Site Assessment

A fourth site, 48 Baker Court Bibra Lake (34,607m2) was initially identified by the city as a fourth potential site option. Whilst the site is large enough for the redevelopment, it has been discounted from this site analysis process for the following reasons:

- Location in close proximity to Lakeside Recreation Centre that currently services basketball demand in that location within the city. To note, Lakeside are looking to expand their facilities.
- Site currently provides for playing fields which would need to subsequently be replaced which is challenging within the city.

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
Site Information		
Lot ID/s	Part of Lot 9 Starling Street Lots 56, 60, 62,66, 70, 150 Rockingham Road Lot 155 Leda Street Lots 302, 303, 304, 305 Starling Street	Lots 413, 417, 419, 421,423,427 Carrington Street Hamilton Hill
Size	Portion of Lot 9 – 7,650m2 Site 2 – 10,475 m2 Roads/Reserves – TBC Total – approximately 22,255m2	21,151m2
TPS Zoning	TPS3 Zoning – DCA13 Parks and Recreation and Roads Reserve (RR-Primary Regional Roads	TPS3 Zoning – DCA13 Local centre Currently zoned as Road Reserve LPS – Local Centre (427)
Control/Land Ownership	Management Order/DPLH / Housing Authority / Main Roads / Private Ownership	DPLH / Main Roads, WACP, City of Cockburn
Existing Tenants	Current Wally Hagan Basketball Centre Residential Houses x 2	Existing Commercial tenants that would require relocation
Proposed Activities Consistent with Use	Dixon Reserve – Yes Roe 9 – Re-zoning required.	Current re-zoning process underway.
Native Title Indigenous Land Use Agreements Cultural Heritage	Dixon Reserve portions of site is listed as an official Aboriginal Heritage Site 18332	Nil
Permits Required	Multiple lots would require amalgamation. Portions of Site Section 18 – Aboriginal Heritage Act 1972	Multiple lots would require amalgamation
Site Survey Required	Yes	Yes

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
Functional		
Considerations		
6 Court Facility	Yes	Yes
8 Court Facility	Yes	Yes
10 Court Facility	Yes	No
12 Court Facility	Yes	No
Excess space for other facilities	Yes	Limited
Parking	Yes	Yes
Overflow Parking	Yes	Yes
Proximity to Residences	Current facility is located within 60m of residents to the east on Hurford Street. Street frontage on Rockingham Road could reduce impact on residents. Northeast corner of site in close proximity to Hurford Street.	Current commercial area. Two residential properties located opposite on Carrington Street.
Passive Surveillance	Main road location. Dixon Reserve side limited.	Main road location.
Access to Public Transport	Bus Stops on Rockingham Road immediately adjacent serviced by Bus Routes 520, 530, 531 and 549	Bus Stops on Rockingham Road immediately adjacent serviced by Bus Routes 520, 530, 531 and 549
•		Bus Stops on Carrington Street
Environmental Considerations		
Flora – Wetland/Threate ned Ecological Community's/Bu sh Forever	Part of the site sits on The Hamilton Hill Swamp Precinct (heritage swamp area on Dixon Park)	Nil.
Fauna	Nil	Nil
Significant Trees	ТВС	Nil
Geotech required	2017 GHD Report Available for Dixon Reserve	Yes
Landfill/Contami nation	Yes/TBC	ТВС
Clearing required	Minimal	Commercial buildings
Ground water	Yes – reports available.	Water and sewerage networks in the vicinity
Demographics		

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Suitability of demographics of immediate area	Existing location of Stadium so participants comfortable with location	In close proximity (approximately 750m) of current location.
Complimentary Commercial Opportunities		
Suitability for health club/gym	Yes – ActiveXchange IPM supportive. Frontage on Rockingham Road potentially.	Yes – ActiveXchange IPM supportive. Frontage on Carrington Street.
Suitability for food and beverage activities (ie. bar/restaurant)	Yes – depending on style of offering. Location of F&B offering if more than café/kiosk to support courts and gym (i.e restaurant/bar) would require Rockingham Road Street frontage for viability and to ensure would not impact on residents in close proximity.	Café/kiosk to support courts and gym only. Location adjacent to school with Carrington Bar and Grill within 1km likely to make restaurant/bar difficult.
Suitability for other opportunities (State which)	Location potentially suitable for childcare facility.	Location potentially suitable for childcare facility.
Cox Site Assessment Comments		
Asbestos containing material (OCM)	 2017 - No ACM was found on the property of 51L Healy Rd Hamilton. All fragments and sheet were found on adjacent Roe Highway Road Reserve. The site adjacent to lot 51 is Dixon reserve which was used as a landfill in the 1960s. 2015 – Test pits conducted on the eastern portion of Lot 51 confirmed the presence of waste material underlying a capping layer of sand. 	N/A
Market opportunity for a new activity centre in the location?	Existing Wally Hagan Recreation centre on site.	Development of an activity centre without a supermarket as an anchor would effectively reduce the pedestrian traffic and subsequently the commercial sustainability for the centre
Road Re- alignment Required?	Nil	Transport and incident data confirms that he is existing Carrington Rd / Rockingham Rd intersection may no longer be fit for purpose., The intersection is therefore likely to require or earmarked for a significant upgrade as part of any development opportunities.
Synergies to existing infrastructure / Industry	Existing commercial to the left of site and mainly industrial activity – Accounting, Meat supply, Church and Motorcycle shop. Very little synergy between industrial and commercial activity due to different trip generation behaviour.	Memorial Hall (heritage listed) – Intrinsic community value and would benefit form its proximity to a newly developed activity centre. However, may no longer be seen to be fit for purpose for the user groups interested in community space. May be better utilised as a commercial space that could command a commercial rental return as part of the development of an adjacent new activity centre.
Nearby Recreation Facilities	Fremantle Recreation Centre 4-minute drive from site	Fremantle recreation Centre 6-minute drive from site

ltem	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
Nearby Schools	Fremantle Christian College – 800m	Fremantle Christian College – 0m
	Kerry Street Community School – 15 min Drive	Kerry Street Community School – 3 min Drive
Geology / Soil	According to Geology series Fremantle sheet 1986, the site is within Tamala Sand area. This sand is typically very loose and highly variable, both horizontally and with vertically. Fine to medium grained dark brown to black Waste material consisting of building rubble, domestic waste, rusted metal and glass that varies in 200mm to 600mm thick. Contaminants of interest: - nickel concentrations in one location classed as Class II and lead were Class II / Class IV Remediation Target Criteria: - Health-based investigation levels (mg/kg) Residential A (HILs-A) Ecological investigation levels (EILs) for urban residential areas and public open space According to the Fremantle map of the Geological Survey of WA (1986) – Indicated that a storage reservoir, dam or tank is located on Dixon Reserve. This could potentially be a result of the sump on site or the former swamp like area. - Asbestos impacted fill remains at the site within landfill material which is overlain by a grass ground cover - Northwest of existing basketball stadium: Landfill materials were described as fragments of brick, cement, asbestos, asphalt pavements, glass, rusted metal. Logs estimate 30% of soil volume to be comprised of landfill. There's ground disturbance to the South East of site and would expect deconstraining / remedial activities to be put in place. Photo from 2001 below:	Geology – LS1 (Limestone) into S7 (Sand) Exposed limestone on east side of road – along with LV/HV power

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
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Hydrogeology	 2015 - Groundwater flow at site is towards the West. Groundwater has been encountered on Lot 51 in groundwater monitoring well GGW3 at 0.578m AHD. Ground water is anticipated to be approximately 2m bgl however, CoC has indicated that groundwater was encountered in one test pit 6 (2015) at 1.2m bgl Concentration of arsenic at GGW01 (upgradient) exceeded DEC Fresh Water Ecosystem Protection Concentration of iron at GGW02 exceeded the DEC Long-Term Irrigation Water Protection Concentration of zinc at GGW01, 02 and 03, was above the DEC Marine Water Ecosystem Guidelines Concentration of ammonia was found to have concentrations above ANZECC Fresh Water for moderately Disturbed Ecosystems Guidelines 	TBC
Remediation Execution Steps	Soil remediation works on site require soil within the proposed residential and buffer areas to be excavated and removed to the CoC's Waste and resource Recovery Facility in Henderson. The excavations are to be backfilled and compacted appropriately	N/A
Site concerns	Site has three area of potential environment concern (APEC). It is recommended that further environmental investigations of the potential contamination be conducted.	Existing high voltage transmission lines diagonally dissects the West and East sites of Carrington Rd – Development and building opportunities are subsequently restricted under the transmission lines.

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
	APEC1: Landfill activities which occurred on-site in 1970s. general waste including household, building material, inert and possibly chemicals may have been disposed on site as part of landfilling process.	
	APEC2: The sump located on south-east corner of site. Sump receives stormwater discharge from the area to the east of site. This has potential (especially in urban areas) to impact groundwater by carrying contaminant into the subsurface.	
	APEC3: Possibility for the site to contain potential acid sulphate soil (PASS) or actual acid sulphate soil (AASS). Dewatering and soil disturbances for future redevelopment could potentially oxidise ASS releasing acid and mobilise metals into the environment.	
	 During conversations with maintenance workers by Golder (2008) they identified a number of areas in the centre of the site where settlement had started to occur. Workers has previously attempted to raise the subsided areas by filling the depressions with sand. Site has been classified as 'remediated for restricted use' in 2017. Site is considered suitable for continued use as a public open space but may not be suitable of a more sensitive land use such as residential, schools or childcare centres. 	
	Transmission lines glance the north corner of site (carparking underneath is fine)	

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
	<image/>	
Underground Utilities	 Connections in place to existing WHBS and residential facilities. Water Corporation have infrastructure located along the eastern boundary of Dixon reserve. Western power had infrastructure along the eastern boundary of Dixon Reserve, however outside the site boundaries. Substation located on the south-east corner of site. A service line to the basketball Stadium enters the side to the east of the car park. Telstra line entering the site for the basketball stadium which also splits off to three deadlines. 	Connections in place to existing commercial properties.
Hydraulic Services	There are water and sewage networks in the vicinity. Existing connections could be utilised where suitable to Water Corporation's approval, new water and sewer services can be provided off the existing networks to suit the redevelopment of the site. Sewage pumping may be required where gravity sewer cannot be achieved.	Based on the information from Water Corporation, there are water and sewerage networks in the vicinity as shown in the figure below. The existing sewerage only existing in Rockingham Road, with supply connections to Property 110. Existing connections could be utilised where suitable or subject to Water Corporation's approval, new water and sewer services can be provided off the existing networks to suit the requirements of the proposed site.



ltem	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
Gas	There is existing natural gas infrastructure in Starling Street and Rockingham Road. There appears to an existing supply to the existing Basketball Centre and House 62. At this stage, NDY does not have any information on the capacity of these supplies but can be confirmed with ATCO. Existing connections could be utilised where suitable or Subject to ATCO's approval, new gas supplies can be provided to suit the redevelopment needs. Keeping in line with the current sustainability practices in the industry, we do not envisage a need to increase the gas supply to the site.	There is existing natural gas infrastructure in Carrington Street and Rockingham Road as shown in Figures 8 and 9 below. There also appears to be an existing supply to few of the existing lots within the proposed site. At this stage, NDY does not have any information on the capacity of these supplies, but these can be confirmed with ATCO. Existing connections could be utilised where suitable or subject to ATCO's approval, new gas supplies can be provided to suit the requirements of the proposed development.





Item	I.D.	Site DESCRIPTION	1.5 – Current WHBS location plus Site 2 DESIGN CONSIDERATIONS	Site 3 – Carrington Street & Rockingham Road Precinct
	1	Existing Western Power Substation 1	 The existing substation is understood to supply: Existing Wally Hagan Basketball Stadium. Existing The Hub 6163. 	
	2	Existing Western Power Substation 2	 The existing substation is understood to supply: Residential neighbouring properties in Site 1.5 (north of Rockingham Rd). Existing Commercial precinct on Rockingham Rd. Surrounding residential neighbouring properties. Surrounding street lighting. This substation could be utilised for the Site 1.5 redevelopment (pending site arrangement) or could be isolated from Site 1.5 should multiple lots be amalgamated as part of the project and utilise Existing Western Power Substation 1. 	6 EXISTING TELSTRA
	3	Existing Overhead Power	 The existing overhead powerlines consist of both low voltage distribution and high voltage transmission. Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines (or sections of) to underground should be considered in overall design. 	
	4	Existing Overhead Power	The existing overhead powerlines consist of both low voltage distribution and high voltage distribution.	
	I.D	. DESCRIPTION	 DESIGN CONSIDERATIONS Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines (or sections of) to underground should be considered in overall design. 	I.D. DESCRIPTION DESIGN CONSIDERATIONS . Existing Western Power The existing substation is understood to supply:
	5	Existing Overhead Power	 The existing overhead powerlines consist of both low voltage distribution and high voltage distribution. Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines (or sections of) to underground should be considered in overall design. 	1 Existing Western rower • Surrounding continencial neighbouring properties. Substation 1 • Surrounding street lighting. The capacity of this substation is currently unknown. Should capacity be
	6	Existing Telstra	There is existing Telstra infrastructure within the proposed Site 1.5 development. Relocation/modification of these existing services could be required pending final site arrangement.	

Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct			
	I.D.	DESCRIPTION	DESIGN CONSIDERATIONS	
			insufficient, there is potential for the substation to be upgraded (pending Western Power confirmation).	
	2	Existing Western Power Substation 2	The existing substation is understood to supply: • Existing Hamilton Hill Memorial Hall • Surrounding commercial neighbouring properties. • Surrounding residential neighbouring properties. • Surrounding street lighting. This substation may also supply power to the Fremantle Christian College (within Site 3), however further investigation will be required.	
	3	Existing Overhead Power	 The existing overhead powerlines consist of high voltage transmission. Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines to underground should be considered in overall design, however likely to be cost prohibitive. 	
	4	Existing Overhead Power	 The existing overhead powerlines consist of both low voltage distribution and high voltage distribution. Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines (or sections of) to underground should be considered in overall design. 	
	5	Existing Overhead Power	 The existing overhead powerlines consist of both low voltage distribution and high voltage distribution. Safe working around overhead lines should be considered in design and construction stages. Consideration for relocation of overhead lines (or sections of) to underground should be considered in overall design. 	
	6	Existing Telstra	There is existing Telstra infrastructure within the proposed Site 3 development. Relocation/modification of these existing services could be required pending final site arrangement.	
	As p	er comments in tal	ole the 330kV transmission line will have easement impacts.	
oval – major surface undulations cause by evidence of the landfill material, with steep slopes.				
 Generally, only 20 to soch depin of clean sand on the surface and some locations have rocks within the top 20cm. Therefore, excavation of soil should be minimised due to risk of exposing rocks and other debris. Water has been reported to pool on the surface depressions during periods of wet weather. 	The	· 'Landgate' survey	shows significant level change – will require perimeter wall or terracing (image below)	
	 Existing surface levels at Dixon Reserve are not acceptable for a sporting oval – major surface undulations cause by evidence of the landfill material, with steep slopes. Generally, only 20 to 30cm depth of clean sand on the surface and some locations have rocks within the top 20cm. Therefore, excavation of soil should be minimised due to risk of exposing rocks and other debris. Water has been reported to pool on the surface depressions during 	ID 2 2 3 3 4 5 6 6 6 7 Existing surface levels at Dixon Reserve are not acceptable for a sporting oval – major surface undulations cause by evidence of the landfill material, with steep slopes. • Generally, only 20 to 30cm depth of clean sand on the surface and some locations have rocks within the top 20cm. Therefore, excavation of soil should be minimised due to risk of exposing rocks and other debris. • Water has been reported to pool on the surface depressions during	Image: Construction of the subset of the second	

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
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Site Classification	At current ground surface levels, the site may be classified as Site Class P, due to presence of uncontrolled fill and landfill materials. A less sever classification may be achieved by local ground improvement (excavation to full landfill and swamp deposit depth.	Not on contaminated sites register – but use as Hire / Spare Parts would likely need remedial action for more sensitive use.
Cultural significance	Part of the site (please see below) is part of the Hamilton Hill Swamp Precinct. The precinct is a historically rich area to Early European Settlement and Aboriginal Heritage.	TBC

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
	Traditional owners requested the site be recorded as a mythological site, water sources, camping and hunting grounds, massacre site and natural feature site.	
	The Hamilton Hill Swamp directly on site is associated with the Seven Sisters Dreaming, which connects to Cantonment Hill.	
	The Traditional Owners believe that one of the 'first raids' took place at Hamilton Swamp (1830s) leading to the killings of several women and children.	
	It should be acknowledged that the precinct is not part of a burial site, however skeletal remains have historical been unearthed in the Hamilton Hill Swamp Precinct.	

Site 3 – Carrington Street & Rockingham Road Precinct

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Site 1.5 – Current WHBS location plus Site 2

A registered Aboriginal Heritage Place (Clontarf Hill) encompasses various land parcels within and beyond the PRR reservation. This Aboriginal heritage place is understood to include a massacre site.

The following properties are proposed to be transferred to the Parks and Recreation reservation to assist with conserving the Clontarf Hill heritage place:

- six undeveloped lots south of Cardigan Street
- portions of two wide unconstructed local reserves west of Starling Street
- Lot 52 Rockingham Road (beyond the study area)
- a small triangular portion of Starling Street.

Portions of the Clontarf Hill heritage place that fall outside the area under consideration for rezoning under this MRS amendment include:

- (a) the northern portion of the Clontarf Hill site, comprising several lots immediately north of the PRR reservation on high ground, in the City of Fremantle; and
- (b) nearby Lot 2 Bellion Drive, Hamilton Hill, south of Rockingham road.

Item

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
	Aboriginal heritage	
	Of the response, 23 per cent acknowledged the high cultural significance of th corridor to Whadjuk Noongar people, particularly north west portion of Roe 9 Clontarf Hill Registered Aboriginal Heritage Site # 18332, Figure 3).	
	Some submissions suggested that the draft concept plan should include opportunities for interpretative signage and education about the heritage value encouraged the reinstatement of the wetlands (Dixon Reserve) and stressed importance of ongoing consultation with Traditional Owners.	
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	Aboriginal Cultural Heritage: (as per the requirements of the <i>Aboriginal Heritage Act 1972).</i>	
	Part of the site is affected by a Registered Aboriginal Heritage Site (Clontarf Hill Site ID – 18332). The type of ACH potentially extant here includes: Artefacts / Scatter; Camp; Ritual / Ceremonial; Creation / Dreaming Narrative;	
	Historical; Hunting Place; Massacre The presence of ACH on site is not necessarily a barrier to development, however it will require an additional layer of DDA and engagement prior to development occurring.	

Item	Site 1.5 – Current WHBS location plus Site 2	Site 3 – Carrington Street & Rockingham Road Precinct
	A Due Diligence Report relating to ACH on site, alongside engagement with the Whadjuk Aboriginal Corporation, is recommended as an on-going aspect of the design process.	
Significant Trees	No significant trees are located on the subject site. The nearest significant tree is the Tuart Trees and Norfolk Island Pine and Palm Trees on Lot 51 Healy Road, approximately 195m – 230m away from the nearest subject site boundary. It is not considered likely that this proposal will impact these trees.	No significant tree is a Moreton Bay Fig Tree on the Hamilton Hill School site, 91m from the subject site boundary. It is not considered likely that this proposal will impact the tree.



Opportunity 1.5



Opportunity 3

