Attachment Two

Condition Modifications

23 December 2021 Development Approval (DAP/21/02078)– Lot 300 Back Beach Road, Onslow – Mineral Resources Limited		
Condition No.	Condition Wording	Justification
1	This decision constitutes planning approval only and is valid for a period of 4 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.	No Change.
2	This approval is time limited to a period of not more than 30 years from the date of approval for development within the proposed 30m coastal foreshore reserve, at which point the approval for this portion of the development will lapse and: i. the development within the 30m foreshore reserve shall be removed; and ii. the land shall be rehabilitated to its pre-development conditions, in accordance with the specifications and provisions of a site 'Decommissioning and Rehabilitation Plan' submitted to and approved by the Shire of Ashburton not earlier than 12 months and implemented to the satisfaction of the Shire of Ashburton.	No Change.
3.	Prior to lodging an application for a building permit, a detailed fauna survey (targeted terrestrial vertebrate survey to determine the presence and significance of the Lerista planiventralis maryani, a Priority 1 listed reptile) shall be undertaken and **a** report for the site shall be prepared by a qualified zoologist **in accordance with the EPA Guidelines and submitted to and approved by the Shire of Ashburton on advice from the EPA.** ~~to the satisfaction of the shire and submitted to and approved by the Shire of Ashburton~~. If any of these species are found, an environmental management Plan, addressing any impact and mitigation measures shall be submitted and implemented to the satisfaction of the Shire of Ashburton.	Administrative change – Condition 3 should refer to the relevant reporting being prepared in accordance with the Environmental Protection Agency ('EPA') Guidelines, and to the satisfaction of the EPA.
4	Prior to lodging an application for a building permit, a targeted survey is to be undertaken to determine the presence and significance of 'Marina' and 'Shorebirds' ~~shall be undertaken~~ and **a** report for the site shall be prepared by a qualified zoologist **in accordance with the EPA Guidelines and submitted to and approved by the Shire of Ashburton on advice from the EPA.** ~~to the satisfaction of the Shire and submitted to and approved by the Shire of Ashburton.~~	Administrative change – Condition 4 should refer to the relevant reporting being prepared in accordance with the Environmental Protection Agency ('EPA') Guidelines, and to the satisfaction of the EPA.
5.	Prior to **commencement of construction** ~~lodging an application for a building permit,~~ a HAZMAT site survey is required to confirm whether asbestos containing materials (ACM), asbestos fines (AF) or fibrous asbestos (FA) are present at the site shall be undertaken for the site shall be pared to the satisfaction of the Shire and submitted to and approved by the Shire of Ashburton. a) If no evidence of ACM, AF or FA is found, no further action is required. b) If evidence of ACM, AF or FA is found, asbestos remediation or asbestos management is to be undertaken in accordance with Department of Health guidelines.	A HAZMAT site survey does not inform the building permit, nor does it have a material impact on or prejudice the Shire's consideration of the Building Permit. The current wording of the Condition impacts the scheduling of works and contractual arrangements of the project. On this basis, we request Condition 5 be reworded as suggested in red text.
6.	~~Prior to lodging an application for a building permit an Unexploded Ordinance (UXO) survey of the site shall be undertaken to the whole of the site to determine if a remediation survey is required as this property is on a site where records confirm a history of UXO funds or heavy residential fragmentation to the satisfaction of the Shire and submitted to and approved by the Shire of Ashburton.~~ ~~a) If no evidence of UXO is found, no further action is required.~~	Request removal of Condition 6 for the following reasons: - Condition 6 (as approved) is worded based on the Western Australian Planning Commission's Model Subdivision Condition 'F8'. As outlined within the Model Conditions, this Condition applies where there is a 'substantial' occurrence of UXO.

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	~~b) If evidence of UXO is found, a remediation survey is to be completed to locate and remove any UXO.~~ ~~c) If a remediation survey is completed, a notification pursuant to Section 70A of the Transfer of Land Act 1893 (WA) is to be placed on the Certificate of Title advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan) as it to state as follows: "Anti-aircraft artillery live firing practices using high explosive ammunition during WW (World War) II. Aerial bombing also highly likely. For land use planning advice contact the WA Department of Fire and Emergency Services (advice@dfes.wa.gov.au) and quote location number N26 and page number C-275. Where a Defence report is available, it will be listed below and can be found on the Defence UXO Website at https://defence.gov.au/UXO/Where/Default.asp".~~	- Within the Department of Defence Unexploded Ordinance Mapping database, Lot 300 is identified as having a 'Slight Potential' occurrence of UXO. - In accordance with the Model Conditions, Advice Note 'Fa5' applies where there is a 'Slight' occurrence of UXO. - Therefore, Condition 6 been removed and replaced with proposed **Advice Note J** to reflect the application of the conditions / advice note as outlined within the Model Conditions.
7	An acid sulphate self-assessment form and, if required as a result of the self-assessment, an acid sulphate soils report and an acid sulphate soils management plan, shall be submitted to and approved by the **Shire of Ashburton on advice from the** Department of Water and Environmental Regulation before any earthworks beyond 3m below the natural ground surface of the Area of Potential Concern 4 described in the 'Desktop Contamination Assessment' (July 2021 (prepared by 360 Environmental) are commenced. Where an acid sulphate soils management plan is required to be submitted, all earthworks shall be carried out in accordance with the approved management plan.	Administrative change – Condition 7 should refer to the relevant reporting being approved by the Local Government.
~~8~~	~~Prior to lodging an application for a building permit, a Traffic Impact Assessment shall be prepared in accordance with the Western Australian Planning Commission's Transport Assessment Guidelines and to the satisfaction of the Shire of Ashburton. The TIA shall consider:~~ ~~a) The full extent of the traffic impacts the development will have on the locality~~ ~~b) Assess the full potential impact of the development~~ ~~c) Include the likely post development traffic volumes~~ ~~d) The impact is to be assessed for 10 years after full opening of the development~~ ~~e) The application relies on the assumption that the majority of the 500 occupants will travel to and from the site by bus. The Shire expects that other scenarios are considered within the Traffic Impact Assessment document whereby the use of work and private vehicles is also factored into transport arrangements. This is typical of the operation of other significant sized workforce accommodation facilities in the Shire of Ashburton.~~	Refer to amended Uloth and Associates Transport Impact Statement ('TIS') within **Attachment 3**. As outlined within the detailed 'Village Operations and Resulting Traffic Generation' Section in the amended TIS, the total trip generation for the proposed development is 330 vehicle trips per day, with 45 vehicle trips in the critical afternoon peak hour. In accordance with the Western Australian Planning Commissions ('WAPC'), Transport Impact Assessment Guidelines – Volume 4, developments likely to generate between 10 – 100 vehicle trips in the development's peak hour are considered to have a "Moderate impact" and require a 'Transport Impact Statement'. Where developments generate **over** 100 vehicle trips in the peak hour a Transport Impact Assessment is required. Given the Transport Impact Statement prepared by Uloth and Associates (as amended) addresses the full extent of the traffic impacts of the development and as the traffic generated does not trigger the requirement for a Transport Impact Assessment, we request the deletion of Condition 8.
~~9~~	~~Prior to the commencement of the use, any road upgrades or contributions denoted in the Traffic Impact Assessment are to be undertaken to the satisfaction of the responsible local government. All costs shall be the responsibility of the proponent and responsibility for the road upgrades shall be agreed with the Shire of Ashburton, on the advice of the responsible local government.~~	As outlined above, the Transport Impact Statement prepared by Uloth and Associates (as amended) addresses the full extent of the traffic impacts of the development and the traffic generated does not trigger the requirement for a Transport Impact Assessment, we also request the removal of Condition 9.
10	Prior to lodging an application for a building permit, the landowner/applicant is to provide a pre-works geotechnical report certifying that the land is physically capable of development or advising how the land is to be remediated and compacted to ensure it is capable of development; and in the event that remediation works are required, the landowner/applicant is to provide a post geotechnical report certifying that all development works have been carried out in accordance with the pre-works geotechnical report.	No change.
11	Prior to lodging an application for a building permit, a Stormwater and Drainage Management Plan, prepared in accordance with the Department of Water and Environmental Regulation's Stormwater Management Manual, must be submitted for the approval of the Shire of Ashburton.	No change.

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	The Stormwater and Drainage Management Plan will determine the drainage infrastructure required to supporting the development and as a minimum it must address: a) Proposed development; b) Storm events to be managed; c) Onsite-retention for 1:1 year events; d) Onsite-detention for 1:25 year events; e) Overland flow path for larger events, and impact the development will have on the surrounding neighbourhood; f) Use of water sensitive urban principles; g) Water quality; h) Protection of adjacent / nearby waterways; and i) Conclusions / recommendations.	
12	Prior to lodging **commencement of construction** ~~an application for a building permit~~, the applicant must submit and have approved by the Local Government, and thereafter implement to the satisfaction of the Local Government, a Construction Environmental Management Plan addressing the following matters: a) How materials and equipment will be delivered and removed from the site; b) How materials and equipment will be stored on the site; c) Parking arrangements for contractors; d) Construction waste disposal strategy; i. Recycling of demolition materials including concrete; ii. Removal of hazardous materials and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of any building works; iii. Details demonstrating compliance with the relevant legislative requirements, associated with the removal of hazardous waste, particularly the method of containment and control of emission of fibres to the air, are to be submitted to the satisfaction for the Local Government prior to the removal of any hazardous materials. e) Details of cranes, large trucks or similar equipment which may block public thoroughfares during construction; f) How risks of wind and/or water borne erosion and sedimentation will be minimised during and after the works; and g) What noise mitigating provisions will be put in place to address impacts on neighbouring properties. h) Whether dune stabilisation will be required during the construction. i) How car parking, delivery vehicles and traffic impacts associated with construction will be managed so as not to jeopardise the safety of the school community, particularly during peak school drop off / pick up times; and j) Other matters likely to impact on the surrounding properties.	A Construction Environmental Management Plan does not inform the building permit, nor does it have a material impact on or prejudice the Shire's consideration of the Building Permit. Rather, the Construction Environmental Management Plan addresses how construction will be managed and therefore, the trigger for submission should be prior to the commencement of construction (consistent with other approvals issued by the RJDAP). The current wording of the Condition impacts the scheduling of works and contractual arrangements of the project. On this basis, we request Condition 12 be reworded as suggested in red text.
13	Prior to lodging an application for a building permit, a Waste Management Plan must be submitted to and approved by the Local Government. ~~prior to lodging an application for a building permit~~. The plan must include the following details to the satisfaction and specification of the Local Government: a) The location of bin storage areas and bin collection areas; b) The number, volume and type of bins, and the type of waste to be placed in the bins;	Administrative change, duplication of text.

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	c) Details on the future ongoing management of the bins and the bin storage areas, including cleaning, rotation and moving bins to and from the bin collection areas; and d) Frequency of bin collections. The Waste Management Plan must be implemented at all times to the satisfaction of the Local Government.	
14	Prior to **occupation of the development** ~~lodging an application for a building permit,~~ a detailed Landscaping and Reticulation Plan for the subject site and/or the road verge(s) must be submitted to, and approved to, the satisfaction of the Local Government, and must include the following: a) The location, number and type of proposed trees and shrubs including planter and / or tree pit sizes and planting density; b) Any lawns to be established; c) Any existing vegetation and/or landscaped areas to be retained; d) Any verge treatments; e) Evidence that the proposed landscaping will not, at maturity, negatively impact the development or adjoining properties. f) A key or legend detailing proposed species type grouped under the subheadings of tree, shrub and groundcover; g) Mulching or similar treatments of garden beds including edges; h) Details of reticulation of landscaped areas including the source of the water supply and proposed responsibility for maintenance; i) Treatment of paved areas (parking and pedestrian area); j) Screening of car parking areas; and k) Fence material, height and treatment.	A Landscaping and Reticulation plan does not inform the building permit, nor does it have a material impact on or prejudice the Shire's consideration of the Building Permit. The current wording of the Condition impacts the scheduling of works and contractual arrangements of the project. On this basis, we request Condition 14 be reworded as suggested in red text, consistent with previous approvals issued by the RJDAP.
15	Landscaping including verge planting shall be installed, reticulated and/or irrigated in accordance with the/an approved plan and maintained thereafter to the satisfaction of the Shire. The landscaping shall be implemented during the first available planting season post completion of development and any species which fail to establish within a period of 12 months from planting shall be replaced to the satisfaction of the Shire.	No change.
16	Prior to lodging an application for a building permit, a modified Bushfire Management Plan needs to be submitted and approved by the Shire of Ashburton, that addresses the following: a) Is amended to incorporate the extent of native vegetation clearing. b) The private driveway should be upgraded to meet the technical requirements of Column 1 Table 6 of the Guidelines.	Confirmed by Shire of Ashburton as being satisfied on 15 February 2022.
17	Prior to lodging an application for a building permit, a modified Bushfire Emergency Evacuation Plan needs to be submitted and approved by the Shire of Ashburton, that addresses the following: a) Consideration should be given to the Guidelines Section 5.5.2 'Developing a Bushfire Emergency Evacuation Plan'. This contains detail regarding what should be included in a BEEP and will ensure the appropriate content is detailed when finalising the BEEP to the satisfaction of the Shire.	Confirmed by Shire of Ashburton as being satisfied on 15 February 2022.
18	Prior to the installation of external lighting on the site, an External Lighting Plan is to be submitted to and approved by the Shire of Ashburton and shall incorporate any conditions derived from any of the environmental surveys undertaken and thereafter implemented to the satisfaction of the Shire of Ashburton.	No change.

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19	Prior to the occupation of the development, all vehicle crossover are to be constructed to the specification and satisfaction of the Local Government: a) All crossovers to be constructed with concrete layback, not kerb returns; b) Any path existing or to be constructed in vicinity of crossovers shall be constructed continuous through the crossover.	No change.
20	Prior to occupation or use of the development, the redundant crossover/s as shown on the approved plans, must be removed and the verge and kerb reinstated to the specification and satisfaction of the Local Government.	No change.
~~21~~	~~Prior to occupation or use of the development, an Operational Environmental Management Plan is to be submitted to and approved by the Shire of Ashburton and thereafter implemented to the satisfaction of the Shire of Ashburton.~~	Request removal of Condition 21 for the following reasons: - The Applicant is required to obtain any necessary environmental approvals under the *Environmental Protection Act 1986* (and any other relevant approvals under separate legislations). Furthermore, the operations at the site are also required to comply with the provisions of the *Environmental Protection (Noise) Regulations 1997*. On this basis, the requirement for an 'Operational Environmental Management Plan', which is required to be submitted to and approved by the Shire, is a duplication of the required operational environmental approvals required under the relevant environmental legislation and is therefore, superfluous to this Application. - As outlined in *Keysbrook Leucoxene Pty Ltd and Shire of Serpentine Jarrahdale [2012] WASAT 212,* it is not appropriate to impose planning approval conditions that require compliance with conditions and management plans required under (separate) environmental protection legislation. to the condition therefore duplicates existing environmental requirements by way of the planning conditions of approval. - A review of the Shire's Local Planning Framework has identified that the Shire has no requirement for an Operational Environmental Management Plan to be prepared for an Application of this nature, nor is there any guidance with respect to the level (and type) of detailed required. Liaison with the Shire's Planning Team has also confirmed that there is no advice within the existing Local Planning Framework that provides guidance to the type of information required.
~~22~~	~~Prior to occupation or use of the development, an Operational Management Plan is to be submitted to and approved by the Shire of Ashburton and thereafter implemented to the satisfaction of the Shire of Ashburton.~~	Request removal of Condition 22 for the following reasons: - Consistent with the justification provided above, the operation of the proposed development will be required to comply with the provisions of the *Environmental Protection (Noise) Regulations 1997*. Therefore, the requirement for an 'Operational Management Plan' is considered superfluous to enable the operation of the development. - A review of the Shire's Local Planning Framework has identified that the Shire has no requirement for an Operational Management Plan to be prepared for an Application of this nature, nor is there any guidance with respect to the level (and type) of detailed required. Liaison with the Shire's Planning Team has also confirmed that there is no advice within the existing Local Planning Framework that provides guidance to the type of information required.
23	No fencing is permitted on the site, unless agreed to and approved by the Shire of Ashburton.	Refer to Fencing Plan provided as part of Amended Development Application Plans.
24	The development site must be connected to the reticulated sewerage system and reticulated water system of the Water Corporation before commencement of any use.	No change.

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25	Existing trees located within the verge are a Local Government asset and as such must be retained except where otherwise approved for removal by the Local Government. Existing trees identified on the approved site plan must be retained and protected in accordance with AS 4970-2009 and to the satisfaction of the Local Government.	No change.
26	All vehicle parking, access ways, footpaths and external lighting shall be constructed and maintained in accordance with the Australian Standards AS2890 in the form and layout depicted on the approved plans to the satisfaction of the Shire of Ashburton.	No change.
27	~~Prior to occupation of the development, a Social Impact Management Plan, is to be submitted to and approved by the Shire of Ashburton.~~	Request removal of Condition 27 for the following reasons: - A review of the Shire's Local Planning Framework has identified that the Shire has no requirement for a Social Impact Management Plan to be prepared for an Application of this nature, nor is there any guidance with respect to the level (and type) of information required. - In accordance with the Shire of Ashburton Local Planning Policy 20 – Social Impact Assessment ('LPP 20') a Social Impact Statement ('SIS') was prepared as part of the Development Application. When applying the assessment criteria of LPP 20 to the proposed development, a broad range of moderate to significant positive impacts can be anticipated, with a few areas creating minor negative social impacts. Notwithstanding, the SIS provides various measures to avoid, reduce and mitigate the potential negative impacts which would otherwise be provided as part of a Social Impact Management Plan. On this basis, the SIS prepared as part of the Development Application addresses the requirements of LPP 20 and Condition 27 is not required.
28	~~In accordance with Shire of Ashburton Local Planning Policy 14 - Percent for Art the application is required to make a public art contribution of $1 million being one percent of the $100 million total cost of development.~~ ~~In order to comply with the Policy, the owner(s) or applicant, on behalf of the owner(s) shall submit a statutory declaration prior to the lodgement of a Building permit stipulating the choice of:~~ ~~**Option 1:** Owner/Applicant chooses to co-ordinate the Public Art project themselves or by engaging an art consultant; or~~ ~~**Option 2:** Owner/Applicant chooses to pay cash-in-lieu.~~	Request removal of Condition 28 for the following reasons: - The Shire's Local Planning Policy 14 – Percent for Public Art Policy ('LPP 14') is a policy for the purposes of the Shire of Ashburton Local Planning Scheme No. 7 ('LPS 7'). In accordance with Clause 2.2.1 of LPS 7, the provisions of LPS 7 prevail where there is any inconsistency with LPP 14. - Clause 3.2.1 of LPP 14 states that projects eligible for public art contributions are: › *All development proposals for mixed use, commercial, civic, institutional, educational projects or public works of a value greater than $1,000,000 (one million dollars), linked to WA Construction Index, shall be regarded as eligible proposals under this Policy.* - It is noted that the above terms (being "mixed use", "commercial", "institutional" or "educational" projects) are not defined in LPP 14. - Notwithstanding, the Zoning Table in LPS 7 has the various uses or use-classes in groups as "Residential", "Industry", "Commerce", "Health and Welfare & Community Services", and "Entertainment, Recreation & Culture", which roughly corresponds with the descriptors used in Clause 3.2.1 of LPP 14. - Notably, the descriptor "residential" is not included in the descriptors used in Clause 3.2.1 of LPP 14. Therefore, it is clear that "residential" development is excluded from LPP 14 and is not considered as an "eligible proposal" under the provisions of LPP 14. - The proposed development, although incorporating various land use elements, was considered, and determined by the Shire and RJDAP as being "transient workforce accommodation" ('TWA') for the purposes of a land use definition under LPS 7. While some elements of the proposal fall under separate land use classes as defined in LPS 7, it is noted that these elements were considered "ancillary" to the predominant use of the site, being a TWA. - For the purposes of LPS 7, TWA is listed as a "**residential"** use. Clause 6.9.1 of LPS 7 also states the following:

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		› *"All transient workforce accommodation, whether intended as permanent or temporary structures, shall be regarded as residential development and is subject to the requirements of the Residential Planning Codes and clause 6.5 of this Scheme.* - Additionally, under the permissibility table of the *Onslow Townsite Expansion Structure Plan,* a TWA is also listed as a residential use. On the basis of the above, the proposed development ought to be excluded from the operation of LPP 14 as it is "residential" development and is not a *"mixed use, commercial, civic, institutional, educational project(s) or public work"* as described in Clause 3.2.1 of LPP 14. Therefore, we request Condition 28 be deleted in its entirety as LPP 14 does not apply to the proposed development.
29	A Notification under Section 70A of the Transfer of Land Act 1983 shall be prepared and lodged with the Registrar of Titles for endorsement on the Certificate prior to the commencement of development. The notification shall advise of the existence of a hazard or other factor affecting use or enjoyment of the land to the satisfaction of the Shire and at the applicant's cost. The **notification** ~~memorial~~ shall state as follows: *Vulnerable Coastal Area* *'This lot is located in an area likely to be subject to coastal erosion and/or inundation over the next 100 years.'*	Administrative change – Condition 29 relates to the preparation of Notification on Title, not a memorial.
30	A Notification under Section 70A of the Transfer of Land Act 1983 shall be prepared and lodged with the Registrar of Titles for endorsement on the Certificate prior to the commencement of development. The notification shall advise of the existence of a hazard or other factor affecting use or enjoyment of the land to the satisfaction of the Shire and at the applicant's cost. The **notification** ~~memorial~~ shall state as follows: *Bushfire Management (SPP3.7)* *'Registered proprietors and prospective purchasers of the land described above or any part thereof (land) are notified that the land is within a bushfire prone area and buildings shall be designed and constructed in accordance with Australian Standard 3959 - Construction of Buildings in Bushfire-Prone Areas (or superseded Australian Standard) and comply with any approved fire management plan prepared in respect of the land to minimise the risk of property damage.'*	Administrative change – Condition 30 relates to the preparation of Notification on Title, not a memorial.
31	A Notification under Section 70A of the Transfer of Land Act 1983 shall be prepared and lodged with the Registrar of Titles for endorsement on the Certificate prior to the commencement of development. The notification shall advise of the existence of a hazard or other factor affecting use or enjoyment of the land to the satisfaction of the Shire and at the applicant's cost. The **notification** ~~memorial~~ shall state as follows: *Onslow Salt Operational Noise* *'The land is located within an area identified as a potential noise source being the Onslow Salt operations'*	Administrative change – Condition 31 relates to the preparation of notification on Title, not memorial.
~~32~~	~~A cyclone emergency shelter of adequate size shall be provided to accommodate all occupants on site at any time.~~	Request the removal of Condition 32 for the following reasons: - All buildings on site will be designed and constructed to Wind Category D (cyclone category applicable to the region); - There is no statutory or compliance requirement under the *National Construction Codes* to provide a dedicated cyclone emergency shelter; and

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		- The benefits of a dedicated cyclone will be further considered during detailed design and if implemented, will exceed any statutory requirements and therefore, should not be listed as a condition of approval.
33	The maximum number of persons to be accommodated on the site at any one time is limited to 500.	No change.
34	No pets are to be kept on site.	No change.
ADVICE NOTES		
A	This Determination Notice is not a Building Permit or Health Approval, nor authorise such works. All separate applications and approvals must be obtained prior to the commencement of construction on site, whichever occurs first.	
B	**Construction work undertaken on site is confined within the following times:** **i. Monday to Saturday: 7:00am to 7:00pm** **ii. Sunday and Public Holidays: 7:00am to 7:00pm for construction work that does not emit noise beyond the property boundaries. Any construction work that requires the use of machinery that will emit noise beyond the property boundaries is not permitted unless approval is obtained from the Shire of Ashburton in the form of an approved Noise Management Plan under Regulation 13 of the *Environmental Protection (Noise) Regulations* 1997 prior to the commencement of construction works.** **Construction work shall not be carried out outside of the abovementioned times unless approval is obtained from the Shire of Ashburton in the form of an approved Noise Management Plan under Regulation 13 of the *Environmental Protection (Noise) Regulations 1997* prior to the commencement of construction works.** ~~No building or construction activities shall be carried out before 7.00am or after 4.00pm, Monday to Saturday, and not at all on Sunday or Public Holidays.~~	Request Advice Note B be reworded to allow for extended construction times consistent with the *Environmental Protection (Noise) Regulations 1997* ('Noise Regulations'). In this regard, it is noted that noise from construction sites is permitted between the hours of 7:00am – 7:00pm. We also note that advice notes should not seek to vary legislative requirements under the Noise Regulations. Therefore, we request the construction times be amended to reflect the current industry standard
C	With regard to Condition 11, all stormwater drainage shall be designed in accordance with the document entitled "Australian Rainfall and Runoff" 1987 (where amended) produced by the Institute of Engineers, Australia, and the design is to be certified by a suitably qualified practicing Engineer or the like, to the satisfaction of the Shire of Ashburton, and to be designed on the basis of a 1:100 year storm event. This is to be provided with the associated Building Permit Application.	No change.
D	The Shire of Ashburton contains many places of Aboriginal Heritage significance. Proponents are advised to consider Aboriginal heritage issues and their obligations under the *Aboriginal Heritage Act 1972* at an early stage of planning. Further information can be obtained from the Department of Planning, Lands and Heritage on (08) 6551 8002 or at the following website www.dplh.wa.gov.au.	No change.
E	Please be advised that under section 51C of the Environmental Protection Act 1986 (EP Act), clearing of native vegetation is an offence unless undertaken under the authority of a clearing permit, or the clearing is subject to an exemption. Exemptions for clearing that are a requirement of written law, or authorised under certain statutory processes, are contained in Schedule 6 of the EP Act. Exemptions for low impact routine land management practices outside of environmentally sensitive areas (ESAs) are contained in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (the Clearing Regulations). Consideration should also be given to the Department of Water and Environmental Regulation Draft Guidelines: Native vegetation referrals	No change.

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F	The proposed activities occur within the proclaimed Pilbara groundwater and surface water areas and are subject to licensing requirements under the *Rights in Water and Irrigation Act 1914* (RiWI). If the proponent needs to use groundwater or surface water for any purpose, including construction, onsite fire hydrants or groundwater dewatering, they will need to apply for a 5C licence to take water and a 26D licence to construct any new water supply bores.	No change.
G	The proponent is to be made aware of its obligations, as under section 11 of the Contaminated Sites Act 2003, site owners, occupiers or a person who knows or suspects that they have caused or contributed to contamination must report the site to the Department. If the proponent suspects a site to be contaminated it is to be reported as soon as reasonably practical, however, if the proponent knows a site is contaminated it must be reported within 21 days of the proponent first being aware of the contamination. Failure to do so is considered an offence under the Act.	No change.
H	The installation of outdoor lighting shall be in accordance with the requirements of Australian Standard AS 4282 - 1997 "Control of the Obtrusive Effects of Outdoor Lighting".	No change.
I	The applicant is responsible for securing all necessary approvals and tenure, providing statutory notifications and complying with all relevant laws. Nothing in this determination notice alleviates the need for the applicant to comply with all relevant local, State and Commonwealth laws and to ensure appropriate tenure arrangements have been made where the use of/reliance upon land other than that owned by the applicant is involved. Without this obligation, the applicant is responsible for: a) Obtaining all other/further necessary approvals, licences, permits, resource entitlements etc by whatever name called required by law before the development the subject of this development approval can be lawfully commenced and to carry out the activity for its duration; b) Providing any notifications; c) Securing tenure/permission from the relevant owner to use private or public land not owned by the applicant (including for access required by conditions of approval); d) Ensuring the correct siting of structure on the land. An identification survey demonstrating correct siting and setbacks of structures may be requested of the applicant to ensure compliance with this determination notices and applicable provisions. Where an approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) or local government approval under regulation 17A of the Planning and Development (Development Assessment Panels) Regulations 2011.	No change.
J	**This property is on a site where records confirm there is a history of military activities that have resulted in residual UXO. A possibility exists that dangerous items of UXO may still be found on this site. Contact police if a suspicious item that may be UXO if found. Visit www.defence.gov.au for further information.**	Refer to justification provided at Condition 6.

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Attachment Three

Amended Development Application Plans and Sub-Consultant Reporting

ONSLOW TOWNSHIP VILLAGE - DEVELOPMENT APPLICATION

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DRAWING NO.	DRAWING NAME	REVISION	REVISION DESCRIPTION
DA002	SITE MASTER PLAN	K	REVISED DA ISSUE
DA003	SITE PLAN - NORTH EAST	F	REVISED DA ISSUE
DA004	SITE SECTIONS	D	REVISED DA ISSUE
DA100	ADM, IND, CRE & MED - FLOOR PLAN & ELEVATIONS	H	REVISED DA ISSUE
DA101	ADM, IND, CRE & MED - ROOF PLAN	G	REVISED DA ISSUE
DA200	RST & TVN - FLOOR PLAN	G	REVISED DA ISSUE
DA201	RST & TVN - ELEVATIONS	G	REVISED DA ISSUE
DA202	RST & TVN - ROOF PLAN	E	REVISED DA ISSUE
DA300	GYM & SPT - FLOOR PLAN & ELEVATIONS	G	REVISED DA ISSUE
DA301	HREC - FLOOR PLAN & ELEVATIONS	G	REVISED DA ISSUE
DA302	GYM, SPT & HREC - ROOF PLAN	E	REVISED DA ISSUE
DA400	ACCOM & LDRY POD - FLOOR PLAN & ELEVATIONS	F	REVISED DA ISSUE
DA500	ANC - FLOOR PLAN, ROOF PLAN & ELEVATIONS	D	REVISED DA ISSUE
DA600	VISUALISATIONS	C	REVISED DA ISSUE

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C	08/03/22	REVISED DA ISSUE
B	31/08/21	DA ISSUE
A	10/08/21	DRAFT DA ISSUE
NO.	DATE	DESCRIPTION

ISSUE

DEVELOPMENT APPLICATION

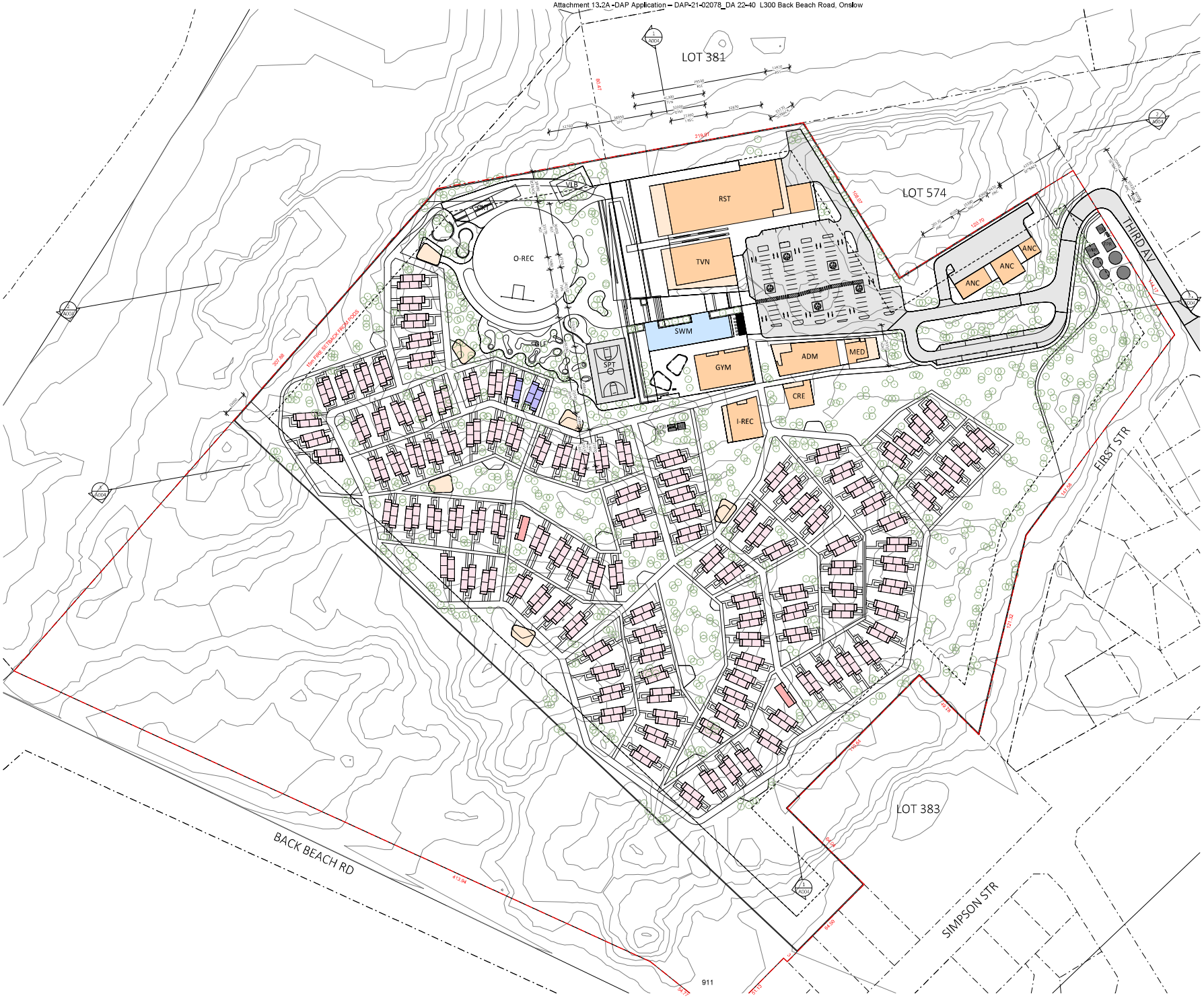
milieu creative
L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 300, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
COVER PAGE

DRAWN: MC	SCALE:	DATE: 25/02/2022	REVISION: C
CHECKED: JP	SHEET: A1	PROJECT NO: 210601	DA001



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SYMBOL LEGEND

- SITE BOUNDARY
- BUILDING
- COVERED OUTDOOR SPACE
- UNCOVERED OUTDOOR SPACE
- SERVICES
- WATER BODY
- ROAD/CAR PARK
- FIELD STORE (WITH LAUNDRY)
- ACCOMMODATION PODS (SLEEPS 4)
- ACCESSIBLE ACCOMMODATION PODS (SLEEPS 2)
- EXISTING WATER CONNECTION POINT
- EXISTING SEWER CONNECTION POINT
- PLANTING - REFER LANDSCAPE DRAWINGS FOR DETAILS
- 15m FIRE SETBACK FROM PODS

CODE LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CET	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GLF	MINI GOLF
GYM	GYM/AQUA/GYM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM

NO	DATE	DESCRIPTION
K	08/03/22	REVISED DA ISSUE
J	17/01/22	REVISED FOR VALUE ENGINEERING
I	11/01/22	REVISED FOR VALUE ENGINEERING
H	17/12/21	ISSUE FOR INFORMATION
G	08/12/21	ISSUE FOR STAGING
F	24/11/21	REVISED FOR DEVELOPMENT APPLICATION
E	31/08/21	DA ISSUE
D	26/08/21	ISSUE FOR INFORMATION
C	18/08/21	ISSUE FOR PRICING
B	10/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

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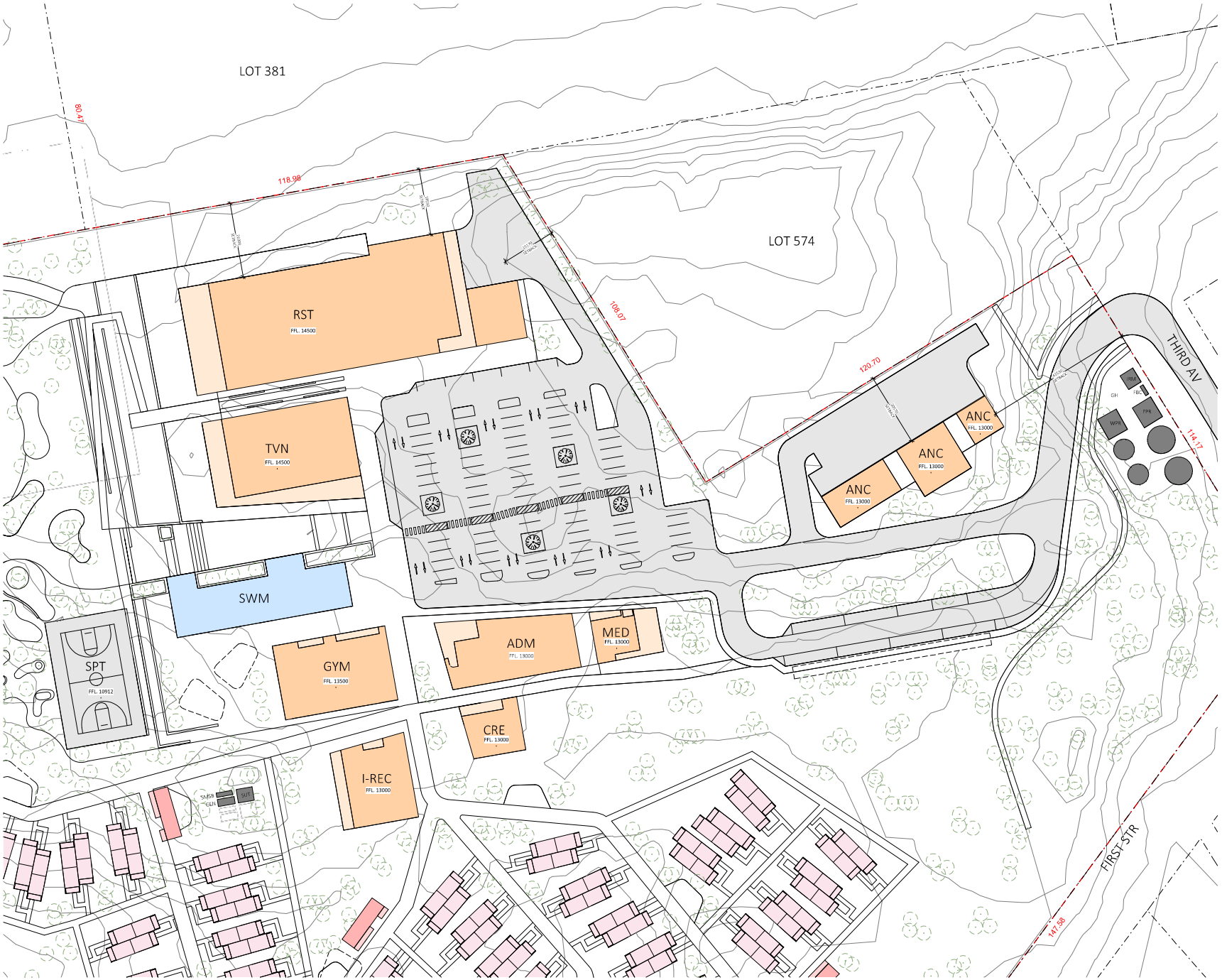
PROJECT
LOT 381, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
SITE MASTER PLAN

DRAWN	SCALE	DATE	REVISION
Author	1 : 1000	03/12/21	K
CHECKED	SHEET	PROJECT NO	
Checker	A1	21060	

DA002



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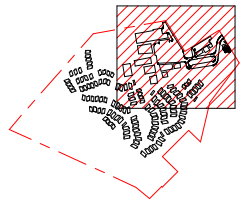
SYMBOL LEGEND

- SITE BOUNDARY
- BUILDING
- COVERED OUTDOOR SPACE
- UNCOVERED OUTDOOR SPACE
- SERVICES
- WATER BODY
- ROAD/CAR PARK
- FIELD STORE (WITH LAUNDRY)
- ACCOMMODATION PODS (SLEEPS 4)
- ACCESSIBLE ACCOMMODATION PODS (SLEEPS 2)
- EXISTING WATER CONNECTION POINT
- EXISTING SEWER CONNECTION POINT
- PLANTING - REFER LANDSCAPE DRAWINGS FOR DETAILS
- 15m FIRE SETBACK FROM PODS

CODE LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CRT	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
ING	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SWBD	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM

KEY PLAN



NO.	DATE	DESCRIPTION
F	08/03/22	REVISED DA ISSUE
E	24/11/21	REVISED FOR DEVELOPMENT APPLICATION
D	31/08/21	DA ISSUE
C	10/08/21	ISSUE FOR INFORMATION
B	10/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

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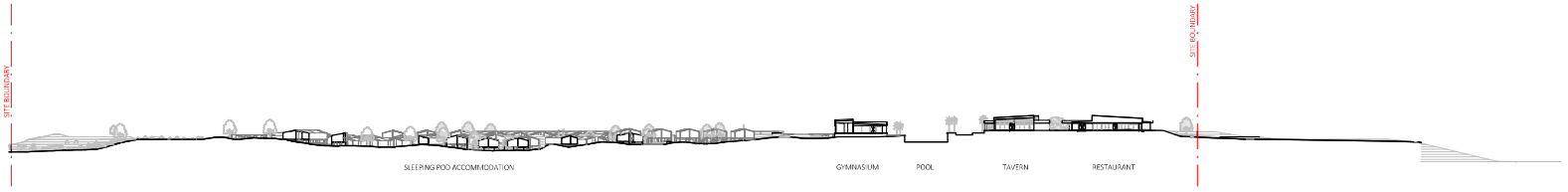
PROJECT
LOT 381, 574 BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

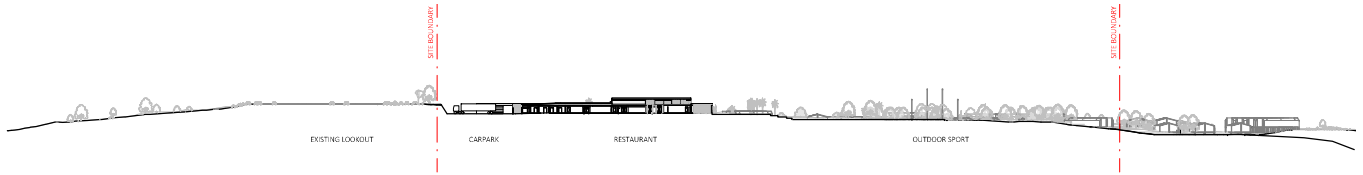
DRAWING
SITE PLAN - NORTH EAST

DRAWN	SCALE	DATE	REVISION
MJ	1:500	25/02/2022	F
CHECKED	SHEET	PROJECT NO	
JJ	A1	210960	

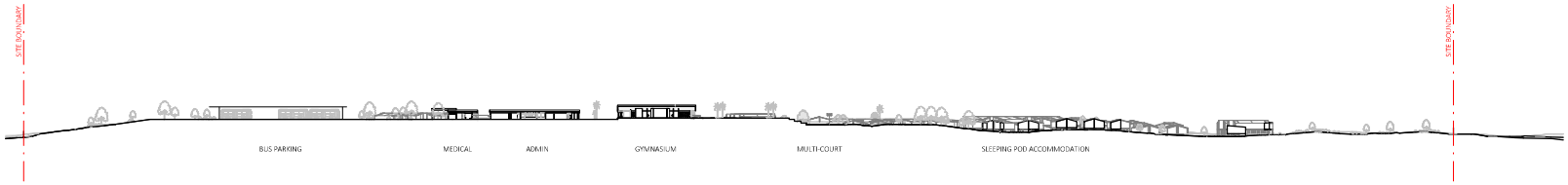
DA003



1 SITE SECTION 1
1 : 1000



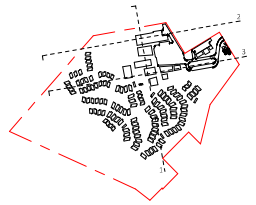
2 SITE SECTION 2
1 : 1000



3 SITE SECTION 3
1 : 1000

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KEY PLAN



NO.	DATE	DESCRIPTION
D	08/03/22	REVISED DA ISSUE
C	31/08/21	DA ISSUE
B	10/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

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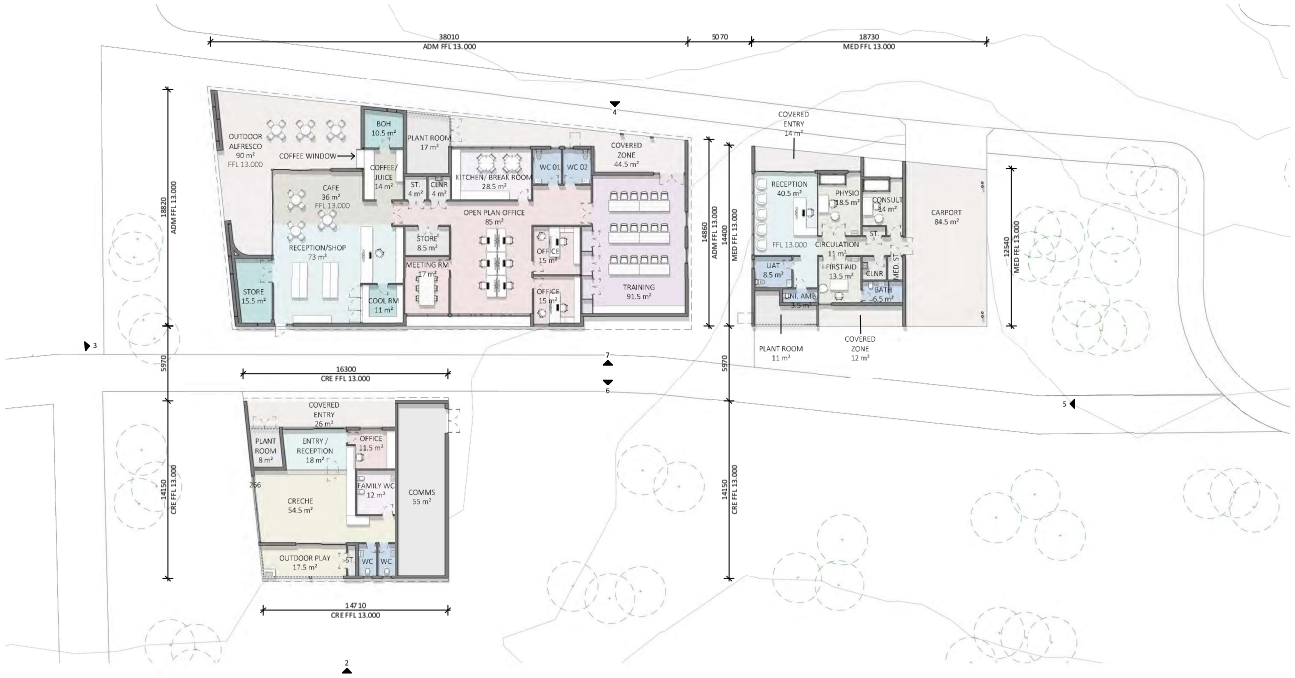
PROJECT
LOT 301, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

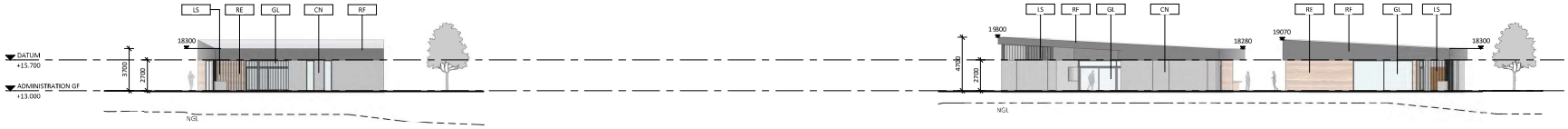
DRAWING
SITE SECTIONS

DRAWN	SCALE	DATE	REVISION
MJ	1:1000	25/02/2022	D
CHECKED	SHEET	PROJECT NO	
JH	A1	210601	

DA004



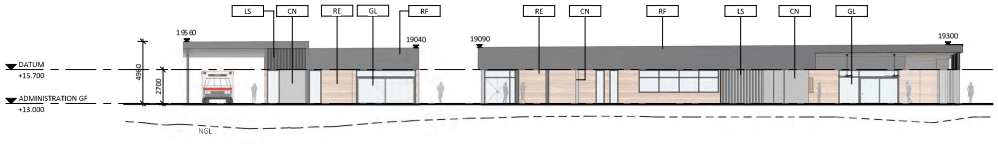
1 ADM, MED & CRE - GROUND FLOOR PLAN
1 : 200



2 CRE - ELEVATION SOUTH
1 : 200

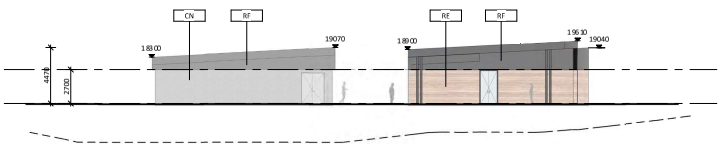
3 ADM - ELEVATION WEST
1 : 200

CRE - ELEVATION WEST



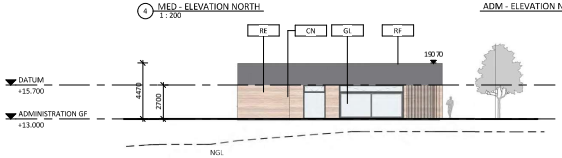
4 MED - ELEVATION NORTH
1 : 200

ADM - ELEVATION NORTH

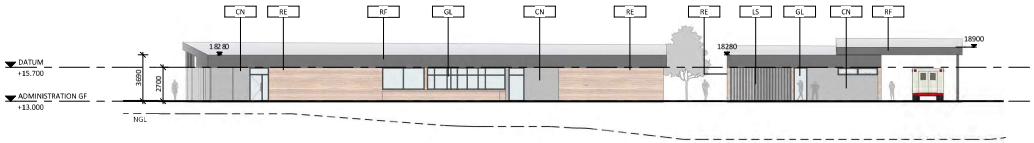


5 CRE - ELEVATION EAST
1 : 200

MED - ELEVATION EAST



6 CRE - ELEVATION NORTH
1 : 200



7 ADM - ELEVATION SOUTH
1 : 200

MED - ELEVATION SOUTH

914

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LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CKT	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPA	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
IRM	INITIAL RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TYN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE

ROOM SCHEDULE

ROOM	AREA
ADMINISTRATION	194.70 m²
CRECHE	113.85 m²
MEDICAL	64.97 m²

FECA & UCA AREAS

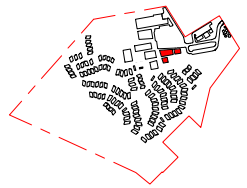
BUILDING	AREA TYPE	AREA
ADMINISTRATION	FECA	140.97 m²
ADMINISTRATION	UCA	53.76 m²
ADMINISTRATION		194.73 m²
CRECHE	FECA	161.01 m²
CRECHE	UCA	21.60 m²
CRECHE		113.61 m²
MEDICAL	FECA	113.73 m²
MEDICAL	UCA	121.13 m²
MEDICAL		234.86 m²
TOTAL: 13		1053.22 m²

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
GL	FIXED/OPENABLE GLAZING
LS	LIGHTWEIGHT SCREEN
RE	RAMMED EARTH
RF	METAL DECK ROOF SHEETING

- BOH
- Creche
- Educational
- Medical
- Food and Beverage
- Office
- Outdoor
- Outdoor Seating
- Reception
- Service room
- Amenities
- Storage
- Wet Area

KEY PLAN



ISSUE	DATE	DESCRIPTION
H	08/03/22	REVISED DA ISSUE
G	17/01/22	REVISED FOR VALUE ENGINEERING
F	31/08/21	DA ISSUE
E	20/08/21	ISSUE FOR INFORMATION
D	18/08/21	ISSUE FOR PRICING
C	12/08/21	DRAFT DA ISSUE
B	04/08/21	ISSUE FOR INFORMATION
A	30/07/21	ISSUE FOR INFORMATION

ISSUE
DEVELOPMENT APPLICATION

milieū creative
L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 501 BACK BEACH ROAD
ONSLOW WA 6710

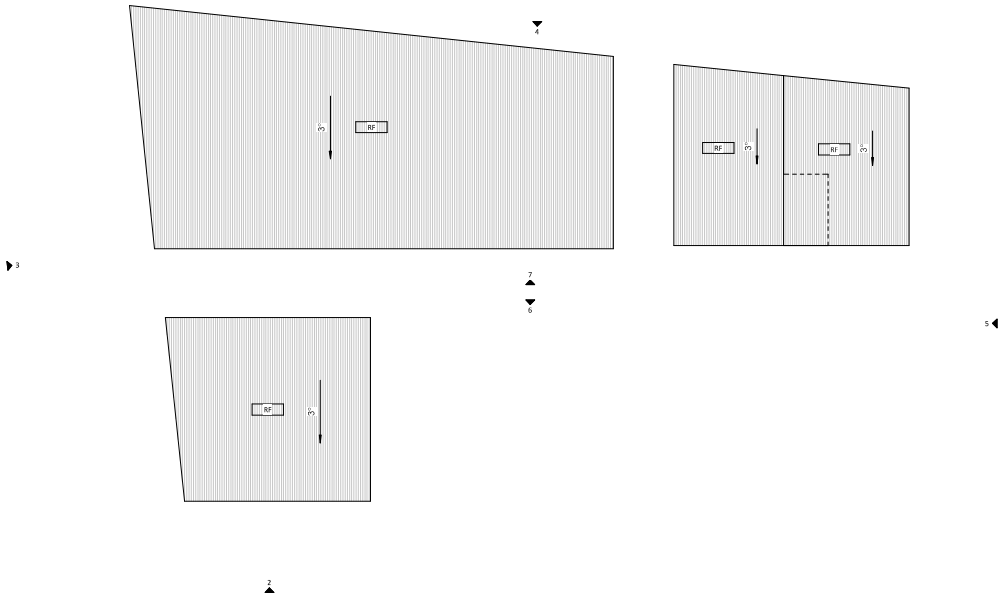
PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
ADM, IND, CRE & MED - FLOOR PLAN & ELEVATIONS

DRAWN	SCALE	DATE
CD/N	As indicated	30/07/21
CHECKED	SHEET	PROJECT NO
JP	A1	210601

REVISION H

DA100



1 ADM, MED & CRE - ROOF PLAN
1 : 200

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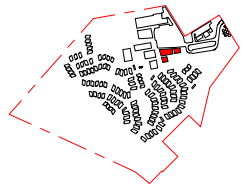
LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CRT	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
KNU	INTAKE FINO MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SSS	SHADE STRUCTURE

MATERIAL LEGEND

CODE	DESCRIPTION
RF	METAL DECK ROOF SHEETING

KEY PLAN



NO.	DATE	DESCRIPTION
G	08/03/22	REVISED DA ISSUE
F	17/01/22	REVISED FOR VALUE ENGINEERING
E	31/08/21	DA1 ISSUE
D	20/08/21	ISSUE FOR INFORMATION
C	12/08/21	DRAFT DA1 ISSUE
B	04/08/21	ISSUE FOR INFORMATION
A	30/07/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

milieū creative
L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 300, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
ADM, IND, CRE & MED - ROOF PLAN

DA101

DRAWN	SCALE	DATE	REVISION
MC	As indicated	30/07/21	G
CHECKED	SHEET	PROJECT NO	
JP	A1	210601	



1 RST & TVN - GROUND FLOOR PLAN
1 : 200

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LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CKT	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
IRN	IRONE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE
LK	LOCKERS

ROOM SCHEDULE - RST

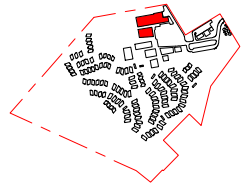
ROOM	AREA
RESTAURANT	2388.07 m²
TAVERN	1981.51 m²

FCA & UCA AREAS

BUILDING	AREA TYPE	AREA
RESTAURANT	FECA	1981.82 m²
RESTAURANT	UCA	406.85 m²
RESTAURANT		2388.66 m²
TAVERN	FECA	827.30 m²
TAVERN	UCA	154.45 m²
TAVERN		981.75 m²
TOTAL		3368.39 m²

- Amenities
- BOH
- BOH
- Circulation
- Entry
- Food and Beverage
- Office
- Outdoor Seating
- Service room
- Storage
- Wet Area

KEY PLAN



NO.	DATE	DESCRIPTION
G	08/03/22	REVISED DA ISSUE
F	31/08/21	DA ISSUE
E	20/08/21	ISSUE FOR INFORMATION
D	18/08/21	ISSUE FOR PRICING
C	12/08/21	DRAFT DA ISSUE
B	04/08/21	ISSUE FOR INFORMATION
A	30/07/21	ISSUE FOR INFORMATION

ISSUE
DEVELOPMENT APPLICATION

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L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

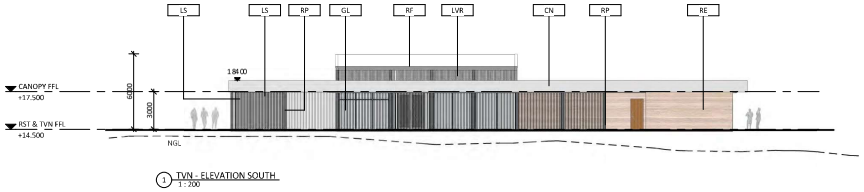
PROJECT
LOT 301 BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

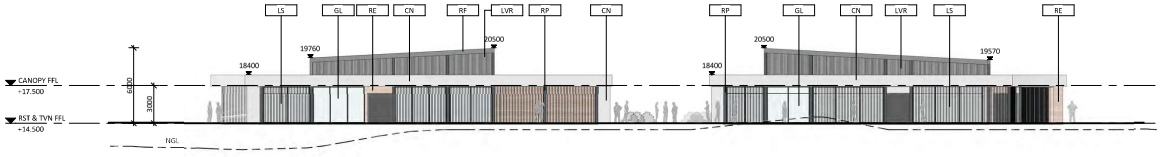
DRAWING
RST & TVN - FLOOR PLAN

DRAWN	SCALE	DATE	REVISION
MC	As indicated	30/07/21	G
CHECKED	SHEET	PROJECT NO	
JP	A1	210601	

DA200

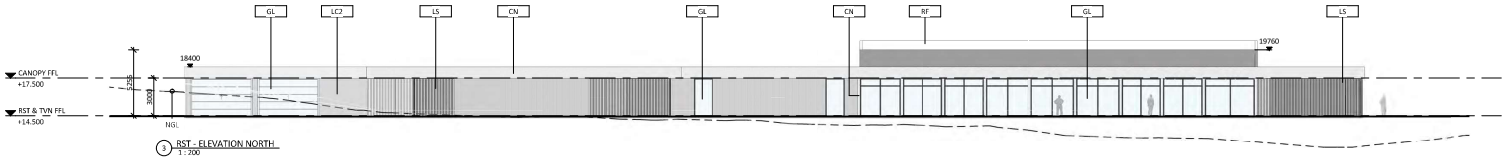


1 TVN - ELEVATION SOUTH
1 : 200

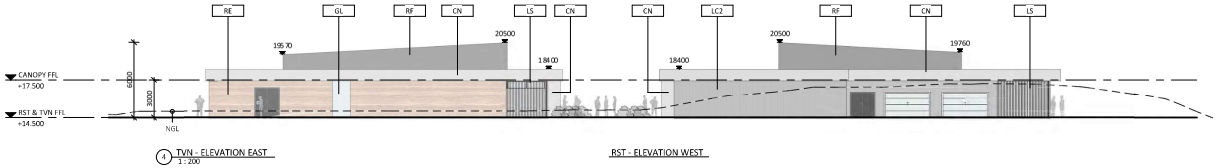


2 RST - ELEVATION WEST
1 : 200

TVN - ELEVATION WEST

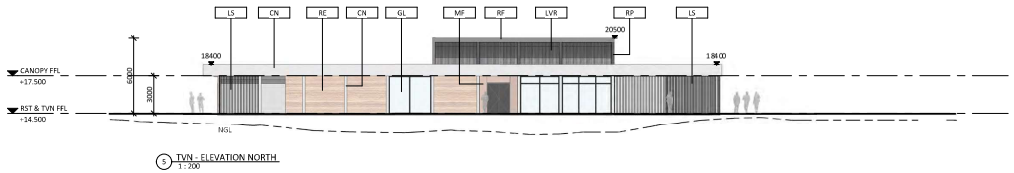


3 RST - ELEVATION NORTH
1 : 200

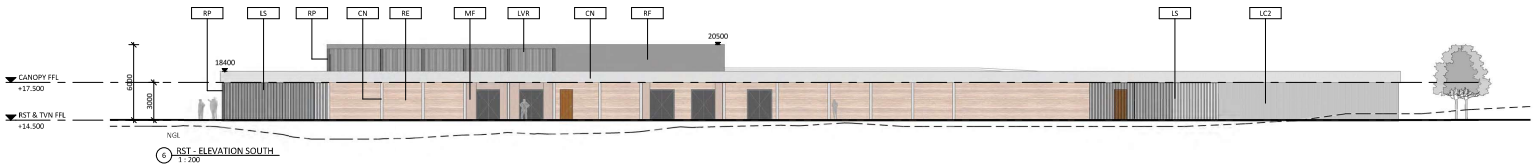


4 TVN - ELEVATION EAST
1 : 200

RST - ELEVATION WEST



5 TVN - ELEVATION NORTH
1 : 200



6 RST - ELEVATION SOUTH
1 : 200

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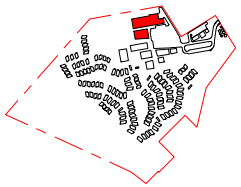
LEGEND

ADM	ADMINISTRATION
AMEN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CKT	OUTDOOR CRICKET
CRE	CRECHE & CONVIS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
MM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE
LK	LOCKERS

MATERIAL LEGEND

CODE	DESCRIPTION
CS	CONCRETE FINISH
GL	FIXED/OPERABLE GLAZING
LC	LIGHTWEIGHT CLADDING - WALLAPP
LS	LIGHTWEIGHT SCREEN
LVR	LOUVRE SCREEN
MF	METAL FINISH
RE	RAMMED EARTH
RF	METAL DECK ROOF SHEETING
RP	RENDER/PAINT FINISH

KEY PLAN



NO.	DATE	DESCRIPTION
G	08/03/22	REVISED DA ISSUE
F	31/08/21	DA ISSUE
E	20/08/21	ISSUE FOR INFORMATION
D	18/08/21	ISSUE FOR PRICING
C	13/08/21	DRAFT DA ISSUE
B	04/08/21	ISSUE FOR INFORMATION
A	30/07/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

milieū creative
L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 501 BACK BEACH ROAD
ONSLOW WA 6710

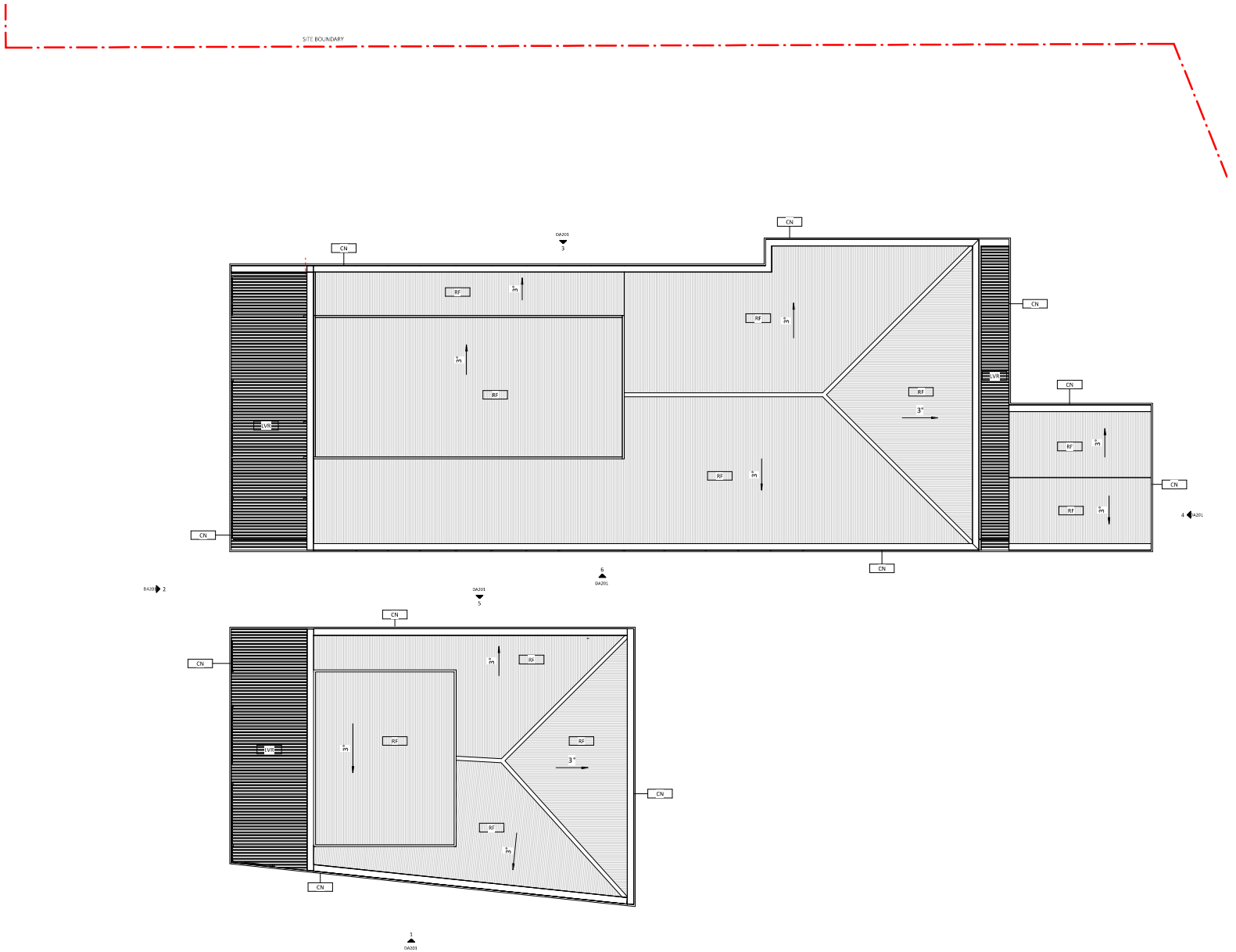
PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
RST & TVN - ELEVATIONS

DRAWN	SCALE	DATE
MC	As indicated	30/07/21
CHECKED	SHEET	PROJECT NO
JP	A1	210601

REVISION G

DA201



1 RST & TVN - ROOF PLAN
1 : 200

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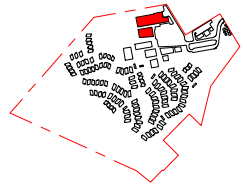
LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLIARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CRT	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
FRX	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE
LK	LOCKERS

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
LVR	LOUVRE SCREEN
RF	METAL DECK ROOF SHEETING

KEY PLAN



E	08/03/22	REVISED DA ISSUE
D	31/08/21	DAI ISSUE
C	23/08/21	ISSUE FOR INFORMATION
B	17/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION
NO.	DATE	DESCRIPTION

ISSUE
DEVELOPMENT APPLICATION

milieū creative
L1, 488 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 501 BACK BEACH ROAD
ONSLOW WA 6710

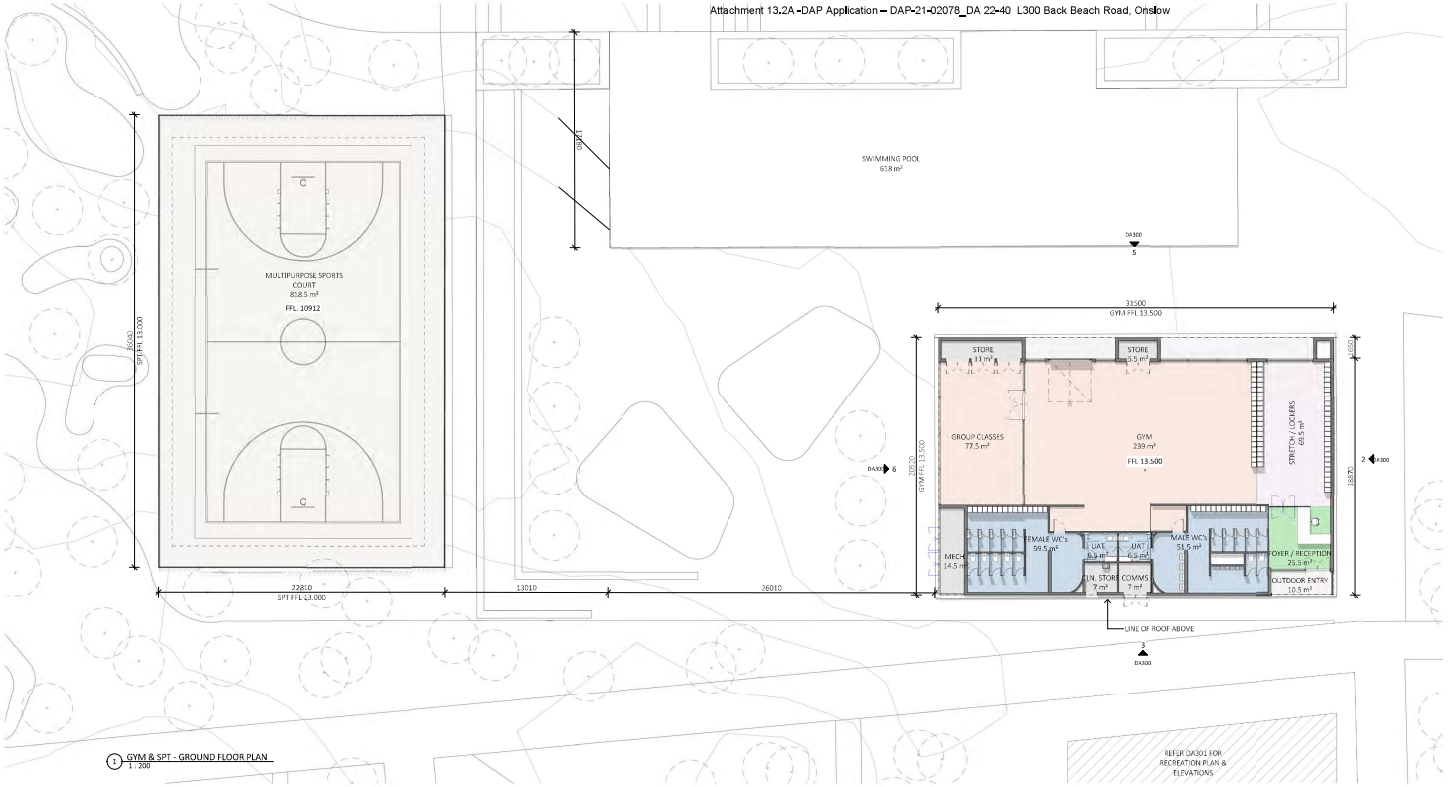
PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
RST & TVN - ROOF PLAN

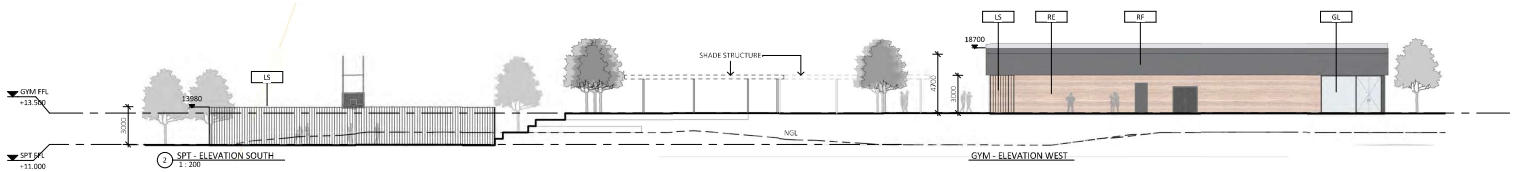
DRAWN	SCALE	DATE
MC	As indicated	30/07/21
CHECKED	SHEET	PROJECT NO
JP	A1	210601

REVISION E

DA202

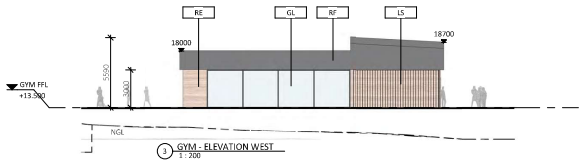


1 GYM & SPT - GROUND FLOOR PLAN
1 : 200

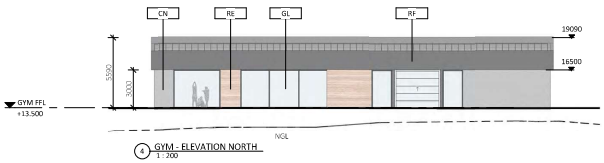


2 SPT - ELEVATION SOUTH
1 : 200

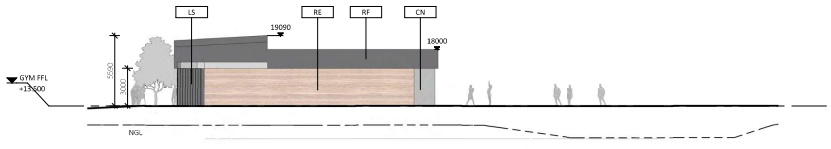
GYM - ELEVATION WEST



3 GYM - ELEVATION WEST
1 : 200



4 GYM - ELEVATION NORTH
1 : 200



5 REC - ELEVATION EAST
1 : 200

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LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CRT	OUTDOOR CRICKET
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI-GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I REC	INDOOR RECREATION
LCA	LOCKERS, CHANGEROOMS & ABLUTIONS
LDY	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE

AREA SCHEDULE

ROOM	AREA
GYMNASIUM	530.36 m²
INDOOR RECREATION	471.85 m²
MULTI-PURPOSE COURTS	818.41 m²

FECA & LICK AREAS - GYM AND SPT

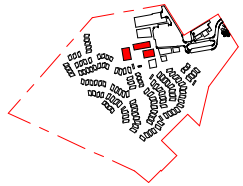
BUILDING	AREA TYPE	AREA
GYM	FECA	472.50 m²
GYM	LICK	59.09 m²
GYM		332.29 m²
MULTI-PURPOSE COURTS		818.41 m²
MULTI-PURPOSE COURTS		818.41 m²
TOTAL: 6		1490.70 m²

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
GL	FIXED/OPERABLE GLAZING
SS	SLOTTY/WEIGHT SCREEN
TE	TRAMMED EARTH
RF	METAL DECK ROOF SHEETING

Alfresco
Recreational
Outdoor
Reception
Service room
Amenities
Wet area

KEY PLAN



NO	DATE	DESCRIPTION
G	08/02/22	REVISED DA ISSUE
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ISSUE

DEVELOPMENT APPLICATION

milieu creative
L1, 683 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

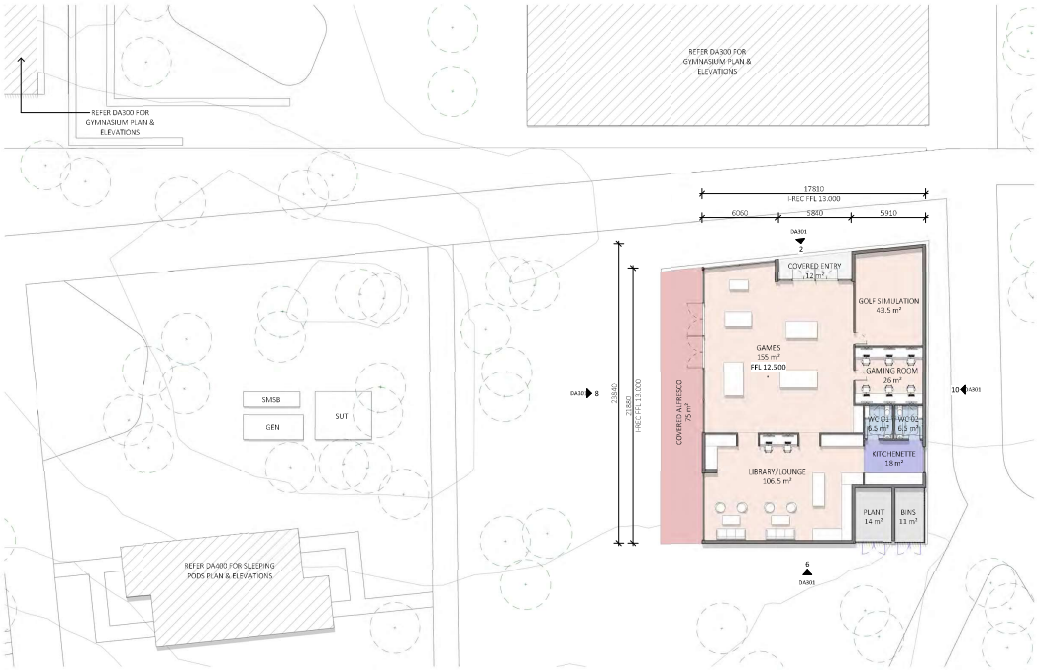
PROJECT
LOT 301, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

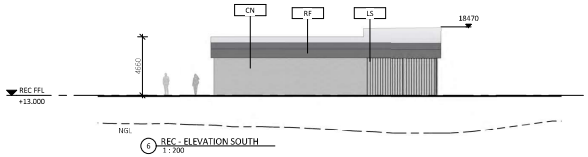
DRAWING
GYM & SPT - FLOOR PLAN & ELEVATIONS

DRAWN	SCALE	DATE	REVISION
MJ	AS INDICATED	30/07/21	G
CHECKED	SHEET	PROJECT NO	
JH	A1	210901	

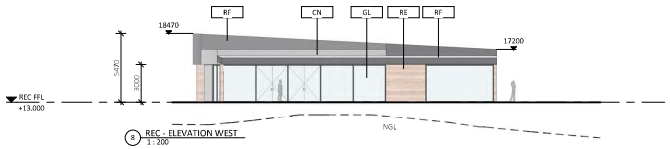
DA300



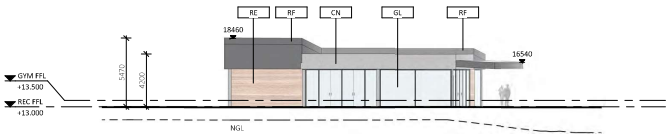
3 SPT & REC - GROUND FLOOR PLAN
1 : 200



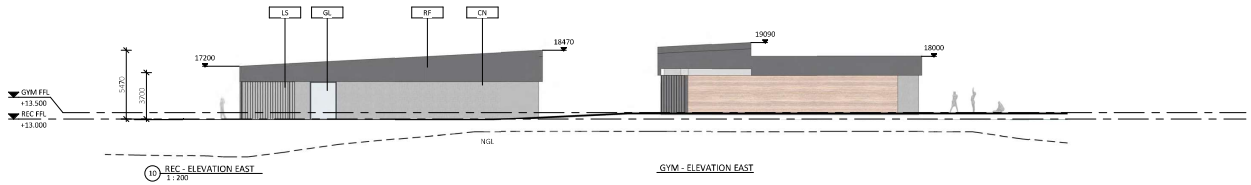
6 REC - ELEVATION SOUTH
1 : 200



8 REC - ELEVATION WEST
1 : 200



2 REC - ELEVATION NORTH
1 : 200



10 REC - ELEVATION EAST
1 : 200

GYM - ELEVATION EAST

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LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CKT	OUTDOOR CRICKET
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
INO	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LCA	LOCKERS, CHANGEROOMS & ABLUTIONS
LDY	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE

AREA SCHEDULE

ROOM	AREA
GYMNASIUM	930.36 m²
INDOOR RECREATION	473.85 m²
MULTI-PURPOSE COURTS	928.41 m²

FECA & UCA AREAS - I-REC

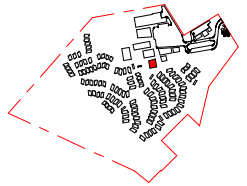
BUILDING	AREA TYPE	AREA
INDOOR RECREATION	FECA	361.91 m²
INDOOR RECREATION	UCA	111.26 m²
INDOOR RECREATION		473.17 m²
TOTAL: 4		473.17 m²

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
GL	PADDYPERFANCE GLAZING
LS	LIGHTWEIGHT SCREEN
RE	PLANNED EARTH
RF	METAL DECK ROOF SHEETING

Alfresco
Recreational
Kitchen
Outdoor
Reception
Service room
Amenities
Wet Area

KEY PLAN



NO.	DATE	DESCRIPTION
G	08/02/22	REVISED DA ISSUE
F	31/08/21	DA ISSUE
E	20/08/21	ISSUE FOR INFORMATION
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C	10/08/21	DRAFT DA ISSUE
B	04/08/21	ISSUE FOR INFORMATION
A	30/07/21	ISSUE FOR INFORMATION

ISSUE
DEVELOPMENT APPLICATION

milieu creative
L1, 683 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

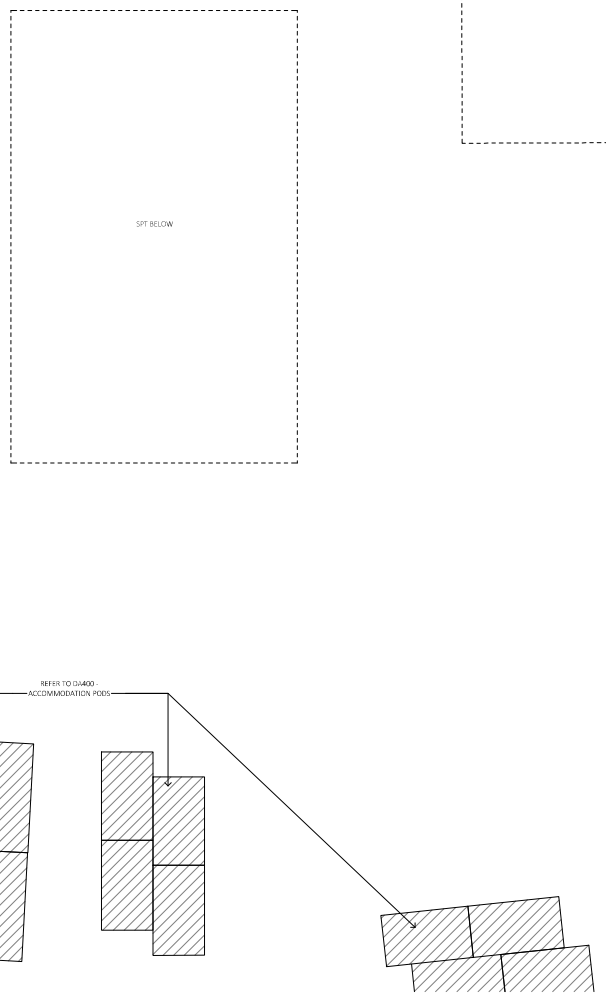
PROJECT
LOT 301, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
I-REC - FLOOR PLAN & ELEVATIONS

DRAWN	SCALE	DATE	REVISION
MJ	AS INDICATED	30/07/21	G
CHECKED	SHEET	PROJECT NO	
JH	A1	210901	

DA301



1 GYM, SPT & REC - ROOF PLAN
1 : 200

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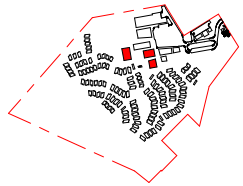
LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CRT	OUTDOOR CRICKET
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE-HOUSE
GLF	MINI-GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
INO	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LCA	LOCKERS, CHANGEROOMS & ABLUTIONS
LDY	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O. REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
RF	METAL DECK ROOF SHEETING

KEY PLAN



NO.	DATE	DESCRIPTION
E	08/03/22	REVISED DA ISSUE
D	31/08/21	DA ISSUE
C	20/08/21	ISSUE FOR INFORMATION
B	10/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

milieu creative
L1, 683 STIRLING HIGHWAY, PEPPERMINT GROVE, WA 6011
milieucreative.com

PROJECT
LOT 301, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

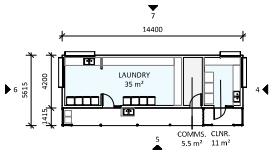
DRAWING
GYM, SPT & I-REC - ROOF PLAN

DRAWN	SCALE	DATE	REVISION
MC	AS INDICATED	04/03/22	E
CHECKED	SHEET	PROJECT NO	
JC	A1	210601	

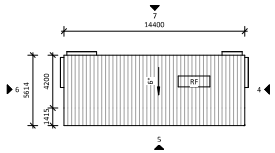
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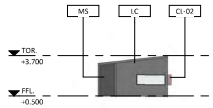
1 ACCOMMODATION PARTIAL PLAN
1 : 200



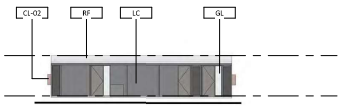
2 LAUNDRY FLOOR PLAN
1 : 200



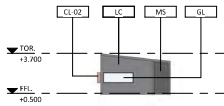
3 LAUNDRY - ROOF PLAN
1 : 200



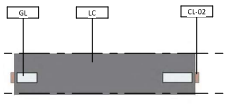
4 LAUNDRY ELEVATION EAST
1 : 200



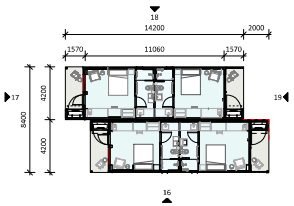
5 LAUNDRY ELEVATION SOUTH
1 : 200



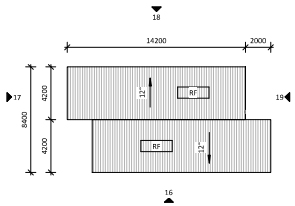
6 LAUNDRY ELEVATION WEST
1 : 200



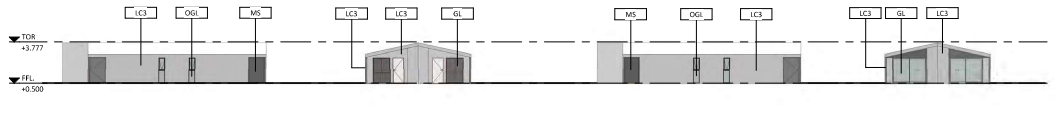
7 LAUNDRY ELEVATION NORTH
1 : 200



14 ACCOMMODATION TYPE A (DUAL) - FLOOR PLAN
1 : 200



15 ACCOMMODATION TYPE A - ROOF PLAN
1 : 200



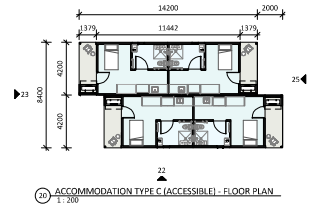
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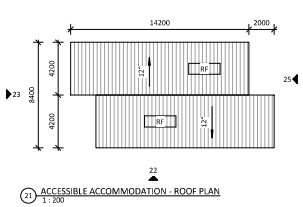
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19 ACCOMMODATION TYPE A - ELEVATION EAST
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ACCOMMODATION TYPE B (SINGLE) DELETED



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21 ACCESSIBLE ACCOMMODATION - ROOF PLAN
1 : 200



22 ACCESSIBLE ACCOMMODATION - ELEVATION SOUTH
1 : 200

23 ACCESSIBLE ACCOMMODATION - ELEVATION WEST
1 : 200

24 ACCESSIBLE ACCOMMODATION - ELEVATION NORTH
1 : 200

25 ACCESSIBLE ACCOMMODATION - ELEVATION EAST
1 : 200

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LEGEND

ADM	ADMIN SITUATION	Other
AMN	AMENITIES	Wet Area
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT, STORES	Alfresco
CKT	OUTDOOR CRICKET	Living/Bedroom
CRE	CRECHE	Wet Area
FBC	FIRE BOOSTER CABINET	
FPR	FIRE PUMP ROOM	
GEN	GENERATOR	
GLF	MINI GOLF	
GYM	GYM/AQUATIC & SWIMMING FACILITY	
H/O	TRAINING & INDUCTIONS	
RIM	INTAKE RING MAIN	
I-REC	INDOOR RECREATION	
LDR	LAUNDRY, CLEANING & STORE	
MED	MEDICAL & WELLNESS	
O-REC	OUTDOOR RECREATION	
RST	RESTAURANT	
SMSB	SITE MAIN SWITCH BOARD	
SPT	MULTI PURPOSE COURTS	
SUT	STEP UP TRANSFORMER	
SWM	SWIMMING POOL	
TVN	TAVERN	
VLB	OUTDOOR VOLLEYBALL	
WPR	WATER PUMP ROOM	

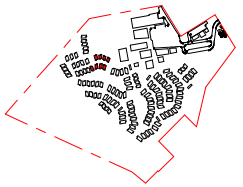
MATERIAL LEGEND

CODE	DESCRIPTION
CL-02	FC WALL CLADDING
GL	FIXED/OPERABLE GLAZING
LC	LIGHTWEIGHT CLADDING
LC1	LIGHTWEIGHT CLADDING - WOODLAND GREY
LC3	LIGHTWEIGHT CLADDING - DUNE
MS	METAL MESH SCREEN
OGL	OBSCURE FIXED/OPERABLE GLAZING
RF	METAL DECK ROOF SHEETING

FECA AND UCA AREAS

BUILDING	AREA TYPE	AREA
LAUNDRY	FECA	66.80 m²
LAUNDRY	UCA	21.82 m²
LAUNDRY		78.62 m²
TYPE A	FECA	45.10 m²
TYPE A	UCA	13.66 m²
TYPE A		58.76 m²
TYPE C	FECA	45.98 m²
TYPE C	UCA	11.69 m²
TYPE C		57.67 m²
TOTAL		193.06 m²

KEY PLAN



NO.	DATE	DESCRIPTION
F	04/03/22	REVISED DA ISSUE
E	31/08/21	DA ISSUE
D	21/08/21	ISSUE FOR INFORMATION
C	19/08/21	ISSUE FOR PRICING
B	10/08/21	DA DRAFT ISSUE
A	04.08.21	ISSUE FOR INFORMATION

ISSUE
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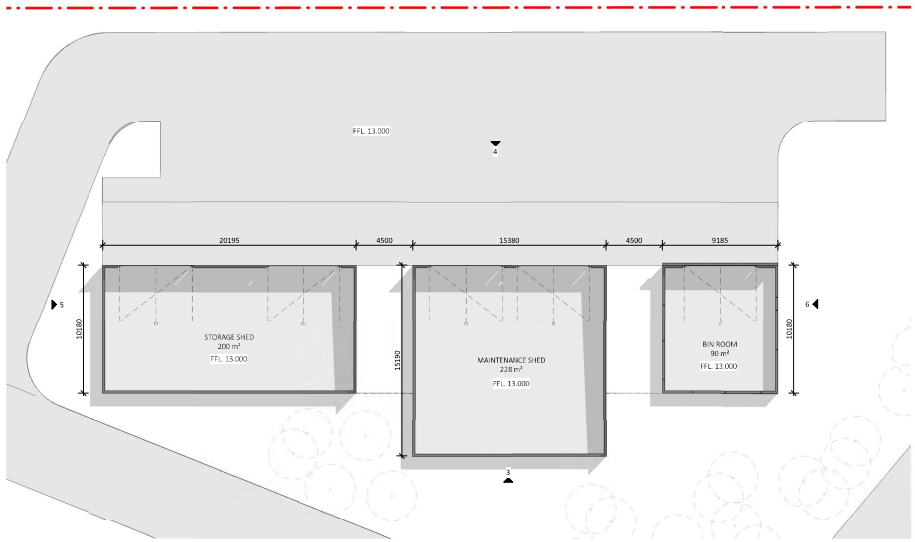
PROJECT
ONSLOW TOWNSHIP VILLAGE

PROJECT ADDRESS
ONSLOW WA 6710

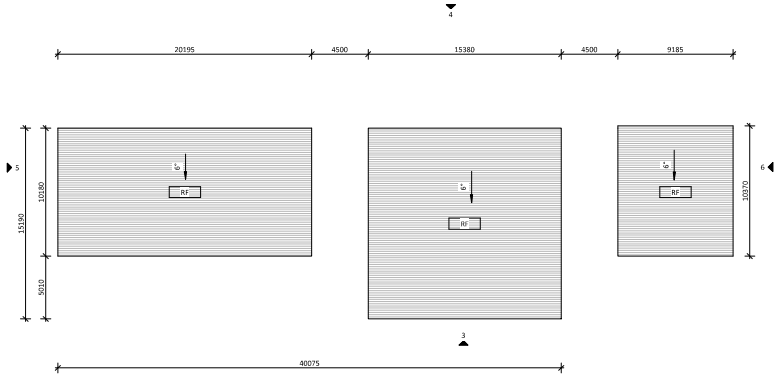
DRAWING
ACCOM & LDRY POD - FLOOR PLAN & ELEVATIONS

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CHECKED	SHEET	PROJECT NO	
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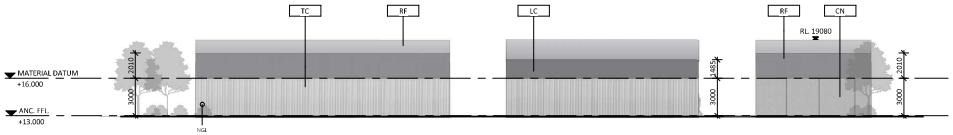
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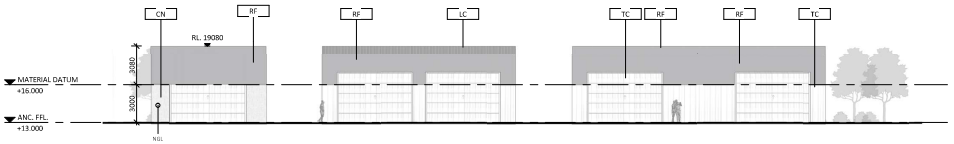
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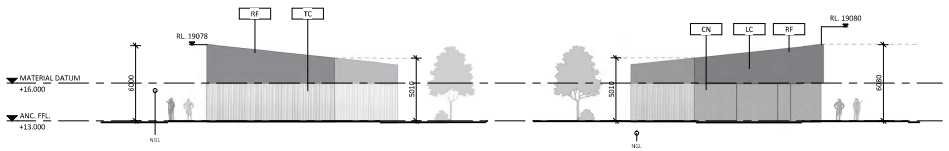
2 ANC - ROOF PLAN
1 : 200



3 ANC - ELEVATION SOUTH
1 : 200



4 ANC - ELEVATION NORTH
1 : 200



5 ANC - ELEVATION EAST
1 : 200

6 ANC - ELEVATION WEST
1 : 200

LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CKT	OUTDOOR CRICKET
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GH	GATE HOUSE
GLF	MINI GOLF
GYM	GYMNASIUM & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
INM	INTAKE RISC MAIN
I-REC	INDOOR RECREATION
LCA	LOCKERS, CHANGEROOMS & ABLUTIONS
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM
SST	SHADE STRUCTURE

AREA SCHEDULE

ROOM	AREA
SERVICE ROOM	227.85 m²
SERVICE ROOM	199.87 m²
SERVICE ROOM	89.86 m²

FICA & UCA AREAS

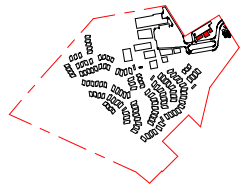
BUILDING	AREA TYPE	AREA
BIN ROOM	FECA	89.86 m²
BIN ROOM		89.86 m²
MAINTENANCE SHED	FECA	227.85 m²
MAINTENANCE SHED		227.85 m²
STORAGE SHED	FECA	199.87 m²
STORAGE SHED		199.87 m²

MATERIAL LEGEND

CODE	DESCRIPTION
CN	CONCRETE FINISH
LC	LIGHTWEIGHT CLADDING
RF	METAL DECK ROOF SHEETING
TC	TRANSLUCENT CLADDING

SERVICE ROOM

KEY PLAN



NO.	DATE	DESCRIPTION
D	04/01/22	REVISED DA ISSUE
C	23/08/21	DA ISSUE
B	06/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

ISSUE

DEVELOPMENT APPLICATION

milieu creative
LEVEL 1, 148B STIRLING HIGHWAY, PEPPERMINT GROVE 6011
milieucreative.com

PROJECT
LOT 501, BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
ANC - FLOOR PLAN, ROOF PLAN & ELEVATIONS

DRAWN	SCALE	DATE	REVISION
CH	As indicated	04.08.21	D
CHECKED	SHEET	PROJECT NO	
JH	A1	210601	

DA500

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1 VIEW FROM MAIN CARPARK
1 : 1



2 VIEW ACROSS OVAL TO RESTAURANT & TAVERN
1 : 1



3 AERIAL VIEW OF ACCOMODATION VILLAGE
1 : 1

NO.	DATE	DESCRIPTION
C	08/03/22	REVISED DA ISSUE
B	31/08/21	DA ISSUE
A	10/08/21	DRAFT DA ISSUE

ISSUE

DEVELOPMENT APPLICATION

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milieucreative.com

PROJECT
LOT 301, BACK BEACH ROAD
ONSLOW WA 6710

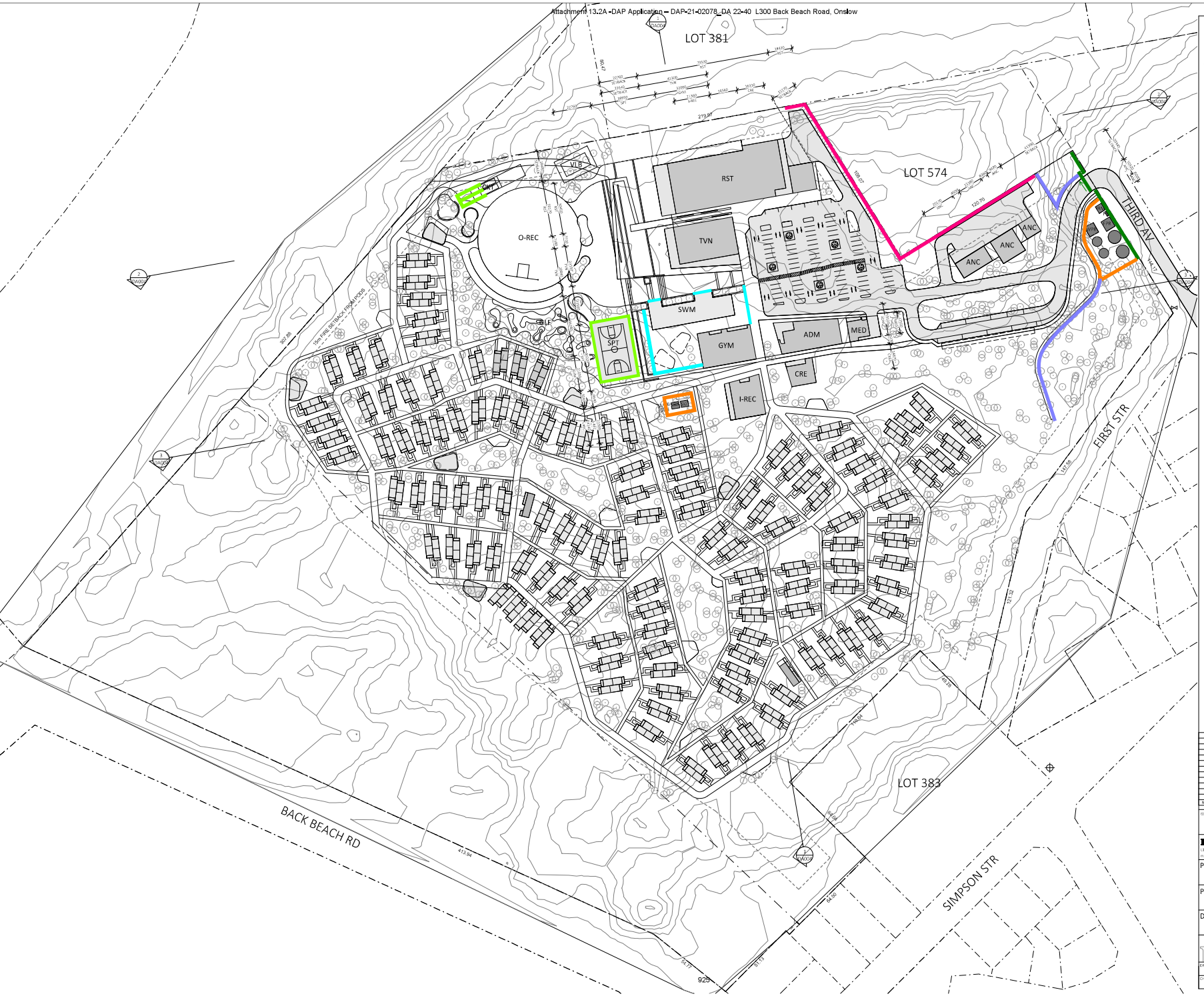
PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
VISUALISATIONS

milieu

DRAWN	SCALE	DATE	REVISION
MC	1:1	10/03/22	C
CHECKED	SHEET	PROJECT NO	
JC	A1	210360	

DA600



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SYMBOL LEGEND

- SITE BOUNDARY
- BUILDING
- COVERED OUTDOOR SPACE
- UNCOVERED OUTDOOR SPACE
- SERVICES
- WATER BODY
- ROAD/CAR PARK
- FIELD STORE (WITH LAUNDRY)
- ACCOMMODATION PODS (SLEEPS 4)
- ACCESSIBLE ACCOMMODATION PODS (SLEEPS 2)
- EXISTING WATER CONNECTION POINT
- EXISTING SEWER CONNECTION POINT
- PLANTING - REFER LANDSCAPE DRAWINGS FOR DETAILS
- 15m FIRE SETBACK FROM PODS

CODE LEGEND

ADM	ADMINISTRATION
AMN	AMENITIES
ANC	ANCILLARY - GATE HOUSE, SURVEILLANCE HUT & STORES
CET	OUTDOOR CRICKET
CRE	CRECHE & COMMS
FBC	FIRE BOOSTER CABINET
FPR	FIRE PUMP ROOM
GEN	GENERATOR
GLF	MINI GOLF
GYM	GYM/AGILITY & SWIMMING FACILITY
IND	TRAINING & INDUCTIONS
IRM	INTAKE RING MAIN
I-REC	INDOOR RECREATION
LDR	LAUNDRY, CLEANING & STORE
MED	MEDICAL & WELLNESS
O-REC	OUTDOOR RECREATION
RST	RESTAURANT
SMSB	SITE MAIN SWITCH BOARD
SPT	MULTI-PURPOSE COURTS
SUT	STEP UP TRANSFORMER
SWM	SWIMMING POOL
TVN	TAVERN
VLB	OUTDOOR VOLLEYBALL
WPR	WATER PUMP ROOM

FENCING PLAN LEGEND

- SECURITY FENCING
  BLACK CYCLONE TYPE W/ SLIDING GATE
  2100H
- SAFETY / DANGEROUS GOODS FENCING
  BLACK CYCLONE TYPE
  2100H
- POOL BARRIER FENCING
  GLASS
  MIN. 1200H TO AUST STANDARDS
- FALL PROTECTION BARRIER FENCING
  STEEL
  MIN. 1000H TO NCC
- CRICKET NETS - SPORTS FENCING
  BLACK CYCLONE TYPE
  3000H
- FENCING
  BLACK CYCLONE TYPE
  MIN. 1000H

FENCING PLAN 15.03.22

NO	DATE	DESCRIPTION
K	08/03/22	REVISED DA ISSUE
J	17/01/22	REVISED FOR VALUE ENGINEERING
I	11/01/22	REVISED FOR VALUE ENGINEERING
H	17/12/21	ISSUE FOR INFORMATION
G	08/12/21	ISSUE FOR STAGING
F	24/11/21	REVISED FOR DEVELOPMENT APPLICATION
E	31/08/21	DA ISSUE
D	26/08/21	ISSUE FOR INFORMATION
C	18/08/21	ISSUE FOR PRICING
B	10/08/21	DRAFT DA ISSUE
A	04/08/21	ISSUE FOR INFORMATION

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DEVELOPMENT APPLICATION

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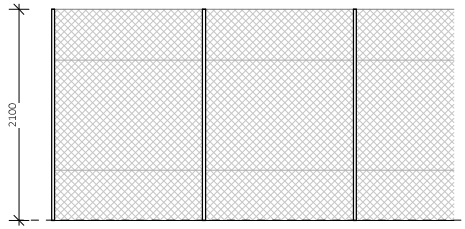
PROJECT
LOT 381, 574 BACK BEACH ROAD
ONSLOW WA 6710

PROJECT NAME
ONSLOW TOWNSHIP VILLAGE

DRAWING
SITE MASTER PLAN

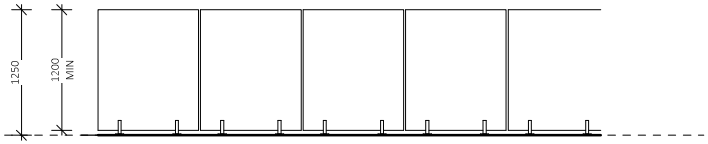
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CHECKED	SHEET	PROJECT NO	
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DA002



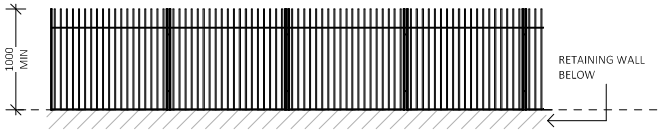
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- BLACK CYCLONE TYPE
- WITH SLIDING GATE TO SECURITY FENCING
- 2100H



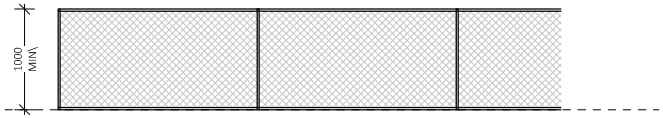
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- GLASS
- MIN. 1200H



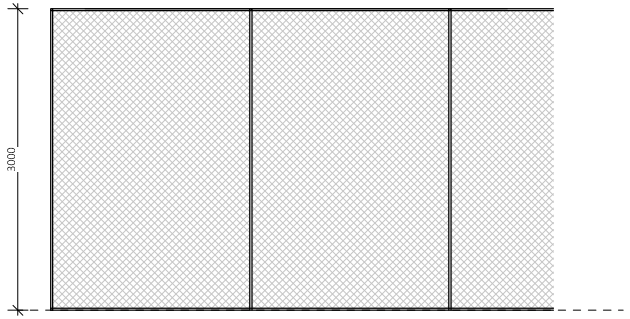
3 FALL PROTECTION BARRIER FENCING
1 : 50

- STEEL
- MIN. 1000H TO NCC



4 FENCING - TYPICAL
1 : 50

- BLACK CYCLONE TYPE
- MIN. 1000H



5 CRICKET NETS - SPORTS FENCING
1 : 50

- BLACK CYCLONE TYPE
- 3000H

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Lvl 1, 488 Stirling Highway,
Peppermint Grove WA 6011
milieucreative.com

NO.	DATE	DESCRIPTION
A	31/03/22	REVISED DA ISSUE

PROJECT NAME: ONSLOW TOWNSHIP VILLAGE

PROJECT: LOT 300, BACK BEACH ROAD, ONSLOW WA 6710

926

DRAWING: SITE FENCING SCHEDULE

DRAWN: SD | CHECKED: JF | SCALE: 1 : 50 | SHEET: A3 | DATE: 03/31/22 | PROJECT NO: 210601 | REVISION: A

DA005

m p rogers & associates pl ABN 14 062 681 252
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R1569 Rev 3

May 2022

Rowe Group

Onslow Township Village Coastal Hazard Risk Management & Adaptation Planning

marinas
boat harbours
canals
breakwaters
jetties
seawalls
dredging
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climate change
waves
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siltation
erosion
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beaches
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K1905, Report R1569 Rev 3
Record of Document Revisions

Rev	Purpose of Document	Prepared	Reviewed	Approved	Date
A	Draft for MRA review	M Peterson	M Rogers	M Rogers	03/08/21
0	Issued to Client	M Peterson	M Rogers	M Rogers	03/08/21
1	Updated with Client Comments	M Peterson	M Rogers	M Rogers	31/08/21
2	Updated with New Site Master Plan	M Peterson	M Rogers	M Rogers	18/03/22
3	Updated with New Site Master Plan	M Peterson			13/05/22

Form 035 18/06/2013

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1. Introduction

Mineral Resources Limited (MRL) are investigating the feasibility of developing a resort on Lot 300 Back Beach Road, Onslow. It would be used by their fly in fly out (FIFO) workers. As part of this process, a Development Application is required. To assist with the progression of the Development Application MRL engaged Rowe Group (Rowe) to coordinate a consultant team. The proposed development known as Onslow Township Village, is located on the coastline of Beadon Point to the northwest of the Onslow Town Centre (refer Figure 1.1).



Figure 1.1 Approximate Proposed Location of Development

As the development is located on the coast, an assessment of the possible impacts of coastal hazards on the development is required to inform the development application. This assessment of the coastal hazards will be completed through the Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) guidelines in the State Coastal Planning Policy. To complete the CHRMAP, Rowe engaged specialist coastal and port engineers M P Rogers & Associates Pty Ltd.

1.1 State Coastal Planning Policy (SPP 2.6)

Within Western Australia, State Planning Policy 2.6: State Coastal Planning Policy (SPP2.6; WAPC 2019) provides guidance for land use and development decision-making within the coastal zone, including the establishment of coastal foreshore reserves to protect, conserve and enhance coastal values. SPP2.6 also provides guidance on the assessment of coastal hazard risks for assets located in close proximity to the coast.

The objectives of SPP2.6 are wide ranging, however a key component of the policy is the identification of appropriate areas for the sustainable use of the coast. This includes use for recreational, tourism and commercial purposes, which are relevant to the intended future development of the Onslow Township Village.

The guidance on the assessment of coastal hazard risk is provided within SPP2.6 in the form of a methodology to assess the potential extent of coastal hazard impacts, as well as for the development of a CHRMAP report. Further details in this regard are also provided in the CHRMAP Guidelines (WAPC 2019).

The key requirement of CHRMAP is to develop a risk based adaptation framework for assets that could be at risk of impact by coastal hazards over the relevant planning timeframe. Importantly, the balance of these risks needs to be considered with reference to the expected lifetime of the relevant assets.

2. Context

2.1 Purpose

The potential vulnerability of the coastline and the subsequent risk to the community, economy and environment needs to be considered for any coastal development.

SPP2.6 requires that the responsible management authority completes CHRMAP where an existing or proposed development may be at risk from coastal hazards over the planning timeframe. The main purpose of the CHRMAP is to define areas of the coastline which could be vulnerable to coastal hazards and to outline the intended approach to the monitoring and management of these hazards where required.

CHRMAP can be a powerful planning tool to help provide clarity to existing and future developers, users, managers or custodians of the coastline. This is done by defining levels of risk exposure, management practices and adaptation techniques that the management authority considers acceptable in response to the present and future risks posed by coastal hazards.

Specifically, the purpose of this CHRMAP is as follows:

- Determine the specific extent of coastal hazards in relation to the Onslow Township Village development.
- Determine the coastal hazard risks associated with the Onslow Township Village development.
- Establish the basis for present and future risk management and adaptation.
- Provide guidance on appropriate management and adaptation planning for the future, including monitoring.

2.2 Objectives

The key objectives of this CHRMAP are as follows:

- Inform the development of the Onslow Township Village.
- Ensure that MRL, Rowe and key stakeholders understand the potential likelihood of the development being impacted by coastal hazards over the 100 year planning timeframe.
- Outline the required coastal adaptation approach in an Implementation Plan that is acceptable to MRL, Rowe and key stakeholders.

2.3 Scope

The CHRMAP Guidelines (WAPC 2019) provide a specific framework for the preparation of a CHRMAP. This is outlined in the flowchart presented in Figure 2.1 which shows the risk management process adapted to coastal planning.

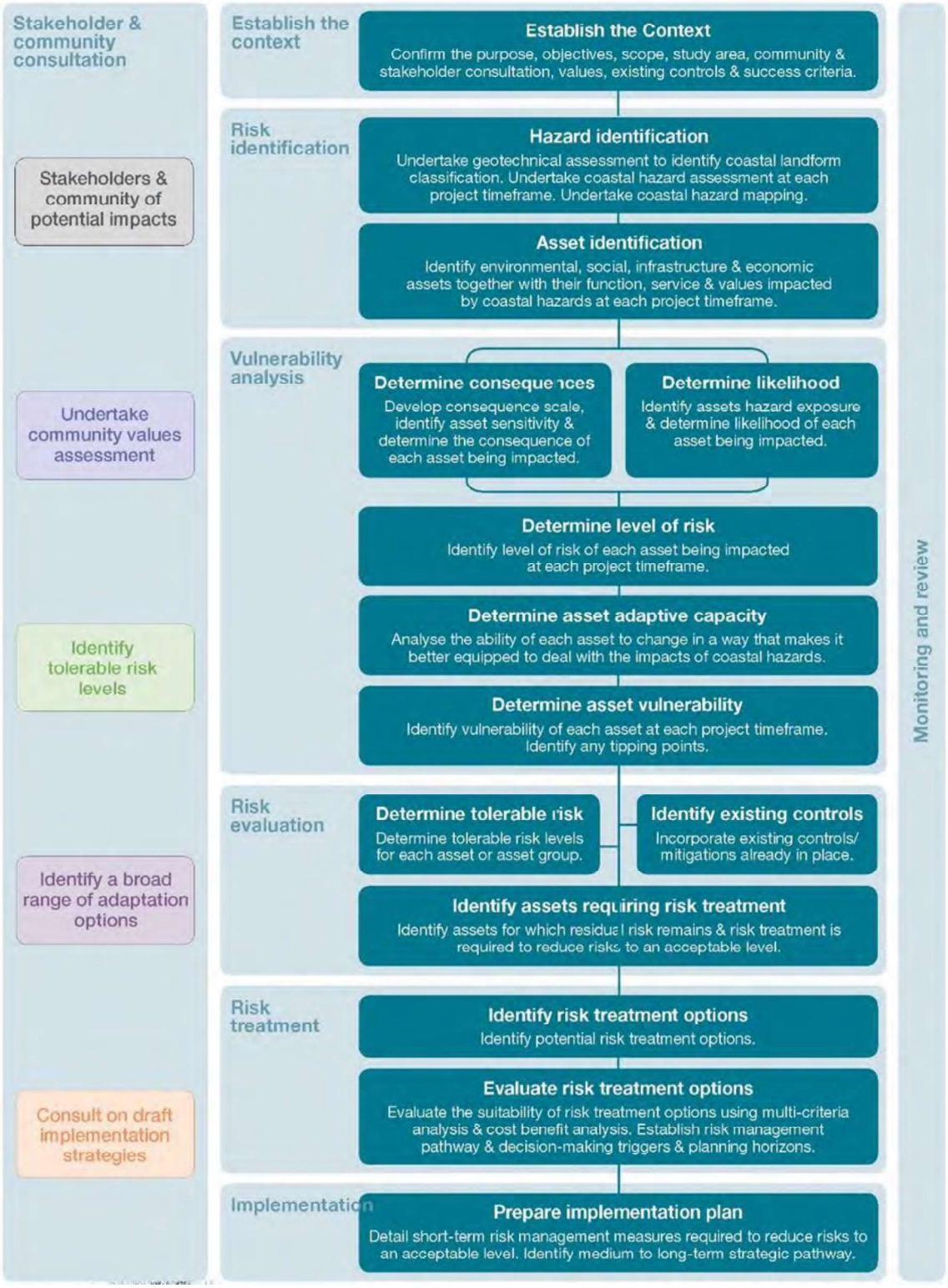


Figure 2.1 Risk Management & Adaptation Process Flow Chart (WAPC 2019)

As presented in the flowchart, the process for the development of a meaningful CHRMAP process requires a number of fundamental inputs. These inputs enable the assessment and analysis of

risk, which should ultimately be informed by input received from key stakeholders, to help shape the subsequent adaptation strategies.

The development of the Onslow Township Village will require an adaptation plan that is acceptable to all stakeholders. As a result, the approach that has been taken for this plan is to develop a management methodology that allows for flexibility into the future, given the inherent uncertainties associated with long term coastal behaviour.

The development of the adaptation plan will be informed by the assessment of the coastal erosion and inundation hazards at the site. The identification of the coastal erosion and inundation hazards for the Onslow Township Village is presented within Section 3 of this report.

This CHRMAP will consider the potential risks posed by coastal hazards over a range of horizons covering the 100 year planning timeframe. This planning timeframe is required by SPP2.6 for development on the coast, though it is noted that the lifetime of a structure on the coastline is unlikely to span this 100 year planning timeframe without requiring reconstruction.

Based on the results of the risk assessment, risk mitigation strategies will be developed, where required, in order to provide a framework for future management. However, it is important to realise that the risk assessment will be based on the outcomes of the coastal vulnerability assessment, which, by their nature, are justifiably conservative. This is due to the uncertainty around coastal dynamics when predicting impacts over long timeframes. As a result, the framework for future risk management strategies should be considered to be a guide of future requirements.

2.4 The Site

The Onslow Township Village is planned to be located on Lot 300 Back Beach Road in Onslow. Lot 300 is located adjacent to the coast on Beadon Point and as such provides easy access to both the beach and Onslow's town centre. The highest part of the site is located in the northeast corner with the remainder of the site slopping towards the west and south. The south western portion of the site is culturally significant to the local Thalanyji people and as such will not be developed.

A preliminary masterplan for the proposed development prepared by Milieu Creative is presented in Figure 2.2.



Figure 2.2 Preliminary Masterplan (Provided by Milieu Creative 2022)

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The preliminary masterplan includes the following.

- A culturally significant area in the south western portion of the site which is not being developed.
- Approximately 500 accommodation pods.
- Recreational facilities including an oval, a pool, a gym and a recreation room.
- Administrative and service facilities including a restaurant, a medical centre and administration.

3. Coastal Hazards

The Shire of Ashburton (Shire) engaged Cardno to complete a CHRMAP report for the Onslow Coast (Cardno 2017). As part of this process Cardno completed a coastal hazard assessment of the Onslow Coast which includes the coastal area of the Onslow Township Village (Cardno 2016). The methods, assumptions and results of the coastal hazard assessment are detailed in Cardno (2016), a summary is provided below for context.

3.1 Coastal Erosion Hazard

At the Onslow Township Village site, Cardno calculated the Horizontal Shoreline Datum (HSD) to be the 2.4 mAHD contour.

As part of their assessment Cardno broke the Onslow Coast into a number of sections, the Onslow Township Village is located across sections 1 and 2. The extent of erosion in a 100 year Average Recurrence Interval (ARI) storm event was calculated by Cardno to be 19 m behind the HSD in section 1 and 7 m behind the HSD in section 2.

Using historical aerial images of the coastline between 1969 and 2015, the long term trends of beach accretion and erosion were examined. Cardno adopted an historical accretion rate of 0.6 m/year for section 1 and an historical erosion rate of 0.03 m/year for section 2. To adopt a conservative approach Cardno adopted an accretion rate of 0.2 m/year for section 1. SPP2.6 allows for half of the long term accretion trend to be used in the calculation of the erosion hazard. As such Cardno adopted long term shoreline movement allowances of 0.1m/year accretion for section 1 and 0.03 m/year erosion for section 2 over the 100 year planning horizon.

The potential impacts of sea level rise due to climate change was also examined by Cardno. Cardno adopted a recession of 0.9 m/year over the 100 year planning horizon.

SPP2.6 also recommends an allowance of a further 0.2 m/year to account for uncertainty.

The total coastal erosion hazard allowances determined by Cardno are displayed in Table 3.1.

Table 3.1 Total Coastal Erosion Hazard Allowances

Section	2040	2070	2110
1	49 m	79 m	119 m
2	41 m	75 m	120 m

Note1: Values determined from Cardno (2016).

A coastal erosion hazard map of the Onslow Township Village site has been prepared using the values determined by Cardno and is included in Appendix A.

3.2 Coastal Inundation Hazard

The State Coastal Planning Policy requires consideration of the inundation of the 0.2% annual probability of the ocean flood level being reached or exceeded in any one year. This is the same probability as the 500 year ARI ocean storm surge event occurring in any one year. Due to the

location of the Onslow Township Village the 500 year ARI event is assumed to be caused by a Tropical Cyclone event.

To determine the 500 year ARI water level event Cardno conducted a Monte Carlo study comprising 10,000 years of synthetic cyclone tracks. These cyclones were then ranked, and the severe events modelled using Delft3d to determine the water levels for Onslow. An extreme analysis was of the water levels was conducted to determine the water level corresponding to the 500 year ARI event.

This water level was then increased using an allowance for wave set up and an allowance for sea level rise over the 100 year planning horizon. The resulting inundation levels determined by Cardno are displayed in Table 3.2.

Table 3.2 Inundation Levels

Year	Inundation Level
2040	3.51 mAHD
2070	3.85 mAHD
2110	4.57 mAHD

Note1: Values determined from Cardno (2016).

A coastal inundation hazard map of the Onslow Township Village Site has been prepared using the inundation levels determined by Cardno and the most recent available survey of the site. This is included in Appendix B. It should be noted that the Cardno assessment included fluvial inundation of the site. This has been ignored in this assessment as it is assumed that as part of the development appropriate drainage will be installed, preventing this fluvial inundation.

4. Coastal Hazard Adaptation & Mitigation Strategy

4.1 Coastal Hazard Risk

Based on the coastal hazard allowances determined by Cardno (2016) and shown in the coastal hazard maps included in Appendices A and B, there is a minimal risk to the key assets of the proposed Onslow Township Village development. All of the development's assets are located outside of the Inundation allowance. The only area likely to be affected by inundation is the culturally significant area which will not be developed.

None of the assets and structures that comprise the proposed resort fall within the erosion hazard areas. The coastal erosion hazard risk for all of the assets was thus determined to be low.

As such the coastal erosion risk to all of the assets has been determined to be minimal and has been excluded from the adaptation planning. However, an allowance of 30 m for a foreshore reserve to provide a recreation area has been included in the coastal erosion hazard map. When this additional allowance is added to the 2110 erosion hazard allowance approximately 32 of the accommodation pods and two covered outdoor spaces fall within this area. As such adaptation planning has been completed for these assets.

4.2 Mitigation Strategy

The overarching strategy for the Onslow Township Village development is a combined strategy of avoid and managed retreat / removal. The majority of the development's assets will be located outside of the required foreshore reserve area thus avoiding the coastal hazards. The assets that had to be located within the required future foreshore reserve will be subject to managed retreat.

MRA have been advised that the 500 accommodation pod resort has a proposed lifespan of approximately 30 years which will coincide with MRL's nearby mining operations. At the end of this 30 year period the development will be handed over to the Thalanyji people and will likely be converted into a more traditional tourist resort. As part of this handover to the Thalanyji people the number of accommodation pods will be reduced to suit the erosion situation and forecasts at that time.

As such by 2055 a portion of the accommodation pods will likely have been removed essentially enacting a managed retreat / removal strategy. The accommodation pods located within the foreshore area will be among the pods that are likely to be removed. The coastal erosion hazard map included in Appendix A includes an erosion line for 2070 which is located between 41 and 45 m seawards of the 2110 line. This demonstrates that there will be ample room to fit a reserve area for recreation throughout the 100 year timeframe.

In addition to the managed retreat / removal of the accommodation pods, the pods will also be designed to be easily relocatable. As such if the coastal hazard risks change the accommodation pods can easily be relocated to a safer location.

When the development is handed over to the Thalanyji people in approximately 30 years a portion of the site may need to be ceded to the Shire to ensure that an adequate foreshore reserve is maintained.

5. Implementation Plan

The risk adaptation and mitigation strategies outlined in Section 4 set out the general proposed coastal management approach for the development. Direct guidance on when, what, how and by who these processes will be completed is provided within this implementation plan. For ease of reference, these details have been broken down to outline the requirements for each stage of the project and / or asset life.

5.1 Planning & Initial Construction

Where possible assets will be located in areas outside of the identified coastal hazard areas and the reserve for recreation over a 100 year planning horizon. The assets that cannot be located outside of these areas will need to be designed to be easily relocatable to allow managed retreat.

Table 5.1 Implementation Plan Summary – Planning & Initial Construction Stage

Requirement	Timing	Responsibility
Acceptance of coastal hazard risks where avoidance was not possible.	Planning Stage	MRL
Appropriate design of assets to ensure that risks are managed as best as possible.	Planning & Design Phase	MRL (supported by design team)

5.2 Operation Over the Resort Design Life

Over the design life of the resort there will be a requirement to monitor the shoreline to ascertain whether the risk to assets is increasing. Further details of the monitoring requirements are outlined in Section 5.4. This monitoring will be the responsibility of the MRL before handover and the Thalanyji people afterwards.

Table 5.2 Implementation Plan Summary – Operation Over the Infrastructure Design Life

Requirement	Timing	Responsibility
Monitoring of coastal hazard risk to assess if risk becomes untenable and assets need to be relocated. (Refer Section 5.4)	Operation over design life	MLR / Thalanyiji People

5.3 Resort Handover

At the end of the initial 30 year period the resort will be handed over to the Thalanyji people and at this time a portion of the accommodation pods may need to be removed. During this process the pods that are currently located within the 2110 reserve for recreation area would be removed (refer Appendix A). At this time it may be necessary for the most seaward portion of the site to be ceded to the Shire to ensure that an adequate foreshore reserve can be maintained throughout the remainder of the 100 year planning horizon.

It is recommended that at this time an updated CHMRAP be completed to quantify the risk to any remaining and / or proposed additional assets.

Table 5.3 Implementation Plan Summary – Resort Handover

Requirement	Timing	Responsibility
Complete a revised coastal hazard risk assessment to quantify the risk level at that time.	Resort Handover	MRL / Thalanyji People
Remove portion of the accommodation pods.	Resort Handover	MRL

5.4 Monitoring & Review

Coastal monitoring and review are essential in order to track changes to the shoreline over time. Whilst the coastal hazards discussed in Section 3 provide an indication of the potential changes to the shoreline (and incorporate a justifiable level of conservatism), the system is inherently complex, and the actual shoreline response could be different to that presented.

Should the HSD or coastal vegetation line retreat to within 30 m of the cadastral boundary of Lot 300, then the following shoreline monitoring plan should be initiated.

The shoreline monitoring should be completed using a combination of onsite measurements and photo-monitoring as well as review of aerial photography captured by Landgate and others. The recommended monitoring plan for the site is presented in Table 5.4 below. The responsibility for the shoreline monitoring will rest with the development owner at that time.

Table 5.4 Shoreline Monitoring Plan – When Required

Monitoring Event	Timing	Responsibility
Photo Monitoring.	Yearly	MRL / Thalanyji People
Review of aerial imagery.	Every 5 years	MRL / Thalanyji People
Detailed survey of the shoreline and Development.	Following severe erosion events OR Following the retreat of the shoreline (HSD) to within 20 m of an asset	MRL / Thalanyji People

5.5 Review of CHRMAP Guidelines

Should the State Government guidance for the determination of the required coastal hazard allowances change as a result of new information becoming available, the Coastal Hazard Assessment and this CHRMAP should also be reviewed. This is especially the case for information regarding climate change and projected sea level rise, however this may also apply

for the calculation of inundation allowances. The responsibility for both of these actions would rest with the MRL prior to handover and the Thalanyji People afterwards.

6. Summary

MRL wish to develop the Onslow Township Village on Lot 300 Back Beach Road, Onslow.

Rowe engaged MRA to conduct a CHRMAP assessment of the proposed Onslow Township Village development to inform a development application. This CHRMAP has been completed to provide guidance on the coastal hazards and the required adaptation and management actions associated with the proposed development. It has been completed in line with the recommendations of SPP2.6 and WAPC (2019).

Coastal hazards determined from Cardno's coastal hazard assessment for Onslow show that there is a very low risk of coastal hazards adversely impacting the proposed development. However, with the addition of a 30 m wide foreshore reserve area for recreation, a number of the accommodation pods and two covered outdoor spaces included in the initial development may fall within the foreshore reserve after about 30 years. As such a managed retreat / remove strategy will be implemented for these assets. The two covered outdoor spaces could remain in the foreshore reserve for recreation if desired. All other assets maintain an avoid adaptation strategy. After approximately 30 years MRL will hand over the development to the Thalanyji people and in the process a portion of the accommodation pods may be removed. In this way the managed retreat / removal adaptation strategy will be implemented, and an adequate foreshore reserve maintained.

7. References

Cardno 2016. *Coastal Hazard Assessment CHRMAP for the Onslow Coast.* Prepared for the Shire of Ashburton, Western Australia.

Cardno 2017. *Coastal Hazard Risk Management & Adaptation Plan CHRMAP For the Onslow Coast.* Prepared for the Shire of Ashburton, Western Australia

Department of Transport 2010. *Sea Level Change in Western Australia – Application to Coastal Planning.* Prepared by the Department of Transport, Western Australia.

Milieu Creative 2021. *Onslow Township Resort Lot 300 Back Beach Road, Onslow Proposed Masterplan Presentation.* Prepared for Mineral Resources Limited.

Standards Australia 2009. *AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines.*

WAPC, 2013. *Statement of Planning Policy No. 2.6 – State Coastal Planning Policy.* Western Australian State Government, Perth.

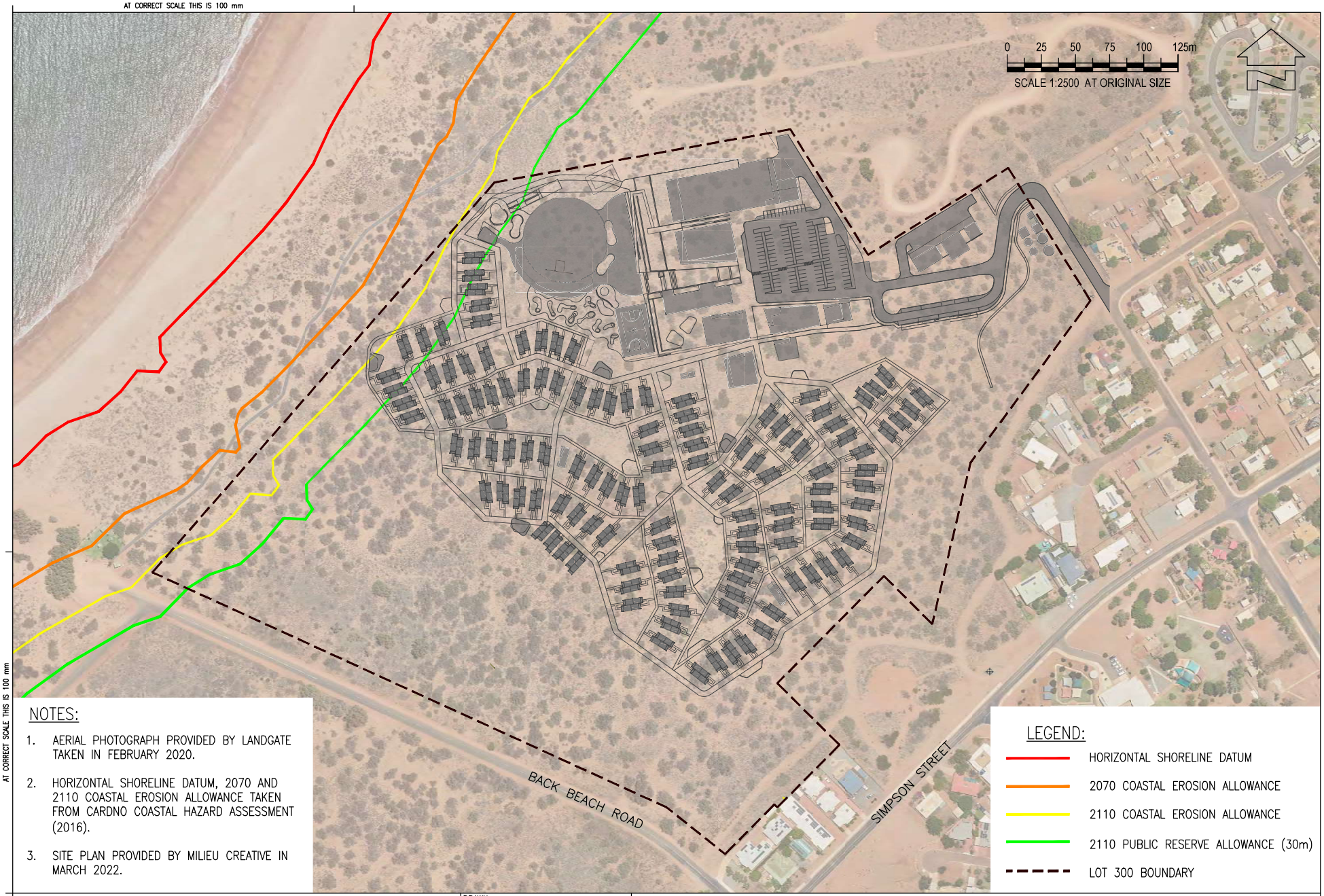
WAPC 2019. *Coastal Hazard Risk Management and Adaptation Planning Guidelines*. Government of Western Australia, Perth.

8. Appendices

Appendix A **Coastal Erosion Hazard Map**

Appendix B **Coastal Inundation Hazard Map**

Appendix A Coastal Erosion Hazard Map



NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY LANDGATE TAKEN IN FEBRUARY 2020.
2. HORIZONTAL SHORELINE DATUM, 2070 AND 2110 COASTAL EROSION ALLOWANCE TAKEN FROM CARDNO COASTAL HAZARD ASSESSMENT (2016).
3. SITE PLAN PROVIDED BY MILIEU CREATIVE IN MARCH 2022.

LEGEND:

- HORIZONTAL SHORELINE DATUM
- 2070 COASTAL EROSION ALLOWANCE
- 2110 COASTAL EROSION ALLOWANCE
- 2110 PUBLIC RESERVE ALLOWANCE (30m)
- LOT 300 BOUNDARY

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DRAWN M PETERSON
CHECKED M ROGERS

COASTAL EROSION HAZARD ALLOWANCE
ONSLOW TOWNSHIP VILLAGE

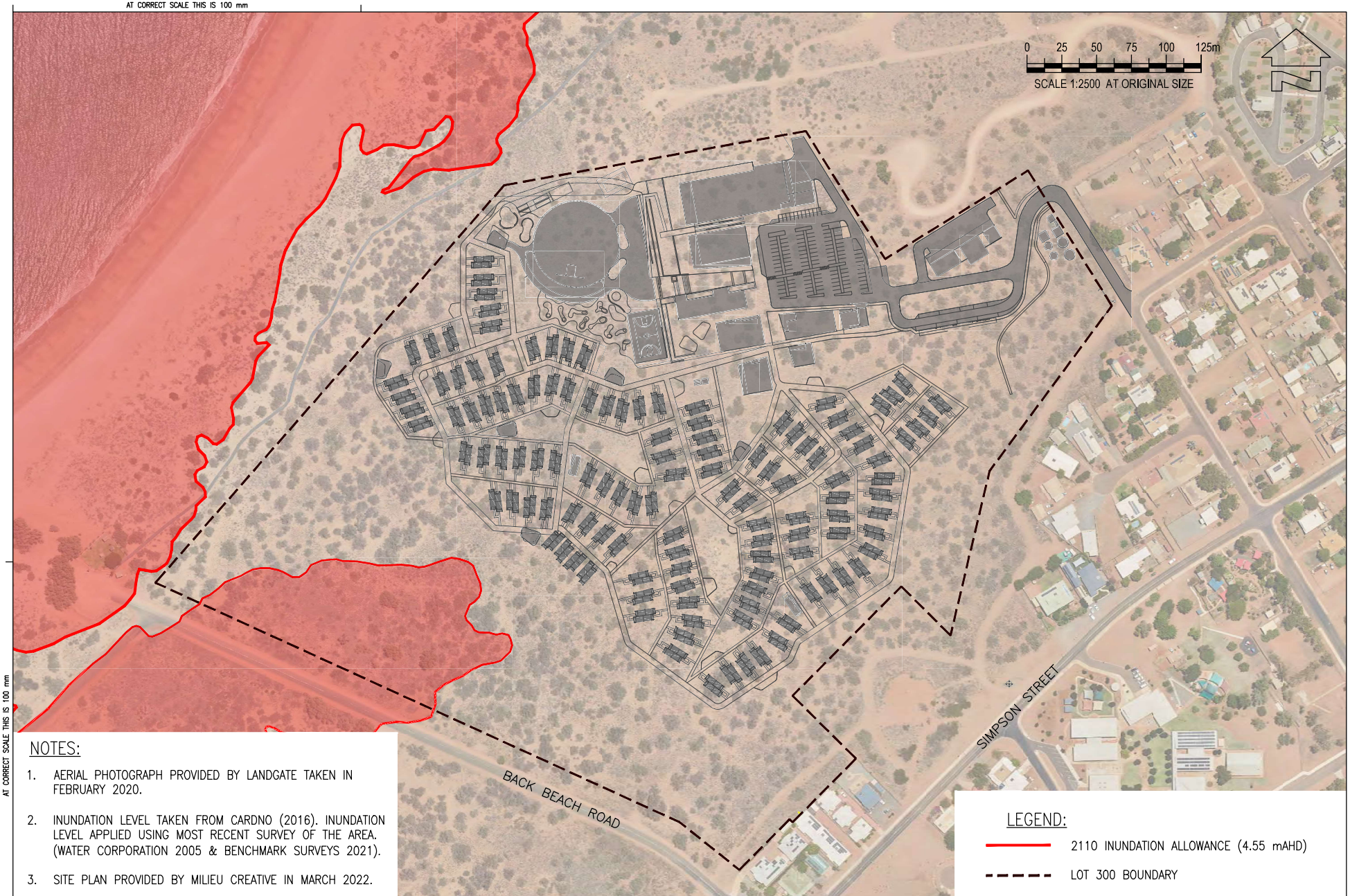
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MAY 2022
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Appendix B Coastal Inundation Hazard Map

AT CORRECT SCALE THIS IS 100 mm



AT CORRECT SCALE THIS IS 100 mm

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY LANDGATE TAKEN IN FEBRUARY 2020.
2. INUNDATION LEVEL TAKEN FROM CARDNO (2016). INUNDATION LEVEL APPLIED USING MOST RECENT SURVEY OF THE AREA. (WATER CORPORATION 2005 & BENCHMARK SURVEYS 2021).
3. SITE PLAN PROVIDED BY MILIEU CREATIVE IN MARCH 2022.

LEGEND:

2110 INUNDATION ALLOWANCE (4.55 mAHD)

LOT 300 BOUNDARY

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COASTAL INUNDATION HAZARD ALLOWANCE
ONSLOW TOWNSHIP VILLAGE

SCALE AT A3 1:2,500

MAY 2022
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Onslow Township Village

Electrical, Fire Protection, Hydraulic, Mechanical Report

Services Brief

Prepared for: Rowe Group

Attention: Adrian Dhue

Date: 17 May 2022

Prepared by: Erika Voges

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Stantec

Revision

Revision	Date	Comment	Prepared By	Approved By
001	26.07.2021	Draft Update Issue	ESV, ML, AD, SK	ESV
002	30.07.2021	Preliminary Issue for Review	ESV, ML, AD, SK	ESV
003	06.08.2021	Final Issue	ESV, ML, AD, SK	ESV
004	25.08.2021	Revised DA Updates	ESV, ML, AD, SK	ESV
005	18.03.2022	Revised DA Issue for Review	ESV, ML, AD, SK	ESV
006	17.05.2022	Rev K Site Plan Updated	ESV, ML, AD, SK	ESV

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Appendix B - Hydraulic & Fire Drawings

Appendix C – Mechanical Drawings

1. Introduction

This Multi-Disciplinary Services Brief has been prepared at the request of Rowe Group for the development of the Onslow Township Village in Onslow, WA. It has been prepared in order to outline our understanding of the Electrical, Fire Protection, Hydraulic and Mechanical services Works and to support the servicing strategy for the project's Development Application process.

This document services as a benchmark which our services much achieve. We request that you read this carefully so that you have a clear understanding of the scope of our works.

We would welcome any comments or queries you may have on the information provided in this Brief.

This Brief has been prepared based on the following information:

- Thalanyji Presentation Package by Milieu Creative
- Functional Brief Revision 1 incorporating MRL Comments
- Drone images and videos of the proposed development site
- OIP-0000-GE-SOW-0001 – Onslow Iron Project Facilities Requirements dated 12th February 2021
- Project kick of meeting held at Rowe Group on the 7th July 2021
- Architectural Drawings by Milieu Creative on the 17th March 2022
- Architectural Site Plan issued by Rowe Group – Revision K Final on the 11th May 2022

2. Project Overview

The Onslow Township Village, located at Lot 300 in Onslow WA, will be the permanent village style accommodation facility and will be designed and built as long-term accommodation and facilities to cater for the mine operations workforce.

The Village will be designed to support up to 500 rooms including central facilities and utilities and incorporate the following major elements:

- Accommodation Pods
- Laundry / Field Storage
- Restaurant
- Tavern
- Administration
- Induction & Training Rooms
- Lockers & Creche
- Medical Centre
- Gate House
- Storage Sheds
- Gymnasium
- Wellness Spaces
- Swimming Facility
- Multi-Purpose Sports Courts
- Indoor and Outdoor Cricket
- Golf Facilities
- Recreation & Common Rooms
- Carparks
- Service Compounds

3. Critical Issues

The following list itemises the critical issues for the project's building services:

- Redundancy of services (no single point of failure)
- Ease of maintenance
- Systems design being cognisant of site location being within a cyclonic region (i.e. floor mounted plant/equipment)
- Coordination of site infrastructure to achieve functionality at a reasonable level of cost
- To provide a design that minimises initial capital cost without excessively compromising quality or ongoing maintenance costs.
- To provide adequately sized plant/infrastructure services that allows an acceptable level of flexibility for future development/redevelopment.
- Operational requirements of the Cyclone Shelter

4. Electrical Services

4.1 General Overview

The Electrical Services encompasses the following key subsystems:

- Electrical power distribution from utility (Horizon Power interface) to final outlet or fitting.
- Reticulation of structured communications cabling (Fibre and copper) form Retail Service Provider (RSP) termination point to end distribution outlet or rack.
- Provision of internal and external lighting services.
- Allocation in conjunction with client requirements for electronic access control and camera surveillance systems.

The Electrical Services shall be designed to comply with current National Construction Codes (Building Code of Australia), Safety in Design requirements, Worksafe Regulations, WA Electrical Requirements and the following Standards and Codes amongst others:

- AS/NZS 1670 Fire detection, warning, control and intercom systems - System design, installation and commissioning
- AS/NZS 1680 Interior and Workplace lighting (all parts)
- AS/NZS 1768 Lightning Protection
- AS/NZS 2293 Emergency escape lighting and exit signs for buildings
- AS/NZS 3000 Wiring Rules
- AS/NZS 3008.1 Electrical Installations - Selection of Cables - Cables for Alternating Voltages Up to and Including 0.6/1 kV - Typical Australian Installation Conditions
- AS/NZS 3084 Telecommunications Installations, Telecommunications Pathways and Spaces
- AS/NZS 61439 Low Voltage Switchgear and Control Assemblies
- AS/NZS 11801 Information Technology - Generic Cabling for Customer Premises (series)
- AS 4806.1 Closed Circuit Television (CCTV) – Management and Operation
- AS/NZS 61000 Electromagnetic compatibility (EMC)

(In the case of discrepancies with user requirements) is to be advised as the design of the building is progressed.

4.2 Incoming Service Connections

4.2.1 Power

The preliminary maximum demand for the site has been calculated to be 941 kVA. This would require a provision of a 1MVA utility connected substation. Given the anticipated long runs of low voltage submain cables, Stantec proposes that a sole use substation be sought to be located centrally to the site.

The requirements around a sole use substation will require provision of the following:

- Horizon Power High Voltage (HV) Ring Main Unit (RMU) on site boundary.
- Horizon Power underground HV cable along entry road.
- Horizon Power owned and maintained sole-use substation including 1 MVA transformer located central to main facilities area.

Sole-use substations are only approved on request, so subsequent development approval an application for the feasibility of this proposal is to be sought with Horizon Power.

A preliminary layout and nominal locations have been shown on the masterplan appended to this report to allow for the provision of space.

The ability for the Horizon Power distribution network to deliver the required power to the site is yet to be confirmed but recent town upgrades including inclusion of renewable energy sources suggest there is capacity available.

On sites with a very long cable runs an assessment of the suitability of a high voltage connection could be considered. Initial recommendation is that long term maintenance and operations would make an exclusively low voltage distribution system more suitable for this application.

The above is provided for concept information as it is understood that MRL will manage the site power supply and engagement with the authority for the final details around their assets. It has been confirmed that MRL will manage the liaison, approvals and commercial negotiations with Horizon Power or the chosen electrical distributer.

4.2.2 Telecommunications Lead-In

This development is within an area shown has being 'ready to connect' to a NBN service. However, this service is not shown to be a wired solution and is detailed as a 'NBN Satellite' service.

The previous engineering services report dated 2012 indicates there is a legacy pit and pipe network throughout the town for copper services, as well as recent town subdivisions appear to have been serviced with pit and pipe for Telstra connection.

Provision for a Fibre-ready connection to the main communications room will be made as is required for all new developments. This provision references dedicated ducts pits and power provisions for utility services in this space. Unlike power, the connection of a communications utility required engagement from the end-client through the appropriate services provider, likely Telstra in this case.

Advice from the client in conjunction with their communications providers will indicate any additional pipe, ducts that need to be allocated for site connectivity.

4.3 Main Distribution and Site Wide Electrical Infrastructure

4.3.1 Power

Preliminary allocation of electrical distribution board infrastructure has been considered with respect to submain cable lengths and feasibility of a centrally located sole-use substation.

Refer to appendix for the power distribution plan for the site.

The following provisions for electrical distribution boards has been identified and will form the primary power distribution for the facility:

- Site Main Switchboard (SMSB) – Contiguous to Substation and will be primary distribution node for all buildings.
- Accommodation Unit Neighbourhood Main Distribution Boards (MDB) 1, 2, 3 & 4 – Each board to support in order of 125 Accommodation units as well as common lighting and power services through neighbourhood areas.
- Administration Building MDB
- EOT and Medical MDB
- Training Distribution Board (DB)
- Restaurant MDB
- Tavern MDB
- Restaurant DB 1, 2 & 3
- Gymnasium MDB
- Multipurpose Court DB
- Pool and Oval site DB
- Gatehouse DB
- Stores and Maintenance DB
- Accommodation Unit Load Centre (1 -500)

Mechanical Services switchboard (MSSBs), sewer pump station (SPS) control panels, motor control centres (MCCs) are all electrical switchboards provided by the vendor or engineering service responsible for their design and construction.

Additional switchboards for interfaces with solar and diesel generation systems may be required as design development. Equally additional electrical distribution infrastructure may be added following detailed load and cable sizing calculations that will enable the technical and cost factors to be considered appropriately.

4.3.2 Metering

Provision of a single supply authority meter is recommended at the site main switchboard and the use of appropriately rated and certified billing meters be provided for the central facilities, should future leasing be incorporated.

Final alignment with sustainability initiatives will required a networked metering system to be deployed with energy meters allocated through MDB, DB's and other electrical control panels and plant.

4.3.3 Power Generation

Provision for connection of diesel generator is to be allocations at the customer-owned Site Main Switchboard. This allocation of a permanent 600-800 kW generator should only be made on a provisional basis until confirmation of the following items can be resolved:

- Horizon Power Onslow Town distribution grid capacity.
- Allocation of safety services from and engineering system design perspective.
- Allocation of requirements for back-up around the cyclone shelter.

4.3.4 Structured Cabling Distribution – Communications

The allocation of space currently indicated within the EOT, Lockers and Medical building as defined by the project brief is suitable for the main incoming interface point as well primary communications racks and distribution nodes. IT services and active equipment will also be stored within this space. The current assumption is that the end-client or operator will provide all active equipment (servers, computers, switches, routers/modems, wireless access points etc.) throughout the facility.

Given the current requirement in the project brief for internet/data based services within each accommodation unit; Stantec's recommendation is that fibre optic services be provided to each accommodation unit. This is provided over a network known as a GPON network. This active network design scope and delivery will need to be resolves through the next design phase. This network will enable the site to utilise a converged network with security, entertainment and data/internet services to share the same physical cabling. ***This approach is one a few for camp/villages of this nature, the client may have prior experience that informs a preference for this type of a solution and as such a review on this item and direction is requested prior to initiation of detailed structured cabling design activities.***

Under the solution above a multi-core fibre optic cables will be distributed from the main communications to laundry facilities then onto each accommodation unit. As such, each laundry unit will require a communications room as detailed below:

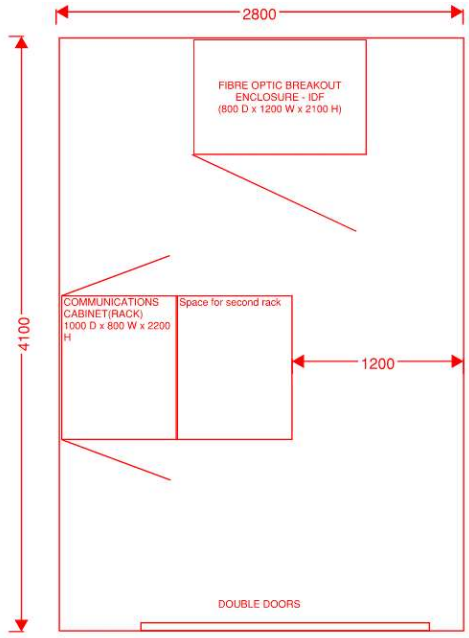


Figure 1: Laundry Communications Room - Space Planning

4.3.5 External Lighting

External carpark lighting will be designed in accordance with AS/NZS 1158, be controlled through the utilisation of time clock and photo-electric sensors.

External car park lighting depending on council and end-user requirements can often be switched off between at nighttime to reduce the risks surround obtrusive light to surrounding residents. Typically, this would be between the hours of 11pm and 2am, although normally adjustable based on client preferences, pending council advice.

4.3.6 Site Electronic Access Control and CCTV System

The site is currently provisioned with a gatehouse and current design assumes the use of an electronic access card for vehicle access and provision of VOIP-based intercom system for time this gatehouse is unattended. Other external non-accessible areas may utilize similar systems as well as access control plant rooms and pedestrian gates. Physical security elements are not part of the electrical services package.

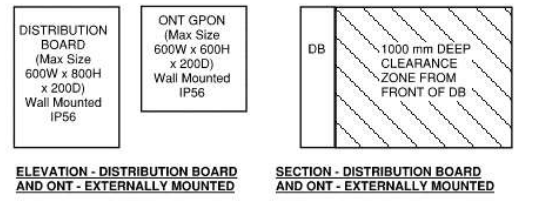
In conjunction with the external electronica access control points a site wide CCTV system is anticipated for all entry and exit points to buildings and main site entry points. In addition, CCTV coverage throughout common areas and main thoroughfares of accommodation unit neighborhoods is also to be provisioned.

4.4 Buildings Works

4.4.1 Accommodation Units

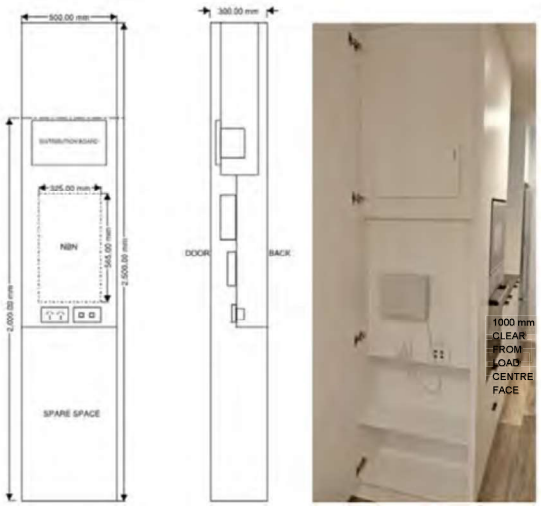
Internal fit-out of the accommodation units is understood to be aligned with the procurement of modular unit. Irrespective interior requirement will developed further in future design stages.

Pertinent to initial space planning is the allocation of distribution board and GPON network Optical Network Termination Device (ONT). Please find typical arrangement below:



ELEVATION - DISTRIBUTION BOARD AND ONT - EXTERNALLY MOUNTED

SECTION - DISTRIBUTION BOARD AND ONT - EXTERNALLY MOUNTED



ELEVATION, SECTOIN AND IMAGE OF INTERNAL DB AND ONT ARRANGMENT

Figure 2: Internal & External DB/ONT Arrangements

4.4.2 Central Buildings

The small power, communications, lighting and security provisions for these buildings will be developed in conjunction with the functional requirements, client briefings as well as BCA and Australian Standards as the project progresses.

5. Fire Protection Services

5.1 Incoming Service Connection

The fire protection services design assumes that the incoming mains will be capable of supplying the required flow rate for the fire hydrant system (20 L/s) at a residual pressure of at least 200 kPa.

Flow testing is yet to be carried out in the street mains and at this stage we are unable to determine the available infill to the site. We recommend that this is undertaken as early as practicable during the design. At this stage we are assuming that we are required to provide full storage to the development, with an additional tank suction line required to provide water to the attending fire brigade.

5.2 Bushfire Advice

The following advice has been provided by the project Bushfire Consultant

- Recommend we allow 50kL additional firewater for bushfire fighting purposes, with a minimum onsite firewater storage of 200kL
- The standard booster and hardstand arrangements should be sufficient.
- There are existing street hydrants nearby but unsure of what flow and pressure these have.

5.3 Design Standards

- Fire services to comply with the National Construction Code of Australia 2019.1
- Fire services to comply with all current statutory requirements and guidelines
- Fire Services to comply with current Australian Standards where applicable and particularly the following:

Standard	Year	Name	
AS 1851	2012	Routine Service of Fire Protection Systems and Equipment	
AS 2419.1	2005	Fire Hydrant Installations	Part 1: System Design Installation and Commissioning
AS 2441	2005	Installation of Fire Hose Reels	
AS 2941	2013	Fixed Fire Protection Installations – Pump Set Systems	
AS 3500.1	2003	Plumbing and Drainage	Part 1: Water Services

5.4 Design Criteria

5.4.1 Fire Hydrant System

Fire hydrant protection is provided for the non-accommodation buildings only exceeding 500m² fire compartment floor area.

The fire hydrant system is to be designed based on the following:

- Number of operating hydrants — 2 outlets
- Minimum flow rate – pumped — 5 L / s each
- Minimum residual pressure — 700 kPa
- Minimum flow rate – boosted — 10 L / s each
- Water Storage — 2 x Cylindrical Tanks 7.768 m diameter x 3.6 m high each
  Minimum effective capacity 144 kL

5.4.2 Fire Hose Reels

Fire hose reels are to be designed based on the following, supplied from the fire hydrant system:

- Protected areas — all areas as outlined in BCA advice
- Nominal Hose Diameter — 19 mm / 25 mm
- Minimum flow rate — 0.33 L / s each / 0.41 L/s each
- Minimum residual pressure — 220 kPa
- Number of operating hose reels — 2 most hydraulically disadvantaged

5.4.3 Portable Fire Extinguishers

Portable fire extinguishers are to be provided based on the following:

- Protected areas — Areas nominated in BCA Table E1.6 only
- Design Standard — Primary Protection
- Additional Requirements — Extinguishers provided to suit Fire Engineering requirements

5.5 Primary Fire Protection Spatial Requirements

Outlined below, and in associated mark-up drawings are the key spatial requirements for the fire protection services:

Item	Location	Size	Comments
Fire Booster Cabinet	Adjacent Main Street Entrance	3000 (w) x 800 (d) x 1800 (h)	Location to be confirmed with Fire Brigade. Can be free-standing withing sight of main site entry but no less than 10m from the building unless additional fire rating is provided to building external wall.
Fire Pump Room	Adjacent Fire Tanks	6000 (w) x 6500 (d) x 2400 (h)	Location requires direct Fire Brigade access, or alternative solution required. Preferably located with good access to roadways/pathways.
Fire Water Tanks	Adjacent Pump Room	7768Ø x 3600 (h)	Tank requires minimum 600 mm clearance all sides.
Fire Indicator Panel	Internal wall inside main building entry	700 (w) x 350 (d) x 2100 (h)	Location to be confirmed with Fire Brigade.

6. Hydraulic Services

6.1 Standards

- Hydraulic services to comply with the National Construction Code of Australia 2019 including Amendment 1.
- Hydraulic services to comply with all current statutory requirements and guidelines including the Shire of Ashburton, Water Corporation of Western Australia, Department of Fire and Emergency Services, Department of Health and the Department of Environmental Protection.
- Hydraulic Services to comply with current Australian Standards where applicable and particularly the following:

AS 3500	:	National Plumbing and Drainage Code incorporating:
Part 1	:	Water Supply
Part 2	:	Sanitary Plumbing and Drainage
Part 4	:	Heated Water Services
AS 2419	:	Fire Hydrant Installations
AS 2441	:	Fire Hose Reel Installations
AS 5601	:	Gas Installations

6.2 Design Criteria

- Hot Water : Storage Temperature (domestic use) minimum 60°C
  : Supply Temperature (commercial use) minimum 65°C
  : Supply Temperature (domestic use) maximum 50°C
  : Supply Temperature to disabled facilities maximum 45°C
- Stormwater:

  We note that it is not expected to provide rainwater catchment roof gutters in this region due to rainfall intensities and cyclone wind region requirements. We are not proposing to provide roof rainwater downpipes and are proceeding on the basis that the roof edges will be designed to allow rainwater to cascade on to hardstand or appropriately managed surfaces.

6.3 Fixtures & Taps

- Provision for first grade commercial quality sanitary fixtures, fittings, and tapware are to be made for the development.
- Provision of fixtures and tapware conforming to the WELS (Water Efficiency Labelling Standards) which identifies the following maximum flow rates. Further to this, we expect that additional reductions in flow rates are to be proposed by the sustainability consultants for the project.

  - Showers @ 9 L/min
  - Hand Basins @ 6 L/min
  - Sinks @ 6 L/min
  - Toilets @ Dual Flush 4.5/3 L

  Nomination of sanitary fixtures and tapware will be determined in consultation with the architect for client sign off during the project detailed design.

6.4 Sewer

A conceptual sewer layout has been provided to the project Civil Engineer for inclusion into the site Authority mains extensions required to service the project.

With circa 500 Pods including a bathroom, kitchenette and laundry of 14FU's, the development is expected to service around ~6,500-7,000FU for sewer. While the below layout is achievable, there is a possibility that site levels may require the installation of pump stations to achieve sewer falls. These are to be avoided where possible to reduce ongoing maintenance of mechanical pumps and control panels and should be considered in parallel to deep trenching and associated construction safety requirements.

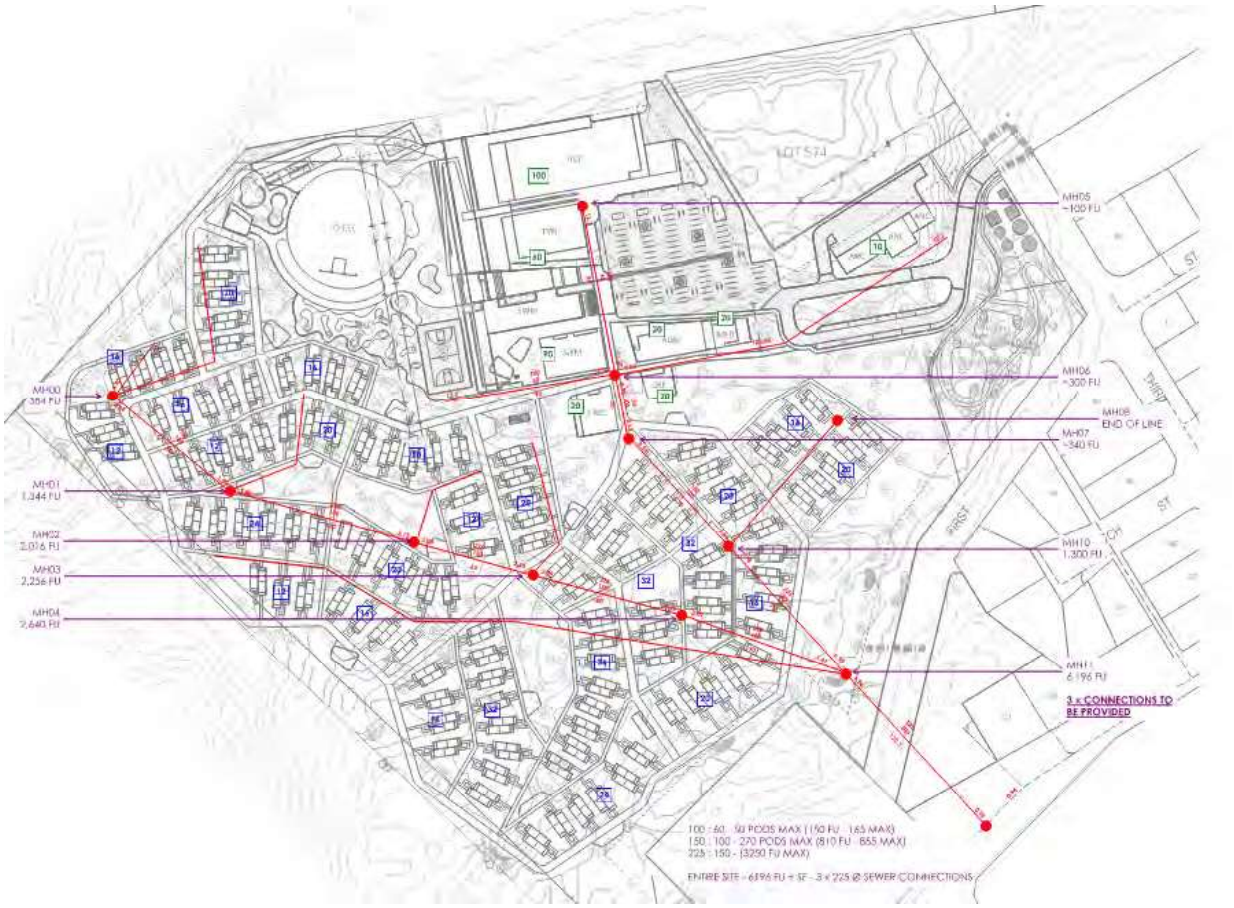


Figure 3: Conceptual Sewer Layout

6.5 Stormwater Collection

- No provision will be made for eaves and box gutters, gutter sumps, overflows, expansion joints and downpipes.
- We note that due to cyclonic conditions in the region the common design practice for roof drainage is not to provide guttering and associated downpipes. Typically, roofs drain onto graded concrete pathways or designed swales to avoid soil erosion whilst still dispersing roof water flow. In our experience, the primary reasons for not providing roof stormwater collection systems are:
  - Due to rainfall intensities experienced in the region, gutter and downpipe sizing is excessive.
  - The excessive sizing of gutters exacerbates the issue of appropriately fixing guttering to roof structures to withstand cyclonic winds.

6.6 Trade Waste

6.6.1 Kitchen/Greasy Waste

- Provision for the collection of all grease waste from kitchen cooking and food preparation areas via fixture wastes from food preparation sinks, hand wash basins, bain maries, cool room/freezer washdown and condensate waste drains, bucket traps and industrial floor wastes discharging to a suitably sized filtered grease arrestor

  Note: Fixture wastes from glass washers, dishwashers and pre-rinse sinks will discharge directly to the domestic sanitary drainage system so that excessive and high temperature wastewater discharges bypass the grease trap

- Provision for a 15mm hose connection tap located within 6m of the grease arrestor to assist maintenance cleaning and complete with required backflow prevention device
- Provision for a 240 V, 10 A, 3 pin weatherproof GPO to be located within 2m of the grease arrestor industrial waste sampling point to assist the Authorities use of sample and monitoring process equipment
- Provision for independent venting to atmosphere of grease arrestor

6.6.2 Medical Waste

- A dilution chamber may be required for the medical clinic dependent on the testing and materials used on site.
- An application to discharge form will need to be completed to ensure that appropriate pre-treatment devices are installed prior to connection to the sewer network.
- Typically, we expect the requirement of a small below ground dilution chamber adjacent the medical clinic.

6.6.3 Commercial Laundry Operations

- Laundry pods for commercial uses (i.e. linens and heavy washing) may require lint/cooling pits prior to discharge into the site sewer network.
- Provision for the collection of all commercial laundry discharges to a suitably sized lint/cooling pit.
- Provision for a 15mm hose connection tap located within 6m of the lint trap to assist maintenance cleaning and complete with required backflow prevention device
- Provision for a 240 V, 10 A, 3 pin weatherproof GPO to be located within 2m of the lint trap industrial waste sampling point to assist the Authorities use of sample and monitoring process equipment
- Provision for independent venting to atmosphere of lint trap/cooling pit.

6.7 Cold Water

Water is available to the development via the 200AC Water Corporation water main in Third Avenue. We understand discussions with this Authority are ongoing to determine the location and availability of water take off.

- Provision for reticulated cold water supplies to all sanitary fixtures, fittings and tapware as required incorporating all required maintenance isolation valves throughout the development, with a large cold water ring main providing redundancy and continuity of pressure availability.

6.7.1 Potable Water Storage

As outlined in the *Onslow Iron Project – Facilities Requirements* section on water treatment plant, the site requirements allow for 250L/person/day. While this is typical for mining camps, this allowance on a per person basis will also cover for additional usage at the central facilities of the development. We also understand that it may only be a 6-12 month period where the camp is fully occupied, and that during general operations the development will operate at a lesser capacity. The difference between these scenarios is presented in the table below.

Water storage services have been sized to minimise the main incoming water service connection size to the Authority infrastructure, and to allow a 6-hour refill of half a day of water storage outside of peak demand times. This allows a morning showering peak to be refilled with 50% of the days potable capacity available for other uses.

Table 1: Site Water Demands

	Site Full Capacity	Site General Capacity
People	500	300
Daily Potable Water Use	250L/person/day	250L/person/day
Storage Tank Capacity	125kL	75kL
Site Potable Water Connection (6 hr 50% tank refill)	50mm @ 230L/min 208 L/min (3.47L/s)	40mm @ 120L/min 104 L/min (1.74L/s)
Monthly Potable Water Use	3,802 kL/month	2,281 kL/month
Annual Potable Use	45.625 ML/annum	27.281 ML/annum

Note: Demands reflect potable use only and excludes irrigation demand.



Figure 4: Conceptual Water/Fire Layout

6.8 Hot Water Services

Whilst recognizing there is to be no or minimal gas supply to the site available to heat potable water, our design intent is to deliver the most energy efficient hot water generation system.

To this end, our design solution involves the use of heat pump technology for all hot water plant, with small local hot water demands possibly being met with the use of local electric storage units.

Further, we have conducted some preliminary investigations into solar contribution to hot water generation. Given the location of the site (being in a cyclonic region) we consider that, due to the extra requirements for structural robustness of the solar panel array support system, this may prove to be cost prohibitive. Further, initial investigations have revealed that a large "solar field" area would be required, which would be best placed to be utilized for solar PV electricity rather than hot water generation.

Given the above, we have not considered solar to be a viable alternative, particularly given the inherent energy efficiencies associated with the proposed heat pump units.

Table 2: Hot Water Supply Matrix

Area Served	Design Assumptions Peak Demand	Hot Water Usage	Hot Water Plant
Pod Option 1 One Unit/2 Pods	Max two showers in operation at the same time	Average shower of 5-7 minutes per person at same time	Residential style heat pump, 200L capacity serving two pods.
Pod Option 2 One Unit/4 Pods	Max 3/4 showers in operation at the same time	Average shower of 5-7 minutes per person at same time	Residential style heat pump, 300/340L capacity serving four pods
Laundry Pods		Heavy Dirt Personable item washing	Commercial heat pumps with storage tanks to final demand requirements
Central Facilities Buildings			
Administration	Tea prep use or amenities only	-	Allow electric instantaneous hot water unit at point of use.
Medical Centre	Individual sinks/basin and amenities use	-	Allow electric instantaneous hot water unit at point of use.
Restaurant	Kitchen equipment to prepare meals for breakfast and dinner for 300-500 people	Allow 4L hot water per meal prepared. 2,000L per peak.	Commercial heat pumps with storage tanks. Gas backup optional if gas is considered for kitchen use. Each system manifolded to enable independent isolation of equipment to ensure no single point of failure. Electric or Gas water boost heaters in series for high temperature boosting if required.

Area Served	Design Assumptions		Hot Water Plant
Tavern	Kitchen equipment to prepare basic 'tavern' meals for 100 people + Alfresco	Allow 4L hot water per meal prepared. 600L per peak.	Commercial heat pumps with storage tanks. Gas backup optional if gas is considered for kitchen use. Each system manifolded to enable independent isolation of equipment to ensure no single point of failure. Electric or Gas water boost heaters in series for high temperature boosting if required.
Laundry		Linens	Commercial heat pumps with storage tanks to final demand requirements
Stores/Maintenance	Individual sinks/basin and amenities use	-	Allow electric instantaneous hot water unit at point of use.
Gymnasium/Wellness	Assume 44 people showering (2 football teams) over a period of 30 minutes	Assume an average shower length of 3 minutes per person	Commercial heat pumps with storage tanks. Each system manifolded to enable independent isolation of equipment to ensure no single point of failure. T
Recreation Room	Tea prep use or amenities only	-	Allow electric instantaneous hot water unit at point of use.

Note: Commercial Heat pumps are controlled by single electronic control module that is effectively a single point of failure for the system. Typically, a redundant module would be stored on site for changeover in the event of a failure in order to provide redundancy.
(Failure of this component would result in a short down time of the hot water system).

The Hot Water Supply Matrix sets out the hot water demand and equipment provisions for each building requiring hot water within the development as individual buildings with separate hot water plants.

6.9 LP Gas Services

With no reticulated gas available to the development, LPG is an option for providing a gas supply to the kitchen. LPG is available in Onslow and can be set up with a bulk cylinder or through a gas tank manifold.

We look forward to internal kitchen equipment and consumption advice to provide additional options.

7. Mechanical Services

7.1 Design Standards

7.1.1 Statutory Design Standards

The National Construction Code (NCC) 2019 and, in particular, the "deemed to satisfy" conditions of:

- NCC 2019 Section J3.5 "Building Sealing - Exhaust Fans"
- NCC 2019 Section F4.5 "Ventilation of rooms"
- NCC 2019 Section J5 "Air Conditioning and Ventilation Systems"
- NCC 2019 Specification J5.2 "Ductwork Insulation and Sealing"

Australian Standards as follows:

- AS 1530 Methods for fire tests on building materials, components and structures
- AS 1668.1 The use of mechanical Ventilation and Air Conditioning in buildings -Fire and Smoke control in multi-compartment buildings
- AS 1668.2 The use of mechanical Ventilation and Air Conditioning in buildings - Mechanical Ventilation in buildings
- AS 5149 Refrigerating Systems
- AS 1682 Fire Dampers
- AS 1851 Maintenance of Fire Protection Systems
- AS 3000 SAA Wiring Rules
- AS 3666.1&2 Air Handling and Water Systems of Buildings – Microbial Control
- AS 4254.1 Flexible Ductwork – Fire resistance & Sealing only
- AS 4254.2 Solid Ductwork – Fire resistance & Sealing only

Client to advise requirements and guidelines including SHIRE / CITY COUNCIL (listed on DA Approval), Fire and Emergency Services Authority, Health Department and Department of Environmental Protection.

7.1.2 Safety in Design - Design Standards

These standards may be referenced in Safety in Design reports, compliance with these standards will be used to mitigate the relevant Health and Safety Risks.

Australian Standards as follows:

- AS 1668.1 The use of mechanical Ventilation and Air Conditioning in buildings -Fire and Smoke control in multi-compartment buildings
- AS 1668.2 The use of mechanical Ventilation and Air Conditioning in buildings - Mechanical Ventilation in buildings
- AS 1677 Refrigerating Systems
- AS 3000 SAA Wiring Rules
- AS 3666.1&2 Air Handling and Water Systems of Buildings – Microbial Control
- AS 2865 Confined Spaces HB213 Guidelines for Working in Confined Space

- AS 2896 Medical Gas Systems
- AS 2568 Medical Gasses – Purity of Compressed Breathing Air
- AS 1894 Storage and Handling of Non-Flammable Cryogenic and Refrigerated Liquids
- AS 1940 Storage and Handling of Flammable Combustible Liquids
- AS 5601 Gas Installations
- AS 3500 Plumbing & Drainage Codes
- AS 1228 Pressure Equipment - Boilers
- AS 2593 Boilers – Safety Management & Supervision Systems
- AS 1271 Safety Valves

7.1.3 Best Practice Design Standards

These standards will be followed where practical, Client to advise any standards which must be followed.

Australian Standards as follows:

- AS 1324 Air Filters for use in air conditioning and general ventilation
- AS 2107 Acoustics
- AS 3013 Electrical installations, wiring systems for specific applications
- AS 4254.1 Flexible Ductwork
- AS 4254.2 Solid Ductwork

7.2 Design Criteria

Air conditioning systems shall be designed to meet the following design criteria during normal operation with due allowance for solar loads, transmission loads, internal loads, occupancy level and infiltration loads.

All cooling and heating loads may incorporate a design/safety factor of 10%, which is to be added to the calculation of cooling and heating loads.

The design criteria proposed for the mechanical services will be based on the following parameters:

7.2.1 Design Temperatures

Max recorded ambient conditions - (Based on client brief)

Summer (maximum)	49.2°C DB 53%RH (assumed that RH recorded at 3pm Feb is coincident with Max daily temp)
Winter (minimum)	3.5°C DB

Mean ambient conditions – (Based on Bureau of Meteorology data)

Summer (maximum)	36.5°C DB 53%RH (assumed that RH recorded at 3pm Feb is coincident with Mean Max daily temp)
Winter (minimum)	13.1°C DB

Ambient conditions – (Based on AIRAH Weather data set for Comfort Conditions)

Summer (maximum)	36.5°C DB 53%RH (assumed that RH recorded at 3pm Feb is coincident with Mean Max daily temp)
Winter (minimum)	13.1°C DB

Internal Environmental Conditions

Air Conditioned Areas Only

Cooling	:	Nominal 24°C Dry Bulb
	:	40 - 60% relative humidity anticipated by virtue of cooling coil performance
Heating	:	21°C Dry Bulb
Control Tolerance	:	Plus or minus 1.5°C at the point of control for heating and cooling.
Humidity Tolerance		40-60% anticipated by virtue of cooling coil performance No specific humidity control provided.

Client to confirm internal design conditions

Evaporative Cooling

It is understood that evaporative cooling is to be avoided due to climatic location and relatively high ambient humidity levels during periods of the year.

7.2.2 Zone Sizes

Accommodation Rooms

Each room shall be treated as an independent zone capable of controlling the temperature in the space independent of the operation of other rooms.

Office Areas

Internal Zones	125m^2
Perimeter Zones	80m^2

Each office area shall be treated as an independent zone capable of controlling the temperature in the space independent of the operation of other zones. The above zone sizes are based on A-grade commercial office guidelines and will be used as a guide where practical.

Client to confirm zoning provisions.

Other Areas

Perimeter and internal zones within the air conditioned areas shall be capable of controlling the temperature independently.

7.2.3 Internal Loads

Accommodation

Occupancy		As per architectural drawings. (Typically 1 person per room).
Lights		10W/m^2
Equipment		25W/m^2

Office Areas

Office occupancy		10m^2/person
Lobby occupancy		5m^2/person
Lights		10W/m^2
Equipment		25W/m^2

Food & Beverage

Occupancy:	Dining area	1.5m^2/person
	Kitchen area	3.5m^2/person
Lights		10W/m^2
Equipment		5W/m^2

Gym & Recreation

Occupancy:	***Client to confirm***
Lights	10W/m^2
Equipment	***Subject to further client clarifications***

Cyclone Shelter (Restaurant area)

Occupancy:	***500 people – Client to confirm***

7.2.4 Outside Air Flow Rates

Accommodation

All Areas	Natural ventilation. Compliance to be confirmed by Architect/Building Certifier

Office Areas

General	7.5l/s/person (based on high efficiency filtration)

Food & Beverage

General	7.5l/s/person (based on high efficiency filtration)
Makeup air	Via pre-treatment air conditioning systems

Gym & Recreation

General	7.5l/s/person (based on high efficiency filtration)

7.2.5 Exhaust Air Rates

Accommodation

Room Ensuite Exhaust	40l/s minimum
Common Laundry	10l/s/m^2

Other

Toilet exhaust	10l/s/m^2
Locker Rooms	5l/s/m2
Cleaners Rooms	10l/s/m2
Substation	To meet Western Power requirements
Switchroom	To meet Electrical Consultants requirements
Kitchen Exhaust	to AS 1668.2
Simple Café (No cooking)	Kitchen exhaust system not required
Simple Café (Cooking)	10l/s/m2
Restaurant Cooking	Dedicated commercial kitchen exhaust system to AS 1668.2
Photocopying areas	10 l/s/m^2 (minimum)
Sick rooms	15-20 Ach/hr
Café kitchen hood	In compliance with AS 1668.2 to be confirmed by Architect/Client
General ventilation	Materials tech workshops, excluding technology process equipment, by Specialist.

7.2.6 Acoustic Criteria

The following criteria is indicative and subject to Acoustic Consultant review (ongoing).

Living areas	30-40 dB(A)
Sleeping areas	30-35 dB(A)
Work areas	35-40 dB(A)
Common areas	40-45 dB(A)
Restaurant	45-50 dB (A)
Toilets	50-55 dB (A)

7.2.7 Glazing and Building Fabric

Architect to advise building fabric.

7.3 Mechanical Services Scope

7.3.1 Air Conditioning

Air conditioning will be provided to all occupied areas. The method of delivery will be dependent on the type and size of the space. Broadly the systems fall into the following categories;

- High Occupancy / High Capacity Areas
- Large Office and Common Areas
- Accommodation and Small Standalone Areas

High Occupancy / High Capacity Areas

This includes areas such as the Restaurant, Tavern, Gymnasium and Recreation Buildings subject to further clarification of occupancy and room loads.

These areas will require large capacity systems and high outside air loads. To manage these requirements it is recommended that central packaged units be used for each space to reduce overall plant size and complexity.

This type of equipment is typically located on the roof directly above the areas served, although in this application it is recommended that the equipment be located at ground level to remove roof access maintenance and provide better protection from cyclone events.

Large Office and Common Areas

These spaces are proposed to be catered for using conventional split systems but utilising central outdoor equipment connected to multiple indoor units.

This will minimise the number of outdoor units whilst still providing individual temperature control to the required spaces within the building.

The indoor fan coil units are proposed to be fully ducted systems to enable flexible fitout and future reconfiguration.

Accommodation and Small Standalone Areas

Given the relatively small spaces associated with the accommodation rooms and the likelihood of these highly repetitive structures being modular, we recommend standalone split systems for each room.

These systems are proposed to utilise wall mounted indoor fan coil units to mitigate costs, both upfront capital and replacement cost at end of life.

Given that the accommodation areas are expected to remain unchanged, the limited flexibility of wall mounted units is not considered to be an issue for this project.

7.3.2 Ventilation

Ventilation systems will be provided to address code compliance. This will include:

- Dedicated ventilation fan to each accommodation room ensuite
- Central ventilation system to large toilet blocks within each building where applicable
- Specific minor systems to storage rooms and the like (dangerous goods consultant input will be required for areas where chemicals or the like are being stored)
- General ventilation to services rooms such as pump rooms, switch rooms, etc.
- Commercial kitchen exhaust systems to kitchen areas associated with the Tavern and Restaurant including commercial kitchen hoods and associated make up air supply

7.3.3 Refrigeration

Cool rooms and freezer rooms will be conditioned by dedicated refrigeration systems. All connected through a central monitoring system to track room conditions and alarm if room conditions drift from setpoints.

Indoor units are physically mounted within the rooms, whilst the outdoor units should be located externally but within screen plant areas to protect from cyclone events

7.3.4 Cyclone Shelter

Cyclone shelter accommodation needs to be suitably constructed to withstand the required storm events. This needs to be addressed by the Structural consultant and the Architect.

From a mechanical services perspective, the shelter must also include sufficient means for ventilation to ensure occupancy is not compromised for the potentially long periods associated with sheltering from a major cyclone event.

The recommended approach is to include manually operated ventilation openings to all sides of the shelter structure. This will enable occupants to configure the openings as and when required to best mitigate the impact of the external winds whilst ensuring the internal space remains well ventilation.

7.3.5 Local Climate

The local climate for Onslow is subject to high humidity for periods throughout the year. High humidity can result in condensation issues if due consideration is not given to thermal insulation and moisture barriers.

The incorporation of moisture barriers forms part of the building construction and is understood to be part of the architectural documentation.

The mechanical services will include all necessary insulation to prevent cold bridging due to humid air contacting cold surfaces of the mechanical services equipment. Where this is not possible, such as at valve or drain connections, appropriate condensate trays and/or drains will be provided.

In addition to protecting cold surfaces and moisture infiltration through the building fabric, infiltration through building openings must also be managed. For all large spaces (i.e. other than accommodation rooms) outside air for ventilation shall be introduced via the A/C systems to ensure the air being introduced into the building can be pre-treated to reduce humidity levels where required.

For accommodation rooms, the ventilation rates are relatively low. Condensation will be managed by separation of the infiltration source (typically via the entrance door and/or windows) from the A/C unit. To achieve this, the wall mounted indoor A/C unit is proposed to be located on the opposite side of the room to external doors and windows.

7.4 Mechanical Services Example Systems

7.4.1 Air Conditioning – High Occupancy / High Capacity Areas

System		Stantec Comment	Typical Spatial	Appearance
Multiple Indoor Units to Single Outdoor Unit (Multi-Head or Variable Refrigerant Volume) – Outdoor Unit				
Proposed system	Air Cooled Ducted Packaged Units	High capacity systems for large areas High sound levels Require dedicated plant area – recommended to be at ground level and screened for protection during cyclone event)	2m x 3m footprint 1.5m high Typically, 1m access off one side and rear of the unit. May also need additional space in front for duct connections pending plantroom layouts.	
Grilles for Ducted Unit				
Proposed system	Swirl Diffuser	Ceiling Mounted Relatively flexible Provides high level of air distribution Recommended		
Alternative system	Linear Slot Diffuser	Limited Airflow Ceiling Mounted		
Alternative system	Square Pattern Diffuser	Ceiling Mounted		

System		Stantec Comment	Typical Spatial	Appearance
Alternative system	Wall Register	Wall Mounted		
Controller				
Proposed system	Central Controller	Recommended for office and common areas Pros: Capability to control all fan coil units. Provide time scheduling, remote temperature adjustment and is centrally located for ease of access by authorised personnel and maintenance technicians. Cons: Additional costs to install and commission		
Proposed system	Standard Wall Controller	Recommended for office and common areas. Located within each area for local user control. Pros: Provide occupant control: temperature, ON/OFF and fan speed, which may be set within limits via the central controller. Cons: One per fan coil unit wall mounted in area served.		
Alternative system	Local Push Button	Pros: Simplified local control to prevent any changes Cons: Occupants have On/Off Control Only Requires additional controls cost given that proprietary controller still required for maintenance		

7.4.2 Air Conditioning – Large Office and Common Areas

System		Stantec Comment	Typical Spatial	Appearance
Multiple Indoor Units to Single Outdoor Unit (Multi-Head or Variable Refrigerant Volume) – Outdoor Unit				
Proposed system	Heat recovery	Simultaneous Heating and Cooling for Separate Indoor Units	1.25m x 800mm footprint 1.8m high Typically requires 1m access of front of unit and 300mm off rear of unit. Must be able to access both sides but multiple units can be installed adjacent to each other.	
Multiple Indoor Units to Single Outdoor Unit (Multi-Head or Variable Refrigerant Volume) – Indoor Units				
Proposed system	In ceiling ducted Unit	Requires Clear void within the ceiling Can provide Outside Air Future Flexibility Recommended for office areas and public spaces	250 – 400mm deep 700 – 1500mm wide 900mm long All units require min 600mm clear access within ceiling void off one side as well as 600mm square ceiling access panel	
Alternative system	Under Ceiling Mounted Unit	Requires Clear Space under Ceiling Limited Ability to provide Outside Air Limited Future Flexibility	200mm deep 900 – 1500 wide 600mm long No additional access provisions – maintained from within the space	
Alternative system	Cassette Unit	Requires Clear Space within Ceiling Void Limited Ability to provide Outside Air Limited Future Flexibility	900mm square 300mm high Requires 600mm square access panel adjacent unit	

System		Stantec Comment	Typical Spatial	Appearance
Grilles for Ducted Unit				
Proposed system	Swirl Diffuser	Ceiling Mounted Relatively flexible Provides high level of air distribution Recommended	Nominally 500mm diameter	
Alternative system	Linear Slot Diffuser	Limited Airflow Ceiling Mounted	Typically 1200mm long and 120mm wide (2 slots) But can be custom length and can have additional slots depending on air flow	
Alternative system	Square Pattern Diffuser	Ceiling Mounted	Nominally 600mm square	
Alternative system	Wall Register	Wall Mounted	Custom sizes	
Controller				
Proposed system	Central Wall Controller	Recommended for office and common areas Pros: Capability to control all fan coil units. Provide time scheduling, remote temperature adjustment and is centrally located for ease of access by authorised personnel and maintenance technicians. Cons: Additional costs to install and commission		

System		Stantec Comment	Typical Spatial	Appearance
Proposed system	Standard Wall Controller	Recommended for office and common areas. Located within each area for local user control. Pros: Provide occupant control: temperature, ON/OFF and fan speed, which may be set within limits via the central controller. Cons: One per fan coil unit wall mounted in area served.		
Alternative system	Local Push Button	Pros: Simplified local control to prevent any changes Cons: Occupants have On/Off Control Only Requires additional controls cost given that proprietary controller still required for maintenance		

7.4.3 Air Conditioning – Accommodation and Small Standalone Areas

SYSTEM		Stantec Comment	Typical Spatial	Appearance
Single Split System - Outdoor Services				
Proposed system	Slimline Outdoor Units	Limited Maximum Capacity Only Available in Heat Pump	900mm wide 300mm deep 1000mm high (small - shown in adjacent image – proposed for accommodation modules) 1600mm high (large – may be used for other standalone spaces pending heat loads)	
Single Split System - Indoor Units				
Proposed system	Wall Mounted Unit	Low cost Requires Space on Wall Limited Ability to provide Outside Air Limited Future Flexibility Recommended for accommodation rooms	900mm wide 300mm high 200mm deep	
Alternative system	Under Ceiling Mounted Unit	Requires Clear Space under Ceiling Limited Ability to provide Outside Air Limited Future Flexibility	200mm deep 900 – 1500 wide 600mm long No additional access provisions – maintained from within the space	
Alternative system	Cassette Unit	Requires Clear Space within Ceiling Void Limited Ability to provide Outside Air Limited Future Flexibility	900mm square 300mm high Requires 600mm square access panel adjacent unit	

SYSTEM		Stantec Comment	Typical Spatial	Appearance
Controller				
Proposed system	Standard Wall Controller	Recommended for office and common areas. Located within each area for local user control. Pros: Provide occupant control: temperature, ON/OFF and fan speed, which may be set within limits via the central controller. Cons: One per fan coil unit wall mounted in area served.		
Proposed system	Standard Wireless Controller	Recommended for accommodation rooms Pros: Provide occupant control: temperature, ON/OFF and fan speed, which may be set within limits via the central controller. Cons: Portable controller can be misplaced. Requires battery changes		

7.4.4 Ventilation – Outside Air Systems

System		Stantec Comment	Typical Spatial	Appearance
Bathroom Exhaust Fans				
Possible system	In Ceiling Heat recovery Ventilator	Pre-Conditions Outside Air Require access on both sides for maintenance	1000m long 350mm high 700mm wide Requires 600mm clear ceiling void on both sides of the unit as well as 600 square ceiling access panel on both sides	
Possible system	Direct Connection Roof Cowl	Requires Roof Cowl/wall grille to be located in close proximity of Fan Coil Unit. Only Suitable Ducted Fan Coil Units		
Possible system	In-Line Booster Fan	Suitable for small amounts of Outside Air.	250mm diameter (small systems) 600mm diameter (large systems) Requires ceiling access panel below	
Controls				
Proposed system	Interlocked with A/C	Typical configuration to ensure outside air system runs automatically. This assumes that A/C will be on when area is occupied		

7.4.5 Ventilation – Exhaust

System		Stantec Comment	Typical Spatial	Appearance
BATHROOM EXHAUST FANS				
Proposed system	Inline Ducted Fan	Requires ceiling Void Protected from cyclone event	200 diameter (stand alone toilet or similar) 600 diameter (toilet block or similar) Requires ceiling access panel below	
Alternative system	Roof Mounted Fan	Requires Roof access Vulnerable to cyclone event	600mm square 800mm high	
Alternative system	Header Box Fan	Higher Noise Level than ducted. Limited Capacity Suitable for Ensuite applications	300mm square 250mm high No additional access	
Grilles for Ducted Fan				
Proposed system	Half Chevron	Easy to clean. Typically Aesthetically preferred		
Alternative system	Circular Adjustable Diffuser	Larger grille Adjustable from within space. Plastic Construction		

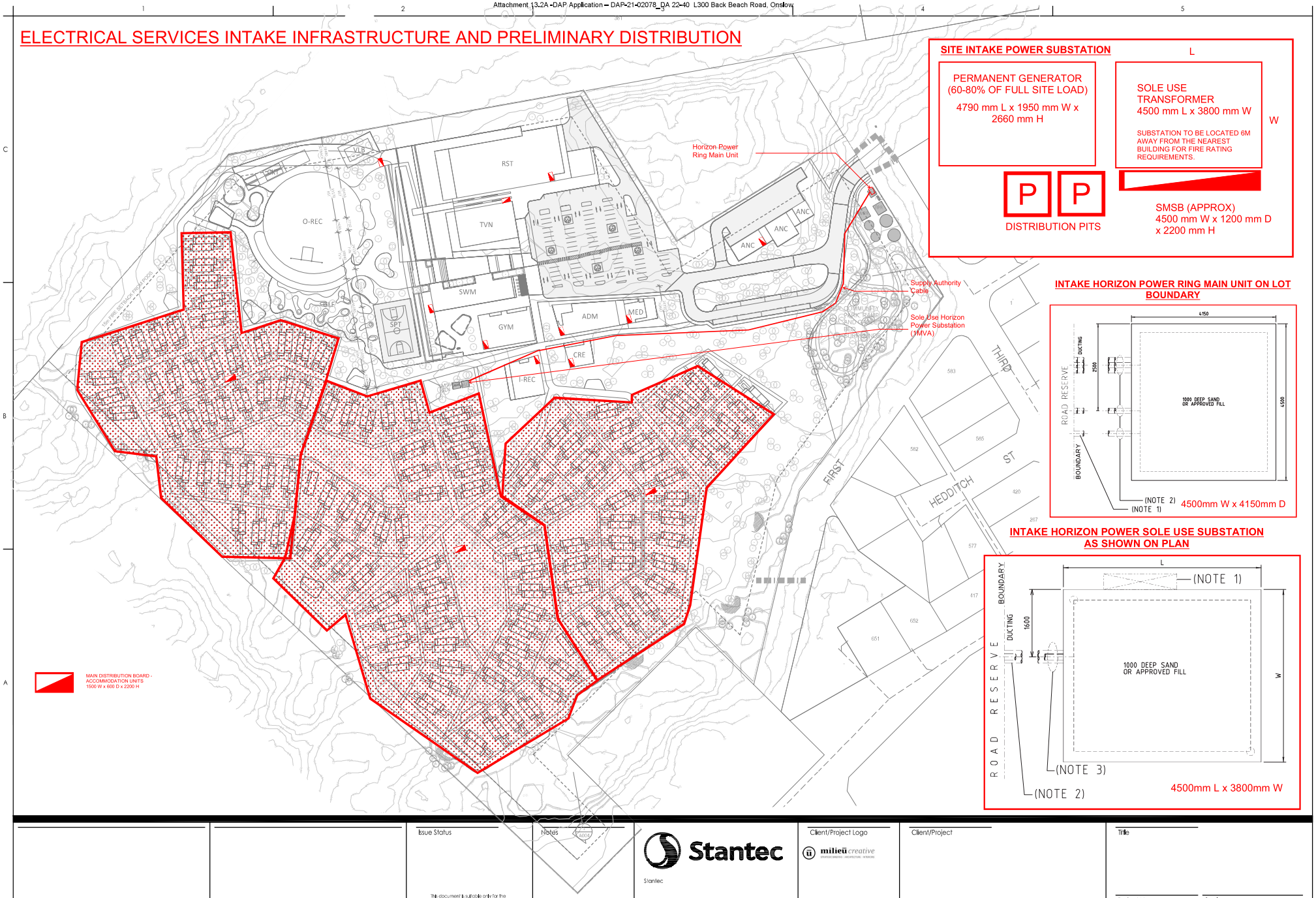
System		Stantec Comment	Typical Spatial	Appearance
Alternative system	Egg Crate	Difficult to Clean Allows Line of Sight through Grille		
Controls				
Proposed system	Switched with Lights	Typical configuration to associated fan use with occupancy (coupled with motion sensors and run-on timer) Recommended for public areas		
Alternative system	Switched Power Supply	Requires users to operate Recommended for Ensuites		

7.4.6 Ventilation – Commercial Kitchen Exhaust

System		Stantec Comment	Typical Spatial	Appearance
Commercial Kitchen Exhaust Fans				
Proposed System	Adjustable Pitch Axial Fan – Duct mounted	High Noise Level requires attenuation Located within ceiling void or plantroom to protect from cyclone event	800mm diameter Ceiling access panel required adjacent	
Alternative system	Roof Mounted Exhaust Fans	Roof access required, Cannot be attenuated externally – requires screens Vulnerable to cyclone event	1000mm square 1000mm high	

Appendix A – Electrical Drawings

ELECTRICAL SERVICES INTAKE INFRASTRUCTURE AND PRELIMINARY DISTRIBUTION



SITE INTAKE POWER SUBSTATION

L

PERMANENT GENERATOR
(60-80% OF FULL SITE LOAD)
4790 mm L x 1950 mm W x 2660 mm H

SOLE USE TRANSFORMER
4500 mm L x 3800 mm W

SUBSTATION TO BE LOCATED 6M AWAY FROM THE NEAREST BUILDING FOR FIRE RATING REQUIREMENTS.

W

P P
DISTRIBUTION PITS

SMSB (APPROX)
4500 mm W x 1200 mm D x 2200 mm H

INTAKE HORIZON POWER RING MAIN UNIT ON LOT BOUNDARY

4500mm W x 4150mm D

INTAKE HORIZON POWER SOLE USE SUBSTATION AS SHOWN ON PLAN

4500mm L x 3800mm W

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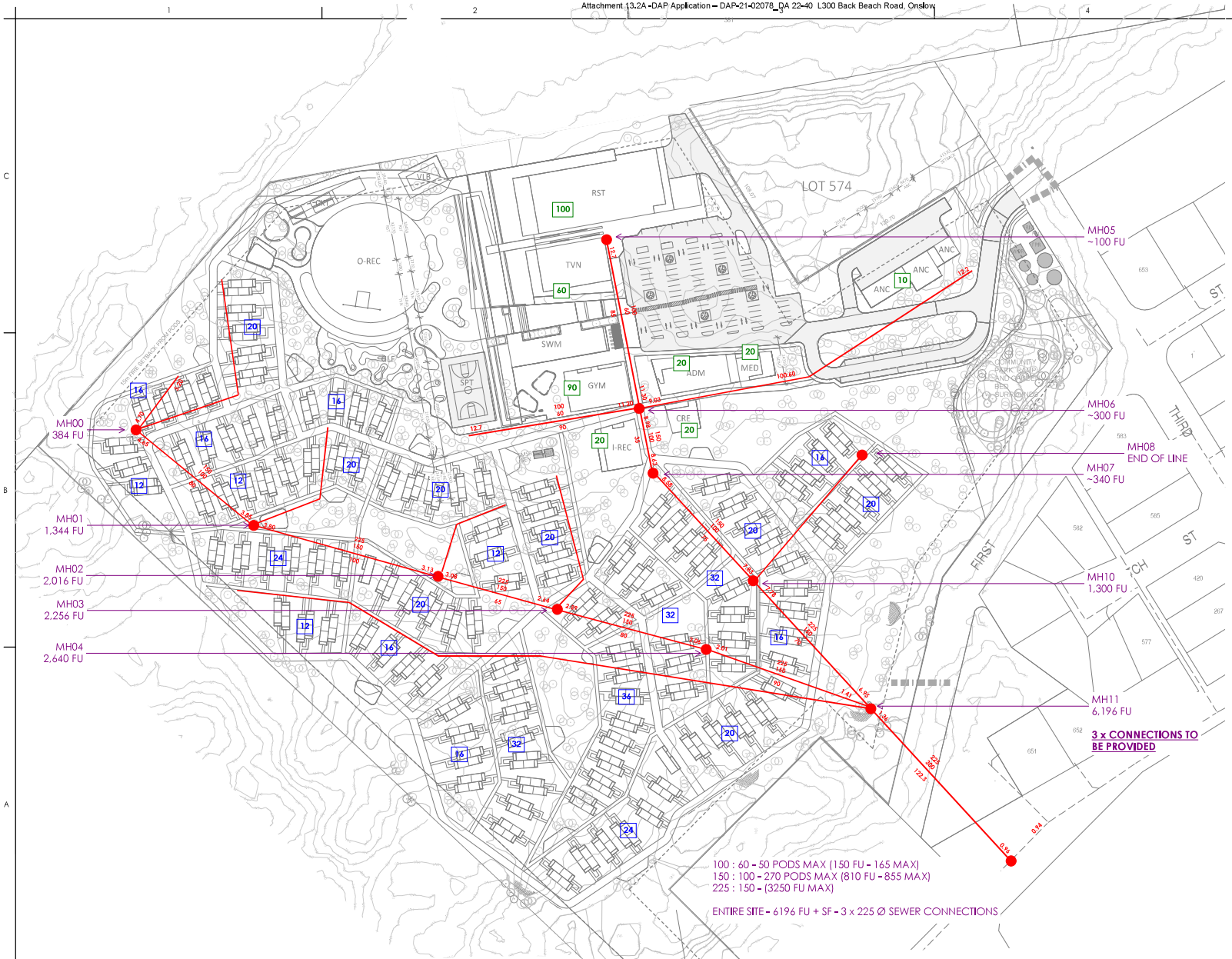
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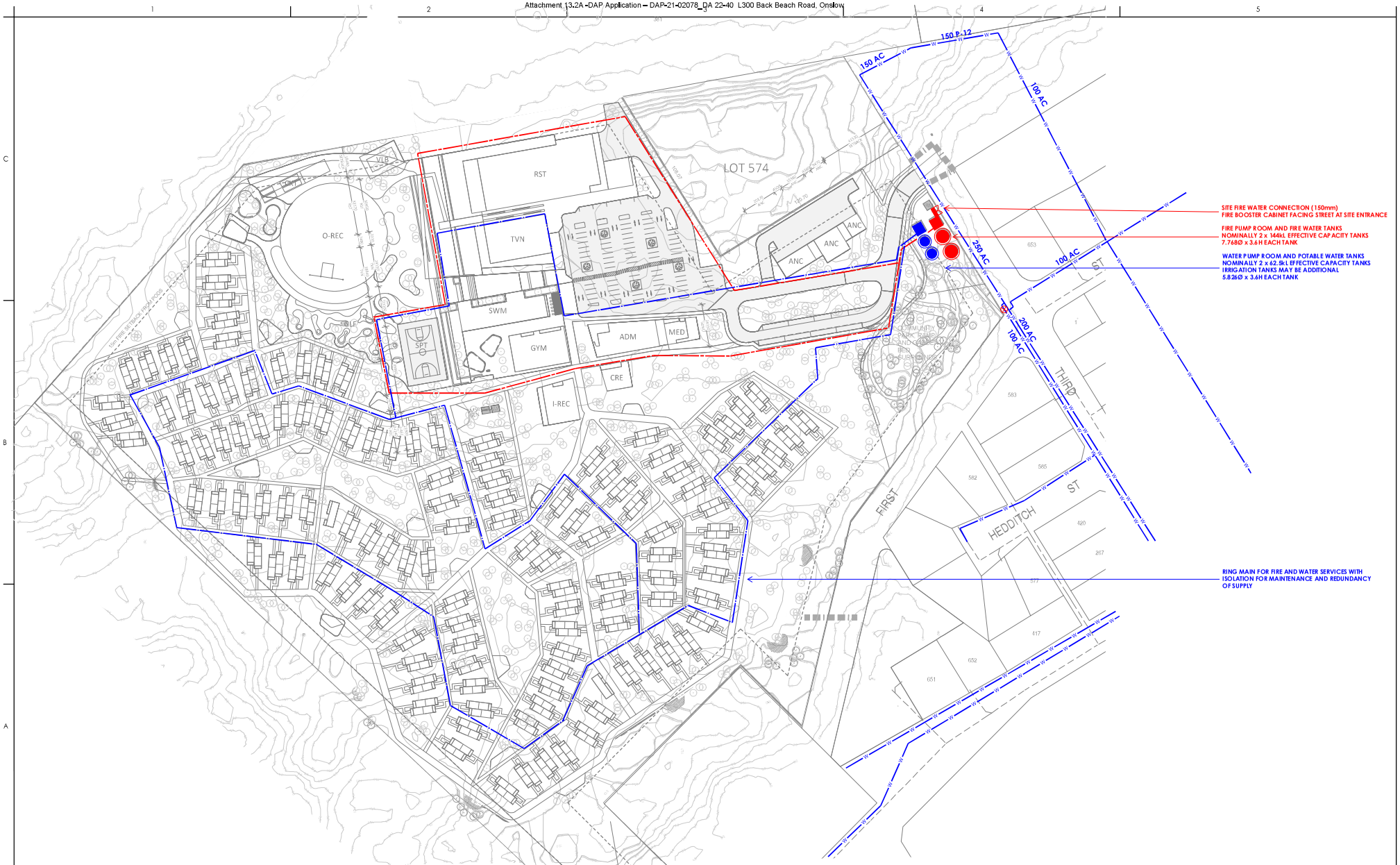
Appendix B - Hydraulic & Fire Drawings



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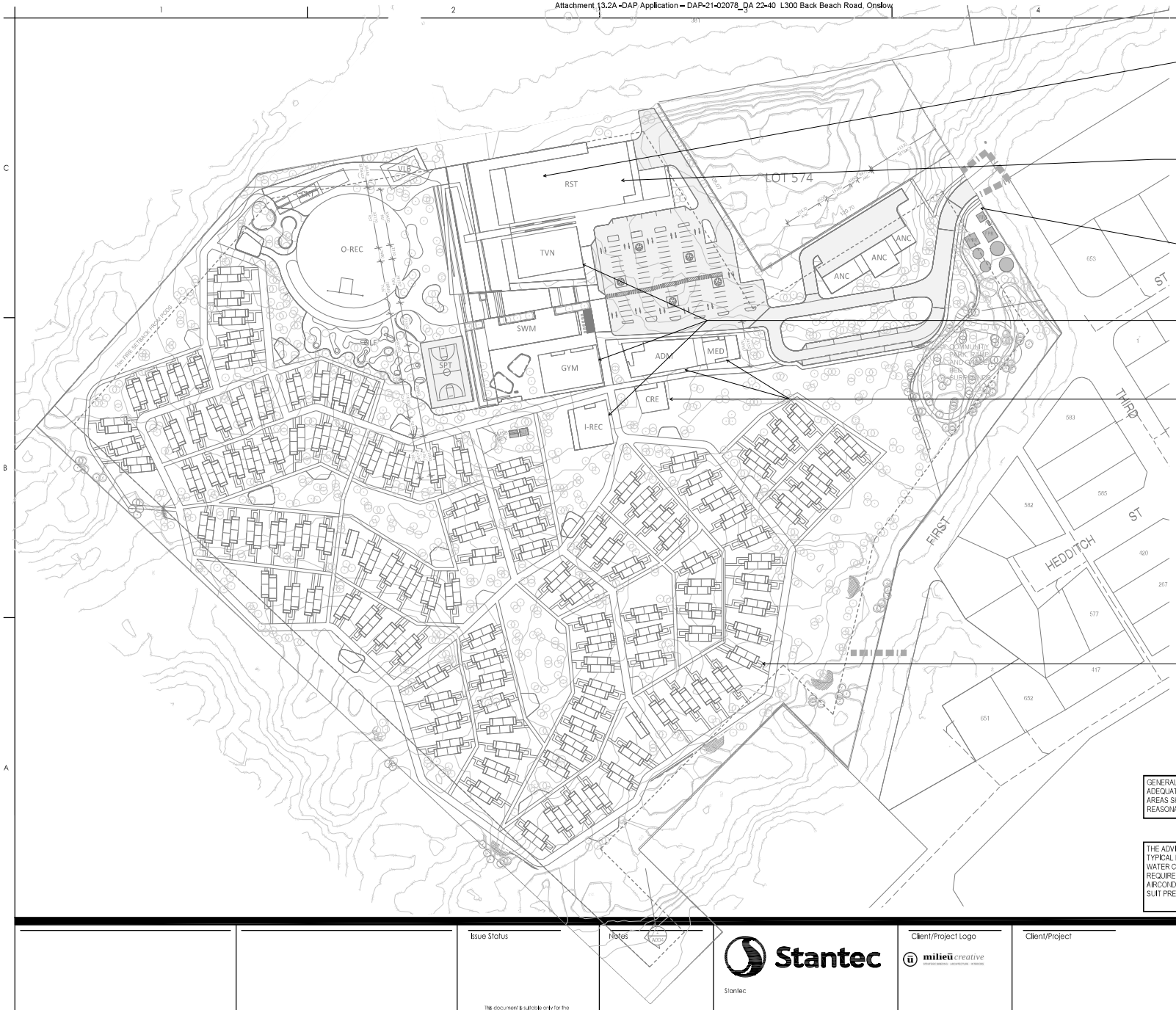
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Appendix C – Mechanical Drawings



RESTAURANT FRONT OF HOUSE IS UNDERSTOOD TO BE THE DESIGNATED CYCLONE SHELTER. ENSURE FREE SPACE TO ALL SIDES OF THE BUILDING TO FACILITATE MANUALLY OPERABLE VENTILATION OPENINGS THAT CAN BE USED DURING A CYCLONE EVENT.

RESTAURANT BUILDING TO BE AIR CONDITIONED. LARGE HEAT LOAD AND FRESH AIR REQUIREMENTS WILL TYPICALLY REQUIRE LARGER AIR COOLED PACKAGED PLANT. BUILDING WILL ALSO HAVE LARGE EXTRACTION SYSTEMS FOR KITCHENS AND REFRIGERATION PLANT FOR COOLROOMS/FREEZERS.

NOMINAL ALLOWANCE REQUIRED FOR GROUND MOUNTED EQUIPMENT ADJACENT TO BUILDING FOR A/C, NOMINALLY 9m x 3m PLANT AREA.

NOMINAL 1M CEILING VOID ABOVE KITCHEN AREAS FOR EXTRACTION SYSTEM FANS, ATTENUATORS AND DUCTWORK.

MINIMUM 2.7m CEILING THROUGH KITCHEN AERAS TO ACCOMMODATE COMMERCIAL KITCHEN HOODS

NOMINAL 1M CEILING VOID THROUGH DINING AREA TO ALLOW FOR DUCTWORK.

SPLIT SYSTEM A/C SYSTEM SERVING GATE HOUSE. OUTDOOR A/C UNIT MOUNTED ADJACENT WITH MINIMAL PLANT AREA REQUIREMENTS.

TAVERN, GYM AND RECREATION BUILDINGS ASSUMED TO BE AIR CONDITIONED. LARGE HEAT LOAD AND FRESH AIR REQUIREMENTS WILL TYPICALLY REQUIRE LARGER AIR COOLED PACKAGED PLANT.

NOMINAL ALLOWANCE REQUIRED FOR GROUND MOUNTED EQUIPMENT ADJACENT TO EACH BUILDING, NOMINALLY 3m x 3m PLANT AREA FOR EACH BUILDING

ADMIN, CRECHE, TRAINING AND MEDICAL BUILDINGS ASSUMED TO BE AIR CONDITIONED. SIZE OF BUILDINGS AND EXPECTED OCCUPANCY LEVELS WILL MOST LIKELY RESULT IN SPLIT SYSTEMS. OUTDOOR UNITS WOULD BE MOUNTED AGAINST THE SIDES OF THE BUILDINGS WITH MINIMAL PLANT AREA REQUIREMENTS.

ACOMMODATION BUILDINGS SUPPLIED AS TRANSPORTABLE STRUCTURES COMPLETE WITH INTEGRATED MECH SERVICES (TOILET EXHAUST AND AIR COOLED SPLIT SYSTEM AIR CONDITIONING) OUTDOOR A/C UNIT MOUNTED ON THE SIDE OF EACH MODULE WITH MINIMAL PLANT AREA REQUIREMENTS.

GENERAL - AVOID ROOF MOUNTED PLANT DUE TO CYCLONE PRONE REGION. ALLOW FOR ADEQUATE SPACE ADJACENT TO SERVICED BUILDINGS FOR INSTALLATION OF PLANT. PLANT AREAS SHOULD HAVE ADEQUATE SCREENING TO MAINTAIN AIRFLOW WHILST PROVIDING REASONABLE PROTECTION FROM AIRBORNE DEBRIS.

THE ADVICE ON THIS DRAWING IS BASED ON LOCAL BUILDING AIR COOLED A/C EQUIPMENT - TYPICAL FOR SIMILAR INSTALLATIONS AROUND WA. IF ENERGY EFFICIENCY TARGETS REQUIRE WATER COOLED SYSTEMS, A CENTRAL COOLING TOWER AND PUMPING FACILITY WILL BE REQUIRED. ESTIMATED CENTRAL PLANT AREA FOOTPRINT IS 150m2 BASED ON ~20,000m2 OF AIRCONDITIONED BUILDINGS AND SHOULD BE LOCATED AT THE NORTHERN END OF THE SITE TO SUIT PREVAILING WINDS. PIPEWORK RETICULATION WOULD ALSO BE REQUIRED TO EACH BUILDING

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