

EXECUTIVE SUMMARY

The West Swan East Structure Plan has been commissioned by Aspen Living for approval pursuant to the provisions of Schedule 4 'Special Use – West Swan' zone of the City of Swan Local Planning Scheme No.17.

The West Swan East Structure Plan encompasses approximately 250ha of land in West Swan (now known as the suburb of Dayton) generally east of Lord Street and north of the Reid Highway with the ultimate objective being to facilitate the creation of a range of urban land uses and development within a coordinated planning framework. Such land uses include:-

- Approximately 2890 residential lots at a range of densities;
- A neighbourhood centre and mixed business/service commercial site;
- A local centre site
- 1 private and 1 public primary school;
- A 3,000m² community purpose site;
- Retention of the existing wetland and remnant vegetation;
- Protection of sites of Aboriginal heritage significance;
- A minimum of 10% public open space for active and passive recreation incorporating 12ha of district open space facilities (within a minimum 14ha site), one wetland and a shared oval with the primary school;
- An integrated transport network; and
- Infrastructure and servicing corridors as agreed.

The West Swan East District Structure Plan has been prepared in consultation with a range of government agencies and non-government organisations and incorporates supporting technical investigations and documentation and management plans from the consulting project team including:-

- Traffic;
- Environmental;
- Ethnographic;
- Odour;
- Contamination;
- Noise;
- Acid Sulfate Soils;
- Hydrology;
- Fire and Emergency Management;
- Community & Economic Development;
- Commercial Centres Analysis.

A copy of the consultant reports and findings as relevant, are included within the body text and/or appendices of this District Structure Plan report.

Once endorsed, this District Structure Plan will form the framework for landowners to proceed towards Local Structure Planning of smaller cells as designated on the District Structure Plan and then the subsequent subdivision of the urban land in a well planned and logical manner. The District Structure Plan will also enable the relevant government agencies to assess such future proposals in a coordinated fashion.

1.0 INTRODUCTION

This District Structure Plan report has been prepared on behalf of Aspen Living to ultimately facilitate local structure planning, subdivision and development of numerous allotments generally bound by the Reid Highway, Lord Street, Drumpellier Drive and Isoodon Street, Harrow Street and the eastern extent of the 'Urban' zone under the Metropolitan Region Scheme (MRS) within the suburb of West Swan (now renamed to the suburb of Dayton), known and referred to as 'West Swan East' and marketed as 'St Leonards Estate'.

The subject site is a strategic parcel of land within the City of Swan, being located immediately to the north of the Reid Highway and immediately east of Drumpellier Drive and a future public transit corridor, south of the future urban development site of Albion and adjoining the future urban development sites of Caversham and West Swan West. The site also forms the most eastern extent of the existing urban area of Metropolitan Perth and the gateway to the Swan Valley. It is also of a large size suitable for creating a staged modern residential suburb.

The philosophy and technical background associated with the layout of the proposed District Structure Plan are described in detail herein.

1.1 Background

West Swan East has been earmarked for urban development in the Metropolitan Region Scheme for many years. In early 2008 the City of Swan's Local Planning Scheme No.17 was gazetted, zoning the site for 'Special Use' purposes enabling development for a range of urban uses subject to the appropriate structure planning and background investigations as relevant to the site.

In anticipation of the finalisation of the Local Planning Scheme rezoning of the site for urban purposes, a draft district structure plan was originally lodged with the City in 2007, however, as a result of the important strategic context of the site and planning within the broader Urban Growth Corridor, it was found imperative to further refine the Sub-Regional planning and community and infrastructure requirements of the broader locality prior to further progress on district level planning.

A Swan Sub-Regional Structure Plan was therefore prepared in consultation with relevant agencies and stakeholders and advertised during mid-2008. A revised draft District Structure Plan for West Swan East has now also been refined in consultation with the City and relevant public and private stakeholders and within the context of the adopted Sub-Regional Structure Plan, resulting in this District Structure Plan report and plan for West Swan East.

1.2 Site Description

1.2.1 Location

The subject West Swan East land parcel is located approximately 20 kilometres from the Perth CBD and 7 kilometres from the Midland Regional Centre on the north side of the Reid Highway and accessed from off Drumpellier Drive via the existing road pavements of Marshall Road, Cranleigh Street, and Harrow Street as well as being accessed from West Swan Road to the east via Victoria Street, Coast Roads and Harrow Street (refer to Figure 1).

The subject site forms part of the Swan Urban Growth Corridor comprising generally of Albion to the north, West Swan West to the west and Caversham to the south. Further again to the east is the rural zone and rural protection area of the Swan Valley (refer to Figure 3).

1.2.2 Planning Status

West Swan East is currently zoned 'Urban' under the Metropolitan Region Scheme (Figure 4) and 'Special Use – West Swan East' under the City of Swan Local Planning Scheme No.17 (Figure 5) with associated special provisions included within the schedule of the Scheme. Both zonings enable the structure planning of the site for a range of urban purposes.

1.2.3 Land Ownership

Over the past few years, Aspen Group has been proactive in purchasing land within West Swan East so as to achieve a coordinated approach to land development. As a result, approximately half of the land is owned by St Leonards Estate Pty Ltd (previously West Swan Estate Pty Ltd), part of the Aspen Group of companies. The balance of the site is owned by various landowners, including numerous individuals and several government agencies, being the Western Australian Planning Commission, City of Swan, Main Roads WA and Department of Planning.

1.2.4 Existing Land Uses

The District site comprises numerous existing rural residential sized lots, generally in the order of about 2-5ha in area, many of which are developed with a residential dwelling and associated outbuildings (as is evident on the Orthophoto at Figure 2 and Site Analysis Plan at Figure 6). These parcels of land have historically been used for a variety of rural residential uses including rural lifestyle living, small scale grazing and horse stabling, with the majority cleared of all indigenous vegetation and all accessed via the existing constructed local road network.

In addition, the Riverlands Montessori School occupies a site on the west side of Arthur Street. A mushroom farm, with an associated 500 metre buffer precluding any residential development, and a 1000 metre notification area was formerly located on Lot 52 Victoria Road, West Swan. In 2012 a legal agreement was reached between the owner of the mushroom farm, and the Lester Group, Aspen and Qube (being the main developers in the area) to cease operation of the mushroom farm, and place a restrictive covenant on the Certificate of Title. As such, the notations and provisions associated with this buffer are hereby deleted from the DSP.

1.2.5 Previous Land Uses

The various rural residential sized properties have changed land uses over time as ownership changed or hobbies and activities were modified. For example, some stabling, grazing, intensive agriculture and a plant nursery have occurred on some lots but now may no longer exist on those lots. In addition, the Caversham Wildlife Park once operated on a site near the intersection of Cranleigh and Arthur Streets, now only evidenced by the vegetation and fencing. Similarly, an Austral hatchery was once in operation on Blundell Street.

Ongoing site contamination investigations to satisfy the Contaminated Sites Act as part of the more detailed structure planning and subdivision shall reveal any remediation required as part of any of the past land uses.

1.2.6 Environmental Features

The District Structure Plan area is relatively flat (ranging from 14m AHD in the south-east to 21m AHD in the north-east), cleared and unconstrained for urban purposes, only a slight elevation up to 26m AHD occurs towards Blundell Street, as is evidenced in the Orthophoto at Figure 2. A thorough environmental analysis however has been undertaken which has revealed the following summarised considerations in the area:

- The presence of a degraded drainage line also identified as having Aboriginal heritage value and known as Little Creek/One Hundred Year Creek (DIA number 22159) traversing a small part of the south-west corner of the site, the location and width of such has been agreed to be protected within public open space through the appropriate consultation process with all sub-groups of the Region Six Single Noongar Claim native title holders and a Section 18 application now approved and requiring no further additional protection;
- The presence of a recognised Aboriginal heritage well (DIA number 3417), again not an Aboriginal site but has cultural and heritage value, near the eastern end of Coast Road, to also be protected within public open space as agreed through consultation with all sub-groups of the Region Six Single Noongar Claim native title holders and the subject of a future Section 18 application;
- The only remnant vegetation occurs throughout the site as scattered individual trees, some along existing road reserves. The balance of the site remains mostly of pasture and weeds with isolated introduced species. The exception being an isolated pocket of vegetation within the subject land (abutting Harrow and Arthur Streets), the majority of which is non-native.
- An acoustic noise assessment associated with the existing and future highways has been undertaken to identify land affected by (day) noise levels less than 55 dB(A), between 55-60 dB(A) and greater than 60 dB(A). The results of the assessment confirm that the construction of a wall and notifications on titles of any houses within the Exposure Level 2 together with implementation of 'quiet house design' for these dwellings will adequately address this environmental constraint;
- An odour impact assessment from 33 different points within and surrounding the subject area has been undertaken confirming that there are little to no discernable odours detectable and no further investigations required. The poultry farm located on the corner of Cheltenham Road and Cranleigh Road, outside the subject area, does not constrain the District Structure Plan given the affected area is predominantly proposed for Service Commercial uses;
- The presence of a 'Multiple Use Category' wetland classification (though no visual physical evidence) over the entire subject area which may be developed as intended with a 'Resource Enhancement Wetland' located abutting Arthur Street which requires protection and management. A Wetland and Mosquito Management Plan has been prepared in this regard;
- No significant remnant vegetation or rare or threatened species of flora or fauna requiring protection within the site has been identified, some isolated pockets of wetland related vegetation adjoining the wetland has been noted and shall be included as part of the wetland buffer protection area;

WEST SWAN EAST DISTRICT STRUCTURE PLAN

Volume 1

**Prepared pursuant to Clause 5A.1 of the City of Swan Local Planning Scheme 17
Prepared for:**



November 2021

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This structure plan is prepared under the provisions of the City of Swan Local Planning Scheme No. 17.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

13 December 2013

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry: 19 OCTOBER 2030

Amendment No.2 to the West Swan East District Structure Plan has been approved by the Western Australian Planning Commission on 22 December 2021:



Signed by an officer duly authorised by the Western Australian Planning Commission pursuant to section 16 of the Planning and Development Act 2005.

Amendment No.	Amendment summary	WAPC endorsed date
1.	<p>Reclassify Lots 22 and 23 Harrow Street, Dayton from 'POS/Drainage/Conservation Area' to 'Medium Density Residential'.</p> <p>All relevant text, figures and tables being updated to reflect the changes as proposed on Plan No. ASP WES 2-03M dated 3.02.15</p>	17 May 2019
2.	<p>Change designation of Dayton Commercial Centre ('Dayton Central') to 'Neighbourhood Centre'.</p> <p>Change designation of Dayton Local Neighbourhood Centre ('Arthur Street') to 'Local Centre'.</p> <p>Modify floorspace caps and update road name terminology.</p> <p>Designate intersection at Drumpellier Drive and new access Road A with a roundabout and connecting public road, respectively.</p> <p>Various incidental modifications arising from local structure plan modification</p>	21 December 2021

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- Preliminary Acid Sulfate Soil investigations to a depth of 7 metres was undertaken, revealing no presence of Acid Sulfate Soils to a depth of 3 metres, with some risk at depths greater than 3 metres, of which the first stage reticulated sewer route has been amended to ensure any excavation of this area is avoided, subsequent detailed investigations to occur over the balance of the site as part of the local structure planning processes;
- A Preliminary Contaminated Sites Risk Assessment has been undertaken, revealing no sites which cannot be readily remediated as part of the subdivision works. A Detailed Site Investigation has also been undertaken; and,
- Nutrient export shall be reduced as part of the urban development with a Local Water Management Strategy now endorsed to ensure this is the case.

These environmental features and constraints have been mapped and are illustrated at Figure 6 – Site Analysis Plan, also reflected in a summary of opportunities and constraints at Figure 7. The environmental investigations have not revealed any other features that constrain the site for urban development as reflected on the District Structure Plan.

An Environmental Assessment Report is included at Appendix 1 to further confirm the unconstrained nature of the site and its suitability for urban development subject to the preparation of local structure planning and associated management plans.

1.2.7 Key Infrastructure Features

There are existing 330KV powerlines within an existing 70m wide easement parallel to the south side of the Marshall Road reserve bisecting the site. The future ownership and land use of the easement affected land has not been finalised but shall be to the City of Swan and Western Power's satisfaction as is discussed in more detail within this report.

Existing 132KV above ground powerlines are located along the western side of the Arthur Road pavement between Reid Highway and Marshall Road, partially within the road reserve. These powerlines then continue westwards along the south side of Marshall Road, with extensions to the existing network proposed along the public purposes reserve adjoining the future Perth-Darwin Highway.

Both the below ground Dampier to Bunbury Natural Gas Pipeline and the Parmelia Gas Pipeline run parallel to the eastern boundary of the subject land, as depicted on the District Structure Plan. The pipelines are contained within their own individual easements which converge north of the subject site, and also within the south-east corner of the site. In accordance with Western Australian Planning Commission Planning Bulletin No.87 as it applies to residential uses, a 0m setback applies to the Dampier-Bunbury Natural Gas Pipeline corridor, a 70 metre setback applies to the Parmelia pipeline easement and 75m setback where the pipeline easements converge, as reflected on the District Structure Plan. A notification distance of 356 metres for the Parmelia pipeline may be required as part of the future subdivision approval stages.

The site is currently connected to reticulated water and power, though not reticulated sewer. Upgrades to an urban standard to accommodate the intended density of development will be required as part of the subdivision works, along with the provision of reticulated sewer. Such upgrades are addressed in the subsequent servicing section of this report.

Existing access points, road reserves and pavements are also notated on the Site Analysis Plan and are incorporated into the District Structure Plan with required upgrades and district and neighbourhood connector extensions addressed in more detail in the following sections of this report.

2.0 CONTEXT ANALYSIS

2.1 Planning Context

2.1.1 Metropolitan Region Scheme

The Metropolitan Region Scheme (MRS) is the statutory land use planning scheme for the Perth metropolitan region. The principal functions are to reserve and zone land and control development on reserved and zoned land. The MRS reflects the agreed strategic direction for land within the metropolitan region and is a catalyst for changes to planning controls at the local level and subsequent local area planning.

The entire subject area is zoned 'Urban' (refer to Figure 4 - MRS map). The proposed development of West Swan is consistent with the 'Urban' zoning.

Land to the west of the subject site is zoned 'Urban Deferred' with the intention being to develop this site for urban purposes.

Similarly the Reid Highway along the southern boundary of the subject site is also reserved as 'Regional Road' with the future Henley Brook Drive parallel to the eastern boundary of West Swan West reserved as an 'Other Regional Road'. Future flyovers and connections to the Regional Roads and Other Regional Roads are as reflected on the MRS map and as notated on the Site Analysis Plan and incorporated into the traffic impact assessment and Structure Plan.

Land immediately to the east of West Swan East, which includes the Swan Valley and the gas pipelines remains in the 'Rural' zone with land to the immediate north of the subject land, on the northern side of Harrow Street, being reserved for 'Parks and Recreation'. Consideration to the interface with this reservation and the rural zoning has been given in the preparation of the Structure Plan.

2.1.2 City of Swan Local Planning Scheme

The City of Swan Local Planning Scheme No.17 (LPS 17) zones the West Swan District Structure Plan site 'Special Use – West Swan' (refer Figure 5) with the relevant objectives and Scheme provisions inserted into Schedule 4 of the Scheme text.

Schedule 4 'Special Use – West Swan' requires the approval of a Structure Plan over the zoned area as well as the environmental requirements of the Environmental Protection Authority to be met.

This District Structure Plan has been prepared in accordance with both the generic Scheme provisions relating to structure plan sites and also Schedule 4 - the objectives of the Special Use zone as detailed further below in Table 1.

Table 1: LPS 17 Special Use Provisions

	Objectives of Special Use Site No.11	Structure Plan Achieves Objectives By:
1.	To ensure that development in the estate achieves optimal integration with development in surrounding area;	<p>Ensuring consistency with Swan Sub-Regional Structure Plan and Swan Urban Growth policies and guidelines.</p> <p>Consultation with adjoining developers during the plan preparation stages also assists in achieving integration particularly from a road connection and servicing point of view.</p>
2.	To provide for the development of a functional and cohesive community consistent with the orderly and proper planning and in the interest of the amenity of the Estate;	The District Structure Plan has been prepared in accordance with Liveable Neighbourhoods and other planning principles to achieve a well-planned design in the best interests of the resulting Estate, ultimately aiming to create a cohesive community.
3.	To develop the Estate in a manner that protects, conserves and enhances the natural environment and cultural assets and to investigate and manage impacts upon the natural environment;	The background investigations have identified environmental features requiring protection or enhancement which have been suitably acknowledged and protected within the District Structure Plan.
4.	To encourage variety in the range of lot sizes and dwelling types within the Estate but consistent with cohesiveness;	The Structure Plan identifies a broad category of low, medium and high density residential land uses, within which a wide spectrum of dwellings, including retirement village, single residential dwellings, lower density lifestyle lots, grouped housing and multiple dwellings can be accommodated.
5.	To enhance the Estate with the provision of open space and recreation networks and facilities with particular attention being given to the timely provision of appropriate community services;	<p>A selection of nominal areas of POS as well as a central area of District Open Space and landscaped infrastructure corridor (having a recreation network function) is shown on the Structure Plan, to be subsequently refined at the Local Structure Plan stages to accommodate the growing community needs as the Estate evolves.</p> <p>In addition, a community site is identified in a central location within the Estate. Development of the first public open space areas will occur as part of the first development release with subsequent recreation networks to occur and be refined as part of ongoing planning and development throughout the balance of the Estate.</p>
6.	To make provision for school sites and other appropriate education	A large (one and a half size) primary school is nominated within the structure plan at a

	facilities within the Estate in a manner that facilitates their management and use as a resource for local communities;	size and location as negotiated with the Department of Education and Training. The school site is adjacent to District Open Space to help facilitate shared management of open space and assist in enhancing a community resource.
7.	To provide appropriate retail and commercial facilities to service the needs of residents of the Estate and with a view to the integration of retail areas with other commercial and business areas and with social services so as to maximise convenience;	A neighbourhood centre is identified in a central and well accessed position.
8.	To provide retail and commercial centres, business parks and service areas to satisfy the need for such services within the Estate and to provide local employment opportunities; and,	<p>A commercial site adjoining Repton Street in the north of the estate to cater for additional service commercial/mixed business needs and employment opportunities not otherwise suited to the local neighbourhood centre.</p> <p>Larger district level commercial facilities are proposed within Albion further to the north as planned through the Sub-Regional structure plan process.</p>
9.	To employ strategies and design aimed at optimising accessibility to the local centre and future public transport node(s) by the use of comprehensive movement networks and by other means which will facilitate connection with public transport and arterial road links to Midland, Perth and other parts of the Metropolitan Region.	<p>The structure plan has centrally located the neighbourhood centre and 'Activity Corridor' to maximise accessibility and encourage walkable catchments, supported by adjoining medium densities.</p> <p>The road network too is designed to ensure permeability for a public transport route internally as well as direct pedestrian or cyclist links to public transport nodes.</p> <p>Similarly, the 300KV powerline corridor easement, once landscaped and pathed shall also assist in directing pedestrian and cyclists from the east and west directly to the local centre.</p>

The West Swan site is also included within 'Development Contribution Area 2' of LPS 17 which requires a 'Development Contribution Plan' to be prepared in accordance with Schedule 13 of the Scheme, refer to comments in Section 7 of this District Structure Plan report in this regard.

2.1.3 Sub-Regional Structure Plan

The City of Swan and the Department of Planning, in consultation with key landowners and other government agencies, have prepared and advertised a Sub-Regional Structure Plan for the Swan Urban Growth Corridor, being land located generally between Midland and Ellenbrook in the suburbs of West Swan, Caversham and Albion.

The Sub-Regional Plan is a strategic planning document designed to guide the coordinated growth and development of the Swan Urban Growth Corridor to ultimately accommodate over 30,000 new residents plus associated community, commercial, open space and infrastructure land uses and will ultimately be endorsed by the Western Australian Planning Commission and implemented as a non-statutory planning framework for the sub-region.

The Sub-Regional Plan contains the following key features of relevance to West Swan East:

- District level retail and commercial uses are to be located in a District Centre within Albion to the north;
- A district high school is to be located within Albion to the north with no other provision for higher or tertiary education in West Swan East;
- One large primary school site to cater for 50% more students than usual is to be located within West Swan East;
- One 14ha parcel to accommodate District Open Space in the northern portion of West Swan East abutting Arthur Street;
- An 'Activity Corridor' connecting Albion district centre to Caversham in the south via the Arthur Street flyover across the Reid Highway, is to run through the heart of West Swan, with higher residential densities, public transport and home based business opportunities encouraged along the Corridor;
- One local centre centrally located along the Activity Corridor is to be provided within West Swan East;
- One neighbourhood centre and 'mixed business/service commercial' site to be sited between the Activity Corridor and the future Perth-Darwin Highway, central to the Sub- Region and offering a range of light industrial, service commercial and mixed business type uses not ideal for the District retail centre of Albion;
- A predominance of residential land uses across West Swan East achieving a net residential density of 22 dwelling units per hectare;
- Recognition of the existing power and gas pipeline easements and setbacks (as required) and need for extensions to the 132KV powerlines and an associated substation;
- Recognition of the possible future transit station towards the intersection of Reid Highway and the Perth-Darwin Highway associated with a possible future public transport corridor; and,

- An integrated traffic management study across the Sub-Region, confirming road networks and hierarchy as proposed, including an upgraded intersection in the interim for Marshall Road (west) and Lord Street, also acting as the entry to first stage development in West Swan East.

The above has formed the basis for progressing the planning, traffic management, infrastructure provision and land use allocation across West Swan East, with the District Structure Plan consistent with the outcomes of the Sub-Regional Plan.

2.1.4 City of Swan Urban Growth Policies

In response to the State's significant existing and projected levels of population growth and the *Network City* document, the City of Swan has prepared and adopted an Urban Growth Policy package, incorporating the 'Urban Growth Policy', the 'Neighbourhood Planning Policy', 'Environmental Planning Policy' and the 'Community and Economic Planning Policy'. In summary, these policies contain objectives for Structure Plans within the Swan Urban Growth Corridor (relating to West Swan East) including (though not restricted to):-

- Responding to the social and economic needs of the Community;
- Encouraging innovation and best practices in urban design and environmental management;
- Taking a partnership approach with government, non-government and other landowners in the Urban Growth Corridor in respect to land use and water management;
- Providing choice and affordability in housing;
- Creating safe and convenient access;
- Encouraging an identifiable sense of place;
- Minimising the impact on the natural environment;
- Minimising energy, infrastructure and water costs; and,
- Ultimately ensuring that the urban growth contributes to sustainable urban communities.

The District Structure Plan helps achieve the above objectives in that it:-

- Facilitates a range of permeable transport movements (car, bus and possible future rail) through appropriate road widths, gridlike street networks, appropriate road hierarchy, provision for future public transport, and regular large cell blocks ultimately allowing for local structure planning to further facilitate a well connected and surveilled local street network;
- Identifies a range of housing densities achieving a net dwelling density of at least 22 dwelling units per hectare, with medium and higher densities closer to public open space, future public transport nodes and commercial centres with convenient access for all dwellings to key destination facilities and parks;
- Provides the opportunity for two commercial sites, both with high levels of exposure and access for commercial viability with one centrally located adjoining other community facilities to assist with convenience, accessibility and multi-purpose trips;
- Provision of infrastructure which will cater for the anticipated growth with drainage infrastructure to encourage stormwater retention;

- The urban design of the District Structure Plan broadly encourages the retention of the existing local identity through the protection of features within public open space, infrastructure corridors, special purpose sites or existing road layouts, including ethnographic and vegetation features, plus it aids in the creation of a new urban identity, again through the street layout, use of parklands, community purpose site(s), homestead retention where possible and future landscaping, many of which are to be addressed in more detail at the Local Structure Plan stages;
- The design depicts a good level of integration with neighbouring planning and land uses despite the cell's well defined and recognized boundaries, predominantly through the road network, land use allocation, infrastructure provision and environmental (including groundwater and drainage) analysis.

Also in accordance with the 'Planning for Urban Growth' requirements of the Policy, the District Structure Plan for West Swan East incorporates engineering, ethnographic, community and economic development, financial reporting commitments, fire and emergency access information and environmental management strategies and plans with any additional plans to be prepared and implemented as part of the more detailed subdivision stage of development as per the Scheme requirements and those of the Environmental Protection Authority.

In this regard the West Swan East District Structure Plan is consistent with the suite of Urban Growth Policies and their specific objectives and requirements applicable to structure plan preparation.

2.1.5 City of Swan Commercial Centres Strategy

The City of Swan Local Commercial and Activity Centres Strategy was adopted by Council in June 2004 and provides the basis for the planning and development of commercial centres within the City for the next 15 years. It includes a framework for the location and distribution of commercial centres and guidance on the size and composition of each class of centre.

A Neighbourhood Centre has been identified within West Swan East, consistent with the nominated neighbourhood centre within the Structure Plan.

The Commercial Strategy has not identified the need for a Service Commercial/Light Industry/Mixed Business Area within or adjoining West Swan East (or anywhere specifically in the Sub Regional area), however criteria for the location of such is included, such as;

- Relatively large parcels;
- High exposure; and,
- Good district/regional road access.

With the above in mind, and in recognition of the need to accommodate employment generation, the proposed Service Commercial site is large and in the one regular shaped parcel, has high exposure from both a district and regional road and is well accessed from off the future 'Activity Corridor', the district distributor road of Repton Street and Drumpellier Drive (via Harrow Street in the north).

2.1.6 Liveable Neighbourhoods

Liveable Neighbourhoods is a state-wide development control policy to facilitate the development of sustainable communities. It provides an integrated planning and assessment policy for the preparation of Structure Plans and subdivision designs and represents an alternative performance-based approach to conventional subdivision policies.

The Structure Plan presented within this report adopts the principles of *Liveable Neighbourhoods* policy and should be assessed against the objectives and requirements of each of the *Liveable Neighbourhoods* design elements.

Liveable Neighbourhoods promotes a number of key principles for creating a vibrant and sustainable community. These principles include the following and are embodied in the elements of the Liveable Neighbourhoods document:

- Walkability;
- Site responsive design;
- Safety and Surveillance;
- Neighbourhood Structure;
- Efficiency.

The District Structure Plan has been designed with these principles in mind by creating a clear neighbourhood centre; by facilitating the retention of as much of the existing amenity as possible including vegetation, theme and some buildings; by ensuring lots are orientated to encourage passive surveillance; by creating appropriate neighbourhood connector street blocks, a distribution of public open space plus the inclusion of destination facilities to encourage walking and by creating a clear neighbourhood structure responsive to the sites opportunities and constraints.

2.1.7 Early Release Subdivision

As part of the Sub-Regional Plan preparation process, an agreement was reached to provide for what is known as an 'early land release program' as a means of assisting in the timely production of a supply of residential lots to cater for the current population growth of the Perth Metropolitan Region. The Sub-Regional Structure Plan contains criteria for determining the area, extent and planning process of land suitable for the early land release program.

An early release subdivision application for the Aspen owned south-west quadrant of West Swan East was prepared and approved through the State Administrative Tribunal process in accordance with the Sub-Regional Structure Plan criteria in advance of the District Structure Plan process. Any subsequent land releases however, will not be supported until the District Structure Plan and the relevant Local Structure Plan is approved.

The District Structure Planning reflects the agreed land use allocation and road and path network approved within the early land release subdivision, ensuring coordination between the two layers of urban planning.

2.2 Locality Context

The subject land is very well located, being within close proximity to the Midland Regional Centre, Morley Regional Centre, Malaga Industrial Area, Ellenbrook District Centre to the north and the tourism rich Swan Valley. These areas provide a diversity of local employment opportunities within easy reach of future residents as well as satisfying shopping, educational, tourism and lifestyle needs of the community, further consideration however to this broader community and commercial context and its impact on the structure planning preparation is detailed further below.

2.2.1 Population

The 2006 census indicates that the population of the Swan Urban Growth Corridor area in which West Swan East is located was 6,867, nearly double that of the previous 2001 census. The population projection estimates a growth of just over 70% by 2012 and increasing to 280% from 2006 to 2021 (reflective of the anticipated urban development staging).

The majority of this growth is anticipated to occur in the 35-49 age group and the 25-34 age group, coupled with growth in the 5-11 year old group, suggesting that the great majority of growth will be in the family household composition, perhaps young couples or young families.

The analysis undertaken as part of the Community Facilities Analysis by the City of Swan and also as part of the Sub-Regional Structure Plan suggests that the broader Swan Urban Growth Corridor will likely accommodate 32,000 people with approximately 7,000 of this population with West Swan East at a rate of around 2.7 people per dwelling.

This assists in providing the context for the provision of schools and community facilities as well as guidance on the mix of housing typologies and is discussed in more detail as part of the Community and Economic Development Plan contained at Appendix 14.

2.2.2 Employment Centres

The growth corridor within which West Swan East is situated has a higher proportion of residents employed in agriculture, forestry and fishing, construction, manufacturing and retail than the balance of the metropolitan region, suggesting perhaps that the Malaga and Midland industrial areas, the Swan Valley Rural area, the Midland and Morley major retail centres and construction associated with the outer developing areas of the metropolitan region are significant employment centres for the West Swan community.

Additional employment generators are located within Ellenbrook to the north via Lord Street, the Perth CBD and Welshpool and the airport via the Reid Highway, with the future Albion District Centre immediately to the north of the subject land, accessed via the future Activity Corridor and transit corridor.

Taktics4 has prepared a Commercial Activity Strategy (included at Appendix 12) to further outline employment centres and opportunities within the region, also aiming to achieve a minimum of 30% self sufficiency within West Swan East itself through the creation of a neighbourhood centre, a Service Commercial site and the opportunity for home based businesses.

2.2.3 Community Facilities

West Swan East has ready access to existing community facilities throughout the Swan district, including but not restricted to:

- Whiteman Park;
- The Swan Valley;
- Local community facilities and pavilions in Ellenbrook
- District community centre and district pavilion in Ellenbrook;
- Altone Park recreation facilities;
- Ballajura aquatic centre;
- Ballajura library;
- Midland arts, community, sports, recreation, seniors and educational facilities.

As part of the Sub-Regional planning for the Swan Urban Growth Corridor, a community facilities needs analysis was undertaken by the City of Swan, identifying the need for a district community centre in Albion, a district level playing field and associated pavilion in West Swan East, a local community centre in West Swan East and a series of local active open space areas in West Swan East to cater for the growing sub-regional community.

In addition, Creating Communities consultants has prepared a Community Audit and related Community and Economic Development Plan to further elaborate on the community context and requirements as it relates to West Swan East (refer Appendices 13 and 14).

2.2.4 Transport Network

West Swan East is centrally located within the City of Swan and is well connected in terms of access to the Reid Highway (via Drumpellier Drive), and Isoodon Street and West Swan Road via the existing street network, enabling ready access to Midland, the Perth CBD, Malaga, Ellenbrook and beyond.

Drumpellier Drive provides access to Reid Highway. Access across Reid Highway at the Arthur Street flyover will connect to Caversham in the south. Isoodon Street shall continue to operate as a district distributor road (and doubling as the Activity Corridor in parts) connecting West Swan with Albion.

A dual-lane roundabout from Drumpellier Drive and associated 20m public access road will provide access to the Neighbourhood Centre and the wider Dayton area. The intersection is due to commence construction in quarter four 2021.

Ultimately Henley Brook Avenue to the east will replace West Swan Road as the district distributor providing a second connection from West Swan East to the district facilities in Albion, Ellenbrook and Midland, West Swan Road being retained instead as the local tourist route. The local road network within West Swan East (including Harrow Street and Coast Road) shall connect to Henley Brook Avenue to facilitate this district movement.

In terms of public transport, Isoodon Street currently operates as the main district bus route servicing West Swan East.

The future Whiteman train station to be constructed as part of METRONET's Morley to Ellenbrook rail extension will provide a rail service to Dayton.

2.2.5 Educational Facilities

Caversham Primary School on Coast Road, adjoining the eastern boundary of the subject site currently provides for the existing West Swan East population and according to the Department of Education and Training has some capacity to accommodate further growth, particularly the first stages of development in West Swan East. The primary school however has limited expansion potential in the longer term given the physical constraints of the Parmelia and Dampier to Perth gas pipeline setback requirements and drainage problems on site.

The Riverlands Montessori private primary school on Arthur Street caters for some students and has capacity to expand some. This school shall be retained on its current site, opposite the proposed District Open Space site.

Students currently in the area fall within the Lockridge High School catchment. Upon construction of the proposed high school in Albion to the north, students will in future be expected to attend the Albion High School. Private high schools are available to the north on Gnangara Road and also east and south-east, such as Guildford Grammar, St Brigids School and Swan Christian College.

Tertiary Education in the form of TAFE and Curtin University regional campus is available in nearby Midland regional centre.

3.0 DISTRICT STRUCTURE PLAN

The 256ha of land contained within the West Swan East District Structure Plan is intended primarily for residential development, serviced with a range and distribution of public open space and district open space facilities, a neighbourhood centre, a mixed business/service commercial/light industrial site, an 'activity corridor' down the spine of the site, a new large primary school site and three significant infrastructure corridors/site.

The broad allocation of land uses is reflected on the District Structure Plan contained at Figure 8, is described in more detail in the following sections and summarised in the table below. These areas will be updated from time to time by subsequent local structure plans.

TABLE 2 – Land Use Schedule

Land Use	Area
Gross Area	256ha
Non-Residential Deductions	
Public Primary School	5.5ha
Private Primary School	2.3ha
Local Centre	1500m ² NLA
Neighbourhood Centre and Service Commercial	5000m ² NLA
Powerline/Infrastructure Corridor	8ha
Possible Sub-Station site	2ha
MRS Regional Road reserves	1ha
Total Deductions	27.3ha
Gross Subdivisible Area	Approx 232.44ha
Public Open Space Provided (Total less non credit areas)	27.03ha
Gross Residential (Excludes the 2ha substation site)	191.7ha
Low	110ha
Medium	74ha
High	7ha

3.1 Design Philosophy & Objective

The District Structure Plan has been designed around the philosophy that the site forms the 'gateway' to the Swan Valley, being strategically located between the eastern extent of the Perth metropolitan urban boundary and the Swan Valley rural and tourist drive area.

The design maintains and enhances linkages between the urban and rural land using the road network, utilisation of existing infrastructure corridors and using future landscaping and themes to reflect the 'gateway' position of the site which appropriately interfaces and integrates with major highways to the west and south and rural and bushland uses to the north and east.

The objective of the design and plan preparation process also evolved in consideration to its central location within the broader sub-region and the objectives of the Special Use zone, ensuring integration within the sub-region occurs. This included:

- Ensuring that direct access for future West Swan East residents to the district commercial and educational facilities in Albion is achieved;
- Access to the proposed district sporting facilities in West Swan East is possible from surrounding suburbs;
- Road and public transport connectivity between Albion, West Swan (east and west) and Caversham is maximised in the context of Main Roads, Department of Planning, Council and the Public Transport Authority intentions;
- Urban water management is satisfactorily achieved within the context of the broader sub-regional catchment;
- Provision of an additional employment centre for light industrial/service commercial/mixed business uses accessible to the sub-region;
- Ensuring that a range of residential densities is provided for, also in the context of proposed densities across the greater sub-region.

The ultimate objective being to achieve a modern estate with its own 'gateway' identity that satisfies the various planning controls, the environmental guidelines and the needs of the broader community.

3.2 Housing Strategy

3.2.1 Context

The extent of the residential area is logically distributed across the whole of the greater West Swan East district, using the existing defined MRS Urban zone boundaries as the extent of coverage, with consideration given to avoiding the key constraints of the infrastructure corridors, the proposed power sub-station site, the existing wetland and heritage sites and allowing a land allocation for commercial centres, schools and open space.

The high residential area is located in close proximity to the possible future public transport node (well accessed via the highly permeable grid-like neighbourhood road network and regular in area to provide for robustness and variety in design), with medium densities located in areas adjoining higher amenity such as the commercial centres, Activity Corridor and areas of public open space. The balance is to be retained at lower densities to offer housing choice and a transition to the Swan Valley to the east.

3.2.2 Objectives

West Swan East will ultimately result in an estate which caters to a broad range of housing needs, the objectives of which are to:

- Encourage sustainable design and passive energy use through appropriate lot orientation and use of regular street networks;
- Promote diversity of lot sizes and housing types across the district;
- Encourage medium and higher densities around the commercial nodes and public transport routes/node(s) to assist in maximising accessibility, patronage and viability;
- Promote the opportunity for housing types that can accommodate home-based businesses along the Activity Corridor;
- Encourage medium density housing adjoining public open space areas to assist in facilitating passive surveillance of the public domain and provide additional amenity for smaller homes;
- Promote the opportunity for aged and dependant persons dwellings within 400 metres of the neighbourhood centre and/or Activity Corridor;
- Provide for lowest density housing along the eastern boundary to facilitate an appropriate transition to the rural Swan Valley area; and,
- Encourage flexibility and promote robustness through broad density designations and regular street networks to accommodate changing needs over time.

3.2.3 Diversity

The District Structure Plan broadly divides the residential land use allocation into 'low', 'medium' and 'high' densities generally correlating to the Residential Design Codes classifications. The intention being that these terms in themselves allow for some diversity of minimum lot sizes, the applicable R Codes notated on the DSP. These will be further refined at local structure plan stages whilst ensuring that appropriately located diversity in housing density, and therefore ultimately also diversity of housing stock, is broadly achieved across the entire district. Figure 10 broadly illustrates the diversity of housing anticipated within West Swan East.

3.2.4 Density Targets

The City of Swan aims to achieve a density target of 22 dwelling units per net hectare. In this regard, the District Structure Plan achieves this target with densities concentrated closer to the Activity Corridor, the commercial centres, around public open space and the possible future transit corridor where the density target will exceed the 22 dwelling units per hectare.

Based upon anticipated conservative yields as shown below, a density target of 22 dwelling units per hectare can be achieved within the district.

3.2.5 Yield Calculations

Housing and population yields across the District are likely to evolve over the lifetime of the plan and development (possibly a 10-15 year time period) as changes to housing demands and housing forms occur. However, as a guide, the following table is provided:

TABLE 3 – Estimated Lot Yields

Density	Dwelling Type	Estimated Average lot size (preliminary only)	Estimated Area (total area less roads and POS/drainage)	Estimated Yield
Low (eg R5 - R20)	<ul style="list-style-type: none"> Low density transition lots Single residential dwellings Grouped dwellings 	600m ²	76ha	1280
Medium (eg R20-60)	<ul style="list-style-type: none"> Single residential dwellings Grouped dwellings Multiple dwellings Aged and dependant persons dwellings 	350m ²	53ha	1514
High (eg R60, R80)	<ul style="list-style-type: none"> Single residential dwellings Grouped dwellings Multiple dwellings Aged and dependant persons dwellings 	180m ²	5ha	300
Total			134	3094
Dwelling Units Per Hectare				23

**Note that all above areas are conservative estimates only*

At the current occupancy average of 2.7 people per dwelling, this number of lots may yield an approximate population of around 8,354 people within the total West Swan East site area. However this figure is likely reduced to closer to 7,800 people given a large retirement village with an average occupancy rate of 1.5 people per dwelling is proposed for development in the estate.

3.3 Public Open Space

3.3.1 Context

A minimum of ten per cent of the gross subdivisional area public open space (POS) contribution forms a key component of the District Structure Plan, this excludes any open space which may be associated with the powerline corridor.

3.3.2 Objectives

The POS areas were designed with consideration to the following objectives:

- Maximising the opportunity for drainage retention within swales and 'living streams' as part of usable POS;
- Maximising accessibility for future residents through appropriate distribution and connectivity, with all lots to be within 400m of an area of POS and 90% within a 200m radius of POS;

- Encourage the provision of a range of play spaces suitable for the full spectrum of age groups with consideration given to Council's Play Space Strategy, Public Open Space Policy and the Community and Economic Development Plan prepared for the West Swan East district;
- Provision of a range of open space areas suitable for active and passive recreation in accordance with Liveable Neighbourhoods and Western Australian Planning Commission Policy objectives;
- Ensuring casual surveillance of the public domain by nearby future dwellings is facilitated as much as possible;
- Utilising the opportunity for appropriate shared open space by a future primary school;
- Provision of a large (minimum site area of 14ha to accommodate a minimum of 12ha of facilities) central space for sporting grounds with a high level of accessibility for district level traffic, located in a position as designated in the Sub Regional Structure Plan;
- Enabling the protection of recognised sites Aboriginal heritage significance within public open space as per the recommendations of the Ethnographic report;
- Provision of adequate buffers around the Environmental Protection Policy Resource Enhancement wetland in the centre of the site;
- Encouraging overall permeability and the opportunity for utilising POS for additional pedestrian and cyclist linkages to key destination points; and,
- Providing protection of any remnant vegetation.

3.3.3 Location, Size & Distribution

The location, size and distribution of public open space is to be determined at the subsequent local structure plan stages as a result of further refinement of the detailed design and community needs as they evolve over the life of the District Structure Plan and as the new urban community moves into the district, the aim however being to ensure that the majority of all residents are within 400m of a park.

The location of the public open space intended to provide a 14ha site area for 12ha of district open space facilities however has been designated in the Sub Regional Structure Plan, intended to be centrally located within the greater Sub Region, readily accessible from the Activity Corridor and forming one contiguous parcel with the proposed primary school to the south. The district level facilities are to be included within the 14ha public open space, noting that whilst servicing the greater district, the land itself offers a local open space function to the immediate West Swan East area. Its inclusion in the local open space provision enables the open space land component to be cost shared throughout West Swan East rather than be calculated as a land use deduction, the land use value to the Community remains the same regardless. The development of the district facilities, as opposed to just the land, however remain the responsibility of the Sub Region as per the Sub Regional Structure Plan and broader district needs.

Figure 9 – Public Open Space Strategy has been prepared to assist in guiding the distribution of public open space in the context of the above objectives. This is summarized also in Table 4 below and should be read in connection with the Community Facility Strategy included at Appendix 13.

TABLE 4 – Public Open Space Summary

NOTE: FOR CURRENT POS SUMMARY REFER TO CITY OF SWAN DAYTON DCP OVERALL POS SCHEDULE – TABLE 1

Land Use		Description	Site Area
Gross Site Area		Total Area of District Structure Plan	256.00ha
Deductions		MRS Reserve, dedicated infrastructure (powerline corridor & substation), non-residential land (primary school, commercial land)	25.18ha
Gross Subdivisible Area		Total Area of DSP excluding deductions	232.44ha
10% POS required		10% of total Gross Subdivisible Area	23.24ha
10% POS may comprise		Minimum 80% unrestricted Maximum 20% restricted	18.59ha 4.65ha
POS provided (as numbered on POS Strategy plan):			
POS1	1 in 1 drainage = 0.15ha 1 in 5 drainage = 0.35ha	12ha of district active recreation facilities including oval and pavilion. Some Local park function.	14.02ha
POS2	1 in 1 drainage = 0.05ha 1 in 5 drainage = 0.05ha	Local park	0.90ha
POS3	1 in 1 drainage = 0.03ha 1 in 5 drainage = 0.05ha	Local park	0.73ha
POS4	1 in 1 drainage = 0.12ha 1 in 5 drainage = 0.44ha	Landscaped drainage function, offering amenity and passive recreation to Service Commercial workers and nearby residents and green pedestrian/cyclist link between future Highway and Activity Corridor.	0.11ha
POS5	1 in 1 drainage = 0.09ha 1 in 5 drainage = 0.17ha	Local park for active recreation	2.20ha
POS6	1 in 1 drainage = 0.11ha 1 in 5 drainage = 0.60ha	Local park offering some drainage function	1.42ha
POS7	1 in 1 drainage = 0.10ha 1 in 5 drainage = 0.53ha	Local park and amenity for those isolated between future highway and Lord Street. Contains drainage function.	0.94ha
POS8	1 in 1 drainage = 0.31ha 1 in 5 drainage = 1.63ha Wetland core = 1.69ha Wetland buffer = 2.85ha	REW Wetland protection and enhancement, predominantly passive recreation and some drainage function with some active recreation associated with adjoining future community facility.	5.10ha
POS9	1 in 1 drainage = 0.00ha 1 in 5 drainage = 0.00ha	Local park function plus possible protection and interpretation of Aboriginal heritage well.	0.50ha
POS10	1 in 1 drainage = 0.20ha 1 in 5 drainage = 0.45ha	Local park offering passive and active recreation suitable for neighbourhood centre location.	1.91ha
POS11	1 in 1 drainage = 0.14ha 1 in 5 drainage = 0.37ha	Lineal park for passive recreation providing green link for pedestrians & cyclists to future transit station. Also aiding in protection and enhancement of Aboriginal heritage creekline.	1.10ha
POS12	1 in 1 drainage = 0.29ha 1 in 5 drainage = 0.72ha	Local park comprising passive and active recreation and landscaped drainage function.	1.65ha
POS13	1 in 1 drainage = 0.21ha 1 in 5 drainage = 1.67ha	Large local park for active recreation facilities and some	3.44ha

		passive/drainage/revegetation function.	
POS14	1 in 1 drainage = 0.10ha 1 in 5 drainage = 0.60ha	Local park with some drainage function.	1.43ha
Special Use Community Purpose Site (POS 15)		For community purpose/community building	0.30ha
Total Gross POS provided		Total Gross POS (includes Gross POS 1-14 + community site)	36.45ha
Total Unrestricted POS		Total POS (incl community site) which does not contain any 1 in 1 or 1 in 5 yr drainage requirement nor wetland function, noting that some drainage overlaps with wetland buffer	22.41ha
Total Restricted Use POS		1 in 5 drainage less 1 in 1 drainage plus wetland buffer to a maximum of 4.57ha (being 20%), noting some drainage within wetland buffer.	6.6ha capped at 4.62ha
POS credit provision		Total unrestricted POS plus restricted POS up to a maximum of 20% of total POS	27.03ha (11.6%)

** The accreditation of a public open space is subject to detailed design and landscape concept plans at Local Structure Plan stages, demonstrating its function and usability for recreational purposes to the satisfaction of the City and WAPC.*

***11.7% POS is shown in recognition that subsequent refinement at Local Structure Planning Stage may result in some margin for adjustment, also that upon the detailed design of POS 1 and POS 14, additional land may be made available for residential use as reflected upon the DSP.*

3.3.4 Implementation Strategy

As mentioned above, the subsequent Local Structure Plan preparation processes shall further refine Table 4 and Figure 9 to ensure the objectives of the District Structure Plan and that of Liveable Neighbourhoods, the Western Australian Planning Commission Development Control Policies and that of the City of Swan are fulfilled. Specifically, in relation to POS, the Local Structure Plans shall further outline:

- The size, location and distribution of POS;
- The refined function of each area of POS including the relationship and provision of district sporting facilities and a shared oval with the public primary school;
- The refined extent of wetland and wetland buffers to confirm credit towards usable POS;
- Preliminary landscape design concepts to illustrate key function and features; and
- Management plans or reports if for the protection of the wetland or Aboriginal Heritage sites.*

- * *Alternative solutions in terms of protection/tenure and design outcome will need to be considered should the relevant authorities deem a heritage site unsuitable for POS. If this occurs then an alternative POS site or expansion of another POS or additional site enhancements to another public space in the same local structure plan area will ensure POS contributions are appropriately used.*

Subsequent landscape management plans prepared for individual public open space areas created following subdivision approval shall further refine the uses in the context of Council's Playspace Strategy and the community needs assessment. Also to address revegetation using indigenous species, use of any fill, fencing, water efficiency, water allocation for reticulation and other landscape treatments, ultimately ensuring each POS site is adequately connected to essential services for subsequent use reflective of a variety of active and passive recreation opportunities.

3.4 Neighbourhood Centre

3.4.1 Context

In accordance with the City of Swan Commercial Strategy and the Swan Sub-Regional Structure Plan, one Neighbourhood Centre is proposed within West Swan East. The Centre as depicted on the District Structure Plan and will accommodate 5000m² of retail floorspace.

Subsequent Detailed Area Plans will be prepared to guide the development of this centre.

3.4.2 Proposed Uses

The Neighbourhood Centre is intended to form the opportunity for employment creation and the day-to-day shopping and business needs totalling 5,000m² of retail, possibly in the form of:

- 3,500m² local supermarket;
- 20 specialty shops (of approximately 1,500m²) predominantly convenience based tenants;
- A variety of non retail facilities such as medical centre, bank or childcare; and,
- A pedestrian and cycle friendly streetscape and building design, particularly for Repton Street, with connections to the surrounding residential areas.

The Local Centre at Arthur Street is intended to provide for the local convenience needs with pedestrian and cycle connections to the surrounding community and a total retail floorspace allocation of 1500m².

The Centres Strategy contained at Appendix 12, prepared by Taktics4 consultants, further justifies the above mix and land area recommendations, together with an updated Retail Needs Assessment prepared by Urbis January 2021 also contained in Appendix 12.

The 'General Commercial' zone and associated use class table within Council's Local Planning Scheme No.17 are intended to provide the guide to the type of possible uses within the nominated Neighbourhood Centre and Local Centre sites of the District Structure Plan, as is also notated on the plan.

The intention is for land constrained by the abutting 330KV powerline easement to be partially utilised for acceptable low key landscaping, pedestrian connection and possible overflow car parking, to Western Power's standards, but associated with the Neighbourhood Centre so as not to compromise what is an important four-way intersection and visible location.

3.4.3 Implementation Strategy

Subsequent planning of the Neighbourhood Centre shall occur as part of the Local Structure Plan stages, to refine the location and area. In addition, as per the Scheme provisions, a Detailed Area Plan shall be prepared over the site to ensure the following are adequately addressed:

- The allocation of broad land uses including appropriate car parking provision;
- Car, bus, pedestrian and bicycle traffic movement and management associated with the site, the Activity Corridor and surrounds;
- Integration with the adjoining powerline corridor and easements;
- Integration with the adjoining nominated community purpose site and areas for public open space; and,
- Guidelines for the built form and ancillary features.

3.5 Service Commercial

3.5.1 Context

A Service Commercial site intended to cater for additional employment needs and to accommodate a range of mixed business and service commercial uses has been nominated in the north-west of the District Structure Plan area. This site is generally bound by Isoodon Street, Cranleigh Street and Drumpellier Drive and bisected by Repton Street, ultimately achieving maximum accessibility and visibility from passing traffic on Isoodon Street and Drumpellier Drive.

The design of this precinct intends to provide for the built form fronting Isoodon Street and Drumpellier Drive with vehicular and servicing access from Repton Street and Cranleigh Street and the local road network at the rear. This avoids the potential for any traffic conflict on Isoodon Street whilst enabling an active street frontage, a high level of exposure and efficient use of an existing road reserve alignment.

3.5.3 Implementation Strategy

The intention is that the Service Commercial site shall be further refined at the Structure Plan stage, as well as Local Development Plans being prepared at subdivision/development stage, Design Guidelines may be prepared to ensure appropriate design, frontage and traffic movement avoiding any conflict with the adjoining Activity Corridor including poor amenity of the built form as viewed from nearby residences and the regional traffic routes.

TABLE 5 – Permissible Uses in Service Commercial zone of DSP

Use Class	Permissibility
Betting Agency	D
Car Park	D

Child Care Premises	A
Club Premises	A
Community Purpose	D
Consulting Rooms	D
Educational Establishment	D
Exhibition Centre	D
Fast Food Outlet	D
Food and Beverage Production	D
Garden Centre	D
Industry – Cottage	D
Industry - Service	P
Lunch Bar	P
Marine Filling Station	A
Medical Centre	D
Motor Vehicle Repair	D
Motor Vehicle Wash	P
Motor Vehicle, Boat or Caravan Sales	P
Night Club	A
Office	D
Recreation – Private	D
Recreation – Public	D
Restaurant	D
Service Station	A
Showroom	P
Storage	P
Tavern	D
Trade Display	P
Veterinary Centre	P
Warehouse	P

The symbols used have the same meaning as those used in Local Planning Scheme No.17.

3.5.3 Implementation Strategy

The intention is that this site shall be further refined at the Local Structure Plan stage as well as a Detailed Area Plan being prepared, and possibly also Design Guidelines, to ensure appropriate design, frontage and traffic movement is achieved, avoiding any conflict with movement and use down the adjoining Activity Corridor or poor amenity of the built form as viewed from nearby residences or the regional traffic routes.

3.6 **Activity Corridor**

3.6.1 Context

The Swan Sub-Regional Structure Plan designates an 'Activity Corridor' leading from Albion in the north, down Lord Street to Cranleigh Street and then running down Arthur Street to Caversham in the south.

This Activity Corridor relies upon the construction of a fly-over across the Reid Highway to connect West Swan East with the Caversham future urban development to the south. The timing of this fly-over is still uncertain and as such, the 'Activity Corridor' is unlikely to operate as intended until the connection to Caversham is complete and local neighbourhood centres in West Swan East and Caversham are developed. Similarly, a public transport route down Arthur Street is also unlikely in the short term.

However, in recognition of a future 'Activity Corridor', the road network has been designed to ensure a high level of permeability connecting to the Activity Corridor, with Arthur Street being widened to a 25m road reserve allowing ample space for cars, buses, dual use paths and pedestrian refuges within the reserve without creating a high-speed traffic route.

3.6.2 Proposed Principles and Uses

Lots fronting the future 'Activity Corridor' shall be encouraged to be flexible enough to accommodate home office/home based businesses in future, and generally developed at medium densities to utilise exposure and maximise surveillance and walkable catchments to what will be a future public transport route and higher pedestrian and vehicular movement route linking key facilities such as the neighbourhood centres of West Swan East and Caversham, service commercial site and district level commercial centre.

Aged and Dependant Persons Dwellings (retirement villages) shall also be encouraged to locate adjoining and fronting the Activity Corridor, utilising proximity to a what shall ultimately be a key public transport route and ready access to the local neighbourhood centre and community purpose site.

3.6.3 Implementation Strategy

The refinement and subsequent implementation of the Activity Corridor shall be ongoing throughout the life of the District Structure Plan as uses, demand, densities and development continue to grow and evolve, including construction of the Reid Highway flyover at Arthur Street in the medium to longer term future. The Local Structure Plan stages shall assist in implementing the objective of the Activity Corridor by nominating appropriate connections and intersections, local street patterns, dual use paths and adjoining land uses and residential densities.

The Detailed Area Plan(s) for the commercial centres and future subdivision designs and shall also assist in implementation of the intent of the Activity Corridor.

3.7 **School Sites**

3.7.1 Context

An existing small private Montessori primary school is located within the northern extent of the subject land on the western side of Arthur Street, with the existing Caversham Primary School located immediately east of the eastern extent of the subject land. Both schools are able to accommodate future growth, however, in accordance with the Department of Education and Training's (DET) advice and the Western Australian Planning Commission's Development Control Policy, an additional one and a half sized primary school site (larger than normal) is required at a size of 5.5ha.

The DET has confirmed that a public high school site within West Swan East is not required. Instead, future secondary school students will travel north to Albion to a site nominated in the Sub-Regional Structure Plan and in the interim shall attend Lockridge High School.

3.7.2 Proposed Location and Principles

The proposed one and a half sized primary school is to be located adjoining the proposed District Open Space to enable sharing of active recreation areas. The school site is located within the northern and central portion of the Structure Plan, away from the Caversham Primary to maximise a different walkable catchment, is well away from the overhead powerlines (both 132KV and 330KV) and the busier district distributor roads and Activity Corridor, though still readily accessible from off Arthur Street and the surrounding local street network, ensuring road access on three sides of the school. Importantly, the site is located in accordance with requests from the DET.

Prior to subdivision clearance, Detailed Area Plans will address and refine the more detail planning and design issues as outlined in Appendix 5 of Liveable Neighbourhoods (Oct 07).

3.8 Special Use - Community Site

3.8.1 Context

and has been nominated as a Special Use site, south-west of the intersection of Marshall and Arthur Streets to augment the heart of the District Structure Plan and complement the local centre and adjoining public open space within the first LSP 1 cell. This site is also well accessed by the proposed public transport route (being in close proximity to the Activity Corridor) and the pedestrian and vehicle network.

Its proposed location also allows for seniors to readily cross the road from the proposed retirement village site (west of Arthur St, north of Marshall Rd) and access the site. Similarly, its location along the Arthur Street Activity Corridor and proposed landscaped Infrastructure Corridor allows for pedestrians and public transport users to readily access the site via pathways and dual use paths.

3.8.2 Proposed Uses

This Special Use site is intended for a range of community purposes and developments, such as a community hall, a childcare centre, a church site, community medical centre, a children's playgroup, car parking, a private recreation use such as a gym or alike uses as also notated on the District Structure Plan.

A designated Community Purpose site outside of public open space was not specifically required for West Swan East, however a site catering for either public or private community orientated opportunities in a central and highly accessible location opposite public open space and adjoining the local centre is considered highly desirable and provides a suitable site which may not otherwise be suited for development within the main street shopping area or Service Commercial site.

3.9 Infrastructure Sites

3.9.1 Powerline Corridor

The existing 330KV powerlines parallel to Marshall Road through the centre of the District Structure Plan site are contained within their own easement and create a significant blight on residential development. The powerline easement shall not be affected by district structure planning, with the affect of the easement on urban development to be minimised by encouraging road reserves, low maintenance landscaping and cycleways and car parking within the easement area. A landscape concept plan and indicative cross section through the 330KV powerline easement (refer Figure 12) has been prepared and agreed to in principle by Western Power given that it complies with their land use and height restrictions.

As shown on the District Structure Plan the 330KV powerline easement is to partially contained with an open space corridor to be transferred to the City of Swan free of cost, though subject to Council and Western Power agreement, the objective of which is to provide an important regional pedestrian and cycle link from the Swan Valley path network (some of which has been recently upgraded) with Whiteman Park and beyond. Rather than result in wasteland as has occurred elsewhere in the Metropolitan Region, the corridor creates a unique opportunity for a direct cycle and pedestrian link to be promoted as such. The open space corridor may also offer additional community garden or revegetation opportunities in excess of public open space contributions.

The balance of the easement is shown as part of the neighbourhood centre and special use site for overflow car parking associated with those uses and within private ownership, the refinement of which shall occur as part of the subsequent relevant Local Structure Plan preparation.

The 132KV powerlines do not have the same impact upon urban development, being significantly narrower in width and have an 18 metre easement that will influence building setback areas of private lots. Building setback will be addressed through subsequent local structure plans and detail area planning.

3.9.2 Gas Pipeline Corridor

As noted on the Site Analysis plan the two below ground gas pipelines – the Dampier to Bunbury and the Parmelia gas pipeline - run parallel to the eastern boundary of the subject land, contained within existing easements. A 0m setback applies to the Dampier to Bunbury pipeline, a 70m setback applies to the more eastern Parmelia pipeline, of which the area of influence on West Swan East is limited, as well as a 75m setback where the two pipelines converge in the most south-eastern extent the District Structure Plan. These setbacks have been previously defined in the Western Australian Planning Commission Planning Bulletin No. 87 and subsequently agreed to by the pipeline operators, applying to residential land uses as proposed.

It is proposed that the gas pipeline setback area be included as part of individual low density residential allotments. Buildings will be required to be appropriately setback from the gas pipeline corridors within any works within requiring prior approval. Further, in accordance with the Scheme provisions and those of Planning Bulletin No.87, a risk assessment is required as part of the applicable local structure plan preparation stage.

3.9.3 Power Substation Site

A 2ha site for a power substation is required to help service the district. The location near the intersection of Lord Street and Marshall Road, adjoining the future Perth-Darwin Highway may be suitable for ceding for this purpose and as such is reflected on the District Structure Plan. An alternative site may however be negotiated which minimises the impact on residential development, suitably located in terms of access to the power network, minimum impact upon more sensitive land uses and with the agreement of the relevant landowner. Should an alternative site be agreed to, the 2ha site within the West Swan East DSP shall revert to low density residential development, the anticipated yields of which have not been included in the estimated numbers of dwellings for West Swan East.

3.10 Transport Strategy

3.10.1 Context

A Traffic Impact Assessment (refer to Appendix 3) has been undertaken for the West Swan East district, prepared in the context of the Sub-Regional traffic assessment and in consultation with the Sub-Regional traffic consultants, Main Roads WA, the Department for Planning and Infrastructure and the Public Transport Authority.

3.10.2 Design Rationale

The design of the road network within the District Structure Plan area is based upon the following key elements:

- The use of a relatively flat hierarchy of streets in an attempt to encourage even traffic distribution, reducing pressure at major intersections;
- Utilising road reserves already existing within the subject area;
- The use of a round-a-bout on Isoodon Street aligned with the existing Marshall Road (west) intersection to provide for controlled access into the subject area as also suitable for heavy vehicles currently utilising Isoodon Street. This connection will also improve the safety of the existing Marshall Road (west) intersection;
- Use of cell blocks designed so as to incorporate the use of rear laneways in higher density areas to reduce the number of crossovers and garages directly fronting neighbourhood streets if required;
- Ensuring public open space and the open space area associated with the powerlines corridor is fronted by streets on at least three sides to maximise surveillance and accessibility; and,
- Ensuring ready access through to the proposed future public transport route along Arthur Street and possible public transport node near Drumpellier Drive/Reid Highway intersection.
- Introduction of dual lane roundabout and 20m public access road adjacent to the neighbourhood Centre

3.10.3 Traffic Generation & Distribution

A traffic generation and distribution exercise based on anticipated yields and traffic movement has been undertaken over the District Structure Plan site.

A copy of the traffic assessment is contained at Appendix 3.

3.10.4 Hierarchy & Network

Figure 3 in the Traffic Assessment report illustrates the road hierarchy (as defined by *Liveable Neighbourhoods*) within the subject area. This generally shows Isoodon Street, Marshall Road and Arthur Street south of Cranleigh Street as 'Integrator B' roads. Arthur Street north of Cranleigh Street is a Neighbourhood Connector, and Harrow Street and the portion of Cranleigh Street between Isoodon and Arthur Streets and the modified Coast Road, extension of Malvern Street and also Arthur Street as the Neighbourhood Connector roads and other existing roads such as Victoria Street, Blundell Street and Cranleigh Street as Access Street B with all other subdivisional roads within the district generally classified as 'Access Street C'.

3.10.5 Road Widths & Treatments

The existing road reserves within West Swan East are proposed to be retained at their current width of 20 metres with the exception of Isoodon Street and Arthur Street which are proposed to be widened by 5m to accommodate additional traffic and pedestrians/cyclists. The other exception being the Marshall Road reserve width east of Arthur Street which is proposed to be significantly widened to approximately 38m, 10m of which shall overlap within the powerline easement, so as to accommodate drainage and the DN 350 gas pressure main running parallel to Marshall Road, within the median strip. A cross section is included within the Traffic Impact Assessment (Appendix 3) illustrating this scenario. Local Structure planning abutting the Isoodon Street, Arthur Street and Marshall Road reserves will be required to address these road widening requirements and of the intersections and interface with the road designs.

All other subdivisional roads, anticipated to accommodate fewer vehicle movements, are proposed generally at 15.4 metres in width as per the recommendations of the Traffic Impact Assessment and in accordance with *Liveable Neighbourhoods*.

In terms of road treatments, Figure 4 of the Traffic Impact Assessment best illustrates those treatments proposed for use within the District Structure Plan. In summary, a standard roundabout is proposed on Isoodon Street at the intersection with Marshall Road west as per the Sub-Regional Structure Plan agreed planning, and subsequently replaced by an alternative roundabout at the intersection of Isoodon Street and Marshall Road east (until such time as the Marshall Road flyover is constructed). The purpose of a two staged roundabout treatment being to initially facilitate an entry into the first stage of development, being the approved Early Release stage one subdivision area, and directing traffic away from the 330KV powerlines. At such time as secondary stages of local structure planning and development evolve, the initial round-about is likely to be replaced by a round-about further northwards, aligning with Marshall Road east to direct traffic into West Swan East at Marshall Road.

Additional smaller roundabouts and traffic control measures, such as raised junctions, signage and differential road pavements, shall be implemented throughout the balance of West Swan East to ensure appropriate intersection and traffic control.

3.10.6 Public Transport

A future public transport route has been designed to run along Arthur Street, coinciding with the nominated Activity Corridor once the Arthur Street flyover has been constructed over the Reid Highway, linking West Swan East with Caversham to the south. The positioning of key facilities, the location of proposed medium density developments and the internal road network reflected on the District Structure Plan have been designed to ensure maximum access for future residents towards this route.

The intersection of the Reid Highway and Drumpellier Drive has been nominated as a possible future transit station as part of the Special Purpose reserve of the MRS. As such vehicular and pedestrian connections via road, footpaths and public open space connections to this site have been maximised, avoiding reliance on Lot 104 for connectivity should this non-Aspen owned site not be developed in the short to medium term.

Until either of the above key public transport routes are operational, Lord Street shall operate as the interim high frequency public transport corridor with a local bus route down Marshall Road past the local centre as per Figure 5 of the Traffic Impact Assessment report. Road connections directly back to Isoodon Street and Marshall Road for pedestrians to follow was a consideration in the District Structure Plan preparation.

3.10.7 Pedestrian & Cycle Movement

A footpath and dual use path network plan for the district is contained at Figure 6 of the Traffic Impact Assessment. This plan identifies the most appropriate footpath and dual use path network throughout the District Structure Plan area, generally aimed at ensuring that a dual use path and a footpath is provided along either side of key neighbourhood connector roads and providing a clear direct off-road connection to major destination points such as the retail centre, future transit node, schools, bus routes and public open space as per the recommendations of Western Australian Planning Commission Policy.

Further, the public open space, as well as the powerline corridor along Marshall Road will also likely act as a pedestrian and cyclist connection.

In addition to the designated path network, provision will be made at the Local Structure Plan stages to ensure roads and public open spaces are located and designed so as to achieve permeable street blocks, good sight lines and direct pedestrian or cyclist routes towards the key destinations.

4.0 ENVIRONMENTAL MANAGEMENT

In accordance with the provisions of Schedule 4 of Town Planning Scheme No.17, comprehensive environmental investigation and reporting has been undertaken for the West Swan Structure Plan site and is lodged as appendices to the Structure Plan Report as follows:

- A Local Water Management Strategy;
- An Environmental Assessment Report;
- A Wetland Management Plan (incorporating mosquito management plan);
- A Field Ambient Odour Impact Assessment Study;
- A Noise Impact Assessment;
- A Preliminary Acid Sulfate Soils Investigation Report;
- A Preliminary Contamination Investigation Report; and,
- An Aboriginal Heritage Report.

These environmental reports and management plans more accurately identify key land capability opportunities and constraints within the subject land which have been incorporated into the District Structure Plan, generally as summarised below.

Further, as per Figure 13, subsequent management plans, or refinements of the above studies as may be necessary, are also required at the applicable local structure plan stages in accordance with Scheme No.17, Council's Urban Growth Policy requirements or previously identified needs which have evolved during the planning process.

4.1 Local Water Management

A Local Water Management Strategy (LWMS) has previously been developed by JDA Consultant Hydrologists on behalf of West Swan Estate Pty Ltd for the West Swan East District Structure Plan area. The compilation of this document has included a range of expertise and guidelines from leading authorities to assist in achieving the implementation of best practice in sustainable urban development and urban water management in West Swan East. The LWMS is consistent with the North East Corridor Urban Water Management Strategy (GHD,2006), prepared on behalf of the Department of Water (DoW) as the overarching regional drainage strategy for the area. It is also consistent with the requirements of the Swan Urban Growth Corridor Drainage and Water Management Plan (DoW, 2009).

The LWMS was prepared to an appropriate level of detail to support both District Structure Plans and individual Local Structure Plans for West Swan East, and has been approved by both the Department of Water (DoW) and City of Swan in June 2009.

The LWMS is consistent with DoW's recommended approach for urban water management and the Western Australia land use planning system as outlined in Better Urban Water Management (WAPC, 2008).

Key elements of the endorsed LWMS have been incorporated into the District Structure Plan preparation, namely allocation of POS credits in the context of drainage requirements and allocation of subsequent local structure plan boundaries to ensure future planning coordinates well with drainage catchment requirements.

4.2 Natural Vegetation

The District Structure Plan has specifically been designed to protect what little remnant vegetation remains on site through inclusion in public open space, wetland buffers and road reserves so as to retain the environmental or aesthetic qualities where possible, noting however the need to balance vegetation retention in POS with providing active sporting areas, as such some vegetation may be removed and replaced with revegetation of native species.

The natural vegetation includes the fringing wetland vegetation located close to the Resource Enhancement Wetland is intended for preservation and subsequent enhancement as part of the public open space strategy and wetland management plan implementation at the local structure plan and subdivision stages.

4.3 Wetland Management

The Resource Enhancement Wetland (REW) is included within a proposed area of POS, as is the required nominal 50m buffers.

As mentioned above, a Wetland Management Plan* has been prepared for the wetland area and is contained at Appendix 9. Further refinement of the Wetland Management Plan will be undertaken at the relevant Local Structure Plan stage to address the following, as agreed with the DEC:

- The actual wetland buffer distance, based upon the wetland's ecological values, attributes and functions, if it is different to the 50m interim buffer;
- The compatibility of drainage infrastructure within the wetland buffer;
- The buffer's suitability as public open space, based upon its ecological function and its usability and accessibility to the public;
- outline reasonable alternative solutions should the relevant authorities deems the site unsuitable for POS and/or drainage.

Further, the DEC has advised that any such site specific studies shall also have due regard to DEC Guidelines (*Guidelines checklist for preparing wetland management plans*).

The City of Swan has advised that for resource enhancement wetlands it will require the developer(s) to maintain and monitor wetlands and mosquito control programs, as per local planning policy (currently a five year period).

*It is noted that the Wetland Management Plan includes a former Resource Enhancement Wetland located at the corner of Arthur and Harrow Street. This wetland was subsequently re-classified as a 'Multiple Use' Wetland by the Department of Environment Regulation, thereby enabling development to take place over the affected land.

4.4 Odour Management

The odour assessment (Appendix 5) revealed no odours of significance associated with past or present land uses.

In addition, a small number of lots in the DSP, west of Lord Street, are within 500m of a chicken farm operation located at 60 Cheltenham Street, West Swan. This buffer restricts "sensitive uses", as defined in State Planning Policy but it should be noted that the farm is zoned 'Urban Deferred' under the MRS.

The 500m buffer around the chicken farm shall prevent Sensitive Uses until:

- an endorsed technical odour study determines that this buffer may be removed, reduced and/or propose appropriate mitigation measures to the satisfaction of the WAPC; or,

- until the chicken farm's use rights have been extinguished.

4.5 Noise Management

As recommended in the Noise Impact Assessment (Appendix 6), there is a need for noise attenuation along the Reid Highway and future Perth-Darwin Highway boundary, which includes an acoustic sound wall of a minimum height of 2.7 metres, or similar approved measure, to be constructed at the time of subdivision works to the specifications of Main Roads WA.

Dwellings that are within Exposure Level 2 will require notification on their lot titles advising of the possible noise impacts and Quiet House Design measures will be applied to dwellings to achieve the recommended acceptable internal noise levels of AS107:2000.

4.6 Acid Sulfate Soils

The preliminary assessment (refer Appendix 7) indicates that the potential for acid sulfate soils is minimal and shall not impact on the Structure Plan design. Any future dewatering controls will be implemented, which is a standard requirement in support of a dewatering license and a component of any Acid Sulfate Soil Dewatering Management Plan.

4.7 Contaminated Sites

A Preliminary Contaminated Sites Investigation (Appendix 8) has been undertaken revealing no significant contamination that cannot be readily removed or remediated. Further ongoing more detailed investigations are also required, some of which are being progressed, to satisfy EPA and Council requirements as part of the more detailed local structure plan and subdivision processes, as is also noted in Figure 13.

4.8 Aboriginal Heritage

As identified in the Aboriginal Heritage Report (Appendix 10), the two identified sites of Aboriginal heritage significance, being a well and a drainage line with agreed 20m wide buffer, have each been notated on the District Structure Plan and incorporated into public open space for ongoing protection.

The City of Swan has advised that it requires a concept plan and clarification on any constraints that the heritage sites may cause for public utility and maintenance with the relevant local structure plans.

With respect to the first 36ha of Stage 1, the requirements of a Section 18 have been met and the Department of Indigenous Affairs (DIA) has no objections in relation to that portion of the DSP. For the remaining area, DIA advises that further archaeological investigations are required to supplement to the findings of Appendix 10. This will be addressed through a Cultural Heritage Management Plan to be submitted as part of the Local Structure Plans as per the provisions of Appendix 4, No.11, Clause 5.3.3 of LPS 17.

5.0 SERVICING INFRASTRUCTURE AND UTILITIES

The following is an overview of the engineering considerations that relate to the proposed future servicing of the site, noting that the redevelopment from rural-residential to residential purposes will necessitate some relocation and upgrading of infrastructure currently servicing the site as a whole, as well as constructing new services, ultimately ensuring that the development is fully serviced. A full engineering servicing report prepared by Tabec is contained at Appendix 2 and summarised at Figure 11.

5.1 Power

All power lines, with exception of the 330 and 132 KVA lines, will be relocated underground as part of the subdivision construction and Western Australian Planning Commission approval requirements. The existing 330KVA and 132KVA powerlines along Arthur Street and Marshall Road reserves will be maintained at their current status.

As per the Sub-Regional Structure Plan, a 2ha Western Power substation site is required generally near the intersection of Marshall Road and the Perth Darwin Highway, readily accessible via the 330 and 132 KVA powerlines. The location of which is still being negotiated.

5.2 Communications

Connection to all normal telecommunication services will be made available in a timely manner.

5.3 Water

The Water Corporation's current planning is for the installation of 2690m of 600mm water main from the intersection of Benara and Altone Roads to the intersection of Patricia Street and Lord Street extension. This is intended to improve the supply of water to residential areas in Caversham. Design works are well progressed for this service. From here the Water Corporation's planning is for the construction of a 250mm water main east along Patricia Street then north along Arthur Street, which will provide a water supply for the initial stages of the West Swan (East) District Structure Plan area. This 250mm water main will be constructed as part of the development to be completed to the south of the subject land, owned by Qube. As such it will be completed in a staged approach and therefore co-operation is required between the developers to ensure the timely delivery of services.

The provision of water services is an iterative process and will be confirmed with the Water Corporation, and further dialogue is expected.

All lots will be provided with connections in accordance with Water Corporation requirements via the installation of water reticulation throughout the subject area within the common trench, along with other essential services. The Water Corporation's expectation is that the developer shall fund all water, sewer and drainage reticulation and contributions towards headworks may also be required. Additionally, the developer may be required to fund new works or the upgrading of existing works and protection of those works. Any temporary works will need to be fully funded by the developer and land ceded for these works. Developers will therefore liaise with the Water Corporation at:

- The preliminary planning stage of any development to determine the Corporation's current servicing and land requirements; and/or;
- Every 6 months to confirm if the information provided is still valid.

5.4 Sewer

The provision of reticulated sewer to the district is intended as a three phase process.

The first stage land release area (being the 500 lots in the south-west of the district) requires the construction of a Type 40 pumping station on Qube land in Patricia Street near the lowpoint in the site in the vicinity of the ungazetted tributary, with rising main infrastructure to connect into an existing gravity sewer near the intersection of Patricia and Bennett Streets. The sewerage pumping stations and rising mains are developer funded works. These works will be funded through an agreement with Qube (developers to the south).

The ultimate reticulated sewer expansion to service the balance of the West Swan East catchment, as well as other developments in Caversham to the south, requires the construction of a Type 180 Pumping Station near the intersection of Benara Road and Bennett Street. There is potential that this will be constructed in a staged approach starting as a Type 40, then Type 90 pumping station up to its final configuration as a Type 180 PS, (this will be determined in an upcoming Project Design Review or PDR which will be undertaken by the Water Corporation). The Water Corporation requires developer contributions towards the purchase of the landholding for the pumping station site. The infrastructure includes the construction of a rising main connecting the proposed pump station to infrastructure approximately 4 kilometres away near the intersection of Benara Road and Tonkin Highway.

The internal servicing of the district will be via the Water Corporations' two separate sewerage catchment areas which includes a smaller catchment and associated Type 10 pump station (pumps at a maximum rate of 10 litres per second) that is contained entirely within the site and located along the eastern boundary of the district structure plan area and includes less than one third of the overall development area. The second larger catchment includes the remainder of the structure plan area and is part of a much larger catchment that also includes all of the developable area south of Reid Highway immediately adjacent to the site and east to Bennett Brook as well as much of the land to the west of the site, which is the West Swan (West) Structure Plan area. The smaller catchment will then discharge, via a 100mm rising main, into the larger overall catchment.

The entire development will be serviced by reticulated gravity sewer. Earthworks may be required in the north-east and north-west to achieve lessened excavation depths in the southern sections of the site and into the Qube properties to the south.

Aspen Group has negotiated connection to the proposed Type 40 pumping station in Patricia Street via Arthur Street, and in a southerly direction under the Reid Hwy to Patricia Street in Caversham, then west along Patricia Street adjacent to the proposed Qube development. This alignment has been agreed by both Qube and the Water Corporation as suitable for development.

All future lots will ultimately be provided with connections in accordance with Water Corporation requirements, noting that the developer is expected to fund all sewerage reticulation and contributions for sewerage and drainage headworks may also be required as per Section 5.3 above.

5.5 Site Drainage

Development outfall flows will need to be limited to pre-development flows, necessitating installation of compensating basins with the accompanying nutrient stripping facilities. This is addressed in the report by JDA Consultants contained at Appendix 4, but in essence will involve provision of piped street and roof drainage water to site retention swales and compensating basins, with the major storm (greater than 1 in 10 year) being discharged offsite via existing drainage installations. The endorsed Local Water Management Plan prepared for West Swan East addresses the flow discharges.

Site disposal of roof drainage will be via soakwells where capacity to infiltrate stormwater exists. Fill will be required to lift developed lots to the level above the Contour Ground Water Level as required by the Western Australian Planning Commission, and as agreed with the City of Swan, JDA Consultants and Tabec Engineering Consultants.

5.6 Gas

A 350mm steel high pressure gas distribution pipeline exists parallel to Marshall Road within the subject area, as noted on Figure 11. Detailed drawings for any construction or excavation proposals within 15m of this pipeline will be required to be provided to WestNet Energy for approval and/or comment prior to works.

Gas is not an essential service required as a condition of subdivision by the Western Australian Planning Commission, however extensions to bring gas infrastructure to the subject area from approximately 2 kilometres to the west along Marshall Road is intended in order to service all future lots in West Swan East.

6.0 LOCAL STRUCTURE PLANS

6.1 Overview

In accordance with Local Planning Scheme No.17, Local Structure Plans (LSP) and their associated management plans/studies are required to refine planning and land use coordination within the District Structure Plan area, ultimately guiding subdivision and development. The proposed LSP cells are notated on the District Structure Plan, formulated with consideration to:

- existing landownership;
- utilisation of logical boundaries such as existing road;
- distribution of public open space to ensure provision of parks in a staged manner;
- ease of servicing; and,
- drainage catchment areas as defined in the Local Water Management Strategy.

Note also that LSP 2a and 2b may ultimately be combined into the one Local Structure Plan depending upon developer and landowner coordination and market demand.

6.2 Local Structure Plan Yields

As also notated on the District Structure Plan, the estimated allocation of residential yields and public open space within each proposed LSP cell is summarised as follows, each LSP shall then illustrate how these yields are distributed across their respective cells.

TABLE 6 – Estimated Yields Per LSP Cell

LSP	Gross Area	Gross Subdivisible Area ¹	Gross Residential Area ²	Nett Residential Area ³	Low Density	Medium Density	High Density	Total Dwelling Yield ⁴	Gross POS	POS Credit ⁵
1	65.27	61.87ha	56.87ha	41ha	100	690	300	1090	5.59ha	4.71ha
2A	67.2	60.4ha	55ha	38ha	530	200	0	730	5.37ha	4.1ha
2B	48.8	42.9ha	36.25ha	24ha	360	160	0	520	6.52ha	2.7ha
3	10.83	3.57ha	0ha	0ha	0	0	0	0	0.85ha	0.79ha
4	63.9	63.7ha	43.63ha	31ha	290	464	0	754	17.85ha	14.7ha
Total	256ha	232.44ha	191.75ha	134ha	1280	1514	300	3094	36.45ha	11.6%1.7%)

¹Gross Subdivisible Area as defined in DC Policy (ie excludes schools, substation site, western power infrastructure and commercial land uses).

²Gross Residential Area as calculated from District Structure Plan (eg excludes only those roads shown on DSP). Differences may exist between estimated yields calculated using broad DSP assumptions and those calculated using overall concept subdivision plan yields (being a plan that has no status but is considered more realistic plus factors in even 'local' roads).

³ Nett Residential Area excludes local roads, drainage and POS (equates to approximately 75% of Gross Residential Area).

⁴ Total dwelling yield assumes lots developed in accordance with applicable Residential Design Code (R Code) minimum average density.

⁵ POS Credit as per Liveable Neighbourhoods and LWMS calculations noting that these are estimates only on a LSP basis and shall be further refined and confirmed at the individual local structure planning stages.

As a minimum requirement, the equivalent yield in a Local Structure Plan is to be no less than 90% of the above yield estimated for that local structure plan area. The 10% variation is to accommodate potential development constraints and other unforeseen circumstances that adversely impact on yields determined during structure planning or to allow for some minor changes over time.

A Local Structure Plan estimated yield less than the target 90% of the above is inconsistent with the planning objective of this DSP, however, a further variation may be considered appropriate if:

1. It is demonstrated that it will not prejudice the specific purposes and requirements of the Swan Urban Growth Corridor Sub-Regional Structure Plan, District Structure Plan or orderly and proper planning; and,
2. The West Swan East District Structure Plan is amended to reflect these outcomes; or,
3. Where a landowner(s) has made other arrangements with the local government to satisfy clause 5A.2.7.3 of LPS 17.

7.0 DEVELOPMENT STAGING STRATEGY

The first stages of urban development in West Swan East are likely to commence within the south-west quadrant where Early Release Subdivision Approval has been granted by the State Administrative Tribunal, subsequently radiating north and eastwards depending upon servicing availability and timing and developer intentions, guided also by the progression of the relevant Local Structure Plan preparation and finalisation.

See the timing of provision table in the Community Economic Development Plan (Appendix 13, Section 5) for an estimation of lot release. A more detail account of development staging and servicing priorities within each cell will be outlined in the relevant Local Structure Plan.

8.0 DEVELOPER CONTRIBUTION & FINANCIAL ASSESSMENT

West Swan East is identified within a 'Developer Contribution Area' under Schedule 13 of Local Planning Scheme No.17, requiring the preparation of a Developer Contribution Plan (DCP) to ensure the equitable distribution of development costs between stakeholders. In this regard, the Developer Contribution Plan is the mechanism to deliver the District Structure Plans outcomes.

Aspen Group has prepared a Financial Assessment Report (Appendix 15) as per the Urban Growth Policy requirement and its recommendations will be used to refine the scope of infrastructure and costs to be included in the DCP. The following principles of implementation outline how sharing of development cost between stakeholders will be achieved:

1. Landowners within the West Swan East District Structure Plan area will be required to pay for shared infrastructure costs as defined in the final DCP covering the area.
2. Should any subdivision be considered prior to adoption of the DCP for whatever reason, such a landowner will be required to enter into a Deed of Agreement with the City of Swan prior to application for subdivision, which is to act as a financial security to secure payment of any monies owed (to either party) under the final DCP.
3. Preliminary contributions for the purpose described in (2) above will be calculated using one of the following mechanisms:
 - (a) The final DCP;
 - (b) In the absence of the final DCP, a Council endorsed Infrastructure Strategy for Development Contributions (ISDC); or
 - (c) In the absence of a Council endorsed ISDC, Council's consultants to provide the costs based on the most current draft of the relevant Policy and/or Strategy (ISDC);
4. In addition to the abovementioned preliminary contributions, developers will be required to provide an additional security to the value of 50% of that contribution.
5. The DCP will include cost estimates for car parking, external services to site (where applicable), earthworks, landscaping, servicing connections and headwork charges for community facilities.
6. At its endorsement, the DCP will not include the City within its funding model for Community Infrastructure items. Council may however consider subsidising specific infrastructure items, in accordance with Section 5.4 of the ISDC Policy, as planning becomes more refined.
7. A successful third party grant application funding a DCP item can reduce the contribution rate for developers but until such time as the grant is secured, the DCP's will seek the full cost from landowners.

8. The components of the DOW in Appendices 13 and 14 have been presented as an indicative guide that will be finalised through the City's concept planning of the site. Once concept planning/feasibility studies have been prepared for the DOS, the DCP's assumptions, embellishment and contribution rates will be revised.
9. A 3ha neighbourhood playing field, its associated embellishments and a 200m² change room within the DOW will be funded by the West Swan East landowners. The development of the district facilities however remains the responsibility of the Sub Region, as per the Sub Regional Structure Plan and the City's Infrastructure Strategy for Development Contributions.
10. The proposed size of the local community building in Section 3.7 of Appendix 13 is larger than what the City requires for such a facility. A facility with an area of 335m² complies with the City's recently adopted Community Building Design Guidelines and will be reflected in the DCP.
11. Local Structure Plans will have due regard to the estimated yields in Table 6 and the process defined in Section 6.0 of this Report.
12. Local Structure Plans will include in their documentation as much detail as is available to the estimated cost and development timeframes. Once endorsed, this will be incorporated into the DCP through the local government's annual review, as required by LPS 17 and the ISDC (TP-138).
13. Where the recommendations in Appendix 13, Appendix 14 and Appendix 15 conflict with any of the above principles, the principles listed herein takes precedence.

9.0 CONSULTATION

During the preparation of the District Structure Plan the following agencies were consulted either during the initial plan preparation stages or during the formal referral period of the draft DSP in early 2009 (or both):

- City of Swan;
- Department of Planning;
- Department of Water;
- Western Power;
- Water Corporation;
- Department of Education and Training;
- Public Transport Authority;
- Swan River Trust;
- Department of Indigenous Affairs;
- Westnet Energy;
- Department of Environment and Conservation;
- APT Parmelia Pty Ltd;
- Main Roads WA;
- Department of Health;
- Telstra;
- Alinta Gas.

In addition, Aspen Group initiated several pre-planning and information sessions to which existing landowners and interested parties were invited to attend. An onsite West Swan East Aspen Group representative assisted in this regard.

Further, numerous meetings were facilitated by the City of Swan and Department of Planning as part of the associated Swan Urban Growth Corridor Sub Regional Structure Plan to assist in coordinating the larger adjoining developers within the broader sub region to ensure key infrastructure and land use cooperation and connectivity resulted.

With respect to future consultation, Aspen Group has formally committed in writing to the City of Swan to disseminate information to interested parties and to conduct an information session during the formal public consultation period in which all landowners shall be invited to attend. The formal statutory advertising period also offers the opportunity for further input from all interested government agencies, non government organisations and individuals.

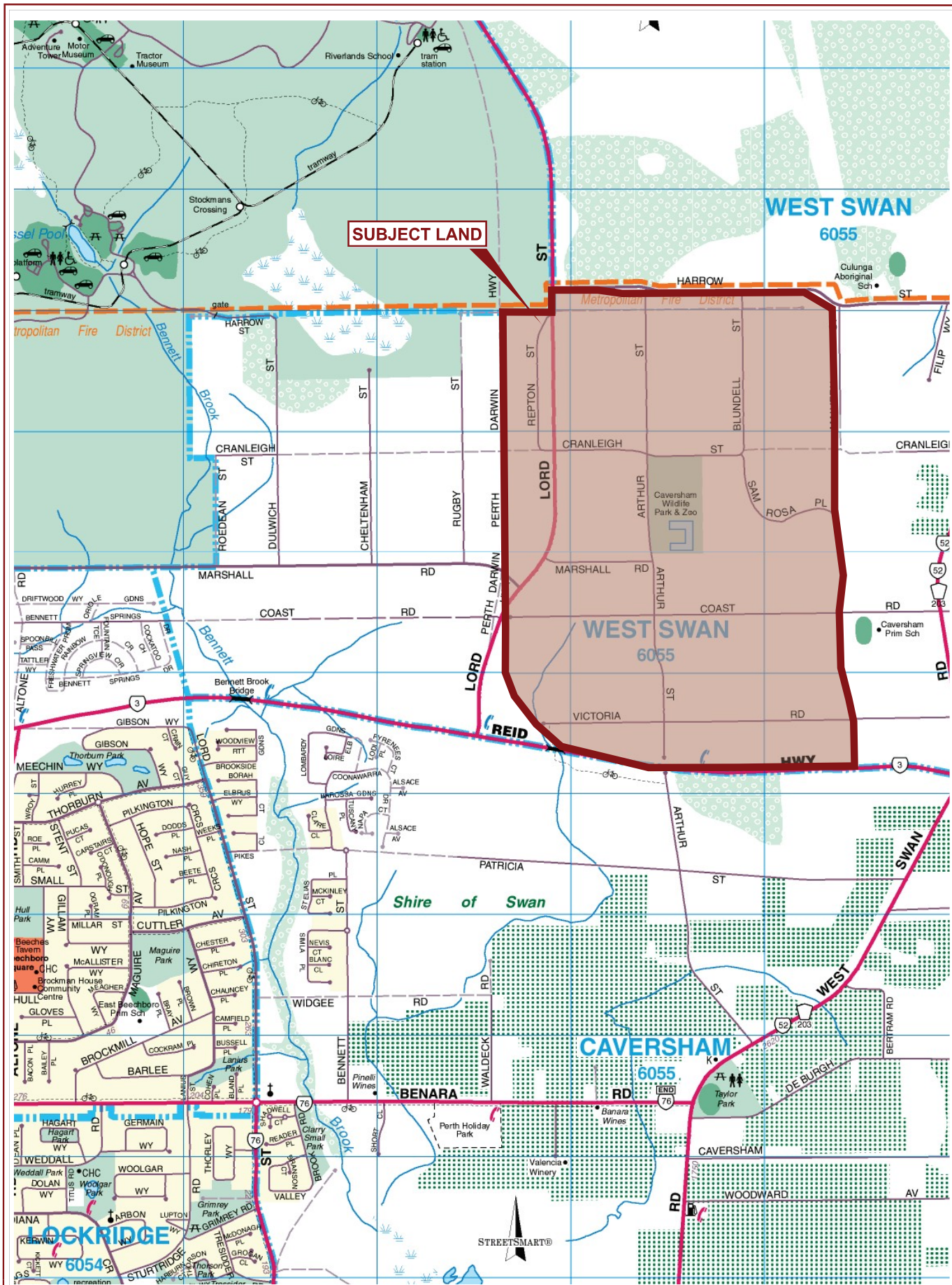
10.0 CONCLUSION

The West Swan East District Structure Plan report and accompanying plan and appendices satisfies Council's Scheme requirements with respect to a District Structure Plan being in place prior to the more detailed Local Structure Plan endorsement and substantive subdivision and development of the land.

The Structure Plan as described in this report satisfies the planning frameworks adopted by the City of Swan and the Western Australian Planning Commission and the previous advice received during consultation with other agencies. The Plan should ultimately assist in achieving a contemporary and well integrated suburb that helps provide a transition from west to east and south to north (both via the road and path network, public transport access, land use allocation and residential densities) whilst creating its own vibrant heart centred around a local commercial main street and district level sporting and conservation amenities, linked by an Activity Corridor.

In light of the above, the District Structure Plan as submitted would represent a logical, well planned and timely addition to the ongoing development of the City of Swan's Urban Growth Corridor.

FIGURE 1
LOCATION PLAN



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TOWN PLANNING • URBAN DESIGN

DWG No : ASP WES-9-03
DATE : 04.11.09
SCALE : N.T.S

LEGEND:

Subject Land.....



SOURCE: Street Smart 2008



LOCATION PLAN
WEST SWAN (EAST)

FIGURE 2
ORTHOPHOTO



0 50 100 150 200 250m
SCALE: 1:6000@A3

LEGEND:

Subject Land..... 



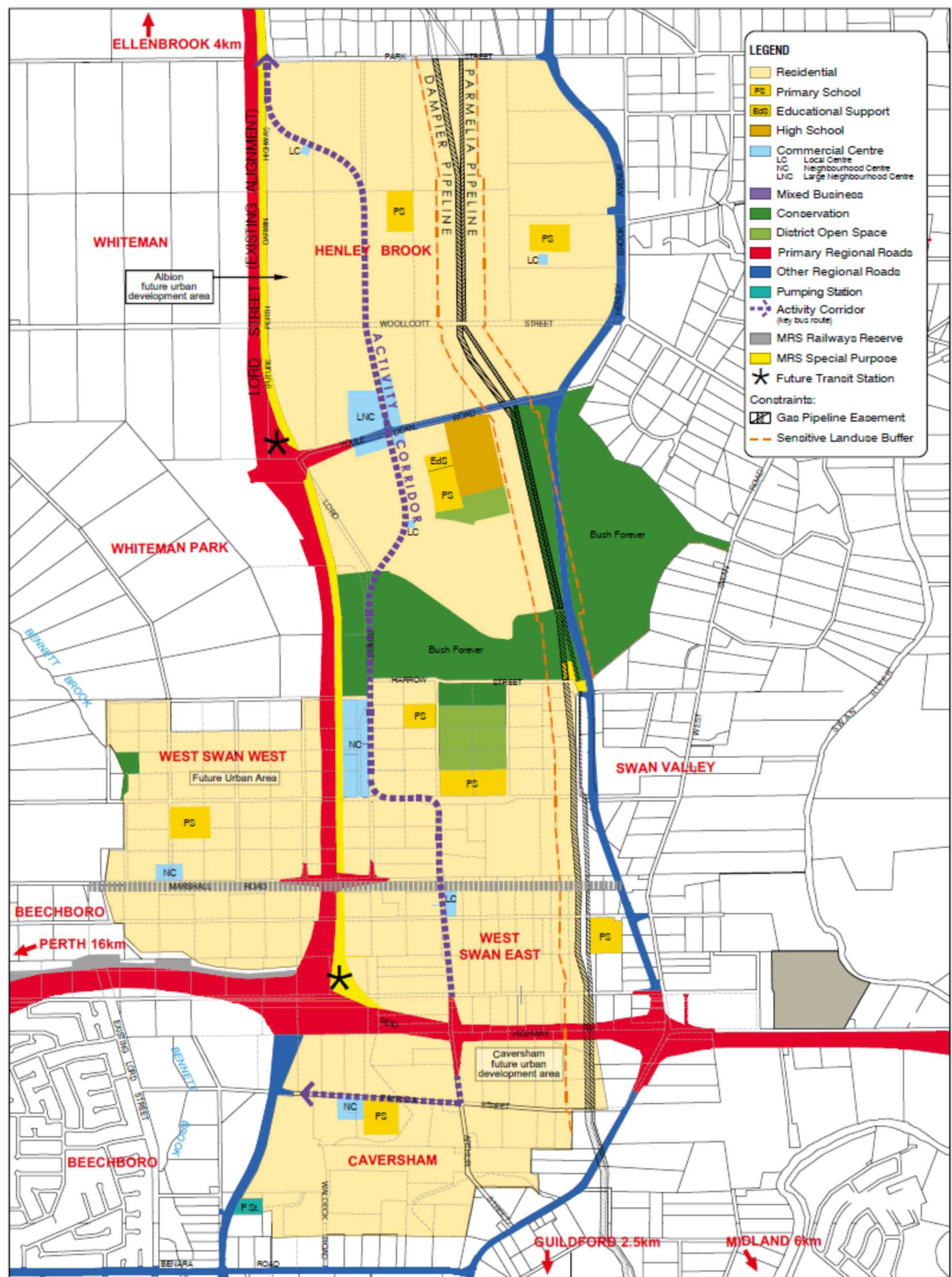
ASP WES-10-1 : DWG No
1:6000 @ A3 : SCALE
25.09.2008 : DATE



**WEST SWAN (EAST)
AERIAL BASE PLAN**

FIGURE 3

LOCALITY CONTEXT



burgess design group
Town Planning & Urban Design

DWG No : ASP WES-9-02
DATE : 16.09.08
SCALE : N.T.S



**SITE CONTEXT
PLAN**
WEST SWAN (EAST)

FIGURE 4

METROPOLITAN REGION SCHEME MAP

EXTRACT

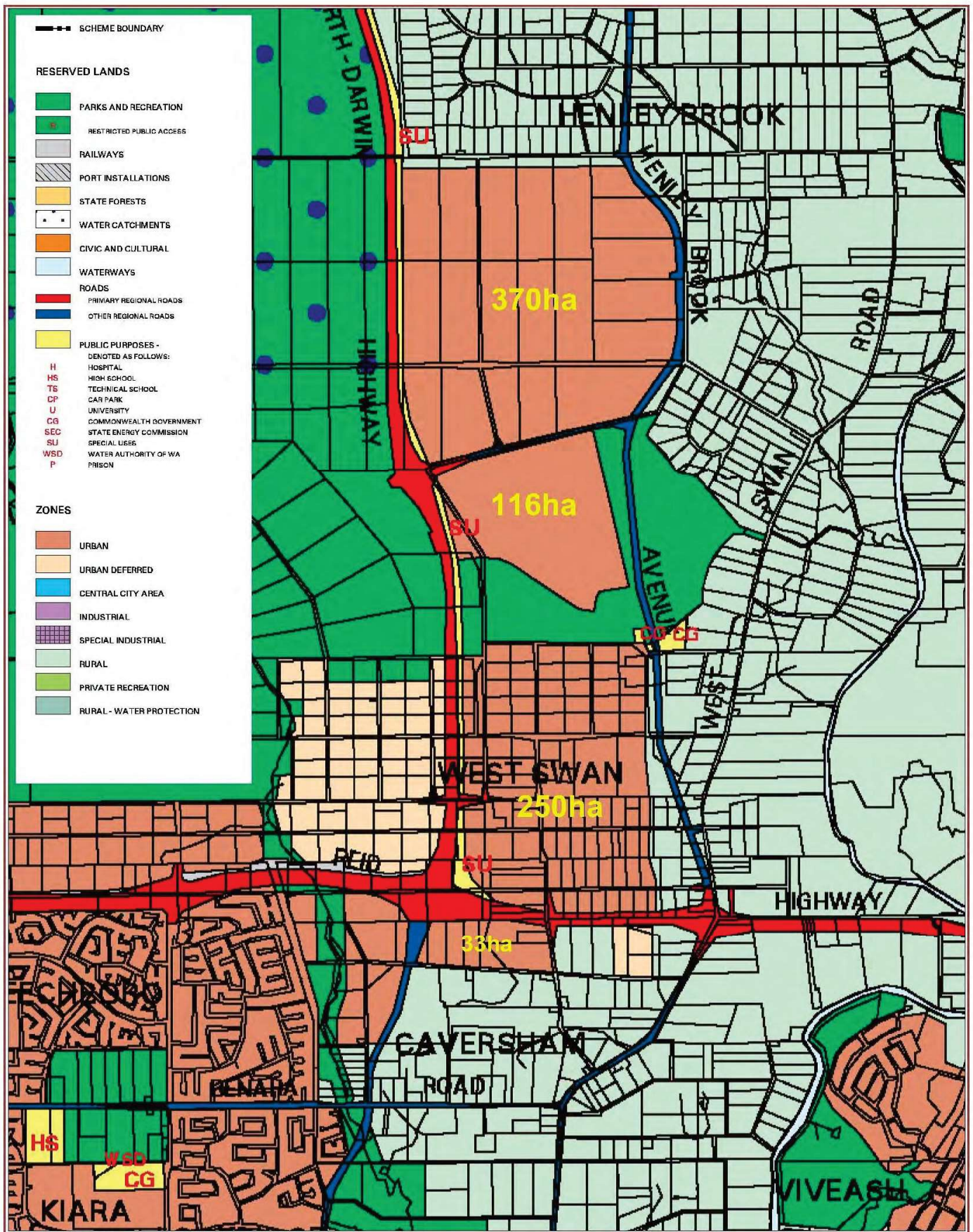
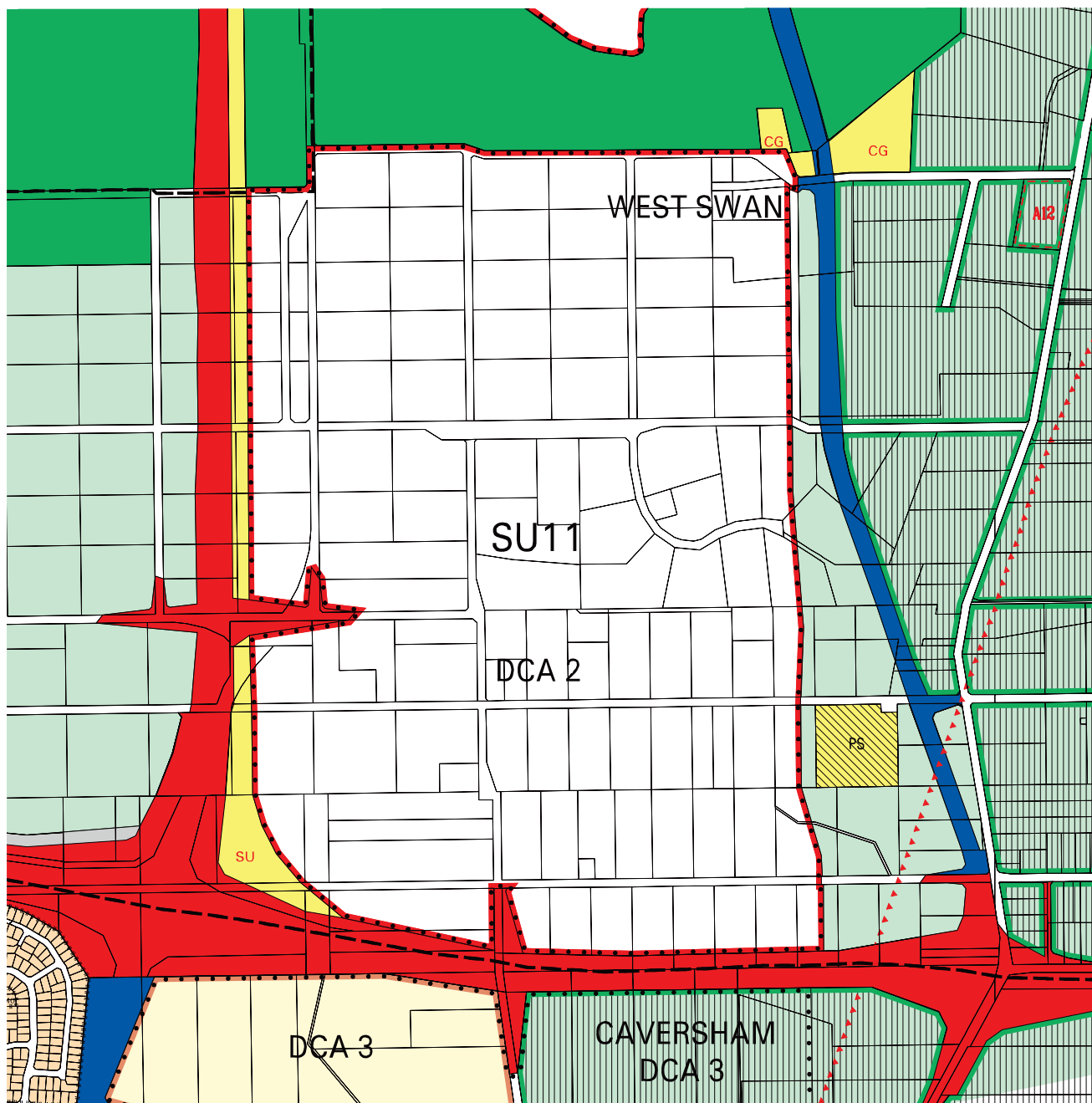


FIGURE 5

LOCAL PLANNING SCHEME 17 MAP EXTRACT



LEGEND

MRS RESERVE

- PARKS AND RECREATION
- PRIMARY REGIONAL ROADS
- OTHER REGIONAL ROADS
- PUBLIC PURPOSES -
DENOTED AS FOLLOWS:
- CG COMMONWEALTH GOVERNMENT
- SU SPECIAL USES

LS RESERVE

- LOCAL ROAD
- PUBLIC PURPOSES
DENOTED AS FOLLOWS:
- PS PRIMARY SCHOOL

ZONING

- RESIDENTIAL
- RESIDENTIAL DEVELOPMENT
- RESIDENTIAL REDEVELOPMENT
- SPECIAL USE
- PRIVATE CLUBS & INSTITUTIONS
- GENERAL RURAL
- SWAN VALLEY RURAL

OTHER

- AI ADDITIONAL USES
- RI RESTRICTED USES
- LOCAL GOVERNMENT BOUNDARY
- MUNICIPAL BOUNDARY
- STRATEGIC REGIONAL
CENTRE BOUNDARY
- SU2 SPECIAL USE AREA
(SEE SCHEME TEXT)
- ▲▲▲▲ AIRCRAFT NOISE EXPOSURE
- NO ZONE



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ARCHITECTS • PLANNERS • ENGINEERS

DRAWING NUMBER: DATE:
ASP WES-7-01 29.08.2008

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CITY OF SWAN LOCAL PLANNING SCHEME No 17 (DISTRICT SCHEME)

SOURCE: City of Swan, Western Australian Land Information Authority GL248-2007-2

FIGURE 6
SITE ANALYSIS

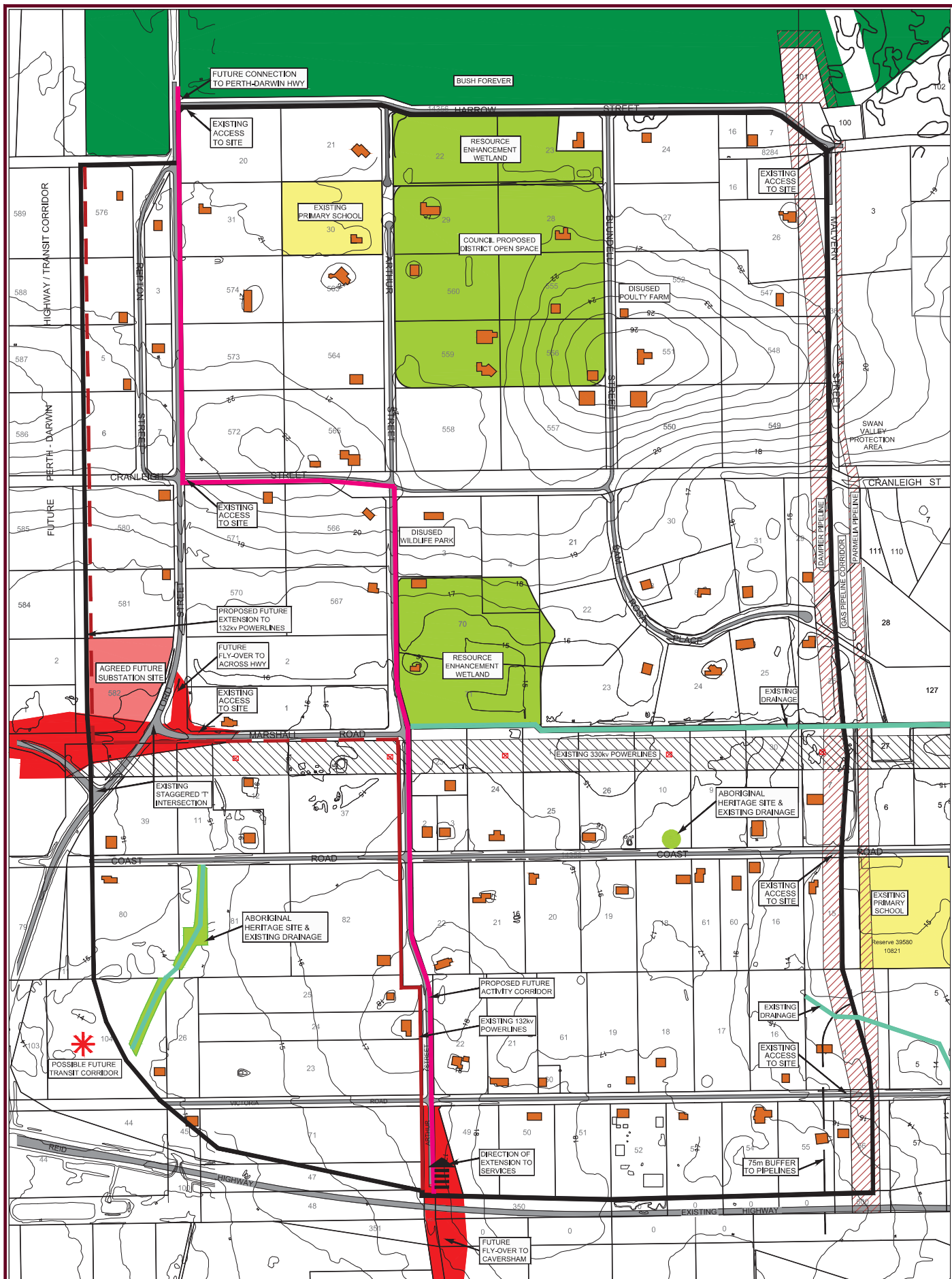


FIGURE 7

OPPORTUNITY AND CONSTRAINTS SUMMARY

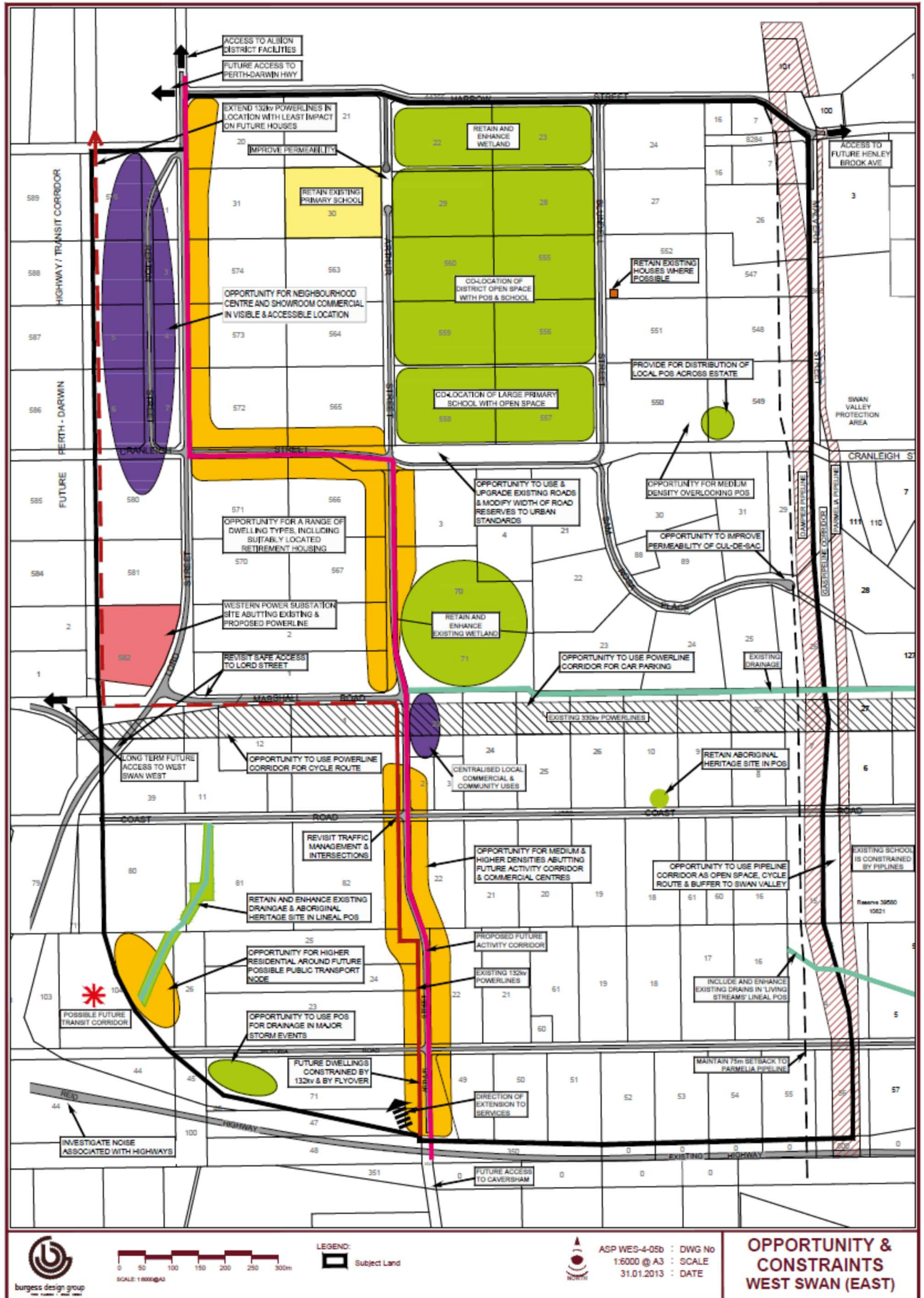
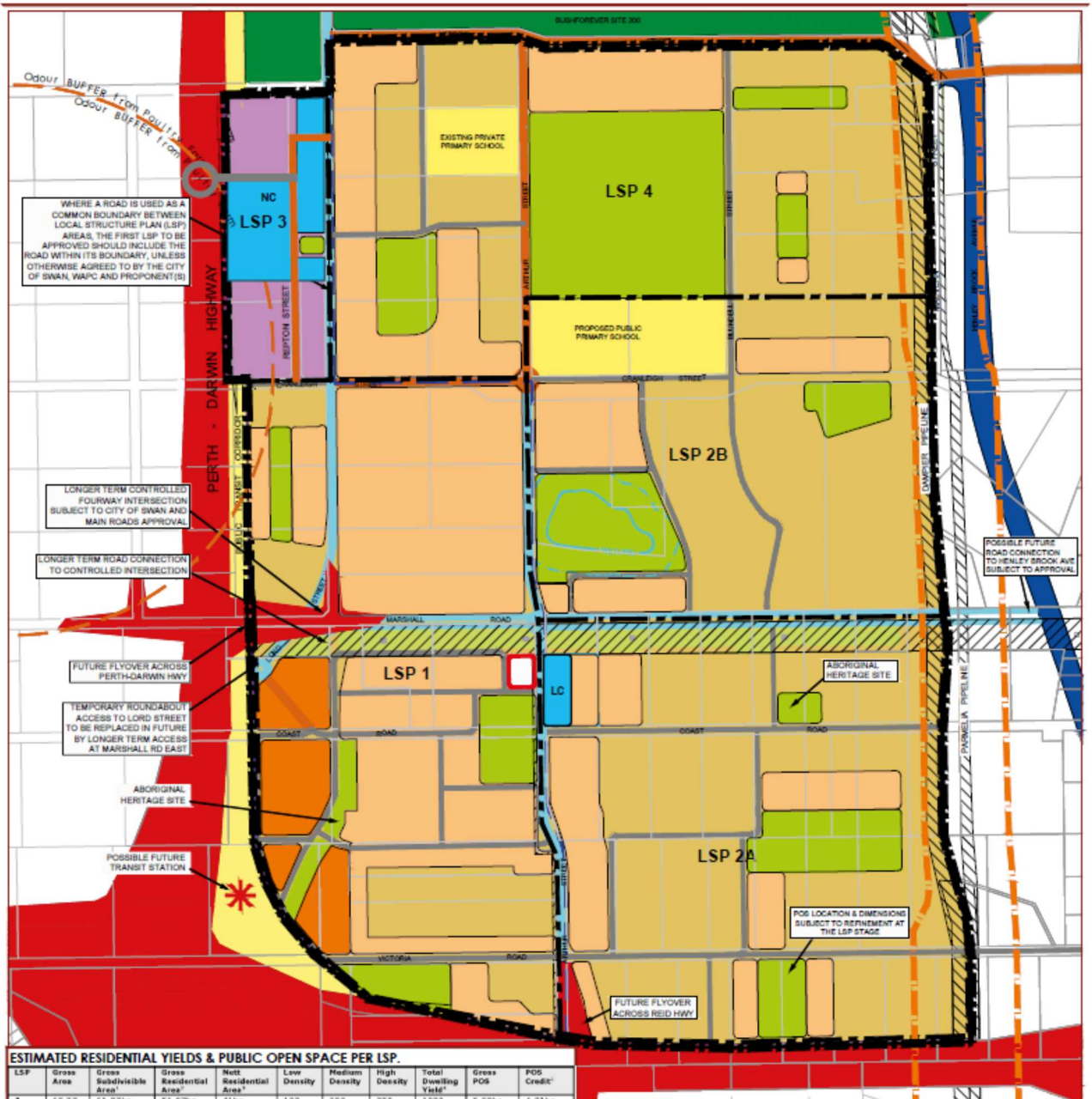


FIGURE 8

DISTRICT STRUCTURE PLAN



ESTIMATED RESIDENTIAL YIELDS & PUBLIC OPEN SPACE PER LSP

LSP	Gross Area	Gross Subdivisible Area ^a	Gross Residential Area ^a	Net Residential Area ^a	Low Density	Medium Density	High Density	Total Dwelling Yield ^a	Gross POS	POS Credit ^b
1	65.27	61.87ha	56.87ha	41ha	100	690	300	1090	5.59ha	4.71ha
2A	67.2	60.4ha	55ha	38ha	320	200	0	720	5.37ha	4.1ha
2B	42.8	42.5ha	35.15ha	24ha	360	160	0	520	6.32ha	2.7ha
3	10.83	3.57ha	0ha	0ha	0	0	0	0	0.11ha	0ha
4	63.9	62.7ha	43.53ha	31ha	290	464	0	754	17.05ha	14.2ha
Total	256ha	232.44ha	191.75ha	134ha	1280	1514	300	3094	36.44ha	28.21ha (11.3%)

All figures are estimates only & subject to refinement at the local structure planning stages.

NOTES

PUBLIC OPEN SPACE AND DRAINAGE

Public open space and drainage areas are indicative and subject to detailed design and modelling at the Local Structure Plan stage.

DISTRICT OPEN SPACE FACILITIES

Three of district open space facilities are to be located within a minimum of 10ha of public open space, adjacent to the Public Primary School along Arthur Street.

SERVICE COMMERCIAL

Uses within the site are to be the Service Commercial use class table listed in the District Structure Plan with emphasis on creating a mixed business service commercial development site, and an activity core (local centre) with a maximum NLA of 1000m².

LOCAL NEIGHBOURHOOD CENTRE

Uses within the local neighbourhood centre site are as per the City of Swan General Commercial use class with emphasis on encouraging a main street style local neighbourhood centre.

SPECIAL USE - COMMUNITY SITE

Uses within the site are generally intended for civic and community purposes, with emphasis on a design complementary to the Activity Corridor and public open space.

HERITAGE

The identified heritage sites are to be protected within public open space or otherwise, subject to detailed design of the Local Structure Plan stage.

RESIDENTIAL

Uses within Residential areas are as per the City of Swan Residential Zone use class. Residential densities are indicative only and shall be confirmed at the local structure plan stage, aiming to achieve a minimum of 20 dwelling units per hectare across the structure plan area with higher/medium densities concentrated along the Activity Corridor, Commercial centre and areas of POS.

ACTIVITY CORRIDOR

The Activity Corridor is intended as the central spine for movement and activity connecting Alton with Caversham through West Swan and shall provide the function of a frequent public transport route with higher residential densities, home based businesses and some commercial and community uses encouraged alongside it.

INFRASTRUCTURE CORRIDOR & EASEMENT

Use, development and ownership of the infrastructure corridor & easement are to be to the satisfaction of the City of Swan and Western Power and is subject to more detailed design at the Local Structure Plan stage.

GAS PIPELINE SETBACK

Use and development within the gas pipeline setback area is restricted and subject to further refinement at the Local Structure Plan stage.

LOCAL STRUCTURE PLANS

Subdivision and development of the subject area is to be in accordance with an endorsed applicable Local Structure Plan unless otherwise approved by the City of Swan and/or Western Australia Planning Commission.

LEGEND

- Subject Area
- Low Density Residential (R5-R20)
- Medium Density Residential (R20-R60)
- High Density Residential (R60-R100)
- Neighbourhood Centre
- Local Centre
- Service Commercial
- Primary Schools
- POS/Drainage/Conservation Area
- Special Use - Community
- Powerline Easement
- Gas Pipeline Easement
- Infrastructure Corridor
- Dual Lane Roundabout
- Gas Pipeline Setback
- Noise Attenuation
- Measures as appropriate
- Odour Buffer
- Possible Future Transit Station
- Activity Corridor
- MRS Primary Regional Road
- MRS Other Regional Roads
- Integrator B Road
- Neighbourhood Connector Road
- Access Streets
- Gas Public Purpose Reserve
- Local Structure Plan Boundaries

FIGURE 9

PUBLIC OPEN SPACE STRATEGY



REFER CITY OF SWAN DAYTON DCP
OVERALL POS SCHEDULE - TABLE 1

LEGEND

	MRS Primary Regional Road		Special Use-Community		Bush Forever Site
	MRS Other Regional Roads		Powerline Easement		Proposed Passive Recreation
	MRS Public Purpose Reserve		Gas Pipeline Easement		Proposed Active Recreation
	Integrator B Road		Wetland		200m Radius Pedshed
	Neighbourhood Connector		50m Welland buffer		
	Access Streets				

NOTES

1. All above areas of public open space, wetland and community use sites are subject to further refinement and design at the local structure plan stages.
2. The differentiation between passive and active recreation areas are notational only, based upon anticipated uses and existing constraints, to be further refined in subsequent landscape and wetland management plans.
3. Local wetland management plans are to be prepared for POS 156 at the local structure plan stage(s) to further determine the appropriate wetland buffer distances and uses within the buffer areas.
4. POS 1 comprises 13ha of district open space facilities partially funded by the Sub Region, the uses within to be refined at the local structure plan stage, noting that this site offers both a local and district function.
5. Other than the district facilities contained within POS 1, developers will be responsible for maintaining public open space in accordance with Council policies (currently for a five year time period), during which time any design faults shall also be rectified. A time period less than that specified in Council policy may be negotiated by the City and developers in special circumstances.
6. Two Aboriginal heritage sites are identified within the area and are proposed to be incorporated into POS. See Section 4.8 of the DSP Report, Figure 13 and Appendix 10 for clarification.

FIGURE 10
LAND USE TYPOLOGIES



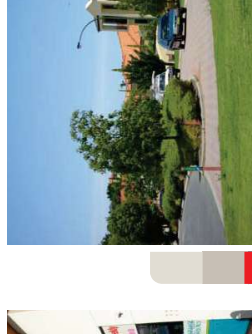
LOW DENSITY RESIDENTIAL - 1280 DWELLINGS



MEDIUM DENSITY RESIDENTIAL - 1310 DWELLINGS



HIGH DENSITY RESIDENTIAL - 300 DWELLINGS


















6.5HA of SERVICE COMMERCIAL

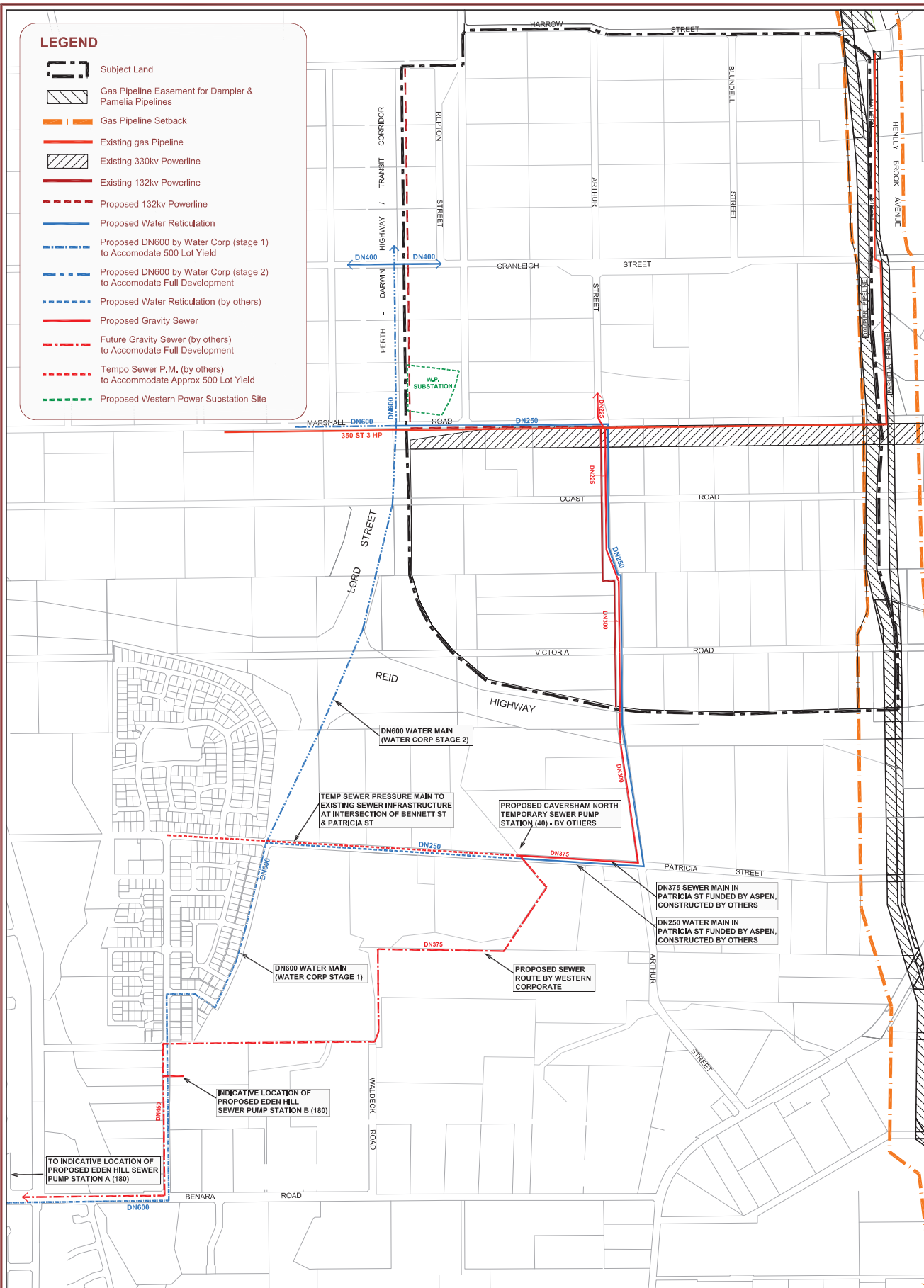
2HA of LOCAL COMMERCIAL CENTRE

ROAD NETWORK

FIGURE 11
SERVICING STRATEGY

LEGEND

-  Subject Land
-  Gas Pipeline Easement for Dampier & Pamela Pipelines
-  Gas Pipeline Setback
-  Existing gas Pipeline
-  Existing 330kv Powerline
-  Existing 132kv Powerline
-  Proposed 132kv Powerline
-  Proposed Water Reticulation
-  Proposed DN600 by Water Corp (stage 1) to Accomodate 500 Lot Yield
-  Proposed DN600 by Water Corp (stage 2) to Accomodate Full Development
-  Proposed Water Reticulation (by others)
-  Proposed Gravity Sewer
-  Future Gravity Sewer (by others) to Accomodate Full Development
-  Tempo Sewer P.M. (by others) to Accomodate Approx 500 Lot Yield
-  Proposed Western Power Substation Site



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1001 FURBER ST. SUITE 100/4



DRAWING NUMBER:
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DATE: 05.08.2010
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NORTH

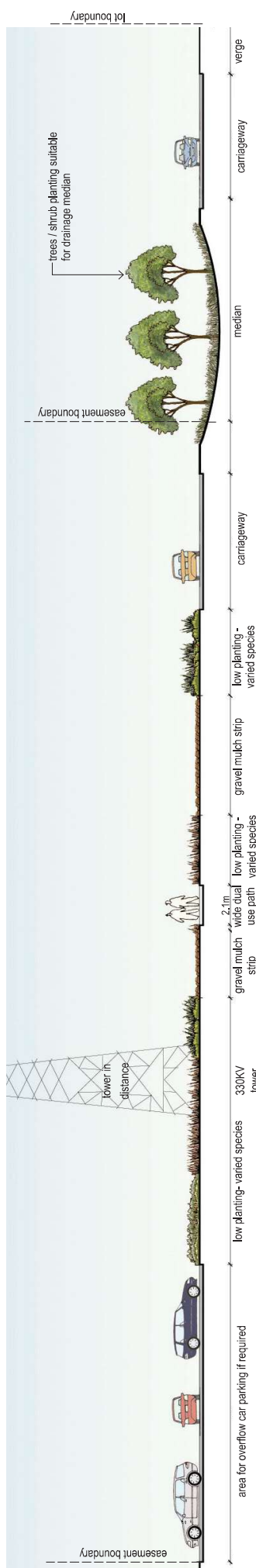
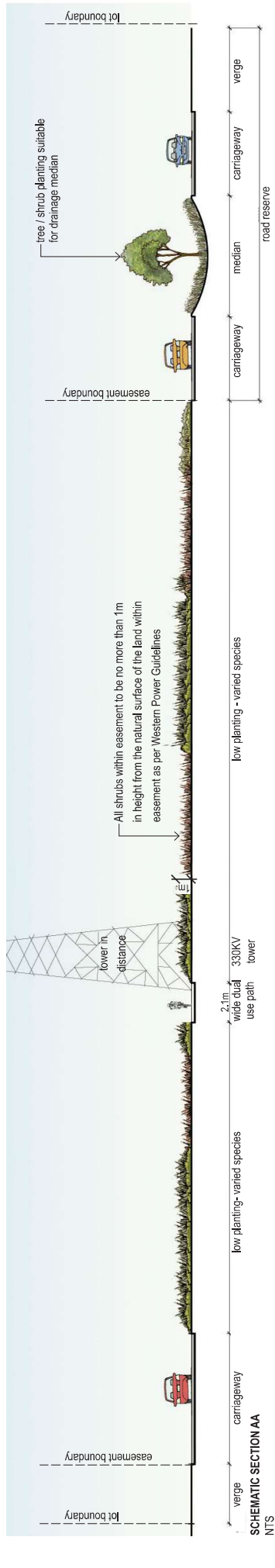
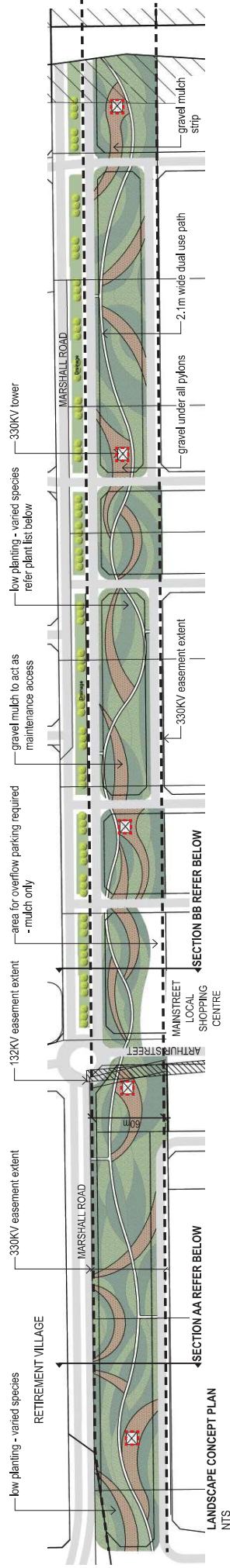


**DISTRICT SERVICING
STRATEGY
WEST SWAN (EAST)**

FIGURE 12

LANDSCAPE CONCEPT FOR POWERLINE

CORRIDOR



SCHEMATIC SECTION BB
NTS

PLANT SPECIES SUITABLE FOR WESTERN POWER EASEMENT			
Botanical Name	Common Name	Height	Spread
SHRUBS			
<i>Acacia stenophylla</i>	Narrow-winged Wattle	0.3m	1.5m
<i>Acacia pulchella</i>	Prickly Moses	1.0m	1.5m
<i>Anigozanthos flavidus</i>	Pink Joey	0.5m	0.5m
<i>Anigozanthos manglesii</i>	Kangaroo Paw	0.7m	0.5m
<i>Anigozanthos viridis</i>	Green Kangaroo Paw	0.7m	0.5m
<i>Calytrix fraseri</i>	Pink Summer Starflower	0.5m	0.5m
<i>Calytrix flavescentis</i>	Summer Starflower	0.5m	0.5m
<i>Dampiera linearis</i>	Common Dampiera	0.5m	0.5m
<i>Hibbertia racemosa</i>	Stalked-Guinea Flower	0.5m	0.5m
<i>Melaleuca conothamnoides</i>	Coast Honey-myrtle	1.0m	1.0m
PERENNIAL HERBS			
<i>Conostylis aculeata</i>	Spiny Cottonheads	0.3m	0.5m
<i>Conostylis candidans</i>	Grey Cottonheads	0.3m	0.5m
<i>Dianella 'Cassa Blue'</i>	Cassa Blue	0.5m	0.4m
<i>Grevillea thelemanniana</i>	Spider Net Grevillea	0.3m	1.5m
<i>Hakea prostrata</i>	Harsh Hakea	1.0m	1.5m
<i>Lomandra longifolia</i>	Spiny Headed Mat Rush	0.5m	1.0m
<i>Pterostemon occidentalis</i>	Purple Flag	0.3m	0.5m
GROUNDCOVERS			
<i>Banksia blechnifolia</i>	Prostrate Banksia	0.7m	0.5m
<i>Hemianandra pungens</i>	Snake Bush	0.5m	1.0m
<i>Kennedia prostrata</i>	Running Postman	0.5m	1.0m



ST LEONARDS
GATEWAY TO THE SWAN VALLEY

FIGURE 13

MANAGEMENT STRATEGY SUMMARY

**Management Plan Summary Status**

Item	Planning Phase		
	DSP	LSP	Subdivision
Aboriginal Heritage Management Plans		Management Plans and detailed designs for protection of Aboriginal Heritage if required as part of Section 18 applications.	
Acid Sulfate Soils Assessment and Management Plan	Preliminary Acid Sulfate Soils Assessment submitted with DSP.		ASS Management Plan.
Commercial Centres Strategy	Strategy submitted with DSP.	Refinement of land uses within nominated commercial sites required as part of relevant LSP.	Detailed Area Plans for commercial sites addressing matters such as setbacks, land allocation, car parking, shared access, landscaping, pedestrian access, designing out crime, street activation.
Community and Economic Development Plan	Submitted with DSP.		
Contaminated Sites investigation	Preliminary contaminated sites investigation submitted with DSP		Contaminated Site Assessment and Soil Contamination and Remediation Plan.
Environmental Management Report	Submitted with DSP.		
Financial Assessment Report	To be prepared prior to finalization of DSP, in conjunction with DCP.		
Fire and Emergency Management Plan	Submitted with DSP.		
Housing Strategy	Broad level included within DSP.	To be refined as part of LSP.	
Landscape Management Plan	Preliminary landscape concept for powerline corridor submitted with DSP.	Preliminary landscape design concepts to illustrate key function and features of POS, including interface of POS with primary school & the provision of district facilities.	Landscape Management Plans required for POS areas as a condition of subdivision.

**Management Plan Summary Status Continued**

Item	Planning Phase		
	DSP	LSP	Subdivision
Local Water Management	Local Water Management Strategy endorsed. Submitted with DSP.		Urban Water Management Plan.
Noise Assessment Report	Submitted with DSP.	Refinement of noise barrier wall and Quiet House Design measures to be applied to dwellings within Exposure Level 2.	Detailed Area Plans for lots fronting or containing the noise barrier wall to address setback, visual amenity and Quiet House Design measures.
Quantitative Risk Assessment associated with Dampier to Bunbury Natural Gas Pipeline, Parmelia Pipeline and any related expansion plans.		Risk assessment and any subsequent management plans as part of LSP adjoining eastern boundary of DSP.	
Traffic Impact Assessment	Submitted with DSP.	Refinement of Traffic Impact Assessment at LSP stage for individual LSP cells if required.	Notification on title advising residences that access to Lord Street via the Coast Road roundabout will be removed as the future Perth-Darwin Highway is constructed.
Wetland Management (includes mosquito/midge management)	Wetland Management Plan prepared and submitted.	Refinement of Wetland Management Plan required to justify refinement of 50m buffer and POS credits.	