PLANNING SCHEME POLICY NO. 11

Development in the Sippy Downs Town Centre

Contents

1 Introduction

1.1 Purpose

The purpose of this Planning Scheme Policy is to:
(a) identify methods of compliance with the provisions of Code 7.3, Code for Development in the Sippy Downs Town Centre;
(b) provide guidance on Council's policy intent in relation to development in the Sippy Downs Town Centre;
(c) identify information that Council may request to allow a development application to be properly assessed; and
(d) assist the assessment of development applications by Council.

1.2 Application of Policy

This Planning Scheme Policy applies to assessable development within Precinct 1 – Sippy Downs Central (Town Centre Core Precinct) and Precinct 2 – Sippy Downs Mixed Use (Town Centre Frame Precinct) of Planning Area 3 – Sippy Downs. This Planning Scheme Policy is to be read in conjunction with Code 7.3, Code for Development in the Sippy Downs Town Centre.

1.3 Sippy Downs Town Centre Master Plan

The *Sippy Downs Town Centre Master Plan* (September 2006) provides the policy basis for Code 7.3 and this Planning Scheme Policy. The Master Plan may provide applicants with an understanding of the policy background in preparing a development application to be assessed against Code 7.3.

1.4 Definitions

The following terms are defined to assist the interpretation of the provisions of Code 7.3:

'Active frontage' refers to those parts of a building that form a close relationship with the street and contain visually permeable facades such as shop fronts, retail stores, cafés, outdoor dining, personal service and other high pedestrian generating uses at street level.

'Consolidated parking' means parking which is provided for a number of business activities within the same activity type such as a number of shops or a number of offices.

'CPTED' refers to the acronym for *Crime Prevention Through Environmental Design*. It consists of principles for the design and management of the built and landscaped environment in order to limit opportunities for crime.

'Perimeter Block' means a type of town or city block which is built up on all street frontages and generates a central space that may be public, semi-public or private depending upon the uses of the block. A perimeter block is typically rectangular, is usually between 4 and 6 storeys in height, and may contain a mixture of uses. A perimeter block results in buildings that have close street relationships emphasising and defining the public realm and maximising casual surveillance of the streets. Perimeter blocks are an urban form that allow high densities to be achieved without high-rise buildings.

'Public space' means a place where any person has a right to be without exclusion due to economic or social circumstances. Streets (including footpaths), town squares, parks and playgrounds are examples of public spaces.

'Semi-public space' means a defined area where public access is controlled by a number of regulations often governed by the private land / building owner. Governance may restrict activities such as trading, soliciting or advertising; may enforce dress codes and behavior; may require payment for use, goods or services; and may restrict entry to or use of the space at any time. Examples of semi-public space include: café, shopping mall, train, hotel, building foyer, courtyard etc.

'Shared parking' means parking which is provided to allow one activity to use parking in conjunction with another significantly different activity such that at any time the total parking demands of each activity do not exceed the overall parking supply.

'Street furniture' includes such items as: seating, drinking fountains, shade structures and shelters, community noticeboards, tree guards, rubbish bins, bicycle parking facilities, signs, bollards and lighting and the like.

2 Supporting Information Required

2.1 Character Statement

A development application requiring assessment against Elements 1 or 4 of Code 7.3 will require the accompanying submission of a *Character Statement*. This statement must succinctly summarise the key character principles of the proposed development and demonstrate consistency with the relevant parts of Code 7.3.

2.2 Site and Context Analysis

As required by P27, Element 4 of Code 7.3, development proposals must be informed by a comprehensive *Site and Context Analysis*. The analysis must be documented as a report containing a written description of the site and its surrounds. The report must demonstrate the suitability of the site and surrounding locality to accommodate the proposed development through the satisfaction of performance criteria. The *Site and Context Analysis* will inform a *Design Response Report*.

2.3 Design Response Report

A *Design Response Report* must contain an explanation of the design proposal, which demonstrates how the proposed development addresses opportunities and constraints identified in the S*ite and Context Analysis*. Both the *Site and Context Analysis* and *Design Response Report* must be supported with comprehensive information in a clear, reproducible format such as drawings, photographs, CAD sequencing, etc.

2.4 Reconfiguration of a Lot

Where an application for the reconfiguration of a lot is proposed, the appropriate supporting information must also be provided in accordance with *Planning Scheme Policy No. 9 – Reconfiguring Lots*.

2.5 Other Information Required

Other information that may be requested by Council includes:
(a) Public Transport Statement (s 3.1);
(b) Offset Rehabilitation Plan (s 8.2.4);
(c) Fauna Management Plan (s 8.2.6); and
(d) Statement of Materials Selection (s 10.3.1).

2.6 Expertise Required to Prepare Supporting Information

Supporting information will form part of the usual information that supports a development application, but must be prepared by a competent person. A competent person to undertake a *Character Statement*, *Site and Context Analysis* or a *Design Response Report* must:
(a) have appropriate tertiary design qualifications in fields of design or urban design; or
(b) be a member of, or eligible for membership of the *Royal Australian Institute of Architects*, the *Planning Institute of Australia*, or the *Australian Institute of Landscape Architects*.

3 Town Centre Precincts

This section is relevant to the assessment of compliance with Element 1 (Town Centre Precincts) of the Code for Development in the Sippy Downs Town Centre.

3.1 Public Transport Usage and Vehicle Minimisation

Development is required to maximise the use of public transport and minimise private vehicle use. To achieve this:
(a) ensure that all development is within walking distance of a public transport stop;
(b) allow for persons to work, live and play in close proximity by providing employment opportunities and residential dwellings within mixed use developments with access to recreational areas or facilities;
(c) avoid the provision of surplus car parking areas;
(d) provide street facing retail stores to inspire intensification and activity;
(e) provide entertainment uses such as cinemas and food and beverage outlets at street level to extend the activity period beyond traditional working hours;
(f) locate employment uses around the main public open spaces;
(g) provide a high quality public realm and amenity, in particular a good relationship between ground floor uses and the public realm;
(h) contribute to a permeable network of accessible, well lit, landscaped footpaths and cycleways that meet requirements of the disabled; and
(i) ensure that CPTED principles are applied to the design of all publicly accessible spaces.

3.1.1 Public Transport Statement

The applicant must lodge with Council a *Public Transport Statement* which includes evidence of communication with *Translink* that demonstrates how:
(a) the existing public transport services can be augmented to service the proposed development; and
(b) the proposed development is designed to ensure ease of access to and operation of public transport services.

3.2 A Memorable Town Centre

Development is required to protect and enhance the likely occurrence of memorable experiences. Memorable places are important as they can provide positive emotional experiences of natural environments and well-designed urban settings. Memorable places also provide an important source of identity and meaning for residents. This may be achieved through streetscaping, landscaping and public art, play spaces, parks and outdoor lighting; and further with community development programs and the provision of public and community facilities.

An environment specifically designed to accommodate the pedestrian experience heightens the 'sense of place'. New development should be designed to create attractive, comfortable and safe walking environments.

3.3 Desired Town Centre Character

Development is required to protect and enhance the desired character of the Sippy Downs Town Centre with innovative architecture and landscaping.

3.3.1 Architectural Character

The architecture of buildings in the Town Centre should be reflective of location and climate and therefore should take on a form that is overtly subtropical in nature that reflects both its coastal location and connection with the university.

Buildings should also reflect diversity, individual expression and an environmentally designed identity while avoiding superficial reproduction of "style". The essential criteria to develop architectural character should be:

(a) design should respond to the subtropical climate and location (s 6.3.3);
(b) design should respond to and complement local context and neighbouring architecture, such as the University of the Sunshine Coast (s 6.3.2);
(c) design should reflect variety and visually engaging facades (s 6.3.5); and
(d) design should achieve high levels of environmental sustainability (s 10).

3.3.2 Landscape Character

The landscaping of development in the Sippy Downs Town Centre must respect the natural landscape character of the area and reflect this in the landscaping of premises. Development should strengthen the idea of Sippy Downs as a 'Town in the Bush' by:

(a) retaining existing vegetation;
(b) maximising shade tree cover particularly along footpaths, streets and in public areas;
(c) evoking the landscape character of the coast; and
(d) ensuring that trees used are attractive, hardy and long lived.

4 Land Uses and Locations

This section is relevant to the assessment of compliance with Element 2 (Land Uses and Locations) of the Code for Development in the Sippy Downs Town Centre.

4.1 Inconsistent Uses

A number of uses have been identified as inconsistent with the planning intent for each Precinct or sub-Precinct. These uses are identified as 'Inconsistent Uses' in Table 7.3.1 of Code 7.3. 'Inconsistent Uses' are only those impact assessable uses that are not intended to occur in a Precinct or sub-Precinct. Other impact assessable uses are consistent with the planning intent for a Precinct or sub-Precinct, however still require impact assessment (i.e. an 'Adult products shop' in the Town Centre Core Precinct, or a 'Market' in the west neighbourhood sub-Precinct, or a 'Hotel' in the Business and Technology sub-Precinct).

4.2 Consistent Development

'Consistent Development' is development which is consistent with the planning intent for a Precinct or sub-Precinct. Element 2 of Code 7.3 identifies types of 'Consistent Development' that are to be the predominant land uses for each Precinct and sub-Precinct (P3, P11, P14 and P19).

4.3 Town Centre Core Plan

Establishing a traditional 'Main Street' Town Centre is essential to achieving the vision for the Sippy Downs Town Centre. Council has identified the principles necessary to create this vision and have produced the most appropriate plan layout of the critical elements of the Town Centre Core Precinct. To achieve compliance with the Town Centre Core Plan (Figure 7.3.2 of Code 7.3) development must meet a number of requirements prescribed by P7 of Element 2 of the Code. Further guidance on meeting these requirements is provided below.

Figure 4.3 – Extract from Town Centre Core Plan

4.3.1 Separation of Large Floor Plate Retail Premises

The most important aspect of achieving a 'Main Street' Town Centre is ensuring that pedestrian activity and movement is concentrated onto the street. Large floor plate retail premises (e.g. a 'Supermarket' or 'Discount department store') must be located to ensure that the pedestrian movements they generate occur on the public street. Accordingly, it is imperative that large floor plate retail premises are not co-located within a single block, but are separated by streets to ensure that pedestrian movement between these premises contributes to activity on the street. Refer to Section 6.6 for further guidance on the layout of large floor plate retail premises.

4.3.2 Limited Number of Large Floor Plate Retail Premises

The allowance for 2 supermarkets and 1 discount department store is sufficient for the Sippy Downs Town Centre to satisfy the retail needs of the surrounding community and its role as a 'Major Activity Centre'. The number of large floor plate retail premises in the Sippy Downs Town Centre is limited to ensure that:

(a) the retail function of the Town Centre does not adversely impact upon or compete with Maroochydore, the Principal Activity Centre, or the Major Activity Centre's of Nambour or Kawana;
(b) the retail and business function of the Town Centre is not dominated by large format retail premises but rather characterised by a high proportion of street-based premises; and
(c) the urban form and layout of the Town Centre is not constrained by large floor plate buildings and is able to develop as a diverse and highly permeable area.

4.3.3 Vehicle Access Points

Vehicle access points to car parking areas associated with large floor plate retail premises should be located toward the periphery of the Town Centre Core Precinct to minimise vehicle movements on 'A' Street and Stringybark Road and to maximise pedestrian movements throughout the precinct.

4.3.4 Rear/Service Lanes

Rear or service lanes should be established to provide intra-block connectivity, access to car parking areas and loading docks. Lanes should be established to create an additional movement network within blocks whilst being designed to limit unintended through traffic using the lanes as a shortcut. Rear service lanes must be configured to allow adequate access for service and waste collection vehicles.

4.3.5 Land for Community Facility

Council requires land for the provision of an integrated community facility to meet the needs of the Sippy Downs community. **The provision of land for this community facility is of crucial importance to the role of the Sippy Downs Town Centre and the functioning of the local community.**

As a minimum, Council requires 1,500m^2 of land for the provision of this facility. Ownership of the land shall be transferred to Council in fee simple. Infrastructure credits will apply to the value of the land in accordance with the applicable infrastructure charging instrument.

Figure 7.3.2 (Sippy Downs Town Centre Core Plan) of Code 7.3 identifies the preferred location of land required for this facility. Any proposal to change the location must ensure that the alternative location is on 'A' Street and has direct street frontage. The facility is intended to provide for a number of functions including:

(a) branch library;
(b) multipurpose community centre;
(c) youth facility; and
(d) community information space.

It is estimated that a gross floor area of 2,500m^2 will provide for the various components over more than one level. **The Sippy Downs integrated community facility is to be a free standing, significant, cultural building located with an urban plaza providing a public gathering space external to the building.**

4.4 Sippy Downs West Neighbourhood sub-Precinct

4.4.1 General Store

A small scale 'General store' may be provided in the West Neighbourhood sub-Precinct. It is important that this store be limited in size to ensure that it only serves a very local convenience function. The gross floor area of this store is limited to 100m^2. This store should be located at the ground floor of a residential building on either corner of the intersection of 'A' and 'V' Streets with primary frontage to 'A' street.

4.4.2 Restaurant

In addition to the 'General store' referred to above, some small scale restaurant premises may be provided in the West Neighbourhood sub-Precinct. Such premises may include a café, coffee shop, take-away, deli, ice creamery etc. Such premises should be co-located and situated at the ground floor of a residential building on either corner of the intersection of 'A' and 'V' Streets, with primary frontage to 'A' street. Outdoor dining associated with such premises may be appropriate where located on the frontage to 'A' Street only. The total floor area of all such premises in the sub-Precinct shall not exceed 100m^2 exclusive of any outdoor dining area.

5 Connectivity and Movement

This section is relevant to the assessment of compliance with Element 3 (Connectivity and Movement) of the Code for Development in the Sippy Downs Town Centre. The requirements of this section are in addition to the requirements of *Planning Scheme Policy No. 6 – Transport, Traffic and Parking*. Where discrepancies exist between the two documents, the requirements of this section take precedence.

5.1 General

The Sippy Downs Town Centre must establish a highly interconnected and permeable movement network to allow for:

(a) reduced concentration of local traffic on the major road corridors;
(b) increased pedestrian and bicycle movement; and
(c) increased access to public transport.

All streets are crucial elements of the public realm and therefore must be dedicated as road reserve.

5.2 Town Centre Street Network

The Town Centre Street Network has been designed with a priority focus on public transport and pedestrian movement. The Town Centre Street Network is comprised of all streets within the Sippy Downs Central (Town Centre Core) and Sippy Downs Mixed Use (Town Centre Frame) Precincts. This network of streets comprises Principal Streets and Local Access Streets as identified in Figure 3-3.3.3(c) of Volume 3. The role and function of Principal Streets and Local Access Streets is identified below.

All streets identified in the Town Centre Street Network are to be designed and constructed in accordance with the relevant provisions of this Planning Scheme Policy, *Planning Scheme Policy No. 6 – Transport, Traffic and Parking* and *Planning Scheme Policy No. 5 – Operational Works.*

5.2.1 Principal Streets

A number of Principal Streets must be established to make allowance for vehicle movement into and away from the Town Centre Core Precinct. Principal Streets are fixed in their location. All Principal Streets are designed to accommodate the efficient movement of buses as they form the basis of the public transport system for the Sippy Downs Town Centre, linking all Precincts and the University of the Sunshine Coast.

Direct vehicular access should not be provided to Sippy Downs Drive or Stringybark Road. Direct vehicular access to other Principal Streets should only be provided where vehicular access cannot be obtained from a Local Access Street. In the case where direct vehicular access to 'A' Street is required, because access to a property is not possible from a Local Access Street or another Principal Street, the vehicle access to 'A' Street is limited to left-in/left-out movements only.

5.2.2 Local Access Streets

To support the function of the Principal Streets, and to facilitate movement and connectivity, a number of Local Access Streets are required. Local Access Streets are not fixed in their location. Their location can be altered slightly depending on the design of individual development parcels, however all Local Access Streets must be provided. The key functions of Local Access Streets must be maintained as part of any change to their location. These functions include:

(a) establishing a street block pattern with a depth of around 70-80m;

(b) providing access to individual developments;

(c) providing for additional on-street car parking; and

(d) allowing for increased pedestrian and cycle movement and permeability.

Additional Local Access Streets or service lanes may be provided as necessary.

5.3 Street Cross Sections

All streets in the Town Centre Street Network are further defined in a hierarchy of streets identified in Figure 7.3.3 (Road/Street Designations) of Code 7.3. The designations under this hierarchy differentiate each street for the purpose of identifying the relevant street cross section. Each cross section identifies street and footpath widths, on street parking, on street cycle ways, and landscape treatments. Street cross sections are identified below.

The requirements of the street cross sections identified in this Planning Scheme Policy take precedence over the relevant cross section requirements of *Planning Scheme Policy No. 6 – Transport, Traffic and Parking*. For all streets:

(a) the relevant cross section applies as indicated by Figure 7.3.3 (Road/Street Designations) of Code 7.3;

(b) cross section and reserve widths may vary to suit intersections, turning lanes, bus stops, pedestrian crossing treatments and other requirements;

(c) verge areas are to be paved in accordance with Section 7.8 of this Planning Scheme Policy;

(d) subsurface drainage may be required and must be connected to trunk stormwater;

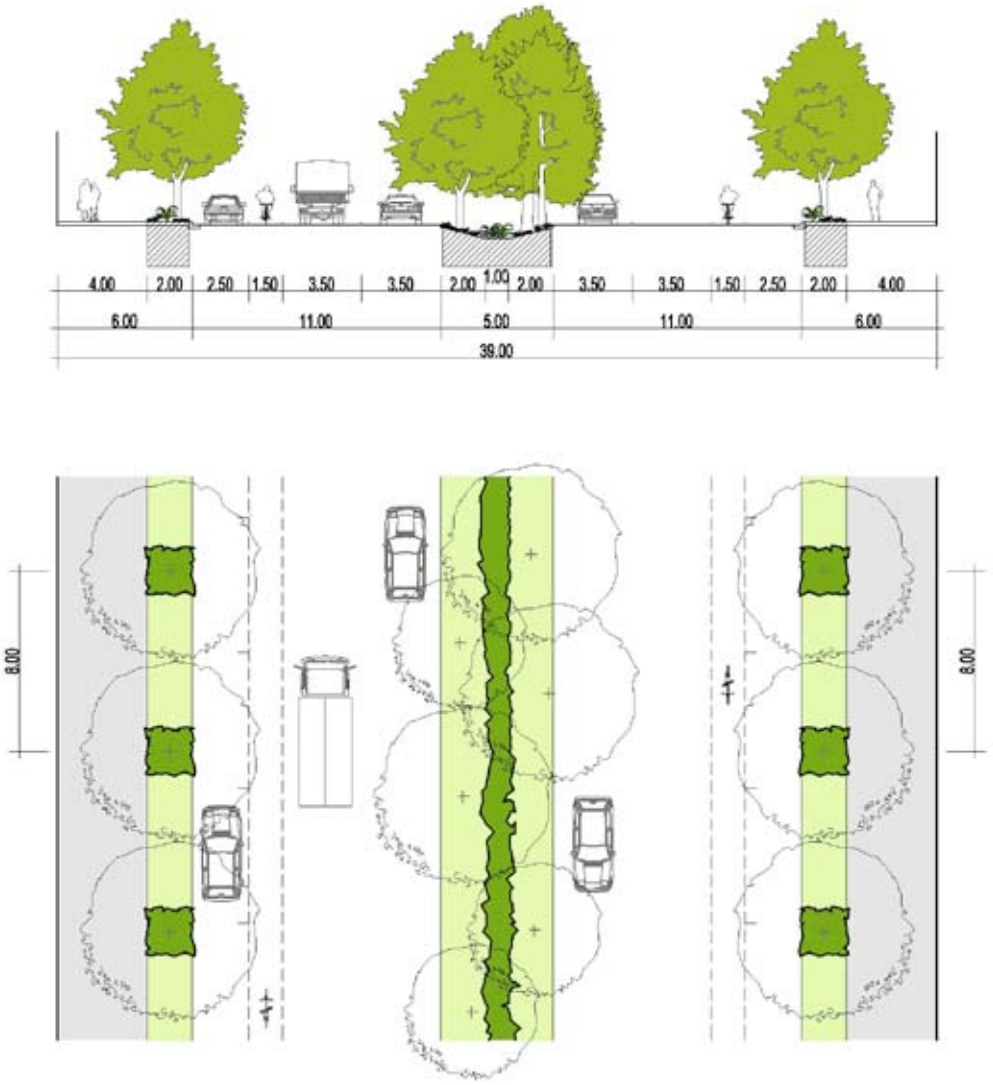
(e) landscaping and drainage treatments on verge areas and medians must not inhibit direct pedestrian access to on street parking or pedestrian movement across streets;

(f) landscaping must include appropriate root barrier protection to kerbs and adjacent services;

(g) medians must contain pedestrian refuge areas as required. Refuge areas must allow for functioning of stormwater treatments (i.e. median swale); and

(h) additional landscaping is encouraged and should be consistent with the desired landscape character.

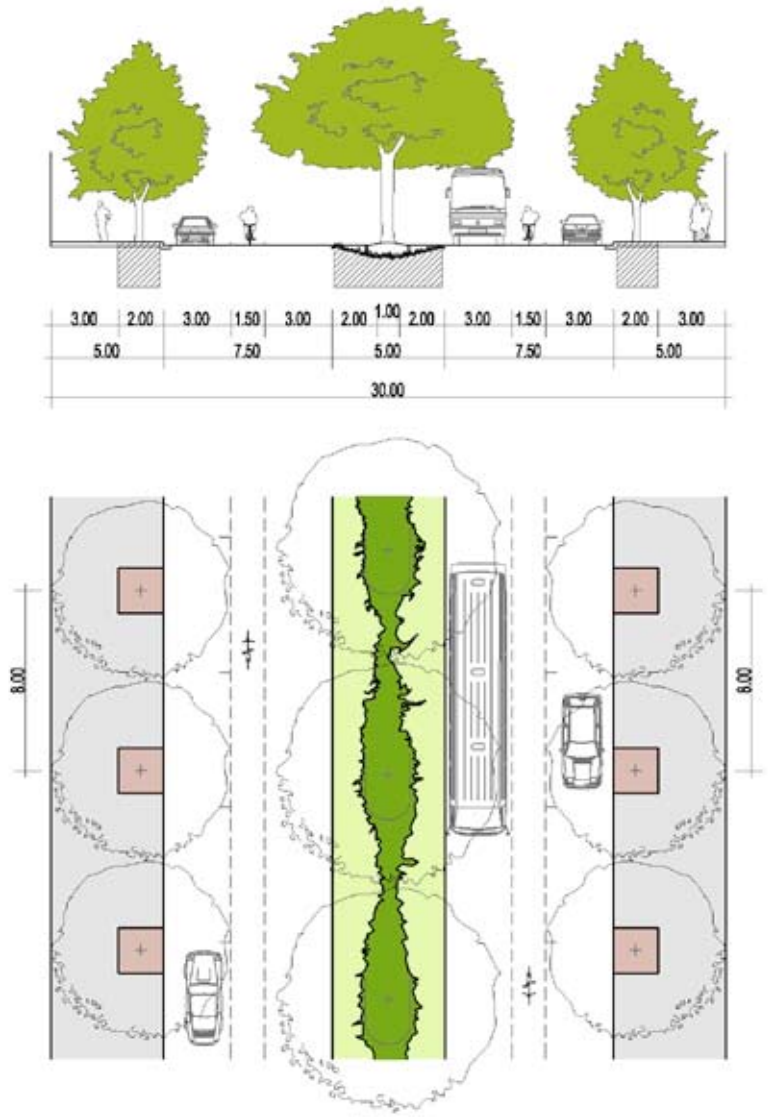
5.3.1 Town Centre Connector (Sippy Downs Drive & Power Road)



Notes:

1. Town Centre Connector roads are to be established as an informal boulevard reinforcing bushland character.
2. Verges are to incorporate a 2m wide vegetated area containing *Lophostemon confertus* at 8m spacings with understorey planting and turf between plantings.
3. The median will incorporate a mix of *Lophostemon confertus*, *Syncarpia glomifera* and *Melaleuca quinquinovia* with understorey planting and turf.
4. The median will incorporate a central swale to allow for water conveyance and initial water quality treatment.
5. Both vegetated verge areas and the central median will have swales and/or biofiltration swales for the length of the carriageway.

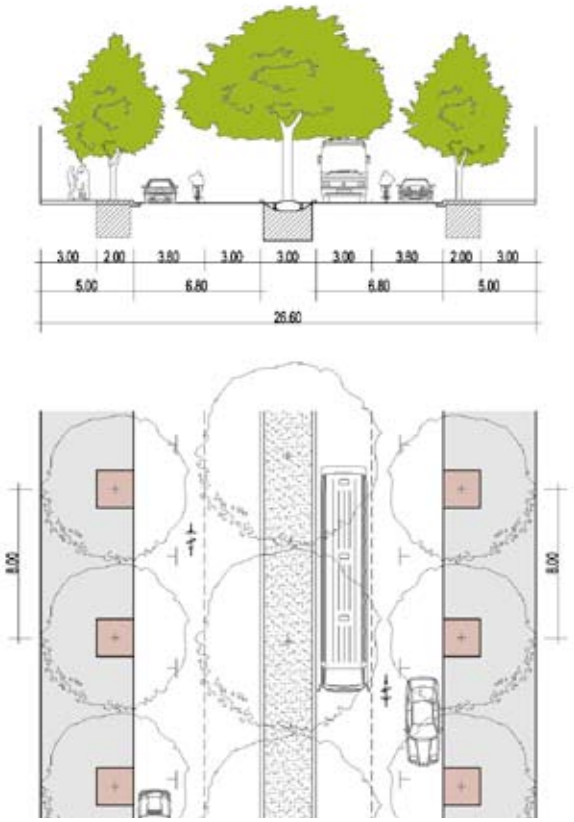
5.3.2 Stringybark Road



Notes:

1. Stringybark Road is to be established as a formal boulevard reinforcing the character of the Town Centre Core Precinct.
2. Verges are to incorporate *Lophostemon confertus* at 8m spacings.
3. The median will incorporate *Ficus virens* at 10m spacings on raised garden beds.
4. The median will incorporate a central swale to allow for water conveyance and initial water quality treatment.
5. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.

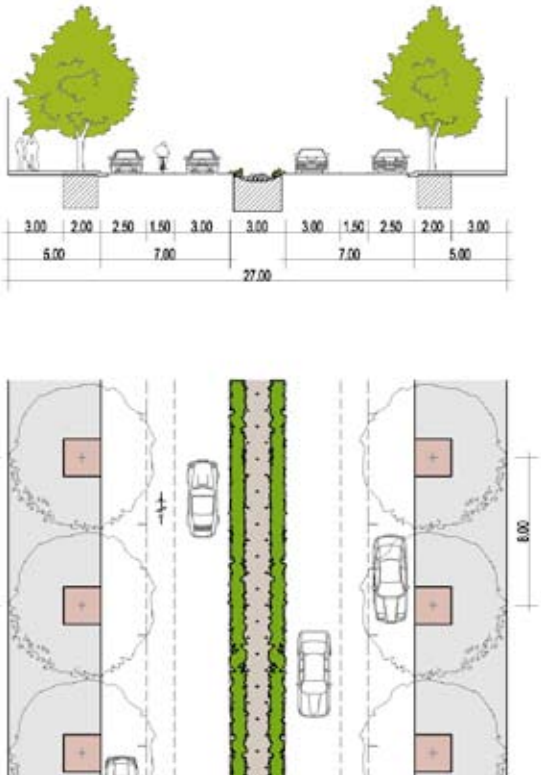
5.3.3 'A' Street (Town Centre)



Notes:

1. 'A' Street (Town Centre) is to be established as a major avenue reinforcing the Town Centre Core Precinct character.
2. Verges are to incorporate *Flindersia schottiana* at 8m spacings and the median will incorporate *Ficus virens* or *Ficus platypoda* at 10m spacings.
3. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.
4. 3.8m wide kerbside lanes are for shared use by cyclists.
5. The needs of pedestrians must have priority and pedestrians are the focus of design for 'A' Street (Town Centre) as the street is to be the main retail and business area of the Town Centre Core Precinct.
6. Raised pedestrian crossings are to be provided at consolidated locations on 'A' Street (Town Centre) at the entrances to the large floor plate retail premises. Pedestrian refuge crossings and crossings at signalised intersections are to be sufficiently wide.
7. The kerb should be built out into the parking lanes to create kerb buildouts for additional street trees and landscaping, outdoor dining, street furniture or pedestrian refuge, provided it does not conflict with intersection requirements or potential bus stop and taxi rank locations.

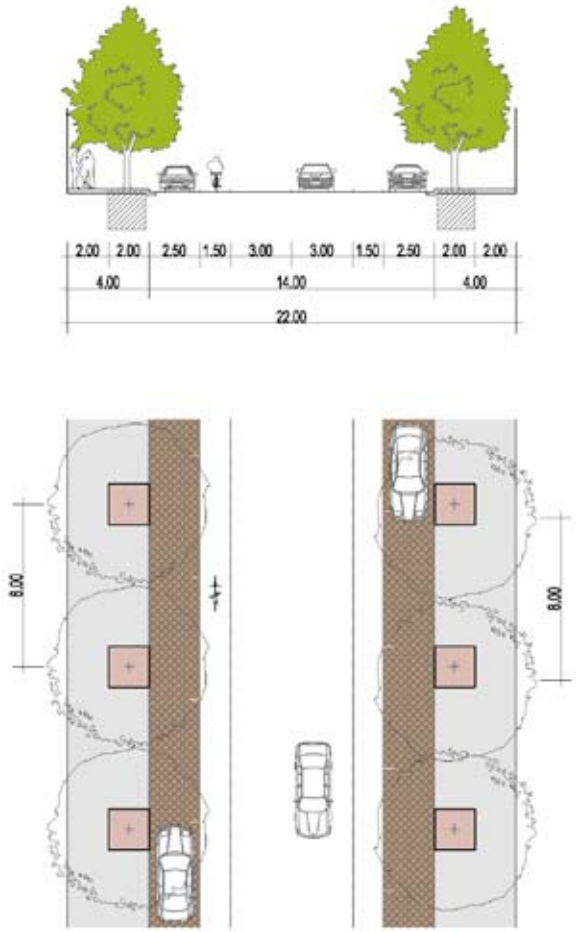
5.3.4 'A' Street (Sippy Downs West Neighbourhood and Business and Technology sub-Precincts)



Notes:

1. 'A' Street is to be established as a major avenue reinforcing the character of the relevant precinct.
2. Verges will contain *Flindersia schottiana* at 8m spacings.
3. A 3m wide vegetated median with a central rock lined swale is to allow for stormwater conveyance and initial water quality treatment. Pedestrian refuge crossings are to be incorporated into the design of the median.
4. Both verges and the central median are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.
5. Paving treatments vary between the Sippy Downs West Neighbourhood and Business and Technology sub-Precincts (refer to Figures 7.8(b) and (d)). Verge areas in the Sippy Downs West Neighbourhood sub-Precinct include lawn.

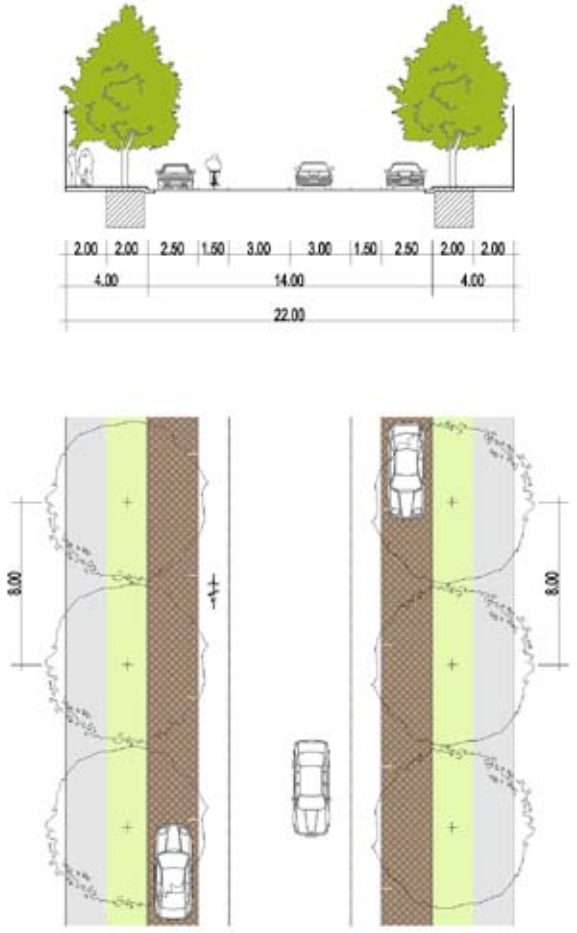
5.3.5 Town Centre Principal Street



Notes:

1. Town Centre Principal Streets are to be established as major streets reinforcing the Town Centre character.
2. Verges will contain *Flindersia schottiana* at 8m spacings.
3. Permeable paving is to be provided for kerbside parking areas to allow for stormwater infiltration.
4. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.

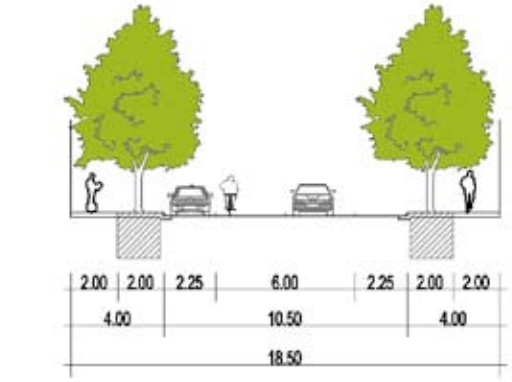
5.3.6 Residential Principal Street

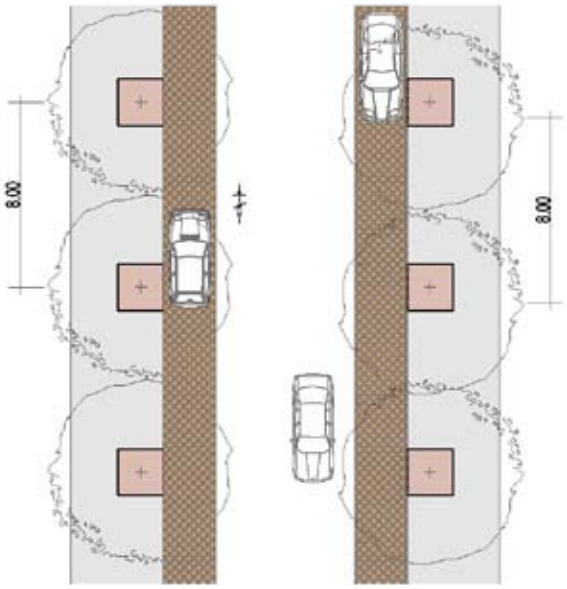


Notes:

1. Residential Principal Streets are to be established as major streets reinforcing the residential neighbourhood character.
2. Verges will contain *Flindersia schottiana* at 8m spacings.
3. Permeable paving is to be provided for kerbside parking areas to allow for stormwater infiltration.
4. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.

5.3.7 Town Centre Access Street

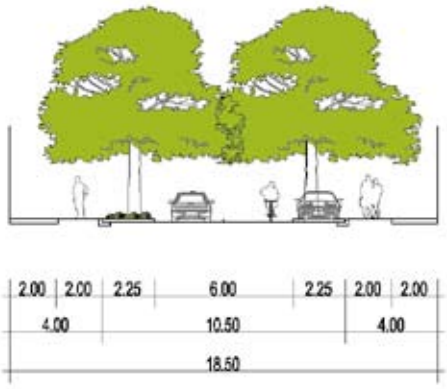


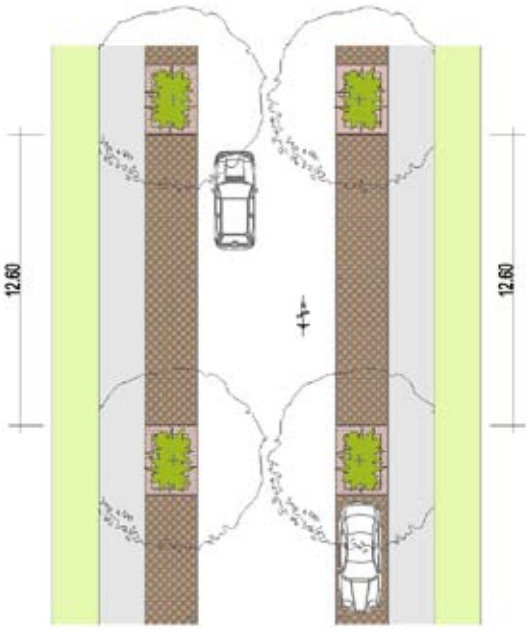


Notes:

1. Verges will contain *Waterhousa floribunda* or *Jagera pseudorhus* or *Brachiychiton discolour* (refer to Figure 7.3.6 of Code 7.3) at 8m spacings.
2. Permeable paving is to be provided for kerbside parking areas to allow for stormwater infiltration.
3. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.

5.3.8 Residential Access Street





Notes:

1. Residential Access Streets are to reinforce the residential neighbourhood character.
2. Verges will contain *Pongamia pinnata* or *Waterhousa floribunda* (refer to Figure 7.3.6 of Code 7.3) at 12.6m spacings in parking aisle.
3. Permeable paving is to be provided for kerbside parking areas to allow for stormwater infiltration.
4. Both verges are to be interspaced with biofiltration tree pods, incorporating extended detention for the length of the carriageway.

5.4 'Main Street' Area Traffic Function

The 'Main Street' area of the Town Centre Core Precinct includes both 'A' Street and Stringybark Road. These streets will carry large volumes of traffic and public transport movement and necessitate a balance to be achieved between vehicle movement and the required pedestrian friendly environment. A pedestrian-scale 'Main Street' will work best on streets that have traffic volumes in the range of 10,000 – 18,000vpd, but only have 2 lanes of slow moving traffic (i.e. 30 km/h), and on-street parking. Accordingly, for these 'Main Street' areas to successfully achieve a pedestrian based environment the design of these streets should:

(a) be limited to 2 lanes of traffic at all times;
(b) provide on-street parking;
(c) provide pedestrian refuge opportunities on median areas to allow for pedestrian movement across the street;
(d) provide raised pedestrian crossings (on 'A' Street only) at consolidated entrance locations to the large floor plate retail premises;
(e) maximise pedestrian and landscape areas (i.e. with kerb build outs at corner and mid-block locations as appropriate); and
(f) ensure that verge and median trees will establish a canopy to maximise shade and enclose the street.

5.5 Car Parking

Off-street parking is to be provided in areas behind buildings screened from the street. Preference is given to parking areas that are shared between many uses rather than separate parking lots being attached to each building. A shared parking approach usually enables a reduced amount of parking to be provided overall, and ensures that it is used to maximum efficiency. It is also able to better adapt to changing uses and demands over time. However, the location of a parking area must be convenient to all uses it is proposed to serve and not lead to spillover parking on nearby sites or along streets in nearby residential areas.

Council will consider a reduction in the amount of car parking spaces where shared[1] and/or consolidated[2] parking is proposed. Proposals will need to be supported by evidence which demonstrates that:

(a) the peak parking times of the uses occur at different times; or
(b) the parking area is sufficient to meet the anticipated demands of all uses.

When a shared or multiple use car parking area services land uses on 2 or more separate land holdings, Council will require legal documentation or easements in relation to the car parking area to ensure continuity of the shared parking arrangements.

1 *Refer to section 1.4 for an explanation of the term 'Shared parking'.*

2 *Refer to section 1.4 for an explanation of the term 'Consolidated parking'.*

5.5.1 Car Parking Stations

In larger off-street parking areas, it may be appropriate to designate a dimensioned area as a future multi-deck car park site, provided the location is consistent with the function and capacity of the surrounding street network. The access points to this site should be designed with this potential future use in mind. The provision of such sites can ensure that the centre can intensify over time.

5.6 Public Transport

Public transport to and from the Sippy Downs Town Centre will be provided by bus services. A number of bus stops will be required at regular intervals throughout each precinct. Bus stops can be provided on any Principal Street. Bus stops located in the Town Centre Core Precinct should integrate bicycle stands, public notice boards, timetables and travel notices, drinking fountains, shelter, shading and seating.

5.7 Pedestrian Through Block Links

To encourage and provide for additional pedestrian movement, a number of pedestrian through block links are required. These links are not fixed in their location. Their location may be altered slightly, and will depend on development design. Any relocation of the access provision must maintain the integrity of the proposed layout and the intent for permeable block configuration.

The location of these links should reflect desire lines for pedestrian movement between key activity nodes and uses. Links must be designed to ensure that they are safe alternatives to the street based pedestrian movement network. The design should take into consideration, width and access, shelter, materials, and function whilst ensuring adjacent land uses are not detrimentally impacted.

5.7.1 Dedicated Easements Required

All links, whilst they may remain in private ownership, are considered integral to pedestrian permeability and circulation and must provide guaranteed 24 hour / 7 days a week public access. Accordingly, Council will require that this access be provided by dedicated easement.

5.7.2 Discontinuous Active Frontage Links

Where a pedestrian through block linkage with 'Discontinuous Active Frontage' (refer to Figure 7.3.2 of Code 7.3) is required (i.e. east – west link between Stringybark Road and 'E' Street) development should address this link. These links may be considered suitable for the location of some catering and/or entertainment uses which will foster activity beyond traditional

working hours. The design of these links should allow for the future adaptability of the street network and should have the width to allow for conversion to an access street or rear service/ access lane.

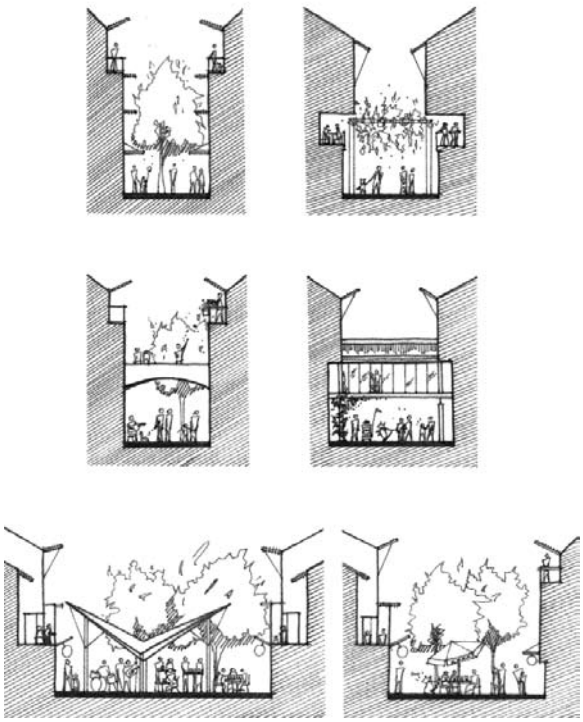


Figure 5.7 – Pedestrian Through Block Links

5.8 Bikelanes

Development is required to contribute to the establishment of an interconnected bicycle movement network through a combination of on-street and off-street movement corridors. This network must connect with adjoining bicycle paths, in particular the network of the University of the Sunshine Coast.

All Principal Streets will provide on road bicycle lanes (except 'A' Street Town Centre). For 'A' Street (Town Centre), a wide kerbside lane of 3.8m is to be provided to allow for shared use by cyclists. Off road bicycle movement will also be enabled by the width of footpaths provided. The cycle and pedestrian paths are to utilise local streets and open spaces and be enhanced by appropriate street lighting, vegetation, furniture and facilities.

5.9 Street Naming

North-south streets are to be University related names. North-south streets include 'W', 'V', 'U', 'T', 'F', 'E', 'P', 'K', 'N' and 'M'. East-west streets are to be local cultural heritage or environmental related names. East-west streets include 'A', 'Y', 'Z', 'X', 'C', 'B', 'R' and 'L'. 'A' street being the main street and traversing most of the Town Centre should be given particular consideration.

6 Scale, Form and Intensity of Development

This section is relevant to the assessment of compliance with Element 4 (Scale, Form and Intensity of Development) of the Code for Development in the Sippy Downs Town Centre.

6.1 Perimeter Block Form[3]

Development is required to take a perimeter block form with close street relationships to maintain and define an active public realm. To achieve this form all buildings (including balconies) are to be located within a perimeter development area of 25m, as measured from the property frontage. All buildings are to be restricted to the perimeter development area other than in the following circumstances:

(a) due to the size of the floor plate of a 'Supermarket' and 'Discount department store', these uses will need to be located mostly beyond the perimeter development area. These uses may be located within the perimeter development area in part where they are sleeved by perimeter development, in particular the entry points to these uses should maintain proximity to the street;

(b) a multi-storey car parking station should not occur in the perimeter development area unless where fronting a Local Access Street; or

(c) where a 'Pedestrian Through Block Link' is identified in conjunction with 'Discontinuous Active Frontage' (in Figure 7.3.2 of Code 7.3) development should addresses these links (refer to section 5.7.2).

6.2 Taller Elements

Locating taller elements within the built form is necessary to achieve increased variety, additional density, capitalise on views, and to assist in creating 'nodes' or minor landmarks within the Town Centre. Taller elements are considered to be those buildings, or parts of buildings, that exceed the lower height range i.e. 5 and 6 storey elements on a Principal Street frontage or the 3 and 4 storey elements on a Local Access Street frontage.

Rather than being the average height of development, these taller elements are limited to corners where visibility and the built form impact have the greatest effect. A maximum footprint of 450m^2 and the required minimum separation of 30m between these elements will deliver an appropriate variety in built form.

6.3 Building Massing and Composition

The following sections provide guidance on how development can satisfy the various components of P11.

3 Refer to section 1.4 for an explanation of the term 'Perimeter block'.

6.3.1 Increase Legibility

Building legibility is the ability of a building to easily communicate to visitors its use or function without relying on signage or other passive cues. Building design assists with urban legibility when it forms part of a cohesive town centre contributing to visitor way-finding.

The structuring of specific land uses within the Sippy Downs Town Centre into precincts will help building uses become more legible. However, additional care will be needed to ensure that the architectural 'expression' of buildings supports the uses that will occur. For example, residential buildings should look like residences and not like office blocks.

Achieving buildings that express their purpose will most likely occur naturally if the design responds sensitively to the use and allows the functions to play an honest part in the form of the building. This may be problematic in commercial development where a range of commercial uses are likely to occur, and tenants have little or no control over the form of the building. In such cases, ensure that buildings allow for a small-scale degree of flexibility or ability to create an identity using non-permanent features (individualised awnings, small scale displays in the case of a florist, specialty display windows, etc). This will ensure that an additional range of visual cues, to assist with legibility, can be provided.

Buildings that are located in prominent positions on intersections of Principal Streets (e.g. on 'gateway' and corner sites on Principal Streets, with frontages to parks or squares, and terminating in important vistas) should be designed to emphasise the importance of their location through architectural expression and/or landscape treatments including height, reduced building setbacks, visible entrance location and orientation, and decorative treatments including corner balconies, eaves, overhangs and the like.

6.3.2 Architectural Themes

Section 3.3.1 identifies the need for development to reinforce the emerging themes of:

(a) subtropical climate and location;
(b) the location adjacent to the University of the Sunshine Coast and it's own architectural themes;
(c) variety and visually engaging facades; and
(d) environmental sustainability.

If architecture focuses on these themes it strengthens the unique identity of Sippy Downs and also creates a more responsible and sustainable built form. Repetition or mimicking of existing design themes is not conclusive to development of a legible unique identity. Achievement of a cohesive theme lies in the cultivation of a concept (such as subtropical design) rather than the duplication of form, mass or materials. Not only would this reduce legibility, but would also stifle innovative architectural responses. Urban form should enhance local and regional way-finding and a community's sense of identity.

A wide range of architectural ideas are encouraged. Some other themes may include references to the coastal setting or a more relaxed approach of 'residential holiday architecture'. Irrespective of the theme, it is important that the ideas are expressed thoughtfully and are intertwined with the local setting. The ultimate aim must be to discover and celebrate the uniqueness of the setting and strengthen and unite the disparate elements of Sippy Downs into a sub-regional centre.

Figure 6.3.2 – University Library Building

It is important and sensible that the momentum of these architectural concepts continue through the evolution of a strong identity for Sippy Downs. These opportunities must continue, however they need to occur on privately owned land as well as the opportunities that will continue to occur through development on the University land. This will continue to brand Sippy Downs as a 'clever' place and one that supports the university as a place of thought and ideas.

6.3.3 Reducing Reliance on Non-renewable Energy Sources for Heating and Cooling

The use of passive heating and cooling systems has been used as a central design theme for buildings located at the University of the Sunshine Coast. This approach addresses the practicalities of minimising the long-term costs of operating a university as well as adopting a responsible environmental position and creates a highly identifiable collection of buildings. New development within the Town Centre should make good use of any opportunities to employ the latest techniques in passive heating and cooling systems.

Response to subtropical climate and location should be achieved through the use of passive solar design principles such as orientation and solar access, window and awning size and orientation, materials and finishes, ventilation, insulation, thermal mass, natural light, awnings and pedestrian cover. Building form and detail should express a response to microclimate and energy conservation. Refer to Section 10 (Environmental Sustainability) for further guidance.

6.3.4 Shade/Sun Exposure and Public/Private Amenity

The relationship between built form and adjacent public spaces is critical to ensuring a vibrant public realm is achieved. This relationship is in part determined by building heights and setbacks to streets. Delivering amenity is about ensuring that the quality and facility of each space provides comfortable and pleasant experiences for end users.

Whilst primarily geared to delivering amenity to its direct commercial users/clients, development can often ignore the commercial importance of delivering public amenity. The provision of high levels of public and private amenity should be an objective of all development. Apart from the basic functional components, some of the issues that need to be considered when designing the built form of development include:

(a) built form that utilises flexible indoor/outdoor space that allows for both access to and shelter from direct sunlight while catering to a mix of public, semi-public, or private function through the use of colonnades, street awnings, shade structures, transient facades etc;
(b) a built form which promotes cross-flow ventilation and allows access to natural breezes;
(c) buildings which create a variety of public/private places/spaces (balconies, decks, recesses, street widening, etc) for singular or group activity, to sit, eat, or socialise (public and private);
(d) equitable access to public and private spaces and associated facilities;
(e) a built form which takes advantage of and creates local views and vistas (public and private);
(f) clearly legible spaces with good visibility, light and access in semi-public and public spaces to ensure high levels of personal safety; and
(g) architecture with a varied built form (material, textures, and shapes) and active street frontage to provide a range of visual stimulation.

6.3.5 Variety and Visual Interest

An important principle of the Sippy Downs Town Centre Master Plan is to ensure that the built form maintains a vibrant relationship with the street. This can be achieved by delivering buildings with variety and ensuring the architecture is visually interesting and stimulates users and the public alike.

To generate variety and visual interest building facades should be articulated and express features, geometry and floor level clearly in terms of human scale. Unity of architectural form to generate character is achieved through regular use of proportion, visual mass and roofline expression. Buildings should use consistent architectural features, geometry, scale form, and materials to produce a proportional relationship.

Buildings should have an architecture of light and shade with articulated and textured facades that incorporate a low proportion of solid to a high proportion of void and encourage interaction between internal activity and street life through the use of:

(a) wide colonnades, veranda's, awnings, balconies, overhangs; and
(b) recesses, screens, awnings, window hoods and shutters; and
(c) outdoor dining, retail window display, visible internal activity, clearly defined building entrance.

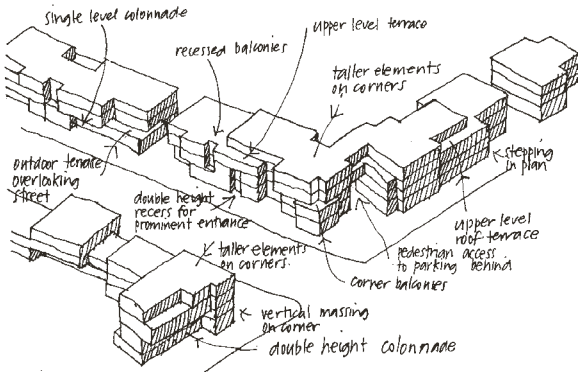


Figure 6.3.5(a) – Variety in Building Massing

Buildings should respond to their particular site and the locational and client requirements. However, the designer must respond to the local buildings around it to ensure that their particular building contains elements that deliberately make it identifiable. As buildings are seen by more people from the street or other parts of the public realm (other streets, parks, plazas, other buildings, etc), this view is one of the most critical. The challenge for the architect is to balance this against the need to ensure the building fits into its context and supports the preferred streetscape.

Managing this balance between variety and context requires care, but is easily achieved if the elements of building form and their role are well understood. In a healthy city, all elements of buildings (shape, scale, location on the street, colour, texture etc) are tools for a designer to use in identifying their particular building.

In general, a change in height along a street of up to 2 storeys (within the maximum height allowances) is reasonable if the uses are consistent. Corner sites on Principal Streets may warrant a different approach.

One area of increased focus for development within Sippy Downs is the use of building elements to provide contrasts in shade and shadow. Using shade and shadows on buildings helps give buildings depth and interest, and is also an important architectural element in built form of the Sunshine Coast region. The use of shade awnings, deep recesses, balconies, eaves and other architectural components help articulate buildings and enable them to be read as 3-dimensional objects, rather than flat sheets of paper. Buildings within the Town Centre which employ innovative approaches to shade and shadow deserve support.

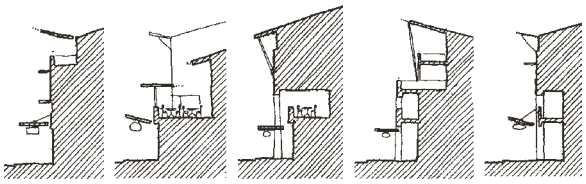


Figure 6.3.5(b) – Variety in Street Relationship and Setbacks

Other elements of the built form that should be considered to help deliver variety and visual interest include (but are not limited to):

(a) building shape – stepped changes in height, width (large recesses) and depth (varied horizontal and vertical setbacks);
(b) building location – change in the position in relation to the street (setback) as well as orientation of the building (to face a landmark);
(c) articulation of building envelope – the degree of shade and shadow (articulation) of the building facades. This is achieved by the facades' components as well as the additional parts of the building (shade awnings, sunshades, eaves etc.);
(d) facade texture – amount of rough and smooth textures of the facade and at a finer level the materials on the facade;
(e) pattern and colour; and
(f) use of vegetation on, within and around buildings.

6.3.6 Sense of Enclosure to Streets and Public Spaces

Buildings do not relate solely to internal containment. Urban design examines the role that individual pieces of architecture play in building the overall form of a town or city. In this wider sense, buildings are individual bricks in the overall building of the town. This particular part of Element 3 seeks to ensure that development in the Sippy Downs Town Centre acknowledges the important public role buildings play in forming robust edges to the public realm.

Figure 6.3.6 – Buildings Enclosing a Street

City parks and squares can be transformed into highly activated places when fringed by retail shops and eateries with awnings. This not only gives them a formal edge, but when this edge contains overlooking uses (offices, shops and apartments) the park becomes a place to promenade, meet, protest, celebrate, gather, etc. This increased sense of enclosure provides a place for these uses to occur as well as making the space more formal and therefore more appropriate for a town or city centre. The extent of enclosure and its scale and intensity around the public space in turn increases the sense of formality.

6.3.7 Transition Between Internal and External Areas

A common feature of subtropical climate responsive architecture is the 'blurring' of the line between inside and out. In residential buildings, living rooms give way to shaded outdoor living/eating balconies and decks which overlook yards. Facades of cafés open out onto colonnades and outdoor eating areas on streets, alleyways and plazas. Offices, once isolated from contact with the outside world, are increasingly becoming linked at the back to an internal atrium which operates as and air-chimney. This draws hot air out and up, allowing cooler air to be drawn in from windows and balconies facing the street.

This progressive engagement with the outside world should be continued in development within Sippy Downs. The resultant architecture is less energy intensive, cheaper to run, but also more varied and interesting.

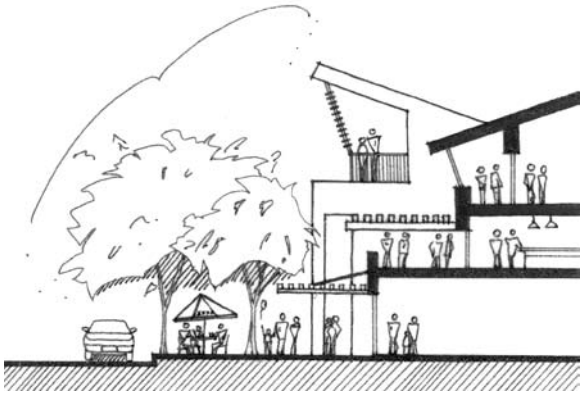


Figure 6.3.7 – Transition between Internal and External Areas

This seamless integration of the inside and out does not compete with the needs of buildings to enclose or define public space. The entry/facades of buildings still stand to form the threshold between the two, but sliding, opening bi-folding doors and windows with close street relationships ensures the public realm becomes an outdoor room.

6.4 Sheltered and Comfortable Spaces for Pedestrians

Buildings adjacent to public streets and other public and semi-public spaces should provide adequate and appropriate shelter along or around such spaces. Adequate shelter is a verandah, awning or similar shelter and is a minimum depth of 3m for frontages to Principal Streets in the Town Centre Core Precinct.

Continuous awnings are required along Principal Streets within the Town Centre Core Precinct, as 'Continuous Active Frontage', and also in public spaces as identified in Figure 7.4.2 (Town Centre Core Plan) of Code 7.3. These awnings should provide protection from the building edge to within 600mm of the outer edge of the kerb and be a minimum width of 3.6m around the edges of 'Mini Plazas' and the 'Town Square'. Also refer to Section 8.4 for guidance on the location of street trees.

The design of awnings should cater for water collection and accommodate required tree plantings. Collonading is also encouraged where additional footpath width is necessary to assist in the achievement of 'seamless transition' between development and the public realm.

Outdoor public and semi-public squares or plazas should have a minimum of 50% or their areas covered or shaded with shade structures and/or trees. Hard landscaping and building materials should not be highly reflective, or likely to create glare, or slippery or otherwise hazardous conditions.

Where buildings have a height of more than 3 storeys or 12m (whichever is the lesser), these buildings are not to create unpleasant micro-climate impacts on any nearby pedestrian spaces, including overshadowing, wind tunnelling or reflective glare. Evidence accompanying applications is to be provided, that demonstrates to the Assessment Manager's satisfaction, the achievement of this. Evidence may include:

(a) shadow analysis for the summer and winter solstice and equinox at the times of 9am, noon and 3pm; or
(b) wind affect analysis; or
(c) solar incidence and reflection analysis.

Such buildings should allow direct sunlight to reach more than 50% of outdoor public spaces for a minimum of 3 hours between 9am and 3pm on 21 June.

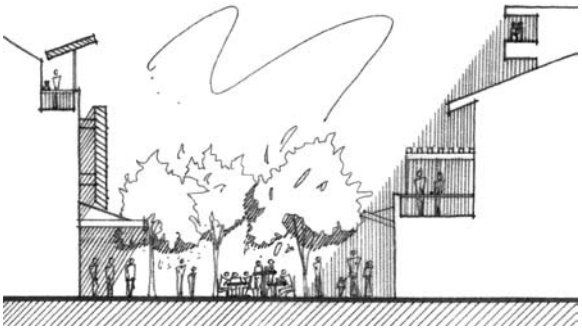


Figure 6.4 – Sheltered and Comfortable Spaces

The appropriateness of sunlight and shade provided for every public space is not easily prescribed. However, some starting rules of thumb are listed as a guide:

(a) for significant public spaces (i.e. Town Square), ensure that surrounding buildings do not limit direct solar access to at least two-thirds of the space on the winter solstice (June 22) in any moment in time between 9am and 3pm; and
(b) for all other public spaces, ensure that not less than 40% of the space is permanently shaded. Shading can include shade structures, awnings, and vegetation.

6.5 Residential Privacy

Visual privacy has 2 components in residential development – horizontal views and vertical views (overlooking). Horizontal privacy is best maintained through:

(a) the appropriate design and location of the architectural components requiring visual privacy (internal rooms, service areas, decks, recreation spaces, etc);
(b) the location of mitigating devices (the screens, vegetation, handrails, awnings, etc); and
(c) distance.

Overlooking (vertical views) is more difficult to mitigate, and in medium density residential development some overlooking to external spaces such as decks and yards is to be expected. Overlooking becomes more of a problem in courtyard developments, where rooms and balconies face each other across common space. The problems then usually occur with opposing apartments looking down on each other. In such developments, the application of an 18m separation distance between units will achieve adequate privacy.

6.6 Large Floor Plate Retail

The role of large floor plate retail[4] in the Sippy Downs Town Centre is to:
(a) provide for the provision of retail goods; and
(b) activate the public realm (streets) and contribute to a vibrant main street environment.

The location of large floor plate retail premises (also referred to as retail 'anchor' stores) and related retail shops must ensure that they prioritise pedestrian movement on the main streets of the Town Centre. Further guidance on the layout and integration of large floor plate retail stores is provided in the sections below.

Figure 6.6 – Integration of Large Floor Plate Retail Premises in the Sippy Downs Town Centre Core Precinct

6.6.1 Hybrid Shopping Mall / Street Layouts

Hybrid[5] mall / main street retail layouts incorporate a street into the layout of a retail mall. These layouts, whilst having a street and sleeving the large floor plate components, operate on the same principles as those of a shopping mall, where the priority is on internal or off-street malls, which maximise the number of specialty retail premises and concentrate customer movement between the anchor stores. This priority for off-street pedestrian movement compromises the achievement of a vibrant 'Main Street'. Whilst these retail formats may seek to create a Town Centre, they are based on the retail 'shopping centre' model and therefore cannot deliver a public realm based Town Centre. Such retail formats are inconsistent with Council's planning intent for the Sippy Downs Town Centre and must not be entertained.

4 Large floor plate retail premises are either a 'Supermarket' or a 'Discount department store'.

5 Hybrid layouts may also be referred to as "third generation shopping centres".

6.6.2 Preferred Format (Street-Based)

To ensure that the 'Main Streets' play the central role in the functioning of the Sippy Downs Town Centre, the 'Main Streets' must have a strong primary retail role, rather than be in competition with high rent, off-street, shops and businesses. Therefore, the preferred arrangement of large floor plate retail premises for the Sippy Downs Town Centre is one that prioritises the street as the main retail location and pedestrian movement corridor.

Prioritisation of the 'Main Street' is achieved when the large floor plate retail stores open onto, and are accessed from, the street rather than internal or off-street malls. The street must be the primary pedestrian movement path. To prioritise the street, the location of large floor plate retail premises must achieve each of the following key principles:
(a) each anchor should be separated from the public realm ('A' Street or Stringybark Road) by one single sleeve (one tenancy) of retail floorspace;
(b) each pedestrian entrance to an anchor must be accessed only from 'A' Street and must lead to only one anchor retail; and
(c) prioritise movement on 'A' Street by ensuring that it is the easiest way for people to move between the anchors.

The purpose of these principles is to ensure the primacy of the public realm ('A' Street), in terms of its role for major pedestrian movement, and hence its attractiveness and viability for retail businesses and other Town Centre commercial activities. Further guidance is provided as follows:

Location of Anchor

The entrance to the large floor plate retail must remain as close to the street as possible. The entrance may be located within the perimeter development area (refer to Section 6.1) as long as the store is sleeved with street facing uses and the entrance does not present an excessively wide frontage. The entrance area should be designed to be read as part of the Town Centre public space system. Entrance areas should not include important retail drawcards such as chemists, post offices and newsagents. These should be located on the main streets.

Pedestrian Access/Entry Points

It is critical to ensure that pedestrian access to a retail anchor (to the front door) is only provided from 'A' Street and not directly from a rear or side car parking area. The main movement path from the car parking area must result in the movement of pedestrians along the street creating activity in the public realm.

Pedestrian Movement between Anchors

The location of an anchor must not allow the opportunity for customers to move from one anchor to another without accessing the public realm ('A' Street). The location of large floor plate retail anchors in such an arrangement will support street-based retail uses that benefit from the movement of pedestrians (customers) along the street. A typical layout for a 'Main Street' supermarket or discount department store is identified in Figure 6.6.2 below.

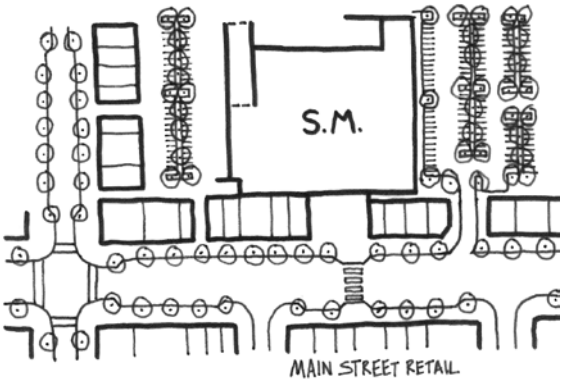


Figure 6.6.2 – Supermarket Located to Front onto 'Main Street'

Other pedestrian activity generators such as mini majors, cinemas and taverns should also be strategically located to support street based movement and street facing uses. Council will seek design responses which demonstrate that the location of large floor plate retail premises and associated retail shops prioritise street activity. In particular, Council will not support applications seeking to create internalised or off-street retail malls (as required by Overall Outcome 15(d) and Element 2, P28 of the Code 7.3).

6.7 Car Parking Structures

The figure below demonstrates how a multi-level car parking structure may be sleeved from a Principal Street by perimeter development.

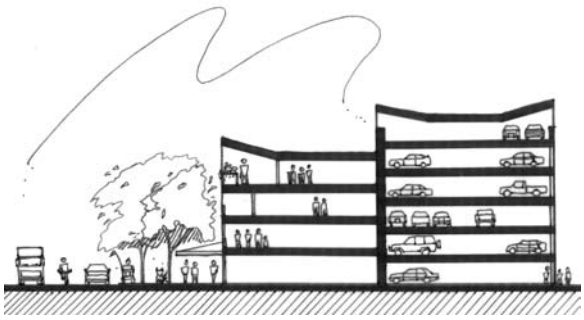


Figure 6.7 – Sleeved Car Parking Structure

7 Public Open Space

This section is relevant to the assessment of compliance with Element 5 (Public Open Space) of the Code for Development in the Sippy Downs Town Centre.

7.1 General

Of critical importance to the Sippy Downs Town Centre is the quality of the public open spaces. Development is required to establish a number of public open spaces in the form of parks and urban plazas in the locations identified by Figure 7.5 (Open Space, Pedestrian and Cycle Linkages) of Code 7.3. The Town Centre open space network must include:
(a) Town Square;
(b) Mini Plazas;
(c) Town Plaza;
(d) Forest Park West;
(e) Neighbourhood Park;
(f) Town Entry Park; and
(g) University Park.

The various parks and plazas will be connected by a network of pedestrian and cycle linkages and a number of pedestrian through block linkages that increase pedestrian movement options. The key requirements in relation to each of the open spaces are identified in the relevant Performance Criteria. A number of concept plans are identified below to guide the detailed design of each space. All public open spaces are to be transferred to Council in freehold ownership.

7.2 Town Square

The Town Square is to be located on the south-west corner of the intersection of 'A' Street and Stringybark Road. The Town Square is to offer a community focus in the heart of town and be highly visible from the entry into town along Stringybark Road. The area of the square must not be less than 40m x 40m as measured from the property frontage to the building edge.

Landscaping may include clumped cabbage palms to frame the space, and provide striking feature planting and shade to sculptural seating. A water fountain and pool may provide a pleasant feature in the space.

The square will be hard paved to cater for the high numbers of users and could potentially contain some type of memorial and place for civic gathering and seating. Buildings with active frontages will frame the space with space for outdoor dining and market stalls provided.

Figure 7.2 – Town Square Concept Plan

7.3 Mini Plazas

Mini Plazas are to provide small spaces for social interaction and relaxation in an attractive, landscaped and shady setting. These spaces are to be created by an articulated building, have an 'urban park' character and allow for gathering sitting and eating. Whilst these spaces are to provide full public access and use, they are not intended to be owned or maintained by Council but rather by a body corporate or other similar arrangement.

The exact location of Mini Plazas should be determined during the detailed design process, however, their preferred locations are indicated in Figure 7.3.6 (Open Space, Pedestrian and Cycle Linkages) of Code 7.3. The minimum dimensions for a Mini Plaza is 9m x 9m. This minimum space is to allow for public access and use and therefore any areas for outdoor dining should be provided in addition to the minimum area required.

Mini Plazas must provide at least one shade tree and also provide a 'raingarden' to assist in stormwater treatment. The 'raingarden' is to intercept and treat roofwater runoff prior to drainage to the trunk drainage system and should contain reeds and aquatic plants.

Mini Plazas will contain low feature planting to encourage passive surveillance and soften built edges, contain themed artwork and provide unobstructed, easily accessible entries to buildings. Paving type and patterns should ensure that the edge between the footpath and plaza is seamless.

An indicative Mini Plaza layout is identified in Figure 7.3 below, however a range of design solutions will be encouraged. Design solutions may provide flexible seating as either loose furniture, long sitting ledges or a variety of fixed benches, or a combination of these as well as various items of street furniture including a drinking fountain, litter bins and bicycle stand.

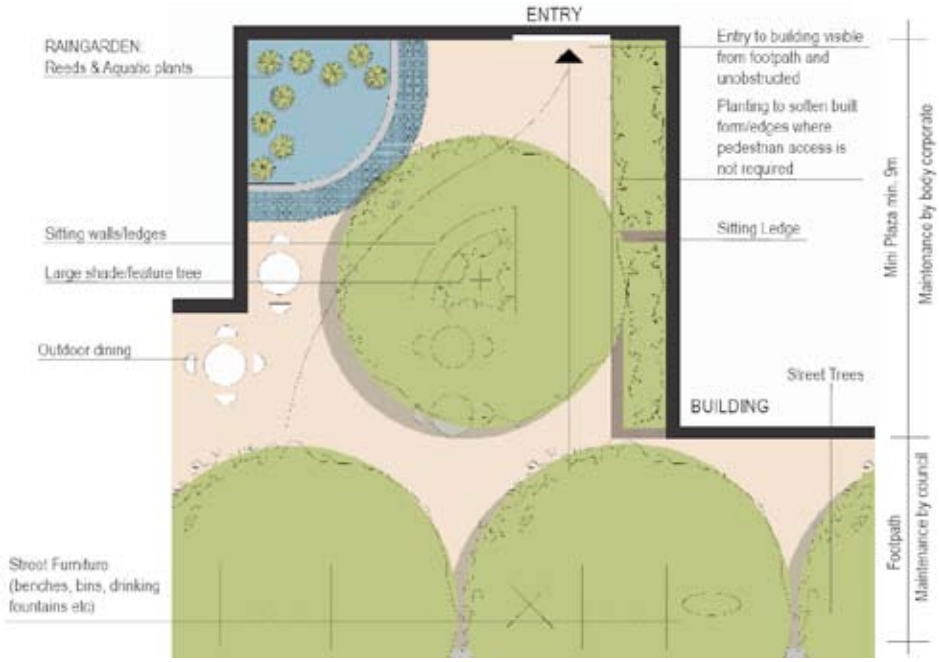


Figure 7.3 – Concept Mini Plaza Layout

7.4 Town Plaza

The Town Plaza in the Business and Technology sub-Precinct must be a large space (80m x 35m) that will benefit from the 'Main Street' commercial and catering venues located on the southern side of the Town Plaza. The Town Plaza has road frontage on all sides with a number of crossing points or shared zones required between the Town Plaza and surrounding blocks. The plaza is to provide a variety of shady spaces with a mix of hard paving, lawn and gardens for passive recreation and community gathering and entertainment.

Facilities are to include a kiosk with outdoor dining and public toilets, a water fountain and pond and cabbage palm feature planting that will be highly visible from the approach along Sippy Downs Drive. Public art and play sculptures provide cultural interest to the space. The Town Plaza is to be established generally in accordance with the form indicated in Figure 7.4 below.

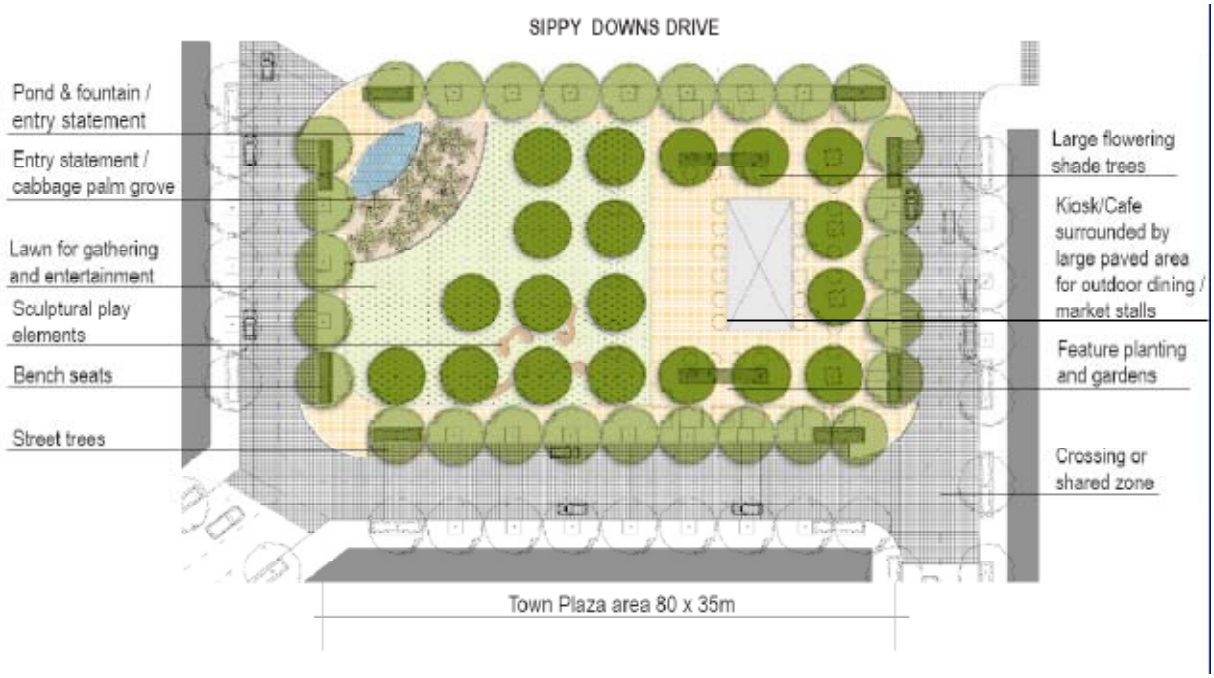


Figure 7.4 – Town Plaza Concept Plan

7.5 Forest Park West

The Forest Park West within the West Neighbourhood sub-Precinct must be a minimum of 2ha in size and will enhance the scenic and landscape character of the Town Centre. The park has open areas to provide the surrounding residential community with civic and recreational opportunities. The park will be a combination of established trees and understorey (70%), established trees and lawn (15%) and open lawn areas (15%). A combination of decomposed granite and concrete paths will provide pedestrian and cycle access and circulation through the park. Facilities will include public toilets, picnic shelters, BBQ's, seating areas, signage, walking tracks, kick-a-ball field and a play space located near the southern boundary and entrance to the park at the intersection with 'V' Street. A stormwater swale is required along the eastern edge of the park. For a typical cross section of this swale refer to Council Drawing Series 9366 (refer to Section 9.2).

The Forest Park West must be designed in accordance with CPTED principles in that access to and from the park should be equitable with multiple exits. The Forest Park West is to be established generally in accordance with the layout indicated in Figure 7.5 below.

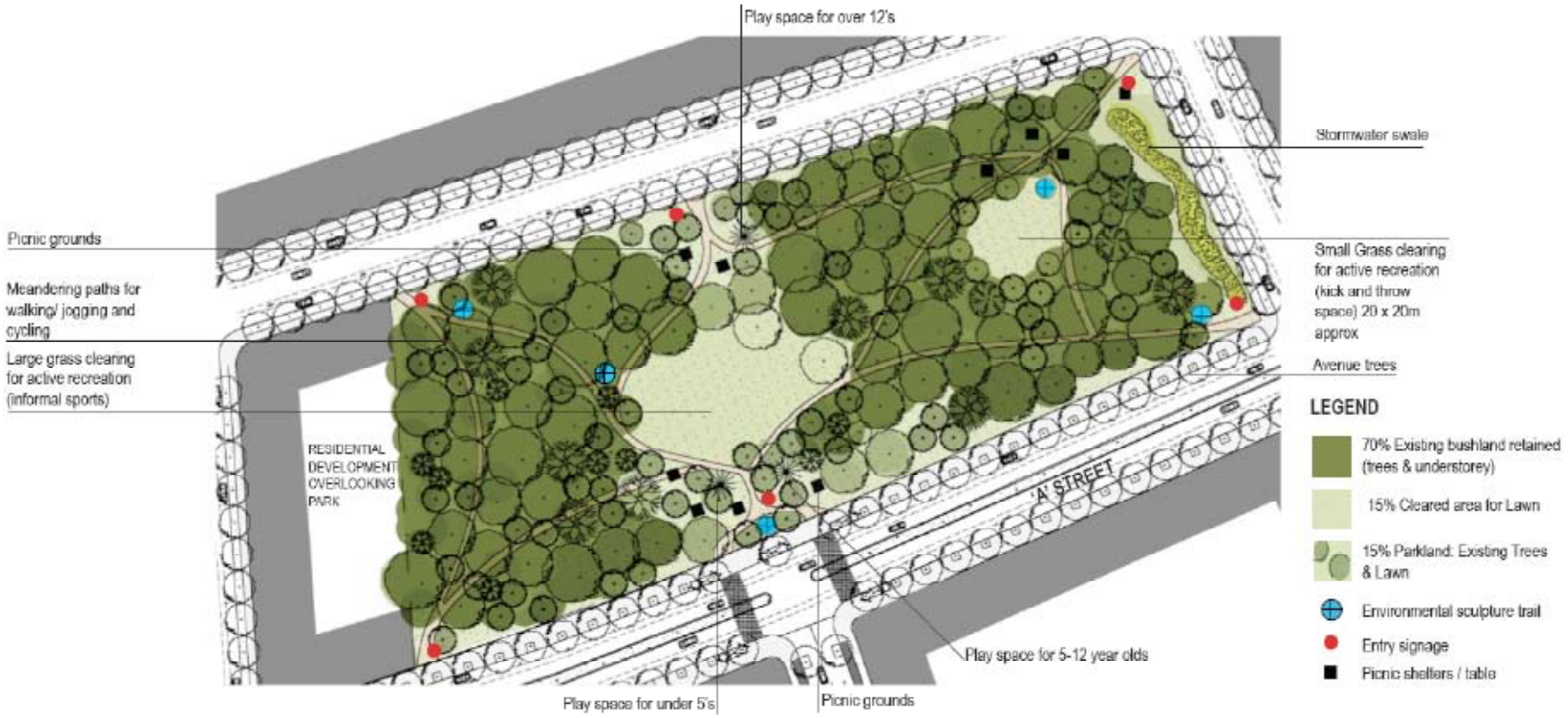


Figure 7.5 – Forest Park West Concept Plan

7.6 Neighbourhood Park

A Neighbourhood Park is to be provided on the western side of 'W' Street at the termination of 'X' Street, as identified in Figure 7.3.5 (Open Space, Pedestrian and Cycle Linkages) of Code 7.3. The Neighbourhood Park must be a minimum of 600m² in size and provide a relaxing gathering space for the residential area. It is to be a shady space with a mix of lawn and gardens, hard paved seating areas and some play elements for passive recreation and community interaction.

7.7 Surface Treatment of Urban Spaces

Other than for the required footpath paving and public open space areas, extensive hard landscaped areas (e.g. paving) must be minimised. Areas of soft landscaping (planting) less than 1.5m wide or 6m² should be planted rather than turfed.

In some circumstances porous paving may be required to allow infiltration of water and oxygen into the ground. In areas where there is a concentration of underground services, pavers should be unit pavers. Tactile pavers should be used at street corners, driveways or where other hazards for pedestrians are deemed to exist.

7.8 Footpath Paving

This section is relevant to the assessment of compliance with P10 of Element 5 (Public Open Space) of Code 7.3. To ensure that a consistent approach is taken to footpath paving across the Town Centre Precincts, development must provide footpath paving in accordance with Figures 7.8(a)-(f) and the pavement type details identified in Table 7.10 (Streetscape Treatment Schedule). Footpaths in the Town Centre Core and Business and Technology sub-Precinct should be entirely paved (except for tree pits) to cater for high pedestrian usage and outdoor dining.

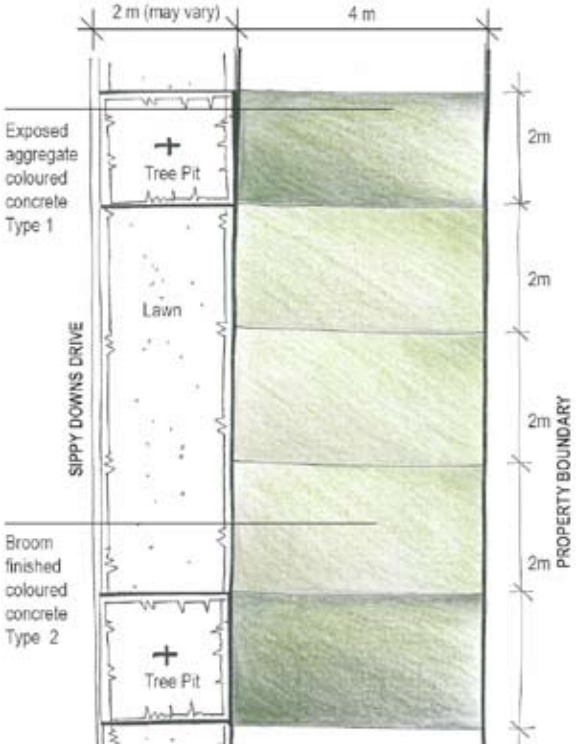


Figure 7.8(a) – Footpath Paving – Town Centre Connector (Sippy Downs Drive and Power Road)

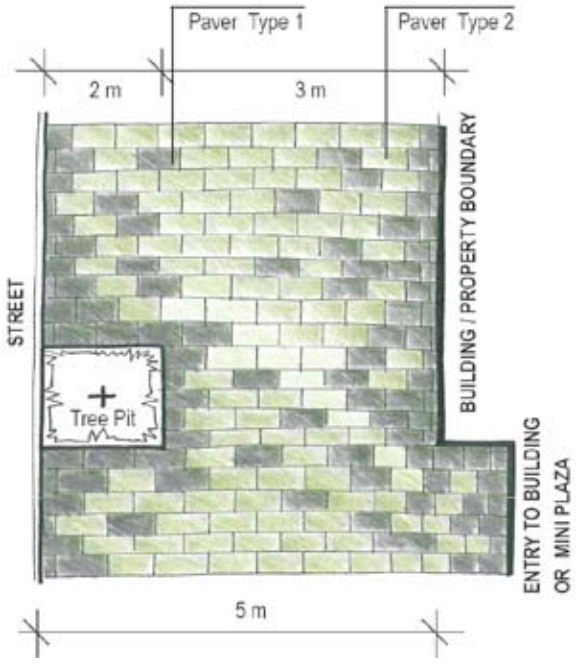


Figure 7.8(b) – Footpath Paving – Stringybark Road & 'A' Street (Town Centre)

- *400mm x 400mm concrete unit pavers, laid in stretcher bond pattern, 70% main body colour, 30% accent colour, random pattern to respond to built edges.*
- *This footpath paving detail also applies to 'A' Street in the Sippy Downs Business and Technology sub-Precinct.*

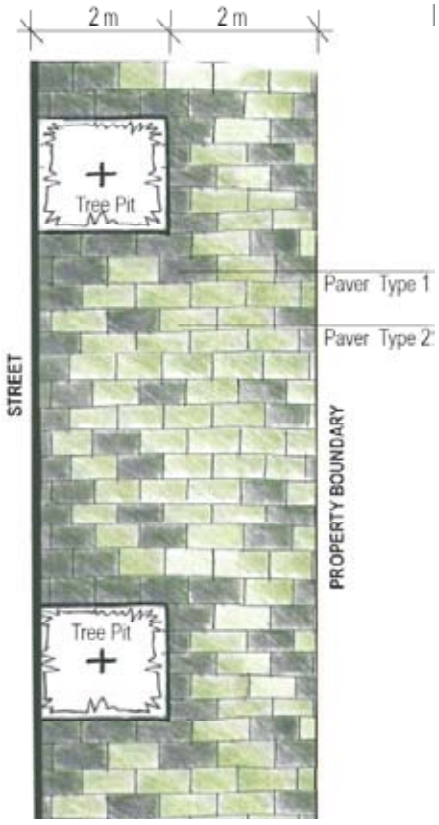


Figure 7.8(c) – Footpath Paving – Town Centre Principal Street

- *400mm x 400mm concrete unit pavers, laid in stretcher bond pattern, 70% main body colour, 30% accent colour, random pattern to respond to built edges.*

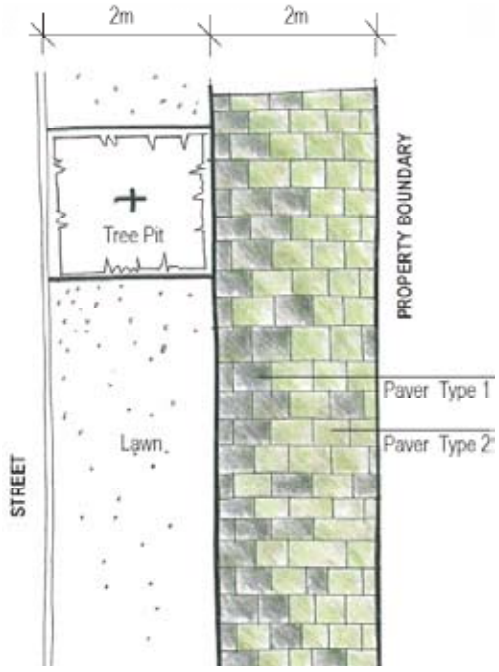


Figure 7.8(d) – Footpath Paving – Residential Principal Street

- *400mm x 400mm concrete unit pavers, laid in stretcher bond pattern, 70% main body colour, 30% accent colour, random pattern to respond to built edges.*
- *This footpath paving detail also applies to 'A' Street in the Sippy Downs West Neighbourhood sub-Precinct. Paved area is 3m in width.*

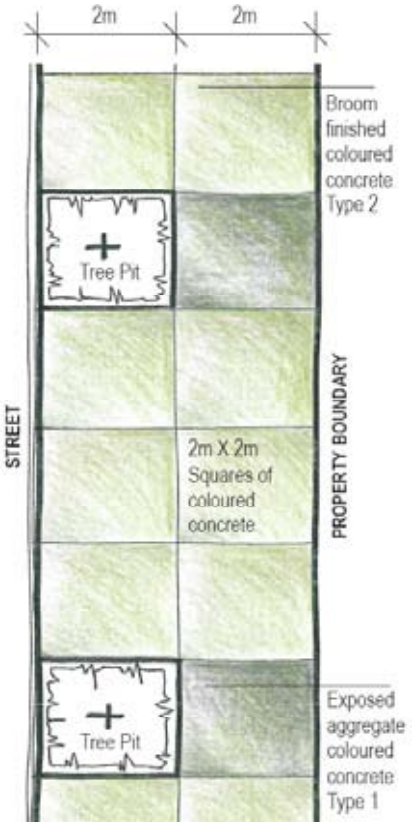


Figure 7.8(e) – Footpath Paving – Town Centre Access Street

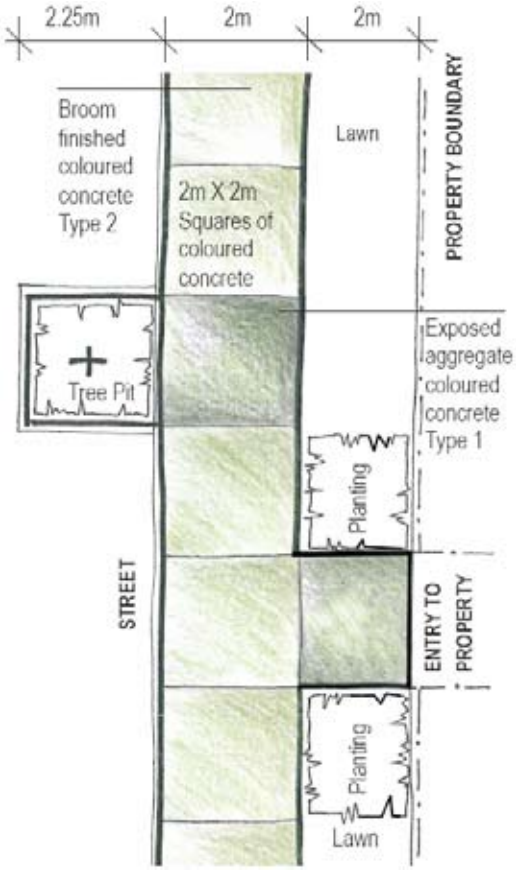


Figure 7.8(f) – Footpath Paving – Residential Access Street

7.9 Street Furniture

There is an opportunity to create memorable, distinctive and vibrant public spaces with the provision of street furniture which successfully integrates with, describes, or celebrates its chosen setting. It should be selected to complement the surrounding urban or natural environment and should meet all required safety standards, in addition to being functional, robust, and attractive.

Development must provide adequate street furniture as required, including but not limited to: seating, drinking fountains, shade structures and shelters, community noticeboards, tree guards, rubbish bins and recycle bins, bicycle parking facilities, signs, bollards and lighting. Some general guidelines for the provision of street furniture are as follows:

7.9.1 Seating Benches

Seating benches should be placed to be conveniently accessed and allow for surveillance of activity nodes or points of interest such as parks. Groups of benches should be placed in areas of high pedestrian activity and face around a central point to encourage community interaction.

7.9.2 Tree Guards

Tree guards should be used to protect trees in high activity areas where damage by pedestrians or vehicles is likely to occur.

7.9.3 Bollards

Bollards should be used to delineate vehicular corridors and pedestrian crossing points or areas of outdoor dining and to provide effective crash barriers where necessary.

7.9.4 Bike Stands

Bike stands must be located at public transport stops and other strategic locations as required.

7.9.5 Tree Pit Covers and Grates

Where tree pit covers are custom finished, cast metal should be is used in preference to paver inset covers. Where tree grates are used, they must not impact on the health of the tree, trap litter, fingers or shoe heels. Tree grates should be collapsible to allow for removal or replacement as the tree trunk increases in girth.

7.9.6 Drinking Fountains

Drinking fountains must be located in areas of high pedestrian activity. Dual fountains should be provided to be accessible for children and disabled persons.

7.9.7 Notice Boards

Community notice boards must be located in areas of high pedestrian activity and adjacent to bus stops. They should be incorporated with shade structures.

7.9.8 Rubbish and Recycle Bins

Within the Town Centre Core Precinct, at least 2 rubbish bins and 1 recycle bin must be provided on each side of the street, per street block. Rubbish bins must be located at least 3m from seating to avoid unpleasant odours. Rubbish bins must be readily accessible for refuse collection but avoid possible theft of liners, by way of hinged and locking mechanisms. Design of rubbish bins must allow for the separate collection of recyclable materials.

7.9.9 Street Lighting

Street lighting must comply with relevant Australian Standards. Lighting design should consider shadowing of tree canopies and impacts on light quality. High levels of light should be maintained in the Town Centre Core Precinct. Low standards of 5m (under the tree canopy) or lighting off the buildings or street canopies may be appropriate. Under canopy or long arm lighting should be provided in less used areas.

7.9.10 Park and Amenity Lighting

Lighting must be a component of all parks and open space linkages to create a safe and secure environment. The provision of lighting should:

(a) provide residents and visitors with opportunities for evening recreation;
(b) increase passive surveillance; and
(c) increase social interaction and in turn community capital (i.e. walking groups).

7.10 Streetscape Treatment Schedule

The Streetscape Treatment Schedule in Table 7.10 below identifies the required street furniture types.

Table 7.10 – Streetscape Treatment Schedule

ITEM	PRINCIPAL STREETS						LOCAL ACCESS STREETS	
	Town Centre Connector	Stringybark Road	'A' Street (Town Centre)	'A' Street	Town Centre Principal Street	Residential Principal Street	Town Centre Access Street	Residential Access Street
Footpath Trees	Lophostemon confertus	Lophostemon confertus	Flindersia schottiana	Flindersia schottiana	Flindersia schottiana	Flindersia schottiana	Waterhousa floribunda, Jagera pseudorhus, Brachiychiton discolour	Pongamia pinnata, Waterhousa floribunda
Median Trees	Mix of Lophosternon confertus, Syncarpia glomifera and Melaleuca quinquinervia	Ficus virens	Ficus virens or Ficus platypoda	None	N/A	N/A	N/A	N/A
Understorey Planting	Median and street trees	Median only	Median as appropriate	Median and street trees as appropriate	None	Lawn	None	Yes
Tree Pit Mulch	Composted forest mulch	Decomposed Granite	Decomposed Granite	Decomposed Granite	Decomposed Granite		Decomposed Granite	Composted forest mulch
Pavement Type 1	Concrete Type 1 – Hanson Sippy Downs Mix – Light Exposed Concrete CCS Cactus with 9-14mm aggregate (70% dark jade, 25% Glasshouse Blue, 5% Oyster Grey) 32MPa	Paver Type 1 – Hanson 400 x 400 "Sippy Downs Brush Box" CCS Cactus (double pigment quantities) 10-12mm aggregate Padthaway Green	Paver Type 1 – Hanson 400 x 400 "Sippy Downs Brush Box" CCS Cactus (double pigment quantities) 10-12mm aggregate Padthaway Green	Paver Type 1 – Hanson 400 x 400 "Sippy Downs Brush Box" CCS Cactus (double pigment quantities) 10-12mm aggregate Padthaway Green	Paver Type 1 – Hanson 400 x 400 "Sippy Downs Brush Box" CCS Cactus (double pigment quantities) 10-12mm aggregate Padthaway Green	Paver Type 1 – Hanson 400 x 400 "Sippy Downs Brush Box" CCS Cactus (double pigment quantities) 10-12mm aggregate Padthaway Green	Concrete Type 1 – Hanson Sippy Downs Mix – Light Exposed Concrete CCS Cactus with 9 – 14mm aggregate (70% dark jade, 25% Glasshouse Blue, 5% Oyster Grey) 32MPa	Concrete Type 1 – Hanson Sippy Downs Mix – Light Exposed Concrete CCS Cactus with 9 – 14mm aggregate (70% dark jade, 25% Glasshouse Blue, 5% Oyster Grey) 32MPa
Pavement Type 2	Concrete Type 2 – CCS Driftwood, broom finish concrete 25MPa	Paver Type 2 – Hanson 400 x 400 "Sippy Downs Tea Tree" CCS Driftwood, 10-12mm aggregate Padthaway Green	Paver Type 2 – Hanson 400 x 400 "Sippy Downs Tea Tree" CCS Driftwood, 10-12mm aggregate Padthaway Green	Paver Type 2 – Hanson 400 x 400 "Sippy Downs Tea Tree" CCS Driftwood, 10-12mm aggregate Padthaway Green	Paver Type 2 – Hanson 400 x 400 "Sippy Downs Tea Tree" CCS Driftwood, 10-12mm aggregate Padthaway Green	Paver Type 2 – Hanson 400 x 400 "Sippy Downs Tea Tree" CCS Driftwood, 10-12mm aggregate Padthaway Green	Concrete Type 2 – CCS Driftwood, broom finish concrete 25MPa	Concrete Type 2 – CCS Driftwood, broom finish concrete 25MPa
Seats, Benches and Tables	SFA – Plaza CMP1/4/6 Jarra Battens	Concrete / Stone Seating Walls	SFA – Plaza CMP1/4 Powdercoat	SFA – Plaza CMP1/4 Powdercoat	SFA – Plaza CMP1/4 Powdercoat		SFA – Plaza CMP1/4 Powdercoat	
Litter Bins	SFA – LB6 Aluminium	SFA – LB6 Powdercoat	SFA – LB6 Powdercoat	SFA – LB6 Powdercoat	SFA – LB6 Powdercoat	SFA – LB6 Powdercoat	SFA – LB6 Powdercoat	
Bollards	SFA – Slim B5 Domehead Aluminium		SFA – Slim B5 Domehead Powdercoat	SFA – Slim B5 Domehead Powdercoat	SFA – Slim B5 Domehead Powdercoat	SFA – Slim B5 Domehead Powdercoat		
Bike Stands	SFA – Hoop BST02 Galvanised	SFA – Hoop BST02 Galvanised	SFA – Hoop BST02 Galvanised	SFA – Hoop BST02 Galvanised	SFA – Hoop BST02 Galvanised		SFA – Hoop BST02 Galvanised	

8 Town Centre Landscape

This section is relevant to the assessment of compliance with Element 6 (Town Centre Landscape) of the Code for Development in the Sippy Downs Town Centre.

8.1 Retain Existing Vegetation

Much of the Town Centre site will be cleared to make way for buildings, roads and infrastructure. The nature of the existing vegetation coupled with the nature of development proposed will leave limited opportunities for retaining existing vegetation in the Town Centre.

The original landscape should be represented by retaining existing vegetation of high scenic quality wherever possible on individual development sites and be supplemented with additional native planting. Vegetation retained on site may be included in the amount of landscaping required for a site.

8.2 Nature Conservation and Biodiversity Values

A5.3 of Element 6 seeks to achieve *no net loss* of nature conservation and biodiversity values for the Sippy Downs Town Centre Precincts only. A *no net loss* outcome will be achieved by the provision of *rehabilitated offsets*, where any vegetation proposed to be cleared is replaced by newly established vegetation elsewhere. *Rehabilitated offsets* are different from *compensatory habitat* which is the securing of other existing vegetation. The following provides guidance on how compliance with A5.3 can be achieved.

8.2.1 Offset Ratio and Type

Where the retention of mapped remnant or regrowth vegetation (that is vegetation within an area defined as 'Nature Conservation Management Areas' by Regulatory Map No 1.1) can not be achieved, the applicant must provide replacement vegetation at a ratio equivalent to that which will be cleared for the proposed development (e.g. ratio 1:1 – for every hectare of vegetation cleared a hectare must be re-planted). Furthermore a 'like for like' replacement of regional ecosystem type is also required (e.g. regional ecosystem 12.3.13 replaced with revegetated 12.3.13) however some flexibility depending on the ecological outcome will be considered.

8.2.2 Land Tenure

Rehabilitated offsets are required to be provided on land demonstrating permanent tenure consistent with securing environmental values. The required offset may be provided by either one of two ways, or a combination of these:

1. on land with secure tenure owned or purchased by the applicant; or
2. on Council owned land.

Where the applicant proposes to provide rehabilitated offsets on Council owned land the applicant must, in addition to providing the rehabilitated offsets, contribute an agreed market value of the land to Council. The market value will be determined by a registered valuer. For example, if the area to be revegetated is 4.5ha and the land is valued at $10,000 per/ha the resulting developer contribution will be $45,000. Contributions collected will be allocated in an established trust account for the purpose of undertaking additional ecological rehabilitation programs to be determined by Council.

Land that is proposed to be used for rehabilitation must be afforded long-term protected conservation tenure either through:

(a) dedication to Council as open space; and/or
(b) the application of a Vegetation Protection Covenant registered on the property title.

8.2.3 Priority Areas

All rehabilitated offsets are to be provided within an identified Council 'Priority Area'. 'Priority Areas' are areas that have been strategically identified that include but are not limited to: Core vegetation areas, Critical Linkage areas and areas adjacent to existing conservation areas. For determination of 'Priority Areas' further information may be obtained from Council's Environment Branch.

8.2.4 Offset Rehabilitation Plans

Prior to or at the time of lodgment of any Operational Works plans, a detailed Offset Rehabilitation Plan must be prepared and submitted to Council in accordance with *Planning Scheme Policy No. 3 – Rehabilitation Plans*. The Offset Rehabilitation Plan must also include:

(a) details of the property subject to the rehabilitation including maps and survey plans of covenant area;
(b) a comprehensive restoration plan that includes but is not limited to: species selection and rationale (e.g. local species providence); planting matrices based on zonation principles; the re-use of recovered material from the cleared site in the rehabilitation site (e.g. 'forest furniture') and a comprehensive maintenance program;
(c) identification of threats and long-term management strategies to mitigate threats that ensures the revegetation achieves a Regional Ecosystem status (e.g. weeds, pests, stock management, land degradation etc);
(d) a formal monitoring and reporting program (linked to Bond) that includes assessment against performance criteria requirements (e.g. mortality rates); and

(e) a detailed cost schedule of all aspects of the implementation of the Plan.

The required maintenance period for all rehabilitation projects on Council owned land is 5 years. Where land is to be protected by a Vegetation Protection Covenant, maintenance must be in perpetuity.

Council encourages applicants to incorporate best practice rehabilitation principles such as *'soil profile translocation'* that results in a diverse native soil seed stock, potentially reducing weeding and watering requirements or the collection of seed stock from cleared vegetation for use in the revegetation. The use of such practices may result in reduced maintenance periods, dependent upon performance results.

8.2.5 Bonding of Works for Rehabilitation

Prior to the survey plan release a performance bond must be lodged by the applicant. The bond must be equal to 1.5 times the total cost of the works. The total cost of works is defined as the addition of, the capital cost, plus the cost of all maintenance for the 5 year duration.

The capital works component of the revegetation must be completed and in the ground for 12 weeks prior to plan sealing. The performance bond will be released in increments of up to 50% based on achievement of the performance objectives and criteria over the 'on maintenance' period in accordance with the objectives outlined in the approved Offset Rehabilitation Plan. The final bond increment will be released at successful off maintenance.

8.2.6 Fauna Management

The applicant must lodge a detailed Fauna Management Plan (FMP) at lodgment of the first Operational Works application over the subject land. The FMP must specify precisely the steps that will be taken to protect fauna species during any development activity that is undertaken on any part of the subject land. The FMP must include the use of fauna catchers/re-locators approved by the *Queensland Parks and Wildlife Service*, including the name of the fauna catcher/re-locator and a copy of the fauna catchers/re-locators Rehabilitation Permit. The FMP must include but is not limited to the following:

(a) a comprehensive on-ground assessment of the fauna occuring in the areas to be cleared as part of the proposed development. This assessment must be performed by the spotter/catcher to conduct trapping and relocation of fauna on the site;
(b) the methodology for the inspection of fauna on site including inspection of hollow branches, logs on the ground, nests of birds and possums or other sites of fauna habitation;
(c) any special machinery required to undertake the assessment (such as cherry pickers and pole camera with an optical fibre and light for viewing of hollows etc.);
(d) the nomination of release areas and written approval from the owner of the land (if not the applicant);
(e) the schedule of pre-clearing trappings and releases;
(f) the direction of clearing (so as to clear from an open area into a less open area to allow escape into neighbouring bushland); and
(g) the contact details of the nearest specialised wildlife rehabilitation centre or other authority that can deal humanely with injured wildlife.

A final report must be provided to Council no later than 3 weeks after clearing has finished. This final report must detail the following:

(a) the period of time during which clearing was undertaken;
(b) the animals and species that were caught/sighted and released and their placement of release or escape;
(c) any animals that were destroyed due to injury and the contact details of the specialised wildlife rehabilitation centre where they were taken; and
(d) required follow up monitoring activities of nesting boxes, placed logs, hollow branches or other forest furniture.

8.3 Landscaping of Development

Development is required to provide landscaping to enhance the landscape character of the Town Centre. Landscaping should include new plantings of trees and understorey with species that will perform well in the urban environment. Landscaping must be provided:

(a) along all streets with dense plantings of avenue trees;
(b) within all squares and plazas with feature and canopy tree plantings; and
(c) around buildings and car parks within commercial and residential development sites.

8.3.1 Minimum Landscaped Area

Each development site must provide a minimum area of landscaping which provides for deep planting. Deep planting is defined as planting in natural ground. Areas of deep planting must remain free of basement car parking. This will require consideration in the initial design stages of development particularly in the design of basement car parking areas. Satisfaction of minimum landscaping should be demonstrated

as part of Development Applications for Material Change of Use rather than at the Operational Works stage of development. The minimum landscaped area does not include:
(a) landscaping or street trees provided within the road reserve area; or
(b) car parking or waste management areas; or
(c) drainage swales or bio-filtration devices; or
(d) hardstand surfaces such as paved areas or courtyards.

8.3.2 Feature Planting Areas Along Important Frontages

Important frontages should comprise attractive trees, low planting and hard landscaping as required and extend along those parts of the street frontages not occupied by buildings or access ways for a minimum width of 3m.

8.3.3 Shade Trees in Car Parking Areas

Trees used in car parking areas should comprise appropriate species of tall-growing shade trees within and around outdoor car parking areas, planted at a spacing of every 4 bay widths to provide shade to parked vehicles. Species selection should exclude trees with excessive leaf drop, fragile branching or berries or fruit. Construction must include structural soil (rock matrix) and root control devices.

8.3.4 Screen or Buffer Planting Areas

Screen and buffer planting areas should comprise densely planted areas having a width of at least 3m and/or solid fencing or walls, or other screen structures, of a height of at least 1.8m. They may be required to screen out views to potentially unsightly facilities of areas (e.g. service yards, refuse collection areas) or in cases where protection of privacy is required.

8.3.5 Planting Integrated with Building Forms

Planting must be integrated with the design of any multi-level car parking structures where facades are likely to be visible from nearby streets and other public spaces. Terrace or roof-top planting is encouraged to soften the appearance of buildings and provide visual amenity, especially for mixed use buildings which incorporate a residential component. Planting should also be used to improve microclimates and minimise energy consumption.

8.4 Streetscape and Street Tree Planting

All streets must have avenue planting with large canopy trees to maximise the amount of shade. The required street tree species are identified in Figure 7.3.6 (Street Tree Treatment) of Code 7.3, whilst spacing details are identified by the relevant cross section for each street type identified in Section 5.3 of this Planning Scheme Policy. Street trees should be located:
(a) a minimum distance of 500mm from the kerb;
(b) at least 1.5m from any overhead awnings;
(c) a minimum of 1.5m from the edge of drive and access ways;
(d) a minimum of 2.5m from corners of street blocks;
(e) 5m from low standard lights and long arm light poles; and
(f) 7m from standard lighting poles.

Street trees, street furniture and other landscaping elements must not restrict sight distance for vehicles, pedestrians or cyclists at intersections or at crossing locations.

8.4.1 Location of Services

All underground services are to be co-located in a single corridor adjacent to the property boundary so as not to limit the placement and growth of street trees.

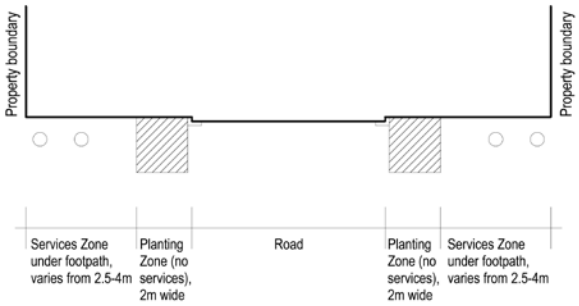


Figure 8.4.1 – Location of Services

8.4.2 Sensitive Building Design

Consideration should be given to the careful design of streets and buildings to allow potential conflicts to be resolved. The use of flexible design elements within buildings such as carefully sculpted cantilever awnings may be an appropriate design response.

8.4.3 Structural Soils

A best practice approach to soil preparation and planting is required by the utilisation of structured soils to promote tree growth. The use of structural soils in hard paved areas is to be provided generally in accordance with Figure 8.4.3.

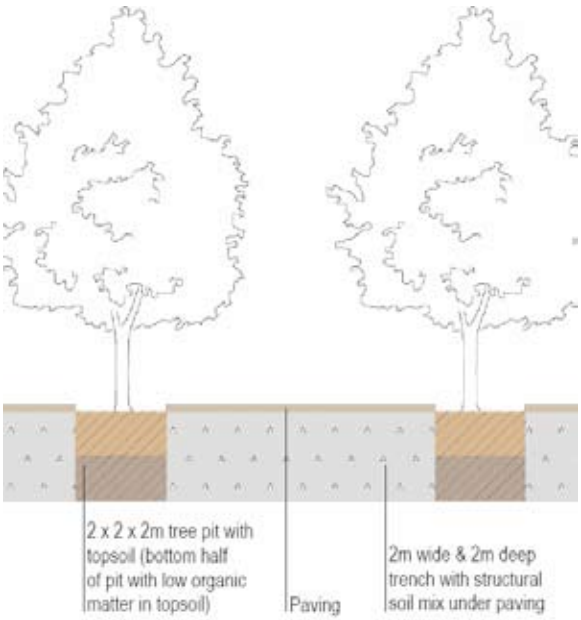


Figure 8.4.3 – Use of Structural Soils in Paved Streets (Longitudinal Section)

8.5 Forest Buffer

Development is required to provide a buffer area to screen development from the Sunshine Motorway. The minimum width of this buffer area is 20m as measured from the property boundary of the Sunshine Motorway. Where vegetation exists within this area, all vegetation is to be retained in its natural state. Where no vegetation exists, the buffer area is to be densely planted floristically and structurally similar to Regional Ecosystems in the area.

In addition to the 20m required for the buffer, a stormwater conveyance swale is required and is to be located adjacent to the buffer area in accordance with the IWMP. See Section 9.3.2 for specifications of the swale. The Forest Buffer is to be provided generally in accordance with Figure 8.5 below.

8.5.1 Maintenance Aisle

The Forest Buffer and stormwater swale will require a 3m maintenance aisle able to accommodate a small truck or ute with passing and turn around areas. Development must ensure that access to the maintenance aisle can be achieved from the street network. Access easements may be required for this purpose.

Council will require that the stormwater swale and maintenance aisle be maintained by the body corporate for owners of individual developments for a period of 3 years, after which the ownership of these areas must be transferred to Council to allow for a coordinated approach to the long-term maintenance of the Forest Buffer and stormwater swale.

8.5.2 Acoustic Fencing

It is not expected that acoustic fencing will be required along the Sunshine Motorway boundary. Refer to Section 11 for further information.

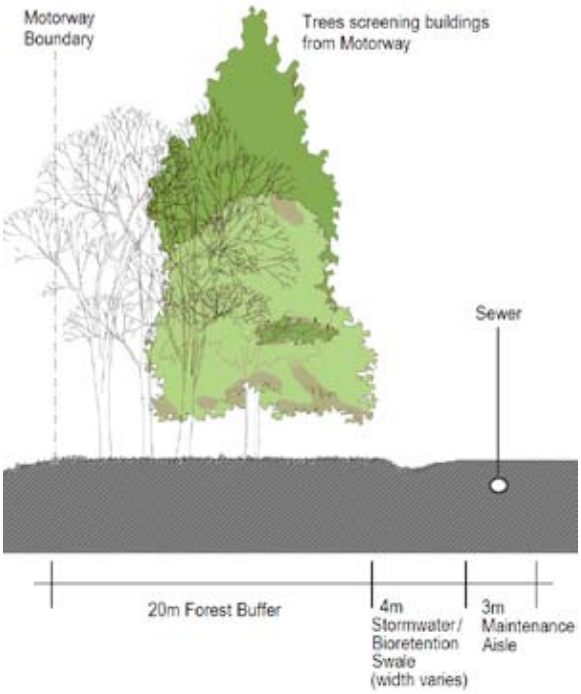


Figure 8.5 – Indicative Forest Buffer Cross Section

9 Integrated Water Management
(Including Water Sensitive Urban Design)

This section is relevant to the assessment of compliance with Element 7 (Integrated Water Management) of the Code for Development in the Sippy Downs Town Centre.

9.1 General

The objective of these provisions is to promote the adoption of a range of water supply, wastewater management and stormwater management initiatives to develop more sustainable water infrastructure for the Sippy Downs Town Centre.

9.2 Sippy Downs Town Centre Integrated Water Management Plan (IWMP)

To ensure a holistic approach to rainwater and stormwater management is considered across the Sippy Downs Town Centre precincts, Council has prepared an Integrated Water Management Plan (IWMP). The IWMP is applicable to the:

(a) Town Centre Core Precinct;
(b) Sippy Downs West Neighbourhood sub-Precinct; and
(c) Sippy Downs Business and Technology sub-Precinct.

Council will require development applications within the applicable precincts to fully consider the provisions presented in the IWMP, which are reflected in the provisions of this Planning Scheme Policy. Complying with the provisions presented in this policy will ensure that the requirements to achieve sustainable urban water management for the Sippy Downs Town Centre are shared across all development in a consistent manner. The IWMP provides guidance on the required dimensions for harvesting, detention, conveyance and treatment systems. These dimensions are reflected in the provisions of this policy. Departure from these dimensions will only be considered where it can be demonstrated that the proposed system provides equal or greater performance to those suggested in the IWMP.

A number of design drawings and sections support the IWMP. These drawings are available from Council's website. Refer to Council Drawing Series 9366.

9.3 Streetscape Stormwater Treatment

Development is required to provide for the treatment of stormwater runoff through combinations of on site treatment, roadside swales, vegetated buffers, biofiltration and extended detention areas within the road corridor and adjacent to the Forest Buffer area. As part of the Integrated Water Management Plan (IWMP), the stormwater conveyance strategy assumes that:

(a) a portion of runoff from roofs and site is captured and stored for use;
(b) excess runoff from roofs and site is treated before discharge to the roadside conveyance;
(c) conveyance within the road corridor is provided via combinations of kerb and channel flow, central swales and pipe drainage; and
(d) events up to the Q100 storm event are conveyed within the kerb to kerb area of the road reserves where applicable.

The IWMP (refer Council Drawing Series 9366) presents the anticipated configuration of stormwater conveyance systems within the Sippy Downs Town Centre. Layout of proposed trunk drainage system is given in Council Drawing Series 9366. Cross sections for each of the streets are identified in Section 5.3 of this Planning Scheme Policy.

9.3.1 On-site Bioretention Filters

On-site bioretention filters should be designed in accordance with the parameters presented in Table 9.3.1 and the Healthy Waterways Partnership's *Water Sensitive Urban Design Technical Design Guidelines for South East Queensland*.

The detention volumes of roofwater and stormwater tanks, required as per Table 9.4.1 and Table 9.6.1, may be accounted for as equal volumes of extended detention provided by on-site bioretention filters. Further, the bioretention filter in each development could be split to a series of bioretention filters keeping the cumulative volume unchanged.

The detention depths and filter depths presented in Table 9.3.1 must be maintained as the minimum values. Diversion of stormwater to the bioretention filters through a grassed swale may further improve the quality of stormwater.

Table 9.3.1 – IWMP Design Parameters for Bioretention Filters

Design Parameter	Analysis Value
Bioretention filter area	3% of site area
Extended Detention Depth	0.2m
Filter Depth	1.0m
Depth below underdrain pipe as a percentage of the filter depth	10%
Saturated hydraulic conductivity	100mm/hr
Filter media to comply with FAWB[6] Guidelines for Soil Filter Media in Bioretention Systems	

9.3.2 Forest Buffer Swale

The Forest Buffer Swale as presented in the IWMP (refer Council Drawing Series 9366) will be located outside and adjacent to the 20m wide Forest Buffer. The function of this swale is not to enter any part of the 20m required for the Forest Buffer.

Three parts of the Forest Buffer Swale (tail end) are to be utilised as bioretention Swales. Design parameters for the Forest Buffer Swale are given in Table 9.3.2. An indicative section of the Forest Buffer Swale is given in Council Drawing Series 9366. A 3m wide maintenance aisle will also be required to allow for access to the swale. This aisle should be located adjacent to the southern edge of the swale (refer to Section 8.5.1).

Table 9.3.2(a) – IWMP Design Parameters for Forest Buffer Swale

Catchment ID	Length (m)	Minimum Depth (m)	Other Parameters
1	118	0.50	• Bed slope: 0.5% • Bed width: 2m • Slopes 1:4 • Vegetation Height: 0.075m
2	266	0.65	
3	431	0.65	

6 *Facility for Advancing Water Biofiltration (FAWB) Monash University. http://www.monash.edu.au/fawb/products/obtain.html*

Table 9.3.2(b) – IWMP Design Parameters for Bioretention Filter for Forest Buffer Swale

Catchment ID	Length (m)	Min. Filter Area (m^2)	Other Parameters
1	89	178	• No extended detention depth • Filter media to comply with FAWB Guidelines for Soil Filter Media in Bioretention Systems • Saturated hydraulic conductivity: 100mm/hr
2	133	266	
3	162	324	

9.3.3 Filling and Excavations for Drainage Works

At some locations earthworks are anticipated to be required prior to construction of the drainage system. Anticipated works include:

(a) filling of the existing ground at locations indicated on the IWMP (refer Council Drawing Series 9366) in order to provide sufficient depth to convey Q100 flows; and

(b) levelling of the existing ground (cut and fill) at some locations in order to provide continuous grade towards the end of the swale (refer Council Drawing Series 9366).

Approximate filling heights at each location are given in the Council Drawing Series 9366. Details of these quantities will need to be confirmed during detailed design.

9.3.4 High Flow Bypass

The proposed IWMP drainage system (refer Council Drawing Series 9366) is adequate for flows up to Q100. However, to effectively convey flows from extreme events (greater than Q100) a high flow bypass weir is to be constructed to divert flows to the existing drain along the Sunshine Motorway. Refer to Council Drawing Series 9366 for high flow bypass locations and for a typical section of a proposed high flow bypass structure. The high flow bypass from the control weir should be designed to avoid disturbance of vegetation in the forest buffer from high energy flow.

9.3.5 Drainage Easements

Council will require easements for the proposed pipe drains and culverts as per Council Drawing Series 9366. These easements link the precinct's drainage system to the buffer zone swales.

9.4 Rainwater Capture, Storage and Reuse

The Sippy Downs Town Centre has the potential to capture significant volumes of rainwater for use. With any rainwater system, there are a number of design considerations:

(a) the available roof catchment that can realistically be used;

(b) the uses for the captured water;

(c) storage volumes;

(d) how the storages are constructed and integrated into the development;

(e) water quality and treatment requirements; and

(f) the need for pumping to distribute the water to the point of use.

9.4.1 Collected Rainwater

As part of the Integrated Water Management Plan (IWMP), the rainwater harvesting strategy requires:

(a) all building roof drainage to be directed to rainwater storages;

(b) systems screened to exclude leaf litter and insects;

(c) 1st flush devices provided;

(d) roofwater tank storage volumes as per Table 9.4.1;

(e) overflow from roofwater tanks to be diverted to stormwater tanks;

(f) storage be provided as tanks either buried under landscaped areas or car parks, or integrated into the basement designs of building;

(g) harvested rainwater/roofwater to be pumped throughout the building for toilet flushing, laundry and possibly also for limited garden irrigation; and

(h) roofwater storages are connected to reticulated mains water supply for top up when available supply is less than or equal to 10%.

Table 9.4.1 – IWMP Roofwater Tank Storage Volumes

Precinct	Roofwater Tanks	
	Retention Volume m^3 / ha*	Detention Volume m^3 / ha*
Sippy Downs Central	464	116
Sippy Downs West Neighbourhood sub-Precinct	230	58
Sippy Downs Business and Technology sub-Precinct	126	32

** Per hectare of total site area.*

9.5 External Water Use

9.5.1 Drinking Water Prohibited for Irrigation

In order to achieve the prohibition of potable water for landscape and other irrigation purposes, it is required that a harvested water supply system is implemented for supplying water for garden watering and landscape irrigation. The harvested water supply would be supplied by either roofwater or harvested stormwater. In addition, the use of signage to indicate that drinking quality water is prohibited for use as irrigation supply is to be displayed in all appropriate private and public areas.

9.5.2 Water for Fire Fighting

Water is to be provided for fire fighting by reticulated drinking water supply or from a water supply appropriately sized, treated and approved by *Queensland Fire and Rescue*.

9.6 Stormwater Capture, Storage and Reuse

The Sippy Downs Town Centre has the potential to capture significant volumes of surface stormwater for use. With any stormwater harvesting system, there a number of design considerations:

(a) the catchment that can realistically be used to collect water;
(b) the uses for the water;
(c) storage volumes;
(d) how the storages are constructed and integrated into the development;
(e) water quality and treatment requirements; and
(f) water pumping and distribution requirements.

9.6.1 Harvested Stormwater

As part of the Integrated Water Management Plan (IWMP), the stormwater harvesting strategy requires:

(a) at least 50% of the total site area other than roofs to be connected to stormwater tanks;
(b) stormwater storage volumes as per Table 9.6.1;
(c) the system is to be screened to exclude rubbish and leaf litter;
(d) storage systems may use a combination of open ponds and infiltration systems or concrete tanks either buried under landscaped areas or car parking areas, or integrated into the basement designs of buildings;
(e) a high flow bypass is incorporated to allow high volumes of intense or extended rainfall to bypass the storage facility and bioretention area; and
(f) collected stormwater intended for internal reuse is to be treated to appropriate standards as per relevant State Government guidelines and requirements.

Table 9.6.1 – IWMP Stormwater Tank Storage Volumes

Precinct	Stormwater Tanks	
	Retention Volume m^3 / ha*	Detention Volume m^3 / ha*
Sippy Downs Central	99	79
Sippy Downs West Neighbourhood sub-Precinct	628	137
Sippy Downs Business and Technology sub-Precinct	312	214

** Per hectare of total site area.*

9.7 Source Reliability

The IWMP roofwater and stormwater storages have been sized to capture and store volumes of rainwater and stormwater sufficient to supply the intended connections with 85% seasonal reliability. A continuous water balance simulation, of 30 years was undertaken to determine the reliability of substitute water sources.

9.8 Wastewater Management

The key elements to an IWM approach to wastewater management are:

(a) water conservation – to reduce wastewater flows;
(b) 'Smart' wastewater collection systems – to reduce stormwater inflow and infiltration (I/I); and
(c) water recycling – opportunities to reuse appropriately treated wastewater.

9.8.1 Smart Sewers

A 'Smart Sewer' system should be provided for all development. 'Smart Sewers' generally use welded PE pipe and plastic access shafts in lieu of manholes and can be used to replace conventional gravity sewerage systems. They take advantage of modern plastic pipe systems to reduce the number of joints and the potential for pipe failure and leakage. In addition, they reduce the number of manholes, a major source of stormwater ingress. While this reduces access into the sewer, it reflects the fact that modern sewer maintenance and inspection is largely done from the surface using cameras and remotely operated devices.

9.8.2 Sewer Location

The trunk sewer may be located within the area of the Forest Buffer Swale only where the swale is not required for bioretention purposes. Otherwise the sewer may be located within the maintenance aisle. Refer to Figure 8.5 for indicative location of the trunk sewer.

10 Environmental Sustainability

This section is relevant to the assessment of compliance with Element 8 (Environmental Sustainability) of the Code for Development in the Sippy Downs Town Centre.

10.1 General

Element 8 identifies a number of Acceptable Measures which are the minimum level that development should achieve. Council will support innovation and proposals that seek to exceed the Acceptable Measures.

Council recognises that the Performance Criteria may be achieved by a number of methods and that these methods will evolve with available technology and improvement in best practice. The assessment of alternate measures must demonstrate to what extent the alternate measure will achieve the relevant Performance Criteria. The consideration of alternate measures will be guided by comparison of the proposal with the Acceptable Measures in terms of:

(a) the percentage (%) reduction in greenhouse gas emissions from energy use (for P1); and
(b) the percentage (%) of materials from environmentally responsible sources (for P2).

10.2 Energy Efficiency

Development is required to reduce the production of greenhouse gas emissions resulting from use of non-renewable energy sources, specifically by achieving a 40% reduction in consumption of non-renewable energy. This reduction may be achieved by either, or a combination of:

(a) reducing the overall energy usage of the development; or
(b) use of renewable energy sources (i.e. solar photovoltaic cells) for all or part of the developments energy requirements.

This reduction should be determined by a comparison of the proposed development with recent historical data or the modelled energy performance of a similar development. The reduction may be achieved by measures beyond the lighting, heating and cooling systems of a development. Calculations must appropriately account for energy consuming operations that are subject to significant variation with a future change in tenancy. A number of possible solutions are outlined below. Any combination of these measures or others may be used.

10.2.1 Energy Generation

Item	Details
Renewable Energy Generation	The building has renewable energy generation installed (e.g. solar photovoltaic cells or wind generators). Any additional height incurred by solar cells will not be considered part of a buildings maximum height. Wind generators may exceed the maximum building height by no more than 3m.

10.2.2 Lighting

Item	Details
Energy Efficient Lighting	Development has an energy efficient lighting system with reflectors to reduce the number of lights and/or utilises solar power for lighting.
Natural Lighting	Development maximises use of natural light including use of shaded light shelves and heat reflective skylights and roof windows.
Motion and Daylight Sensors	Where appropriate, internal and external lights are triggered by motion and/or daylight sensors.

10.2.3 Heating and Cooling

Item	Details
Thermal Design	Buildings are designed to avoid the need for a heating system and to reduce the need for heating appliances.
Fixed Gas Heater	Where heating systems are required, each dwelling unit has a gas heater which is permanently installed and flued to the outside (excluding roof space).
Natural Ventilation Systems	Residential buildings use natural ventilation systems such as a whirly or vent system.
Openable Windows	All windows are able to remain open during showery weather and are positioned to maximise natural ventilation.
Air-Conditioning	Residential buildings are designed for minimal use of air-conditioning systems or use a combination of ceiling fans and natural ventilation systems for when air conditioning is not required.

Item	Details
Heat Exchange	• The building has installed heat exchange units that use waste heat from air-conditioning chiller units to supply hot water to dwelling units. • Energy efficient heat exchange units are integrated with air-conditioning systems for hot water and space cooling applications.
Material Colours	Low reflection light coloured building materials are used.
Paint	Buildings are painted with low reflection light colours and/or insulating paint in internal spaces.
West Facing Wall Shading	West facing walls are shaded, insulated or painted with insulative coatings.
Window Shading	Vegetation is planted to shade windows from low suns rays during the summer period from equinox to equinox.
Glazing	Glazing is shaded all year round or is heat reflective glass lamination.

10.2.4 Hot Water Systems

Item	Details
Electric Heat Pump with Waste Cool Air Recovery	The building has installed electric heat pump water heaters that supply hot water to all dwelling units and waste cool air from these units is used in air-conditioning chiller units.
Solar Hot Water	Each dwelling unit has a solar hot water system installed.
Electric Heat Pump	Each dwelling unit has an electric heat pump hot water system installed.
Gas Water Heater with 5 Star Energy Rating	Each dwelling unit has: • a gas water heater installed with a minimum of 5 stars on the AGA energy rating label, and temperature control suitable for shower fittings with a "AAA" *Water Conservation Rating;* and • shower fittings with a "AAA" *Water Conservation Rating* are installed.
Insulated Hot Water Pipes	Hot water pipes are appropriately insulated to minimise heat loss.
Water Efficiency	Energy use from consumption of hot water is minimised by the use of efficient shower roses, tap aerators and inflow tap regulators.

10.2.5 Swimming Pools

Item	Details
Pool Pumps	Pool pumps are powered by solar energy and are controlled by a timer.
Pool Lighting	Pool lighting is energy efficient and utilises solar energy or efficient fluorescent bulbs.
Pool Heating	Solar or gas hot water systems are used for pools and spas requiring heating.
Heat Covers	Heated pools are covered to reduce heat loss at night.

10.2.6 Other

Item	Details
Gas Cook-Top	Dwellings have a gas cook-top installed that is flued to the outside (excluding roof space).
Fixed Appliances	Where fixed appliances are provided as part of the development (i.e. pool pump, air-con, oven) appliances have the highest energy efficiency rating currently available.
Operational Efficiency	Information boards or panels are permanently fixed to rooms of buildings to educate occupants on methods of reducing energy and water consumption, waste and pollutants.

10.3 Materials[7]

Development is required to use construction materials that minimise environmental impact. To demonstrate compliance with P2, applicants must provide:

(a) evidence in the proposed plans of development including a schedule of materials; and

(b) a *Statement of Materials Selection*.

10.3.1 Statement of Materials Selection

The *Statement of Materials Selection* should be prepared by the building architect or engineer and should contain any relevant evidence or documentation and should specifically identify:

(a) details of low embodied energy or low life cycle energy materials to be used;

(b) details of reused and/or recycled materials to be used including information from the supplier and the recycled content of materials used;

(c) how construction and operational waste will be minimised;

7 *The content of this section has been adapted from part 4 of the EnviroDevelopment Standards (Version 1.1) prepared by the Urban Development Institute of Australia (Queensland).*

(d) the toxicity, emission and contamination properties of materials in relation to their life, disposal and reuse;
(e) details of materials which are derived from renewable sources, including the mechanism by which materials qualify as being from sustainable, renewable sources;
(f) evidence of the use of materials supplied by local manufacturers; and
(g) the total volume and proportion of all materials used in the development.

10.3.2 Low Lifecycle Energy Materials

Materials are considered to be low lifecycle energy materials when they have lifecycle energy of at least 30% lower than the standard or commonly used product. The lifecycle energy of a material is determined by the energy required for the extraction, production (embodied energy) and transport of the material as well as the expected longevity of the material in comparison to others. Evidence of low embodied energy materials can include documentation from research organisations (e.g. Universities, CSIRO).

10.3.3 Recycled Materials

The use of recycled materials may include:
(a) the reuse of structure or façade, etc.;
(b) the reuse of products such as steel or timber; or
(c) the use of materials that have a high recycled product content (>50%).

10.3.4 Renewable Source Materials

Renewable source materials include those that come from sustainable produced organic products such as sustainable forestry operations, straw, sustainable bamboo plantations etc. They may include other materials that are produced and recycled through a low energy usage, nonpolluting process. Appropriate certification (e.g. that timber comes from sustainable forestry practices) must also be provided where applicable.

10.3.5 Non-Toxic Materials

Non-toxic products generally include those that do not emit VOC gases or other known toxic substances. Where possible, preference should be given to reducing formaldehyde. Non-toxic and low emission products should be utilised in common areas and encouraged in private dwellings or commercial space. Non-toxic materials may include:
(a) non-toxic or low toxicity paints on internal painted surfaces;
(b) non-toxic or low toxicity floor coverings on indoor covered floors;
(c) low-toxicity sealants and adhesives etc.; and
(d) non-allergenic materials for furnishings.

11 Acoustic Environment Amenity

This section is relevant to the assessment of compliance with Element 9 (Acoustic Environment Amenity) of the Code for Development in the Sippy Downs Town Centre.

11.1 Road Traffic Noise Attenuation

The location of the Sippy Downs Town Centre in proximity to the Sunshine Motorway results in the need to address the acoustic impact of the Motorway on development, in particular for residential development.

As residential development will take place in the form of multiple dwelling units up to 6 storeys in height, the subsequent final site elevations in conjunction with any acoustic barriers will not achieve the required traffic noise attenuation. In addition, barriers would conflict with the visual amenity from the Sunshine Motorway and casual surveillance outcomes sought within the development. The applicable approach to noise attenuation may be achieved by:
(a) architectural measures and building orientation to shield communal outdoor recreation areas (pool & BBQ, playground etc) or private courtyards from traffic noise; and
(b) building design in accordance with *AS3671-1989: Acoustics-Road traffic noise intrusion-Building siting and construction* to achieve the satisfactory noise levels as stated within *AS2107-2000: Acoustics-Recommended design sound levels and reverberation times for building interiors* for the internal acoustic amenity.

This approach will achieve compliance with the acoustic amenity requirements of the Planning Scheme and is the preferred approach of both *Planning Scheme Policy No. 7 – Acoustic Environment Assessment* and the *Qld Main Roads Road Traffic Noise Management: Code of Practice 1990*.

12 Telecommunications Infrastructure

This section is relevant to the assessment of compliance with Element 10 (Telecommunications Infrastructure) of the Code for Development in the Sippy Downs Town Centre.

12.1 General

All new development in the Sippy Downs Town Centre is required to provide telecommunications infrastructure for *'Fibre to the Premises'* (FttP) as standard. The provision of this infrastructure will avoid any need for the future retrofitting of development.

The field of telecommunications infrastructure is one which will continue to see advancements in methods of infrastructure provision. It is therefore appropriate that new development should utilise the best available methods of infrastructure provision at the time of development. Additional information and documentation of relevant infrastructure specifications and build arrangements can be obtained from Council.

12.2 World Class Telecommunications Capability

The Sunshine Coast Technology Precinct, centered on Sippy Downs, requires world class telecommunications capability to ensure businesses are able to compete on a global scale. World class telecommunications capability is achieved through the provision of affordable, high bandwidth telecommunication services. High bandwidth is best deployed using optic fibre infrastructure or copper wire over very short runs.

12.3 Open Access Networks

In areas where world class business communications are required, 'Open Access Networks' must be provided. 'Open Access' infrastructure will provide access seekers with equal opportunities to deliver content and services as well as to provide them with equal access to the network at identified demarcation points. The provision of conduits and pits will provide the essential components of an 'Open Access' environment to encourage multiple carriers and the necessary capability for upgrading and replacement of telecommunications cabling without significant operational works.

12.4 Multiple Services and Providers

The provision of suitable minimum accommodation and building services will give more carriers and carriage service providers the opportunity to provide services to a building, ensuring that service access is not limited to services from one carrier to a given building. This may be satisfied by ensuring that that the telecommunications closet spaces are large enough to accommodate more then one carrier. In larger buildings this may involve more than one closet on more then one level. It should be noted that due to the diverse range of designs used by telecommunications carriers, carriers will still need to install additional equipment and cabling to deliver the full range of telecommunications services to tenants in a multi-storey building.

12.5 Specifications and Design

The actual size, specifications and structural design of all building services provided for telecommunications facilities and other communications facilities should be referred to professional telecommunications advisers, building design specialists, carriers and tenants as appropriate and should adhere to relevant Australian Standards and Building Codes. Figure 12.5 below provides an example of a network implementation in a multi-storey building demonstrating the infrastructure framework for building entry points, equipment room(s), vertical pathways, and horizontal pathways.

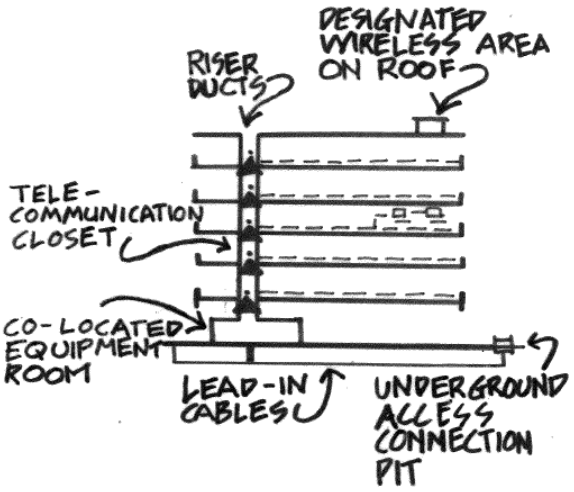


Figure 12.5 – Example of Network Implementation for a Multi-Storey Building

12.6 Completion of Works

Upon the completion of works, the approved 'as constructed' drawings must be registered with Council for recognition in the *'Dial Before You Dig'* system. Council will also require that the constructed 'Asset', being all conduits and pits, are transferred to Council at the end of a 2 year maintenance period.