

**Walker**

Walker Corporation Pty Limited

## Walker Development Plan-Kew

DECEMBER 2005

PLANNING and ENVIRONMENT ACT	
BOROONDAARA PLANNING SCHEME	
CLAUSE	43.04
PLAN No.	
ENDORSED PLAN	
Sheet	1 of Walker Development Plan - Kew
Signed	<i>[Signature]</i>
MINISTER FOR PLANNING	
Date	9/2/06

December 2005



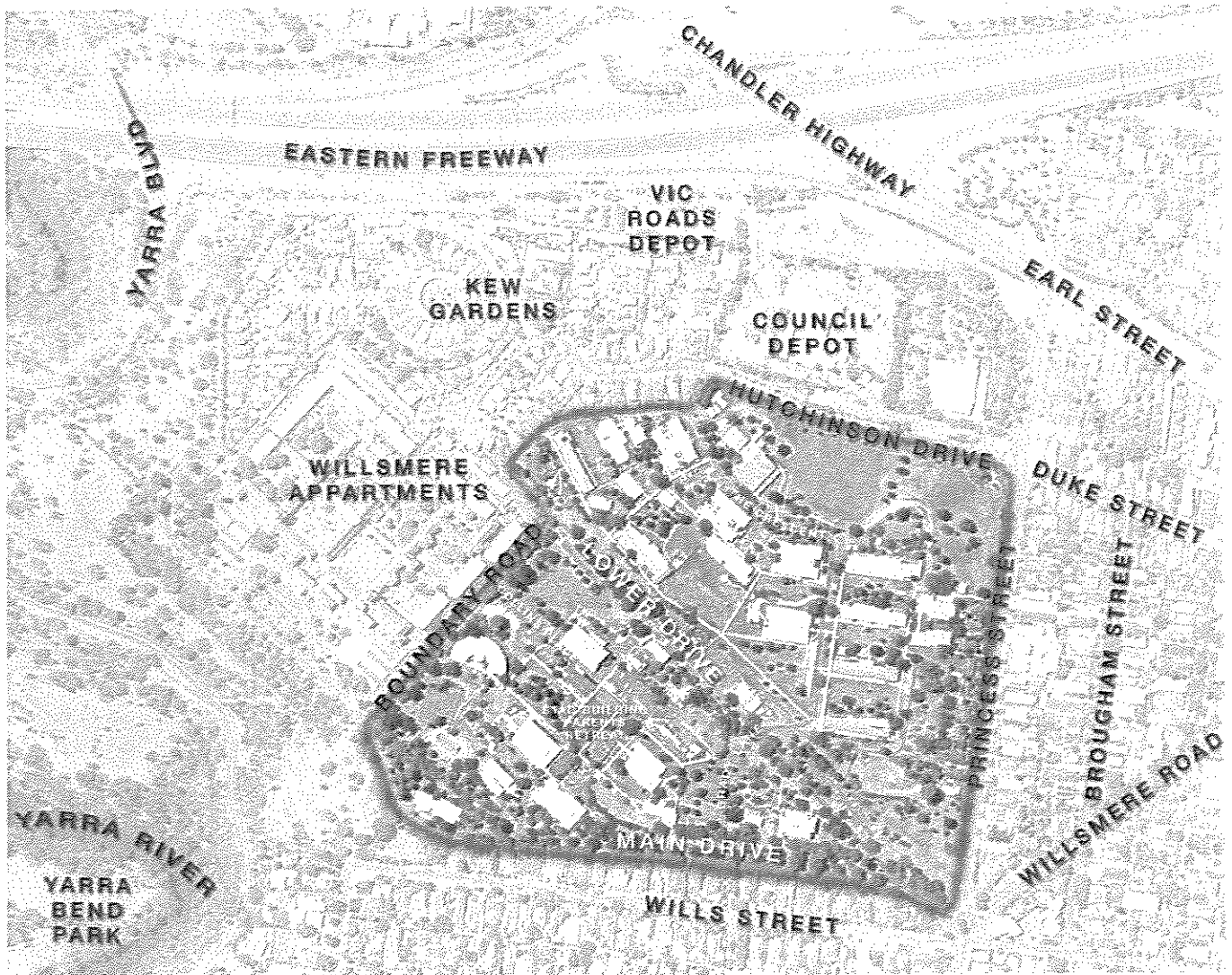
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WALKER DEVELOPMENT PLAN AREA

# 1 INTRODUCTION

## 1.1 THE WALKER DEVELOPMENT PLAN AREA

The Walker Development Plan area in Kew (the subject land) is approximately 6 kilometres east of the Melbourne central activities district and consists of approximately 27 hectares of land on the west side of Princess Street, Kew. It is bordered by Hutchinson Drive to the north, Princess Street to the east, the rear of properties fronting Wills Street to the south and Yarra Bend Park to the west and the developments known as Willsmere Apartments and Kew Gardens to the north west.

The subject land will be occupied in part until the end of 2006 by Kew Residential Services (KRS), formerly known as 'Kew Cottages'. KRS is a congregate institution for people with an intellectual disability and is managed by the Department of Human Services (DHS).

The Victorian Government announced in May 2001 that the subject land would be redeveloped to provide better quality services and housing for KRS residents. This decision included the sale of the subject land and the relocation of KRS residents into the community, although 100 KRS residents continue to live on the subject land in new purpose built accommodation.

## 1.2 THE DEVELOPMENT PLAN

The Boroondara Planning Scheme (the Scheme) includes the subject land within Schedule 3 to the Development Plan Overlay (DPO3 - Kew Residential Services).

The purpose of the Development Plan Overlay (DPO) includes the following.

- "To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if it is generally in accordance with a development plan". (Clause 43.04).

The DPO requires generally that a development plan be prepared to the satisfaction of the responsible authority before a planning permit is granted to use or subdivide land, construct a building or construct or carry out works.

A development plan is a report and enclosed map that provides a general outline of the way land is intended to be developed. A development plan designates proposed housing areas, street layouts and other main land uses for a comprehensively planned development of land.

The development plan forms the framework for more detailed planning at subdivision and development stage level. The detail may vary or 'fine tune' the development plan provided it does not change its general intent (except to the satisfaction of the responsible authority).

Once the development plan has been prepared to the satisfaction of the responsible authority, any planning permit application that is generally in accordance with it is exempt from notice requirements, decision requirements and review rights. Any permit granted must also be generally in accordance with the development plan. The development plan may be amended to the satisfaction of the responsible authority.

DPO3 details the building height, building setback and information requirements for this Walker Development Plan-Kew (WDP-K) and states that a "development plan must be generally in accordance with the Kew Residential Services Urban Design Framework, October 2003 incorporated into this planning scheme".

This WDP-K provides a response to the requirements detailed in DPO3 and includes a site and strategic context analysis of the subject land. Also included in the WDP-K is a response to the Kew Residential Services Urban Design Framework October 2003 (KRSUDF).

## 1.3 WALKER CORPORATION PTY LIMITED

WDP-K has been prepared by Walker Corporation Pty Limited (Walker Corporation) as the developer of the subject land.

Walker Corporation has completed over 245 residential, commercial, industrial and retail projects across Australia. It prides itself on responding to community and commercial needs, managing processes and providing the finest creative design solutions. Walker Corporation understands and

develops for diversity and is responsible for creating unique new communities. It is committed to innovative planning and urban design.

"Our strategic approach combined with our track record of success in tackling sometimes difficult, complex and large scale projects gives us the competitive edge. We will deliver yield, certainty and quality environments in a well timed and sensitively managed development program. We will bring commercial acumen and financial skills to all elements of the development and marketing program and work hard to achieve and exceed expectations" (Lang Walker, Executive Chairman, Walker Corporation).

#### 1.4 DEPARTMENT OF HUMAN SERVICES REQUIREMENTS

The key objectives of the Victorian Government for the development of the subject land are to:

- "create a new and integrated residential neighbourhood which both meets the requirements and aspirations of those existing KRS Residents who will be remaining on the Site while at the same time achieving the planning amenity and commercial outcomes merited by the Site;
- achieve new Community Houses and ancillary facilities for those existing KRS Residents who will remain in the Site;
- consistent with meeting the above objectives, provide the best value for money commercial outcome for the State for reinvestment into services for people with a disability" (Department of Human Services, Request for Proposals, 2004 p. 31).

The accommodation and facilities advised as required by DHS on the subject land include the following.

- Twenty new community houses with eleven houses in three, 'loose groupings'. Each community house is to be constructed on a lot generally of up to 800 square metres, to be single-storey and to accommodate five to six residents.
- A facility, including a hydrotherapy pool, available to both KRS and new residents and the wider community. The hydrotherapy pool is to

accommodate a minimum of five disabled users and their carers at any one time.

- Consultation rooms in close proximity to the facility for use by visiting health professionals.
- A designated building or flexible indoor space in close proximity to the facility for community-based activities relevant to the needs of KRS residents, as well as the wider community.
- A good level of accessibility across the development for people of all abilities.



## 2 SITE CONTEXT AND ANALYSIS

### 2.1 CULTURAL HERITAGE

#### 2.1.1 Aboriginal Heritage

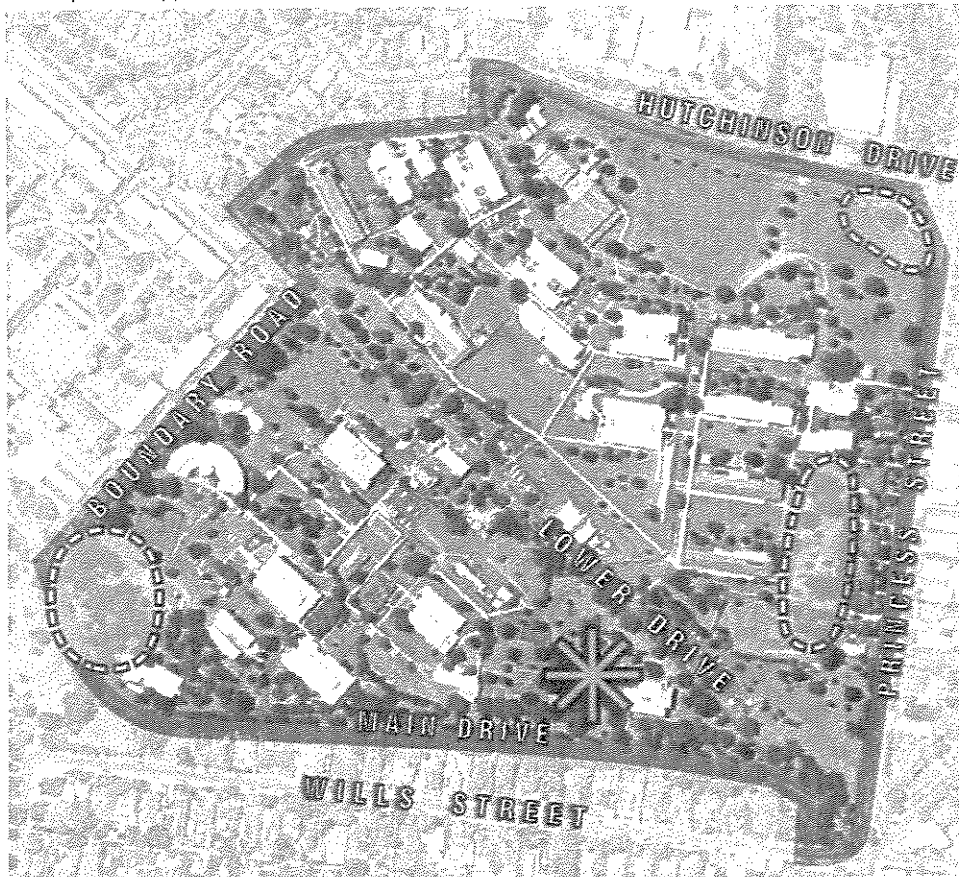
The subject land is located in the territory of the Woi wurrung language group, which occupied most of metropolitan Melbourne. The relevant clan of the Woi wurrung was divided into patrilineal groups - the Wurundjeri Willam and Bulug Willam. The Wurundjeri Tribe Land Compensation and Cultural Heritage Council Incorporated (the Wurundjeri) represents today the Aboriginal people in the Melbourne area.

One Aboriginal site - a salvaged portion of a scarred tree - has been recorded previously on the subject land. There is inconsistency in the recording of the original location of the tree however, its remaining portion is reported to have been in its current location since 1984.

The 3 metres high section of the scarred tree has been set on a concrete foundation under a small rotunda. The main scar, identified as a canoe scar, is 1.9 metres long and 0.38 metre wide. The base of the scar was lost when the tree was cut down. A smaller scar 0.4 metre long and 0.15 metre wide occupies the opposite side of the tree.

A cultural heritage survey (Kew Cottages Cultural Heritage Survey) was prepared by Biosis Research in 2001 and identified the following three areas of Aboriginal archaeological potential on the subject land.

- The south west corner of the site, which abuts the Yarra Bend Park, has extensive views to the west and maintains an under-storey of indigenous grass. This area has a low to moderate potential for the occurrence of stone artefact scatters, isolated artefacts and / or hearths relating to camping and food preparation.
- The east of the site among the mature River Red-gums, which is relatively undisturbed. This area has a low potential for the occurrence of isolated artefacts.
- The north east corner of the site surrounding the largest of the remnant River Red-gums and where a former creek gully may have been filled.



- ★ ABORIGINAL SCARRED TREE
- AREAS TO BE MONITORED FOR ANY ABORIGINAL ARTEFACTS



#### ABORIGINAL HERITAGE PLAN

## 2.1.2 Post-Contact Heritage

Thomas Glass was one of the first permanent settlers in the Kew area, establishing a homestead and squatting run in 1839 on what is now Kew Golf Course. By the 1840s, a bullock track passed through Kew and connected the city centre to the Yarra Valley.

Kew was originally surveyed as part of the Parish of Boroondara in 1844 by Robert Hoddle. A large area was reserved on the banks of the Yarra River initially for a village reserve but in 1856 changed to a reserve for a mental asylum.

In 1879 nearly 600 children, representing a quarter of all patients, were accommodated in various institutions in Victoria. Between 1872 and 1886, various reports, enquiries and Royal Commissions suggested the need for a separate, cottage-style institution for children.

Kew Cottages (now known as KRS) opened in 1887, adjacent to the Kew Asylum (also known as Willsmere Hospital). The first buildings accommodated approximately 60 children in three cottages, each equipped with its own kitchen. A school (more recently known as the parents retreat / chapel) was established in 1887. More cottages were added in the late 1880s and 1890s.

The grounds of the Kew Asylum and the subject land were landscaped in the tradition of an English country park. It is likely that the landscape of the site is a combination of the supply of trees and plants by Baron Ferdinand Von Mueller (keeper of the Botanic Gardens), extension and maintenance by Hugh Linaker (head gardener of Mont Park Mental Health complex) and construction by 'institutional labour'.

Conditions at the subject land deteriorated during and following the economic depression of the 1890s and while extensive renovations were completed in 1928, conditions were at their worst when the Mental Hygiene Authority (MHA) was created in 1952.

The first chairman of the MHA, Dr E Cunningham Dax, instigated improvements in the operation and condition of KRS. A rebuilding program began in 1953 with the support of community organisations and following a public appeal. The Victorian Government matched the amount raised by the appeal. By 1963, all of the original cottages were replaced or renovated and seven new accommodation units were constructed. New activity programs also were established.

Management of KRS was transferred from the Kew Asylum in 1956. The role of KRS in accommodating intellectually and physically disabled children expanded to cover socially disadvantaged children. Its role also changed as young residents grew up and continued to live as adults on the subject land.

The Kew Cottages Parents Association (KCPA) was formed in 1957 to provide a means for parents to assist in the care of residents of KRS.

A second public appeal in 1975, with the Victorian Government matching the amount raised, resulted in the construction of four new education facilities.

In 1987 The Ten Year Plan for Services Redevelopment in Victoria recommended the dismantling of all institutions in seven to ten years, including the relocation of all residents and the sale of institution sites.

In accordance with Victorian Government policy, KRS began to wind down in the early 1990s. A fire in 1996 resulted in the death of nine residents. Subsequently, a fire safety upgrade, a fire risk management system and the refurbishment of four accommodation units, were completed. The relocation also continued of residents out into the wider community.

As outlined above, the Victorian Government announced in May 2001 that the subject land would be redeveloped to provide better quality services and housing for KRS residents. This decision will lead to the redevelopment of the land and the continued relocation of many remaining KRS residents into the community.

## 2.1.3 Cultural Significance of the Subject Land

The cultural heritage survey concluded that the Aboriginal scarred tree is of high scientific significance.

DPO3 of the Scheme requires the WDP-K to retain the Aboriginal scarred tree in an appropriate setting but envisages the possible relocation of the remaining portion of the tree. Any relocation will require the approval of the Wurundjeri and Aboriginal Affairs Victoria.

DPO3 requires the WDP-K to include an archaeological

assessment and this summary of the previously prepared reports meets that requirement.

The cultural heritage survey recommended that with any works in the identified areas of Aboriginal archaeological potential, a qualified archaeologist and representative of the Wurundjeri be enlisted to monitor such works.

The plan above in 2.1.1 indicates the location of the Aboriginal scarred tree and areas to be monitored with development for Aboriginal archaeological artefacts.

On 25 November 2004, the subject land was added to the Victorian Heritage Register (VHR) as listing H2073. The extent of the VHR designation is as follows.

The VHR Statement of Significance states that the "Former Kew Cottages (Kew Residential Services) site is of architectural, historical, aesthetic, scientific (horticultural) and social significance to the State of Victoria" and details why the subject land is significant.

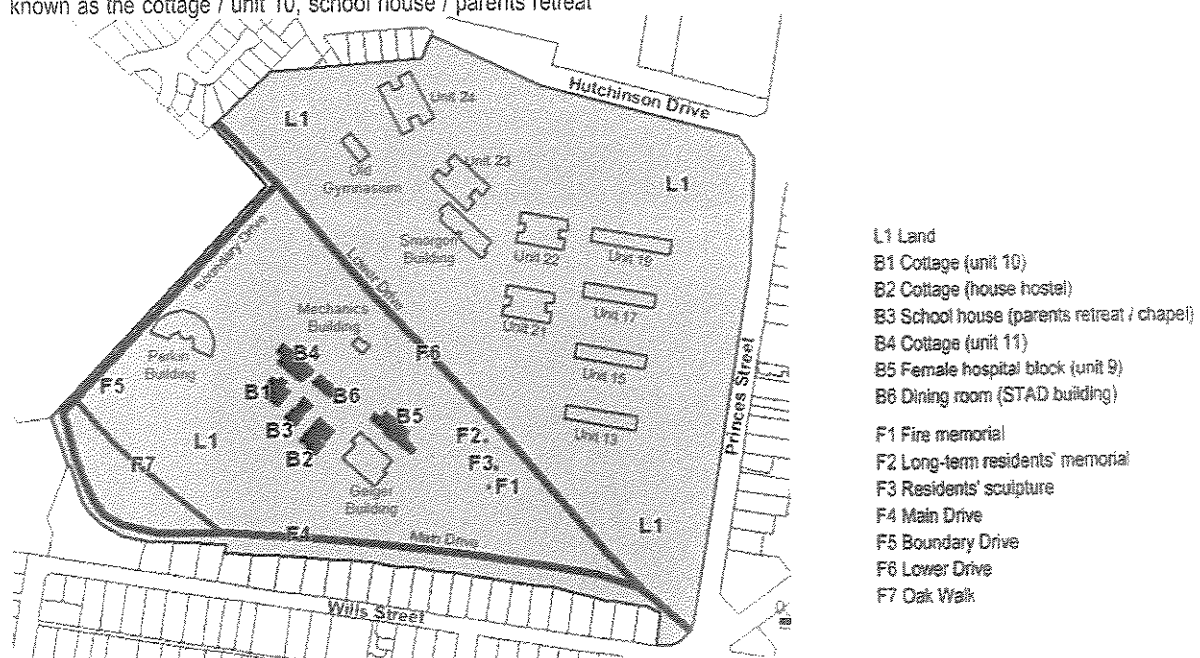
On 9 September 2005, Heritage Victoria issued a permit (permit P9639) for the demolition of three buildings formerly known as B2, B4 and B5 (also known as 'hostel house', unit 11 and unit 9, respectively), as shown on the VHR designation map above. Permit P9639 also relates to the relocation of three memorials, removal of specified vegetation, approval of the proposed site layout and the proposed residential development of the subject land. The remaining three buildings covered by the VHR designation as detailed above, being B1, B3 and B6 (also known as the cottage / unit 10, school house / parents retreat

and the dining room / STAD building), are to be retained (for details refer to Section 4.7.2).

Conversely, the Scheme includes two buildings on the site formerly known as B3 and B6 (also known as the school house / parents retreat and the dining room / STAD building) in the Schedule to the Heritage Overlay and specified trees in Schedule 2 (Kew Residential Services Significant Vegetation Protection) to the Vegetation Protection Overlay (VPO2). DPO3 requires the WDP-K to include the following.

- The retention of the two buildings formerly known as B3 and B6 (also known as the school house / parents retreat and the dining room / STAD building) in an appropriate setting and with a minimum curtilage of 3 metres.
- The retention of the ceramic sculpture created by KRS residents, the memorial plaque for long-term residents and the 1996 fire memorial. DPO3 states that the relocation of these items may be acceptable.
- A tree protection strategy to protect retained trees during construction and after development is completed.

It is expected that the Scheme will be amended to be consistent with the VHR designation (as outlined above) and the Heritage Victoria permit (P9639).



## 2.2 NATURAL ENVIRONMENT

### 2.2.1 Topography and Soils

The subject land has a substantial fall of approximately 40 metres from south (Wills Street) to north (Hutchinson Drive).

The soil consists of predominately sedimentary rocks including sandstone, mudstone and shale overlaid with sand in places. The ground is generally rocky but with well developed soil able to support vegetation. A small gully in the north east has been filled.

### 2.2.2 Landscape and Visual Character

The original condition of the subject land has changed substantially with development over time however, there are still some stands of remnant vegetation (River Red-gum and native grasses). These areas of vegetation contribute to the visual character.

The strong tree planting along key existing roads and pedestrian networks and other planted trees, shrubs and open grassy areas scattered throughout the subject land, provide visual interest.

The substantial fall over the land provides views in a northerly direction, including towards the Willsmere Apartments development to the north west. Long distance views include those towards the north east and the City from the south west corner of the subject land. The high voltage power lines that run through the subject land are visually dominant.

### 2.2.3 Flora and Fauna

#### (a) Flora

An ecological assessment (Ecological Assessment of Kew Cottages, Kew, Victoria) was prepared by Biosis Research in 2001 and concluded that the majority of the subject land "is covered in either buildings, roads, planted exotic or non-indigenous gardens or mown exotic grasses" and "there is little remnant native vegetation" (Biosis 2001b, p. 7).

The ecological assessment did identify however, the following remnant native vegetation.

- A large River Red-gum (*Eucalyptus camaldulensis*) in the north east of the site with a number of young, regenerating River Red-gums near its base.



Distant views from the subject land

- A stand of six, mature River Red-gums in the east of the site.
- Two young River Red-gums and a number of regenerating saplings near the south east corner of the site.
- A portion of wallaby grass (*Austrodanthonia* sp) in the south west corner of the site.

The River Red-gums in the north east and east of the subject land are remnant overstorey of the Plains Grassy Woodland ecological vegetation class (EVC). The wallaby grass in the south west corner of the site may be remnant understorey of the Plains Grassy Woodland EVC or the Valley Grassy Forest EVC.

#### (b) Fauna

The ecological assessment identified the following three fauna habitat types on the subject land.

- Grassy woodland in the north east and east.
- Grassland in patches throughout.
- Planted vegetation in gardens and street planting throughout.

It also recorded a total of twenty terrestrial vertebrate fauna species from the subject land, including sixteen native species (two mammals and fourteen birds) and four introduced species (all birds).



Large River Red-gum in north east corner of the subject land



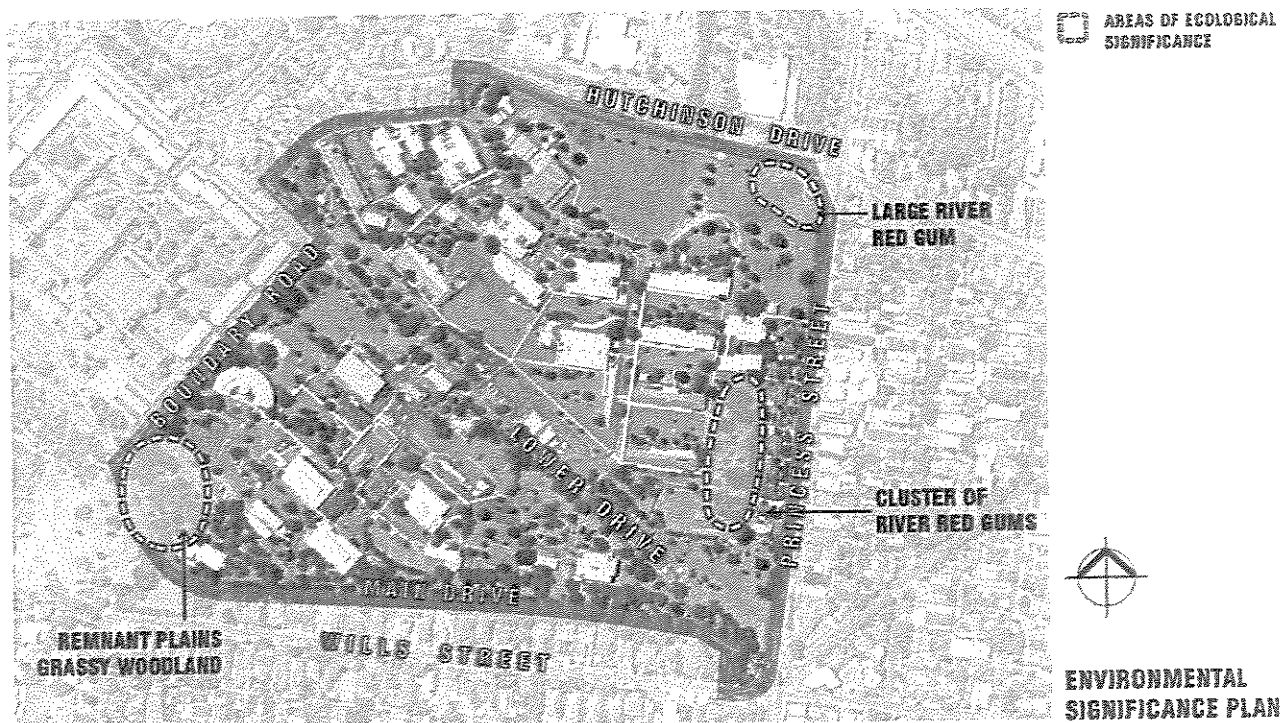
(c) **Environmental Significance of the Subject Land**

The ecological assessment concludes that:

- the River Red-gums in the north east and east are of high local significance and all the other remnant native vegetation is of local significance;
- the remnant Plains Grassy Woodland EVC is of local botanical significance;
- the habitat quality of the grassy woodland fauna habitat type is moderate and that of the grassland and planted vegetation is low;

- the River Red-gums make only a minor contribution to the Yarra River wildlife corridor;
- none of the terrestrial vertebrate fauna species recorded from the site are of national or state conservation significance.

As outlined above, the Scheme includes specified trees, including all River Red-gums, in VPO2. DPO3 requires the WDP-K to include the retention of significant vegetation identified for protection, unless permits for removal are sought and granted.



## **2.3 EXISTING PLANNING CONTROLS, LAND USES AND DEVELOPMENT**

### **2.3.1 Zoning and Overlays**

The Scheme includes the subject land within a Residential 1 Zone (R1Z) and DPO3. It also includes part of the site within Schedule 2 (Kew Residential Services Significant Vegetation Protection) to the Vegetation Protection Overlay (VPO2) and two buildings, formerly known as B3 and B6 (also known as the school house / parents retreat (HO253) and the dining room / STAD building (HO254)), in the Schedule to the Heritage Overlay.

### **2.3.2 Kew Residential Services**

As outlined above, the subject land was for many years fully occupied by KRS.

There were a number of the buildings located on the subject land that were constructed between 1887 and the late 1970s in association with the KRS use however, most were found to be of limited heritage value. Three buildings, formerly known as B1, B3 and B6 (also known as unit 10, the school house / parents retreat and the dining room / STAD building) are of heritage value and were excluded from the demolition plans.

### **2.3.3 Surrounding Area**

The Scheme includes the majority of the area surrounding the subject land in a R1Z, which reflects the predominantly residential land use. The exceptions to this are as follows.

- The land on the north side of Hutchinson Drive, opposite the site, is included in a Public Use Zone 6 (Local Government) and a Public Use Zone 3 (Health and Community).
- Princess Street, which borders the site to the east, is included in a Road Zone Category 1.
- Yarra Bend Park, which borders the site to the south west, is included in a Public Park and Recreation Zone.





### 3 THE MAP DESCRIBED

The WDP-K map below is characterised by:

- predominantly residential land use;
- the retention of most of the significant heritage items and vegetation features;
- a recreation centre in the northern portion of the subject land;
- substantial areas of public open space;
- a network of safe walking / cycling paths providing a good level of accessibility across the subject land for people of all abilities and with good access to and from the surrounding area;
- appropriate vehicle connections to the surrounding area and a hierarchy of access streets and lanes.

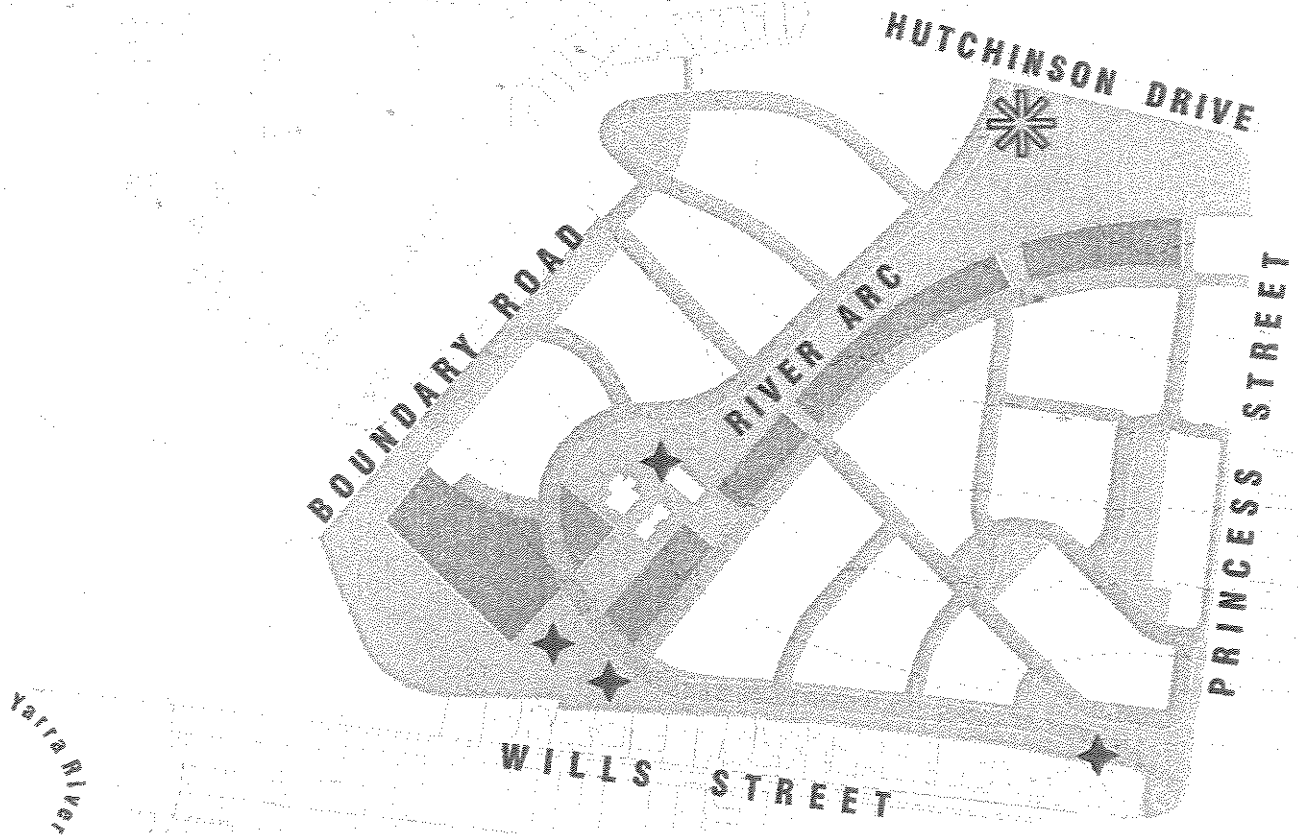
The above configuration of uses, networks and spaces was developed from the comprehensive studies that resulted in the provisions of the Scheme and the VHR listing.





The key elements and design response of the map are described in the following sections.



# EASTERN FREEWAY

Kew Gardens



-  **CONVENTIONAL DENSITY RESIDENTIAL DEVELOPMENT**  
MAY ALSO INCLUDE ANY RESIDENTIAL USE PERMISSIBLE UNDER SECTION 1 OR 2 OF THE RESIDENTIAL 1 ZONE (INCLUDING APARTMENTS AND DISPLAY HOMES)
-  **APARTMENTS**  
CONVENTIONAL DENSITY RESIDENTIAL DEVELOPMENT AND FUTURE DISPLAY HOMES ALSO POSSIBLE
-  **HERITAGE BUILDINGS AND CURTLAGE**  
RESIDENTIAL, COMMUNITY OR COMMERCIAL USE (INCLUDING VEHICLE ACCESS FROM LOCAL STREET)
-  **PUBLIC OPEN SPACE**  
AREAS AND BOUNDARIES SUBJECT TO 'FINE TUNING' WITH MORE DETAILED DESIGN BUT NOT LESS THAN A TOTAL OF 30 PER CENT OF THE SUBJECT LAND

-  **PROPOSED ROAD**  
SUBJECT TO 'FINE TUNING' WITH MORE DETAILED DESIGN
-  **RECREATION CENTRE**
-  **TEMPORARY SALES AND INFORMATION CENTRE**  
POTENTIAL SITES



## WALKER DEVELOPMENT PLAN-KEW MAP



## 4 THE MAP ELEMENTS AND DESIGN RESPONSE

### 4.1 PRINCIPLES, OBJECTIVES AND FRAMEWORK PLAN

A description of how the WDP-K addresses the principles, objectives and Framework Plan-The Vision in the KRSUDF, is integrated throughout this document. Design objectives for elements of the site, such as subdivision, dwelling design, community facilities and services and accessibility, are outlined in the remainder of this section.

### 4.2 SUBDIVISION AND HOUSING

#### 4.2.1 Subdivision Design

The final number and size of lots to be created on the subject land will be determined over time to satisfy market demand and to provide variety and choice however, the WDP-K area will incorporate no more than 520 dwellings on 520 lots.

The final mix of dwelling types, namely houses and apartments, to be created on the subject land will be determined over time however, *the total maximum* number will not exceed 520 dwellings on 520 lots.

The future apartment lots will be located adjacent to public open space, for example, on the south east side of the central open space spine and near the south west corner of the site, to maximise passive surveillance of these areas, to provide an active edge to the open spaces and to provide easy access to public open space for apartment residents.

Community houses will be located generally in the north and east portions of the subject land where lot sizes will be generally larger than elsewhere in the WDP-K area.

A mix of rear and side access arrangements will be applied to lots throughout the remainder of the subject land. Lots outside stage 1 of the WDP-K area will be smaller generally in size than in stage 1. A number of small lots with rear lane access will be located abutting large areas of public open space within the WDP-K area.

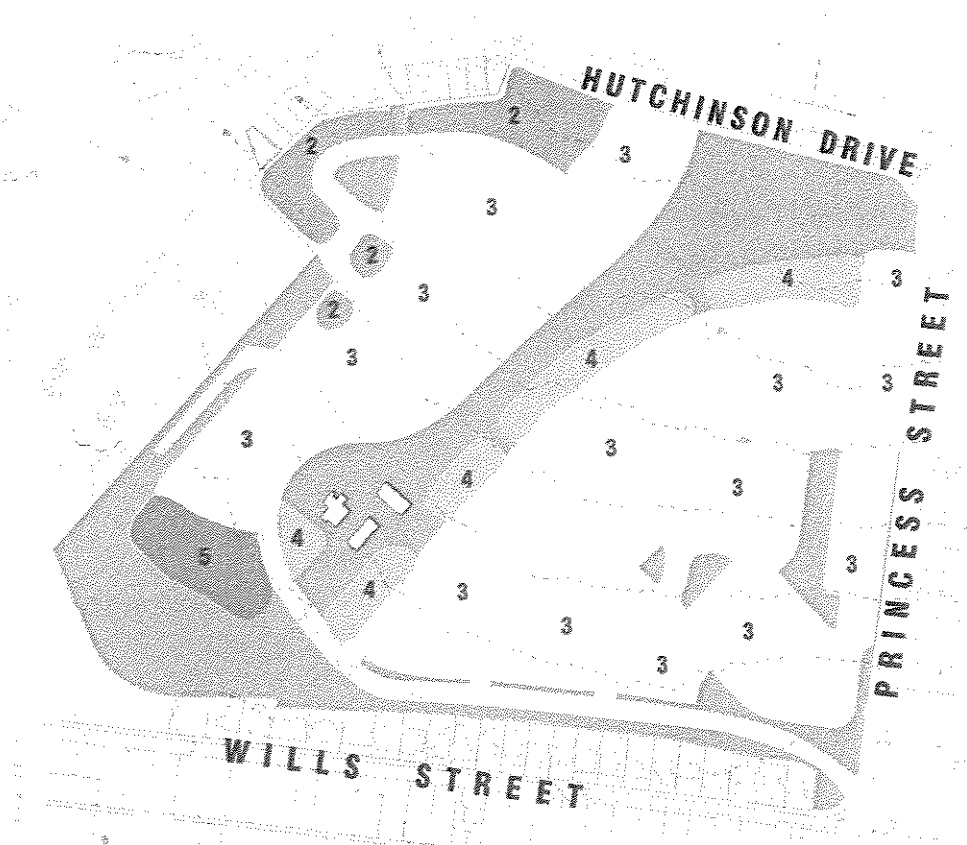
#### 4.2.2 Building Heights and Setbacks

DPO3 of the Scheme states the following in relation to building heights and setbacks.

- "A building must not exceed the maximum building height shown for areas on the Building Envelopes and Setback Plan that is part of the Kew Residential Services Urban Design Framework, October 2003.
- The edges of the building height envelopes shown on the Building Envelopes and Setback Plan are indicative only. Minor variations, other than to dimensioned set backs, resulting from the detailed design of the road layout, public open space and lot boundaries may be acceptable provided the principles and objectives in the Kew Residential Services Urban Design Framework, October 2003 are met to the satisfaction of the responsible authority.
- All buildings more than 3.5 metres above ground level must be set back from the south and west boundaries of the KRS land at least the minimum set back distance shown on the Building Envelopes and Setback Plan".

The 'Building Envelopes and Setbacks' plan within the KRSUDF (2003 p. 9):

- designates a maximum building height envelope of between two and five storeys on each part of the subject land;
- specifies a minimum 26 metres building setback from the south boundary (common with the rear of properties fronting Wills Street) of the land;
- specifies a minimum 26 metres setback from the west boundary (common with Willsmere Apartments) of the site;



**Note 1:** The envelope designated as five storeys refers to storeys wholly above natural ground level and does not include a storey or any other part(s) of a building partly or wholly below natural ground level.

**Note 2:** The boundaries and locations of the building height envelopes are subject to future changes as the detailed design of each stage of the subject land is finalised but will be generally in accordance with the KRSUDF.

**Note 3:** A three metre curtilledge will be provided to the heritage buildings.



**BUILDING HEIGHT  
ENVELOPE PLAN**

- specifies a minimum 4 metres one-storey and 6 metres two-storey setback from the north west boundary (common with the rear of properties fronting Cremin Close in Kew Gardens) of the site.

The building envelope plan above for the redevelopment of the subject land indicates maximum building height envelopes in accordance generally with the KRSUDF 'Building Envelopes and Setbacks' plan. As indicated in Note 1 to the building envelope plan, the area nominated as five storeys excludes a basement, which may be used for car parking and the areas nominated as two, three, or four storeys may include a car parking level that is partly but not wholly below natural ground level. These specifications relate to the design constraint resulting from the significant cross fall of the subject land.

The setbacks of the future buildings from the site boundaries will be in accordance with the dimensioned setbacks specified on the KRSUDF 'Building Envelopes and Setbacks' plan and in DPO3.

#### 4.2.3 Edge Treatments

The KRSUDF identifies the following six 'edges' of the subject land and provides design objectives / guidelines for each edge.

- Boundary Road / Willsmere Walk
- Yarra Bend Park
- Main Drive / Wills Street
- Princess Street
- Hutchinson Drive
- Kew Gardens

The key concepts of the KRSUDF and the objectives of the WDP-K for the treatment of these edges are as follows.

- "Provision and enhancement of physical and visual permeability.
- Recognition of boundary landscapes, including existing avenue planting.

- Acknowledge amenity of adjacent areas without seeking to directly replicate existing built form" (KRSUDF 2003 p. 8).

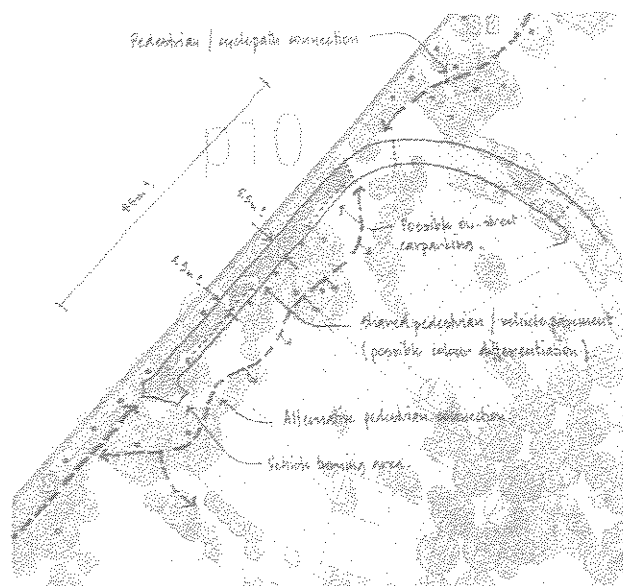
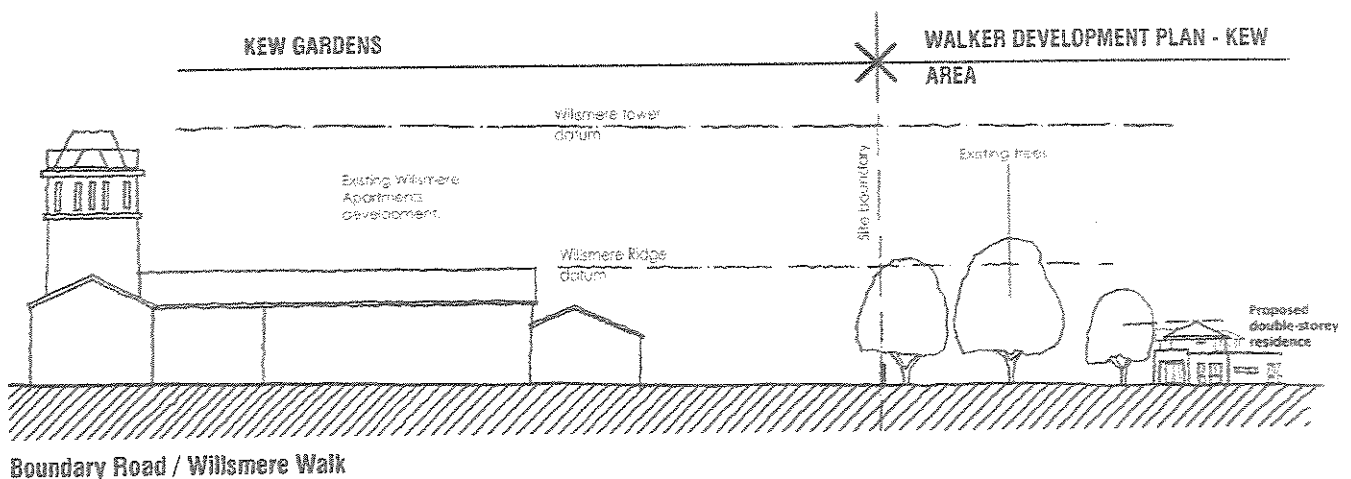
The following sections outline the response of the WDP-K to the design objectives / guidelines of the KRSUDF for each edge. The edge treatments may be further refined during the detailed planning of the development but will remain generally in accordance with the KRSUDF.

#### (a) Boundary Road / Willsmere Walk

The WDP-K proposes the retention of a portion of Boundary Road within the park reserve fronting the western boundary, including the majority of the Algerian Oaks lining the road. This retained portion of Boundary Road will act as a shared accessway and will provide a front address to houses

facing the adjacent open space thus encouraging passive surveillance of this area. The shared accessway has been designed to avoid safety and security concerns that can arise in secluded pedestrian only corridors. The introduction of visitor traffic to Boundary Road will encourage the use of and create an activate edge to, the area. The shared accessway will be designed to encourage low speed vehicular movement and provide opportunity for off street visitor parking to serve houses fronting Boundary Road / Willsmere Walk. The paved area to the shared accessway is not included in the 30 per cent open space calculation.

A walking path incorporating various features including sheltered rest points, where appropriate, will be provided in the vicinity of the retained portion of Boundary Road. All new streets are to the south and east of Boundary Road and the Algerian Oaks.

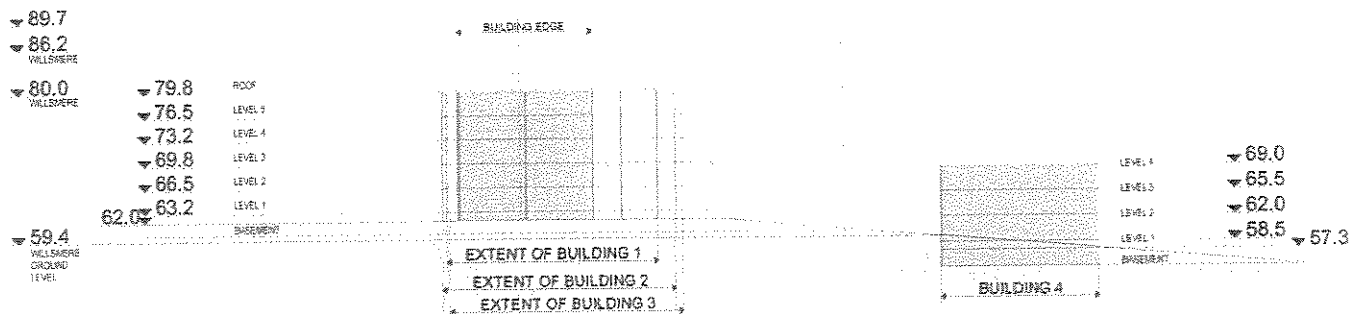


Boundary Road: Indicative Shared Zone Treatment

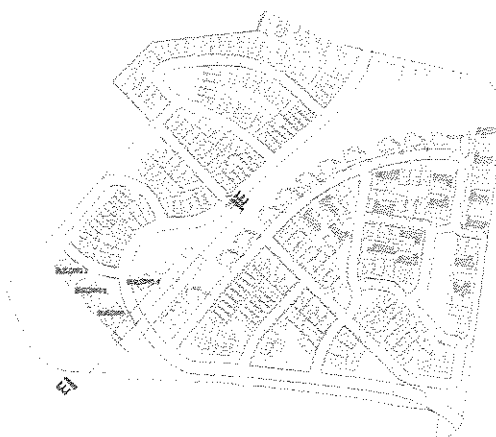
## (b) Yarra Bend Park

The WDP-K map identifies the south west corner of the subject land, adjacent to Yarra Bend Park, as public open space (Yarra Bend Grove). It also proposes the retention of the majority of trees, including those within VPO2, in this location and the extension of the informal grassland character of Yarra Bend Park into the WDP-K area. The main walking / cycling path through the north east to south west public open space spine will connect Yarra Bend Park, Yarra Bend Grove and Princess Street.

The design of future buildings to be located adjacent to Yarra Bend Park will be carried out in close consultation with Heritage Victoria as required under Heritage Permit No. P9639 (as described in Section 2.1.3). A Heritage Impact Assessment will be completed for this area of the site and will accompany the planning permit application for the related Stage of the development.



Section EE



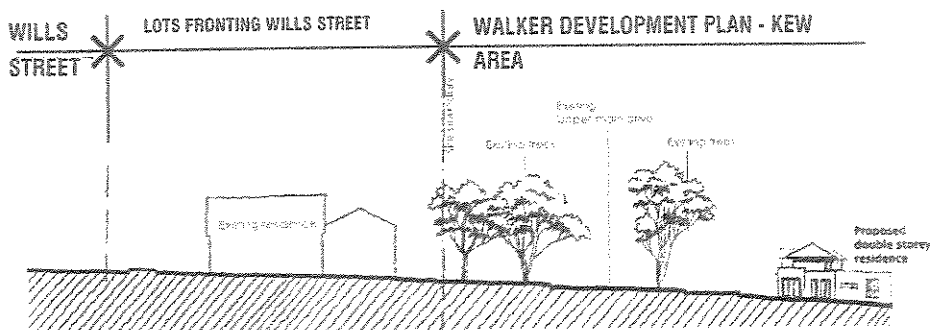
## Yarra Bend Edge Treatment



### (c) Main Drive / Wills Street Lots

The alignment of Main Drive and the avenue plantings comprising a mix of Algerian Oaks, English Elms, Moreton Bay Figs and Bhutan Cypress are proposed generally to be retained. A new walking path is proposed generally on the south side of Main Drive, set back from the carriageway. The landscape concept plan envisages the planting of semi-advanced shrubs along the south boundary of the subject land, abutting the rear of the properties fronting Wills Street.

The planting will soften the interface between the rear fences of existing dwellings fronting Wills Street and the Main Drive road reserve. The intention is to soften the existing hard edge (fence line) in this location however, the planting may provide some acoustic relief. The provision of additional planting along the Wills Street interface will help to integrate the development with the existing surrounding neighbourhood, particularly to the south.



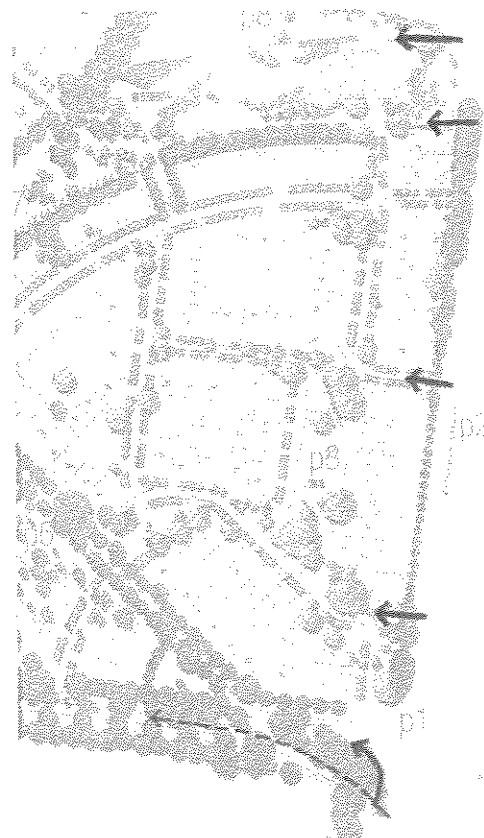
**Wills Street Edge Condition**

### (d) Princess Street

The width on Princess Street of the future lots will be complementary to the frontage width of the existing lots on the east side of Princess Street. The WDP-K identifies up to four access points along the Princess Street frontage. In addition to access (vehicle and pedestrian) from the south east corner of the site, three other pedestrian connections are proposed along Princess Street. These four connections will enhance physical and visual permeability and help integrate the development with the surrounding community.

The range of edge treatments that will be used along this frontage include:

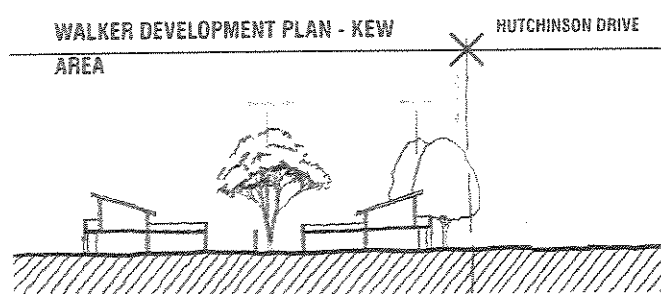
- for sites that contain dwellings with side frontages - a 1.8 to 2.4 metres high panel wall;
- for shared zone-lanes that provide rear access to dwellings adjacent to public open spaces - landscaping with a feature architectural wall;
- for sites that contain east (Princess Street) facing dwellings - a 1.8 to 2.4 metres high panel wall designed to incorporate established mature trees;
- for the north east corner of the site - feature architectural walls along both boundaries.



**Princes Street: Indicative Edge Treatment**

(e) **Hutchinson Drive**

Hutchinson Drive is proposed as one of two vehicle access points, including for potential public transport, to the subject land. The WDP-K map identifies approximately two thirds of the Hutchinson Drive frontage of the site as public open space (River Arc). The River Arc continues to the south west where it intersects with retained heritage buildings before connecting to Yarra Bend Grove and Park. The River Arc creates an open landscape vista into the WDP-K area and combines with proposed lower building heights to maintain the vista to Willsmere tower.



**Hutchinson Drive Edge Condition**

(f) **Kew Gardens**

As outlined above, the setbacks of future building from the north west boundary of the subject land, which is common with the rear of properties fronting Cremin Close in Kew Gardens, will be in accordance with the dimensioned setbacks specified on the KRSUDF 'Building Envelopes and Setbacks' plan and in DPO3. The future buildings will also address streets internal to the WDP-K area.

An access corridor will provide a direct pedestrian connection from the north west corner of the WDP-K area to the adjoining Kew Gardens development. This pedestrian link will connect with the pedestrian network in the WDP-K area.

**4.2.4 Design Objectives - Dwellings**

A range of dwelling types are proposed in the WDP-K area including detached and attached dwellings, community housing and apartments. The overall architectural theme is characterised by contemporary design incorporating a mix of materials that are responsive to the features of the subject land and complementary to the character of the surrounding area. The architectural detail of the dwellings will vary throughout.

A range of access arrangements will be utilised to serve the dwelling types including, rear access, side access and access handle / battle-axe / shared driveway arrangements.

Some indicative dwelling types are presented below. These dwelling types will be refined and expanded as the detailed design for each stage progresses.

- Dwelling Types A will be two to three storeys and will be orientated north-south with front access at the ground level, with the exception of Dwelling Type A3 that will have side access from the ground level.
- Dwelling Types B will be two storeys and will be orientated north-south with front access at the lower level. The majority of the living areas (including bedrooms) will be provided at the ground level.
- Dwelling Types C will be single storey and will be orientated east-west with front access at ground level, with the exception of Type C2, which will have rear access.
- Dwelling Types D will be two storeys and will be orientated north-south with rear access. The majority of living areas will be provided at ground level.
- Dwelling Types E will be two storeys and will be orientated north-south with front access at the ground level and bedrooms provided generally at the upper level.
- Dwelling Types F will be two storeys and will be orientated north-south with front access at the ground level and bedrooms provided at both the ground and upper levels.

The dwelling types shown in the diagrams below indicate lot type, access arrangement, garage position, entry point, lot frontage width and number of storeys. All dwellings are based on a courtyard model. As noted above, these dwelling types will be added to as the detailed design as each stage progresses.

The various dwelling types will be distributed across the site in the manner detailed on the Indicative Dwelling Type Allocation Plan on page 24.

The following indicative mix of materials and finishes is proposed for future dwellings in the WDP-K area.

#### Roofing

- Metal roof sheeting (select non-reflective colours)
- Low profile concrete roof tiles (select non-reflective colours)

#### Wall Cladding

- Brick veneer – render finish
- Lightweight cladding – render finish
- Face brickwork
- Feature timber cladding – clear coat finish

#### Windows

- Aluminium window frames (anodised and powdercote finish)
- Panel lift garage doors – timber finish and colourbond finish)

#### Miscellaneous

- Timber, brick and rendered block retaining walls
- Timber screening to carports, entries and building design features
- Timber decking, concrete pavers to decks and entrances

#### Colours

- Crisp and neutral colours to façades with contemporary accent colours to building
- Design features

In terms development in the southwest corner of the WDP-K area (within the five storey building envelope) Walker Corporation is committed to a selection of sensitive materials, colours and finishes to complement the neighbouring Willsmere Hospital Building. All design relating to this area will comply with the requirements of Heritage Permit No. P9639, including the provision to Heritage Victoria of full design details accompanied by a Heritage Impact Assessment.

In terms of the dwelling design, the key concepts of the KRSUDF and the objectives of the WDP-K for the treatment of the private / public interface are as follows.

- “Active frontages to public open spaces, including streets, pavements and circulation paths.
- Building frontage to define the edges of landscaped

spines and retained avenues.

- “Habitable” (attractive, comfortable and safe) private open space to be located adjacent to public open spaces and street frontages.
- Appropriate levels of amenity to private open space (privacy, sunlight).
- Recognition of existing landscape quality and maturity.
- Maximise views and passive surveillance.
- Development patterns to maximise number of people who benefit from accessibility and views of public open space.
- Fencing and building frontages to provide defined and structured public and private realms on street frontage.
- Degree of formality of edge treatments to accord with role of adjacent open areas” (KRSUDF 2003 p.15).

The design of dwellings within the WDP-K area responds to the key concepts of the KRSUDF and Walker Corporation objectives for the treatment of the private / public interface in the following manner.

- Dwellings have been designed to facilitate diversity in streetscapes, addressing corners and providing active frontages.
- Both sides and fronts of dwellings address street corners and parkland within the development to provide an active frontage to the public realm.
- Active frontages will be provided to the central north east to south west River Arc public open space spine to maximise passive surveillance of this area and provide an active edge to the open space.
- Well designed private open space areas (with direct access to habitable rooms of dwellings) will be located adjacent to public open space areas and street frontages.
- The location of public open space areas will maximise solar access and privacy for future residents.
- The design of landscaping for private open space areas will reference surrounding landscape quality and maturity.
- Apartments and terraces will be located in close proximity to key public open space areas to maximise the number of future residents that will

benefit from accessibility and views of the public open space.

- Fencing, where appropriate, will define and provide structure to public and private spaces with appropriate regard for visual amenity in the following manner.
  - Fencing within the development will be considered carefully and integrated with local architecture. For example, for corners where fencing is dominant, materials, colours and / or finishes used in the fence design will be similar to those used in the dwelling. Along the Princess Street interface, fencing will incorporate a mix of textured pre-cast panels, timber screening and fencing and planting.
  - Materials will be chosen for fences including materials that age well and require minimum maintenance. Fencing materials will not include 'colorbond' or corrugated iron or the like.
- The delineation of private and public space within the development will be treated with a variety of edge treatments that will contribute to the amenity of future residents of the development. These treatments include the following.
  - Where front yards face central public open space areas, the following edge treatments may be used to delineate the spaces:
    - a change of ground level between front yards and public open space areas;
    - a wide band of planting located at the path edge to conceal retaining wall treatments capped with an open style fence;
    - planting within private open space areas to screen views from the adjacent public open space.
  - Where side fences are located adjacent to a street (with a footpath), the following edge treatment may be used to delineate

the spaces:

- a solid style fence that will be articulated or broken periodically by a setback and / or change in construction materials that allow planting to be incorporated in the streetscape (the location of breaks in the fencing will be coordinated and will protect the privacy of residents);
- open type fences, which will allow screened or 'veiled' views to the street.
- Where front yards face a street (with a footpath), the following informal edge treatments may be used to delineate the spaces:
  - low planting including specimen trees;
  - letter boxes.

#### 4.2.5 Design Objectives - Community Houses

The key objectives of the Victorian Government for the development of KRS 'community housing' on the subject land are as follows:

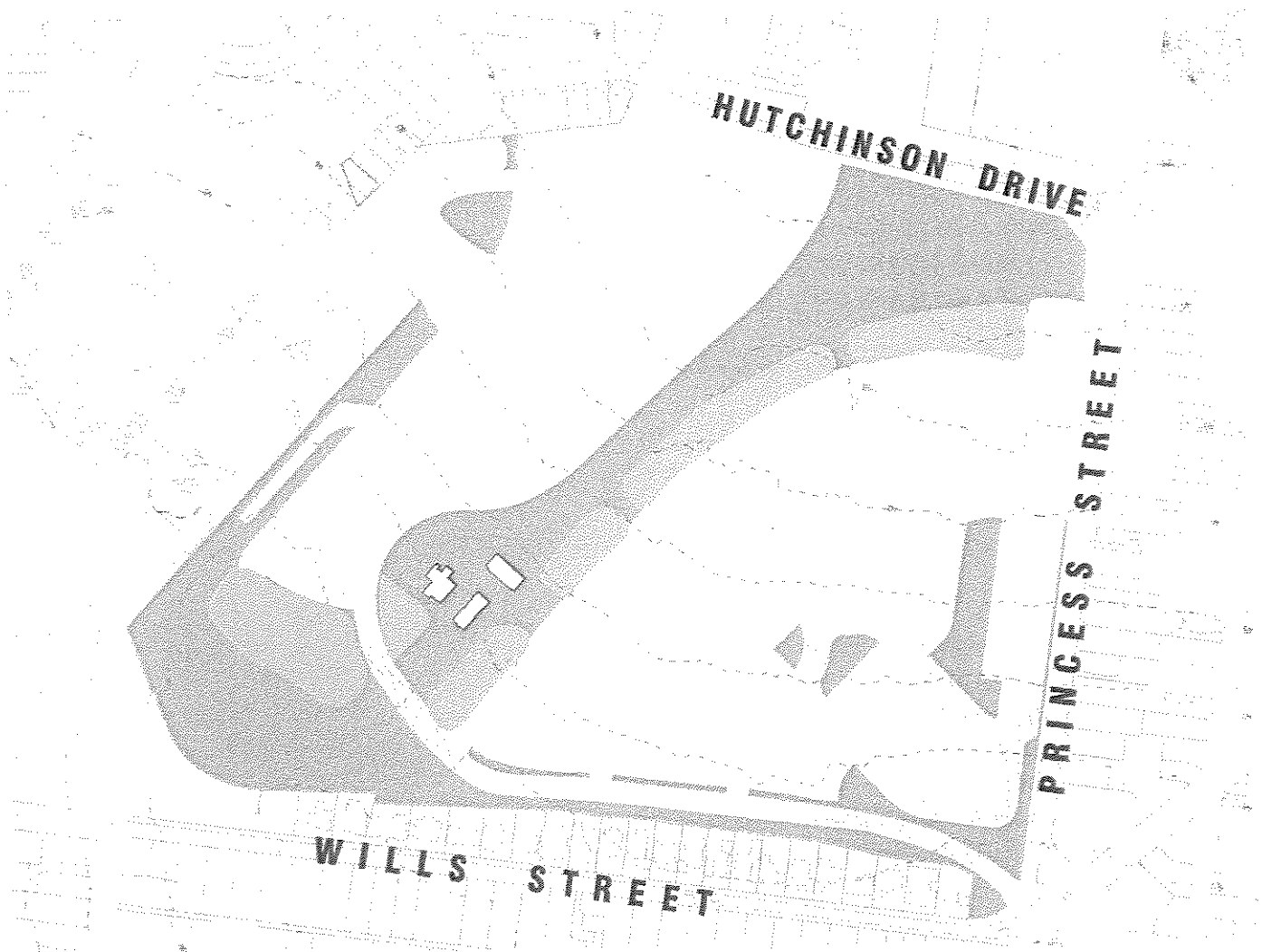
- that the new area as a whole be planned around accessibility;
- that KRS houses be consistent with surrounding houses and do not stand out;
- that housing standards for disability housing be incorporated with additional consideration given to the specific needs of the individual KRS residents;
- given the requirements for client support, safety and legislative requirements that houses be built with a consideration for potential future use and / or replacement;
- that the locations of houses for KRS residents remaining on site encourage safety for residents and staff;
- that houses and their groupings where appropriate, support the needs of existing residents but are configured such that they provide flexibility to meet such needs and those of potential future residents;
- that shared boundaries are generally to be avoided

- if it is appropriate to have adjacent KRS houses, it is preferred that they be back to back and not side by side;
- locations take into account slope and suitability for wheelchairs;
- that where two KRS houses share open space, it should be able to be separated to enable privacy and security of possessions for residents;
- that shared space should not disadvantage resident community access - that is, it should not be a replacement for community access;
- everyone should have access to private open space;
- groupings should refer to KRS houses that are no more than a short walk apart;
- houses that are grouped should share a common footpath - that is, there should be no road crossing to move between them;
- different groupings should not be in close proximity.

The specific accommodation and facilities required by DHS on the subject land include twenty new community houses with eleven houses in three, 'loose groupings' (short walk apart with no road crossing required to move between the community houses in each group). Each community house is to be constructed generally on a lot of up to 800 square metres, to be one-storey and to accommodate five to six residents, as noted in Section 1.4.

Typically, lots containing community houses will be orientated east-west with living and private open space areas orientated to the north.

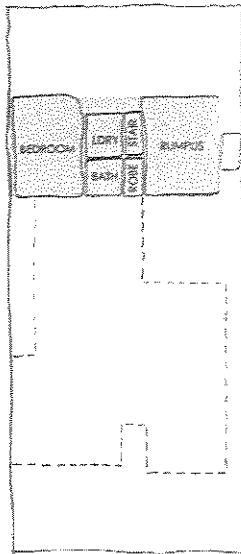
The location of the community houses generally has been determined having regard to the overall topography of the site and the need to maximise easy access to the dwellings for future residents.



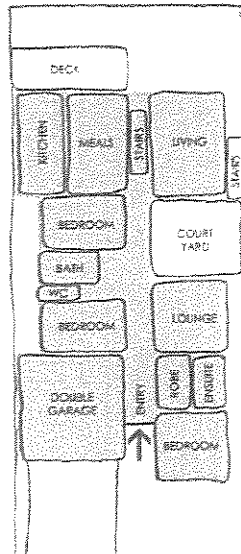
- DETACHED / ATTACHED HOUSING**  
 DWELLING TYPES A1, A2, A3, B, B1, C, C1, C2, D, E, E1, F AND VARIATIONS  
 REFER WDP-H PAGES 25 - 28
- APARTMENTS**  
 REFER WDP-K BUILDING HEIGHT ENVELOPE PLAN PAGE 16 FOR MAXIMUM BUILDING HEIGHTS  
 DETACHED / ATTACHED HOUSING ALSO POSSIBLE  
 DWELLING TYPES A1, A2, A3, B, B1, C, C1, C2, D, E, E1, F AND VARIATIONS  
 REFER WDP-H PAGES 25 - 28



## INDICATIVE DWELLING TYPE ALLOCATION PLAN

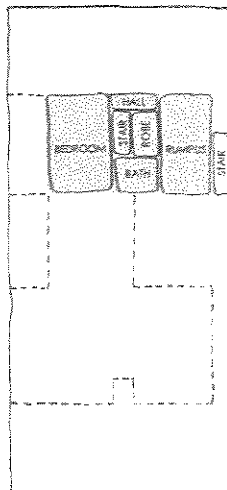


LOWER LEVEL

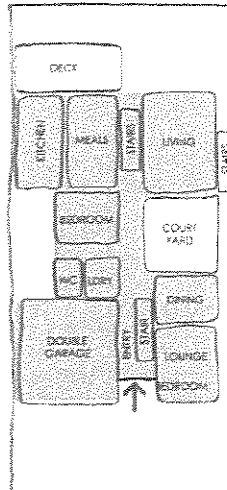


GROUND LEVEL

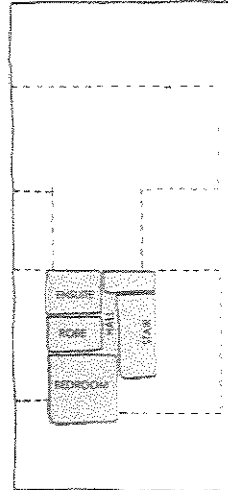
DWELLING TYPE A1	
ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	High Side
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	2



LOWER LEVEL

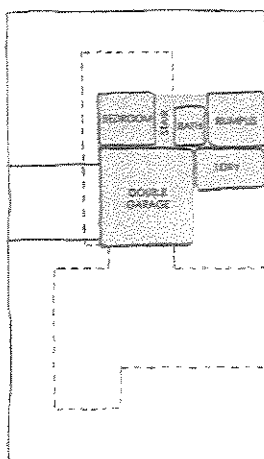


GROUND LEVEL

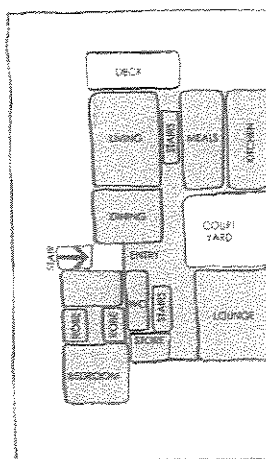


UPPER LEVEL

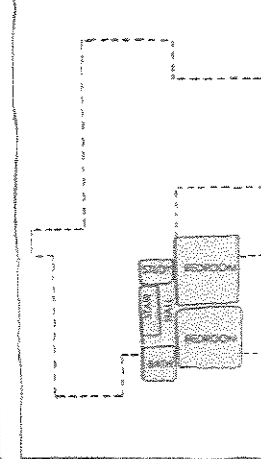
DWELLING TYPE A2	
ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	High Side
ENTRY POINT	Primary Frontage
FRONTAGE WIDTH	Under 15m
STOREYS	3



LOWER LEVEL

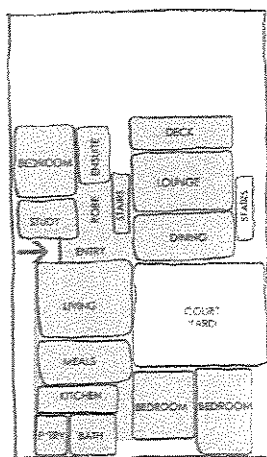
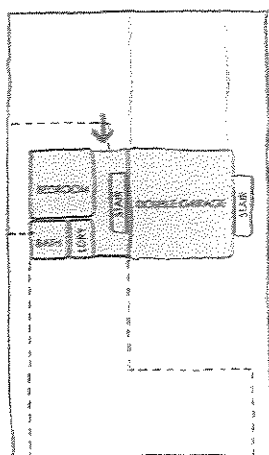


GROUND LEVEL

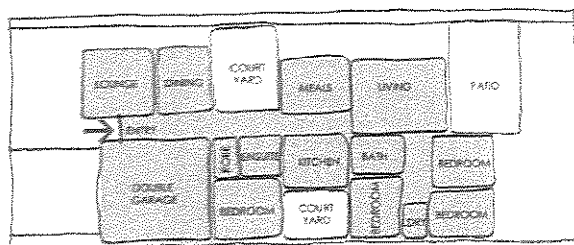


UPPER LEVEL

DWELLING TYPE A3	
ORIENTATION	North-South
LOT TYPE	Corner
ACCESS	Side
GARAGE POSITION	Low Side
ENTRY POINT	Secondary Front
FRONTAGE WIDTH	15 - 20m
STOREYS	2

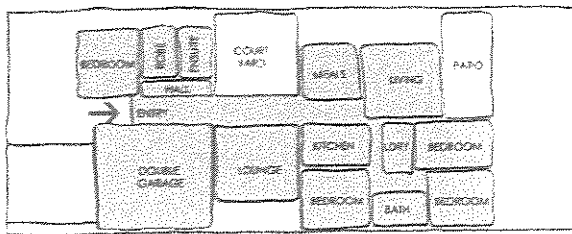


DWELLING TYPE B1	
ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	Low Side
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	2



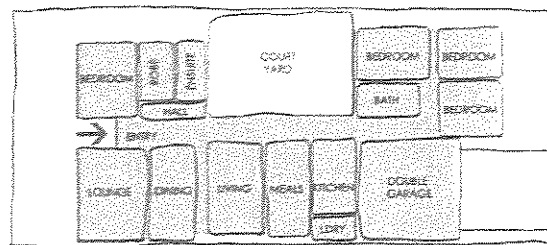
DWELLING TYPE C	
ORIENTATION	East-West
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	N/A
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	1





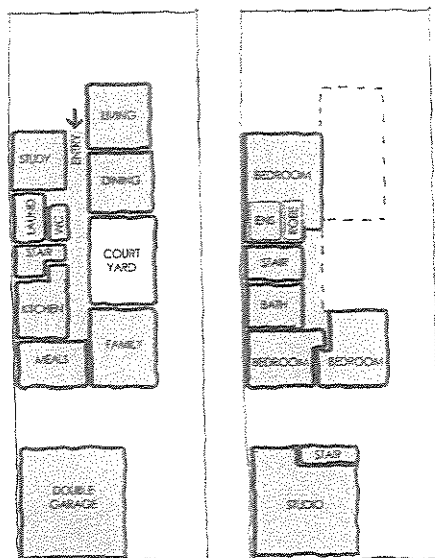
GROUND LEVEL

DWELLING TYPE C1	
ORIENTATION	East-West
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	N/A
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	1



GROUND LEVEL

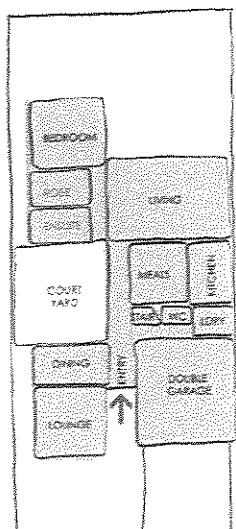
DWELLING TYPE C2	
ORIENTATION	East-West
LOT TYPE	Corner
ACCESS	Rear
GARAGE POSITION	N/A
ENTRY POINT	Primary Front / Rear Access
FRONTAGE WIDTH	Under 15m
STOREYS	1



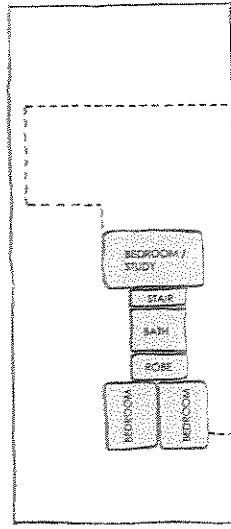
GROUND LEVEL

UPPER LEVEL

DWELLING TYPE D	
ORIENTATION	North-South
LOT TYPE	Corner
ACCESS	Rear
GARAGE POSITION	Low Side
ENTRY POINT	Primary Front / Rear Access
FRONTAGE WIDTH	20m +
STOREYS	2



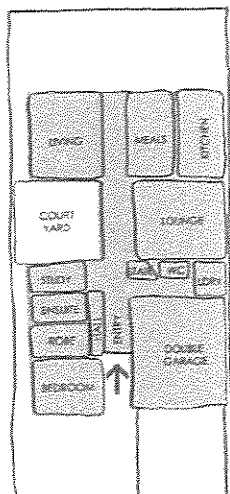
GROUND LEVEL



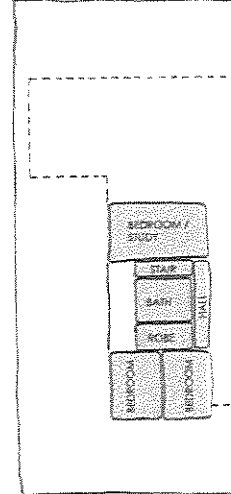
UPPER LEVEL

#### DWELLING TYPE E

ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	Low Side
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	2



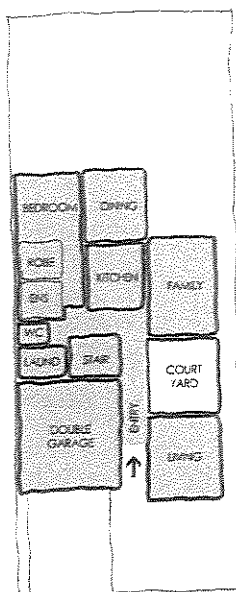
LOWER LEVEL



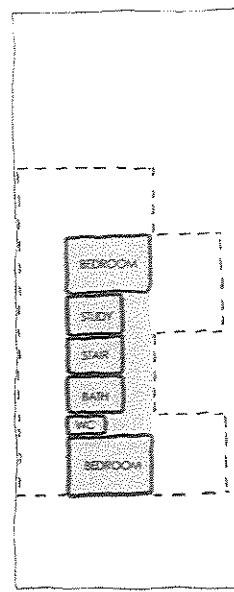
GROUND LEVEL

#### DWELLING TYPE E1

ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	Low Side
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	2



GROUND LEVEL



UPPER LEVEL

#### DWELLING TYPE F

ORIENTATION	North-South
LOT TYPE	Internal
ACCESS	Front
GARAGE POSITION	Low Side
ENTRY POINT	Primary Front
FRONTAGE WIDTH	Under 15m
STOREYS	2

## 4.3 COMMUNITY FACILITIES AND SERVICES

### 4.3.1 Recreation Centre

The 'Framework Plan - The Vision' within the KRSUDF shows 'potential sports and recreational facilities' near the north boundary of the subject land. As outlined above, DHS requires particular facilities to be provided.

The WDP-K map proposes a recreation centre within the central open space spine adjacent to Hutchinson Drive in the north of the subject land. The recreation centre will incorporate the following.

- A lap pool.
- A gymnasium.
- A kiosk / cafe.
- Consultation rooms for use by visiting health professionals.
- Space for community-based activities.
- A hydrotherapy pool to accommodate a minimum of five disabled users and their carers at any one time.

The proposed location will maximise public (including pedestrian) access to the facility from within the development and surrounding residential areas.

The recreation centre will have visual prominence to the broader community, which will help to encourage knowledge and use of the facility.

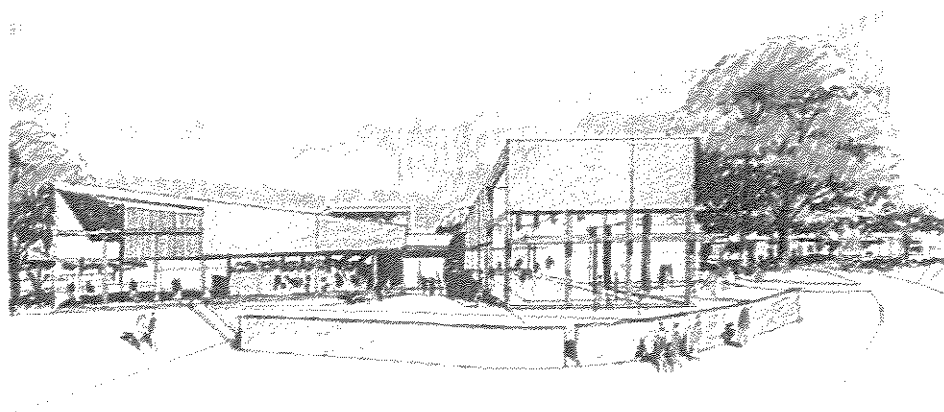
Subject to stakeholder discussions and a more detailed assessment, possible ownership and management arrangements for the recreation centre are as follows.

- Public or private ownership and / or leased or sold to a commercial operator with social objectives included in the lease or sale arrangements.
- Body corporate, including KRS residents, ownership and management.

### 4.3.2 Public Open Space

DPO3 of the Scheme requires the WDP-K to provide a minimum of 27 per cent of the subject land as public open space and that space to be located in the general areas shown on the 'Framework Plan - The Vision' within the KRSUDF. This Plan shows the south west corner of the site as 'Major Public Open Space No. 1', the north east corner as 'Major Public Open Space No. 2' and two public open space spines ('North South and East West').

The WDP-K public open space plan shows a minimum of 30 per cent of public open space located in accordance generally with the KRSUDF and exceeding the requirements of the DPO3 of the Scheme. In the WDP-K, the term 'public open



Architectural impression of recreation centre

space' is used in accordance with the definition contained in the Subdivision Act 1998 as follows.

*"public open space" means land set aside in a plan or land in a plan zoned or reserved under a planning scheme—*

*(a) for public recreation or public resort; or*

*(b) as parklands; or*

*(c) for similar purposes" (Subdivision Act 1998 (3)(1)).*

Land set aside in the WDP-K as public open space includes:

- all open space up to the back of the road kerb in instances where public open space is adjacent to a road;
- all open space between the back fences of properties (outside the WDP-K area) fronting Wills Street and the back of kerb to Main Drive;
- all open space between the back of kerb to Main Drive and the boundaries of properties to the immediate north of Main Drive (within the WDP-K area);
- the area covered by the recreation centre consistent with the above definition and the KRSUDF, and other such areas affected by infrastructure / facilities found commonly in public open space elsewhere in the Municipality.

In terms of the open space provided along Main Drive it is noted that, combined with the road reserve, the area is significantly wider than a normal road reserve, to cater for the retention of trees along Main Drive. The width of the public open space at this location will cater for a range of recreation opportunities.

The north west to south east spine (Lower Drive) is retained with a wider than normal street reservation rather than public open space but is not included generally in the 30 per cent. The street reservation facilitates the retention of the majority of the Algerian and English Oaks along Lower Drive to emphasise the landscape character of the spine.

Where public open space adjoins a road reserve, services may be provided in an easement within the public open space area.

The public open space will be transferred as reserves to be owned and managed by the City of Boroondara.

Any public open spaces additional to those shown on the KRSUDF 'Framework Plan - The Vision' and confirmed at

planning permit stage will facilitate the retention of significant vegetation on the site (for example, Red Gum Grove) or provide extra amenity to future residents in specific locations.

The Public Open Space Contributions Policy (Clause 22.09) of the Scheme applies to applications for subdivision and the assessment of the percentage contribution to open space (whether by levy or land). The Policy has the following objectives.

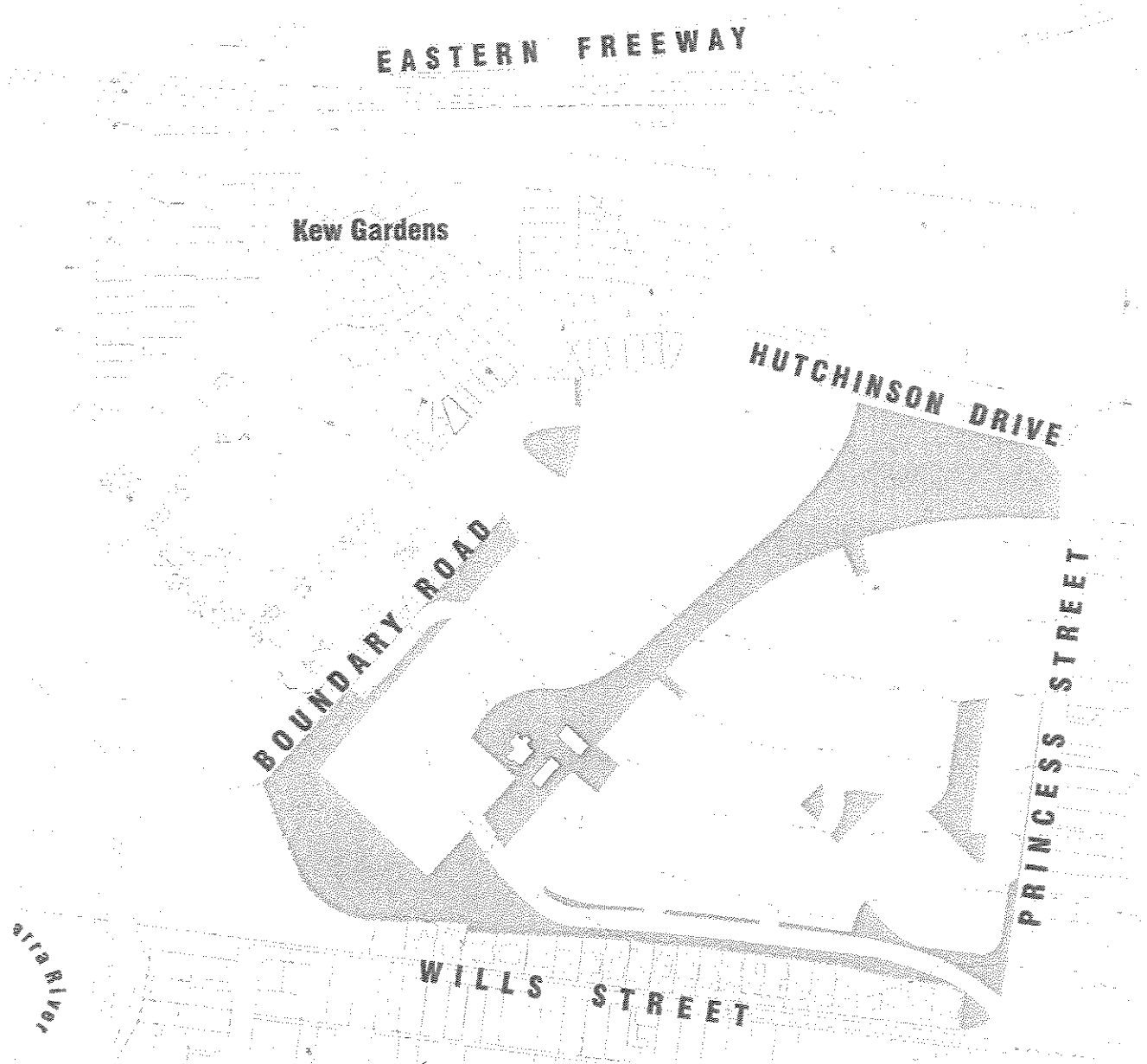
- "To levy new subdivision contributions on a fair and equitable basis to provide funding towards the provision of adequate open space proportionate to the needs of any intensified use which will arise from new subdivision.
- To diversify and improve the settings, services and facilities provided in the open space system to meet the needs of the broadest range of residents of the City.
- To provide for new open space, with an emphasis on completing missing links and filling the gaps in the overall provision, in accordance with the recommendations of the Open Space Policy" (Clause 22.09-2).


It is expected that the open space provision and embellishment as proposed in the WDP-K more than meets the requirements of this policy.

#### 4.3.3 Temporary Sales and Information Centre

The WDP-K map proposes four potential sites for temporary sales and information centres within the subject land. These temporary centres will provide initial sales, land and community information to any existing and potential residents and the wider community, including details of the development and opportunities available for involvement in public consultative processes.

The proposed potential locations will maximise public access to the centres from within the development and surrounding residential areas.



 PUBLIC OPEN SPACE - MINIMUM 30 PER CENT



## PUBLIC OPEN SPACE PLAN

## 4.4 ACCESSIBILITY

### 4.4.1 Traffic Impact Assessment and Design

A detail traffic impact assessment and design for the WDP-K area has been prepared by TTM Consulting Pty Ltd and is enclosed in Appendix A. The report addresses the following aspects of the proposed development.

- Future vehicle traffic volumes.
- Street design.
- Intersection management.
- Traffic speed management.
- Public transport

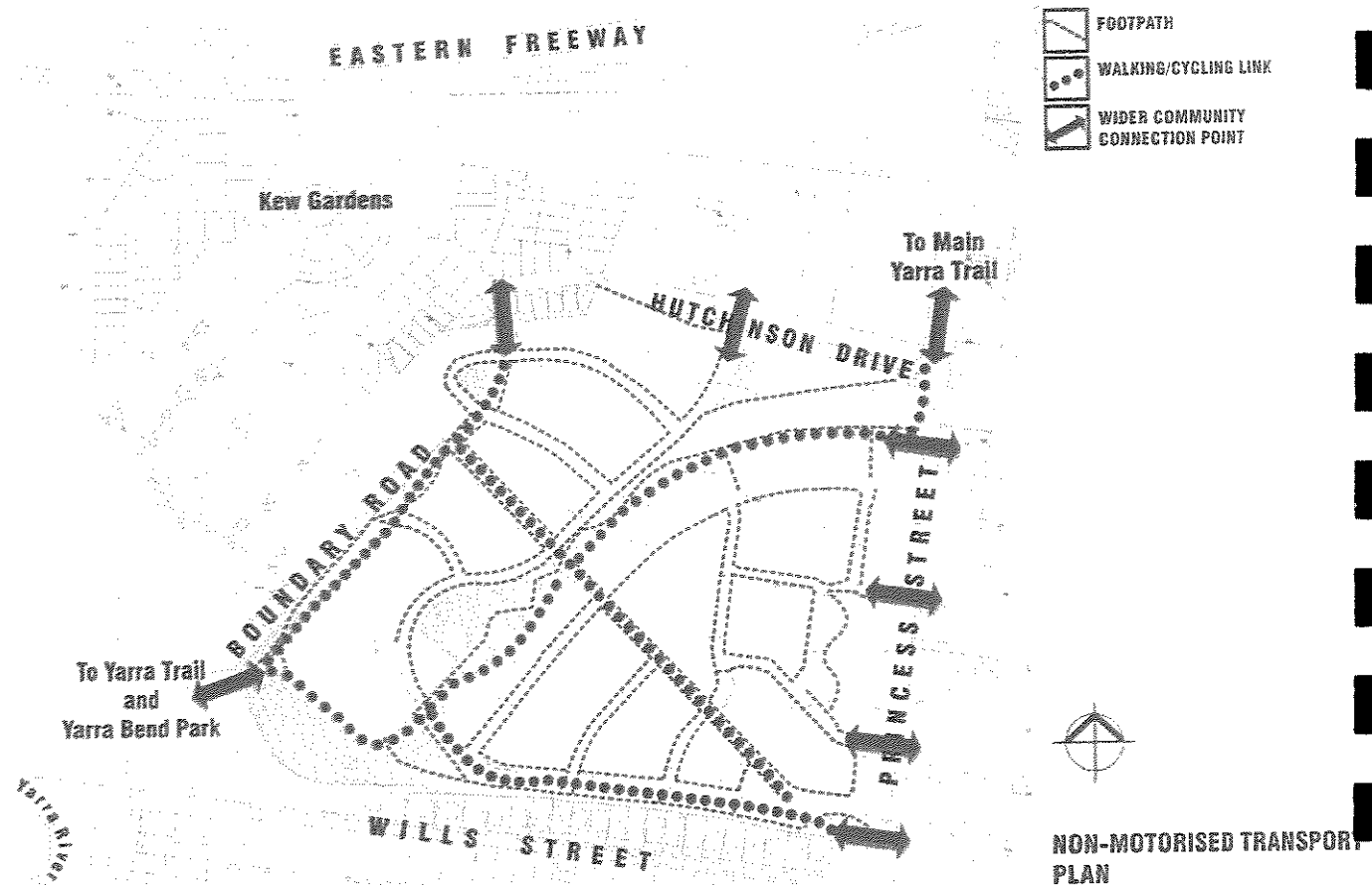
### 4.4.2 Non-Motorised Transport

The 'Main Pedestrian Movement' plan within the KRSUDF shows the main paths around the perimeter (excluding the north west corner) of the subject land and in two diagonals (north east to south west and north west to south east) across the site. It also shows single connections to Hutchinson Drive

and Yarra Bend Park and multiple connections to Princess Street.

The path network plan below for the redevelopment of the WDP-K area indicates main walking / cycling paths in accordance generally with the KRSUDF. Single connections to Hutchinson Drive and Yarra Bend Park and four connections to Princess Street are proposed. The main cycling path is through the north east to south west public open space spine and will connect Yarra Bend Park, Yarra Bend Grove, the retained heritage buildings, Princess Street and the main Yarra Trail. There will be no marked on-pavement cycle lanes within the subject land.

The paths, where possible, will be designed across the contours of the site and with appropriate materials to facilitate access for people of all abilities. The path materials may include concrete with a variety of surface finishes, bitumen, pre-cast concrete for highlight paving and compacted granitic sand.



## 4.5 SIGNIFICANT VEGETATION

The Scheme includes the following trees in VPO2.

- The avenue plantings along Lower Drive comprising a mix of Algerian Oaks and English Oaks.
- The avenue plantings along Main Drive comprising a mix of Algerian Oaks, English Elms, Moreton Bay Figs and Bhutan Cypress.
- The avenue plantings along Boundary Road comprising Algerian Oaks.
- The central garden plantation comprising a pair of Algerian Oaks and a Holly-leaf Cherry.
- The Bishop Pine, Lower Drive.
- The Holly-leaf Cherry located near the Princess Street entry to the subject land.
- The south west garden plantation comprising a dense planting of Norfolk Island Pines, Bunya Bunya, Canary Island and Monterey Pines, Deodar and Irish Strawberry trees.
- All the River Red-gums and in particular the large River Red-gum located in the north east of the site (refer to photograph in section 2.2.3).

The vegetation protection objectives to be achieved in VPO2 are as follows.

- "To recognise the contribution that the significant trees make to the landscape quality of the Kew Residential Services site.
- To conserve trees of historical, visual, landscape or botanical significance.
- To protect significant trees during construction and after the redevelopment of the Kew Residential Services site.
- To plan the redevelopment of the site in a way that is compatible with the retention and continued health of the significant trees".

A planning permit is required to remove, destroy or lop vegetation included in VPO2.

The intention of Walker Corporation is to retain significant trees including those covered by VPO02 and a Heritage listing. Walker Corporation is committed to the relevant planning processes in any future case of a significant tree(s) being required to be removed.

Walker Corporation will endeavour to retain the damaged River Red-gum (known as Tree 305) located in the southeast portion of the site within the future Stage 1 subject to Council accepting the associated safety and public risk.

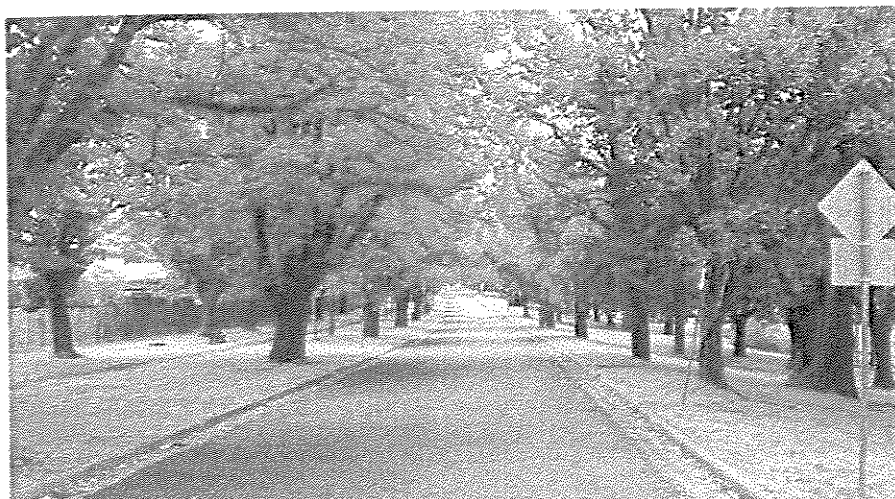
The subject land development will be in accordance with VPO2.

The protection strategy for the trees to be retained will be detailed in the planning permit application for each stage of development but is expected to include the following.

- The appointment of a consultant arborist and the specification of activities to be completed by the arborist.
- The provision of a tree protection envelope plan showing a tree protection envelope for each tree or cluster of trees to be retained. The tree protection envelope will be generally a circle with a radius ten times the diameter (measured at 1.5 metres above natural ground level) of the trunk of the tree and measured from the centre of the trunk at its base.
- The temporary fencing of the tree protection envelope until work is complete.
- The specification of work and activities (with associated conditions) allowed to be completed within the tree protection envelope. This may include temporary or permanent mulching, irrigation works and pruning to enhance the growing environment of the tree.
- The briefing by the appointed consultant arborist of all personnel involved in construction that may impact on the tree protection envelopes.
- The mechanism for managing any damage to the trees within the tree protection envelopes during construction.

A tree protection envelope plan has been prepared for Stage 1 but is yet to be finalised. Walker Corporation propose to submit revised tree protection plans on an ongoing basis as a component of the planning permit application for each stage of the development and in keeping with relevant requirements.

The inclusion of the trees within VPO2 ensures that following the redevelopment of the subject land, a planning permit will continue to be required to remove, destroy or lop vegetation.

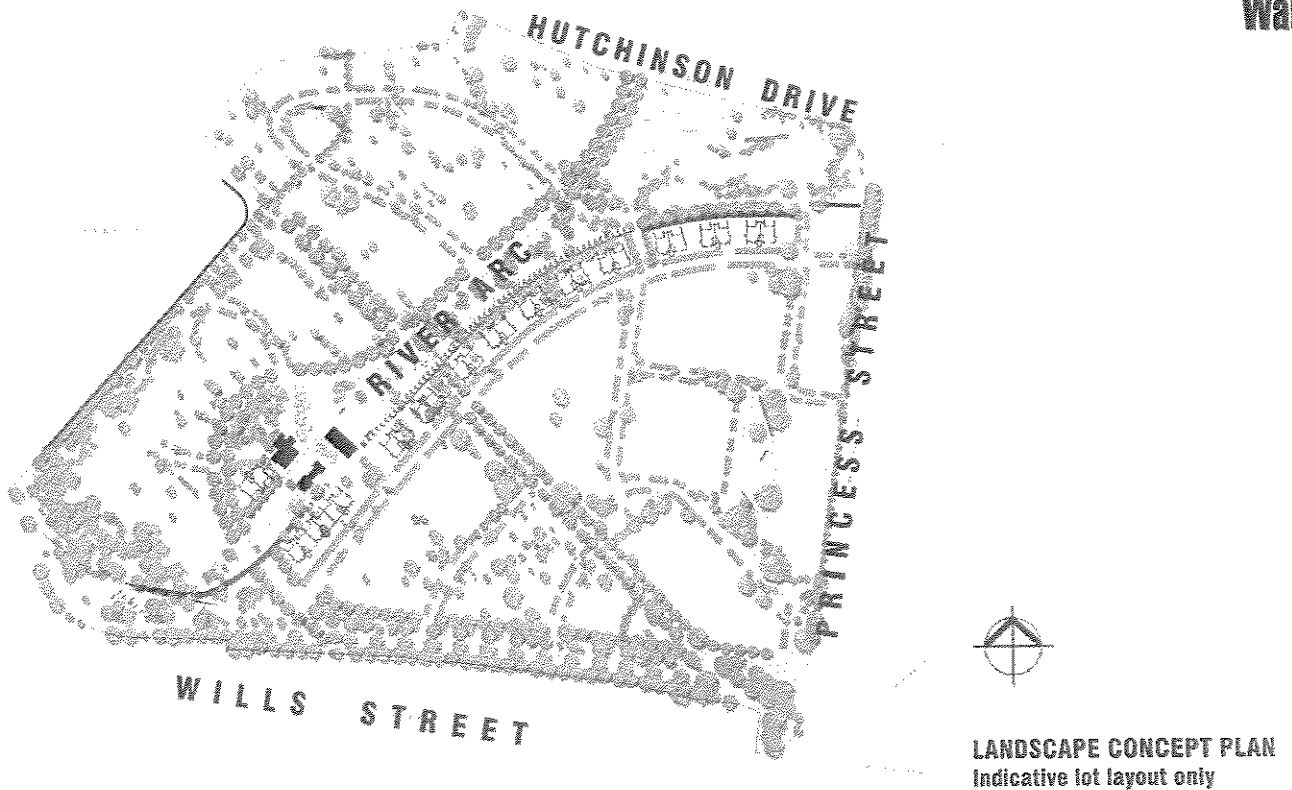


Planting along Main Drive



Cluster of River Red-gums on east side of the subject land





#### 4.6 LANDSCAPE CONCEPT PLAN

The landscape concept plan above shows significant vegetation on the subject land, primarily in public open space and street reservations. The avenue plantings along Main Drive, the west boundary and Lower Drive will be augmented with inter-planting of the same species to reinforce the historic landscape character. Indicative species for inter-planting include the following.

- Algerian Oak (*Quercus canariensis*)
- English Oak (*Quercus robur*)
- River Red-gum (*Eucalyptus camaldulensis*)
- Yellow Box (*Eucalyptus melliodora*)
- Bhutan Cypress (*Cupressus torulosa*)
- English Elm (*Ulmus procera*)
- Callery Pear (*Pyrus calleryana*)
- Honey Locust (*Gleditsia tricanthos* 'Shademaster')
- Lemon-scented Gum (*Corymbia citriodora*)
- Red Ironbark (*Eucalyptus sideroxylon*)
- Hill's Weeping Fig (*Ficus hillii*)
- Paper-bark (*Melaleuca* sp.)
- Crepe Myrtle (*Lagerstroemia indica*)
- Water-gum (*Tristanopsis laurina*)
- London Plane (*Platanus acerifolia*)
- Chinese Elm (*Ulmus parvifolia*)
- Bechtel's Crab (*Malus ioensis* 'Plena')
- Narrow-leaved Ash (*Fraxinus angustifolia*)
- Weeping Lillypilly (*Waterhousea floribunda*)
- Lillypilly (*Acmena smithii*)

The new streets and public open spaces will be planted with a variety of appropriate deciduous and evergreen native and exotic trees. An indicative list of species includes the following.

- Smooth-barked Apple (*Angophora costata*)
- Manchurian Pear (*Pyrus ussuriensis*)

## 4.7 HERITAGE FEATURES

### 4.7.1 Archaeological Sites

The WDP-K proposes the relocation of the Aboriginal scarred tree to one of a series of key nodes where significant walking paths intersect with the north east to south west open space spine. Each key node is envisaged as a paved space potentially incorporating interpretative signage, lighting and seating.

The cultural heritage survey recommended that with any works in the identified areas of Aboriginal archaeological potential, a qualified archaeologist and representative of the Wurundjeri be enlisted to monitor such works.

### 4.7.2 Buildings

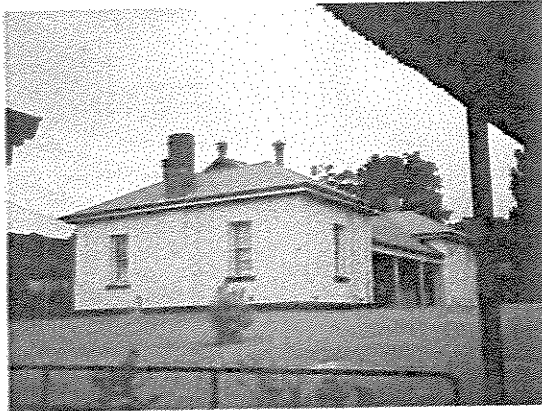
As outlined above, the Scheme anticipates the retention of the buildings formerly known as B3 and B6 (also known as the school house / parents retreat (HO253)) and the dining room / STAD building (HO254) in the Schedule to the Heritage Overlay (HO).

The purpose of the HO includes the following.

- "To conserve and enhance heritage places of natural or cultural significance.
- To conserve and enhance those elements which contribute to the significance of heritage places.
- To ensure that development does not adversely affect the significance of heritage places"(Clause 43.01).

Within HO253 and HO254, a planning permit generally is required to:

- subdivide or consolidate land;
- demolish or remove a building;
- construct a building;
- externally alter a building by structural work, rendering, sandblasting or in any other way;
- construct or carry out works;
- construct or display a sign;
- externally paint a building;
- externally paint an unpainted surface;
- externally paint a building if the painting constitutes an advertisement.



Heritage buildings on the subject land including B3 and B6 (also known as the school house / parents retreat and the dining room / STAD building)

As the subject land is listed on the VHR, a planning permit is not required under the HO, if the proposed development is exempt under the Heritage Act 1995 or Heritage Victoria has granted a permit for the proposed development. The WDP-K proposes the removal of three buildings designated under the VHR for retention. The three buildings were known as B2, B4 and B5 (also known as 'hostel house', unit 11 and unit 9, respectively). As detailed in Section 2.1.3, Heritage Victoria has approved the removal of the three buildings.

The Heritage Policy of the Scheme (Clause 22.05) applies to all heritage places and has the following objectives.

- "To encourage the conservation and enhancement of areas and individual elements of heritage value in the City.
- To ensure that any replacement / extension of heritage buildings are respectful to the heritage character of the area.
- To minimise disturbance of sites which are known or likely to contain Aboriginal cultural heritage elements"(Clause 22.05-2).

Any future planning permit applications required under the HO will address the provisions of this Policy.

The WDP-K proposes the retention of three buildings within the central open space spine including the following.

- Two buildings formerly known as B3 and B6 (also known as the school house / parents retreat and the dining room / STAD building) within the north east to south west open space spine. As shown in the diagram below, each building will have a

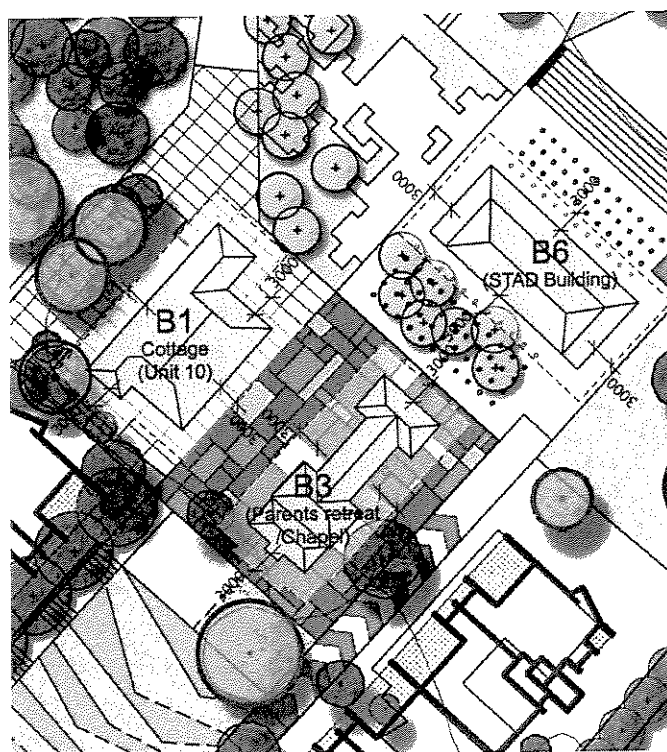


Building B1 (also known as cottage / unit 10)

minimum curtilage of 3 metres, as required by DPO3.

- A building formerly known as B1 (also known as cottage / unit 10). The Scheme does not require the retention of building B1 however, Walker Corporation has liaised with Heritage Victoria and agreed to retain the building based on its contribution to the heritage significance of the subject land, particularly in combination with the other two buildings to be retained.

The three buildings to be retained form a 'cluster' of heritage buildings on the subject land. As shown in the diagram below, though not required by DPO3, a minimum curtilage of 3 metres may also be applied to building B1.



HERITAGE SIGNIFICANT AND / OR VPO TREE TO BE RETAINED

FOOTPRINT OF COTTAGES DEFINED IN LANDSCAPE

NOTE: CONSERVATION WORKS TO B1, B3 AND B6 TO BE COMPLETED TO LATER DESIGN DETAIL.

INTERPRETIVE INFORMATION ON THE HISTORY OF THE SITE AND ORIGINAL LAYOUT WILL BE PROVIDED WITHIN THIS AREA

Subject to stakeholder discussions and a more detailed assessment, potential uses for these buildings include the following:

- commercial uses such as a medical centre, child care centre, café or gallery;
- community uses such as a hall, senior citizens centre or such;
- residential uses.

In accordance with the recommendation of the cultural heritage survey, the demolition of buildings and preliminary construction work on the site will be monitored to determine if evidence of earlier buildings and structures survives.

#### 4.7.3 Memorials

The WDP-K proposes the relocation of the following memorials:

- the ceramic sculpture created by KRS residents;
- the memorial plaque for long-term residents;
- the 1996 fire memorial.

These memorials will be relocated based on the following key design principles.

- That the memorials be relocated within a public open space area to provide a high level of accessibility for the general public.
- That the context, siting and landscape treatment for each memorial be determined in consultation with Heritage Victoria as required under Heritage Permit No. P9639.

### 4.8 SUSTAINABLE DEVELOPMENT PLAN

#### 4.8.1 Public and Non-Motorised Transport

Sections 4.4.5 and 4.4.6 provide a description of the public and non-motorised transport initiatives for the subject land.

As noted in the enclosed traffic assessment, the WDP-K proposes a street network designed to facilitate a future bus route that could connect key recreational and community elements on the subject land and beyond. A bus route is planned to traverse the site along Main Drive and will connect Hutchinson Drive and Princess Street. It is intended that

discussions will be initiated with bus service providers to understand whether they would consider a bus route traversing the site to be feasible at any appropriate time. The WDP-K will also maximise access to use of the existing bus routes that run along Princess Street and link to the tram services in High Street, to reduce reliance on motorised transport and therefore, reduce energy demand. All future lots on the site will be within 400 metres of an existing or potential bus route.

The WDP-K proposes an extensive network of walking and cycling paths to connect residents with key elements on the subject land and surrounds including Hutchinson Drive, Yarra Bend Park, Yarra Bend Grove, the retained heritage buildings and Princess Street. The central open space corridor and Main Drive, in particular, provide a continuous and accessible walking and bicycle circuit through the site connecting open space areas within the site and the surrounding area. The generous width of paved paths through the WDP-K area will encourage pedestrian and bicycle use and, where possible (taking into account site constraints), comply with the relevant disability access requirements.

The provision of bicycle racks, seating, drinking fountains and rubbish bins will further promote activity around and general use of open space areas. The walking and cycling networks will provide opportunities to reduce energy demand associated with motorised transport.

#### 4.8.2 Energy Demand and Peak Loads

The WDP-K aims to reduce energy demand and peak loads associated with development on the subject land. Initiatives will include minimising the energy required for space heating, cooling, hot water, lighting and general power and optimising the energy savings through selected use wherever possible of low embodied- energy construction materials.

#### 4.8.3 Heating and Cooling Systems

The WDP-K envisages the maximum use of passive heating and cooling systems in all buildings to reduce energy demand and peak loads. Building interiors will be isolated and maintained to a constant temperature throughout daily and seasonal changes in the climate, where possible. In this regard, the following initiatives will be implemented.

- Orientation of dwellings to maximise exposure to winter sun.

- Provision of sun shades, awnings, eaves and screens, where appropriate, to reduce solar access to dwellings, when required (generally during the summer months).
- Placement of building openings on either side of buildings and considering window placement and sizing, to ensure potential for cross ventilation.
- Ensuring well insulated and thermally stable buildings.

With solar orientation and natural ventilation optimised, active heating and cooling systems with low energy demand will be chosen to minimise the energy use required for resident comfort.

The following initiatives will be implemented for the active heating and cooling systems.

- Installing low energy use gas or reverse cycle heating systems.
- Discouraging electric heating provision at all times.
- Locating mechanical equipment to minimise noise impacts.

#### 4.8.4 Power, Electronics and Home Automation

Dwellings will be provided with and residents will be encouraged to add, new appliances that are low energy, particularly in terms of clothes washing machines and gas cooking appliances. The use of energy efficient rated appliances will help to reduce energy demand and running costs for residents.

#### 4.8.5 Natural and Artificial Lighting

The lot layout and orientation to be utilised in the WDP-K area will maximise the availability of natural lighting to dwellings and particularly to habitable rooms. Dwellings will be sited to maximise solar access into secluded private open space areas. There will be a limit on the extent of development (including landscaping) on the north boundary of secluded private open space areas to reduce any potential overshadowing impacts.

Highly efficient fluorescent lamps will be used throughout the development, including within public open space areas and streetscapes, to reduce energy demands as a result of the development.

#### 4.8.6 Materials and Construction Specification

'Green building' practices will be implemented to address material selection, waste minimisation and environmental impact. The use of materials with a low environmental impact, in terms of sourcing and manufacturing, will be maximised.

Environmentally responsible materials to be used include plantation timber sources, wherever appropriate. Light organic solvent preservative (LOSP) timbers will be used in the development where appropriate and possible.

Permeable paving will be encouraged where appropriate to reduce the amount of stormwater runoff and reduce the potential risk of localised flooding. Where appropriate, specified concrete pavers will consist of concrete containing waste products, which will contribute to the overall use of recycled material.

Other materials to be used in the WDP-K area such as paints (external and internal), wood and timber products, window frames (approved timber and aluminium), floor coverings, plumbing, electrical cabling and joinery products, will be selected with consideration for toxicity and air quality in general. Materials that contain formaldehyde glues will not be used in internal finishes, fixtures or structures in direct contact with the internal air of the dwellings. The use of materials that contain PVC will be minimised in all construction.

#### 4.8.7 Waste Minimisation

Waste volumes sent to land fill will be reduced through re-use and recycling. Waste sorting and recycling will be encouraged as an important part of maintaining a 'green' building site. This will be achieved by minimising waste from building construction and using recycled materials.

Recycling bin storage areas will be provided to all apartment buildings and other dwellings. Walker Corporation also intends to investigate alternate means of recycling and waste reduction with the Environmental Protection Authority and the appropriate Council representatives to ensure that appropriate methods are applied from the outset of the development.

#### 4.8.8 Water Usage

The use of water will be minimised within the WDP-K area by implementing the following initiatives:

- all appliances will have a minimum AAA water use classification;
- selection of appropriate plant species including indigenous trees, shrubs and grasses and in general, drought tolerant plants;
- consideration of the location of planting in terms of the distance to built form;
- installation of flow restrictors to selected plumbing fixtures;
- installation of toilets that have a dual flush system (3 and 6 litres flush options).

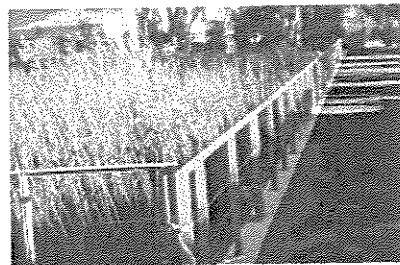
#### 4.9 ENGINEERING INFRASTRUCTURE

##### 4.9.1 Integrated Water Management Strategy

The WDP-K proposes an integrated approach to urban stormwater management and water sensitive urban design to ensure compliance with the CSIRO Urban Stormwater - Best Practice Environmental Management Guidelines (the Guidelines) 1999.

The Guidelines provide a framework of strategies to improve the environmental management of urban catchments and waterways. In particular, it specifies performance objectives in relation to the quality of urban stormwater run-off discharging to receiving waters. These objectives are outlined in the table below.

Pollutant	Receiving water objective	Current best practice performance objective
Suspended solids (SS)	Comply with SEPP (e.g. not exceed the 90th percentile of 80mg/L)(1)	80% retention of the typical urban annual load
Total phosphorus (TP)	Comply with SEPP (e.g. base flow concentration not to exceed 0.8mg/L)(2)	45% retention of the typical urban annual load
Total nitrogen (TN)	Comply with SEPP (e.g. base flow concentration not to exceed 0.9mg/L)(2)	45% retention of the typical urban annual load
Litter	Comply with SEPP (e.g. no litter in waterways)(1)	70% retention of typical urban annual load
Flows	Maintain flows at pre-urbanisation levels	Maintain discharged for the 1.5 year ARI at pre-development levels



Indicative engineering infrastructure treatments

Walker Corporation has worked closely with Ecological Engineering to identify water management strategies to implement throughout the WDP-K area. The criteria will be achieved within the WDP-K area on a 'whole-of-site' basis by the implementation of an Integrated Water Management Strategy, including the following treatment options.

- Primary treatment to remove litter and coarse sediments using gross pollutant traps on all stormwater outlets.
- Detention basins to reduce peak flows off site back to existing levels.
- Bioretention trenches, grassed swales and basins incorporated into parklands providing treatment through filtration, settlement and nutrient up-take.
- A potential constructed wetlands area in the northeast portion of the site associated with detention basin/s to provide stormwater treatment prior to re-use for irrigation of trees and parkland elements.
- Rain water tanks to collect roof run-off for re-use on gardens.

These facilities are proposed within streets and public open space and will form part of the works to be taken over by the City of Boroondara (Boroondara) for future care and maintenance. In addition to the above criteria, Walker Corporation is committed to liaising closely with the appropriate Council representatives to ensure an effective and sustainable integrated water management strategy for the site.

#### 4.9.2 Water Supply

The subject land is served by two water mains (400 and 450 millimetres diameter) that traverse the site. These water mains are proposed to be decommissioned and replaced by 225 millimetres diameter water mains in Princess Street and Hutchinson Street, which will provide the necessary water supply to the redevelopment.

#### 4.9.3 Drainage

A 600 millimetres diameter stormwater drain traverses the site from north to south and services dwellings in Wills Street and further south. The drain will be redirected on an appropriate alignment through the subject land as part of the redevelopment.

#### 4.9.4 Sewerage

A sewer traverses the south east corner of the subject land, services the dwellings in Wills Street and will be redirected through the WDP-K area. Three sewerage connection points - two on the north site boundary and one on the east side of Princess Street - have been nominated as the points for the redevelopment to direct discharge. The private sewers that service the KRS facilities will be retained temporarily where necessary but decommissioned progressively and replaced as the redevelopment proceeds.

#### 4.9.5 Other Services

Two overhead powerlines (66 and 11 kilovolts) traverse the subject land and service it and Willsmere Apartments. Both powerlines will be redirected underground on alignments to be determined in consultation with the service authority.

A 150 millimetres diameter high pressure gas main and telecommunications services are in Princess Street and will provide adequate supply and service to the WDP-K area.

The Telecommunications Policy (Clause 22.11) of the Scheme applies to all land in Boroondara and has the following objectives.

- "To minimise the visual impact of infrastructure associated with the provision of telecommunications services.
- To minimise any health risks associated with the provision of telecommunications services.
- To facilitate the provision of efficient, modern and cost effective telecommunications services to the ratepayers of the City of Boroondara" (Clause 22.11-02).

Any future planning permit applications for telecommunications facilities will address the provisions of this Policy.



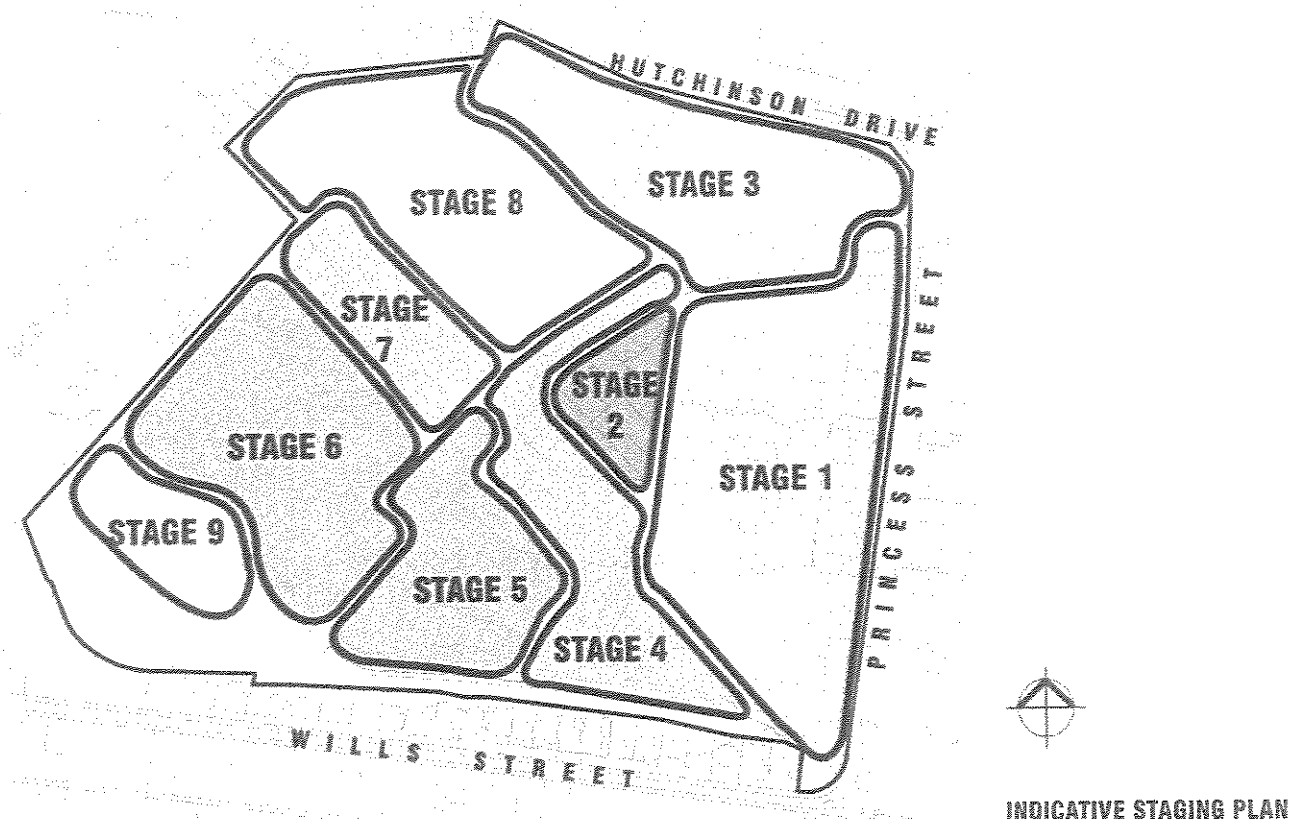


## 5 IMPLEMENTATION

### 5.1 INDICATIVE STAGING

The indicative sequence for the redevelopment of the subject land is depicted on the plan below. The staging will not "prejudice the future use or development of the land in an integrated manner" (DPO3).

Additional approvals may be required from Heritage Victoria over the life of the project.



The indicative development staging may vary as the detailed design for each stage is completed and depending on market demand. An indication of stage timing on expected market conditions is stages 1 and 2 to commence in 2005, stages 3 and 4 to commence in 2007, stage 5 to commence in 2008, stages 6 and 7 to commence in 2009, stage 8 to commence in 2010 and stage 9 to commence in 2011.

### 5.2 DEVELOPMENT APPROVALS PROCESS

Walker Corporation will apply to the Minister for Planning (the Minister), as the responsible authority, for planning permits for subdivision and all other development and uses requiring a planning permit under the R1Z and the relevant overlays of the Scheme. Generally, subdivision and development will need to be in accordance with the approved WDP-K, as required by DPO3.

### 5.3 DESIGN OBJECTIVES AND BUILDING ENVELOPES

Approved Building Envelope Plans (BEP) are to be prepared by Walker Corporation and will be submitted for endorsement (to the satisfaction of the responsible authority) as part of the development approvals process.

A BEP will be prepared for each stage. In addition to complying with the WDP-K, all buildings and works must comply with the BEP.

The BEP will be prepared and submitted following each stage subdivision permit and will contain the design and siting parameters that differ from those under clauses 54 and 55 in the Scheme.

In review of the design outcomes sought for the subject land, various design parameters in Clauses 54 and 55 of the Scheme and the relevant siting requirement of the Building Regulations, have been reviewed. The review has resulted in new specific design parameters to tailor outcomes specifically for the subject land.

In accordance with the Scheme and the Building Regulations, the BEP, including the varied parameters, will be implemented via the permit and an appropriate condition, a notice of restriction on plans of subdivision affecting each lot and restrictions on title via memoranda of common provisions. These varied parameters will promote a preferred neighbourhood character and are anticipated to include:

- potential for reduced minimum front and side street setbacks of dwellings;
- reduced minimum side and rear setbacks of dwellings;
- increased maximum building height of dwellings;
- increased maximum site coverage of dwellings;
- increased maximum length of new boundary walls;
- increased minimum setback of north-facing windows from the north boundary of lots.

20 December 2005

### **Collie Pty Ltd**

URBAN PLANNERS | URBAN DESIGNERS | LANDSCAPE ARCHITECTS

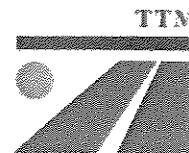
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## APPENDIX A

### TRAFFIC IMPACT ASSESSMENT



# TTM Consulting Pty Ltd



## KEW RESIDENTIAL SERVICES SITE PROPOSED REDEVELOPMENT THE WALKER CORPORATION SCHEME TRAFFIC IMPACT ASSESSMENT

### Prepared By

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### For

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## EXECUTIVE SUMMARY

The Walker Corporation Scheme for the redevelopment of the Kew Residential Services site provides a well connected movement network with provision for all modes of transport. The movement network conforms with the Urban Design Framework incorporated in the Boroondara Planning Scheme.

The internal street system allows adequately for parking and for movement of vehicles, pedestrians, cyclists, service and emergency vehicles. All streets proposed conform to the requirements of Clause 56 of the Boroondara Planning Scheme.

Traffic related amenity conditions are maintained by the design, in that, there is no section of street that has houses fronting and more than around 1,600 vehicle movements per day.

As well as provision for a bus route to loop through the site the Walker Corporation Scheme provides good pedestrian linkages along streets through the site and to connect with Princes Street where there are existing bus stops. Pedestrian amenity and safety is enhanced by the use of rear lanes for vehicular access where smaller frontage lots abut the central open space, Main Drive and other streets that will have footpaths providing important pedestrian routes.

External traffic impacts are all manageable, even during peak periods. The current scheme provides 520 dwellings, whereas earlier traffic analysis had concluded that up to 1,500 dwellings could be accommodated on the site on the basis of peak period traffic access considerations.

Computer analysis of intersection impacts indicate satisfactory operation during peak periods, conservatively allowing for growth in base peak period traffic on Princes Street at 1.5% per annum up to year 2012. VicRoads has approved the intersection arrangement proposed at Princess Street, which comprise use of the existing connections at Hutchinson Drive and the roundabout at the Princes Street/Willsmere Road/Wills Street intersection.

## 1. INTRODUCTION AND SCOPE

DKO Architecture Pty. Ltd. on behalf of Walker Corporation has prepared a development scheme for the Kew Residential Services (KRS) site. This scheme is part of a tender process to secure the right to redevelop the land in accordance with a brief by the Department of Human Services (DHS) and an Urban Design Framework (UDF) included in the Boroondara Planning Scheme.

This report describes the traffic impacts that are likely to occur as a result of redevelopment of the Kew Residential Services (KRS) site pursuant to the Walker Corporation Scheme, and proposes a suite of traffic engineering solutions for the necessary on-site traffic facilities.

## 2. BACKGROUND STUDIES

VicUrban as project manager for DHS commissioned two traffic studies to assess the impact of development on the KRS site. These studies, by Ratio Consultants and GTA Consultants provided a traffic capacity analysis for a range of development scenarios on the KRS site, each allowing for growth in traffic on Princess Street. The conclusions were that traffic conditions on Princess Street would be acceptable for up to about 1,500 dwellings on the KRS site. The studies are respectively titled:-

*Proposed Residential Development of the KRS Site, Kew  
Traffic Impact Report  
Prepared by Ratio Consultants Pty Ltd  
for VicUrban, 30 October 2003,*

and a letter format report by GTA Consultants addressed to Mr. Mark Whinfield, Manager Urban Development VicUrban, dated 10 September 2003 and headed:

### **KRS SITE REDEVELOPMENT – SIMULATION MODELING DISCUSSION AND RESULTS**

These reports are copied into Appendix C of this report.

The Ratio study included traffic counts, future predictions for Princes Street, SIDRA analysis for each of the two intersections on Princess Street, and a notation in respect of the capacity of Kew Junction to be able to receive or supply traffic to the levels necessary for “unsatisfactory” conditions local to the KRS site.

Given that there is no difference between the connections proposed in the Walker Corporation Scheme and those analysed by Ratio, and that the Walker Corporation Scheme proposes 520 dwelling units for the site, there is no reason to revisit the analysis or the findings of that report in respect of external traffic impacts. However VicRoads has requested that the Ratio work be revised, and accordingly Section 5 of this report has now been added.

Further, the Walker Corporation Scheme is generally in accordance with the UDF in respect of the traffic facilities proposed and the consequentially implied impacts.

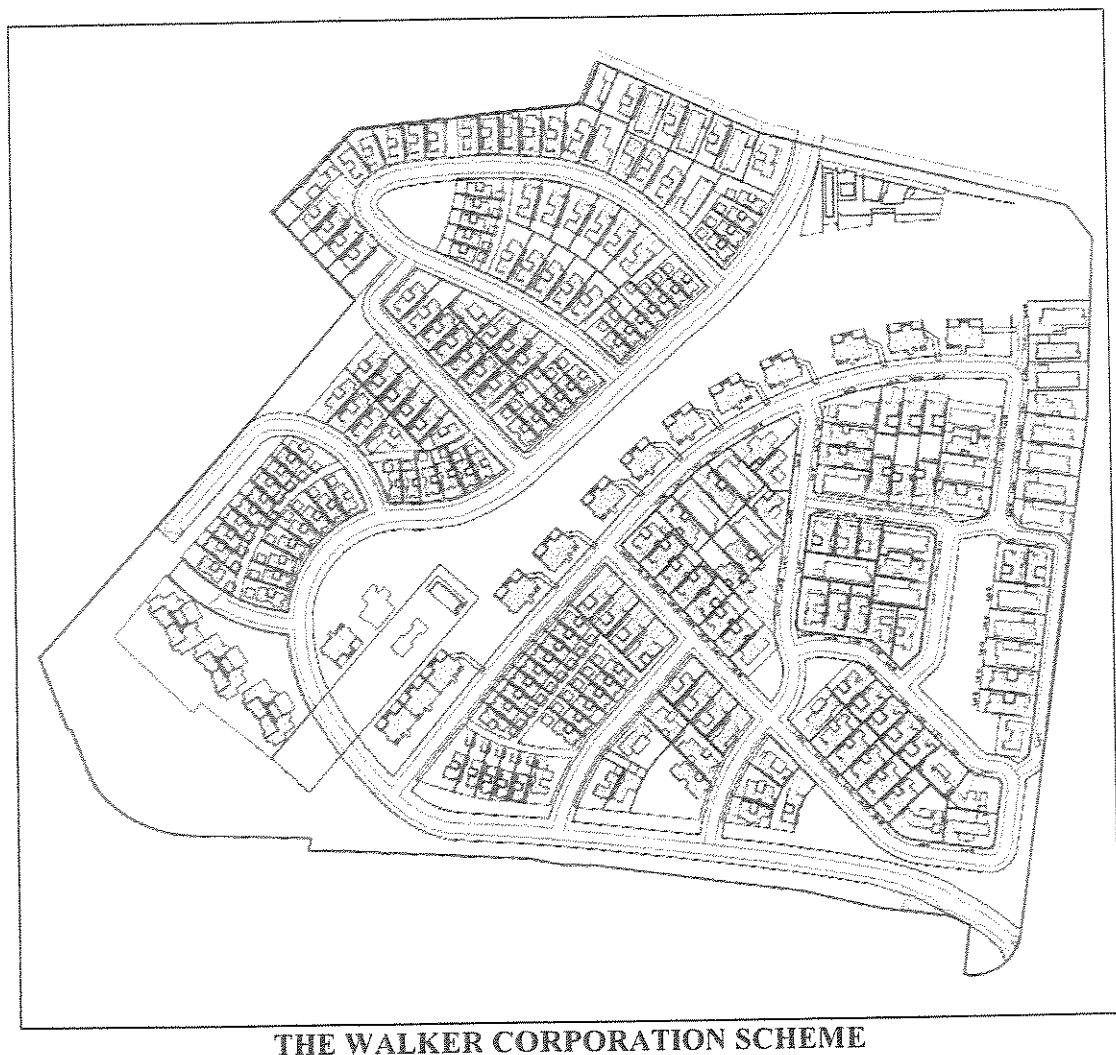
A further element of conservatism in respect of the Ratio analysis is that growth in Princess Street peak period traffic is presumed as a basis for impact analysis. Such growth would generally be caused by development in relatively remote areas, less compliant with Melbourne 2030 principles than development on the KRS site.

Traffic growth generated by less sustainable development should never be used as a basis to limit more sustainable development.

### 3. THE PROPOSED DEVELOPMENT

The Walker Corporation Scheme involves development of 520 dwelling units on the land, and is depicted in the drawing MP-6 by DKO Architects.

A reduced scale version is copied hereunder :-



**THE WALKER CORPORATION SCHEME**



## **4. MOVEMENT NETWORK ANALYSIS**

### **4.1 Overview**

All elements of the movement network in the Walker Corporation Scheme are generally in accordance with the UDF.

Further, all proposals comply with the relevant provisions within Clause 56 of the Boroondara Planning Scheme.

### **4.2 Provisions for Public Transport**

Several bus services currently operate in Princess Street, Kew. Stops are located near Main Drive and Hutchinson Street. It is relatively simple for northbound buses to divert into the site to provide a service without significantly reducing existing bus accessibility for people accessing the Princess Street stops. Clearly, service times would be affected.

Southbound services would need to make a right turn into the KRS site at Hutchinson Drive, and then travel through the site to the roundabout at the south-eastern corner. This movement would add to travel time for the service, and may be resisted by the service provider.

Nonetheless the Walker Corporation Scheme includes an allowance for buses on the major movement network through the site, linking the roundabout at Princess Street/Elgin Street with Hutchinson Drive. This allowance is by way of adopting a 7.5 metres wide carriageway for this route, in accordance with Clause 56 of the Boroondara Planning Scheme, as shown in the diagram at section 4.4 of this report.

Further, the Walker Corporation Scheme includes several open linkages to Princess Street, affording easy pedestrian access to the bus stops.

### **4.3 Traffic Volumes on Internal Streets**

At full development of the site, the total vehicular daily traffic generation to external streets is likely to be around 2,600 vehicle movements, or 5 movements per dwelling per day. Assigned to the street network, the highest volumes are expected to be as shown in the Transport Access Plan at Section 4.9.

The heaviest volume will be around 1,600 vehicle movements per day at the connection to the roundabout in the south eastern corner of the site. This is well under the Clause 56 environmental capacity for an "Access Street" (3,000 vehicles per day), ensuring adequate traffic related amenity outcomes.

Boroondara City Council has requested an analysis of the impacts of traffic generation at 6 vehicle movements per day per household, which is highly unlikely for the form of housing that is being proposed. Assuming that all of the vehicular trip generation reaches the external street network, the heaviest traffic volumes on any part of the internal street network will be around 1850 vehicle movements per day in the short section of Main Drive near the south eastern corner of the site.

There are no houses proposed to front this section of street, but the higher volume is still well within the amenity related environmental capacity for an "Access Street" as described in Clause 56 of the Boroondara Planning Scheme.

The northern connection, to Hutchinson Drive, will carry around 1,100 vehicle movements per day. Again this is well within appropriate environmental capacity bounds, ensuring acceptable traffic related amenity outcomes. On the basis of these environmental capacity limits there is no need for additional street linkages to reduce vehicular traffic volumes on any part of the Walker Corporation Scheme.

#### 4.4 Street Form

"Access Street" in accordance with Clause 56 of the Boroondara Planning Scheme is the appropriate form for all streets in the plan. On the linkages that may be used as a bus route a carriageway width of 7.5 metres between kerb faces is proposed. For the balance of the site 7.0 metres is the preferred street form. The Transport Access Plan at Section 4.9 indicates the location of the proposed street forms in the Walker Corporation Scheme.

Service lanes that are providing access to garages at the rear of residential properties are proposed generally at 6 metres width. Paving and landscaping will be used in combination to provide for fully sealed accessibility for vehicles using the lanes as well as landscaping and pervious surfaces where vehicular passage is not needed. Along Princess Street a 5.5m wide service street with verges is proposed for rear access to residential buildings.

Individual driveways need only be generally 3 metres wide, and shared zones are to be comprehensively designed in accordance with the provisions of Clause 56 of the Boroondara Planning Scheme for "Access Place".

#### 4.5 Pedestrian and Cycling Facilities

There will be no section of street internal to the site that will have traffic at more than 3,000 vehicle movements per day. Part 14 recommends separate cycle facilities, and consequently there are no on-pavement cycle lanes proposed.

Through the open space areas there will be shared paths linking to the traffic signals at Hutchinson Drive and generally throughout the site.

Every street will have footpath wherever there are houses fronting and to provide connections where needed. Only where open space is fronted will there be only one footpath.

The Transport Access Plan at Section 4.9 indicates the major pedestrian access points and the linkages with public transport.

#### **4.6 Vehicular Traffic Speed Management**

Vehicles speed control is proposed through the following strategies :-

- Intersections will require a stop or near stop on minor legs, which effectively will break streets into segments of no more than about 200 metres in length.
- Some intersections will also include pavement narrowing and possibly ramping on major legs, to force slow speeds.
- Street carriageway widths proposed are not excessive, and a reasonable density of on-street parking is expected.
- Maximum 50kph speed limit regulated.

The Transport Access Plan at Section 4.9 shows the locations of proposed traffic speed control elements. On the possible bus route the speed management measures are moderated to enhance bus accessibility and to increase the likelihood of a bus service being provided.

#### **4.7 Loading and Services**

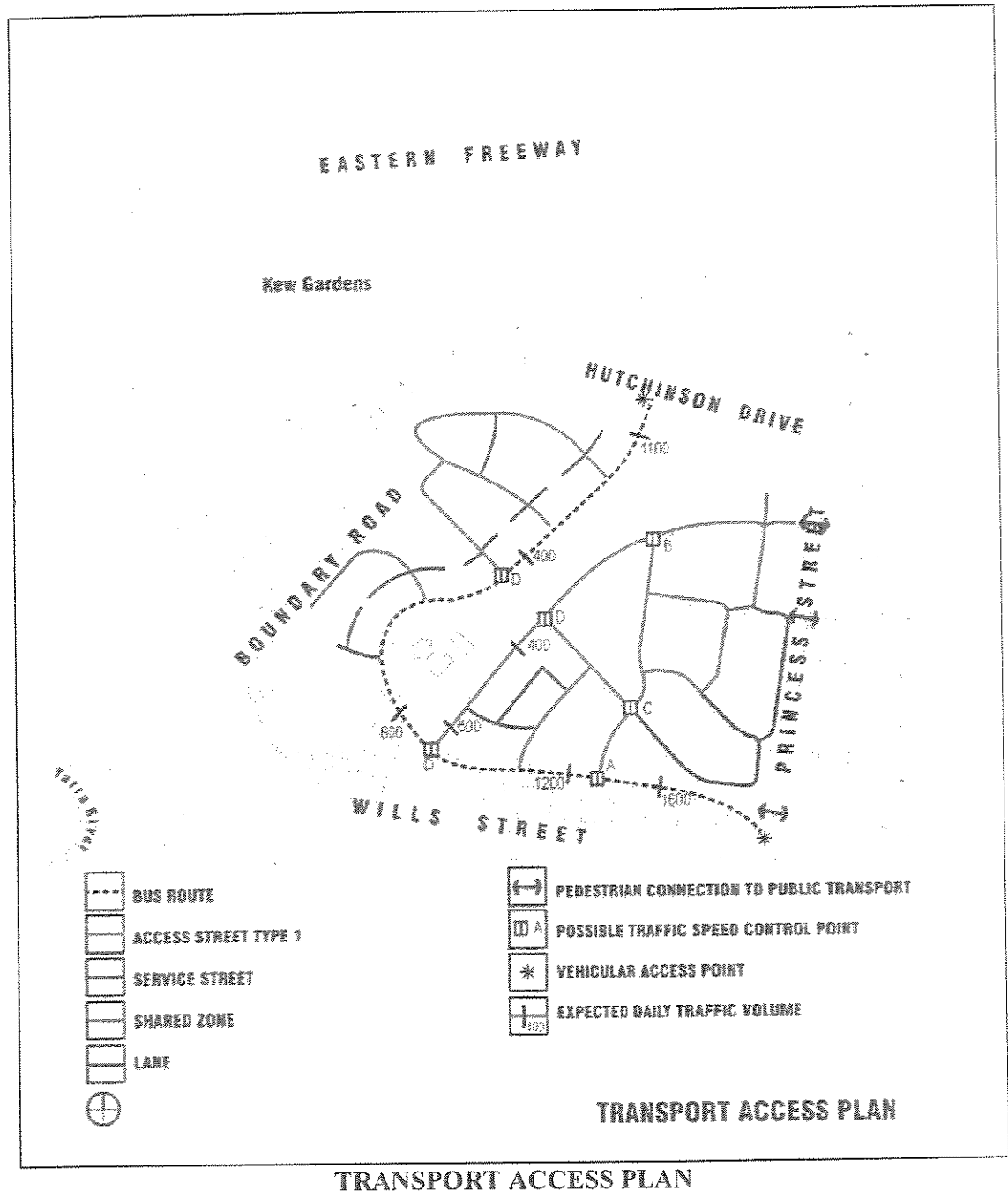
The 11 metre rigid truck will be the minimum geometric design control on all streets and intersections. This will ensure that garbage collection and other service functions are facilitated without exceptional damage to verges from truck overruns.

#### **4.8 Public and Private Parking**

All dwellings will have resident parking in accordance with the usual ResCode requirements in the Boroondara Planning Scheme. Visitor parking is proposed on all streets, as well as in several pods shown on the Walker Corporation Scheme plan.

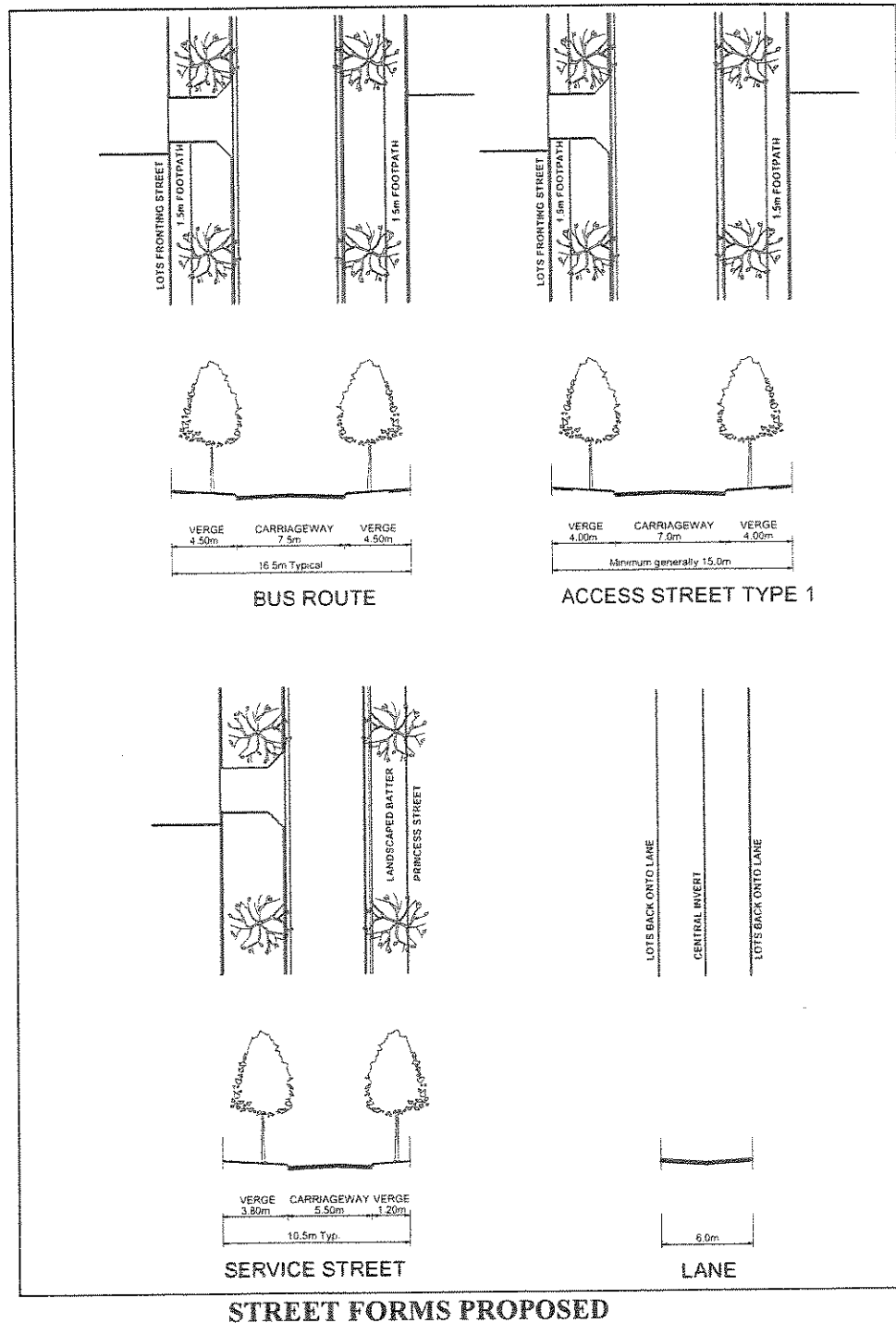
#### 4.9 The Transport Access Plan

The following plan shows the key access and movement elements in the Walker Corporation Scheme, as described above.

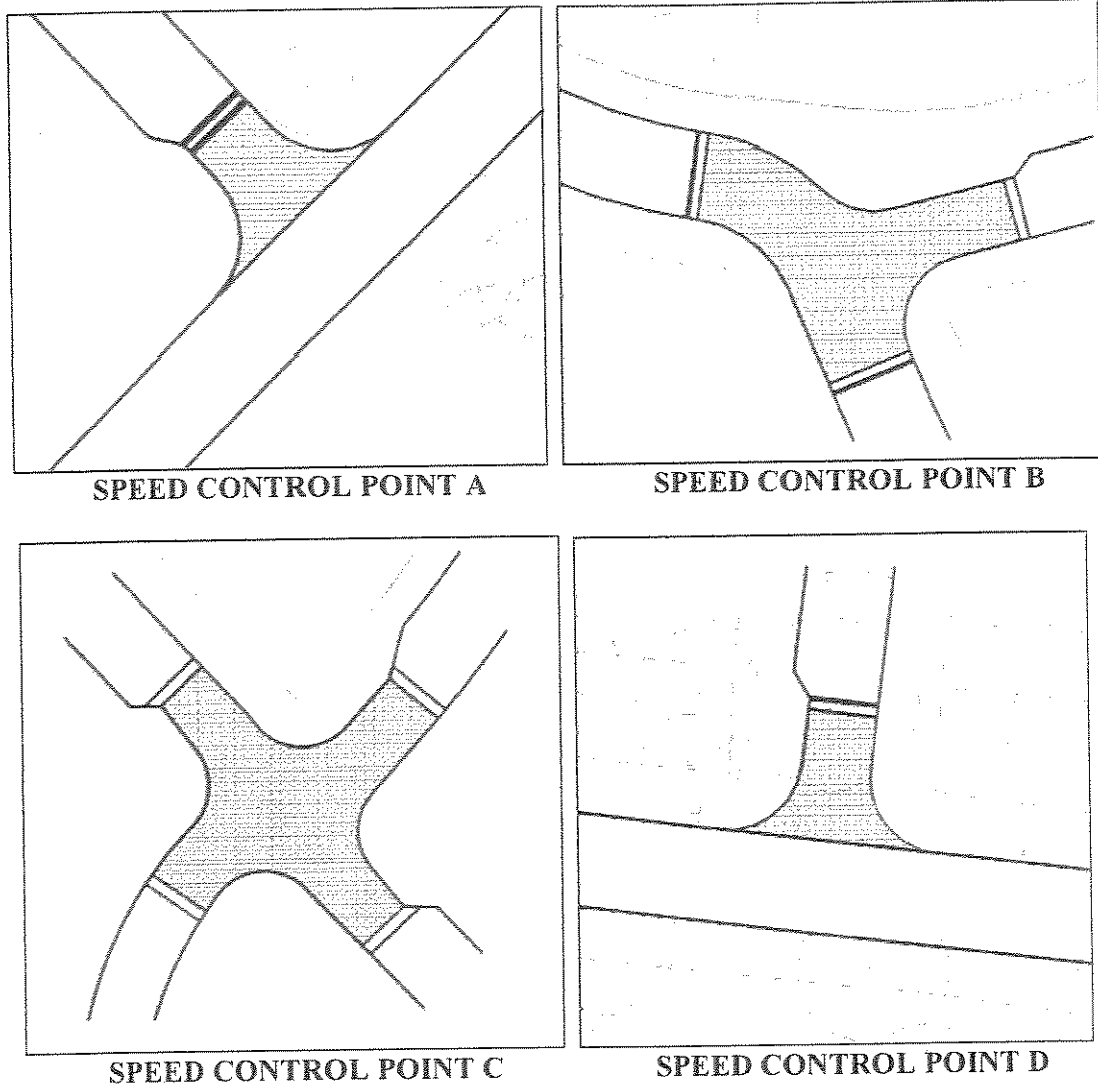


#### 4.10 Proposed Street Form and Speed Management

The following diagrams indicate the dimensions of the street forms proposed in the Transport Access Plan, and also show concepts for traffic speed control treatments located at street junctions in the Transport Access Plan. Lanes are not marked on the transport Access Plan and reference to the DKO detailed plan will be needed.



Note: The Lane section shown above is for the full width paved condition, which will occur where there are driveways or garages opposite each other or where vehicular passage is required for access. Landscaping will be used to minimize paved surfaces where practical.



### CONCEPTS FOR TRAFFIC SPEED CONTROL POINTS

#### 4.11 Vehicular Connection Points

Indicative designs for vehicular connections points are provided hereunder. There are only two proposed connections, one of which is the existing Main Drive link to the roundabout at the Princess Street intersection with Wills Street, Willsmere Road and Eglinton Street, and the other is to Hutchinson Drive to the north.

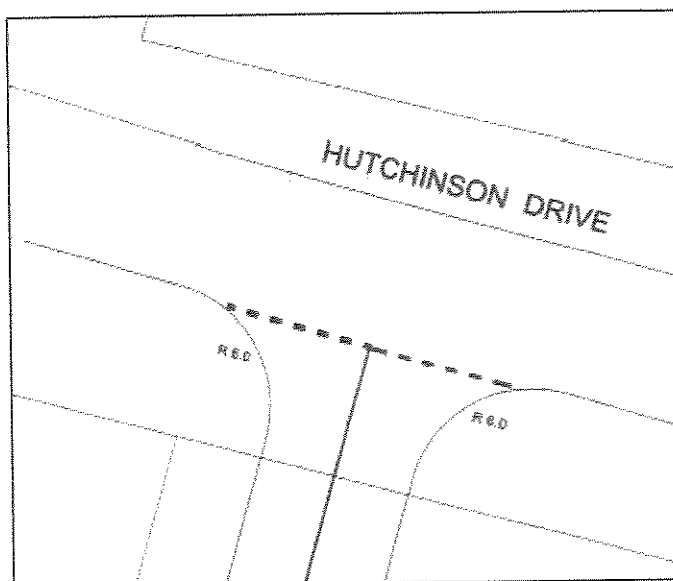
For record purposes it is noted that Council and community have expressed concerns about the functional of the roundabout during peak traffic periods. The design team considered access alternatives such as removal of the Main Drive connection, or allowing either ingress or egress only at that point. However the current proposal was adopted after consideration of the following key issues :-

- Having only the Hutchinson Drive access for the site would add substantially to vehicle trip length within the site, and would concentrate vehicular traffic to one point rather than allowing a spread of traffic loadings to occur. This would lead to

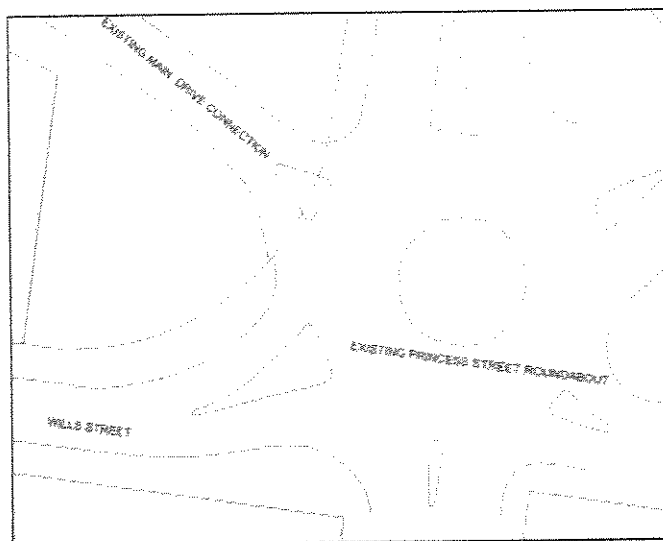
degraded pedestrian amenity, and is not in conformity with sustainability principles expressed in Melbourne 2030 or in general planning policy.

- During peak traffic periods most intersections operate close to capacity, and the roundabout is no exception. The roundabout is unusual in that it has 56 legs, which compounds impressions about congestion. Only minor crashes occur with any regularity at the roundabout in comparison with severities experienced at typical signal controlled intersections including Hutchinson Drive and Princes Street.
- Detailed analysis using commonly accepted methodologies indicates that being fully directional access at both connection points is entirely appropriate.

On balance it is our view that combined traffic safety and relevant sustainability objectives are best met by having both access points as proposed.



**NORTHERN CONNECTION TO HUTCHINSON DRIVE**



**SOUTHERN CONNECTION MAIN DRIVE TO EXISTING ROUNDABOUT**

Traffic impacts associated with these connections are described in Section 5 of this report.

## 5. TRAFFIC COMPACTS ON PRINCESS STREET

### 5.1 Existing Traffic Volumes

Ratio provided traffic counts as copied in Appendix A to this report, for the intersection of Princess Street with Hutchinson Drive and for the roundabout at the south eastern corner of the site. These volumes are accepted as base flows for Year 2002, which are then factored up to represent the design year base flows for assessment of intersection performance along Princess Street.

### 5.2 "Design" Traffic Volumes

#### 5.2.1 Base Flows

VicRoads has requested that Year 2012 be used as the "design" basis for traffic on Princess Street and at the roundabout.

Average annual growth rate on Boroondara arterials is 0.5%, but we have used a compound growth rate of 1.5% per annum to consider Year 2012 conditions. That means an increase of 16% from the Year 2002 counts. A reduction of 5% is allowed for the shift to public transport by Year 2012 (20/2020). This results in a net increase of 11% in the existing flows to derive the "design" flows. These assumptions have all been accepted by VicRoads.

#### 5.2.2 Development Traffic

Peak period traffic flows are required by VicRoads to be analyzed to assess the impacts on intersections at Hutchinson Drive and at the Willsmere Road/Eglinton Street/Wills Street/Main Drive roundabout at the south eastern corner of the site.

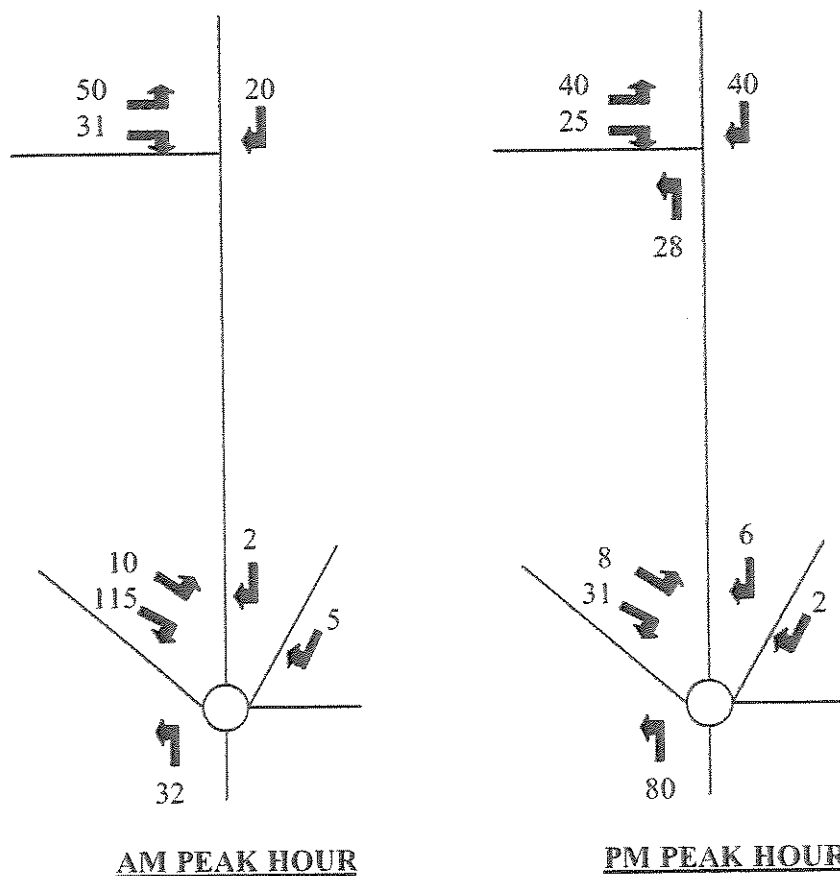
Estimated traffic generation during both the AM and PM commuter peak periods is as set out in the following table. The generation rates are taken from earlier analyses, and are as accepted by VicRoads. These rates were also used by both Ratio and GTA in the background reports referenced at Section 2 of this report.

<u>AM PEAK HOUR</u>	<u>PM PEAK HOUR</u>
Outbound = $0.4 \times 520 = 208$	Outbound = $0.2 \times 520 = 104$
Inbound = $0.1 \times 520 = 52$	Inbound = $0.3 \times 520 = 156$
To North = $^{1219}_{4193} \times 208 = 60$	From south = 108
To South = 148	From North = 48
From North = 20	To North = 48
From South = 32	To South = 56

#### KRS SITE DEVELOPMENT ESTIMATED TRAFFIC GENERATION PEAK PERIODS FOR 520 DWELLINGS



Development traffic for the completed project for the peak periods is summarised in the diagrams below :-



### 5.3 Analysis Methodology

Intersection performance is analysed using the Sidra model. To achieve the increase of 11% in base flows the average flows are set to 85% of peak flows, which provides the factoring needed.

The Sidra outputs are summarised as follows, and are included at Appendix B.

AM Peak Hour	:	Roundabout	:	Degree of Saturation	:	0.78
		Signals	:	Degree of Saturation	:	0.70
PM Peak Hour	:	Roundabout	:	Degree of Saturation	:	0.80
		Signals	:	Degree of Saturation	:	0.74

Queue length (85<sup>th</sup> percentile) are all such that clearance can occur in one cycle.

Consequently there will be no major impacts on peak period traffic conditions on Princess Street.

#### 5.4 VicRoads Consultation

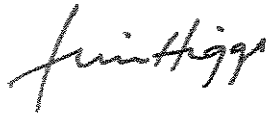
VicRoads has approved the access arrangements proposed, as evidenced by letter to Boroondara City Council copied in Appendix D.

### 6. SUMMARY AND CONCLUSIONS

The Walker Corporation Scheme provides a well connected movement network with suitable provisions for all modes of transport. Accessibility provisions are generally in accordance with the Urban Design Framework and Clause 56 of the Boroondara Planning Scheme.

Access at Princess Street will operate satisfactorily, with traffic loadings being well under the limits set out in the background studies prepared for VicUrban as project manager for the Department of Human Services.

TTM Consulting Pty. Ltd.



J. D. Higgs