing from spilling onto the main roads.

4.14.7 No service areas are to be placed at locations fronting Parry Avenue. Service areas / structures, such as air-conditioning ledges, etc., if provided, are to be located internally within the proposed development. These are to be well-screened and integrated with the overall design of the building elevations.

4.14.8 All ventilation shafts to the basement levels are to be fully integrated within the overall envelope of the proposed development and visually well screened, subject to the prevailing screening guidelines for M&E services.

4.14.9 All mechanical ventilation exhaust structures shall not discharge directly towards residential units and neighbouring residential developments.

4.14.10 The Successful Tenderer is encouraged to provide spaces for food delivery riders using motorcycles or active mobility devices (e.g. bicycles, power-assisted bicycles).

4.14.11 All service areas will be subject to the requirements and approval of the Authority and the relevant Competent Authorities at the formal submission stage.

Pedestrian access

4.14.12 Any forms of opening(s) for pedestrian access, e.g. side gate(s), are not allowed along the western boundary abutting existing landed housing developments along Parry View.

Construction access

4.14.13 Access to the Land Parcel for construction shall be taken from the new local access road with cul-de-sac off Parry Avenue to be constructed by the Successful Tenderer. Refer to Section 7.2.20 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees for details of the Construction Access location(s).

Location of Bin Centre

4.14.14 The bin centre shall be sensitively located within the Land Parcel such that it does not become a nuisance to residents in the surrounding developments. The entrance of the bin centre, including any parking area for the refuse trucks shall face inwards within the development.

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

4.14.16 Lush planting and / or screening shall be provided to screen the bin centre and service areas from view of the residents in the neighbouring residential developments and users of the surrounding public roads and walkways.

4.15 Vehicle Parking Provision

4.15.1 The Successful Tenderer shall comply with LTA's requirements for car, motorcycle and bicycle parking provisions as set out in Section 7.0 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees and shall be subject to the evaluation and approval of the Authority and other relevant Competent Authorities.

4.15.2 The Successful Tenderer shall comply fully with the prevailing Parking Places (Provision of Parking Places and Parking Lots) Rules and other relevant guidelines of the Authority.

4.15.3 Any at-grade and / or above-grade carpark structures are to be designed to be well-integrated with the overall building design and fitted out with screening trellis and panels to provide additional layer of visual screening. The prevailing guidelines on carpark screening would apply for this site and can be found at https://www.ura.gov.sg/-/media/User%20Defined/URA%20Online/circulars/2004/sep/dc04-29.pdf.

4.15.4 The motorcycle parking lots and associated parking facilities shall be located within the proposed car parking areas of the proposed development.

Electric Vehicles (EV) charging infrastructure provision

4.15.5 To future-proof new development sites in Singapore, the Successful Tenderer is required to have active and passive provision of EV charging points for the proposed development as set out in Section 7.0 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees.

Shuttle bus service provision

4.15.6 The Successful Tenderer is encouraged to provide shuttle bus services for the residents and visitors of the assisted living development to the nearby public transport nodes to enhance connectivity. The Successful Tenderer is further encouraged to make available this shuttle bus service to the surrounding community.

PART V

5.0 OTHER REQUIRED WORKS

5.1 Demolition of Existing Buildings within Land Parcel and Proposed Park

5.1.1 There are existing buildings located within the Land Parcel and on the land where the Successful Tenderer is to construct the proposed Neighbourhood Park (hereinafter referred to as “the buildings”). The Successful Tenderer may choose to retain all or any of the buildings within the Land Parcel, at his own cost and expense. However, the Successful Tenderer will be required to demolish all the existing buildings and/or structures within the land on which the proposed park is to be constructed.

5.2 Presence of Asbestos in Existing Buildings

5.2.1 The presence of asbestos has been detected in some of the existing buildings, namely Blocks J, K, L and O within the Land Parcel and Blocks Q & R within the land on which the proposed Neighbourhood Park is to be constructed by

the Successful Tenderer in accordance with Condition 5.5 of these Technical Conditions of Tender. The locations of asbestos in these buildings have been identified in the 'Asbestos Identification Assessment Report for the Buildings' contained in the eDeveloper's Packet. The said 'Asbestos Identification Assessment Report for the Buildings is for information of tenderers only. The Authority does not warrant the accuracy of information contained in the 'Asbestos Identification Assessment Report for the Buildings' and shall not be responsible in any way for any error or omission whatsoever in respect of the same.

5.2.2 The Successful Tenderer shall, at its own cost and expense, investigate and verify the presence, location and extent of asbestos in these existing buildings as well as any of the other existing buildings located within the Land Parcel (all such existing buildings with the presence of asbestos shall hereinafter be collectively called 'the affected buildings'). The Successful Tenderer shall completely remove the asbestos from the affected buildings before commencing any works of retention, repair, retrofitting and renovation or demolition of any of the affected buildings.

5.2.3 In the event that the Successful Tenderer chooses to retain, repair, retrofit and renovate any or all of the affected buildings and it is assessed to be technically or structurally not feasible to completely remove the asbestos from within such of the affected buildings to be retained, repaired, retrofitted and renovated, the Successful Tenderer shall in such situation propose within 9 months from the date of the Authority's acceptance of tender remediation measures (e.g. encapsulation) to be undertaken in respect thereof. The Successful Tenderer shall ensure that the handling of asbestos materials within the Land Parcel complies with the Workplace Safety and Health (Asbestos) Regulations 2014 (see Annex E).

5.2.4 The Successful Tenderer shall complete the removal and/or proposed remediation measures and provide to the Authority within 15 months from the date of the Authority's acceptance of tender satisfactory results of the air sampling test on such completion. In the event that asbestos has not been completely removed from any of the affected buildings within the Land Parcel which the Successful Tenderer has chosen to retain, repair, retrofit and renovate, an appropriate plan indicating the location of the remaining asbestos and the remediation measures that had been undertaken to reduce or mitigate its impact will be included as part of the terms of the State Lease.

5.2.5 In the event that the asbestos has not been completely removed from any of the affected buildings within the Land Parcel which the Successful Tenderer has chosen to retain, repair, retrofit and renovate, the Successful Tenderer shall in relation to any sublease which relates to any part of the development wherein asbestos remain present, include in any such sublease information on the presence and location of the asbestos within the said part of the development and the remediation measures that had been undertaken to reduce or mitigate its impact.

5.3 Road Works

5.3.1 The Successful Tenderer shall, at his own cost and expense, design and construct the road improvement works as set out in Section 7.0 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees. The road works include constructing a proposed 18.6m wide cul-de-sac access road with vehicular access points for the proposed Neighbourhood Park, together with footpaths and associated road-related facilities as required by LTA; as shown indicatively in the Control Plans.

5.3.2 The completed road works are to be maintained at the expense of the Successful Tenderer and to the satisfaction of the LTA during the maintenance period (MEP) and until such time when they are handed over to LTA for ownership and maintenance.

5.3.3 Temporary roads and road facilities (e.g. covered linkway, footpaths, etc.) shall be provided if works affect any of these existing facilities. Details of such temporary replacements shall be submitted to LTA for approval and shall be maintained by the Successful Tenderer, until its removal by the Successful Tenderer upon completion of the proposed development on the Land Parcel.

5.3.4 The Successful Tenderer shall make good any level differences between 30 Parry Avenue and Parry Avenue (Road) and reinstate any affected boundary gates and fences at his own cost and expense. The Successful Tenderer shall apply for a Temporary Occupation Licence (TOL) for the road widening works within State land via SLA's TOL portal at http://app1.sla.gov.sg/tol under "Business and other corporate entities" at least 8 weeks prior to the proposed TOL commencement date. The TOL area shall not be used for other purposes and the Successful Tenderer shall allow public agencies and the developers of the adjacent Land Parcel and existing developments and their contractors, agents, employees' access and use of the said TOL area at all times when required, without any charge, payment, hindrance, obstruction or restriction whatsoever.

5.3.5 The Successful Tenderer shall obtain clearance from the Authority, Singapore Land Authority (SLA), LTA, NParks and the relevant Competent Authorities prior to commencement of any construction works affecting State land. All State land is to be reinstated to the requirements and satisfaction of SLA, LTA, NParks and the relevant Competent Authorities.

5.3.6 The proposed works are to be completed prior to the issuance of Temporary Occupation Permit or Permits (TOP) for the whole of the development.

5.4 Construction Hoardings

As the development is directly adjacent to residential developments, in particular landed homes, the Successful Tenderer shall ensure that the construction hoardings provided comply with the prevailing Building and Construction Authority (BCA) requirements on minimum hoarding provisions to separate the construction works from the adjacent landed homes. This is to improve safety and reduce disamenities generated by the construction works (e.g. dust, fumes, etc).

5.5 Neighbourhood Park

5.5.1 The Successful Tenderer shall at his own cost and expenses, design and construct the proposed Neighbourhood Park at the location shown indicatively on the Control Plans. The Successful Tenderer shall refer to the Park Design Brief in Annex F prepared by NParks and comply with the requirements as set out in Section 8 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees.

5.5.2 The Successful Tenderer is required to obtain a Temporary Occupation Licence ("TOL") from SLA in accordance with Condition 4.1.5 to carry out the proposed works related to the said Neighbourhood Park.

5.5.3 The Successful Tenderer is required to complete the said Neighbourhood Park and open it to the public before the issuance of Temporary Occupation Permit for the residential development.

5.5.4 The Successful Tenderer shall maintain the completed Neighbourhood Park as part of the development at his own cost and expense, and to the satisfaction of NParks and other relevant Competent Authorities until such time when it is handed over to NParks.

5.5.5 To avoid doubt, the Successful Tenderer shall be fully responsible for the rectification and resolution of any defects in relation to the completed Neighbourhood Park, from the date of commencement of the Defects Liability Period until the date of expiry of the Defects Liability Period (both dates inclusive), notwithstanding the actual handover date of the Neighbourhood Park to the relevant Competent Authorities.

PART VI

6.0 OTHER DEVELOPMENT REQUIREMENTS

6.1 Public Communications Plan

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

6.1.2 The local community is defined as:

a. all residents of private condominiums/ flats and landed houses; and
b. Management Corporation Strata Title (MCST) Committee of private residential developments and Neighbourhood Committees;

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

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

<u>Stage 1: Prior to submission of application for Written Permission</u>

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

a. Project information (e.g. type of development, number of units/beds, storey height, vehicular access);
b. Location map showing hoarding, construction access etc.;
c. Infrastructure and improvement works to be carried out;
d. Design and provisions for the Neighborhood Park and related works;
e. Key milestones in the construction programme (e.g. site clearance, hoarding works, commencement and duration of piling works and road improvement works, commencement of the park construction, expected date of issuance of Temporary Occupation Permit (TOP));
f. Details of proposed measures to mitigate the impact of development to the surrounding environment and users including plans to manage construction vehicles and vehicular routing;
g. 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
h. The hotline numbers of the relevant departments in the Building and Construction Authority (“BCA”), the Ministry of Manpower (“MOM”) and the National Environment Agency (“NEA”).

6.1.4 Prior to the distribution of the flyer, the Successful Tenderer shall ensure that information as outlined in Condition 6.1.3 is included in the flyer and inform

MOH on the distribution date by completing and submitting to MOH a copy of Form A (as shown in Annex A) and the flyer.

6.1.5 After the distribution of the flyers, the Successful Tenderer shall submit to MOH a duly completed Form B (as shown in Annex B) verifying that the requirements set out in Condition 6.1.4 have been complied with. Upon confirming that the declaration provided by the Successful Tenderer is in order, MOH will give written consent for the Successful Tenderer to proceed with the submission of an application to the Competent Authority under the Planning Act 1998 for Written Permission ("development application") for the proposed development on the Land Parcel. The Successful Tenderer shall not submit any development application for the proposed development on the Land Parcel without the prior written consent of MOH.

6.1.6 Upon receiving MOH's written consent, the Successful Tenderer may proceed with the erection of hoarding, on which the contact details of the Successful Tenderer and the hotline numbers of the relevant departments in BCA, MOM and NEA shall be prominently displayed.

<u>Stage 2: Prior to resubmission of application for Written Permission</u>

6.1.7 After the grant of Provisional Permission by the Competent Authority under the Planning Act 1998, 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 stated in Condition 6.1.3 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 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 shall submit a copy of the flyer for MOH's approval before the distribution to the local community.

6.1.8 At least 2 weeks after the date of distribution of flyers, the Successful Tenderer shall submit to MOH and the Competent Authority a duly completed Form C (as shown in Annex C) verifying that the requirements set out in Condition 6.1.7 have been complied with and detailing the preliminary feedback received from the local community for MOH and the Competent Authority's information, if any. Upon confirming that the declaration provided by the Successful Tenderer is in order, MOH and the Competent Authority will give written consent for the Successful Tenderer to proceed with the resubmission of the application for Written Permission, which shall be made no earlier than 3 weeks from the date the flyers are distributed. The Successful Tenderer shall not resubmit any application without the prior written consent of MOH and the Competent Authority.

6.1.9 The Successful Tenderer shall submit a duly completed Form D (as shown in Annex D), which is a final collation of the feedback received on the proposed

development, if any, to MOH and the Competent Authority. The Successful Tenderer shall explain how the development proposal seeks to sensitively address the concerns raised by the local community, if any.

6.1.10 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 1998.

6.2 Productivity Improvement

6.2.1 The Successful Tenderer shall adopt suitable productive technologies to achieve at least the minimum level of Productivity Improvement for the proposed development on the Land Parcel as set out in Section 10.3 of the Conditions and Requirements of Relevant Competent Authorities and Public Utility Licensees.

6.2.2 If Prefabricated Prefinished Volumetric Construction (PPVC) method of construction is adopted, the Successful Tenderer shall set aside some space within the Land Parcel for storage and / or holding area for PPVC modules. No additional space outside the Land Parcel will be granted on TOL basis for this purpose.

PART VII

7 TENDER SUBMISSION (CONCEPT AND PRICE REVENUE TENDER SYSTEM)

7.1 Concept and Price Revenue Tender System

7.1.1 The tender for the site will be based on a Concept and Price Revenue Tender System. Under this system, tenders will be evaluated with respect to the Concept Proposal and tendered sale price to be submitted by the tenderers.

7.2 Tender Evaluation Criteria

7.2.1 Upon submission of the full set of tender documents, all tenderers will be assessed for their eligibility to participate in the tender based on the set of critical criteria listed in Table 2. Thereafter, a Concept Evaluation Committee (CEC), chaired by MOH, will evaluate the Concept Proposal submitted by the tenderers. Only Concept Proposals that substantially satisfy[2] the evaluation criteria listed in Table 3 below will be short-listed by the CEC for the second stage of the tender evaluation, which will be based on price only. The three main criteria of “Overall Model of Care”, “Facilities Design and Management”

[2] This refers to a minimum 50% of the total weighted score.

and “Business Sustainability” carry different weightages.

Table 2 – Critical Eligibility Criteria for All Tenderers

Criteria	Description
Compliance to Mandatory Requirements in Specifications	The tenderer must comply with all mandatory requirements specified in the tender documents. Examples include the following: • Eligibility criteria, i.e. all residents are to be 65 years and above in age, • Site allocation, i.e. mandatory provision of at least 100 nursing home beds. • Maximum of 1 resident caregiver per Assisted Living resident.
No previous debarment	Based on debarment guidelines from the Ministry of Finance
Positive Net Tangible Asset (NTA)	The tenderer must show that it has a positive NTA.

Table 3 – Tender Evaluation Criteria for Concept Proposal for the Site

Criteria	Guidelines
Overall Model of Care (50%)	**(i) Model of Care** The model of care should be developed with consideration of the target clientele and key social/ health/ emotional issues they may face. Tenderers will be assessed on their proposed service principles, care strategies, manpower staffing approach to support the implementation of their care model, and how the care model has been calibrated to suit the local Singaporean context. They will also be assessed on their plans to keep the development sustainable by future-proofing infrastructure and facilities, as well as keeping their model of care financially viable. **(ii) Quality Care Programmes and Services** The proposed programmes and services should achieve the following objectives: • Provide residents with a continuum of care which enables them to live, socialise and receive the support they require in the same community as they age. This includes providing a range of services that are adjusted to the needs and capabilities of each resident based on regular assessments, from active

	ageing programmes to assisted living and care services. • Create opportunities for meaningful interaction and social bonding among residents of the assisted living development, in order to facilitate the formation of social networks as well as mutual care and support; and • Empower residents to make choices for themselves and stay connected with the wider community. **(iii) Service Track Record** Tenderers will also be assessed on past local and/or international projects (if any), in terms of scale, model of care and performance, as well as experience in running aged care services and regulatory performance (i.e. track record of compliance/non-compliance).
Facilities Design and Management (25%)	**(i) Overall Layout of Uses and Services** The design, layout and placement of uses for the proposed development should achieve the following objectives: • Provide a home-like and secure environment for residents to undertake activities of daily living independently; • Create seamless connectivity between the facilities; • Include suitable signage and appropriate landscaping for ease of way-finding; • Provide communal spaces for residents to linger, mingle and interact in the public realm in safe, welcoming and accessible settings; and • Incorporate flexibility that can comprehensively cater to the changing needs of the residents as they age-in-place. **(ii) Facility Management** The proposal should articulate the extent to which infrastructure, services and programming will be maintained and refreshed in a timely manner to continue to stay relevant to residents' needs. This should include having proper feedback channels, quality improvement processes and timely responses to feedback where appropriate. Proposals will be assessed on their plans' scope, comprehensiveness and timeliness.
Business Sustainability (25%)	Tenderers will be assessed based on their financial strength. Tenderers must submit their audited financial statements (if available) for the preceding financial year (i.e.

	FY2021), including its balance sheet and statement of profit and loss.

7.3 Submission Requirements for Concept Proposal

7.3.1 The Concept Proposal shall demonstrate how the proposed development on the Land Parcel will meet the evaluation criteria listed in Table 2 of Condition 7.2.1.

7.3.2 The submission of the Concept Proposal shall comprise ten (10) hard copy sets of concept proposals in A3 format of not more than 50 pages and include (but is not limited to) details on the following areas, and how it helps to support the vision and objectives of the site:

a. **Overall philosophy and Care Model,** including how it will contribute towards realisation of the vision of the assisted living development at Parry Avenue as outlined in Condition 2.0 of Annex G.

b. **Targeted Clientele and Entry Requirement for the Project**
   (i) Demographic characteristics (e.g. age, marital status, family support, income, nationality) as well as number of residents envisioned at the outset and at the 10 and 15 year mark. The Successful Tenderer should outline plans for the assisted living development to serve only those aged 65 and above, and comprise mainly Singaporean clientele
   (ii) Health characteristics (e.g. types of care needs, medical condition), including any exclusion criteria
   (iii) Exit criteria and arrangements for resident clients and resident caregivers (e.g. lease administration policy for resident caregiver in the event where resident client passes away or no longer meet the inclusion criteria and transition plans as resident clients' care needs increases)

c. **Range of Core/Optional Programmes and Services**
   (i) Programmes and services that are provided within the assisted living development by the Successful Tenderer (including capacity for number of users for each type of service), how clients are assessed and reassessed for care and social needs (including frequency of assessment), and how the proposed programmes holistically meet the needs of the resident clients and/or non-resident clients
   (ii) Programmes and services that are provided through link-ups and/or outsourced by the Successful Tenderer (including the capacity for number of users for each type of service), and how the proposed programmes holistically meet the needs of the resident clients and/or non-resident clients

(iii) the proposed services for resident and non-resident clients, including any proposed modifications or additions to the service parameters as stated under Condition 4.5 in Annex G and key performance indicators for the services, to be set out in the form set out in Appendix I of Annex G.

d. **Manpower Staffing, Care Strategies**

(i) Number, type and training of staff employed for the facility, including distribution across programmes/services

(ii) Care strategies to support effectiveness of care and productivity

e. **Placement of Uses and Design Principles**

(i) Proposed mix of uses (e.g. residential, health & medical care, shop & restaurant and other ancillary institutional uses) and their GFA breakdown allocation of space to provide the proposed services and capacity of type of service

(ii) Design of indoor spaces (including number of residents in each room)

(iii) Design of outdoor spaces (e.g. gardens and landscapes)

(iv) Site layout

(v) Use of greenery and land space for activities

(vi) Design principles employed in the facility to enable supported living

f. **Implementation Plan**, including the steps that will be taken (e.g. appointment of provider, hiring plans, commencement of services, financial and organisational sustainability plans, business continuity plans etc.), as well as the rationale and the corresponding timeframe required, to ensure that the assisted living development will be ready for operation by the date determined by the Authority.

7.3.3 The Concept Proposal shall include scale drawings (in A3 format) of the site plan and floor plans, as well as any other drawings that are useful for illustrating Condition 7.2 where applicable. It shall also include sketches, diagrams or details to illustrate the idea and workability of the design proposal. Architectural models are optional.

7.3.4 The Tenderer shall submit at least 2 copies of the proposal in CD-ROM. All drawings, perspectives, visualizations and photographs of the architectural models (if any) are to be in PDF format.

7.3.5 The tenderer shall submit a checklist of requirements on the submission of the Concept Proposal as shown in Annex J.

7.4 Other Information Regarding Tender Evaluation Process

<u>Briefing on Concept and Price Evaluation Criteria</u>

7.4.1 URA/MOH will conduct a site visit and a briefing session on the evaluation criteria and Concept and Price Revenue tender process for the Land Parcel

to all tenderers on 19 October 2022 and 2 November 2022 respectively. As a purchaser of the eDeveloper's Packet for the Land Parcel, you can register your attendance via the website at https://digitalservice.ura.gov.sg/one-stop-developer-portal. The details on the venue of the briefing session will be made known to tenderers at a later stage.

Presentation of Concept Proposal

7.4.2 After the closure of the tender, tenderers shall work with MOH to present their Concept Proposals to the CEC and allow for the CEC to seek clarifications. The presentation session(s) will either be held virtually over video-conferencing facility or physically in Singapore. The date(s) and details on the other arrangements pertaining to the presentation session(s) will be made known to tenderers at a later stage. Any expenses related to the presentations incurred by the tenderers shall be borne by the tenderers.

7.4.3 As part of the evaluation of the Concept Proposals, the CEC may propose refinements to a tenderer's Concept Proposal with a view to ensuring that it will better meet and reflect the requirements for the site as set out in Part VII and Requirements of MOH in Annex G. If the tenderer agrees in writing within such time as the CEC may specify to the proposed refinements, they shall, in the event their tender is accepted by the Authority, work with MOH and all relevant authorities during the design development proposal stage before submission of development application to the Authority, to incorporate the proposed refinements and comply with all their requirements relating thereto and to the proposed development of the site.

7.4.4 Upon receipt of the tenderer's written agreement with respect to the proposed refinements, the CEC will further evaluate the tenderer's Concept Proposal and consider whether or not to short-list it for the second stage of the tender evaluation.

Submission of Detailed Plans After Award

7.4.5 The Successful Tenderer shall, after the acceptance of their tender by the Authority, submit detailed plans for the proposed development on the Land Parcel to the Authority, MOH and the relevant Competent Authorities for approval. The detailed plans are to adhere to the Concept Proposal submitted in the tender and accepted by MOH and any changes will be subject to prior approval of MOH and the relevant Competent Authorities.

URBAN REDEVELOPMENT AUTHORITY

ANNEX A

FORM A

PUBLIC COMMUNICATIONS PLAN

Details of Developer	**To:**	**INSTRUCTION:**
Company Name: Address: Tel no: Email:	Director (Successful Ageing), Ageing Planning Office Ministry of Health College of Medicine Building 16 College Road Singapore 169854	This form is to be duly completed and submitted to the Authority within 2 months from the date of the award of tender.

Parcel Reference Number: _____

Proposed Development: _____

_____

Lot/Parcel Reference: _____ TS/MK: _____

Key milestones **(Refer to Condition 6.1 of the Technical Conditions of Tender)**		**Proposed date of commencement***
1.	Send Stage 1 flyer to local Member of Parliament (MP)	(dd/mm/yy)
2.	Distribution of flyers 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 and site clearance	
6.	Obtain grant of Provisional Permission	
7.	Send Stage 2 flyer to local MP	
8.	Distribution of flyers 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

* *The Ministry of Health shall be kept informed of any changes to the public communications plan.*

The Successful Tenderer shall ensure the minimum periods stated below are adhered to:

NO	KEY MILESTONES	MINIMUM PERIOD
1	a) Item 1 (Send Stage 1 flyer to local MP) and Item 2 (Distribution of Stage 1 flyer); and b) Item 7 (Send Stage 2 flyer to local MP) and item 8 (Distribution of Stage 2 flyer)	1 week
2	Item 2 (Distribution of Stage 1 flyer) and Item 3 (Submission of Form B)	1 week
3	Item 4 (First submission of development proposal) and Item 8 (Distribution of Stage 2 flyer)	6 weeks
4	Item 8 (Distribution of Stage 2 flyer) and Item 9 (Submission of Form C)	2 weeks
5	Item 8 (Distribution of 2nd flyer) and Item 10 (Submission of Form D)	3 weeks
6	Item 10 (Submission of Form D) and Item 11(a) (commencement of piling)	4 weeks

URBAN REDEVELOPMENT AUTHORITY

ANNEX B

FORM B

DECLARATION BY THE DEVELOPER (PRIOR TO APPLICATION FOR WRITTEN PERMISSION)

INSTRUCTION:

This form is to be duly completed and submitted to the Ministry of Health prior to submission of an application to the Competent Authority under the Planning Act 1998 for Written Permission.

If the written consent of the Ministry of Health is not submitted together with the development application to the Competent Authority, the development application will be returned.

Details of Developer	**To:**
Company Name:	Director (Successful Ageing),
	Ageing Planning Office
Address:	Ministry of Health
	College of Medicine Building
Tel no:	16 College Road Singapore
Email:	169854

Parcel Reference Number: _____

Proposed Development: _____

_____

Lot/Parcel Reference: _____ TS/MK: _____

I, _____ (Name), _____ (Designation), hereby declare on behalf of the developer that in accordance with Condition 6.1.3 of the Technical 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).

We have enclosed supporting documents to show that the flyers have been distributed.

Signature: Date:

* *Local community is defined and includes the parties specified in Condition 6.1.2 of the Technical Conditions of Tender*

URBAN REDEVELOPMENT AUTHORITY

ANNEX C

FORM C

DECLARATION BY THE DEVELOPER

(FOR RESUBMISSION OF APPLICATION SUBSEQUENT TO THE PROVISIONAL PERMISSION)

INSTRUCTION:

This form is to be duly completed and submitted to the Competent Authority and the Ministry of Health prior to resubmission of development application and no later than 2 months after the grant of Provisional Permission. Upon confirming that the form is in order, the Competent Authority and the Ministry of Health will give written consent for you to proceed with the resubmission of the development application, which shall be made no earlier than 3 weeks from the date the flyers were distributed. If the written consent of the Competent Authority and the Ministry of Health are not submitted together with the resubmission of the development application, the development application will be returned.

Details of Developer	**To:**	
Company Name:	Group Director Development Control	& Director (Successful Ageing), Ageing Planning Office
Address:	Urban Redevelopment Authority 45 Maxwell Road	Ministry of Health College of Medicine Building
Tel no:	The URA Centre	16 College Road
Email:	Singapore 069118	Singapore 169854

Parcel Reference Number: _____

Proposed Development: _____

_____

Lot/Parcel Reference: _____ TS/MK: _____

I, _____ (Name), _____ (Designation), hereby declare on behalf of the developer that in accordance with Condition 6.1.7 of the Technical 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).

We have enclosed supporting documents to show that the flyers have been distributed.

Details of preliminary feedback received from the local community (if any):** 1) 2) 3) 4)
Signature: Date:

* *Local community is defined and includes the parties specified under Condition 6.1.2 of the Technical Conditions of Tender.*

** *This should include all feedback received up to the point of the submission of this form. If this space is insufficient, additional information should be provided on a separate page and submitted as part of Form C.*

URBAN REDEVELOPMENT AUTHORITY

ANNEX D

FORM D

CONSOLIDATED FEEDBACK ON PROPOSED DEVELOPMENT

(FOR RESUBMISSION OF APPLICATION SUBSEQUENT TO THE PROVISIONAL PERMISSION)

INSTRUCTION:

This form is to be duly completed and submitted to the Competent Authority and the Ministry of Health as part of the resubmission of the development application subsequent to the grant of the Provisional Permission.

Details of Developer	**To:**	
Company Name: Address: Tel no: Email:	Group Director Development Control Urban Redevelopment Authority 45 Maxwell Road The URA Centre Singapore 069118	& Director (Successful Ageing), Ageing Planning Office Ministry of Health College of Medicine Building 16 College Road Singapore 169854

DC Reference: _____

Submission Number: _____

Proposed Development: _____

_____

Lot Number: _____

I, _____ (Name), _____ (Designation), hereby declare on behalf of the developer that in accordance with Condition 6.1.9 of the Technical Conditions of Tender, the table below has included all feedback that has been received from the local community, up to the date of this resubmission of the development application.

Feedback received from the local community and how the development proposal has sensitively addressed the feedback raised**:	
Feedback Received from Local Community	**Proposed Measures to Address the Feedback**
1)	1)
2)	2)
3)	3)
4)	4)
Signature:	Date:

* *Local community is defined and includes the parties specified under Condition 6.1.2 of the Technical Conditions of Tender.*

** *This must include all feedback received up to the point of this resubmission of the development application. If this space is insufficient, additional information should be provided on a separate page and submitted as part of Form D.*

Annex E

Workplace Safety and Health Guidelines

Management and Removal of Asbestos

WSHCOUNCIL

Year of issue: 2014

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1. Introduction

Asbestos had been widely used in buildings, plants and ships due to its excellent fire, heat and chemical resistance properties. However, exposure to asbestos, such as through inhalation of asbestos fibres, can lead to serious diseases. In response to these health risks, the use of asbestos in buildings was banned in Singapore in 1988 by the Building Control Division (now the Building and Construction Authority [BCA]).

Many old buildings in Singapore still contain asbestos or asbestos-containing materials (ACMs). These asbestos and ACMs can be released into the air when disturbed, affecting building occupants. It is therefore important to manage asbestos in buildings and workplaces to prevent harmful exposure. Precaution and care must be taken when conducting work activities involving ACMs. These activities include building structural works (e.g., repair, dismantling, demolition, renovation, maintenance and alteration) and other related operations (e.g., handling, sawing, cutting, grinding, drilling, lagging and delagging).

This set of guidelines was developed to provide guidance on the proper management of ACMs and how to work with them safely. It is primarily aimed at contractors, occupiers and building owners, especially those in the construction sector, shipyards and petrochemical facilities.

The guidelines will first discuss some health effects of asbestos exposure and list examples of ACMs. It will then elaborate on the management of ACMs and good industry practices. This is followed by a description of the various aspects of asbestos-removal work. Salient points on air monitoring, training and medical surveillance will also be covered.

After reading this guide, contractors, occupiers and building owners should be able to:

- identify ACMs in workplaces;
- understand the health risks of work involving asbestos; and
- manage the risk of ACMs through appropriate controls.

2. Asbestos and Asbestos-containing Materials

Asbestos
Asbestos is a naturally-occurring mineral. Asbestos fibres have excellent physical and chemical properties which made them popular as construction materials and useful for fireproofing, thermal, electrical or sound insulation and heat or chemical resistance.

There are six types of asbestos fibre and they are classified into two groups: amphibole and serpentine (see Table 1). Amphibole is generally more brittle and tends to be straighter, whereas serpentine, that is, chrysotile is more flexible and less likely to be friable. Crocidolite, amosite and chrysotile are the three most common types of asbestos. Crocidolite and amosite are known to be more hazardous than chrysotile.

Types of asbestos	
Amphibole • Crocidolite (blue asbestos) • Amosite (brown asbestos) • Anthophyllite • Tremolite • Actinolite	Serpentine • Chrysotile (white asbestos)

Table 1: Types of asbestos.

Asbestos-containing Materials
ACMs are any material, substance, product or article containing asbestos. ACMs are either friable or non-friable. The degree of friability of an ACM determines its classification and the potential that it will release respirable fibres. To classify whether the ACMs are friable or non-friable, the densities of the materials need to be determined. Established methods to determine density can be found in the *British Standards BS 4624: 1981* and *BS 3536 Part 2: 1974*.

A list of materials that may contain asbestos is provided in **Annex A**.

2.1 Non-friable Asbestos Materials

Generally, non-friable ACMs are less hazardous than friable ACMs. Non-friable asbestos materials are cementitious, resinated, plastic or bituminous. In their dry form, they cannot be crumbled, pulverised or reduced to fine particles by hand, thus it is harder for them to produce the asbestos fibres that constitute a serious health risk. In these materials, asbestos fibres are generally locked or embedded in the base material matrix. Therefore under normal usage conditions or in the course of normal handling, they usually do not release enough asbestos fibres to constitute a health risk.

In a dry state, non-friable asbestos materials usually have a density greater than 1 tonne per cubic metre (1000 kg/m^3). They are hard, light grey and generally contain 10% to 15% asbestos fibres, but occasionally they can contain up to 40% asbestos fibres.

Examples of non-friable asbestos materials include:

- corrugated asbestos roof sheets;
- asbestos wall cladding;
- asbestos floor tiles;
- asbestos vinyl sheets;
- asbestos cement piping; and
- asbestos friction products.

2.2 Friable Asbestos Materials

Friable asbestos materials can be crumbled by hand, and their fibres are readily released into the air when disturbed. To completely contain airborne asbestos fibres, total enclosure for the work area and other strict control measures are necessary.

Any non-friable material in poor condition that has a high probability of being crumbled or pulverised during removal operations should be considered friable (e.g., roof sheets that are damaged or have been infested by mold or algae, and old gaskets that require scraping off during removal).

Examples of friable asbestos materials include:

- asbestos fibrous sprayed-on materials used for fire protection, anti-condensation and acoustic control purposes;
- asbestos thermal insulation on boilers and pipes;
- asbestos ceiling boards or wall panels; and
- cable penetrations.

3. Health Risks of Asbestos Exposure

Asbestos is a confirmed human carcinogen and all types of asbestos can cause cancer. Asbestos fibres can enter a body when inhaled as airborne dust or when contaminated materials are ingested. These fibres are retained in respiratory or digestive tissues, leading to diseases such as asbestosis, mesothelioma and lung cancer. These diseases often have a long latency period, and symptoms generally do not appear until 15 to 50 years after initial exposure.

Asbestosis
Asbestosis is a scarring of the lung tissue which leads to decreased lung volume and increased resistance in the airways. It is normally associated with high levels of exposure for many years. Symptoms include shortness of breath, persistent coughing, tiredness and nausea.

Mesothelioma
Mesothelioma is a cancer of the lining of the lungs (pleura) and abdominal organs (peritoneum). Persons diagnosed with this disease usually have a short survival span. It does not normally require a threshold of exposure before ill effects occur, however the risk of contracting mesothelioma generally increases with the frequency, duration and level of exposure to asbestos. Symptoms include weight loss, fever, night sweats, chest pain and breathlessness on exertion.

Lung Cancer
Lung cancer, which can be caused by a number of inhaled carcinogens, including asbestos, is a malignant tumour in the lungs' air passages. Like mesothelioma, lung cancer does not require a threshold of exposure before ill effects occur. The synergistic effect of asbestos exposure and smoking can increase the risk of lung cancer by at least 50 times. Symptoms include a chronic cough, breathlessness, chest pain, haemoptysis (coughing up blood), hoarseness of the voice and wheezing.

4. Risk Management of Asbestos-containing Materials

Proper risk management of ACMs in buildings and workplaces can protect the safety and health of both occupants and workers. Putting in place a proper asbestos management plan can help prevent exposure to airborne asbestos fibres (see Figure 1) for a flow chart for the managing of ACMs.)

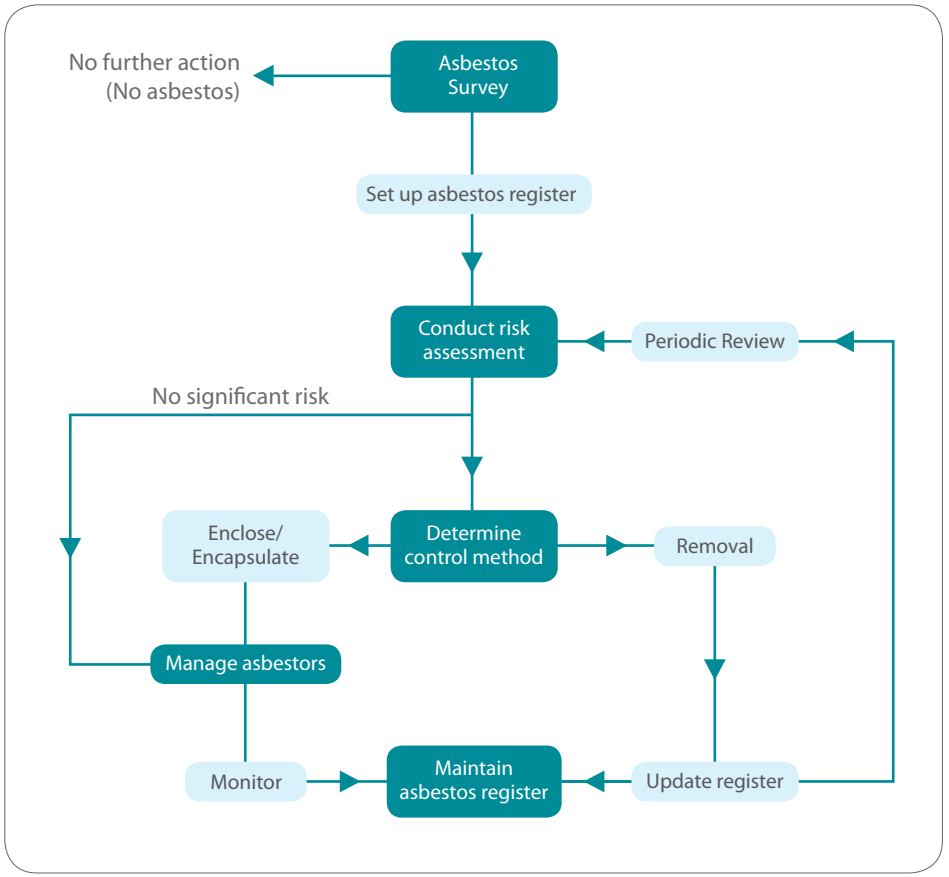

Figure 1: Flow chart for managing ACMs.

4.1 Identification of Asbestos-containing Materials

The first step in managing the risk of asbestos exposure is to determine the presence and location of all ACMs at the workplace, as well as the types and conditions of these ACMs.

Asbestos may be found in numerous building materials, typically for the purposes of fire protection, heat and sound insulation, such as partition walls, refuse chutes, roofing sheets and ceiling boards (see Figure 2).

The type of ACMs which may be found in a typical building include:

- corrugated roof sheets (e.g., roofing, wall cladding);
- insulation boards or tiles (e.g., wall partitions, ceiling boards, fire protection boards);
- flooring materials (e.g., vinyl floor tiles or sheets);
- insulation materials (e.g., fire doors, rubbish chute columns, brake linings); and
- asbestos cement products (e.g., gutters, water tanks, underground pipelines).

ACMs may also be found in ships and plant facilities. They include:

- asbestos sheets, ropes and cloths (e.g., gaskets, insulation, seals, fire blankets);
- spray-on thermal insulation (e.g., fire protection in ducts and structural steelwork, ceilings);
- lagging (e.g., thermal insulation of pipes and boilers; see Figure 3);
- insulation boards or tiles (e.g., wall panels, ceiling boards, fire protection boards, refractory linings); and
- electrical circuits (e.g., panels, wiring insulation, seals, cable penetrations; see Figure 4).

An asbestos survey can be carried out by a competent person to identify all the ACMs in the workplace. (See **Annex B** on how to conduct an asbestos survey.) The competent person must exercise care and diligence in conducting the survey to ascertain the presence of asbestos or ACMs. See below for general steps on how to identify asbestos in buildings.

Figure 2: Asbestos used in building roof sheets and ceiling boards.

1. Roof sheets.
2. Celling panels.

Figure 3: Asbestos cloth wrapping with asbestos lagging of exhaust pipe.

Figure 4: Asbestos-containing cable penetrations used on ships.

Step 1: Check the age of the building.

If the building was constructed before 1991, it is likely to contain asbestos since the use of asbestos in building materials was banned in Singapore in 1988.

Step 2: Check building plans.

Some building plans may indicate the use of ACMs. However, it should not be assumed that the buildings do not contain asbestos just because the building plans do not indicate the presence of ACMs.

Details of any extension, adaptation, renovation or refurbishment to the building in the building plans must be examined.

Step 3: Conduct an asbestos survey.

There are two types of asbestos survey, Asbestos Management Survey and Building Refurbishment or Demolition Survey.

- An Asbestos Management Survey is conducted to locate, as far as reasonably practicable, any materials suspected of containing asbestos and assess their condition. It enables proper management of ACMs by preventing ACMs from being disturbed during building maintenance. Any inaccessible structure or material which may contain asbestos should be clearly indicated in the report.
- A Building Refurbishment or Demolition Survey is required if major renovation (alteration, addition or repair work) or demolition of the building needs to be carried out. This may involve destructive inspections to ensure that all areas are accessed and thoroughly checked. Condition assessment of the ACMs may be unnecessary if ACMs are soon to be removed. The report may indicate areas of damage or locations where asbestos debris may be present.

An asbestos survey must be carried out for buildings due for demolition or renovation if the building was built before 1 Jan 1991 (based on its temporary occupation permit date). A competent person must be appointed to carry out the survey to ascertain the presence of asbestos or ACMs before commencement of the work.

See **Annex A** for examples of materials that may contain asbestos.

All identified ACMs must be removed by an Approved Asbestos-Removal Contractor (AARC) before demolition work is carried out (see Chapter 6 on Removal of Asbestos-containing Materials).

Step 4: Take samples for analysis where appropriate.

Samples of materials suspected to contain asbestos should be sent to an accredited laboratory for analysis. Sample taking must be performed by a competent person and necessary precautionary measures should be taken. Samples should be analysed using the NIOSH 9002 Polarised Light Microscopy (PLM) Method of asbestos fibre identification. The analysis result should report the type of asbestos present in the sample. If any asbestos fibres are found in the sample, the material is taken to contain asbestos.

4.2 Exposure and Risk Evaluation

After ACMs in the building are identified, the risk of exposure to the ACMs is evaluated. The risk of exposure is determined by the potential of release and likelihood of disturbance of the ACMs. Factors to consider when evaluating the exposure risk are illustrated in Figure 5 and further elaborated in the paragraphs that follow.

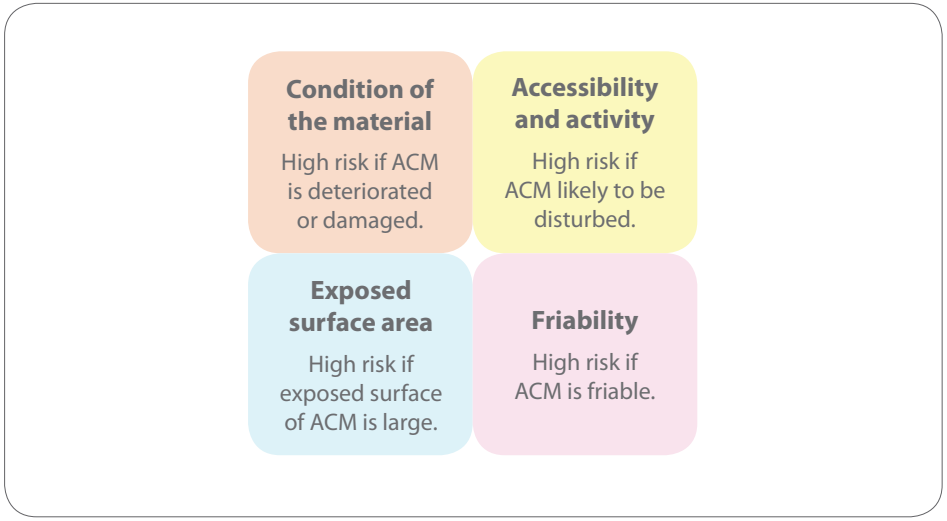

Figure 5: Factors affecting the risk of exposure to ACMs.

Condition of Material
The condition, extent of damage or deterioration of the ACM can influence how fast and how easily it releases asbestos fibres into the immediate environment. This factor is usually associated with the quality of the installation work, the adhesion of the friable material to the underlying surface, and the integrity of the material. Water can also affect the condition of the ACM by dislodging and disturbing the asbestos in the material. Asbestos fibres can be dislodged by water and deposited elsewhere after the water has evaporated.

Exposed Surface Area
The greater the exposed surface area of the friable material, the higher the potential for fibres to be dislodged or released. The release potential and risk of exposure are further increased if the friable material is exposed.

Accessibility and Activity
If a material can be accessed or reached easily, it may be subject to increased contact and hence possible damage. The amount and/ or type of activity or work happening in the vicinity of the ACM, such as vibration and air movement, can also result in potential damage and fibre release.

Friability and Content
Different ACMs have varying degrees of friability – the more friable the material, the greater the potential for asbestos fibres to be released. In addition, a higher asbestos content in a material also increases the likelihood of fibres being released.

4.3 Control Methods

Having evaluated the risk of exposure of ACMs, appropriate control measures need to be put in place. There are four methods of control.

Removal
Removal of ACMs should be considered if ACM damage is extensive and repair is not justifiable. Major changes or remodelling made to the building may also disturb ACMs present and warrant their removal. Asbestos-removal work poses a great risk of fibre release and should only be carried out by an AARC (see Chapter 6 on Removal of Asbestos-containing Materials).

Encapsulation
Encapsulation involves treating the ACM with a sealant that either binds the asbestos fibres together or coats the ACM so that fibres are not released. Encapsulation should be limited to areas where damage due to contact will not occur, so that the ACM will retain its bonding integrity. This method is usually used as an interim measure. It is necessary to ensure that the person carrying out the encapsulation work is adequately protected from exposure to asbestos fibres.

Enclosure
For the enclosure method, a barrier such as a suspended ceiling is usually constructed between the ACM and the building's environment. As the ACMs still remain, asbestos fibres and fallout can accumulate behind the enclosure. However, the accumulated fibres can be released into the building's environment if the enclosure is damaged. It is therefore important to include provision for access to the ACMs during the design and installation of enclosures so they can be inspected regularly.

Leave-in-place
ACMs that are in a good condition should be left undisturbed as they are less likely to release asbestos fibres into the surrounding air. The risk of exposure is normally low or negligible in such instances, and remedial action and assessment can be deferred to a later time when necessary.

The conditions of existing ACMs can change with time, making it necessary to periodically inspect and monitor ACMs. An inspection regime can be established to ensure that the risk of asbestos exposure does not endanger the health of building occupants. It can also indicate the need for further corrective actions such as ACM removal.

5. Good Practices in Managing Exposure to Asbestos-containing Materials

Asbestos Register
Based on the findings of the asbestos survey, an asbestos register can be maintained to keep a record of identified ACMs or those likely to be present.

The asbestos register should indicate the location, type and condition of the ACMs. It should also include inaccessible locations where materials may contain asbestos. The asbestos register has to be maintained, kept up to date, and made available to occupants and any other persons who may be exposed to ACM. The following should be done regularly to help maintain the asbestos register.

Information and Labelling
Wherever possible, ACMs in the workplace should be labelled with warning signs to warn workers or occupants of asbestos hazards. These help prevent people from disturbing the ACMs unknowingly and exposing themselves unnecessarily.

Training and Awareness
Training can be provided for workers or occupants to heighten their awareness of hazards caused by asbestos when working with or near ACMs. Persons who conduct activities in areas with ACMs or who are likely to be exposed to the asbestos in the building must also be informed and educated about the presence of ACMs and their potential hazards.

Isolate or Restrict Access
Restrict and control access to areas where ACMs may pose a risk. Only authorised persons wearing proper personal protective equipment (PPE) should be allowed access to these areas.

Asbestos Monitoring Programme
A programme can be implemented to inspect ACMs periodically (e.g., every six or 12 months depending on the condition of the ACMs) and monitor the concentration of asbestos in the air when necessary.

Reporting Procedures
Procedures can be established for workers or occupants to report any damage or deterioration of the ACMs so that timely and appropriate corrective actions can be implemented to minimise the risk of exposure.

Some Do's and Don'ts

- In areas with damaged ACMs, do keep activities to a minimum if unable to avoid the areas completely.
- Do wear appropriate PPE when working in areas where ACMs may be disturbed.
- Don't dust, sweep, or vacuum debris that may contain asbestos.
- Don't saw, sand, scrape, or drill holes in ACMs.

6. Removal of Asbestos-containing Materials

The Workplace Safety and Health (WSH) (Asbestos) Regulations define asbestos-removal work as any work that entails the removal of asbestos or ACMs that are fixed or installed in a building, plant, ship, machine, equipment or workplace, so that the asbestos or ACMs are no longer fixed or installed in that building, plant, ship, machine, equipment or workplace.

Asbestos-removal work is a high risk activity, and should only be carried out by AARCs. It is important to properly plan, effectively communicate and adequately prepare the site before starting asbestos-removal work.

Asbestos-removal work includes total or partial removal of any type of ACM. Examples of asbestos-removal work include:

- removing asbestos corrugated roof sheets or ceiling boards from buildings or factories;
- removing asbestos insulation or laggings from pipelines or boilers;
- removing asbestos gaskets from piping, flanges, boilers or heat exchangers;
- removing part of damaged asbestos roof sheets, ceiling boards or pipe insulations;
- cutting an opening in asbestos roof sheets or ceiling boards for installation of exhaust fans or pipelines; and
- cleaning up asbestos debris, including decontamination of the worksite or workplace.

6.1 Roles and Responsibilities

The occupier of a workplace should ensure that asbestos-removal work is carried out by an AARC.

An AARC should:

- Submit a notification of asbestos-removal work at least seven calendar days before commencement of the work;
- Appoint a competent person to supervise the asbestos-removal work;
- Ensure that the work is carried out under the immediate supervision of the competent person;
- Ensure that the asbestos-removal plan of work prepared by the competent person is implemented; and
- Ensure that asbestos-removal work is carried out in accordance with the requirements in the WSH (Asbestos) Regulations.

The competent person for asbestos-removal work should:

- Prepare an asbestos-removal plan of work and ensure that it is adequate, suitable and effective;
- Advise on all methods and measures related to asbestos-removal work;
- Ensure that the asbestos-removal work is carried out in accordance with the asbestos-removal plan of work;

- Coordinate or manage asbestos-removal work activities;
- Supervise the entire asbestos-removal work; and
- Ensure that only trained persons carry out asbestos-removal work.

6.2 Notification of Asbestos-removal Work

Under the WSH (Asbestos) Regulations, AARCs carrying out asbestos-removal work must notify the Commissioner for Workplace Safety and Health (WSH) at least seven calendar days prior to the commencement of work. This notification should be submitted through the e-service portal available on MOM's website.

AARCs have to update any change to the notification submitted. A copy of the notification should also be made available at the workplace and must be produced upon request by MOM inspectors.

6.3 WSH Risk Assessment

A proper and thorough WSH risk assessment (RA) must be conducted prior to the start of asbestos-removal work. The RA should identify all potential hazards, establish all the risks associated with asbestos-removal work (e.g., working at height, working in confined spaces), and propose measures to prevent or minimise these risks. Available asbestos registers and survey reports should be referred to when conducting the RA.

For more information about WSH risk assessment, see *Approved Code of Practice for WSH Risk Management*.

6.3.1 Other Hazards Associated with Asbestos-removal Work

Working at Heights

Contractors should avoid working on top of asbestos roofs or ceiling boards. As much as possible, asbestos-removal should be carried out from underneath the roof using suitable work platforms such as mobile elevated work platforms and scaffold platforms. Work platforms must be of safe design, sound material, good construction and adequate strength.

If working on a roof cannot be avoided, safety harnesses, lifelines and anchorage points have to be adequately provided to ensure that the work can be carried out safely. A proper fall prevention plan has to be developed and implemented for working at heights.

For more information on working at height, refer to the following:

- *WSH (Work at Heights) Regulations;*
- *Code of Practice for Working Safely at Heights;*
- *WSH guidelines: Working safely on roofs;*
- *WSH guidelines: Anchorage, lifelines and temporary edge protection*; and
- *Technical advisory for scaffolds*.

Working in Confined Spaces

For asbestos-removal work carried out in confined spaces, entry permits must be obtained prior to entry into the confined space(s). All requirements for work in confined spaces apply.

For more information on work in confined space, refer to the following:

- *WSH (Confined Spaces) Regulations;*
- *SS 568:2011 Code of Practice for confined spaces; and*
- *Technical advisory on working safely in confined spaces.*

Working in a Hot Environment

Outdoor asbestos work causes heat exhaustion due to the hot and humid environment, heavy physical work and non-breathable protective clothing. Heat-related hazards also result from working in enclosures and confined spaces.

However, heat-related disorders can be prevented by:

- ensuring workers are acclimatised;
- ensuring that workers drink plenty of water;
- ventilating the work area; and
- implementing a work-rest schedule.

Removal of asbestos from hot pipelines or machinery should be scheduled to take place during shutdowns, thus allowing sufficient time for the pipelines or machinery to cool. If this cannot be avoided, the plan of work has to take into consideration additional heat stress hazards arising from the pipelines or machinery. Appropriate PPE and control measures have to be put in place to ensure that the work can be carried out safely.

For more information on working in hot environment, refer to *WSH guidelines: Managing heat stress at the workplace*.

6.4 Plan of Work

Before undertaking any asbestos-removal work, it is important to develop a proper plan of work. A written plan of work will guide and establish details on how asbestos-removal work is to be carried out. The plan will vary according to the nature of the task, and the type, location, quantity and condition of the ACM to be removed. Other work activities in the vicinity should also be considered when developing the plan.

The plan of work must be readily available on site. A copy should be made available upon request by MOM inspectors and to others who may be affected by the work. Any change to the plan of work should be documented and updated.

The plan of work shall include, but should not be limited to, the following:

a) Scope of work:
   - nature of work;
   - estimated duration of work;

- date of work commencement;
- type(s) of asbestos fibres involved;
- type of ACM(s) involved (attach photos if possible);
- quantity of ACM(s) involved (estimated amount); and
- the condition of the ACM(s).

b) Location and address of asbestos-removal work.

c) Particulars of person(s) involved in the work:
- stakeholders involved in the project (e.g., developer, main contractor, sub-contractors, consultants, AARCs);
- competent person(s):
  - who advises on the establishment of the plan of work; and
  - who supervises the asbestos-removal work.
- workers:
  - total number of workers involved in the project;
  - workers register;
  - summary reports for medical examinations;
  - fit testing records of respiratory protection devices; and
  - safety orientation course certificates of workers (in the relevant industries).

d) Method(s) of removal and measures to minimise the release or spread of asbestos:
- method statement (see Chapter 6.6 on Removal Methods);
- details of enclosures (see Chapter 6.5.3 on Enclosure):
  - size and dimensions;
  - structure and materials used for construction; and
  - calculations of air extraction flow rate requirements.
- tools and equipment (including PPE) used:
  - specifications of equipment; and
  - checking and maintenance records of equipment.

e) Decontamination facilities (see Chapter 6.5.4 on Decontamination Facilities):
- size, structure and material used (if it is to be constructed); and
- manufacturer specifications (if the facility is a purchased unit).

f) Site layout:
- demarcation of asbestos work area;
- location of air extraction units;
- location of the hygiene facility;
- location of the asbestos waste storage area;
- transit route; and
- waste route.

g) Decontamination procedures (where applicable, see Chapter 6.5.4 on Decontamination Facilities for more information) for:
- the workplace;
- tools and equipment;
- personnel; and
- soil.

h) Disposal arrangement (see Chapter 6.9 on Waste Disposal):
- procedures for waste handling;
- National Environment Agency (NEA) approved asbestos disposal contractor; and
- certificate of waste disposal receipt.

i) Monitoring of asbestos levels (where applicable; see Chapter 6.10 on Air Monitoring):
- background level (before starting work);
- workers' exposure level (during work);
- check for spread of asbestos outside work area;
- air clearance check (after completion of work); and
- monitoring or test reports (where applicable).

j) Emergency procedures (where applicable):
- breaches in integrity of enclosure during removal work;
- unplanned ACM disturbance;
- fire emergencies; and
- rescue of personnel.

k) Other hazards (where present, see Chapter 6.3 on WSH Risk Assessment).

6.5 Site Preparation

A visual inspection should be carried out to verify that the area is not contaminated before setting up the site for asbestos-removal work. If necessary, air monitoring can be conducted to establish the level of asbestos concentration in the air to determine if respiratory protection is necessary during site preparation.

Prior to covering the asbestos work area with a polyethylene sheet, the area should be pre-cleaned using a high efficiency particulate air (HEPA)-filtered vacuum cleaner or wet wiped. Dry sweeping must never be used to collect asbestos debris under any circumstances. All movable objects such as furniture should be removed from the work area to prevent them from being

contaminated with asbestos. Non-movable objects which are to remain within the work area such as circuit boxes and switch gears should be pre-cleaned thoroughly with an industrial vacuum cleaner equipped with a HEPA filter, or wet-wiped. They should then be sealed with two layers of polyethylene sheets and securely taped down to protect them from contamination. Any ventilation system serving or connected to the asbestos work area should be disabled and the ventilation ducts leading to and from the work area should be sealed for the whole duration of the asbestos-removal work.

6.5.1 Site Control and Arrangement

No person is allowed to enter the asbestos work area, except for those involved in the asbestos-removal work or authorised to enter the work area. The owner, occupants and employees in the workplace and anyone who may be affected by the asbestos-removal work should be advised to stay away from the asbestos work area during the period of work. Barriers or barricades should be erected to control the entry and exit of persons in the asbestos work area. Arrangement for alternate walking path is necessary to prevent unauthorised people or the public from going through or near the asbestos work area.

Signs should be put up at all entry and exit points of the work area to warn the occupants and public of the hazards of asbestos work (see Figure 6). The warning or hazard statements on the signs must be in languages that any person who may be exposed to the hazard can understand. The signs should also be weatherproof and secured in place until the asbestos-removal work is completed. Other signs should enforce site disciplinary rules such as mandatory PPE and no eating, drinking or smoking in the work area.

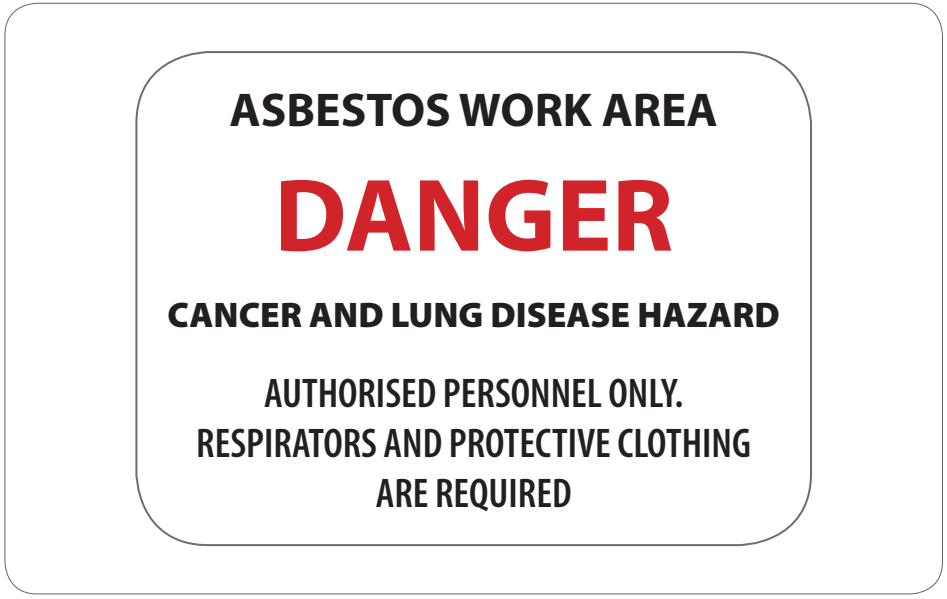

Figure 6: Example of a warning sign.

Scaffolds, lifelines and other work equipment required for asbestos-removal work have to be arranged and set up. During equipment installations, the ACMs should not be disturbed, to prevent unnecessary asbestos exposure. Workers performing the installations must wear appropriate PPE and be able to recognise work hazards such as falling through asbestos roofs or ceilings.

Arrangements should be made for other operations or work to stop during asbestos-removal work. Where possible, avoid work activity in the vicinity of the asbestos work area.

6.5.2 Tools, Materials and Equipment

The following are some tools, materials and equipment that may be required for asbestos-removal work:

- Polyethylene Sheets

  Polyethylene sheets of 0.20 mm (or 8 mils) thickness should be used to enclose and seal the asbestos work area. These sheets are impermeable and impervious and can prevent asbestos dust and waste from spreading to the surrounding environment.

- Wetting Agent

  ACMs need to be properly wetted with a suitable wetting agent to suppress asbestos fibres. Water can be used as the wetting agent for ACMs that contain hydrophilic chrysotile fibres, but is less effective for hydrophobic asbestos fibres such as amosite or crocidolite. For the latter, surfactants (e.g., detergent) will be a more effective wetting agent. Whenever possible, surfactants should be used for all types of asbestos-removal work. Surfactants used should be diluted to a specific concentration based on the manufacturer's instructions. For example, a wetting solution can be applied by an airless type portable water spray.

- Water-based Polyvinyl Acetate Adhesives

  Water-based polyvinyl acetate (PVA) adhesives may be sprayed onto exposed surfaces to bind traces of asbestos that may still be around during the clean-up of the work area. The adhesives should be dyed to indicate where (and whether) they have been applied to facilitate cross-checking at a later stage. Such adhesives can also be used during decontamination work, by spraying them onto asbestos debris to minimise the release of asbestos fibres.

- Industrial Vacuum Cleaner

  An industrial vacuum cleaner can collect asbestos dust and debris during the clean-up of the asbestos work area. The vacuum cleaner used should be of Type H or equivalent, fitted with a HEPA filter. Unless the vacuum cleaner is designed for wet application, it should not be used to vacuum wet materials as this will damage the HEPA filter. Domestic or general purpose vacuum cleaners should not be used as they do not meet the requirements needed to remove asbestos dust which is hazardous to health.

6.5.3 Enclosure

Depending on the type of ACMs to be removed, a partial or total enclosure needs to be provided.

Non-friable ACM Removal

Partial enclosures are required for non-friable ACMs removal. If the precautionary measures to suppress dust release during the removal work are found to be inadequate after assessment, total enclosures may be necessary. It is advisable to use polyethylene sheets to cover all openings to the asbestos work area as the sheets act as a barrier to prevent the spread of asbestos fibres to other areas in the workplace.

At the asbestos work area, the floor should be covered with polyethylene sheets extending up to at least 1.5m away from the work activity area. The edges of the polyethylene sheets should extend at least 30cm upwards, and should be sealed to the wall with adhesive tapes (see Figure 7). All wall openings such as windows should be covered and sealed with two layers of polyethylene sheets.

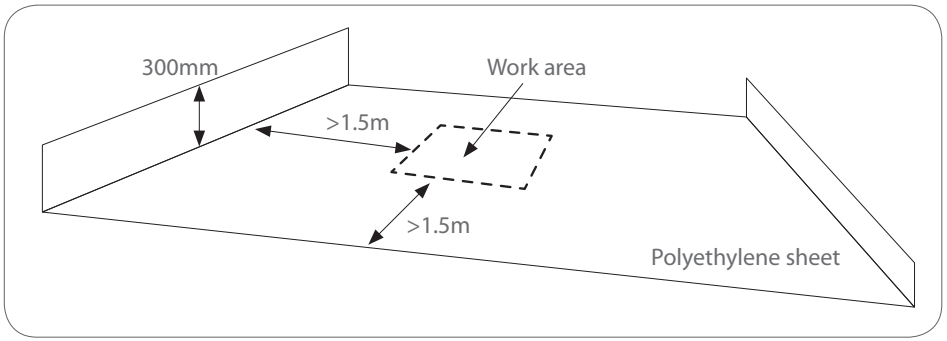

Figure 7: Flooring to be covered with polyethylene sheets at the asbestos work area.

For asbestos-removal work on roofs, a barricade at least 2m high should be erected 5m around the work area to prevent unauthorised entry (see Figure 8). If the minimal distance of 5m is not possible, the barricade should be high enough to prevent any ACMs or debris from falling out.

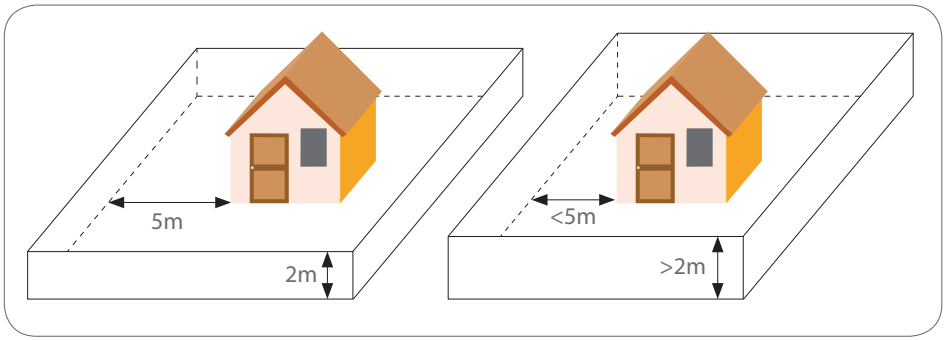

Figure 8: Example of how barricades for non-friable ACM removal work can be set up.

Friable ACM Removal

For removal of friable ACMs, the concentration of airborne asbestos fibres is expected to be high and total enclosure is necessary to prevent the spread of asbestos beyond the asbestos work area. Some factors to consider when designing the enclosure include location, size and shape of the work area, number of workers involved and the use of an air extraction unit to maintain sufficient negative pressure.

Enclosure Design

The enclosure should be of a suitable size based on the work requirements. (An oversized enclosure may not be practical as it increases the amount of ventilation required.) A common type of enclosure used is a self-supporting temporary unit built to accommodate the work area (see Figure 9). It consists of a frame to which polyethylene sheets are securely fixed.

Figure 9: Example of a self-supporting temporary enclosure.

The choice of materials for the construction of the enclosure is determined by a number of factors, including duration and location of the work. The sheets used must be thick enough to withstand wear and tear. In situations where fire hazards are a concern, fire-retardant polyethylene sheets must be used. Wherever possible, operating processes should not be enclosed as this may introduce additional hazards such as plant overheating, heat stress and fire hazards.

The construction of an enclosure may either make use of parts of the existing building structure or self-supporting temporary structures built around the asbestos working area. Where existing walls, ceilings and floors are used to form part of an enclosure, they should have smooth impervious surfaces that can be thoroughly cleaned after the asbestos-removal work. If any part of the surface is rough, damaged or friable, it should be lined with polyethylene sheets, after pre-cleaning has been done. Any openings (e.g., doors, vents, windows, holes) should be sealed using tape or proprietary sealing compounds and/or covered with two layers of polyethylene sheets. Care should also be taken to ensure that openings through which pipes or ducts pass are properly sealed. All the joints in the polyethylene sheeting need to be adequately sealed using adhesive tape.

The enclosure should be provided with a negative pressure unit (NPU) to prevent asbestos fibres from escaping. Airlocks should be constructed to allow a one-directional air flow between compartments (see Figure 10).

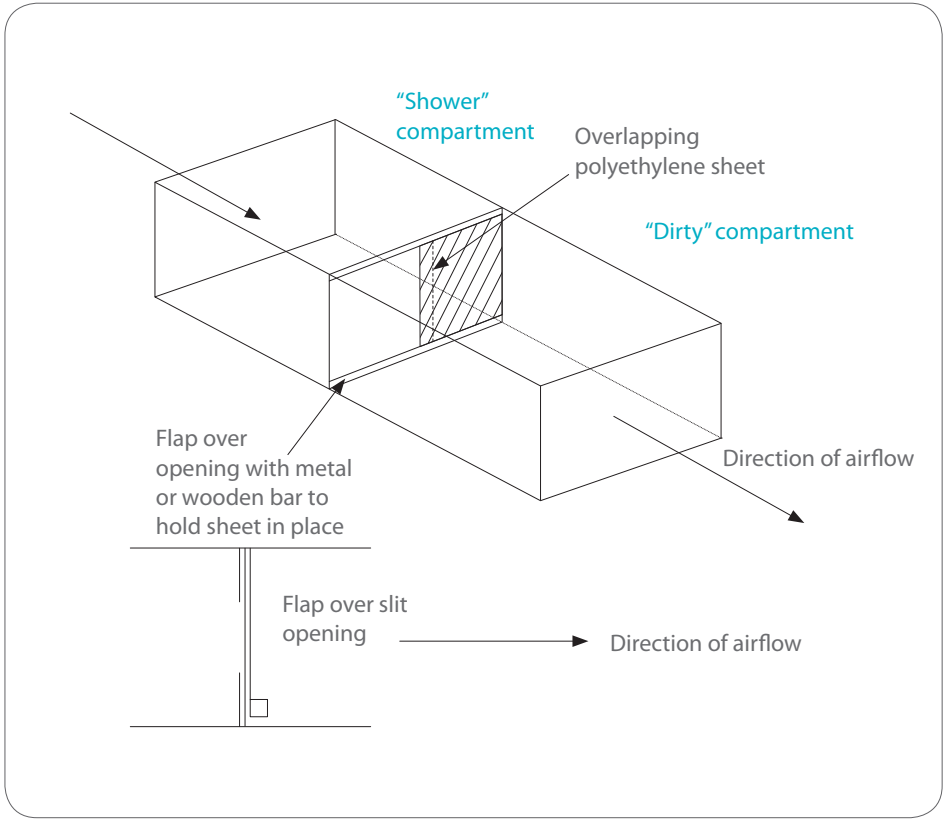

Figure 10: **Air locks between compartments allow one-directional air flow.**

Where a large plant such as a power station is to be stripped of asbestos, it is recommended that the whole area be compartmentalised into multiple smaller enclosed work areas for easier management of the asbestos-removal work. Suitable clear plastic "viewing panels" can be provided so that work activities can be supervised from outside the enclosure.

The enclosure must not obstruct any fire exits. (Where this is unavoidable, alternative arrangements should be made and clearly communicated to the occupants and workers in the premises.)

Air extraction equipment

Air extraction equipment such as an NPU is used to ensure that any asbestos released during the removal work is contained within the enclosure by maintaining the enclosure at negative pressure relative to the surrounding air (5 pascals or 0.5 mm water gauge). The integrity of the negative pressure system can be gauged from the effect of pressure on the plastic sheet. Negative pressure will pull the plastic sheet inwards. This indicates that air flow through any leaks is inwards rather than outwards, preventing asbestos fibres from spreading to the outside of the enclosure. This allows a supply of clean air to the enclosure.

The type of job, layout of the building, and enclosure size and volume need to be considered when determining ventilation requirements. The air extraction unit should be located where it can provide an effective airflow throughout the enclosure. The unit should be placed opposite of or furthest from the entrance to the enclosure so that air can be purged through the entire enclosure (see Figure 11). For large enclosures or those with complex shapes, more than one air extraction unit may be needed to achieve effective airflow.

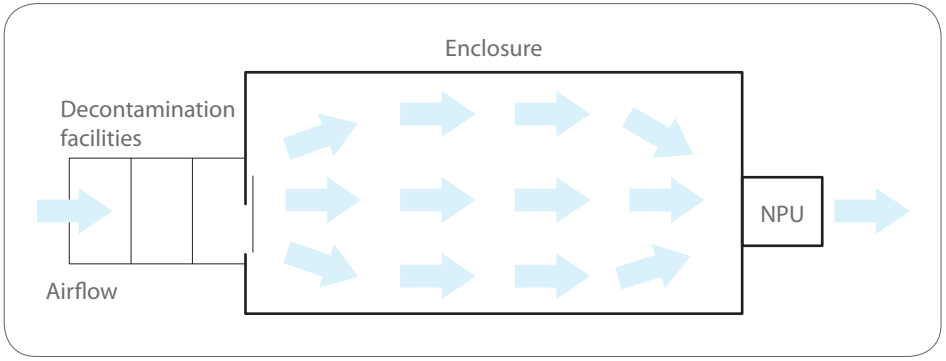

Figure 11: **Illustration of an enclosure with an NPU.**

It is recommended that the extraction flow rates should result in eight air changes per hour in the enclosure. The air extraction unit must be fitted with a HEPA filter of at least 99.97% efficiency. The air extraction unit should be located outside the enclosure where possible.

The following formula is used to determine the capacity of the NPU required:

(Required NPU capacity (m^3/hr) = Volume of enclosure (m^3) x no. of air changes per hour)

Example: For an enclosure that is 10m x 5m x 3m; the
NPU capacity required = 10m x 5m x 3m x 8 air changes per hour
= 1200 m^3/hr

The air extraction unit must be correctly installed and checked by a competent person before use. Safe work procedures for changing of filters should be put in place where there is potential for exposure to asbestos. The air extraction unit should be examined and maintained at least once every six months to ensure that it is in good working condition and operating at its specified efficiency. The maintenance record must be kept updated and available for inspection.

- Inspection and Testing of Enclosure
  A thorough visual inspection of the enclosure is required to check for any leakage prior to the start of each shift. Smoke testing by releasing smoke from a smoke generator inside the enclosure can be done to detect leakages. All air extraction units should be switched off during the smoke testing. Leakages can be detected by observing the smoke flow patterns from outside the enclosure. Any leakage detected must be rectified before work starts.

Additional testing can be performed externally using smoke tubes with the air extraction units running. Smoke tube testing should be carried out at around particular seals and joints to ensure they are effective. Smoke should be drawn into the enclosure during smoke tube testing.

The enclosure must also be maintained in negative pressure during work. Differential pressure monitors can be used to provide a continuous indication of whether or not the enclosure is in negative pressure. A pressure difference of about 5 pascals (0.5 mm water gauge) or above should be maintained. The pressure gauge on the air extraction unit should also be checked to ensure that sufficient airflow is maintained at all times during the work.

6.5.4 Decontamination Facilities

Decontamination or hygiene facilities should be provided to enable workers to:

- change into protective clothing and wear safety equipment such as respirators before entering the asbestos work area; and
- decontaminate themselves before leaving the work area.

The decontamination facility should be positioned adjacent to the work area as shown in Figure 12. Where it is not possible to provide the facilities adjacent to the work area, an alternative known as "transit facilities" should be provided. These transit facilities allow workers to decontaminate themselves partially before moving to the main decontamination facilities for complete decontamination. The route that connects the transit facilities to the decontamination facilities should not pass through occupied areas and allow public access.

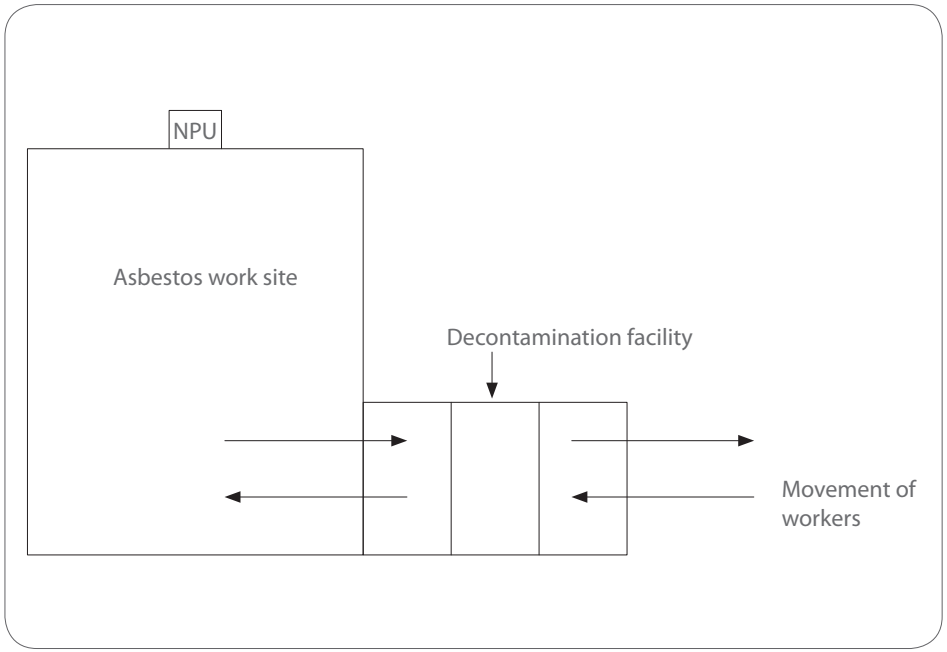

Figure 12: Illustration of a decontamination facility.

The size of the facilities is dependent on the number of workers who will be using them. These facilities should only be used by workers involved in asbestos work.

Design and Construction

Decontamination facilities consist of three separate compartments. They are clean, shower and dirty areas (see Figure 13). At minimum, each compartment should be 1m x 1m x 2m in dimension.

- Clean Area

  There should be provisions for hanging workers' clothing and safe keeping their personal belongings. Decontaminated PPE are to be stored in the clean area. Battery charging points can also be provided in this area.
- Shower Area

  Proper showers should be provided for friable asbestos-removal. The shower area should be between the clean and dirty areas.
- Dirty Area

  There should be storage and disposal bags available in the dirty area for contaminated clothing and asbestos waste respectively. The disposal bags should be labelled to indicate that they contain asbestos waste.

Figure 13: A decontamination facility consisting of three separate compartments (clean, shower and dirty areas).

Decontamination facilities should be constructed such that the facilities can be easily cleaned and no accumulation of asbestos dust in inaccessible areas is possible. Some features and considerations for the facilities include:

- impervious surfaces for all internal walls and ceilings;
- floors completely covered with impervious floor coverings;
- avoiding ledges and grooves;
- covering all corners for easy cleaning;
- providing drainage holes on the floor; and
- capping all poles or tubing used for structure construction.

Two or more overlapping polyethylene sheets between the compartments should be used to ensure that an airlock is maintained as the worker passes through the decontamination facility or unit.

An air extraction unit is needed in the dirty compartment to ensure proper airflow and supply replacement air. Waste water from the decontamination facility should pass through a high efficiency particulate filter (less than 5 microns) before the water can be discharged into the sewer mains (see Figure 14).

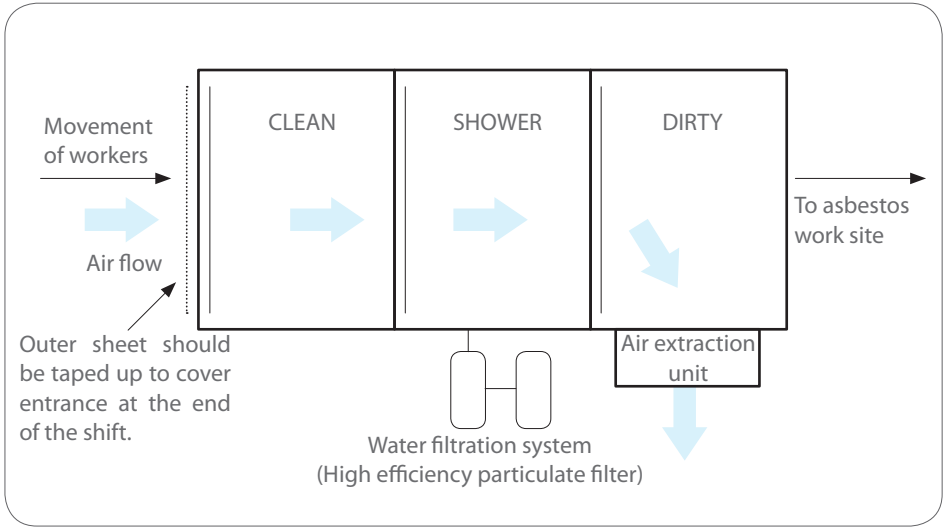

Figure 14: **Illustration of a decontamination facility equipped with a high efficiency particulate filter and air extraction unit.**

Cleaning and Maintenance

Decontamination facilities should be cleaned at the end of each working day. The daily cleaning regime should include the vacuuming of the entire facility followed by a thorough washing down of any exposed surfaces. The water filtration system should also be drained, and debris traps in the shower area emptied. Debris and asbestos waste collected should be put in labelled disposal bags for subsequent disposal. Maintenance workers cleaning the decontamination facilities should wear the appropriate respirator and PPE.

6.6 Removal Methods

The removal technique chosen for asbestos-removal work is usually determined by the nature of the ACMs and their location. Regardless of the technique chosen, the release of asbestos fibres during removal must always be kept to a minimum. Care must be exercised when handling ACMs to minimise breakage. Only non-powered hand tools should be used during the removal process, as the vibration from powered tools will cause more asbestos fibres to be released. Local exhaust ventilation or shadow vacuuming[1] may be used to control asbestos release.

The removal procedures for the different types of ACMs are provided in **Annex C**.

To select the appropriate asbestos-removal method, the following factors should be considered:

- the need to minimise the amount of asbestos fibres generated at the point where ACM is being stripped;
- the type of ACM present (e.g., impervious cement layer on pipe lagging resists wetting whereas lagging such as blankets is better wetted using sprays rather than injection);

[1] Shadow vacuuming applies local exhaust by placing the hose opening of a vacuum cleaner close to the task. The hose opening may be held by a second worker or directly attached to a tool.

- the presence of live electrical equipment that will prevent or restrict the use of controlled wet stripping (wet method);
- the presence of chemicals may present a direct risk to workers or prevent the use of controlled wet stripping methods; and
- the use of wetting agents can result in slips and falls. This is especially important when workers are working at heights.

6.6.1 Wet Method

The wet method refers to water or another wetting agent being used to minimise the release of asbestos. This method is suitable for ACMs that are not covered with other materials (e.g., metal cladding, coated with paint). The wetting agent is sprayed onto the ACM, and sufficient time is given to allow the agent to be absorbed into the material. Over-wetting would result in excess agent seeping out, causing a slip hazard and creating a runoff that may be difficult to handle. The wet ACMs should be removed and placed in a disposal bag, labelled and sealed.

6.6.2 Glove Bag Method

The glove bag is made of strong clear plastic material and can be used in the removal of asbestos-containing gaskets. Generally, the top of the glove bag fits around the material to be removed while the bottom keeps tools and asbestos waste (see Figure 15). The glove bag should have an entry port to allow a spray nozzle to wet the ACM before removal. The bag must not be reused. Procedures to remove the tools and asbestos waste from the glove bag after the removal work have to be established.

Figure 15: **Glove bag containing asbestos waste.**

6.6.3 Injection

Injection methods can be used when the outer surface of the ACM is sealed, covered or coated with impervious material. Where lagging is covered by a cement-like layer, holes can be drilled to allow access for injection heads. The holes should be 10 to 15 cm apart so that the wetting agent is able to reach all areas.

6.6.4 Other Methods

Asbestos can be found in vinyl floor tiles or mastic used to glue tiles to the floor. Hand tools such as scrapers should be used to remove such ACMs. Power tools or abrasive methods such as sanding must not be used during the removal process.

6.7 Personal Protective Equipment

Workers whose work involves asbestos should always put on the appropriate PPE such as disposable protective clothing and respirators.

6.7.1 Disposable Protective Clothing

Workers carrying out asbestos-removal work should use disposable protective clothing. The protective clothing should not have pockets, to prevent asbestos fibres from collecting in them. Also, it should not readily retain or allow the penetration of asbestos fibres. Clothing made of wool or other materials can attract fibrous dusts and must not be worn in the asbestos work area. A Type 5 (BS EN ISO 13982-121) disposable coverall is the appropriate clothing for asbestos work.

The disposable protective clothing must be removed upon leaving the work area (e.g., when the worker goes for meal breaks). It has to be stored in sealed labelled containers to prevent asbestos fibres from getting into the surrounding environment. The worker should refrain from blowing or shaking dust and debris off the clothing as this can dislodge the asbestos fibres. At the end of each shift, the clothing must be disposed of in sealed impermeable bags that are properly labelled.

6.7.2 Respirator

For friable ACM removal work where the exposure is likely to exceed the Permissible Exposure Level (PEL) of 0.1fibre/cc, workers should be provided with powered air-purifying respirators or other high performance equipment (self-contained breathing apparatus or airline respirators). Full-facepiece air-purifying respirators may be used if the exposure is not likely to be above the PEL. On the other hand, for non-friable ACMs removal work and low risk ancillary tasks (e.g., scaffold erection, site set-up, enclosure dismantling, waste handling outside enclosure), provisions should be made for half-facepiece air-purifying respirators equipped with HEPA filters.

Workers should be issued with personal respirators, and they have to ensure that their respirators are regularly cleaned and properly maintained. Fit tests for respirators must be conducted for all users to determine their suitability. Users should also be advised to have their faces clean-shaven to ensure a good fit.

The filter cartridges of the respirators should be replaced when damaged or clogged with dust (e.g., when breathing resistance increases). Workers are reminded to wash their faces and respirators when they leave the work area. The selection, use and maintenance of respiratory protective devices (RPDs), should be in accordance with *SS 548:2009*.

See **Annex D** for the selection and use of RPDs and filter cartridges, and fit test requirements.

6.8 Decontamination

Decontamination is an important step in minimising workers' exposure to residual asbestos fibres during asbestos-removal work processes. The asbestos work area, tools, equipment and PPE need to be decontaminated. Workers should carry out personal decontamination.

Work Area

Decontamination of the work area should be carried out after the asbestos-removal work. The wet-wiping method (e.g., using damp rags to clean the contaminated area[s]) can be used. This is followed by vacuuming to remove asbestos dust. The rags used must be disposed of properly after cleaning. Where wet-wiping is not feasible, sealing agents such as PVA may be used to bind asbestos fibres or dust. After decontamination, a visual inspection should be carried out to ensure that the area has been thoroughly cleaned.

Areas to be decontaminated should include the following, as asbestos debris or residue can be deposited in these areas:

- window sills, ledges, shelves;
- any rough or porous surface;
- support brackets, clamps and pipe hangers;
- nuts and bolts of flanges and hatches of vessels;
- backs of pipes and vessels;
- round conduits and inside cable trays, especially when they are made of metal mesh;
- holes in walls or partitions where pipes, cables or ducts pass through;
- undersides of boilers and tanks;
- folds or overlaps in the polyethylene sheets used to construct the enclosure; and
- electrical installations such as fuse and switch boxes and the inside of light-fitting enclosures.

After decontamination of the work area, an air clearance test should be carried out (see Section 6.10 Air Monitoring for details). The enclosure at the asbestos work area can be dismantled once satisfactory air sampling results are obtained. The sheeting materials used should be taken down, folded inwards, placed and sealed in appropriate disposal bags. The materials used in the construction of the enclosure may be contaminated and they may have to be disposed of as asbestos waste unless they can be effectively cleaned or sealed. All contaminated materials, including cleaning rags, plastic sheeting, timber scaffolds, and PPE must be disposed of properly as asbestos waste.

Tools and Equipment

All tools and equipment used during asbestos-removal work should be properly cleaned and decontaminated before they are removed from the asbestos work area. Otherwise, they would have to be disposed of as asbestos waste depending on the level of decontamination and ease of replacement. Tools and equipment can be cleaned by wet-wiping followed by vacuuming (where practicable) to ensure that all asbestos dust has been removed. Tools that cannot be completely decontaminated or are to be reused should be put in appropriate containers or bags, sealed and labelled.

Personnel

Workers have to carry out personal decontamination in the decontamination facilities at the asbestos work area. They must be trained in decontamination procedures, and adhere to the procedures for using the facilities to avoid contaminating the facilities and creating a health risk to themselves and others.

See **Annex E** for procedures for entering and leaving the asbestos work area.

Soil
In situations where the soil is contaminated with asbestos, for example, due to accidental breakage of ACMs or improper removal of ACMs, the contaminated area should be cordoned off and appropriate steps taken to mitigate the situation.

Decontamination can take the following steps:

- Wet the top layer of soil to minimise generating dust;
- Pick up all visible pieces of ACM debris;
- Remove contaminated topsoil to a depth that has no contamination or asbestos debris (a depth of 10cm is usually sufficient for most cases); and
- Dispose of the contaminated soil as asbestos waste.

6.9 Waste Disposal

Asbestos-containing waste, debris and contaminated clothing should be collected in sealed and impermeable bags or closed containers. The outer surface of these bags or containers should be wet-wiped or vacuumed before they are transported out of the asbestos work area. Bulky asbestos waste such as cement sheets, pipes or insulating boards should be wrapped twice in heavy duty plastic. All asbestos waste should be double-bagged, preferably using a coloured bag on the inside and a clear transparent bag outside. Asbestos waste must be sealed and affixed with labels that clearly indicate the presence of asbestos wastes.

All bags or containers used for asbestos-containing waste should be stored in a designated asbestos waste area. This area should be distinguished from other areas with warning signs. If waste bins or skips are used, wastes must be packed and sealed so that when bins and skips are emptied, there is no residual asbestos contamination.

All asbestos waste should be removed and disposed of accordingly by an approved asbestos disposal contractor regulated by NEA. An application for written permission to dispose of the asbestos waste should be made to NEA. A copy of the receipt issued by the NEA when asbestos waste is disposed off at a landfill should also be kept.

For more information on disposal of asbestos waste, visit www.nea.gov.sg

6.10 Air Monitoring

Air monitoring is conducted to ascertain:

- the airborne concentrations of asbestos fibres so that the correct choice of respirators has been made;
- that there is no measurable spread of airborne fibres to areas adjacent to the asbestos work area; and
- that the work area was adequately cleaned before it was returned to normal use.

Air monitoring is important when:

- large quantities of ACMs have been handled;
- work involves the use of abrasive power or pneumatic tools, and/ or breaking ACMs; and
- significant contamination has occurred.

Air samples collected should only be sent to accredited laboratories for analysis. See **Annex F** for information on air sampling.

6.10.1 Initial Exposure Assessment

To ascertain initial air exposure concentration, air monitoring can be done for friable asbestos before asbestos-removal work starts. The initial exposure assessment can help establish the condition of the work site and ensure that adequate preventive measures have been put in place to protect workers.

6.10.2 Exposure Assessment During Operation

For friable asbestos-removal work, contractors or employers must carry out exposure assessment for workers working in the asbestos work area unless there is:

- reliable data showing that the removal activity will not release airborne fibres in excess of the PEL; and
- historical data from prior monitoring for similar asbestos jobs conducted under similar conditions.

For non-friable asbestos-removal work conducted indoors, contractors or employers must carry out exposure assessment for workers working in the asbestos work area unless the contractor is using the control methods and removal methods recommended in the guidelines. If the contractor uses other control methods, the assessment must be carried out even when workers use supplied-air respirators.

The assessment can be terminated if the results show that the exposure is less than the PEL and there is no change in the conditions, for example, in the work method or equipment used.

6.10.3 Post-operation Assessment

Air or clearance monitoring is necessary after asbestos-removal work is completed for friable ACMs and non-friable ACMs indoors. The monitoring should only be carried out when the area has been cleaned and dried after a visual inspection of the work area.

When the results from the monitoring and visual inspection are satisfactory, the enclosure can then be removed. If any contamination is found during the dismantling of the enclosure, further cleaning must be carried out and the process of visual inspection and air monitoring repeated. For clearance monitoring, the concentration of airborne asbestos fibres in the air should not exceed 0.01 fibres/cc.

7. Training of Workers

Workers involved in asbestos work must be adequately trained not earlier than 12 months before they start any asbestos work and retrained once every 12 months after the completion of the last training.

The training programme must include instructions on the following:

- the harmful properties of asbestos and their hazardous effects on health;
- materials, substances, products and articles which contain or are likely to contain asbestos;
- work, processes or operations which may result in exposure to asbestos and preventive measures to minimise such exposure;
- safe work procedures and use of PPE;
- proper use, maintenance and limitations of respiratory protective equipment;
- asbestos decontamination procedures;
- asbestos waste handling procedures; and
- purpose and requirements of medical examinations as specified in the WSH (Medical Examinations) Regulations.

Training programmes must be reviewed periodically to take into account any significant changes in the type of work and/ or work methods used. The training record shall include information on the syllabus and content of the training programme and the start and end dates of the training programme. The training record must be updated, made readily available and kept for at least two years.

8. Medical Surveillance

Under the WSH (Medical Examinations) Regulations, workers involved in asbestos work must be sent for a pre-placement medical examination not later than three months after their employment commences, and every three years thereafter for regular medical examinations.

The medical examination includes a clinical examination and a large-size chest X-ray, and must be conducted by a designated workplace doctor, The contractor or employer is required to submit a register of all workers involved in asbestos work together with their medical summary reports to MOM. The contractor or employer is also required to update MOM if any asbestos worker has resigned or left employment.

The medical examination reports should be kept by the contractor or employer for at least five years, and should be made available upon request by MOM inspectors. It is recommended that these medical records should be retained as long as possible due to the long latency period of asbestos-related illnesses. Employees could also be given a copy of their medical report.

9. Annexes

Annex A – Materials That May Contain Asbestos

The following are materials that may contain asbestos. The list is not exhaustive.

- Bituminous adhesive or sealant
- Boiler insulation
- Brake disc pad
- Brake or clutch lining
- Caulking or putty
- Ceiling board or panel
- Cement board or panel
- Cement pipe
- Corrugated roof sheet
- Corrugated wall cladding
- Electric wiring insulation
- Electrical cloth
- Electrical panel partition
- Elevator brake shoes
- Fire blanket
- Fire curtain
- Fire door insulation
- Fire proofing cloth
- Fire proofing gloves
- Fire-rated wall
- Fire-resistant board
- Floor vinyl sheet
- Floor vinyl tile
- Gasket
- Gland packing
- Insulation block
- Joint sheet or compound
- Mastic
- Millboard
- Pipe cladding
- Pipe insulation
- Plaster (acoustical or decorative)
- Refractory lining or tile
- Roof gutter
- Roofing felt
- Rubbish or refute chute
- Sprayed insulation
- Textured paint or coating
- Thermal insulation lining
- Thermal paper product
- Ventilation panel or pigeon hole ventilation block

Annex B – How to Conduct an Asbestos Survey

Below are general guidelines on asbestos surveys.

a. Survey Planning

Information you need before conducting an asbestos survey:

- number of buildings to be surveyed;
- description and use of building(s);
- age, type and construction details of building(s);
- details on any extension or refurbishment carried out after the building(s) was completed;
- building plans, floor layout or drawings of the site (to record location of samples taken and indications of ACM presence);
- safety and health hazards on site; and
- the location of heating and ventilation ducts, plant rooms, riser shafts, lift shafts, and so on.

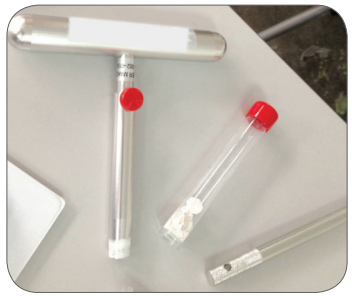

Figure 17: A core sampler.

A list of equipment for asbestos survey work:

Equipment for taking samples	Other ancillary/ auxiliary items	PPE
• Pliers • Screwdrivers • Hammer • Core samplers (see Figure 17) • Tapes • Penknife • Fillers • Hand-spray containing PVA or surfactant • Sampling bags	• Site plan • Step ladder • Camera • Torch • Sampling labels • Type H vacuum cleaner • Asbestos waste bags • Wet wipes • Polythene sheeting	• Disposable clothing • Disposable shoe covers • Disposable gloves • Respirators (where appropriate)

b. Bulk Sampling

Surveys should be carried out systematically to ensure that all areas are inspected and no ACMs are missed out. Each area and room should be thoroughly examined to identify the materials and locations to be selected for sampling.

Below are some good sampling practices:

- Materials should be inspected for apparent differences and variation in appearance;
- Samples of approximately 3 to 5 cm^2 surface area and covering the entire depth of the ACM should be taken;
- For homogenous materials, one or two samples will normally be sufficient. For non-homogenous materials, more samples may be required;
- Repaired or patched materials should be sampled in addition to the original material;
- Materials should be wetted with suitable wetting agent to control any release of airborne asbestos during sampling, and if necessary, shadow vacuuming[2] should be adopted;
- Sampling points, or locations where samples are taken, should be sealed with tapes or fillers to prevent the release of asbestos fibres after sampling; and
- The sampling area should be thoroughly clean, leaving no evidence of debris from the sampling operation.

c. Survey Report

The asbestos survey report should follow the format below:

- Executive summary:
  - brief description of scope and type of survey; and
  - summary of findings and conclusion.

- Introduction:
  - scope, purpose and objectives of survey;
  - type of survey (e.g., management, refurbishment or demolition survey);
  - number of buildings involved in survey; and
  - type and age of building(s).

- Site information:
  - details of surveyor (name of survey company, address, name of surveyor, contact email or number, etc.);
  - details of client (name of company, address, contact person, contact email or number, etc.);
  - name and address of premises surveyed;
  - date of survey;

[2] Shadow vacuuming applies local exhaust by placing the hose opening of a vacuum cleaner close to the task. The hose opening may be held by a second worker or directly attached to a tool.

- date of report;
- areas accessed/ included in the survey;
- inaccessible areas and the reasons why access is not permitted; and
- survey method used.

- Survey results:
  - sample number;
  - location description;
  - product type;
  - photographs of ACM;
  - quantity;
  - test result (asbestos type);
  - condition[3];
  - surface treatment[4]; and
  - building plans indicating the location of ACMs.

- Conclusions and recommendations:
  - summary of findings (list samples that contain asbestos and type of asbestos found); and
  - recommendations and actions to be taken.

- Appendix:
  - bulk analysis results of the samples tested (provided by the laboratory);
  - building plans or floor layout indicating sample locations and areas that contain ACMs; and
  - photographs of the site.

[3] not needed for Demolishment Survey.

[4] not needed for Demolishment Survey.

Examples of ACMs and their locations that could be provided in the survey report:

Sample no	Location	Product type	Quantity	Photo	Test result (asbestos type)
1.	Living room	Ceiling board	Whole ceiling		Amosite
2.	Roof	Corrugated roof sheets	Entire roof		Chrysotile
3.	Backyard roof	Corrugated roof sheets	50m^2		Chrysotile

Annex C – Removal Procedures for Asbestos-containing Materials

Removal Procedures of Non-friable ACMs

- **Manual Dismantling Method**

  If asbestos cement sheets are in a good condition and it is reasonably practicable to provide safe access, they should be taken down in their entirety without breakage. It is best to:

  – Remove them intact;
  – Use wet methods where possible;
  – Immediately vacuum all loose dust along the cut;
  – Lower the roof sheets to the ground as soon as possible or by the end of the work shift;
  – Wrap or bag the removed material before hoisting;
  – Transfer unwrapped materials to a closed receptacle to prevent dispersion of the dust when lowered; and
  – Isolate roof-level ventilation air intakes or shut down the ventilation system.

  Roof sheets should preferably be removed from underneath with mobile elevating work platforms such as scissor lifts or cherry pickers. When using this method, the sheets should not be dropped or damaged. The equipment used should be thoroughly cleaned.

- **Remote Dismantling Method**

  If the sheets are disintegrating or the risk of falls is too great, remote dismantling or demolition methods such as deliberate controlled collapse should be used. Remote demolition could expose equipment operators or waste disposal workers to asbestos fibres.

  When the remote method is used, the work area must be continually sprayed with water to suppress the release of asbestos fibres. The roof sheets should be dismantled in a controlled manner, for example, using excavators fitted with suitable demolition attachments. The area should be cleared of other materials before work commences. The work should be designed to minimise breakage of sheets. Before and while loading the broken sheets onto lorries, keep the sheets damp by spraying them with water. Lorries should be securely covered to prevent the asbestos waste from drying out and dispersing during transportation.

  In some cases, the public may be alarmed by the remote method of demolition as it can be noisy, dusty, or appear uncontrolled, and potentially spread dangerous fibres from asbestos roofing and/ or roof sheets. To alleviate these concerns, contractors can keep members of the public informed about the work and carry out background air sampling at the perimeters of the site.

- **Removal of Floor Tiles**

  To remove asbestos-containing floor tiles, such as vinyl floor tiles, individual tiles should be lifted by scraping manually at their bases. As underlying mastic adhesives may also contain asbestos, any adhering remnant of tiles should be completely removed from the floor slab by manual scraping and wetting.

  To remove asbestos floor coverings, a continuous 1 m high dust barrier sealed to the floor around the work area is required, and mechanical chipping should not be carried out unless in a negative pressure enclosure. Dry sweeping and sand flooring are not allowed.

- **Removal of Gaskets**

  When removing asbestos-containing gaskets, contractors or employers must ensure the following are carried out:

  – Enclose gaskets in glove bags before removal if they are visibly deteriorated and unlikely to be removed intact;
  – Thoroughly wet the gaskets with wetting solutions or water prior to removal;
  – Immediately place the wet gaskets in a disposal container; and
  – Scrape using wet methods to remove residue.

- **Removal of Cement Pipes**

  In most cases, asbestos-containing pipes are considered non-friable. They should not be shattered, crumbled, and/ or pulverised as they will release asbestos fibers. Asbestos-containing pipes should not be sanded, sawed, ground and/ or chipped under any circumstances, such as when using power tools.

  When removing the asbestos containing pipes, contractors or employers must ensure the following are carried out:

  – Excavate the soil to expose the pipes;
  – Use manual tools to clear away the soil surrounding the pipes;
  – Wet the material during removal using a water hose, garden sprayer, spray bottles, or any method that keeps the material wet;
  – Cut the pipe using hand-operated blade cutters or snap cutters and pull the pipe up out of the ground in easy to handle lengths (1 to 1.5 m or 3 to 5 feet); and
  – Do not use compressed air, dry sweep, or vacuum with a non-HEPA rated vacuum cleaner.

Removal Procedures for Friable Asbestos-containing Materials

- **Removal of Lagging and Sprayed Coating**

  If the material is thick (greater than 1 cm), and covered with a coating which can be punctured by injection heads, low-pressure injection can be used.

  If the material is unsealed and relatively thin (less than 1 cm), controlled low-pressure sprays can be used to wet the materials. If there is an impermeable layer which cannot be punctured by injection heads, such as a pipe lagging with a hard cement coating, injection holes can be made by drilling.

  When pipework is redundant, wrap and cut can be applied.

- **Removal of Boards**

  For surfaces which are painted and accessible, shadow vacuuming must be applied while unscrewing the board. Controlled low-pressure sprays should be used on unpainted surfaces, followed by surface vacuuming while unscrewing the boards.

- **Soaking Method (Controlled Wetting Using Injections)**

  If the ACM is so thick that the spray method will not suppress the dust significantly, the soaking method should be used to ensure the material is completely saturated. First, the insulation is soaked in water or another wetting agent through an appropriate applicator which feeds the wetting agent to the insulation via numerous side holes or outlets. To facilitate rapid wetting of the insulation material, holes or cuts should be made in the outer covering to enable water or wetting agents to be injected. It is important to note that the ACM should be saturated with the wetting agent, not just washed out through a liquid passage.

  Where access to ACM is obstructed by coating or cladding, the coating or cladding should be removed carefully to avoid dust generation. Before removal, the surfaces should be vacuum cleaned or where practicable, sprayed with water. The quantity of water or wetting agent and soaking time will depend on the thickness of material, access and location of holes. Water or wetting agent application should be controlled to prevent slurries and/ or surface run off. The saturated ACM should be removed in sections and placed in properly labelled and sealed containers before it is disposed of as asbestos waste.

  The most useful technique for achieving good control of asbestos fibres at the point of removal is multi-point injections, using injection heads which penetrate the outer layer of ACM such as sprayed coatings or lagging. Injection heads with holes only at the tip allow thin layers (1 cm or less) of sealed sprayed coatings to be injected. Alternatively, angled injection heads which help the lateral movement of the wetting agent can be used. However, injection methods may not be appropriate for unsealed sprayed coatings where the injection heads can dislodge asbestos during application.

- **Spray Method**

  The spray method should be used on ACM which is not covered or coated by other materials such as paint and/ or cladding which requires prior removal. The water spray should be applied so that the entire surface of ACM is wet while also minimising runoff. A manually controlled low-pressure water spray could be used. The spray should be both copious and fine so that the water droplets do not generate dust on the surface of the insulation material upon impact. The ACM should be wet through the entire cross section of the ACM.

  The spray should be directed at the cutting-up operation in progress and the wet material removed. The wet ACM should be removed in sections and placed in labelled containers, then suitably sealed. All removed ACM should be properly wet and small sections which may be dislodged should be properly disposed of. Suitable respiratory protection is still necessary when using a water spray method because asbestos dust may not be fully suppressed or eliminated.

Annex D – Selection and Use of Respiratory Protective Devices

Respiratory Protective Devices must be adequate (i.e., provide the level of protection required) and suitable (i.e., matched to the user, job and working environment).

- **Selection**

  The selection of RPD for asbestos work should take into consideration:

  – Expected Level of Exposure

    The expected level of exposure should be established during risk assessment. Results from pre-job or previous air monitoring may be used as a guide in determining expected exposure levels.

  – Protection Factor

    Protective factor determines the effectiveness of the respirator in reducing the concentration of asbestos particles in breathing air.

    See *SS 548: 2009 Code of practice for selection, use and maintenance of respiratory protective devices* for more information on the protection factor of the different RPDs available.

- **Fitting**

  Users must undergo fit testing to ensure they have been outfitted with the right respirator in the right size for their job. A good facial seal is important to ensure optimal respirator performance. Fit testing should be conducted by the manufacturer or manufacturer-accredited representatives.

  A qualitative or quantitative fit test method may be employed to determine if a satisfactory fit has been achieved. A fit test shall not be conducted if there is any hair growth between the face and sealing surface of the respirator, such as a beard or moustache.

  See *SS 548: 2009 Code of practice for selection, use and maintenance of respiratory protective devices* for more information on the fit test procedures.

  A fit test must be conducted before the first use of a respirator and subsequently at least once every 12 months, or whenever there is a change in the user's facial characteristics. Records of fit testing must be kept for at least two years.

- **Maintenance and Storage**

  All respirators must be inspected for defects before each use. Fit checks must be done every time a respirator is used to ensure that the respirator is in good condition and that it is a good fit. Both a negative and positive pressure check should be performed. Respirators must be placed in a clean, sealable plastic bag when not in use.

- **Filter Cartridge**

  For asbestos-removal work, a HEPA filter should be used.

  Under the AS/NZS 1715:2009 and BS EN 143:2000 classification, the Type P3 particulate filter should be selected as it has a 99.95% efficiency.

  Under National Institute of Occupational Safety and Health (NIOSH) classification, a P100 particulate filter should be used where 99.97% filtering efficiency is expected.

Annex E – Procedures for Entering and Leaving Asbestos Work Area

i. Procedure for entering the work area with decontamination facility:

- Enter the "clean area" of the decontamination facility.

- Inspect the respirator to ensure that it is in good working condition.
- Replace filter if/ when necessary.
- For positive pressure powered respirators, ensure that a fully charged battery has been fitted.

- Remove all personal clothing.
- Put on clean protective clothing if provided[5].
- Put on the respirator and carry out a fit check.

- Pass through the "shower area" (without showering) into the "dirty area".

- Enter work area.

[5] If protective clothing was left in the "dirty area" from a previous shift, put it on there.

ii. Procedure for leaving the work area with a decontamination facility:

- Before entering the decontamination facility, while still in the work area, remove all visible dust and fibres from protective clothing, respirator and footwear using vacuum cleaning equipment fitted with a HEPA filter.
- A shoe bath can be provided where there is contamination by wet materials.

- Enter the "dirty area" of the decontamination facility.
- Remove protective clothing and place them in the storage region orplastic bags for disposal.
- Do not remove the respirator.

- Enter the "shower area".
- Shower thoroughly while wearing the respirator.
- Remove the respirator and continue showering.

- Remove filter from respirator and place it into a plastic bag, then leave the bag in the "shower area" for disposal later.
- Ensure that the inside and outside of the respirator is clean.

- Enter the "clean area".
- Dry and change into personal clothing.

- Leave the respirator in the "clean area".
- Charge the battery (if necessary).

- Exit the decontamination facility.

iii. Procedure for entering a work area that uses a transit facility:

- Put on protective clothing and respirator in the "clean area" of the decontamination facility.

↓

- Pass through the "shower area" (without showering) into the "dirty area".
- Wear transit coveralls and foot covers.

↓

- Exit the "dirty area" and walk to the transit facility via designated route.

↓

- Enter the transit facility.
- Remove transit coveralls and foot covers.
- Containers or hooks can be provided in the transit facility for coveralls and foot covers.

↓

- Enter work area.

iv. Procedure for leaving the work area that uses a transit facility:

- While still in the work area, remove all visible dust and fibres from protective clothing, respirator and footwear using vacuum cleaning equipment fitted with a HEPA filter before entering the transit facility.
- A shoe bath can be provided where there is contamination by wet materials.

↓

- Enter the transit facility.
- Remove protective clothing and place them in the storage region or plastic bags for disposal.
- Do not remove the respirator.

↓

- Put on transit overalls and foot covers.

↓

- Exit the transit facility and walk to the decontamination facility via designated route.

↓

- Enter the "dirty area" of the decontamination facility.
- Remove transit overalls and foot covers and place them in plastic bags for disposal.
- Do not remove the respirator.
- Follow **Annex E**: Procedure for leaving work area (main decontamination facility) from showering onwards.

Annex F – Air Sampling

Air sampling involves collecting airborne particles, including asbestos fibers and other fibres by drawing air though a filter using a sampling pump operating at a known flow rate for a measured period of time.

Static sampling is undertaken with the filter holder positioned between one to two meters above ground. The points of measurement should cover likely sources of fibres and places where many people gather.

For personal sampling, the sampling pump should be light and portable so that the worker can wear it on his/ her belt. The filter holder should be positioned within the breathing zone. If the worker is wearing a respirator, he/ she should take care to position the filter holder facing away from the filtered air exhaust outlet of the respirator.

Application	Sampling flow rates (litres/min)	Sample volume (litres)	Graticule areas examined	Limit of quantification (fibres/cm³)
Compliance sampling	1 – 4	240	100	0.04
Assessment of respiratory protection	1 – 4	240	100	0.04
Clearance sampling	2 – 16	480	200	0.01
Background	2 – 16	480	200	0.01
Leak and reassurance	2 – 16	480	200	0.01

Figure 18: **Recommended flow rates, volumes and limits of quantification.**

The sampling flow rate should be adjusted to produce a fibre density of 100 to 1300 f/mm^2 on the filter. For clearance or background leak sampling, the number of graticule areas inspected may be reduced if the collected air volume is increased. In relatively clean atmosphere where targeted fibre concentrations are much lower than 0.1fibre/cc, larger sample volumes are needed to achieve quantifiable loadings. A minimum sample volume of 1200 litres is recommended for air clearance sampling.

Details of the sampling should include the:

- date of sampling;
- type of sampling carried out (e.g., personal, leak, background);
- sampling location;
- details of the worker and type of work he/ she undertook at the time (only applicable for personal sampling);
- identification numbers of equipment used (e.g., sampling pumps, flow measurement devices, filters and sampling heads);
- individual sample details of each sample in the form of:
  - unique identifier;
  - specific sample position; and
  - start and finish time for each sample.

Analytical Methods

NIOSH 7400 Phase Contrast Microscopy Method

The air sample should be analysed using Phase Contrast Microscopy (PCM) to determine the asbestos fibre concentration in the air. However, PCM does not differentiate between asbestos and other types of fibres. All fibres are counted and assumed to be asbestos. Results are expressed in fibres per cubic centimeter (f/cc).

NIOSH 7402 Transmission Electron Microscopy Method

The air sample can be analysed using Transmission Electron Microscopy (TEM). TEM is able to distinguish asbestos from other fibres, expressing results as an asbestos fibre count with the type of asbestos present also reported. The air sample can be analysed using TEM if the analysis result using PCM method exceeds PEL. This method is intended to complement the results obtained by PCM.

10. Further Information

Workplace Safety and Health (WSH) Act

WSH (Asbestos) Regulations

WSH (General Provisions) Regulations

WSH (Risk Management) Regulations

WSH (Medical Examinations) Regulations

WSH Council Code of Practice for WSH Risk Management

WSH Council Code of Practice for Working Safely at Heights

Singapore Standard SS 548: 2009 – Code of Practice for selection, use and maintenance of respiratory protective devices

UK Health and Safety Executive (HSE). Asbestos health and safety.

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Project Brief for Park at Parry Avenue

1. Introduction

This document presents NParks' design brief for guiding the development of the new Neighbourhood Park at Parry Avenue as part of the Parry Avenue development. The newly developed park will offer new therapeutic and recreation dimensions for the development, whilst providing a much-needed prominent green oasis in the neighbourhood. The introduction of a variety of therapeutic landscapes will be the focal feature for this park. The document also stipulates general requirements and strategies for developing the Neighbourhood Park, in line with NParks' efforts to create a more naturalistic parks that offer respite for all.

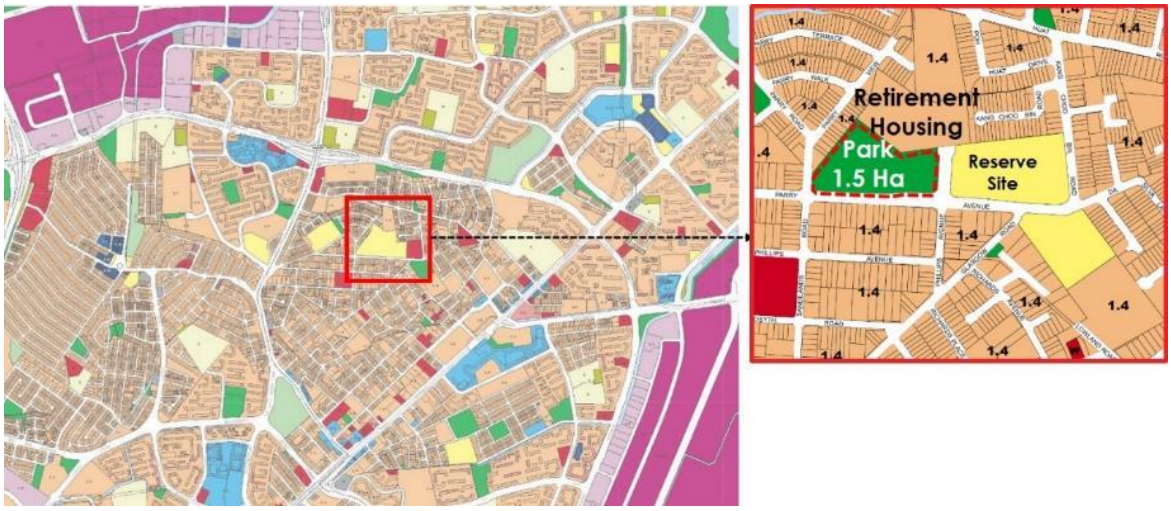

Fig 1: Land-use

2. Site Context & Description

The site of the Neighbourhood Park was used as a playground for the former school on site. It is about 1.5ha, relatively flat, with no existing mature trees.

Fig 2: Site Info

It is surrounded by private developments including detached and semi-detached houses and condominiums. It is near the Japanese Cemetery and the existing Parry Road Playground. To the south of the site is Parry Road, to the west is Parry Road to the north will lie the new Assisted living facility development and to the east is a Reserve site separated by a future road.

Fig 3: Surroundings & Context

3. Concept and Design Overview

The Neighbourhood Park is envisioned as a senior friendly park that creates a healing and restorative environment providing respite for all. It shall offer users various therapeutic and recreational experiences that provide unique intergenerational interaction opportunities. The park design should also consider strategies to augment urban biodiversity in the localised vicinity.

The park shall be characterised as a community park within a naturalistic setting making it a popular recreation hub for the residents from the surrounding neighbourhoods as well as the adjacent Assisted living facility residents. It shall explore avenues for innovative nature play and fitness as well as therapeutic features through thoughtful spatial layouts, zoning and integration. The Successful Tenderer shall strive to curate a naturalistic landscape by including multi-tiered, species rich native planting that targets local biodiversity in order to provide a conducive environment for close interactions with nature in an attractive, comfortable and safe manner.

4. Target Users

The primary users for the Neighbourhood Park will likely be seniors & elderly from the adjoining assisted living facility, their care givers and staff from the assisted living facility as well as multi-generational families from the surrounding neighbourhoods. The park spaces would also be frequented by visitors to the future assisted living facility.

5. Landscape Strategies

The Successful Tenderer is required to develop the park's landscape design narrative using the following three key strategies:

a. <u>Creation of Healing & Restorative Landscape</u>

The design shall be informed with the use of evidence-based design theories. The design should be sensitive to its surroundings and aid stress recovery for all park users. The Successful Tenderer shall curate a restorative and healing landscape informed by pre-established theories like;

- Mental Strength Theory; *(Grahn, 1991; Ottonson & Grahn, 1998)*
- The Prospect-Refuge Theory – PRT*; (J. Appleton, 1975)*
- ART – Attention-Restoration Theory*; (Kaplan & Kaplan, 1989)*
- Selected guidelines for designing restorative environments; *(Kaplan & Kaplan)*
- The experience of Nature*; (Kaplan & Kaplan)*
- The relation between perceived sensory dimensions of urban green space and stress restoration; *(PatrikGrahn Ulrika K.Stigsdotte)*
- Design Guidelines for Therapeutic Gardens in Singapore (*National Parks Board*)

<u>Note:</u> The above list is not exhaustive the ST to conduct independent research and literature review on the available publications to put forth a well-balanced and informed proposal.

b. <u>Inter-generational Nature, Recreation & Therapeutic Opportunities</u>

The Successful Tenderer is to create sustainable and comfortable recreational, therapeutic and nature interaction opportunities for the park users to enhance their overall park experience and to promote interaction between different user groups. The location and design of the various zones for different activities shall take into consideration the principles extracted from evidence-based theories as well as the overall circulation and movement of users through the park.

c. <u>Use of Naturalistic Landscapes</u>

In line with NParks' vision to create naturalistic parks the Successful Tenderer shall strive to curate a naturalistic landscape for the park. This may comprise but not restricted to inclusion of multi-tiered, diverse native planting, non-manicured landscapes, sustainable landscape and ecosystems. Use of naturalised drains, vegetated swales to replace concrete drains where possible to convey and manage surface water run off would assist in naturalizing the park. Using natural elements & materials incorporated within design and an attention to connecting people with nature by incorporating biophilic design principles shall be a crucial factor in design development.

d. <u>Comfort & Safety</u>

The Successful Tenderer shall create an environment of comfort & safety for park users of all abilities. Thermal comfort, accessibility, safety & age friendly design features shall be primary considerations for design.

6. Spatial Zoning and Landscape Design Key Features

6.1 Spatial Zoning

Spatial zoning and configuration for the park shall be strategised in a way to include social and active spaces closer to the assisted living facility as well as the park entrances. Zoning for the park must be informed from the theories prescribed in Section 5a in this document and should lend to creating a restorative environment.

6.2 Landscape Typology & Planting Themes

An overall planting theme of low-land secondary forest shall be followed for this park. The Successful Tenderer is expected to use this as a guide to further develop the planting palette for NParks' review.

a. <u>Small Wooded Pockets</u>

Using the lowland secondary forest structure, smaller pockets of serene, wooded areas shall be integrated within the landscape that provide peaceful reflective areas. The Successful Tenderer can consider citing these pockets within the calming zone.

b. <u>Habitat Mosaics</u>

The Successful Tenderer shall include habitat mosaics to augment the urban biodiversity in the vicinity. This may include creation of micro-habitats targeted for birds & butterflies.

c. <u>Therapeutic Green Courts</u>

Therapeutic Gardens and its softscape shall be designed as large green courts of therapeutic planting associated with the human senses, local culture & nostalgia. Special focus shall be given on inclusion of edible plants.

d. <u>Naturalised Drains</u>

The Successful Tenderer is encouraged to use naturalised drains and vegetated swales as part of the park's drainage system in line with NParks' efforts to make parks more naturalistic.

6.3 Planting Considerations

The Successful Tenderer must ensure sufficient shade for all activity spaces and pathways within the park from day one and hence must select suitable trees with large crowns. Special focus shall be given on inclusion of native and edible plant species. Tree with poisonous attributes or large fruits should be avoided. Pre-grown trees may be considered as well but the Successful Tenderer shall ensure their market availability.

Based on past resident engagement sessions, special attention should be given to shading the perimeter of the park.

The Successful Tenderer may consider incorporating the following trees into the landscape plan of the park: *Sterculia parviflora, Elateriospermum tapos, Hydnocarpus castenea, Cleistanthus malaccensis, Diospyros ferrea, Cratoxylum* spp.*, Leea rubra, Kopsia singapurensis,* etc

<u>Note:</u> Only for indication, not an exhaustive list. ST shall develop the planting palette and seek NParks' review for the same.

7. Park Planning Parameters

a. Circulation & Access

Primary access from Parry Avenue to the Neighbourhood Park shall be provided. In addition to the access from the Assisted living facility the Successful Tenderer may consider providing an access from the future road to the east of the park. The Successful Tenderer is to ensure all pedestrian circulation meets the requisite universal design standards set by BCA. The site circulation and accesses shall take into consideration all agencies' requirements and usage.

The Successful Tenderer to ensure high amount of shade along all pathways from day one and confirm plant availabilities to ensure the same.

b. Secondary Paths

The Successful Tenderer shall also provide for a network of secondary pedestrian pathways with minimum 2.5m width to connect to the park amenities and the Assisted living facility development. This also includes paths connecting the nature play, therapeutic gardens and fitness areas.

c. Maintenance Access

A maintenance access of min 3.0m must be provided in consultation with NParks to cater for crane lorries. The maintenance access is to be connected to the main circulation and must be able to take the loading of a fire engine and maintenance vehicles. The turning radius of the vehicles shall be factored into the design along with the ingress and egress points.

d. Ramps

The Successful Tenderer shall strive to provide ramps to mitigate all level differences within the park. The ramps are to be minimally 2.5m wide and are to comply with BCA's standards for barrier-free accessibility.

8. Facilities & Furniture

The following age-friendly spaces and facilities shall be studied and appropriately cited in response to the overall planning of the park being adjacent to the Assisted living facility development.

a. Nature Play Garden

The Successful Tenderer shall cater for a nature play garden and recreate and utilise natural environments that offer open-ended play for children with natural elements that allow free play such as sand, logs & twigs, leaves, rocks & stones. The play garden shall be designed in a way that stimulates children to explore the natural elements and play features as well as encourage imagination and explorative play.

The play garden must be developed using the NParks' Nature Play Garden design principles. NParks will provide a more detailed set of guidelines once the Successful Tenderer is on board.

The nature play garden shall be located away from any of the residential boundaries and Assisted living facility, and suitably buffered with planting to minimise noise disturbance to the residents.

The Successful Tenderer shall explore integration of naturalised playscapes/fitness for adults and seniors together with the Nature Play Garden for children. See point 'h' for further information.

b. Therapeutic Gardens

The Successful Tenderer shall cater for two therapeutic gardens within the park.

Therapeutic Garden for Seniors

Considering the demographic trend of Hougang town and the upcoming Assisted living facility development, the park provides an excellent location for a Therapeutic Garden (TG) for seniors. The TG shall have a unique underlying concept that sets it apart from the existing TGs in Singapore. It must be designed based on the TG Design Guidelines published by NParks. It may incorporate innovative use of natural materials, nature and natural elements to enhance mental and physical wellbeing, strength and stability and augment the overall user experience. The TG can include playscapes/exercise features to improve motor skills like balance, walking, grasping as also improving mental abilities and sharpness, focus, direction.

Pet – Friendly Therapeutic Garden

Research suggests that the human-animal bond is a mutually beneficial and dynamic relationship which positively influences the health and well-being of both. NParks is piloting pet friendly therapeutic gardens with the intention to create an environment in nature that can meet the physical, psychological and social needs of the people in a garden, by combining the therapeutic usage of animals along with the restorative benefits of plants. Using plants and pet-related activities to improve mental and physical well-being through active and passive involvement. The garden should cover an area of approximately 500sqm and comprise of a small, fenced dog run with various obstacles of approximately 250sqm, small enclosed/semi-enclosed spaces for small animals, a shelter, benches, wash area, drinking fountain, shaded and quiet resting area for dogs, and bins with lids. The materials used to construct the garden should be as natural as possible utilising sand, logs, mounds, rocks & stones.

The Successful Tenderer shall explore locating the Pet Friendly Therapeutic Garden to the south or east of the park away from the residential areas to minimise any disturbance to the residents. Buffer planting should also be included around the perimeter to further buffer any noise. Special attention for the planting is required to ensure the are no toxic plants present.

c. Community Garden

The Successful Tenderer shall cater for a community garden that gives the residents an opportunity to interact and bond. Minimally 50% of the area selected for the community garden shall receive full day, unobstructed light. The community garden to include a mix of true ground plots as well as raised planters to cater for people with all abilities and age groups. Planters' width should be between 100-120cm to maximize gardening space and allow gardeners from both sides to access the space easily. The raised planters shall be designed for sufficient planting depth, min 450mm and shall be integrated with some storage space for tools and other personal gardening equipment. All footpaths should be levelled. Main footpath should be minimally 600mm wide and

secondary footpath to be 400mm wide for ease of access and safety. No more than 5% of the community garden's area should be dedicated to storage house or a store. The Successful Tenderer is to provide an appropriate drainage system for all planters and the overall garden and devise an innovative use of plants and/or signage to demarcate the community garden within the park development to prevent or deter vandalism.

The community garden shall be equipped with all the necessary requirements such as water points, storage area/shed, rest area & benches etc. Whilst the community garden must remain accessible to the park users, its planting design could be such that it acts as a seamless natural barrier to deter vandalism

d. Park Furniture

Standard park furniture including benches and litter bins shall be provided in the Neighbourhood Park. The design of park furniture may follow the standard set of construction drawings developed by NParks. Benches shall be connected to footpaths by means of a permanent platform with a minimum apron all around the bench and with inclusion of ample space for a wheelchair lot. Benches shall be equipped with backrest, arm rests and shall be designed to discourage sleeping on them. Benches shall be placed and designed in a manner that they can be safely utilised during long periods of social distancing.

e. Lawn & Activity Area

A lawn and activity area of approximately 3,000sqm shall be appropriately located such that it encourages spontaneous group activities. It should support group exercises or events, such as yoga, zumba, etc, with sufficient pockets of seating areas located around the activity lawn.

f. Calming Zone

The Successful Tenderer shall include a Calming Zone within the park design. It shall have a grove of trees in a densely planted manner, replicating the experiences that will be felt in a natural forest. Trees with textured barks or interesting features shall be proposed for areas where appropriate to encourage interaction. The experience created within this zone shall encourage exploration, refuge, etc. and conducive for forest bathing in groups or individual users. A labyrinth shall be considered in the design for meditation and mindfulness practice. This zone shall also provide pockets of quiet and serene reflection spaces for the park user.

The Successful Tenderer is encouraged to locate the Calming Zone such that it fronts the residential developments along Parry View to assist in providing privacy and buffering noise. Consideration should be given to avoid planting tall trees with branches overhanging into the residential properties; for instance, by transitioning to smaller trees as the distance to the residential boundaries decreases.

g. Shelters & Toilets

An adequate number of suitably sized shelters and toilets shall be provided and optimally placed in the park. The shelters shall be located away from the adjacent residential developments and buffered with planting to minimise noise disturbance and deter illegal gatherings. A larger shelter with power points to conduct group activities & programs shall be incorporated near Therapeutic

Garden, supported by smaller shelters spread across the park. The Successful Tenderer is to explore inclusion of green roofs for shelters and toilets to reduce the ambient temperature and provide a cooling environment for users. The toilet shall make use of natural ventilation and light where possible. The toilet design shall include facilities and features to cater to elderly and persons with disabilities. Along with the toilet a small store and a water cooler/dispenser point shall also be provided. An area of 60sqm may be considered for the toilet block and store, subject to site constraints and detailed design.

Shelters and toilet shall be designed in accordance to NParks' standard requirements. NParks has a set of standard construction drawings for shelters which can be incorporated into the design where necessary.

h. Fitness Area and Jogging Track

The Successful Tenderer shall provide a multi-generational fitness area and jogging track for adults and seniors. The fitness area shall be designed in a way that makes use of natural materials and elements that ties in with the nature play garden design. The Successful Tenderer can devise innovative ways to use nature and natural elements to enhance mental and physical wellbeing, strength and stability. The fitness area can include elements to improve motor skills like balance, walking, grasping as also improving mental abilities including sharpness and focus.

The Successful Tenderer shall provide a jogging track circuit around the park which integrates with the primary/secondary path network.

9. Technical Requirements

9.1 Environmental Sustainability Safe Distancing Measures

The Successful Tenderer should consider Safe Distancing requirements in the overall design of park amenities and spaces. He shall illustrate to NParks how the park could be safely utilised in the event of extended social distancing measures considering the recent global pandemic.
Sustainable ecological design and development techniques shall be employed, including water management, eco-friendly materials and recycling of on- site materials.

9.2 Environmental Graphic Design Component

The Environmental Graphic Design components of the entrance sign, notice board, directional signs including advisory signs shall be discussed and thought out with the Environmental Graphic Design team of NParks, and then developed into technical details and graphical artworks. The signage shall be installed at strategic points of the park to inform and guide park users. A comprehensive and effective on-route way-finding strategy should be proposed. It should include an overall plan that consists of, but is not limited to, spatial accessibility and connectivity studies, signage typology, design, quantity and location.

The interpretive copywriting/editorial strategy should include a comprehensive storyline and content elements (not limited to research, editing, copyright photos) that are able to communicate the history, conservation, biodiversity and other park features to the public through interpretive medium proposed.

Signage typology should include, but is not limited to, entrance sign, map board, notice board, directional sign, regulatory sign, distance marker, instructional and interpretive sign. The signage system should address form and function while incorporating Universal Design (UD) principles to address safety, visibility, access and barrier-free installation. The signage design should be effective in providing direction and educational/interpretation information, communicating park rules and the identity of Park at Parry Avenue.

The Successful Tenderer shall execute or provide full graphic artworks services for all design items which include, but are not limited to:

- proposing and executing detail map graphics,
- layout design,
- photo/image sourcing (copyright free),
- photo/image editing,
- illustration works, and
- submitting colour visuals for approval.

The master copy of Finished Artworks (FA) with editable text and graphics, shall be saved into CD and submitted to NParks upon completion of the project.

9.3 Universal Design & Certifications

The design of the Neighbourhood Park shall provide access throughout the park with graded levels and finishes suited for the physically challenged. Refer to BCA Barrier-Free Access code and Universal Design Guidelines for further information.

The Successful Tenderer shall prepare and consolidate all relevant documentation, write-ups, specifications, drawings, etc, to facilitate the submission to relevant authorities to achieve targeted recognition for Green Mark for Buildings from BCA. The Successful Tenderer shall also facilitate submission to PUB for the ABC Waters Certification Programme and NParks' Landscape Excellence Assessment Framework Certification scheme.

9.4 Lighting

The Successful Tenderer shall propose a lighting scheme for the park, taking into consideration the main circulation path, which shall have an average illumination level of 5 lux and a minimum level of 1 lux. The PCN trail coming through the waterfront which shall have an average illumination level of 10 lux and a minimum level of 7.5 lux. The playground and fitness areas shall have an average illumination level of 20 lux and a minimum level of 6 lux. The Successful Tenderer shall also ensure that the glare from installed lights will not cause disturbance to the residents around the park.

9.5 Operations Maintenance Manual

At the end of the project implementation, the Successful Tenderer shall prepare and submit a full set of Operations Maintenance Manual (OMM), for NParks' review. The OMM shall include the following:

- Finalised design concept for park
- Topography plans and as-built drawings

- Planting and landscape plans
- All services drawings, electrical single line drawings
- Facilities catalogues and warranty

Please refer to Annex A for the OMM checklist.

ADDITIONAL NOTES

- All Plans are indicative drawings and are not drawn to Scale.
- All distances and areas are only approximate measurements.

FM Operation and Maintenance Manual's (OMM) Checklist

Project Title :

Date of CSC :

Owner :

Developer :

FM Officer :

Consultant :

Contractor :

The following shall serve as a guide for the general contents of all OMM to be submitted to Facilities Branch of NParks Board.

No.	Operation & Maintenance Manual Content	Yes	No	NA
a	**General**			
1	Provide 1 sets (hardcopy & softcopy) of OMM in ring file, made available 1 month before handover inspection			
2	Provide 1 soft copy in ditigised form, the as-built drawings shall be in A1 size and formatted according to As Builts CAD and GIS Specifications.			
3	Provide the schedule of rates for all building material, sanitary & fittings and mechanical services			
	The ring files shall have a content page in the following order:			
b	**As built drawings and existing information of the projects, if applicable.** *Notes: All as built drwgs to be endorsed relevant by QPs and to be submitted in A1 size drwgs. The drwgs to be kept in clear plastic folders in the ring files (See additional *Notes below)*			
i)	Architectural Drawings			
	• *Site and interpretation plans,*			
	• *Layout plan*			
ii)	Civil and Structural Drawings			
	• *Water and irrigation tanks,*			
	• *Drainage and sewerage,*			
	• *Lamp post and signage mounting details,*			
	• *Bridges, culvert, retaining wall and other structures,*			
iii)	Mechanical Service Drawings			
	• *Piping and system schematics,*			
	• *Layout Plan*			
	• *Underground Tank*			
	• *Sewerline*			
	• *Equipment schedule and etc,*			
iv)	Electrical Service Drawings			
	• *Lighting and electrical layouts plans,*			
	• *Lightning protection layout plans,*			
	• *Single line diagram with LEW/PE endorsement and etc,*			
v)	Copy of the approved authority submission drawings			
	• *BCA,*			
	• *FSB,*			
	• *NEA,*			

	• *PUB,*			
	• *Power Grid and etc*			
No.	**Operation & Maintenance Manual Content**	**Yes**	**No**	**NA**
c	All **warranties, letter of guarantees and certifications** by PSB, TUV,			
i)	Endorse copy of all test results and supervision certificates			
→	Mechanical Test			
	• *Pressure Testing Results*			
	• *System pressure measurements*			
	• *Flow rate readings, and etc.*			
→	Electrical Tests			
	• *Earth fault loop impedance,*			
	• *Earth electrode resistance,*			
	• *Leakage current reading,*			
	• *Earth fault current setting reading,*			
	• *Megger reading,*			
	• *Polarity test and etc.*			
→	Supervision certificates, and etc.			
ii)	All approval letters from relevant authorities pertaining to the projects			
	• *Power Supply,*			
	• *PUB,*			
	• *Power Grid,,*			
	• *NEA,*			
	• *FSB,*			
	• *LTA,*			
	• *BCA*			
d	**Material Cutsheet/ Catalogues of all installed material, system and equipments**. This sector shall have an accompanying summary chart indicating these equipment information: a) model, types & description and b) units or number installed of the following systems			
i)	*Painting System,*			
ii)	*Special Structure,*			
iii)	*Benches, dust bin, railing and etc,*			
iv)	*Subsoil and open drainage systems,*			
v)	*Roofing system,*			
vi)	*Waterproofing system,*			
vii)	*Termite treatment,*			
viii)	*Playground and fitness equipments,*			
ix)	*Irrigation systems,*			
x)	*Lightning protection systems,*			
xi)	*Lighting and electrical systems,*			
xii)	*Fan and mechanical ventilation systems,*			
xiii)	*Fire alarm and protection systems,*			
xiv)	*Sanitary and plumbing systems, and etc.*			
e	Summary table of contacts of consultants, sub-contractors and suppliers involved the project			
i)	*Address,*			
ii)	*Telephone/ Fax,*			
iii)	*Email / Website,*			
iv)	*Date of Completion & Handover*			

The above information shall serve as a guide and is by no means exhaustive. The contractor shall ensure that all the information submitted is correct, updated and comprehensive. Should there be any missing, incomplete or not updated information, the handover shall be deemed incomplete

Vetted by FM OIC: _____ (Name / Designation)

Approved by SO: _____ (Name / Designation)

***Notes:**

1. Submission of preliminary set of as-built drawings 1 (one) month upon TOP or CSC, whichever is later
2. Submission of final set of as-built drawings and OMM 6 (six) months upon TOP or CSC, whichever is later (i.e. this will also align with the timeline for submission of Interim Final Account and most required works will have been completed).

ANNEX G

REQUIREMENTS OF THE MINISTRY OF HEALTH (MOH)

1.0 Background

1.1 Singapore is ageing rapidly. One in four Singaporeans will be aged 65 and above by 2030. The majority of seniors can be supported in the community to live independently even as they age and become frailer. A smaller proportion of our senior population will have moderate or severe disability, requiring nursing home care.

1.2 In today's landscape, there is a gap between independent living in one's own home and institutional care in nursing homes. There is a need to expand the continuum of residential options for our seniors by integrating housing with care to better cater to the needs of seniors across the care spectrum.

2.0 Vision for the Development

2.1 The Land Parcel is envisaged to be developed into an assisted living development, which integrates housing with care services that can be scaled according to care needs, to support seniors to age-in-place. The assisted living development should aim to improve the quality of life for seniors by creating an enabling community that promotes social interaction as well as mutual care and support, while providing a safe, less medicalised home environment that promotes independence and dignity. It would also provide nursing home care to ensure a seamless transition of care for residents who may develop high care needs over time.

2.2 The proposed assisted living development shall provide long-term residential accommodation to persons aged 65 and above with a variety of needs. This would include seniors who are able to live independently with minimal support services to those who require nursing home care. In addition, it shall:

a) provide residents with a continuum of care;

b) create opportunities for meaningful interaction and social bonding;

c) empower residents to make choices for themselves and stay connected with the wider community; and

d) offer residents a living environment that enables independence, as far as possible.

3.0 Objectives

<u>Objective 1: Provide residents with a continuum of care</u>

3.1 The Successful Tenderer shall provide a range of services that can enable residents to live, socialise and receive the support they require to continue living in the same community as they age and their care needs change. These shall be adjusted to the needs and capabilities of each resident and may include (but are not limited to) active ageing programmes, assisted living and care services such as day care, rehabilitation, wellness programmes and nursing care.

3.2 Prior to admission to the assisted living development, the Successful Tenderer shall conduct a comprehensive needs assessment with interested applicants to ascertain the types of services they require based on their health, care, social and psychological needs. This shall be reviewed periodically following admission, or when there is a change in the resident's health condition, whichever earlier. Please refer to Annex A1 of **Annex H (Service Level Deed)** for further details on care assessment requirements.

3.3 Should residents require services which are not offered within the assisted living development, the Successful Tenderer shall provide relevant information and link-ups to external service providers. Should the demand from residents for a specific service be particularly strong, the Successful Tenderer may consider engaging a third-party vendor to provide the service on-site.

<u>Objective 2: Create opportunities for meaningful interaction and social bonding</u>

3.4 The site shall be designed to encourage meaningful interaction and social bonding among residents of the assisted living development. This includes encouraging seniors to provide mutual support in their day-to-day living, as well as creating opportunities for community bonding and the formation of informal social networks. Community spaces provided could include gathering spaces for group activities, community kitchens, or small gardens which can be used for community gardening, exercise or sensory therapy.

3.5 In addition, the Successful Tenderer shall develop a diverse range of social programmes, and periodically take into account feedback from residents on their needs, interests and preferences on type and frequency of activities, as well as mode of interaction (e.g. face-to-face or virtual). It shall also take into account the varying levels of functional ability for different groups of residents. Programmes may be open to members of the surrounding community and include inter-generational activities that involve younger people interacting or volunteering with the residents.

<u>Objective 3: Promote residents' autonomy through person-centered social programming</u>

3.6 The Successful Tenderer shall create an enabling environment that empowers residents to make their own choices. This shall include providing choices in day-to-day decisions, such as meal times, food options as well as recreational activities. Information and support shall also be provided to empower residents

to decide on their care preferences, such as where and how they would like to receive their care.

3.7 The Successful Tenderer shall ensure that there is flexibility in the social programming of the assisted living development, such that residents have the time and opportunity to stay connected with their family members and friends who live outside of the development. There shall also be provision made for residents' family members and friends to visit residents regularly.

Objective 4: Offer residents a safe living environment that enables independence

3.8 The Successful Tenderer shall provide appropriate support to enable persons of varying levels of functional abilities in this development to enjoy their independence and enable them to carry on with their daily activities in a supported home environment (as opposed to the traditional concept of an institutional care facility). The Successful Tenderer may deploy a range of solutions to achieve these ends, such as leveraging technology, or relying on volunteers or paid staff who can provide unobtrusive monitoring and support.

3.9 The built environment (at both the individual building and site level) shall be senior-friendly and dementia-friendly. For example, the design inside the home shall minimise potential safety risks e.g. through anti-slip flooring, grab-bars, good contrast colour schemes and adequate lighting to reduce falls risks. It shall also offer flexible and/or structured spaces for residents to mingle with their family members, friends and members from the surrounding community.

3.10 The outdoor environment shall be barrier-free, accessible and secure. Outdoor spaces should be made safe through technology and design as far as possible, rather than restricted to supervised access only.

3.11 The site design and range of services provided shall be comprehensive and flexible enough to cater to residents' needs, even as their social, emotional and care needs change over time. This could include, but are not limited to providing flexible access to additional pastoral care, medical or nursing services if required.

3.12 To mitigate the risks of infectious diseases, the Successful Tenderer shall also ensure that there are policies and protocols put in place for the surveillance and monitoring of their residents' health conditions, as well as the containment and escalation of cases suspected to have infectious diseases.

4.0 Assisted Living Model

4.1 Tenderers shall propose new and innovative assisted living models that they will provide at the proposed development (" Assisted Living"). The assisted living models as agreed to between the Successful Tenderer and MOH shall be incorporated into Annex A1 *(Specifications for Assisted Living model)* of the Service Level Deed (attached at **Annex H**) to be signed by the

Government (as represented by MOH) and the Successful Tenderer pursuant to Condition 8.1 of the Conditions of Tender.

4.2 Tenderers shall use the form provided in Appendix I of **Annex G** to set out their proposed services.

4.3 Tenderers shall base their proposed assisted living model and services on the following elements:

a) the requirements for the proposed assisted living development as stated under Conditions 2.0 and 3.0 of the **Annex G**;

b) the terms and conditions of the Service Level Deed attached at **Annex H**;

c) the general specifications for assisted living as stated under specification no. 1 to 5 set out in Annex A1 *(Specifications for Assisted Living model)* of the form of the Service Level Deed attached at **Annex H**; and

d) the service parameters as stated under Condition 4.5 in **Annex G**.

4.4 Tenderers may propose modifications or additions to the service parameters as stated under Condition 4.5 in **Annex G** when making their proposal. These modifications or additions should be clearly indicated in Appendix 1 of **Annex G**, along with a description of the underlying rationale, any potential risks to client safety and well-being as well as any mitigating measures that would be introduced in response to these risks. For the avoidance of doubt, any and all proposed modifications and additions are subject to MOH's approval and MOH's decision will be final

Service Parameters for Assisted Living

4.5 In drawing up their proposal for the provision of services for the Assisted Living, Tenderers should take into account the following:

(I) Scope of Services	i) Health and Holistic Wellness • Regular health screening • Active ageing activities • Health and financial education (e.g. talks on managing chronic illnesses or making a Lasting Power of Attorney, etc.) ii) Personal Care • Assistance with showering • Mobility and transfers • Personal hygiene • Elimination/toileting • Feeding • Meals preparation/delivery

	• Housekeeping • Laundry iii) Professional care • Regular care assessments • Medical services • Medication reconciliation • Nursing assessment and care • Allied health services (including rehabilitation services) • Dementia care • Palliative care iv) Nursing Home Care • Range of services as listed under point iii) • Care assessment and planning (including advance care planning) v) Practical/ Social Support • Financial assistance and counselling • Escort to Medical Appointments • Caregiver Training vi) Others • 24/7 emergency monitoring and response • Simple home fixes
(II) Client Safety and Care Model	i) The prevailing regulatory approach for the respective services provided. For example, Nursing Home services provided in the development must be licensed as a Nursing Home and subject to the Private Hospitals and Medical Clinics Act [1] (PHMCA), PHMC Regulations (PHMCR), Licensing Terms and Conditions for nursing homes ("NHLTCs"),) and prevailing regulations and guidelines set out on the Health Ministry website - www.hcsa.sg. ii) Clinical aspects of care (such as pain management, falls prevention and mobility) iii) Social aspects (such as dignity of care, living environment) iv) Pandemic control measures
(III) Governance and organisational excellence	i) Financial Position ii) Emergency preparedness iii) Organisational management and business continuity plans in the event of foreseen/unforeseen closure

[1] PHMCA will be transited to the Healthcare Services Act (HCSA) in phases starting in 2022. Tenderers may refer to www.hcsa.sg for more information.

5.0 Targeted Outcomes for Services

5.1 Tenderers shall propose up to 15 key performance indicators for the Services that they will provide at the proposed assisted living development if they are awarded the tender ("Targeted Outcomes"). The Targeted Outcomes that are agreed to between the Successful Tenderer and MOH shall be incorporated into Annex A3 (*Targeted Outcomes for Assisted Living model*) of the Service Level Deed (attached at **Annex H**) to be signed by the Government (as represented by MOH) and the Successful Tenderer pursuant to Condition 8.1 of the Conditions of Tender.

5.2 Tenderers shall use the format of Annex A3 of **Annex H** to state their proposed Target Outcomes for Assisted Living model.

5.3 Tenderers shall ensure that their proposed Targeted Outcomes are senior-centric, outcome-based and tracks the results of the innovative models of assisted living introduced. The proposed Targeted Outcomes are subject to MOH's adjustment and approval and MOH's decision will be final.

6.0 Services for Non-Residents

6.1 Tenderers may choose to provide services for persons living outside the proposed assisted living development ("Non-Residents"). If so, Tenderers shall propose the models of care for the Non-Residents, and the key performance indicators for those services if they are awarded the tender. The models of care for Non-Residents and the key performance indicators as agreed to between the Successful Tenderer and MOH shall be incorporated into Annex A1 *(Specifications for Assisted Living model)* and Annex A3 (*Targeted Outcomes for Assisted Living model*) of the Service Level Deed (attached at **Annex H**) signed by the Government (as represented by MOH) and the Successful Tenderer pursuant to Condition 8.1 of the Conditions of Tender, respectively.

6.2 Tenderers shall use the form provided in Appendix I of **Annex G** to set out their proposed services for Non-Residents and proposed key performance indicators for those services.

6.3 Tenderers shall base their proposed services for Non-Residents and proposed key performance indicators for those services on the following elements:

a) these services may include nursing home care, respite care, day care, home care or rehabilitation services;

b) the terms and conditions of the Form of the Service Level Deed attached at **Annex H**; and

c) the general specifications for care model as stated under specification no. 1 to 5 set out in Annex A1 *(Specifications for Assisted living model)* of the Form of the Service Level Deed attached at **Annex H**.

7.0 **No Previous Debarments**

7.1 The Successful Tenderer shall not be currently debarred from participating in public sector tenders. If the Successful Tenderer is a licensee licensed under the Private Hospitals and Medical Clinics Act (Cap. 248) ("PHMCA"), it shall not have had its license revoked at any point in time prior to this tender.

8.0 **Financial Sustainability**

8.1 The Successful Tenderer shall have positive Net Tangible Assets.

8.2 Tenderers may furnish the company's credit rating in the course of submitting their tender offers, where available.

APPENDIX I

TEMPLATE FOR PROPOSED SERVICES FOR RESIDENTS AND NON-RESIDENTS

Where proposed modifications or additions to the parameters detailed in Condition 4.0 of Annex G involve the waiving of existing regulations in relation to this pilot, prospective tenderers must include the rationale and/or mitigating measures.

Proposed Services for Residents and Non-residents
a. **Overall Philosophy and Description:**
b. **Proposed services to cater to continuum of care needs of Residents:**
c. **Proposed services for Non-Residents:**:
d. **Proposed modifications or additions to the parameters detailed in Condition 4.0 of Annex G** **Rationale for modification(s) or addition(s):** **Potential risks to client-safety and well-being and corresponding safeguards to mitigate these risk(s): :**
2. Proposed Key Performance Indicators (KPIs) for the Services
Illustrative Examples

S/N	Type of Indicator	Proposed KPI	Tracking	Reporting Frequency

1	Process/Output	e.g. 90% of all residents participated in at least three social-recreational activities each week.	e.g. participation rates would be tracked by the programme coordinator	e.g. Once a year.
2	Outcome	e.g. 80% of all residents reported the same or higher quality of life (QOL) after they moved into the assisted living facility.	e.g. A QOL survey would be administered at the point of admission and between 6 months to a year following admission.	e.g. Once a year.

3. Any Additional Comments:

**

ANNEX H

This draft deed is for information only. The Authority shall have the right to further amend this form of the Service Level Deed at its sole discretion.

SERVICE LEVEL DEED

BETWEEN

THE GOVERNMENT OF THE REPUBLIC OF SINGAPORE

as represented by the
MINISTRY OF HEALTH

AND

XXX

in relation to
the Assisted Living Development
at Parry Avenue, Singapore

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ANNEXES

Annex A1: Specifications for Assisted Living model
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A3: Targeted Outcomes for Assisted Living model

SERVICE LEVEL DEED

This **Service Level Deed** ("**Deed**") is dated [ ] and made between:

THE GOVERNMENT OF THE REPUBLIC OF SINGAPORE, as represented by the **MINISTRY OF HEALTH,** of College of Medicine Building, 16 College Road, Singapore 169854 (the "**Authority**") of the one part,

AND

XXX (UEN: YYY), a [company] incorporated in [place] and having its registered address at ZZZ ("**Operator**") of the other part.
[If a Consortium, to state the details of all members of the Consortium]

WHEREAS:

A. The Authority has awarded the tender for the Lease of the parcel of land at Parry Avenue in the Republic of Singapore to the Operator, for the development of the Assisted Living Development. The Operator is required under Condition 8.1 of the Conditions of Tender to sign a deed with the Authority for the purpose of providing a framework to formalise the Authority's requirements for the provision and delivery of services at the Assisted Living Development.

B. This Deed sets out the Authority's requirements for the provision and delivery of services at the Assisted Living Development by the Operator.

NOW THIS DEED WITNESSETH AS FOLLOWS: -

1. DEFINITIONS

1.1. Unless the context otherwise requires, the following definitions shall apply to this Deed:

Approved Provider	:	means an entity or organisation approved by the Authority under the Medical and Elderly Care Endowment Schemes Act 2000 to provide aged care services.
Assisted Living Client	:	means any individual to whom the Operator has granted any Assisted Living Sublease, and who resides in an Assisted Living Unit.
Assisted Living Development	:	means [insert name of assisted living development] located at Parry

		Avenue.
Assisted Living Sublease	:	means any sublease of the Lease, entered or to be entered into to lease an Assisted Living Unit.
Assisted Living Unit	:	means any assisted living residential unit of the Assisted Living Development, as described in Annex A1.
Building Agreement	:	has the meaning ascribed to it in the Conditions of Tender.
Care Staff	:	means registered nurses ("RNs"), enrolled nurses ("ENs"), nursing aides ("NAs"), health care assistants ("HCAs"), health attendants ("HAs"), senior care associates ("SCAs"), patient care associates ("PCAs"), allied health professionals ("AHPs") and other providers of healthcare services.
Clients	:	means all clients of the Assisted Living Development, including Assisted Living Clients.
Conditions of Tender	:	means the Conditions of Tender published by or on behalf of the Authority for the parcel of land at Parry Avenue.
Consortium	:	means an unincorporated joint venture through the medium of a consortium or a partnership.
Contract	:	means the resulting contract between the Authority and the Operator as a result of the Authority's acceptance of the Operator's Proposal which terms and conditions are contained in the following: (a) the Conditions of Tender;

(b) the Technical Conditions of Tender;

(c) the Operator's Proposal;

(d) the Tender Acceptance Letter (as defined in the Conditions of Tender);

(e) any correspondence exchanged between the Authority and the Operator which is agreed to by the Authority in writing as amplifying or modifying the Operator's Proposal; and

(f) any formal agreement executed between the Parties in connection with the Operator's Proposal;

including all schedules and annexes to such documents as relevant.

F & E	:	means furniture and equipment.
GST	:	means the goods and services tax imposed under the Goods and Services Tax Act 1993, including any amendment or re-enactment thereof.
HCSA		means the Healthcare Services Act 2020, including any amendment or re-enactment thereof (including any re-enactment under a different name).
ILTC	:	means intermediate- and long-term care.
Land	:	means the land on which the Assisted Living Development is located, together with the buildings erected thereon and includes each and every part of such land or property.
Lease	:	has the meaning ascribed to it in the Conditions of Tender.
Losses	:	means all liabilities, losses, damages,

		actions, claims, demands, costs (including legal costs on a full indemnity basis and experts' and consultants' fees), settlement sums and sums paid in satisfaction of court, arbitral or expert award.
Minister	:	means the Minister for Health, or an officer of MOH who is authorised to act on behalf of the Minister for Health.
MOH	:	means the Ministry of Health.
NHLTCs	:	means the Licensing Terms and Conditions for nursing homes.
Non-Assisted Living Client	:	means a Client who is not an Assisted Living Client.
Nursing Home	:	means premises within the Assisted Living Development in which Nursing Home Services are provided by the Operator.
Nursing Home Services	:	means the nursing or rehabilitative care of an individual suffering from an ailment, a condition, disability, disease, disorder or an injury.
Operating Period	:	means a period approved by the Authority and notified to the Operator in writing, or such renewed or extended period, during which the Operator shall have the Operating Rights to the Assisted Living Development.
Operating Rights	:	means the rights to operate the Assisted Living Development and provide the Services pursuant to this Deed.
Operation Commencement Date	:	means the date on which the Operator shall commence provision of Services at the Assisted Living Development,

		as determined by the Authority in writing.
Operator's Proposal	:	means the proposal submitted by the Operator for the development of the Assisted Living Development pursuant to the Conditions of Tender and the Technical Conditions of Tender.
Parties	:	means the Authority and the Operator collectively, and "Party" shall mean any one of them.
Personnel	:	means directors, officers, employees, servants and agents.
PHMCA	:	means the Private Hospitals and Medical Clinics Act 1980, including any amendment or re-enactment thereof (including any re-enactment under a different name).
PHMCR	:	means the Private Hospitals and Medical Clinics Regulations.
Resident Caregivers	:	means caregivers who reside with the Assisted Living Clients in the Assisted Living Development.
Security	:	means a mortgage, charge, pledge, lien or other security interest securing any obligation of any person or any other agreement or arrangement having a similar effect.
Services	:	means services provided at the Assisted Living Development based on the specifications detailed in Annex A1 of this Deed.
Subcontractor	:	means any person, firm or company engaged by the Operator to perform any part or parts of the Operator's obligations and includes the Subcontractor's duly appointed representatives, successors and permitted assignees and the

		Subcontractor's subcontractor.
Total Resident Client Capacity	:	means the maximum number of Assisted Living Clients that can reside in the Assisted Living Development at any given point in time.
Technical Conditions of Tender	:	has the meaning ascribed to it in the Conditions of Tender.
Temporary Occupation Permit	:	means a temporary occupation permit issued under the Building Control Act 1989.
Working Day	:	means a day which is not a Saturday, Sunday or a public holiday in Singapore.

1.2. Words importing the singular include the plural and vice versa. The word "days" denotes calendar days unless otherwise specified.

1.3. The headings are for convenience only and not for the purposes of interpretation.

1.4. References to a person include any company, limited liability partnership, partnership, business trust, unincorporated association or government agency (whether or not having separate legal personality).

1.5. Unless the context otherwise requires, a reference to one gender shall include a reference to the other gender.

1.6. Unless a contrary intention appears, a reference in this Deed to "including" shall not be construed restrictively but shall mean "including without prejudice to the generality of the foregoing" and "including but without limitation".

1.7. Unless otherwise provided, any reference to any legislation shall be deemed a reference to such legislation as amended or revised from time to time and be deemed to include any subsidiary legislation made under such legislation.

1.8. All references to clauses in this Deed or any other document, unless otherwise expressly stated, are references to clauses numbered in this Deed or the document in which the reference appears respectively.

2. SCOPE OF DEED

2.1. The Operator shall provide the Services at the Assisted Living Development in

accordance with the terms and conditions set out in this Deed, for the duration of the Building Agreement and the Lease.

2.2. Prior to the issue of a Temporary Occupation Permit or Temporary Occupation Permits by the relevant competent authority for the whole of the Assisted Living Development, the Operator shall not create or permit to subsist any Security over the Land (or any part thereof), or any of its rights, title or interests under the Building Agreement or the Lease, except as permitted under the Conditions of Tender.

2.3. Notwithstanding the Conditions of Tender, the Building Agreement and the Lease and in addition to any requirement under the Conditions of Tender, the Building Agreement or the Lease, on and after the issue of a Temporary Occupation Permit or Temporary Occupation Permits by the relevant competent authority for the whole of the Assisted Living Development, the Operator shall notify the Authority in writing at least thirty (30) days in advance before any Security is created or permitted to subsist over the Land (or any part thereof), or any of the Operator's rights, title or interests under the Building Agreement or the Lease.

2.4. The Operator shall not enter into a single transaction or a series of transactions (whether related or not and whether voluntary or involuntary) to sell, lease, sublease, transfer or otherwise dispose of the Land (or any part thereof), or any of its rights, title or interests under the Building Agreement or the Lease, unless:

(a) such sale, lease, sublease, transfer or other disposal is permitted under the Conditions of Tender and Clause 2.5 is complied with; and

(b) save in the case of a sublease permitted under sub-paragraph (a) above, the person, to whom the Operator intends to sell, lease, sublease, transfer or otherwise dispose of the Land (or any part thereof), or any of its rights, title or interests under the Building Agreement or the Lease, enters into a deed with the Authority containing similar terms and conditions as those contained in this Deed, and the Operator has not parted with the possession of the Land (or any part thereof) before the execution of the said deed by such person.

2.5. The Operator shall ensure that each sublessee (including each Assisted Living Client) accepting the sublease of any part(s) of the Land (including an Assisted Living Sublease) shall not at any time during the term of the sublease further sublease or otherwise dispose of or part with possession of such part(s) of the Land subleased to the sublessee. The Operator shall take such measures as may be necessary to ensure compliance of the foregoing requirement by each such sublessee, including ensuring that its contracts and subleases with sublessees expressly prohibit the sublessees from further subleasing or otherwise disposing of or parting with possession of such part(s) of the Land subleased to the sublessees.

3. LICENSING, AUTHORISATIONS AND INSPECTIONS

3.1 The Operator shall, at its own costs, obtain and maintain all licenses, permits, certifications and authorisations required, without any restrictions or qualifications whatsoever so as to enable the Operator to fulfil all its obligations under this Deed. These

include, but are not limited to, the relevant licenses, permits, certifications and authorisations required under the PHMCA [1], HCSA or any subsidiary legislation promulgated thereunder.

3.2 The Operator shall comply with:

(a) the requirements issued by the Authority (including circulars, standards and guidelines) which are applicable to all healthcare providers in Singapore, which may be reviewed and/or updated by the Authority from time to time, whether expressly referred to in this Deed or not; and

(b) applicable laws and regulations (including PHMCA, PHMCR and HCSA), and prevailing licensing terms and conditions (including NHLTCs), circulars, standards and guidelines that may be issued (whether by the Authority or otherwise) to the Operator from time to time.

3.3 The Operator shall allow the Authority to conduct investigations, audits or inspections at any location in which the Operator is providing or has provided Services, for the purpose of ensuring proper compliance with this Deed. The costs of conducting any such investigation, audit or inspection shall be borne by the Authority.

3.4 The Operator shall cooperate with and provide all support, information and assistance necessary to the Authority or the auditor (including access to the Operator's financial records) for the conduct of the investigations, audits or inspections referred to in Clause 3.3 at no charge to the Authority. The Authority reserves the right to conduct spot-checks on the Operator for the purpose of such investigations, audits or inspections.

3.5 All investigations, audits or inspections referred to in Clause 3.3 shall be in the form of a government audit, or a third-party audit conducted by a reputable audit firm acceptable to the Authority.

4. COMMENCEMENT DATE AND OPERATING PERIOD

4.1. Notwithstanding any prior notification made by the Authority, the Authority shall have the right to change the Operation Commencement Date and Operating Period at its sole discretion upon further written notice being given to the Operator.

4.2 This Deed shall continue:

(a) until terminated in accordance with the terms of this Deed; or
(b) until the Lease is terminated or expires,

whichever of the above events occurs the earliest.

5. SERVICES PROVIDED AT THE ASSISTED LIVING DEVELOPMENT

[1] PHMCA will be transited to HCSA. The Operator shall comply with the PHMCA/ HCSA and the prevailing subsidiary legislation thereunder.

5.1. The Operator shall provide the following services starting from the Operation Commencement Date and throughout the Operating Period:

(a) the Services; and

(b) any additional service(s) that may be subsequently agreed to between the Operator and the Authority pursuant to Clause 5.2 of this Deed.

5.2. Should the Operator wish to provide additional services that are not listed, mentioned or covered at the time of signing of this Deed, the Operator shall submit an application to the Authority to seek prior written approval from the Authority. The Authority shall consider the application and in its sole discretion may grant written approval for the Operator's application to provide such additional services. In such an event, the Parties shall sign a separate agreement regarding the provision of these additional services.

5.3. The Operator shall ensure that all Services at the Assisted Living Development are provided in a secular manner that respects the religious beliefs of the Clients.

5.4. The Operator shall ensure that in the course of providing Services at the Assisted Living Development that involve the provision of food and beverages, it shall provide a range of dietary options based on the medical conditions, religious restrictions and dietary preferences of the Clients. Insofar as the Halal diet is concerned, the Operator shall ensure that it complies with the Administration of Muslim Law Act 1966, any subsidiary legislation promulgated thereunder, and such requirements as may be issued by the Majlis Ugama Islam Singapura.

5.5. The Operator shall provide Services according to the terms and conditions as set out under **Annex A1** of this Deed.

5.6. When admitting Assisted Living Clients, the Operator shall comply with the following conditions:

(a) the Operator shall only admit persons aged 65 years and above who would like to reside in the Assisted Living Development. The Operator shall admit such persons regardless of race, language, religion, gender, or medical conditions, with the exception of those individuals who fall within the scope of Clause 5.6(b) below;

(b) the Operator shall not admit any individual who is bed bound and has a high level of nursing needs at the point of admission (i.e. equivalent to Level 3 of care according to Table A1-1 of Annex A1). For avoidance of doubt, this exclusion criteria does not apply to the admission of Non-Assisted Living Clients into the Nursing Home;

(c) the Operator shall:

(i) ensure that the Assisted Living Sublease of each Assisted Living Client may only be varied with the mutual agreement of both the Operator and the Assisted Living Client, and that the Operator does not unilaterally vary any term or condition of any Assisted Living Sublease, and the Operator

shall ensure that any change to the terms and conditions of an Assisted Living Sublease is clearly documented and a copy of such documented change is provided to each Assisted Living Client to which the change relates;

(ii) provide in each Assisted Living Sublease that each Assisted Living Client may terminate his Assisted Living Sublease immediately without penalty if the Operator breaches any term of that Assisted Living Sublease; and

(iii) subject to Clause 5.6(d)(iii), offer each potential Assisted Living Client the option of an Assisted Living Sublease of a duration ending on the date on which that potential Assisted Living Client reaches the age of 95 years old, or if such an Assisted Living Sublease will amount to a disposal of land or part thereof within the meaning of Section 4 of the Planning Act 1998, the Operator shall offer that potential Assisted Living Client an Assisted Living Sublease of the maximum aggregate term permitted under Section 4 of the Planning Act 1998 without such Assisted Living Sublease being regarded as a disposal of land or part thereof under that Section 4;

(d) the Operator shall ensure that:

(i) each Assisted Living Sublease (as may be extended pursuant to an option to renew or extend) does not amount to a disposal of land or part thereof within the meaning of Section 4 of the Planning Act 1998;

(ii) the term of each Assisted Living Sublease (taking into account any length of term that is or may be extended pursuant to an option to renew or extend) ends no later than 6 months before the expiry of the Lease; and

(iii) where the term of the Lease will expire before a potential Assisted Living Client reaches the age of 95 years, the term of any Assisted Living Sublease to be offered to that potential Assisted Living Client shall be for such duration equivalent to the remaining term of the Lease but ending no later than 6 months before the expiry of the Lease;

(e) to avoid doubt, nothing in Clauses 5.6(c)(iii) and 5.6(d)(iii) prevents a potential Assisted Living Client and the Operator from agreeing to the Assisted Living Sublease of that Assisted Living Client having a duration that is longer or shorter than a duration ending on the date on which that Assisted Living Client reaches the age of 95 years old, subject to Clauses 5.6(d)(i) and (ii);

(f) if an Assisted Living Client outlives his Assisted Living Sublease, the Operator shall, subject to the existence of a remaining Lease period, offer the Assisted Living Client the option of sublease renewal ("Sublease Renewal") of a duration to be agreed between the Operator and the Assisted Living Client. To avoid doubt, there may be more than one Sublease Renewal. The Operator shall ensure that the term of any such Sublease Renewal ends not later than 6 months before the expiry

of the Lease; and

(g) the Operator shall ensure that the terms of any Sublease Renewal offered pursuant to Clause 5.6(f) are no less favourable for the Assisted Living Client than the Assisted Living Sublease between the Operator and the Assisted Living Client that subsists immediately prior to the Sublease Renewal. If the Assisted Living Client does not enter into a Sublease Renewal , the Operator shall (unless the Assisted Living Client declines such assistance) provide him with appropriate assistance to locate alternative accommodation (such as referral to social service agencies).

5.7. The Operator shall allow each Assisted Living Client to be accompanied by a maximum of **ONE (1)** Resident Caregiver. Resident Caregivers shall not be included in the calculation and assessment of the Total Resident Client Capacity.

5.8. The Operator shall ensure that each contract signed or to be signed between the Operator and an Assisted Living Client in connection with the Assisted Living Sublease granted or to be granted by the Operator to that Assisted Living Client:

(a) is fair and comprehensive, and clearly states the exit and refund arrangements to be implemented upon that Assisted Living Client's demise or early termination of his Assisted Living Sublease;

(b) contains the conditions set out in **Annex A2**; and

(c) is submitted to the Authority for approval and is approved by the Authority before such contract is signed.

5.9 The Operator may provide Services to Non-Assisted Living Clients. Non-Assisted Living Clients shall not be included in the calculation and assessment of Total Resident Client Capacity.

5.10 The Operator shall ensure that, at all times, the Assisted Living Development has a minimum of 100 beds which have been designed and constructed specifically for dedicated use as Nursing Home beds reserved and maintained for the provision of Nursing Home Services.

5.11 The Operator may admit Non-Assisted Living Clients to the Nursing Home but shall prioritise the admission of Assisted Living Clients to the Nursing Home, so as to ensure that Assisted Living Clients have ease of access to the entire continuum of care within the Assisted Living Development when the need arises.

6. TARGETED OUTCOMES FOR ASSISTED LIVING SERVICES

6.1. The Operator shall ensure that it meets the targeted outcomes for the assisted living model as set out in **Annex A3** of this Deed ("**Targeted Outcomes**").

7. RIGHTS OF THIRD PARTIES

7.1. A person who is not a party to this Deed shall have no right under the Contracts (Rights of Third Parties) Act 2001 to enforce any of its terms.

8. GIFTS, INDUCEMENT OR REWARDS

8.1. The Authority shall be entitled to immediately terminate or rescind this Deed and recover from the Operator the amount of any loss resulting from such termination or rescission if:

(a) any Operator Representative has offered or given or agreed to give to any person any gift or consideration of any kind as an inducement or reward for:

(i) doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or performance of this Deed; or

(ii) showing favour or disfavour to any person in relation to any contract with the Authority; or

(b) any Operator Representative has engaged in any activity or conduct that has resulted or will result in a violation of any Anti-Corruption Laws.

8.2. In this Clause 8:

"**Anti-Corruption Laws**" means:

(a) Chapter 9 of the Penal Code 1871;

(b) the Prevention of Corruption Act 1960; and

(c) any other applicable law including any foreign law which:

(i) prohibits the conferring of any gift, payment or other benefit on any person or any officer, employee, agent or adviser of such person; or

(ii) is broadly equivalent to the laws set out in paragraphs (a) or (b) or which has as its objective the prevention of corruption.

"**Operator Representative**" means any of the following:

(a) the Operator;

(b) any person employed by the Operator; or

(c) any person acting on behalf of the Operator (whether with or without the knowledge of the Operator).

9. GOVERNING LAW

9.1. This Deed shall be deemed to be made in Singapore and shall be governed by and construed in accordance with the laws of the Republic of Singapore.

10. SUB-CONTRACT, TRANSFER AND ASSIGNMENT

10.1. The Operator shall not, without the prior written consent of the Authority, sub-contract its obligations, or transfer or assign the benefit of the whole or any part of this Deed, the Contract, the Building Agreement or the Lease.

10.2. The Operator shall be responsible for the acts, defaults, negligence and omissions of its Subcontractors, their agents, servants or workmen.

11. VARIATION

11.1. Save as expressly provided in this Deed, no variation of this Deed shall be of any force unless agreed upon in writing and signed by the authorised signatories of both Parties.

12. FORCE MAJEURE

12.1. Neither Party shall be liable for any failure to perform its obligations under this Deed if the failure results from events which are beyond its reasonable control ("**Force Majeure Event**") provided always that whenever possible the affected Party will resume that obligation as soon as the factor or event occasioning the failure ceases or abates. For purposes of this Deed, "Force Majeure Event" shall include acts of God, acts of civil or military authority, civil disturbance, wars, strikes, fires and other catastrophes.

12.2. If the effect of any Force Majeure Event continues for a period exceeding ninety (90) days, the Authority may at any time thereafter give notice to the Operator to terminate this Deed with immediate effect without being liable to the Operator in damages or compensation.

12.3. If a Force Majeure Event occurs, the Operator or the Authority (as the case may be) shall for the duration of such Force Majeure Event be relieved of any obligation under this Deed as is affected by the Force Majeure Event except that the provisions of this Deed shall remain in force with regard to all other obligations under this Deed which are not affected by the Force Majeure Event.

12.4. Failure of the Operator's Subcontractors or suppliers to perform their obligations shall not be regarded as events beyond the control of the Operator.

13. COMPLIANCE WITH THE LAW

13.1. The Operator shall, in performing its obligations under this Deed, comply with all applicable laws and shall keep the Authority indemnified against all penalties and liabilities of every kind for the breach of any such laws.

14. DEFAULT BY THE OPERATOR

A. Non-Severe Breach

14.1. If the Operator is in breach of any of its obligations under this Deed that the Authority, in its sole discretion, determines to be non-severe ("**Non-Severe Breach**"), the Authority may issue a written notice to the Operator to remedy the Non-Severe Breach to the Authority's satisfaction within **six (6) months** from the date of the written notice, or such time that may be otherwise agreed to between the Parties.

14.2. The Operator shall satisfy the following when remedying a Non-Severe Breach:

(a) the Operator shall furnish reports to the Authority to show the reasons for the breach, corrective steps and/or solution(s) undertaken to remedy the Non-Severe Breach;

(b) the Operator shall attend all meetings as may be requested by the Authority from time to time for any reason whatsoever, including to discuss matters of concern arising out of its reports, including any actions that the Operator is taking to remedy the Non-Severe Breach;

(c) the Operator shall carry out such remedial action as identified in its reports until such time as the Authority notifies or directs the Operator as to the remedial action to be taken to remedy the Non-Severe Breach; and

(d) the Operator shall develop and implement an Overall Improvement Plan ("**OIP**") if the Authority so requires. The Operator shall submit an OIP to the Authority for approval within **thirty (30) days** of receiving the request from the Authority. The Operator shall also comply with the following:

(i) in the OIP, the Operator shall identify the remedial action it shall be carrying out and the milestones for monitoring performance improvement and the date by which the Operator expects to complete the remedial action;

(ii) the Operator shall submit monthly reports to the Authority on the progress of implementation whilst under the OIP, unless the Authority informs the Operator otherwise; and

(iii) the Operator's compliance with the OIP shall be monitored regularly by the Authority through audits or other channels.

14.3. If the Operator is unable to remedy the Non-Severe Breach to the Authority's satisfaction

within the period stipulated in Clause 14.1 above:

(a) the Authority shall have the right (in addition to and without prejudice to all other rights or remedies available to the Authority, including the right to claim damages) to **terminate this Deed with immediate effect** by written notice; and

(b) the Authority shall, in the alternative to Clause 14.3(a), have the right to request that the Operator submit a second OIP ("**Second OIP**") to the Authority within **thirty (30) days** of receiving the request from the Authority. The Operator shall submit the Second OIP and shall comply with the obligations as set out in Clause 14.2(d) above as if references in that Clause to "OIP" refer to the Second OIP instead. If the Authority (in its sole and absolute discretion) does not approve the Second OIP, or if it approves the Second OIP but the Operator is not able to remedy the Non-Severe Breach to the satisfaction of the Authority within the timeline stated in the Second OIP, the Authority shall have the right (in addition to and without prejudice to all other rights or remedies available to the Authority, including the right to claim damages) to **terminate this Deed with immediate effect** by written notice.

14.4. If the Authority is satisfied with the remedial action carried out by the Operator pursuant to Clause 14.1 or Clause 14.3(b) above, the Authority may issue to the Operator a written notice informing the Operator of the same.

B. Severe Breach

14.5. If the Operator is in breach of any of its obligations under this Deed that the Authority, in its sole discretion, determines to be severe (e.g. such as where safety of a Client is compromised) ("**Severe Breach**"), the Authority may issue a written notice to the Operator to remedy the Severe Breach to the Authority's satisfaction within **fourteen (14) days** from the date of the written notice, or such time that may be otherwise agreed to between the Parties.

14.6. The Operator shall satisfy the following when remedying a Severe Breach:

(a) the Operator shall furnish reports to the Authority to show the reasons for the breach, corrective steps and/or solution(s) undertaken to remedy the Severe Breach;

(b) the Operator shall attend all meetings as may be requested by the Authority from time to time for any reason whatsoever, including to discuss matters of concern arising out of its reports, including any actions that the Operator is taking to remedy the Severe Breach; and

(c) the Operator shall carry out such remedial action as identified in its reports, until such time as the Authority notifies or directs the Operator as to the remedial action to be taken to remedy the Severe Breach.

14.7. If the Operator is unable to remedy the Severe Breach to the Authority's satisfaction within the period stipulated in Clause 14.5 above, the Authority shall have the right (in

addition to and without prejudice to all other rights or remedies available to the Authority, including the right to claim damages) to **terminate this Deed with immediate effect** by written notice.

C. Breach is incapable of being remedied within a reasonable time

14.8. If the Operator is in breach of any of its obligations under this Deed that the Authority, in its sole discretion, determines to not be remediable within a reasonable time, the Authority shall have the right (in addition to and without prejudice to all other rights or remedies available to the Authority, including the right to claim damages) to **terminate this Deed with immediate effect** by written notice.

14.9. If the Operator is in breach of any of its obligations under this Deed, the Authority shall have the right to provide interim caretaking services in connection with the Assisted Living Development. The Authority may, or may appoint agents to, temporarily manage the Assisted Living Development as a whole, and/or any Services as determined by the Authority in its sole discretion. Any additional costs and expenses incurred by the Authority and/or its agents shall be paid by the Operator. The Operator shall permit the Authority and/or its agents to enter the Assisted Living Development for the purposes of providing such interim caretaking services and managing the Assisted Living Development and/or any Services (and all things incidental thereto). The Operator shall also give all assistance to the Authority and its agents as may be required by the Authority and its agents.

14.10. Any breach or termination of this Deed pursuant to this Clause 14 may be taken into account as part of the Operator's track record in the event that the Operator participates in any future Invitation to Tender or Request for Proposal called by the Authority.

15. OTHER TERMINATION EVENTS

15.1. If any of the following events occur, save where such termination is prohibited under Section 440 of the Insolvency, Restructuring and Dissolution Act 2018, the Authority shall be entitled to terminate this Deed with immediate effect by written notice being issued to the Operator, and the Operator shall have no claim for any damages or compensation:

(a) any person (other than the Operator, the Authority or any Assisted Living Client) takes possession of the Land (or any part thereof) or exercises its right of sale or foreclosure under any Security in relation to the Land (or any part thereof), the Building Agreement or the Lease without the prior consent of the Authority, where the prior consent of the Authority is required;

(b) the Operator, at any time or for any reason or in any way, fails to observe and comply with the terms of the Conditions of Tender, the Technical Conditions of Tender, the Operator's Proposal, the Contract, the Building Agreement or the Lease or is otherwise in breach of any of the terms of the Conditions of Tender, the Technical Conditions of Tender, the Operator's Proposal, the Contract, the Building Agreement or the Lease;

(c) the Contract, the Building Agreement or the Lease, or any part thereof, is terminated or forfeited for any reason, or the Authority becomes entitled to terminate the Contract, or the lessor under the Building Agreement and/or the Lease becomes entitled to terminate or forfeit the Building Agreement and/or the Lease or commences forfeiture proceedings in relation to the Building Agreement and/or the Lease;

(d) any provision, condition or endorsement incorporated into any Security in relation to the Land (or any part thereof), the Building Agreement or the Lease pursuant to Condition 71 (Circumstances Where Mortgage And Charge Allowed) of the Conditions of Tender, is breached or not complied with;

(e) the Operator becomes insolvent;

(f) where the Operator is a company, a receiver, provisional liquidator or liquidator is appointed over any undertaking or property of the Operator or an order is made or a resolution is passed for winding-up or dissolution without winding-up (other than for the purposes of amalgamation or reconstruction) of the Operator;

(g) where the Operator is a partnership, the Operator is dissolved or has a bankruptcy order made against it;

(h) where the Operator is an individual, the Operator becomes bankrupt or dies;

(i) legal proceedings alleging insolvency are brought against the Operator;

(j) the Operator enters into any composition or arrangements with creditors; or

(k) the Authority determines that an Adverse Effect exists, has occurred or might reasonably be expected to occur.

15.2. In this Clause 15:

"**Adverse Effect**" means an adverse effect on or adverse change in:

(a) the business, assets, operations or condition (whether financial or otherwise) of the Operator; or

(b) the ability of the Operator to perform and comply with any of its obligations under this Deed.

16. CONSEQUENCES OF TERMINATION

16.1. The Authority shall have the right to enforce this Deed, the Building Agreement and the Lease concurrently. The Operator acknowledges and agrees that if this Deed is terminated by the Authority, the Building Agreement and the Lease may concurrently be terminated by or on behalf of the Authority.

16.2. If this Deed, or part thereof, is terminated, the following shall apply:

(a) termination shall be without prejudice to any rights and obligations of either Party which have accrued prior to such termination and any obligation which expressly or by implication is intended to come into or continue in force on or after such termination;

(b) the Authority shall, at its sole discretion, have the right to appoint, contract with or engage another person to provide the Services, and any additional costs and expenses incurred shall be paid by the Operator, and the Operator shall give all assistance to such person as may be required by the Authority or such person;

(c) the Authority shall have the right to provide interim caretaking services in connection with the Assisted Living Development. The Authority may, or may appoint agents to, temporarily manage the Assisted Living Development as a whole, and/or any Services as determined by the Authority in its sole discretion, and any additional costs and expenses incurred by the Authority and/or its agents shall be paid by the Operator, and the Operator shall give all assistance to the Authority and its agents as may be required by the Authority or its agent; and

(d) the Operator shall indemnify and keep indemnified the Authority against any and all Losses sustained, incurred, paid by or suffered by the Authority arising out of or in connection with any termination of this Deed, including costs and expenses relating to any novation and/or termination. The Authority shall not be liable to the Operator for any damages or compensation.

16.3. Nothing in this Clause 16 shall be deemed to prejudice any other rights or remedies available to the Authority against the Operator for any breach of the Operator's obligations whether under this Deed or at law or in equity.

17. EXIT MANAGEMENT

17.1. During the Transition Period (or such other period as may be determined or required by the Authority), the Operator shall, at its own cost and expense:

(a) make available to the Authority and any third party succeeding the Operator appointed by the Authority ("**Incoming Operator**") such documents and records and provide such assistance (including briefings and trainings) as the Authority or the Incoming Operator may require to allow an orderly transition to the Incoming Operator with minimal disruption; and

(b) without prejudice to the generality of Clause 17.1(a):

(i) cooperate with the Authority and the Incoming Operator to ensure the smooth transition of Services for Clients to the Incoming Operator;

(ii) work with the Authority to communicate the taking over by the Incoming Operator to Clients and their next-of-kin;

(iii) ensure that all essential records of Clients, including referral records, care assessment records, medical history and social records, care and treatment

plans and payment records, are accurately and completely digitised (including conversion of paper records into Excel spreadsheets or paper records scanned) and properly organised to be handed over to the Incoming Operator upon the takeover; and

(iv) allow the Incoming Operator to observe the Operator's operations and provision of Services at the Assisted Living Development, and allow the Incoming Operator to observe workflows related to Client care and to familiarise themselves with the environment of the Assisted Living Development.

17.2. In this Deed, "**Transition Period**" means:

(a) the period of SIX (6) MONTHS before the expiry or termination of this Deed; or

(b) where the notice period for termination of this Deed is shorter than the period referred to in Clause 17.2(a), the period of SIX (6) MONTHS commencing from the date of notice of such termination.

17.3. This Clause 17 shall survive the termination or expiry of this Deed.

18. INDEMNITY

18.1. The Operator shall indemnify and keep indemnified the Authority against any and all Losses sustained, incurred, paid by or suffered by the Authority arising directly or indirectly out of or in relation to the following:

(a) a breach of any terms of this Deed (including but not limited to any claim or action by any third party alleging infringement of any intellectual property rights of such Party); or

(b) any claim (including without limitation claims by any employee or agent of the Operator or the general public) for any damage, injury, loss or accident sustained in relation to the Operator's performance of this Deed provided that such expenses, damage, injury, loss or accident is not caused by the gross negligence or wilful default of the Authority, its officers or agents.

19. ARBITRATION

19.1. Subject to Clause 20, any dispute, claim, question or disagreement arising out of or relating to this Deed shall be referred to and finally resolved by arbitration in Singapore in the English language by a sole arbitrator in accordance with the Arbitration Rules of the Singapore International Arbitration Centre ("**SIAC**") for the time being in force which rules are deemed to be incorporated by reference into this Clause.

19.2. The seat of the arbitration shall be Singapore.

19.3. The arbitrator shall be agreed upon between the Parties. If the Parties fail to agree on the arbitrator within thirty (30) days of a written proposal by one Party to the other Party, the arbitrator shall be appointed by the SIAC acting in accordance with the SIAC Rules.

19.4. This arbitration agreement shall be governed by and construed in accordance with the laws of the Republic of Singapore.

20. MEDIATION

20.1. Notwithstanding anything in this Deed, in the event of any dispute, claim, question or disagreement arising out of or relating to this Deed and subject to Clause 20.3, no Party shall proceed to any form of dispute resolution unless the Parties have made reasonable efforts to resolve the same through mediation in accordance with the mediation procedure of the Singapore Mediation Centre. The Parties shall be deemed to have made reasonable efforts in accordance with this Clause if they have gone through at least one mediation session at the Singapore Mediation Centre.

20.2. A Party who receives a written notice for mediation from the other Party shall consent and participate in the mediation process in accordance with this Clause 20.

20.3. The mediation session is to commence no later than ninety (90) days from the date of the written notice of mediation failing which either Party may proceed to dispute resolution.

20.4. Failure to comply with this Clause 20 shall be deemed to be a breach of this Deed.

21. CONFIDENTIALITY AND SECURITY

21.1. Except with the prior written consent of the Authority, the Operator shall:

(a) treat as strictly confidential and not disclose any Confidential Information to any person other than Personnel of the Operator or its Subcontractors on a need-to-know basis for the purpose of performing the Operator's obligations under this Deed; and

(b) only use the Confidential Information for the sole purpose of performing the Operator's obligations under this Deed and shall not use it for any other purpose.

21.2. The Operator shall take all reasonable precautions in dealing with Confidential Information so as to prevent any unauthorised person from having such access to such Confidential Information. The Operator shall procure that all its Personnel and the Personnel of its Subcontractors to whom Confidential Information is to be made available observe the obligations contained in this Clause 21 and shall, at the request of the Authority, procure that each of its Personnel and the Personnel of its Subcontractors sign an undertaking to safeguard official information in the form required by the Authority, if they have not already done so.

21.3. The Operator shall not publish or release, nor shall it allow or suffer the publication or release of, any news item, article, publication, advertisement, prepared speech or any other information or material pertaining to any part of the obligations to be performed under this Deed in any media without the prior written consent of the Authority.

21.4. For the purposes of this Clause 21, "**Confidential Information**" means any information received or obtained as a result of entering into this Deed (or any agreement entered into pursuant to this Deed), including:

(a) information which relates to the Authority;

(b) information which relates to the existence and the provisions of this Deed or of any agreement entered into pursuant to this Deed; or

(c) any analyses, compilations, notes, studies, memoranda or other documents derived from, containing or reflecting such information,

but does not include information that is:

(d) or has become public knowledge otherwise than through breach of this Deed or other legal obligation or through the default or negligence of the Operator, its Personnel or Subcontractors;

(e) lawfully in the possession of the Operator or already known to the Operator on a non-confidential basis prior to the Operator receiving or obtaining such information as a result of entering into this Deed, as evidenced by written records; or

(f) independently developed by the Operator.

21.5. The Operator shall not be liable for disclosure of Confidential Information in the event and to the extent any Confidential Information is required to be disclosed by the Operator pursuant to any applicable law, regulations or directives of any relevant government, statutory or regulatory body (including stock exchange) or pursuant to any legal process issued by any court or tribunal of competent jurisdiction, provided the Operator shall, to the extent practicably possible and permissible by law or regulations, give the Authority prompt and prior notice of any such requirement and shall cooperate with the Authority to limit the scope of such disclosure to the maximum extent legally possible.

21.6. No later than thirty (30) days from the termination or expiry of this Deed, the Operator shall:

(a) return all Confidential Information received from the Authority for the purposes of this Deed and all documents and copies thereof produced in the course of performing its obligations under this Deed;

(b) securely destroy and erase all softcopies of Confidential Information that exist in hard disk, removable storage media and other storage media or facility whatsoever; and

(c) upon completion of the obligations under Clauses 21.6(a) and (b), provide a written confirmation that it has complied with Clauses 21.6(a) and (b).

21.7. The Operator shall immediately notify the Authority where the Operator becomes aware of any breach of this Clause 21 by any of its Personnel, its Subcontractors and their Personnel and cooperate with the Authority to limit the extent and impact of such breach.

21.8. This Clause 21 shall survive the termination or expiry of this Deed.

22. RECORD-KEEPING, MONITORING AND REVIEW

22.1. The Operator shall keep and maintain proper records of each Client (including medical records) and shall ensure that information of each Client is recorded and/or maintained in accordance with the PHMCA and HCSA, the subsidiary legislation thereunder, and licensing terms and conditions (including NHLTCs), circulars, standards and guidelines as may be issued by the Authority or otherwise from time to time. The Operator shall provide such records and information to the Authority as and when requested by the Authority.

22.2. In order to evaluate the Services performed by the Operator (including any outsourced

services) and the Operator's performance in relation to the Targeted Outcomes as set out in **Annex A3** of this Deed, the Authority shall have the right to conduct monitoring and review procedures on a regular basis during the Operating Period, and the Operator agrees to participate in such monitoring and review procedures and provide any assistance as required by the Authority including but not limited to the following:

(a) the Operator shall monitor and conduct a review together with the Authority on a yearly basis for the first three (3) years after the Operation Commencement Date, of its progress and adherence to the Targeted Outcomes as set out in **Annex A3** of this Deed. After the first three (3) years, the Operator and the Authority shall conduct the monitoring and review of the aforesaid at a frequency determined by the Authority;

(b) the Operator shall conduct on-site assessments together with the Authority on an ad-hoc basis at such times as the Authority may request, to assess the Operator's compliance with the levels of service delivery (including manpower norms as per prevailing regulations) at the Assisted Living Development and review the performance of the Services provided by the Operator. To avoid doubt, this is without prejudice to the Authority's right to conduct investigations, audits or inspections pursuant to Clauses 3.3 to 3.5;

(c) the Operator shall provide new regular/ad-hoc reports or analyses to the Authority on any matter required by the Authority, upon written notice being issued to the Operator; and

(d) the Operator shall convene formal management meetings together with Authority on an ad-hoc basis at such times as the Authority may decide. The Operator shall ensure that the Operator's Chairman of the Board of Directors (or equivalent office-holder if the Operator is not a company), and its management team will attend all such meetings, which shall serve as a platform to review the Operator's performance.

22.3. The Operator shall bear all costs incurred and associated with its compliance with the obligations as set out in Clause 22.1 and 22.2 above, including but not limited to the provision of any information as requested for by the Authority in the course of the conduct of these monitoring and review procedures.

23. WAIVER

23.1. In no event shall any delay, failure or omission on the part of either of the Parties in enforcing or exercising any right, power, privilege, claim or remedy ("**Remedy**"), which is conferred by this Deed, at law or in equity, or arises from any breach by the other Party, (a) be deemed to be or be construed as a waiver or variation thereof, or of any other Remedy, in respect of the particular circumstances in question, or (b) operate so as to bar the enforcement or exercise thereof, or of any other such Remedy, in any other instance at any time or times thereafter.

23.2. No waiver of any breach of this Deed shall be deemed to be a waiver of any other or

subsequent breach.

23.3. Any waiver granted under this Deed must be in writing and may be given subject to conditions. Such waiver under this Deed shall be effective only in the instance and for the purposes for which it is given.

24. CORRESPONDENCE

24.1. Subject to Clause 24.2, any notice, request, waiver, consent or approval ("**Notice**") shall be in writing and shall be deemed to have been duly given or made when it is delivered by hand or by prepaid registered post or fax to the Party as follows:

(a) in the case of the Operator, the following address and fax number:

[X]; and

(b) in the case of the Authority, the following address and fax number:

16 College Road, College of Medicine Building, Singapore 169854**.**

24.2. Without prejudice to Clause 24.1, a Party may give or make a Notice to the other Party by electronic mail. Such Notice shall be deemed to have been duly given or made when it is sent to the other Party's electronic mail address as follows:

(a) in the case of the Operator, the following electronic mail address:

[X]; and

(b) in the case of the Authority, the following electronic mail addresses:

Cheryl_px_tan@moh.gov.sg
Willyn_leow@moh.gov.sg

24.3. Either Party may change its address, fax number and (in the case of the Operator) electronic mail address referred to above by giving the other Party written notice of the change.

25. SET OFF

25.1. Whenever under this Deed any sum of money (including any damages) shall be recoverable from or payable by the Operator, the same may be deducted from any sum then due or which at any time thereafter may become due to the Operator under this Deed, or any other agreement with the Authority.

26. CONSORTIUM (IF APPLICABLE)

A. Joint and Several Responsibility

26.1. Each member of the Consortium shall be jointly and severally responsible to the Authority for the due performance of this Deed. To avoid doubt, the expression "**the Operator**" shall include all members of the Consortium.

B. Addition of members to Consortium

26.2. Any introduction of, or changes to, Consortium membership must be approved in writing by the Authority.

26.3. Should additional member(s) be added to the Consortium at any time with the approval of the Authority pursuant to Clause 26.2, he or they shall be deemed to be included in the expression "**the Operator**".

C. Withdrawal from Consortium

26.4. If any member of the Consortium withdraws from the Consortium, goes into liquidation, is wound up or ceases to exist in accordance with the laws of the country of its incorporation:

(a) this Deed shall continue and not be terminated; and

(b) the remaining member(s) of the Consortium shall be obliged to carry out and complete the obligations under this Deed.

27. ENTIRE AND WHOLE AGREEMENT

27.1. This Deed contains the entire and whole agreement between the Parties relating to the subject matter of this Deed.

28. SEVERABILITY

28.1. In the event any provision in this Deed is determined to be illegal, invalid or unenforceable, in whole or in part, such provision or part of it shall, to the extent it is illegal, invalid or unenforceable, be deemed not to form part of this Deed and the legality, validity and enforceability of the remainder of this Deed shall not be affected.

29. REMEDIES

29.1. The rights and remedies of a Party under this Deed are cumulative and are without prejudice and in addition to any rights or remedies such Party may have at law or in equity. No exercise by a Party of any one right or remedy under this Deed, or at law or in equity shall operate so as to hinder or prevent the exercise by it of any other right or remedy under this Deed, at law or in equity.

30. DATA PROTECTION AND SECURITY

30.1. The Operator shall not, and shall ensure that all of its Personnel and its Subcontractors and their Personnel do not, access, monitor, use or process personal data obtained or held in connection with this Deed, except as reasonably necessary to perform its obligations under this Deed.

30.2. The Operator shall not, and shall ensure that all of its Personnel and its Subcontractors and their Personnel shall not, disclose any personal data obtained or held in connection with this Deed without the prior consent of the Authority. Any request for the Authority's consent under this Clause 30 must include an explanation of why the proposed disclosure is necessary for the purposes of fulfilling the Operator's obligations under this Deed.

30.3. The Operator shall not cause or permit personal data obtained or held in connection with this Deed to be processed, stored, accessed or otherwise transferred outside Singapore, or allow parties outside Singapore to have access to it, unless with the prior written consent of the Authority and subject to such conditions as the Authority may impose. Any request for the Authority's consent under this Clause 30 shall include an explanation of why the proposed transfer is necessary for the purposes of fulfilling the Operator's obligations under this Deed. If consent is granted, the Operator shall provide a written undertaking that the personal data which is transferred outside Singapore will be protected to a comparable standard as it is protected under the Personal Data Protection Act 2012.

30.4. The Operator shall immediately notify the Authority when it becomes aware of a breach of Clauses 30.1 to 30.3 by itself or any Subcontractor.

30.5. The Operator shall immediately notify the Authority as soon as it becomes aware that a disclosure of personal data may be required by law and cooperate at its own costs with the Authority's reasonable requests and directions.

30.6. The Operator shall ensure that all personal data obtained or held in connection with this Deed and any copies thereof, regardless of the medium of storage, and which is no longer necessary for the purposes of its performance of this Deed is returned to the Authority within twenty-one (21) days. Any personal data that is retained by the Operator after such personal data is no longer necessary for the purposes of its performance of this Deed, or without the written authorisation of the Authority, is a breach of this Deed. No later than twenty-one (21) days from the termination or expiry of this Deed, the Operator shall provide a written confirmation that it is no longer in possession of any personal data obtained or held in connection with this Deed or copies thereof, regardless of the medium of storage.

30.7. The Operator shall take all reasonable measures to ensure that personal data held in connection with this Deed is protected against loss or damage (whether accidental or otherwise), and against unauthorised access, use, modification, disclosure or other misuse and that only authorised personnel shall have access to the data.

30.8. The Operator shall, in respect of any personal data held by it in connection with this Deed, comply with any reasonable requests, directions or guidelines of the Authority relating to the handling of personal data.

30.9. The Operator shall immediately notify the Authority when it becomes aware of a breach of Clause 30.6 by itself or any of its Subcontractors.

30.10. For the purposes of this Clause 30, the words "personal data" shall have the same meaning in this Deed as its definition in the Personal Data Protection Act 2012.

30.11. This Clause 30 shall survive the termination or expiry of this Deed.

31. ORDER OF PRIORITY

31.1. In the event and to the extent only of any conflict between the provisions of this Deed and the Conditions of Tender or the Technical Conditions of Tender, the provisions of this Deed shall prevail.

32. SURVIVING PROVISIONS

32.1. Any provision of this Deed that expressly or by implication is intended to come into or continue in force on or after termination or expiry of this Deed, including Clauses 7 (Rights of Third Parties), 8 (Gifts, Inducements or Rewards), 9 (Governing Law), 16 (Consequences of Termination), 17 (Exit Management), 18 (Indemnity), 19 (Arbitration), 20 (Mediation), 21 (Confidentiality and Security), 23 (Waiver), 24 (Correspondence), 25 (Set Off), 27 (Entire and Whole Agreement), 28 (Severability), 29 (Remedies), 30 (Data Protection and Security), 31 (Order of Priority) and 32 (Surviving Provisions), shall survive the termination or expiry of this Deed.

IN WITNESS WHEREOF this Deed has been executed and delivered on the date stated at the beginning.

[Note: If the Operator is a company incorporated in Singapore, use option A, B or C. If the Operator is a company incorporated outside Singapore, use option C or D. Select the appropriate option and remove the unused options.]

The Authority

EXECUTED AS A DEED

SIGNED, SEALED AND DELIVERED

for and on behalf of

THE GOVERNMENT OF

THE REPUBLIC OF SINGAPORE

by

[name of officer]

[designation]

in the presence of:

L.S.

_____

Witness

Name:

Designation:

[Option A]

The Operator

EXECUTED and **DELIVERED** as a deed:

For and on behalf of:

[insert name of the Operator]

By:

_____

Name: *[Name]*

Designation: Director

By:

_____

Name: *[Name]*

Designation: Director/Secretary

[Option B]

The Operator

EXECUTED and **DELIVERED** as a deed:

For and on behalf of:

[insert name of the Operator]

By:

_____

Name: *[Name]*

Designation: Director

In the presence of:

_____

Name: *[Name]*

Address: *[Address]*

[Option C]

The Operator

THE COMMON SEAL of
[insert name of the Operator]
was hereunto affixed in the presence of:

_____

Name: *[Name]*

Designation: Director

_____

Name: *[Name]*

Designation: [Director/Secretary]

[Option D]

The Operator

EXECUTED AS A DEED

SIGNED, SEALED AND DELIVERED

by

[insert name of attorney]

as attorney for and on behalf of

[insert name of the Operator]

in the presence of:

L.S.

_____

Witness

Name:

Designation:

ANNEX A1

SPECIFICATIONS FOR ASSISTED LIVING MODEL

A. GENERAL SPECIFICATIONS

1. The Operator shall deliver a model of care in the Assisted Living Development that integrates housing with care services that can be scaled according to care needs, to support seniors to age-in-place. The Assisted Living Development shall aim to improve the quality of life for seniors by creating an enabling community that promotes social interaction as well as mutual care and support, while providing a safe, less medicalised home environment that promotes independence and dignity.

2. The Assisted Living Development shall provide long-term residential accommodation to persons aged 65 and above. In addition, it shall:

   a) provide residents with a continuum of care, which enables them to live, socialise and receive the support they require in the same community as they age. This includes providing a range of services (including dementia care) that can be adjusted to the needs and capabilities of each resident;

   b) create opportunities for meaningful interaction and social bonding among residents of the Assisted Living Development and the surrounding community, including a rich array of programming to facilitate the formation of mutual support groups and cater to residents' psychosocial needs;

   c) empower residents to make choices for themselves and stay connected with the wider community; and

   d) offer residents a living environment that enables independence, as far as possible, through the use of innovative urban design and technology.

3. The Operator shall ensure that the model of care provided to Clients caters to their respective profiles and needs based on their care needs assessment. Services shall be varied according to client profiles with a minimum of three levels of care as set out in Table A1-1 below ("**Client Profile**") being provided. Clients who are assessed to be at Care Level 3 upon admission shall undergo additional assessment based on the prevailing nursing home assessment framework of the Authority. If the Client is found to be eligible based on the nursing home assessment framework, he or she shall be admitted directly to the Nursing Home according to clause 5.6 (b) of this Deed.

Table A1-1: Levels of care and Client Profiles

Level of care ("Care Level")	**Client Profile**
Level 1	- Well and independent in managing their Activities of Daily Living ("ADLs") - May require assistance with Instrumental Activities

	of Daily Living[2] ("IADLs") - Fairly independent and ambulant (able to walk, with minimal fall risk) Activities of Daily Living are tasks necessary for independent living and basic self-care, which include feeding, bathing, dressing, toileting, transferring and mobility. Instrumental Activities of Daily Living are more complex tasks that require higher cognitive functions and are related to the ability to live independently within the community. Some examples include cooking, housekeeping, grocery shopping, taking transport independently and management of finances.
Level 2	- Requires assistance with IADLs and at least 1 ADL - Semi-ambulant or wheelchair-bound
Level 3	- Requires significant assistance with 3 or more ADLs. Requires assistance with IADLs and medical/ nursing needs - Frail with significant nursing needs, typically wheelchair or bed-bound

4. The Operator shall provide a continuum of care, to allow the Clients to age-in-place and eventually transition to more intensive types of care (including the Nursing Home within the Assisted Living Development), as needed. The Operator shall conduct regular care assessments to ensure that Clients' care is adjusted as their care needs increase. For Clients under Care Levels 2 and 3, assessments shall be conducted based on the prevailing nursing home assessment framework to ensure that Clients who require Nursing Home Services are accurately identified and provided with the necessary services. The Operator shall document these care assessments (including Clients' Care Levels) and related communications with Clients on changes to their service package.

5. The Operator shall ensure that the Assisted Living Development's infrastructure and facilities are future-ready to meet the changing needs of the Clients and that they meet all prevailing relevant laws.

B. MODELS OF CARE

6. The Operator shall, from the Operation Commencement Date, meet the prevailing regulatory requirements for the respective services being provided. For example, it must be licensed as a nursing home under the PHMCA or HCSA (once HCSA comes into force in respect of nursing homes) and subject to the NHLTCs. The Authority has the right to revise, add to and refine the requirements for the Operator at its sole discretion by providing not less than **fourteen (14) days'** written notice of the same to the Operator.

.

[This section may be modified based on the Operator's Proposal pursuant to Conditions 7.1.1 and 7.3.1 of the Technical Conditions of Tender and as agreed to by the Authority.]

7. The Operator shall also deliver the following care models:

[This section will be modified based on the Operator's Proposal pursuant to Conditions 7.1.1 and 7.3.1 of the Technical Conditions of Tender and as agreed to by the Authority.

The Operator is reminded to also take into consideration the requirements for the provision of Services at the Assisted Living Development as stated in ***Annex G*** *(Requirements of the Ministry of Health) of the Technical Conditions of Tender when making their proposal for models of care for Assisted Living Clients and (if applicable) Non-Assisted Living Clients.*]

*

ANNEX A2

CONDITIONS IN EACH CONTRACT BETWEEN OPERATOR AND ASSISTED LIVING CLIENTS

Pursuant to Clause 5.8(b), the Operator shall ensure that each contract signed or to be signed between the Operator and an Assisted Living Client contains each of the following conditions:

1. Lease Terms
   - a condition stating the sublease term of the Assisted Living Sublease of the Assisted Living Client based on length of coverage required as agreed by the Assisted Living Client;
   - conditions providing for the arrangements for the Assisted Living Client in the event that Assisted Living Client outlives his Assisted Living Sublease;
   - If an option to periodically renew lease is offered, the terms and conditions of such option. The Operator shall ensure that such option is subject to the maximum term for any Assisted Living Sublease and its renewal as stated in Clause 5.6 above;
   - conditions stating the definition of occupants and providing for the control of occupants (e.g. the Operator's right to request for unlawful occupants to leave);
   - a condition that the Assisted Living Unit must not be further sub-let or sold, or mortgaged, charged or encumbered by the Assisted Living Client;
   - any other restrictions on the Assisted Living Sublease;

2. Care Services
   - a condition specifying the scope of services offered within the Assisted Living Development, a condition providing for the obligation of the Operator to meet prevailing laws, and guidelines, circulars and standards applicable to healthcare providers that may be issued by the Authority from time to time;
   - a condition providing for notice period to be given to the Assisted Living Client before any adjustment in the scope of service, and conditions providing that the Authority's prior approval would be sought for such adjustment, and that the Operator will endeavour to continue to meet the Assisted Living Client's needs;
   - conditions which clearly stipulate the scope of services included under the upfront cost (if any), as well as additional services that can be added on at additional costs;

3. Payment Options
   - conditions stating the quantum and mode of payment (e.g. one-off lump sum, staged payments);
   - conditions stating whether the cost is fixed or whether additional payment, subject to an increment cap, would be imposed under specific circumstances;
   - conditions stating whether entry contribution fee is required and if so, to state how this is calculated (e.g. based on the age of the Assisted Living Client);
   - if any other type of payment is required (e.g. registration fee, management fee for maintenance of premises, fees for types of services offered by the Assisted Living Development, utilities fees, stamp duty), conditions stating clearly that that other type of payment is required;

4. Delivery of Possession
    - conditions stating the date of delivery of possession of the Assisted Living Unit, and the terms and conditions that the Assisted Living Client has to meet in order to take possession, of the Assisted Living Unit (e.g. payment of first instalment);
    - conditions which state the scope of the liability and non-liability of the Operator in the event of a delay to the delivery of possession of the Assisted Living Unit;

5. Termination and refund
    - terms and conditions of lease termination (e.g. demise of the Assisted Living Client), including the arrangement for the Resident Caregiver if the Assisted Living Client passes away;
    - conditions on the circumstances in which the Lease may be disposed of by the Operator;
    - arrears management guidelines;
    - conditions stating the calculation method for refund amount;

6. Remedial Actions for Care Lapses
    - a condition providing for a service quality/feedback hotline that the Assisted Living Client and his Resident Caregiver can call in the event of care lapses;
    - conditions providing for remedial actions to be taken by the Operator in the event of any care lapse by the Operator (e.g. compensation for treatment required due to care lapse); and

7. Loss of Mental Capacity
    - conditions providing for the care plan for the Assisted Living Client, which must include a care plan in anticipation of the Assisted Living Client's loss of mental capacity (e.g. the formation of the Lasting Power of Attorney and Advance Care Plan).

ANNEX A3

TARGETED OUTCOMES FOR ASSISTED LIVING MODEL

1. The Authority shall have the right to review and revise, add to or refine the set of targeted outcomes set out below, at its sole discretion from time to time, by providing not less than **fourteen (14) days'** written notice to the Operator.

   [This section will be modified based on the Operator's Proposal pursuant to Conditions 7.1.1 and 7.3.1 of the Technical Conditions of Tender and as agreed to by the Authority.]

**

ANNEX J

TENDER SUBMISSION CHECKLIST
FOR LAND PARCEL AT PARRY AVENUE
(TENDER SUBMISSION DATE: 21 MARCH 2023)
(Please tick accordingly)

General Information	
Name of tenderer	
Is this an application by consortium? (If yes, please indicate details of all Members of the consortium)	
Lead Member's contact person(s) and details	

1 ENVELOPE LABELLED "CONCEPT PROPOSAL AND FIXED AMOUNT DEPOSIT"

A ☐ Use the correct "Form for Submission of Concept Proposal" for the Land Parcel

☐ Sign the "Form for Submission of Concept Proposal"

☐ The particulars of tenderer in the "Form for Submission of Concept Proposal" must be the same as that in the "Form of Tender"

B FIXED AMOUNT DEPOSIT

☐ Ensure that the correct amount of Fixed Amount Deposit (S$6,500,000.00) is enclosed by one or more of the following payment modes:

(i) Bank / Insurance Guarantee

☐ Correct format is used (for single or joint tenderers).

☐ Tenderer's name(s) in the Bank/Insurance Guarantee is exactly the same as in the Form of Tender.

☐ Indicate in the subject title and main text whether the Bank/Insurance Guarantee is for whole or part of the tender deposit.

☐ The Bank/Insurance Guarantee shall be valid for at least 20 weeks from the tender submission date

(ii) Cashier's Order

☐ Cashier's Order is addressed to the "Urban Redevelopment Authority".

☐ Cashier's Order is dated on or before the tender submission date.

(iii) Bank Transfer

☐ Correct amount has been deposited into URA's bank account (as specified in the Conditions of Tender) not later than 12 noon on the tender submission date.

C CONCEPT PROPOSAL

☐ Ten (10) sets of concept proposal in A3 format of not more than 50 pages containing:

Overall model of care (not more than 30 pages)

Detailed proposal on the model of care specifying at least the following details:

☐ a. **Overall philosophy and Care Model,** including how it will contribute towards the vision of the assisted living development at Parry Avenue as outlined in Condition 2.0 of **Annex G**.

b. **Targeted Clientele and Entry Requirement for the Project**

(i) Demographic characteristics (e.g. age, marital status, family support, income, nationality) as well as number of residents envisioned at the outset and at the 10 and 15 year mark. The Successful Tenderer should outline plans for the assisted living development to serve only those aged 65 and above, and comprise mainly Singaporean clientele

(ii) Health characteristics (e.g. types of care needs, medical condition), including any exclusion criteria

(iii) Exit criteria and arrangements for resident clients and resident caregivers (e.g. lease administration policy for resident caregiver in the event where resident client passes away or no longer meet the inclusion criteria and transition plans as resident clients' care needs increases)

c. **Range of Core/Optional Programmes and Services**

(i) Programmes and services that are provided within the assisted living development by the Successful Tenderer (including capacity of each type of service), how clients are assessed and reassessed for care and social needs (including frequency of assessment), and how the proposed programmes holistically meet the needs of the resident clients and/or non-resident clients

(ii) Programmes and services that are provided through link-ups and/or outsourced by the Successful Tenderer (including capacity of each type of service), and how the proposed programmes holistically meet the needs of the resident clients and/or non-resident clients

(iii) The proposed services for resident and non-resident clients, including any proposed modifications or additions to the service parameters as stated under Condition 4.5 in **Annex G** and key performance indicators for the services, to be set out in the form set out in Appendix I of **Annex G**.

d. **Manpower Staffing, Care Strategies**

(i) Number, type and training of staff employed for the facility, including distribution across programmes/services

(ii) Care strategies to support effectiveness of care and productivity

e. **Implementation Plan**, including the steps that will be taken (e.g. appointment of provider, hiring plans, commencement of services, financial and organisational sustainability plans, business continuity plans etc.), as well as the rationale and the corresponding timeframe required, to ensure that the assisted living development will be ready for operation by the date determined by the Authority.

Documentation of past projects, assessments and track records (if any) including:

a. **Past Projects and Performance Assessment**

(i) Number of years, nature/description, scale (e.g. number of beds) and model of care of other in-patient and/or out-patient healthcare services and/or social services and/or assisted living services currently provided in Singapore and in other countries

(ii) Relevant and recent experience with management and technical experience in healthcare and/or social care sector

(iii) Education qualification of management and operation teams

b. **Client Safety Measures**

(i) Processes to complement and support a safe environment

Facilities Design and Management (not more than 15 pages)

The Overall Layout of Uses and Services indicating the design layout and placement of uses for the development.

- ☐ a. **Placement of Uses and Design Principles**
  - (i) Proposed mix of uses (e.g. residential, health & medical care, shop & restaurant and other ancillary institutional uses) and their GFA breakdown allocation of space to provide the proposed services and capacity of type of service
  - (ii) Design of indoor spaces (including number of residents in each room)
  - (iii) Design of outdoor spaces (e.g. gardens and landscapes)
  - (iv) Site layout
  - (v) Use of greenery and land space for activities
  - (vi) Design principles employed in the facility to enable supported living

- ☐ b. **Drawings**
  - (i) The Concept Proposal shall include scale drawings (in A3 format) of the site plan and floor plans, as well as any other drawings that are useful for illustrating Condition 7.2 where applicable. It shall also include sketches, diagrams or details to illustrate the idea and workability of the design proposal. Architectural models are optional.
  - (ii) At minimum, two soft copies of the submission shall be submitted in CD-ROM. All drawings, perspectives, visualizations and photographs of the architectural models (if any) are to be in PDF format.

Facility management**,** articulating:

- ☐ a. Extent to which infrastructure, services and programming will be maintained and refreshed in a timely manner to continue to stay relevant to clients' needs including:
  - Feedback channels
  - Quality improvement processes
  - Timely responses to feedback

- ☐ b. Operationalisation Plans, including how the Successful Tenderer proposes to manage the development, including its infrastructure, services and programming, throughout the entire lease period.

Business sustainability (not more than 5 pages)

- ☐ Company/business registration of the tenderer with Accounting and Corporate Regulatory Authority (ACRA), if any.

- ☐ If available, the audited financial statements of the tenderer (which shall include its balance sheet and profit and loss accounts) for the preceding financial year (i.e. FY2021)

- ☐ For a Consortium, if available, the audited financial statements of every member of the Consortium for the preceding financial year (i.e.FY2021) shall be attached.

- ☐ For a tenderer or a member of a Consortium that does not have any audited financial statements at all or only has audited financial statements for the preceding financial year (i.e. FY2021), it shall attach:
  - a) any one of the following set of documents:
    - i. if it is a subsidiary, the preceding financial year (i.e. FY2021) audited financial statements of the parent or holding company, accompanied with a letter of undertaking from the parent of holding company declaring that the liabilities of that tenderer or member of Consortium will be fully under-written by the parent or holding company; or

    - ii. the preceding financial year (i.e. FY2021) audited financial statements of the shareholders, accompanied with a letter of undertaking from the shareholders declaring that the liabilities of that tenderer or member of Consortium will be fully-written by shareholders; and

b) any one of the following set of documents:

i. the audited financial statement of that tenderer or member of Consortium for the preceding financial year (i.e. FY2021), if available; or

ii. information on the paid-up capital or cash in the working capital/partners account of that tenderer or member of Consortium, if the audited financial statement of that tenderer or member of Consortium for the preceding financial year (i.e. FY2021) is not available.

2 ENVELOPE LABELLED "FORM OF TENDER"

A ☐ Use the correct "Form of Tender' for the Land Parcel

☐ Sign the "Form of Tender"

☐ The particulars of tenderer in the "Form of Tender" must be the same as that in the "Form for Submission of Concept Proposal"

B ADDITIONAL AMOUNT DEPOSIT

☐ Where the Fixed Amount Deposit is less than 5% of the tendered sale price, an additional amount ('Additional Amount Deposit") which shall not be less than the difference between the amount of 5% of the tendered sale price and the Fixed Amount Deposit should be submitted.

☐ Ensure that the correct amount of the Additional Amount Deposit, if applicable, is enclosed by one or more of the following payment modes:

(i) Bank / Insurance Guarantee

☐ Correct format is used (for single or joint tenderers).

☐ Tenderer's name(s) in the Bank/Insurance Guarantee is exactly the same as in the Form of Tender.

☐ Indicate in the subject title and main text whether the Bank/Insurance Guarantee is for whole <u>or</u> part of the tender deposit.

☐ The Bank/Insurance Guarantee shall be valid for at least 20 weeks from the tender submission date.

(ii) Cashier's Order

☐ Cashier's Order is addressed to the "Urban Redevelopment Authority".

☐ Cashier's Order is dated on or before the tender submission date.

C WHERE THE TENDERER IS A COMPANY NOT INCORPORATED IN SINGAPORE, CERTIFIED TRUE COPIES OF:

☐ (i) Certificate of incorporation or registration in its place of incorporation or origin or a document of similar effect; and

☐ (ii) Particulars of the company relating to its registered office address, principal activities, share capital, officers, directors and shareholders as registered with and maintained by the relevant authority at its place of incorporation or origin.

Tenderers are reminded not to include the duly completed "Form of Tender" in the envelope labelled "Concept Proposal and Fixed Amount Deposit".

I have checked and verified that the tender submission is in order.

_____	_____	_____
Name of Tender	**Designation**	**Signature/Date**