

Volume 1

Development Plan Submission

Prepared by Tract Consultants Pty Ltd

In conjunction with

Urban MGS Architects GTA Consultants Cardno Pty Ltd Aurecon Group Bryce Raworth Senversa Pty Ltd Acoustic Logic GHD

for

De Group Pty Ltd

September 2012 Revision 03

Tract

Tract Town Planners Urban Designers Landscape Architects

Figures

Figure 1. Locality Plan (Extract from Melways Street Directory)	6	Figure 47. Sequential Develpoment of
Figure 2. Amendment C63 Zone Plan	9	Figure 48. Boiler room under construct
Figure 3. Amendment C63 DPO7 Plan	9	Figure 49. Bradmill Precinct Developme
Figure 4. Amendment C63 EAO Plan	9	Figure 50. Aerial view of the Bradmill sit
Figure 5. Zone Plan	12	Figure 51. Aerial view of the factory as I
Figure 6. HO125 Plan	13	Figure 52. The newly completed gateh
Figure 7. DPO7 Plan	13	Figure 53. The boiler house, coal hoppe
Figure 8. EAO Plan	13	Figure 54. Historical Bradmill Advertiser
Figure 9. DCPO6 Plan	13	Figure 55. Historical Bradmill Advertiser
Figure 10. Bradmill Precinct West Yarraville Indicative Development Plan	13	Figure 56. Precinct Key
Figure 11. Site Context Plan	17	Figure 57. Precinct 1 Plan
Figure 12. Existing Conditions Plan	18	Figure 58. Precinct 1 Section
Figure 13. Site Analysis Plan	19	Figure 59. Typical Lot and Access Arra
Figure 14. Neighbourhood Structure Plan	20	Figure 60. Typical Lot and Access Arran
Figure 15. Site Opportunities Plan	21	Figure 61. Precinct 2 Plan
Figure 16. Existing Electrical Infrastructure on Eastern Boundary	22	Figure 62. Precinct 2 Section A
Figure 17. Typical WSUD Stormwater Swale	22	Figure 63. Precinct 2 Section B
Figure 18. Bradmill Concept Plan (July 2008)	25	Figure 64. Precinct 2 Section C
Figure 19. Indicative Bradmill Precinct Development Plan	27	Figure 65. Precinct 3
Figure 20. Indicative Access and Movement Plan	28	Figure 66. Precinct 3 Section
Figure 21. Indicative Open Space Plan	29	Figure 67. Typical Lot and Access Arran
Figure 22. Bradmill Precinct Staging Plan	31	Figure 68. Precinct 4 Section
Figure 23. Indicative Internal Road Network	35	Figure 69. Precinct 4 Plan
Figure 24. Zebra Crossing Locations	35	Figure 70. Typical Lot and Access Arran
Figure 25. Internal Road Network Cross-Sections	38	Figure 71. Neighbourhood Activity Cer
Figure 26. Cross-Section - across Francis St Approx.20m west of Roberts St	38	Figure 72. Precinct 5 Plan
Figure 31. Cross-Section - across Francis St Approx.20m west of Roberts St	38	Figure 73. Precinct 5 Section A
Figure 27. Cross-Section - across Francis Street Approx. 25m east of Stanger St	38	Figure 74. Precinct 5 Section B
Figure 28. Cross-Section - across McIvor Road Approx. 30m south of Francis St	38	Figure 75. Precinct 5 Section C
Figure 29. Cross-Section - across McIvor Road Approx. 250m south of Francis St	38	Figure 76. McIvor Road & Reserve Key F
Figure 30. Cross-Section - across McIvor Road Approx. 15m north of Fogarty Ave	38	Figure 77. McIvor Road & Reserve Enlar
Figure 32. External Road Network - Overall Functional Layout	39	Figure 78. McIvor Road & Reserve Enlar
Figure 33. Francis Street / Richards Street Proposed Access	39	Figure 79. Northern Orientation
Figure 34. Francis Street / Roberts Street Proposed Access	39	Figure 80. Low Environmental Impact N
Figure 35. McIvor Road Functional Layout Plan	39	Figure 81. Yarraville Train Station
Figure 36. Indicative Landscape Master Plan	41	Figure 82. Recycling Facilitiles in Public
Figure 37. Typical Central Open Space Reserve	42	Figure 83. Rainwater Collection Tank
Figure 38. Typical Pocket Park	42	Figure 84. Shading Louvres
Figure 39. Typical Raingarden with Seating	42	Figure 85. Typical WSUD Rain Garden
Figure 40. Example of Sculptural Play Space	42	Figure 86. Deidicated Cycling Lanes
Figure 41. Eucalyptus Mannifera	43	Figure 87. Example of Recycled Materia
Figure 42. Callistemon Viminalis	43	Figure 88. Typical Bicycle Rack
Figure 43. Quercus Palustris	43	Figure 89. WSUD Stormwater Channel
Figure 44. Hymenosporum Flavum	43	Figure 90. Typical Photovoltaic Cells
Figure 45. Indicative internal landscape street cross-section	44	Figure 91. Stormwater Flows
Figure 46 Indicative landscape external street cross-section	45	Figure 92 Conveyor

e 47. Sequential Develpoment of the Bradmill Site	47
e 48. Boiler room under construction 1952-1954	47
e 49. Bradmill Precinct Development Plan	47
e 50. Aerial view of the Bradmill site showing proposed factory extensions	47
e 51. Aerial view of the factory as largely completed, 1968	47
e 52. The newly completed gatehouse	47
e 53. The boiler house, coal hopper & conveyor with its original chimney	47
e 54. Historical Bradmill Advertisements Photos	48
e 55. Historical Bradmill Advertisements Photos	49
e 56. Precinct Key	51
e 57. Precinct 1 Plan	53
e 58. Precinct 1 Section	53
e 59. Typical Lot and Access Arrangements	53
e 60. Typical Lot and Access Arrangements (Option 2)	
e 61. Precinct 2 Plan	55
e 62. Precinct 2 Section A	55
e 63. Precinct 2 Section B	55
e 64. Precinct 2 Section C	55
e 65. Precinct 3	57
e 66. Precinct 3 Section	57
e 67. Typical Lot and Access Arrangements for Medium Density Housing	57
e 68. Precinct 4 Section	59
e 69. Precinct 4 Plan	59
e 70. Typical Lot and Access Arrangements for Housing in Precinct 4	59
e 71. Neighbourhood Activity Centre	61
e 72. Precinct 5 Plan	61
e 73. Precinct 5 Section A	61
e 74. Precinct 5 Section B	61
e 75. Precinct 5 Section C	61
e 76. McIvor Road & Reserve Key Plan	62
e 77. McIvor Road & Reserve Enlargement 1	63
e 78. McIvor Road & Reserve Enlargement 2	63
e 79. Northern Orientation	65
e 80. Low Environmental Impact Materials	65
e 81. Yarraville Train Station	65
e 82. Recycling Facilitiles in Public Spaces	65
e 83. Rainwater Collection Tank	66
e 84. Shading Louvres	66
e 85. Typical WSUD Rain Garden	67
e 86. Deidicated Cycling Lanes	67
e 87. Example of Recycled Material	68

- Figure 93. Former Dye House (External) Figure 94. Former Dye House (Internal) Figure 95. Looking North Along Eastern Figure 96. Selected Buffers for Surround Figure 97. Selected Buffers for Surround Figure 98. Noise and Vibration Measure Figure 99. Rail line Figure 100. Bradmill Affordable Housin
- Figure 101. Indicative Construction Ma

Tables

68 68

69

69 69

72

Table 5.1. Proposed Internal Road Cross Table 5.2. Public Transport Actions Table 5.3. Walking Actions Table 5.4. Carpooling Actions Table 5.5. Cycling Actions



))	72
)	73
n Boundary	73
nding Odour-producing Industries	78
nding Odour-producing Industries	78
ement Locations	79
	79
ng Zones	83
anagement Plan	87

ss-Section Elements	34
	36
	36
	36
	36



Contents

1. 1.1 1.2 1.3 1.4	Infroduction	5 5 6 6 6	7. 7.1 7.2 7.3	Conservation Mc Policy Context Conservation Manager Heritage Interpretation
2. 2.1 2.2	Relevant Planning Provisions	9 9 10	8. 8.1 8.2 8.3	Design Guideline Policy Context Design Guidelines Con Precinct Guidelines
2.3 2.4 2.5 2.6	Zone Overlays Particular Provisions Other Planning Considerations	12 12 14 15	9. 9.1 9.2 9.3	Ecologically Sust Policy Context ESD Strategy Stormwater Managem
3. 3.1 3.2 3.3	Site Analysis Site Location Site Analysis Neighbourhood Structure	. 17 17 18 20	10. 10.1 10.2	Site Remediation Policy Context Site Remediation Plan
3.4 3.5 4.	Site Opportunities Physical Services and Infrastructure Bradmill Precinct Development Plan	21 22 . 25	11. 11.1 11.2 11.3	Adverse Amenity Policy Context Odour and Dust Impac Noise and Vibration Im
4.1 4.2 4.3	Urban Design Principles and Interface Guidelines - MGS Architects and Tract Consultants (July 2008) Design Philosophy Key Principles of The Development Plan	25 26 26	12. 12.1 12.2	Affordable Housi Policy Context Affordable Housing Str
4.4 4.5 4.6 4.7	Movement Systems and Access Open Space Community Facilities Staging	28 29 29 30	13. 13.1 13.2	Construction Ma Policy Context Construction Manager
5. 5.1 5.2 5.3 5.4	Traffic Management	. 33 33 33 35 38	14.	Conclusion
6. 6.1 6.2 6.3 6.4 6.5	Landscape Concept Plan Policy Context Design Context Key Landscape Treatments Open Space Management Open Space and Remediation	. 41 41 42 44 44		



Tract Town Planners Urban Designers Landscape Architects







Conservation Management Plan	17 47 47 48
Design Guidelines	51 51 51 52
Ecologically Sustainable Design	55 65 65 68
Site Remediation Strategy	71 71 71
Adverse Amenity Impact Report	77 77 77 79
Affordable Housing Strategy 8 Policy Context 8 Affordable Housing Strategy 8	33 83 83
Construction Management Plan	37 87 87
Conclusion	71









Source: MGS Architects (October, 2011)

1.1 Bradmill Development Vision

The Bradmill Precinct presents an exciting opportunity to revitalise an important strategic redevelopment site in Maribyrnong within close proximity of Melbourne's CBD. The development will offer a vibrant and sustainable residential community, including a Neighbourhood Activity Centre that will integrate with the existing urban environment.

Key elements of the proposed development include:

- . Centre.
- conversion.
- recreation or cultural use.

Development within the Bradmill Precinct will be based around a number of dynamic public spaces and a pedestrian focused environment, including the central green open space link, the adjoining McIvor Reserve, and the Neighbourhood Activity Centre.

The green open space areas will provide a park-like setting for the surrounding residential areas and opportunities for active and passive recreation. The Neighbourhood Activity Centre, which will comprise a mix of uses, will be of high amenity with integration with key interfaces. People will be able to shop, eat at one of the many cafes or restaurants, or engage in passive recreation.

The proposal will be developed in 7 Stages over an expected 8-12 year timeframe and will offer integrated living and lifestyle opportunities in accordance with State and Local Planning Policy.

A new Neighbourhood Activity Centre containing a full-line supermarket, specialty retail outlets, cafes, a library, medical centre and other facilities.

Approximately 1300-1500 new dwellings.

Dwellings of 1-2 storeys fronting Francis Street to provide an appropriate interface to the existing residential context.

Transition to medium density (2-4 storey) residential development internal to the site and in other strategic redevelopment locations.

Higher density housing (2-6 storeys) around the Neighbourhood Activity

Adaptive reuse of existing heritage buildings for residential warehouse

Retention of the iconic boiler house to accommodate commercial/

Central open space corridor to provide a link to McIvor Reserve.

Improvements to Francis Street through the addition of a central median and landscaping treatments.

Tract

Tract Town Planners Urban Designers Landscape Architects

1.2 Development Plan Overview

The Bradmill Development Plan provides a framework for the development of approximately 23.6 hectares of obsolete industrial land with frontages to Francis Street and McIvor Reserve in Yarraville. The location of the land is illustrated in **Figure 1 – Locality Plan**.

The land represents a significant opportunity for infill development of a mixed nature comprising residential, commercial, and open space activities.

Following the Gazettal of Amendment C63 to the Maribyrnong Planning Scheme 5 June 2011, the land is now subject to Residential 1 Zone (R1Z) and Business 1 Zone (B1Z). It is also affected by the Development Contributions Plan Overlay - Schedule 6 (DCPO6), Development Plan Overlay - Schedule 7 (DPO7), Environmental Audit Overlay, and Heritage Overlay - Schedule 125 (HO125).

This Development Plan has been prepared in accordance with the provisions of Schedule 7 to the DPO.

The Development Plan also reflects the provisions of local planning policies in the Maribyrnong Planning Scheme which apply to the Bradmill Site.

In addition, the Development Plan draws upon the provisions of the Bradmill Precinct West Yarraville Indicative Development Plan dated (July 2008), and the Bradmill Precinct West Yarraville Urban Design Principles and Interface Guidelines - MGS Architects and Tract Consultants (July 2008).

1.3 Purpose of Development Plan

The Development Plan implements the objectives and provisions of Schedule 7 to the Development Plan Overlay and the policy statements which apply to the land.

Specifically, the Development Plan identifies:

- Land use precincts including residential, commercial, and public open space areas;
- Proposed staging and integration of development;
- Access, movement, parking and loading arrangements;
- Landscape and planting concept and themes;

- Conservation management principles;
- Urban design, built form, and activity centre principles; and
- Means by which the environmental impacts of the development are to be managed.

1.4 Development Plan Content

The Development Plan comprises this report (including diagrams, photos and sketches) as well as separate specialist reports which address the following issues:

- Traffic management;
- Conservation management;
- Design guidelines (residential and activity centre);
- ESD and WSUD principles; and
- Physical services and infrastructure.

Where relevant, extracts of these reports (usually the executive summary and key findings) are included in the text of this document. Full copies of the specialist reports are compiled in a separate volume (Volume 2) and should be read in conjunction with this Development Plan.



Figure 1. Locality Plan (Extract from Melways Street Directory)











Figure 2. Amendment C63 Zone Plan

Figure 3. Amendment C63 DPO7 Plan

Figure 4. Amendment C63 EAO Plan



2. Relevant Planning Provisions

2.1 Amendment C63 to the Maribyrnong Planning

Scheme

Prepared by Maribyrnong City Council at the request of De Group Pty Ltd, Amendment C63 to the Maribyrnong Planning Scheme was approved 5 June 2011 by the Minister for Planning. The purpose of the rezoning was to facilitate the site's redevelopment for residential purposes with a Neighbourhood Activity Centre on the Francis Street frontage.

The amendment changed the Maribyrnong Planning Scheme by:

Rezoning the land from part Industrial 1 Zone and part Industrial 3 Zone to part Residential 1 Zone and part Business 1 Zone.

Amending the schedule to the Business 1 Zone to include a maximum leasable floor area for shop uses on the land.

Applying a Development Plan Overlay (DPO7) over the land.

Applying an Environmental Audit Overlay (EAO) over the land.

Introducing changes to the Local Planning Policy Framework Clause 21.02, 21.03 and 21.04 to reflect the proposed change in land use mix.

2.2 Planning Policy Framework

The Bradmill Development Plan has been produced in accordance with Schedule 7 to the Development Plan Overlay having regard to the following key State and Local Planning Policies:

Clause 11.02 Urban Growth

"To ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses."

Clause 11.04-3 Employment Corridors

"To provide opportunities for substantial employment creation linked by high capacity public transport and connected to Central Activities Districts and growing outer areas."

Clause 11.04-5 Melbourne's urban growth

"To set clear limits to Metropolitan Melbourne's urban development."

Clause 11.04-7 Open space network in Metropolitan Melbourne •

"To create a network of metropolitan open space by creating new parks."

Clause 15.01 Urban Design

"To create urban environments that are safe, functional and provide good quality environments with a sense of place and cultural identity."

Clause 15.01-2 Urban design principles

"To achieve architectural and urban design outcomes that contribute positively to local urban character and enhance the public realm while minimising detrimental impact on neighbouring properties."

Clause 15.01-4 Design for safety

"To improve community safety and encourage neighbourhood design that makes people feel safe."

Clause 15.01-5 Cultural identity and neighbourhood character

"To recognise and protect cultural identity, neighbourhood character and sense of place."

Clause 15.02-1 Energy and resource efficiency

"To encourage land use and development that is consistent with the efficient use of energy and the minimisation of greenhouse gas emissions."

Clause 15.03-1 Heritage conservation

"To ensure the conservation of places of heritage significance."

Clause 15.03-2 Aboriginal cultural heritage

"To ensure the protection and conservation of places of Aboriginal cultural heritage significance."

Clause 16.01-1 Integrated housing

"To promote a housing market that meets community needs."

Clause 16.01-2 Location of residential development

"To locate new housing in or close to activity centres and employment corridors and at other strategic redevelopment sites that offer good access to services and transport."

Clause 16.01-3 Strategic redevelopment sites

"To identify strategic redevelopment sites for large residential development in Metropolitan Melbourne."

Clause 16.01-4 Housing diversity

"To provide for a range of housing types to meet increasingly diverse needs."

Clause 16.01-5 Housing affordability

"To deliver more affordable housing closer to jobs, transport and services."

Clause 17.01-1 Business

"To encourage development which meet the communities' needs for retail, entertainment, office and other commercial services and provides net community benefit in relation to accessibility, efficient infrastructure use and the aggregation and sustainability of commercial facilities."

transport."

Clause 18.01-2 Transport system

"To coordinate development of all transport modes to provide a comprehensive transport system."

Clause 18.02-2 Cycling

encourage as alternative modes of travel."

"To upgrade and develop the Principal Public Transport Network and local public transport services in Metropolitan Melbourne to connect activity centres, link activities in employment corridors and link Melbourne to the regional cities."

Clause 18.02-5 Car parking

located."

Clause 21.04-1 Activity Centre Planning

"To create an activity centre network with a variety of easily accessible, pleasant and safe places where people can gather, socialise, shop, work, live, be entertained and make use of many kinds of community and leisure services without having to travel far;

To develop centres in accordance with their place in the activity centre hierarchy.

To enhance the community focus of local activity centres."

Clause 21.04-2 Housing Growth

"To accommodate between 13,000 and 16,000 additional households by 2030."





Clause 18.01-1 Land use and transport planning

"To create a safe and sustainable transport system by integrating land-use and

Clause 18.02-1 Sustainable personal transport

"To promote the use of sustainable personal transport."

"To integrate planning for cycling with land use and development planning and

Clause 18.02-3 Principal Public Transport Network

"To ensure an adequate supply of car parking that is appropriately designed and

Clause 21.04-3 Social Impact

"To minimise adverse social impacts from development and land uses."

Clause 21.04-4 Open Space Network

"To create a network of open space throughout the municipality.

To provide a continuous linear open space network along the Maribyrnong River and Stony Creek."

Clause 21.05-1 Landscape values

"To enhance the landscape character along the Maribyrnong River and Stony Creek."

Clause 21.05-2 Climate Change

"To ensure that the city adapts to the impacts of climate change.

To ensure that the city is carbon neutral by 2020."

Clause 21.05-4 Potentially Contaminated Land

"To manage contaminated land to protect human health and the environment and optimise the future use of the land."

Clause 21.06-1 Urban Design

"To support a sense of place and community in activity centres.

To create activity centres with a high quality public realm.

To encourage well designed residential development.

To support appropriate development on rear laneways."

21.06-2 Environmentally Sustainable Design

"To provide sustainable building design.

To improve stormwater quality.

To ensure that water resources are managed in a sustainable manner."

21.06-3 Heritage

"To protect and conserve heritage places.

To protect heritage places from adverse impacts.

To preserve significant trees and landscapes."

Clause 21.07-1 Residential Capacity and location

"To provide significant opportunities for new residential development in substantial change areas and substantial change activity centres."

Clause 21.07-2 Housing Diversity and Affordability

"To encourage a mix of housing."

Clause 21.08-1 Retail

"To ensure that retail premises are developed in appropriate locations."

Clause 21.09 Transport

"To support and promote public transport

To support and promote cycling and walking.

To support and promote sustainable transport.

To develop a safe, efficient and accessible transport network."

Clause 21.10-1 Community facilities

"To provide facilities which meet the needs of the community."

Clause 21.10-2 Health Facilities •

"To ensure medical centres are developed in appropriate and accessible locations."

• Clause 21.10-3 Arts and Culture

"To strengthen the role and expression of art and culture within the city."

- Clause 21.10-4 Recreation Facilities
- Clause 21.10-5 Development Infrastructure "To provide physical infrastructure to meet the needs of future communities."
- Clause 22.01 Cultural Heritage Policy



- "To ensure developers contribute towards the provision of community facilities."
- "To protect and conserve heritage places.
- To protect heritage places from adverse impacts.
- To ensure demolished heritage places are documented and archived."



Figure 5. Zone Plan

2.3 Zone

2.3.1 Clause 32.01 - Residential 1 Zone

The purposes of Clause 32.01 are to:

- "To provide for residential development at a range of densities with a variety . of dwellings to meet the housing needs of all households.
- To encourage residential development that respects the neighbourhood character.
- In appropriate locations, to allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs."

The Development Plan is consistent with the purpose of the zone.

The Development Plan will assist in the implementation of the objectives of this zone by encouraging the consolidation of residential development at a varying density which will meet the current differing household demands.

Please refer to Figure 5 - Zone Plan.

2.3.2 Clause 34.01 - Business 1 Zone

The purpose of Clause 34.01 is to encourage the intensive development of business centres for retailing and other complementary commercial, entertainment and community uses.

The Development Plan meets the objective of this Policy. The Neighbourhood Activity Centre will comprise a mix of uses to cater for the existing and future residential community.

Refer to Figure 5 - Zone Plan.

2.4 Overlays

The site is subject to four overlays, namely the Development Contributions Plan Overlay - Schedule 6 (DCPO6), Development Plan Overlay - Schedule 7 (DPO7), Environmental Audit Overlay, and Heritage Overlay - Schedule 125 (HO125).

2.4.1 Clause 43.01 Heritage Overlay 125

The purposes of the Clause are:

- planning policies.
- heritage places.
- significance of heritage places.

An independent heritage assessment by Bryce Raworth and Associates has found that the Development Plan meets the objectives of Clause 43.01. Please refer to Section 7 for further detail.

Figure 6 – Overlay Plan

2.4.2 Clause 43.04 Development Plan Overlay 7

The purposes of this Clause are:

- planning policies.
- granted to use or develop the land.
- accordance with a development plan."



"To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local

To conserve and enhance heritage places of natural or cultural significance.

To ensure that development does not adversely affect the significance of

To conserve and enhance those elements which contribute to the

To conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place."

"To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local

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

To exempt an application from notice and review if it is generally in



This Development Plan implements the objectives and provisions of Schedule 7 to the Development Plan Overlay and the policy statements which apply to the land.

Figure 7 – Overlay Plan

2.4.3 Clause 45.03 – Environmental Audit Overlay

The purpose of this Clause is to ensure that potentially contaminated land is suitable for a use which could be significantly adversely affected by any contamination.

In accordance with the intent of this clause, a Environmental Assessment of the site has been undertaken. Please refer to Section 10 for further details.

Figure 8 – Overlay Plan

2.4.4 Clause 45.06 - Development Contributions Plan Overlay 6

The purposes of this Clause are:

- "To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To identify areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence."

The provisions of the Development Contributions Plan Overlay can be dealt with at the planning permit phase.

Figure 9 – Overlay Plan



Figure 9. DCPO6 Plan

STATION.

LEGEND

LOWER RISE RESIDENTIAL RESIDENTIAL

RESIDENTIAL/HOME OFFICE)

SIGNALISED INTERSECTION

OPEN SPACE/BOULEVARD

KEY INTERFACE TREATMENT

PRIMARY ROAD LINK



Figure 10. Bradmill Precinct West Yarraville Indicative Development Plan

2.5 Particular Provisions

2.5.1 Clause 56 – Subdivision of Land

The Development Plan ensures that the purposes of Clause 56 are satisfied. This is primarily achieved through:

- Providing a framework for a livable and sustainable neighbourhood that offers a range of residential lot sizes within close proximity to public open space, the future Neighbourhood Activity Centre on Francis Street and other community facilities and services in Yarraville.
- Supporting the use of public transport through the provision of a future bus stop adjacent to McIvor Reserve.
- Providing a framework for a future residential subdivision that . appropriately responds to the site and its context.
- Managing the site's constraints to ensure good solar orientation of lots and solar access for future dwellings.
- Ensuring streets and houses promote passive surveillance of public open spaces.
- Providing attractive and continuous landscaping in streets and public open spaces that contributes to the character and identity of the existing and future neighbourhood.
- Providing Residential and Activity Centre Design Guidelines that provide guidance for the siting and design of buildings within the Bradmill Precinct.
- Creating a unique sense of place and urban identity.
- Providing an internal road and pedestrian network that ensures a high . level of permeability.
- Adopting Water Sensitive Urban Design initiatives that integrate stormwater into the landscape system.
- Providing an environmental management plan that seeks to protect the • site and surrounding area from environmental degradation or nuisance prior to and during construction of subdivision works.

Integration and compliance with Clause 56 and the design guidelines, traffic management, and ecological sustainable design reports has been achieved.

These reports have been specifically prepared to respond to the following key objectives within Clause 56:

- C2 Compact and walkable neighbourhoods.
- C6 Neighbourhood character.
- C9 Solar orientation of lots.
- C10 Street orientation.
- C12 Integrated urban landscape.
- C13 Public open space provision.
- C14 Integrated mobility.
- C15 Walking and cycling network.
- C16 Public transport network.
- C17 Neighbourhood street network.
- C18 Walking and cycling network detail.
- C20 Neighbourhood street network detail.
- C25 Urban run-off management.

Design Guidelines

Development within the site will be sympathetic to the existing urban fabric. This will be achieved through maintaining appropriate setbacks, ensuring appropriate levels of engagement to Francis Street, and McIvor Reserve, and providing areas for sufficient and meaningful landscaping.

The success of the Bradmill Precinct will be underpinned by the delivery of a diverse population. This must be supported through providing opportunity for a range of accommodation types and scales to suit varying needs and budgets. The intended mix will range from multi-bedroom townhouses to one-bedroom apartments.

The Development Plan seeks to appropriately site the higher built form away from existing low scale residential areas adjacent to the site. Multi-level buildings will be located adjacent to the neighbourhood activity centre, and public open spaces, including the existing McIvor Reserve and the new central linear reserve. These building types will also bring the added benefit

of passive surveillance of public spaces, and around the activity centre for an enhanced perception of safety.

The Neighbourhood and Activity Centre Design Guidelines employ a number of design strategies such as stepping of volume and articulation of podiums to reduce perceived scale. Additionally, the guidelines seek to control overlooking and limit overshadowing of public open spaces. The guidelines further highlight the requirement to utilise materiality and articulation to further breakdown the potential perceived mass of these buildings. Car parking areas are internalised to ensure key facades are activated, again supporting the natural surveillance of surrounding public areas

Traffic Management

Traffic Impact Assessments are based on the maximum number of dwellings for the precinct, and confirm impacts on the surrounding existing and proposed street networks is acceptable. The indicative road design ensures that the site provides connectivity and facilitates a high level of movement in a safe and efficient function.

The grid street pattern allows for easy access around the site, with clear routes to focal points such as open space areas and the Activity Centre. The grid layout also ensures all lots front the internal roads, paths or open space areas. This enhances passive surveillance and personal and property safety.

The incorporation of pedestrian links within of the development plan area will increase pedestrian permeability. These links will form a strong, easy and safe access connection to the Activity Centre, and Open Space areas.

Planning for a potential bus route through the connector street has been undertaken in accordance with the Department of Transport's lane width requirements. All connector and access streets will incorporate footpaths in accordance with C18, whilst splays at corners will be provided to accord with table C1.

Ecological Sustainable Design

include:

- promotes sustainable movement patterns.





Appropriate solar access for future dwellings is one of many environmental principles adopted for within the Development Plan. Other key initiatives

Providing a pedestrian and cycling focused street network which

Implementation of tree-lined and shaded sidewalks for safe pedestrian

and bicycle use

- Bicycle racks provided in secure or weather enclosed areas for occupants and visitors to the commercial and multi-unit buildings
- Provision for future bus routes to connect the precinct
- Provision of thermally efficient buildings, achieving over an average of 6 Stars NatHERS (National House Energy Rating Scheme).
- Using solar photovoltaic energy and solar domestic hot water systems for multi-unit buildings
- Installation of a minimum of 20kW of photovoltaic cells in a highly visible location or building
- Incorporation of landscaping and light colour roofs to minimise heat island effect
- Utilising low energy heating techniques for buildings such as hydronic heating system for residential buildings.
- Rainwater and stormwater harvesting via a centralised collection system and reuse of 7,950L per day using a 3rd pipe system to the Neighbourhood Activity Centre and a minimum of 225 dwellings
- Water sensitive urban design applied throughout the precinct including, wetland areas and an 80KL bio-retention system.
- Utilising a list of local construction materials with low embodied energy.
- Incorporation of key recycled materials into the building design including concrete, steel, glass, aluminium, timber and asphalt.
- 60% of demolition and construction waste to be reused or recycled.

A full assessment of the Bradmill Development Plan against the provisions of Clause 56 is provided within Volume 2.

2.6 Other Planning Considerations

2.6.1 Maribyrnong Housing Strategy (December 2011)

The purpose of the Maribyrnong Housing Strategy is to identify what types of housing should be provided to support Maribyrnong's growing and changing population.

The Housing Strategy identifies locations suitable for different rates of housing change, (substantial, incremental and limited change) to direct development into areas with capacity for growth, and limit change in areas with established heritage and neighbourhood character values.

With respect to the Bradmill Precinct, the site is a designated 'Substantial Change Area'. According to the Strategy, Substaintial Change Areas will provide significant opportunities for housing growth within the municipality by facilitating a mix of housing through predominantly medium and higher density dwelling types.

The Development Plan is consistent with this designation as it provides a framework for medium to high density dwellings within the site.









3.1 Site Location

The site is located within the suburb of Yarraville at the south western extent of the City of Maribyrnong. It lies approximately 8 km from Melbourne's CBD, 4 km from the Footscray Principal Activity Centre, and 2 km from Yarraville "Village" (refer to Figure 11 – Site Context Plan).

The suburb of Yarraville has experienced significant gentrification in recent years. This could in part be attributed to the popularity of Yarraville "Village" as a lifestyle destination, and the area's accessibility to the CBD, waterfront areas and regional parklands.

goods railway line and Geelong Road.

Figure 11. Site Context Plan

The site has good road access to the Westgate Freeway via Francis street. It is well located in relation to the regional bicycle trail network providing opportunities for connection to regional recreation destinations and facilities and Yarraville Village. It is within walkable distance to existing bus routes.

The process of gentrification has increased interface conflicts with surrounding industrial land uses, most notably in relation to movements of industrial traffic from the industrial uses and residential on the north side of Francis Street. The site is the only remaining industrial site physically separated from a substantial industrial precinct to the west by the Newport





18



The site is approximately 23.6ha in size with a frontage to Francis Street of approximately 600m. It is bound by Francis Street to the north, McIvor Reserve to the east, West Gate Freeway to the south and the Newport Railway to the west (refer to **Figure 12 - Existing Conditions Plan**, and **Figure 13 - Site**

The site is generally flat in nature and affected by a drainage easement which runs north-south through the centre of the site. There are currently seven (7) vehicle crossovers onto Francis Street from the site and there is limited existing vegetation. The majority of this vegetation is located within the existing open space in the north-western portion of the property.

At present the site is developed with approximately 40 warehouses and related buildings. There are currently six (6) parcels over the entire property accommodating 4 industrial uses. The largest occupant on-site is the Bradmill Pty Ltd textile manufacturing factory. Other current uses operating on the site include Chalmers Industries Itd (transport), and Maersk Sealand. They are located in the western part of the site.

The Bradmill site itself contains development dating from the early 1950's. The most significant of these are the boiler house and its chimney, conveyor and coal hopper, the original dye house and proofing building and the canteen







Figure 13. Site Analysis Plan









The site occupies the south west corner of a discrete neighbourhood

The neighbourhood is bisected north south by Francis Street and east west by Roberts Street and the parkland edges of Angliss and McIvor Reserves. This road and open space pattern establishes the north east corner of the site as a

While most boundaries to the neighbourhood are of low amenity, Stony Creek represents a high amenity edge to the east connecting the neighbourhood to

Although of a different structure, the neighbourhood is comparable in size to that of Yarraville Village which is contained by the surrounding major road

Williamstown Road represents a significant boundary between neighbourhoods to its east and west. While historic development of neighbourhoods to the west of Seddon have given rise to the recognisably different suburb of Kingsville, no equivalent identity has developed to the west of Yarraville Village. Commercial activity focus has occurred on Williamstown Road in the form of a stand alone, car based, shopping centre (Yarraville Shopping Centre) and smaller scale local shops adjacent Wembley Primary School in Wembley Avenue (refer to Figure 14 – Neighbourhood





3.4 Site Opportunities

surrounding residential areas:

- 1 Improved safety and amenity of Francis Street with reduction of truck traffic and improved landscaping and boulevard treatments to Francis Street and park interface
- 2 Opportunity to integrate development into existing communities using road connections and vista view lines along north south roads
- 3 Opportunity to activate and improve safety & access to the parks
- Opportunity to improve connections between neighbourhoods 4 (including Hobsons Bay) for greater access and integration of amenities and facilities such as Newport Lakes and Shopping Village & McIvor Reserve. This can only be achieved by construction of the road along the eastern boundary next to the park and connecting under the Westgate Freeway
- 5 Opportunity to retain, refurbish and reuse a significant portion of the industrial heritage buildings
- Opportunity to remediate the site and introduce water sensitive design 6 and a range of other environmentally sensitive design initiatives
- Opportunity to introduce a new neighbourhood activity centre 7 including retail and non-retail type activities to serve the local neighbourhood catchment
- Opportunity to integrate the park with the development and enhance 8 the quality and range of community and recreation facilities
- 9 and freeway
- 10 Opportunity to provide an alternative housing stock and a greater diversity of housing choice within Maribyrnong
- 11 Opportunity to improve traffic management in Francis Street through lights and dedicated left-hand turns
- 12 Extend Roberts Street along eastern edge of site and establish the intersection of Francis and Roberts Streets as the built form and activity focal point for the neighbourhood.

Figure 15. Site Opportunities Plan



Redevelopment of the site offers the following opportunities to create a distinctive mixed use neighbourhood while improving the amenity of

Opportunity to redevelop the site to create acoustic buffers to the rail

Refer to Figure 15 – Site Opportunities Plan.



Figure 16. Existing Electrical Infrastructure on Eastern Boundary



Figure 17. Typical WSUD Stormwater Swale

3.5 Physical Services and Infrastructure

The existing services within the site are largely private services that will be made redundant by the redevelopment of the site and will be removed as a part of this process. A number of authority electrical substations and connecting cables are located on the site which similarly will be redundant and will be removed. An existing telecommunications tower is located adjacent to the southern boundary of the site and we understand that this facility can be readily relocated. Any existing easements on site will be modified in conjunction with removal/alteration works to ensure that they provide the appropriate coverage where required.

New reticulation services will be provided to service the new lots as a part of the staged subdivisional works. These services will be contained within new road reserves or where in private property, appropriately sized easements will be provided.

Existing overhead power lines traverse the eastern boundary of the site, where the new Mcivor Road is proposed. The road will largely be constructed within the site and will require the removal of the existing overhead power line just within the sites boundary, which services the site only and accordingly will be redundant.

Existing 66 kV overhead powers lines run parallel to the boundary within Mcivor Reserve and for the most part these lines will be unaffected by the proposed road works.

Cadno has prepared a Physical Services and Infrastructure Review report for the site which expands on the following:

3.5.1 Water

City West Water is the authority responsible for the provision of water supply in this area. They have advised that potable water supply can be provided to the development from the existing 225 mm diameter water main located on the south side of Francis Street at the site's north east corner.

3.5.2 Wastewater (Sewer)

City West Water is the authority responsible for the provision of sewerage facilities in this area. The existing 365 /450 mm diameter branch sewer on the north side of Francis Street services the current development on site. A number of existing sewer branches cross Francis Street providing connection to the branch sewer.

these existing sewers.

3.5.3 Stormwater

Maribyrnong City Council is the responsible authority for the provision of stormwater drainage facilities for the site. The site drains to an existing Melbourne Water main drain located across the site's frontage in Francis Street.

stormwater.

3.5.4 Gas

subdivision.

3.5.5 Power

Jemena is the authority responsible for the supply of electricity in this area. There is an existing 22KV overhead power line in Francis Street and an existing 66KV overhead power line running along the eastern boundary of the site.

Supply to the subdivision will be via underground mains with internal substations located where required. Jemena has advised that there is sufficient power supply available in the existing system to cater for the development.

3.5.6 Communications

Existing Telstra communications infrastructure located in Francis Street across the frontage of the site. The development is likely to qualify for the provision of optic fibre by NBN Co.



City West Water has advised that development of the site can be serviced by

Section 9.3 of this report provides further detail for the management of

Tenix is the authority responsible for gas supply in this area. There are existing gas mains in Francis Street that have sufficient capacity to supply the













- Precinct 1 Francis Street;
- Precinct 3 Boulevard;
- .
- Precinct 5 Rail Interface.

The front section of the document provides an overview of the locational context and existing conditions of the Bradmill site, and identifies general design principles for the development of the site.

This is then followed by the Interface Design Guidelines section, which provides detailed text, plans, sketches and photographs to illustrate the design principles and housing typologies for each of the five precincts.

The Interface Guidelines provide further certainty and clarity regarding the future development outcomes for the Bradmill site, and assist in the creation of an environmentally, socially and economically sustainable development.

The overall General Design Principles for the Bradmill site are:

- site.



Figure 18. Bradmill Concept Plan (July 2008)

4. Bradmill Precinct Development Plan

4.1 Urban Design Principles and Interface Guidelines -MGS Architects and Tract Consultants (July 2008)

The Urban Design Principles and Interface Guidelines was prepared to provide a framework regarding the form of the future development of the Bradmill

The Guidelines set down design principles and the broad parameters for land use, transport, built form, urban design and infrastructure for each of the five precincts within the Bradmill concept plan. The precincts are:

Precinct 2 – McIvor Reserve Interface;

Precinct 4 - Neighbourhood Activity Centre; and,

Provide for residential development at a range of densities with a diversity of housing types to meet varying housing needs.

Provide for a Neighbourhood Activity Centre with a range of services and facilities to meet the needs of the future residents of Bradmill and existing residents in the surrounding areas.

Create a grid street network to promote connectivity throughout the

- Ensure the majority of lots are provided with north-south or east-west orientation to allow for appropriate solar access.
- Utilise rear laneways to provide for continuous frontages to public realm interfaces such as streets and open space.
- Provide for extensive landscaping treatments at key interfaces to enhance the amenity of the public realm.
- Encourage walking and cycling throughout the site, and provide for connections to surrounding areas.
- Encourage strong links between the Bradmill site and McIvor Reserve
- Promote the accessibility of the site via public transport.
- Provide for safe and convenient vehicular access throughout the site and to surrounding areas.
- Ensure the amenity of future residents is not compromised by noise from Francis Street, the Newport Goods Rail Line and the West Gate Freeway.
- Promote principles of Ecologically Sustainable Development.
- Ensure the proposal protects and enhances the heritage values of the site.

These principles underpin the formulation of this Development Plan. The Development Plan is also reflective of the general interface guidelines which relate to each of the five precincts.

Figure 18 shows the Bradmill Concept Plan.

4.2 Design Philosophy

The design response has been influenced by the physical attributes of the site, the immediate constraints posed by abutting uses, the heritage fabric of the existing built form, the role of the neighbourhood centre, linkages to adjoining open space reserves and architectural typologies that may be appropriate.

Taking into account the site's constraints and opportunities the proposal seeks to achieve the following development outcomes:

- To activate and improve safety and access to public open space.
- To reuse significant heritage buildings.
- To better integrate with existing residential development bordering the site to the north.
- To improve road safety and access.
- To provide additional links to regional path network.
- Opportunity to provide increased diversity in housing mix and establish a highly interactive neighbourhood activity centre with services and facilities for the local population catchment.

The design philosophy aims to demonstrate an understanding of place and contribute to a socially, environmentally and economically sustainable outcome for the site and region.

Environmentally sustainable design (ESD) and Water Sensitive Urban Design (WSUD) initiatives will be significant features of the design philosophy. Stormwater management has also been carefully considered utilising opportunities to reuse drainage water for land management.

Safety by Design was another key consideration to the design philosophy of the concept plan. It has assisted in creating an integrated community linked to the adjoining neighbourhood as opposed to an isolated and disconnected estate. Surveillance over public spaces, access, movement and sight lines have been considered as well as activating public spaces by encouraging walking and social interaction through the creation of an attractive public environment.

4.3 Key Principles of The Development Plan

document which include:

- Provide for residential development at a range of densities with a diversity of housing types to meet varying housing needs.
- site.
- Ensure the majority of lots are provided with north-south or east-west orientation to allow for appropriate solar access.
- Utilise rear laneways to provide for continuous frontages to public realm interfaces such as streets and open space.
- enhance the amenity of the public realm.
- connections to surrounding areas.
- Encourage strong links between the Bradmill site and McIvor Reserve.
- Promote the accessibility of the site via public transport.
- to surrounding areas.
- Promote principles of Ecologically Sustainable Development.
- site.



- The Bradmill Precinct West Yarraville Urban Design Principles and Interface Guidelines (July 2008) describes the vision for development of the site.
- This Development Plan seeks to implement the key principles of this
 - Provide for a Neighbourhood Activity Centre with a range of services and facilities to meet the needs of the future residents of the Bradmill Precinct and existing residents in the surrounding areas.
 - Create a grid street network to promote connectivity throughout the

- Provide for extensive landscaping treatments at key interfaces to
- Encourage walking and cycling throughout the site, and provide for
- Provide for safe and convenient vehicular access throughout the site and
- Ensure the amenity of future residents is not compromised by noise from Francis Street, the Newport Goods Rail Line and the West Gate Freeway.
- Ensure the proposal protects and enhances the heritage values of the
- Please refer to the Indicative Bradmill Precinct Development Plan in Figure 19.





Figure 19. Indicative Bradmill Precinct Development Plan

Iract

Tract Town Planners Urban Designers Landscape Architects

4.4 Movement Systems and Access

The design aims to integrate with the existing road network north of the site. Direct connections (comprising signalised intersections) are proposed to be created with Richards Street and Roberts Street. These will allow full turning movements. Three additional accesses will be created along Francis Street to allow left in/left out movements only.

Two of the five accesses from Francis Street will direct visiting traffic to the commercial/community neighbourhood centre, with the remaining three western most accesses servicing the residential development. This provides for separation between commercial and residential traffic.

Three access points are also proposed to link into the McIvor Reserve access road. An upgrade of this road is required to provide adequate access and an intersection treatment created with Francis Street and Roberts Street.

It is also proposed to upgrade the south eastern link with Fogarty Avenue and The Avenue. This will allow easier access to the south of the site underneath the West Gate Freeway. This road will also be able to accommodate a new bus route and bus stops.

Main Streets within the site will provide a boulevard setting for a public realm. These roads will act as a primary movement corridor for vehicles, bicycles and pedestrians through the site.

Secondary access takes the form of collector streets, access streets, and laneways which provide additional movement networks between and within precincts.

Pedestrian networks will be designed to ensure strong connection to the central green open space boulevard, and the Neighbourhood Activity Centre.

On-street parking will be provided within appropriate locations.

Vehicle loading and unloading will be undertaken within the activity centre, with access taken from it's southern interface, generally screened from publicly visible and accessible areas.

Figure 20 illustrates Indicative Access, Movement and Parking at the Bradmill Precinct. A more detailed description of the transport arrangements is included at **Section 5**.



Figure 20. Indicative Access and Movement Plan





4.5 Open Space

Development within the site is based around the central open space corridor. This link will be lined with wide, tree-lined nature strips with a shared path and passive recreation areas, creating a green corridor which directs views and pedestrian/cycling traffic towards McIvor Reserve.

Other open spaces within the site include linear parks which connect to the central boulevard, and pocket parks which are scattered throughout the site.

4.6 Community Facilities

- •
- suburbs.
- redevelopment.
- from this project.

Figure 21. Indicative Open Space Plan



Refer to Figure 21 and Section 6 for further information.

Substantial net community benefit will flow to the Yarraville residents in particular as a result of the redevelopment of the Bradmill site, and particularly the shopping centre component. Positive economic impacts that can be expected to flow from the development include:

Improvements in the range of food and convenience facilities available to the residents of the Yarraville region, particularly with the addition of only the second major supermarket in this area.

The creation of additional employment in the region that will result from the project both during the construction period, and more importantly, once the shopping centre is completed. This additional employment is to be substantially more than that currently provided by the industrial use on the site and this is likely to continue to be the fact, given current industrial uses location preferences with low cost outer Melbourne

The addition to community services in the region by provision of a medical centre and library which are proposed for the Bradmill site

The increase in the rate revenue base for the local council that will result

On this basis, the combination of substantial positive community and general economic benefits serve to more than offset the trading impacts that could be anticipated for a small number of existing major food retailers currently located within and just beyond the trade area.

The development of the Bradmill Precinct is envisaged to occur in stages. The stages and timing of development will generally be influenced by market conditions and demand.

The indicative staging for the Bradmill Precinct is illustrated in Figure 22.

4.7.1 Stage 1

The Bradmill development must deliver its sense of place at Stage 1 if it is to function as a vibrant and sustainable residential community. Consequently, Stage 1 of the Bradmill Precinct includes:

- Development of the Neighbourhood Activity Centre.
- Part development of the central open space boulevard.
- Refurbishment and adaptive reuse of the heritage buildings to comprise high density residential uses
- Refurbishment and adaptive reuse of the heritage buildings to comprise community uses.
- Development of residential dwellings.
- Construction of the McIvor north-south access road.
- Commencement of the revitalisation of Francis Street. Works to the east of Stooke Street (including the traffic signals at Roberts Street) will be constructed as part of Stage 1.

4.7.2 Stage 2

Stage 2 provides the Bradmill Precinct with additional residential development, generally to the west of the Neighbourhood Activity Centre.

Residential development fronting Francis Street will activate and engage the interface by promoting high quality architectural design.

Medium and higher density housing types, with higher density housing focused around the Neighbourhood Activity Centre will be developed throughout the remainder of the Stage.

The continued development of the central open space boulevard will also be included within the Stage.

4.7.3 Stage 3

This Stage comprises residential development at a range of densities. Acoustic buffers to mitigate noise impacts associated with the Rail Line and the West Gate Freeway will affect the orientation of some lots.

Additionally, a landscape buffer to visually screen the rail line from the dwellings at ground level will be provided.

4.7.4 Stage 4

Similar to Stage 3, Stage 4 comprises residential development at a range of densities. Acoustic buffers will play a pivotal role in the ultimate orientation of lots within this stage.

4.7.5 Stage 5

Stage 5 comprises residential development at a range of densities. Along with Stage 2, residential development fronting Francis Street will activate and engage the interface by promoting high quality architectural design. Works to finalise the revitalisation of Francis Street, including the traffic signals at Richards Street, will also form part of this Stage.

Medium and higher density housing types will be developed throughout the remainder of the Stage.

4.7.6 Stage 6

The location of Stage 6 provides an opportunity for higher built form and robust architecture due to its prominent location at the western end of the central linear open space.

Development within this area will be intended for residential use.

4.7.7 Stage 7

Development within Stage 7 completes the Bradmill Precinct. Residential use will be focussed around the green open space area.









Figure 22. Bradmill Precinct Staging Plan







5.1 Policy Context

In accordance with the provisions of Schedule 7 to the Development Plan Overlay, the following section provides an overview of traffic management for the Bradmill Precinct.

GTA Consultants has prepared a series of reports and plans for the site which expand on the following:

- Road Design Plan.

5.2 Traffic Management Plan (TMP)

The Traffic Management Plan sets out an assessment of the anticipated traffic and transport implications of the proposed development, including consideration of the:

- network.
- the site.

5.2.1 Existing Conditions

Other local roads within the vicinity of the site include Fogarty Avenue, Roberts Street and the McIvor Reserve access road.

Commentary is also provided on the nature of surrounding intersections, existing traffic volumes, intersection operations, accident statistics, existing public transport options, and pedestrian and cycling networks.



Traffic Management Plan (TMP);

Integrated Transport Plan (ITP); and

These reports are found within Volume 2.

• Existing traffic conditions surrounding the site.

Traffic generation characteristics of the proposed development.

Proposed access arrangements and internal road network for the site.

Transport impact of the development proposal on the surrounding road

Proposed public transport, pedestrian and bicycle links and facilities for

Abutting the northern boundary of the site is Francis Street, a primary arterial road aligned in an east-west direction. It is a two-way road configured with a four-lane, 13.7 metre carriageway set within a 21.6 metre road reserve (approx.). Francis Street has a history of carrying very high truck volumes.

5.2.2 Proposed Car Parking

Residential Dwellings

Car parking for the proposed residential dwelling lots is to be provided via single garages for one and two bedroom dwellings and double garages for three or more bedroom dwellings. In addition, kerbside parking will be permitted on at least one side of the adjacent roads, except the access lanes.

Integrated car parking facilities are proposed for the two apartment buildings, with an on-site car parking provision of one space for one and two bedroom apartments and two spaces for three or more bedroom apartments proposed.

Neighbourhood Activity Centre

Within the neighbourhood activity centre a total of 377 car parking spaces are proposed, with an additional 27 angled spaces proposed along the frontage of the precinct.

Community Centre

A total of approximately 110 car parking spaces are proposed to be provided in an open-air car park on the south side of the community centre.

Vehicle Access

The Development Plan proposes two main signalised access points and three minor unsignalised left in/left out access points to Francis Street, with an additional secondary unsignalised access to Fogarty Avenue.

Internal Road Network

The Development Plan proposes a road hierarchy consisting of a connector streets, access streets and access lanes within the subject site to access the proposed uses and connect with the surrounding road network. Further details of the proposed internal road network are provided in Section 5 of this report.

Bicycle and Pedestrian Facilities

Shared bicycle and pedestrian paths are proposed as follows:

- Along the eastern side of McIvor Reserve Road
- Within the central open space reserve.

In addition, sealed footpaths are proposed to be provided on both sides of all roads, except Access Lanes.

Loading Areas

Loading facilities are proposed along the southern side of the neighbourhood activity centre for vehicles up to 19.0m long (semi-trailers).

5.2.3 Traffic Generation

Estimates of the traffic volumes anticipated to be generated by each of the proposed uses are based on traffic surveys, and information contained in traffic engineering industry guidelines. The table in the traffic management plan summarises expected traffic volumes for each of the proposed uses during peak hours and over an entire day.

5.2.4 Access Strategy

Vehicles will generally utilise the following three key intersections:

- 1. Proposed signalised intersection of Francis Street and Roberts Street
- 2. Proposed signalised intersection of Francis Street and Richards Street
- 3. Proposed unsignalised intersection to Fogarty Avenue.

Provision of three additional left-in/left-out access points to Francis Street is also made which could potentially reduce the number of vehicles utilising the above signalised intersections.

5.2.5 Internal Road Network

The internal road network has been designed in accordance with Maribyrnong City Council's standard cross section dimensions for roads in subdivisions and Clause 56.06 of the Maribyrnong Planning Scheme.

A summary of the basic cross sectional elements for each of the road types proposed as part of the internal road network is presented in the below table and at **Figure 23** and **Figure 25**.

Road Type	Road Reserve	Carriageway Width	Parking	Bicycle Facilities	Pedestrian Facilities
Access Lane	6.5m	6.5m	No parking provided	Carriageway designated as a shared zone	
Access street	15.3m	7.3m	Parallel parking permitted on at least one side of the road	Mixed traffic conditions	1.5m wide footpath on each side of the road
Connector Street	21.6m	11.6m	Parallel parking permitted on both sides of the road	Mixed traffic conditions	1.5m wide footpath on each side of the road
McIvor Reserve Road (Connector	10.7m	7.0m	Parallel parking permitted in certain sections	Mixed traffic conditions	1.5m wide footpath on each side of the road

Table 5.1: Proposed Internal Road Cross-Section Elements (Source-GTA Consultants, JM12820, TMP, Issue A)

The internal road network has been designed to minimise the number of cross intersections, with the majority being T-intersections to maximise safety. This approach has also lead to the main cross intersection within the subdivision being a roundabout.

Also, intersections have been suitably spaced to restrict block lengths and thus internal speeds. Access lanes have been blocked at mid-block locations to minimise traffic volumes using them and ensure that they are only being used for access to adjacent properties. The use of access lanes is considered appropriate given the narrow frontages to the residential dwelling lots. Access lanes provide access to garages located at the rear of the lots and maximise the provision of on-street car parking along the access streets or connector streets also fronting them.

In relation to access to the main neighbourhood activity centre, the car park will be available via a left-in only access point from Francis Street and via access points to the roads along the west and east sides of the neighbourhood activity centre allowing full turning movements, including an auxiliary right turn lane at the eastern access point. The eastern access point has been located as far from Francis Street as possible given the site constraints in order to maximise safety and the length of the right turn lane providing access to the site.

The proposed car park is anticipated to be a low speed zone and could potentially incorporate speed humps or raised pedestrian crossings if necessary.

The loading area has been completely separated from the main car park to maximise safety and minimise obstruction of other traffic by large trucks. Trucks will access and egress the loading area via the McIvor Reserve Road and therefore not pass any of the proposed dwellings on the internal road network.

The proposed internal road network is considered to be appropriate and anticipated to accommodate traffic volumes less than the associated road type's theoretical capacity, except for the short section of the north-south connector street, adjacent to the eastern side of the neighbourhood activity centre.







Figure 23. Indicative Internal Road Network

At this location, the roadway is expected to carry up to 8,250 vehicles per day, between the signalised intersection with Francis Street and the car park entrance to the neighbourhood activity centre. While this exceeds the theoretical capacity of 7,000 vehicles per day for a connector street, this section of the north-south connector street has been widened to accommodate a central turning lane, with no kerbside parking permitted to maximise its capacity.

5.3 Integrated Transport Plan (ITP)

The Integrated Transport Plan has been prepared to manage the transport needs of residents, visitors, customers and staff of the Bradmill Precinct.

In particular, the Plan aims to manage the environmental impact of travel to/from the site by encouraging more efficient use of motor vehicles (e.g. by reducing the reliance of single occupancy car journeys), as well as other modes of transport such as walking, cycling, public transport and car pooling. In this regard, the objectives of this Integrated Transport Plan are as follows:

- To ensure integration into the existing and any proposed transport facilities and network.
- To encourage the use of sustainable methods of transport.
- To assist in discouraging a reliance on private motor vehicles.
- To reduce the environmental impact of the development.
- To set out future mode splits and an action plan to achieve them.

5.3.1 Existing Public Transport

The site is currently serviced by a number of Public Transport options which include:

- Train: Yarraville Station approximately 2km walking distance of the site
- Bus: Route 431 (Yarraville Station Kingsville) along Roberts Street and Francis Street adjacent to the northeast corner of the site
- Bus: Route 432 (Yarraville Station – Newport) along Fogarty Avenue and The Avenue adjacent to the southeast corner of the site
- Bus: Routes 411 & 412 (Laverton Station Footscray Station) along Geelong Road approximately 500m walking distance of the site
- Bus: Route 414 (Aircraft to Footscray via Geelong Road) along Geelong . Road approximately 500m walking distance of the site.

5.3.2 Pedestrians and Cyclists

There is currently a footpath located adjacent to the northern site boundary on Francis Street but no pedestrian or cyclist access available through the site from the west and north of the southeast or the south. This creates a significant barrier to pedestrians and cyclists in the local area.

The Development Plan will ensure significantly improved access for pedestrian and cyclists within the site and connections to the surrounding recreation network including the Federation Trail.

The Federation Trail currently terminates at Millers Road, approximately 1.5km west of the site. VicRoads will extend the Federation Trail along the northern side of the West Gate Freeway past the site in the short to medium term as part of the Principal Bicycle Network.

Each of the connector and access residential streets will have sealed pedestrian pathways on both sides of the road. Additionally, a shared pedestrian and bicycle path along the eastern boundary of the site and through a central open space spine will be provided. These paths will link directly with Fogarty Avenue to the southeast, McIvor Reserve to the east, Francis Street to the north and the proposed extension of the Federation Trail along the southern boundary of the site.

Signalised intersections on Francis Street to facilitate access to the site as a result of the proposed development will also improve the pedestrian and bicycle connections across Francis Street.

Paths

Shared bicycle and pedestrian paths are proposed as follows:





Figure 24. Zebra Crossing Locations

along the western side of McIvor Road

within the linear open space reserve and the south/wet side of the

> Access Street between McIvor Reserve and the Francis Street/Richards Street intersection.

In addition, sealed footpaths are proposed to be provided on both sides of all roads, except Access Lanes.

Crossing

The paths will be connected through the signalised pedestrian crossing facilities at the two proposed signalised intersections along Francis Street and the zebra crossing facility locations indicated in Figure 24.

5.3.3 Actions to Support Sustainable Transport Modes

The following actions in support of more sustainable transport mode choices for the development form the basis for implementation of the Integrated Transport Plan.

For each potential action, a timeframe as to when it could be implemented and the likely cost involved in implementation are also detailed.

It should be noted, however, that these actions should not necessarily be viewed as being compulsory but rather as potential options that should be investigated and implemented as appropriate for the future occupants of the site in meeting the required mode split targets.

Public Transport

Action	Cost	Date
Develop a map showing public transport routes in close proximity to the subject site	-	Immediately
Erect a notice board with leaflets and maps showing the main public transport routes to and from the subject site	\$1,000	Immediately
Provide leaflets or timetables with payslips for on-site employees	-	Monthly
Provide an interest free loan to buy an annual Metcard / public transport ticket	\$1,202.50	On-going
Sign up to the Commuter Club to gain a 10% reduction on annual Myki cards	-	Immediately
Encourage public transport use for business travel	-	On-going
Provide new residents with a welcome pack, including public transport maps and a Myki card	\$5,000	Immediately
Apply for a privately operated car sharing pod to be located on site	-	On-going

Table 5.2: Public Transport Actions (Source- GTA Consultants, JM12820, ITP, Issue A)

Walking

Action	Cost	Date
Provide a map showing safe walking routes to, from and within the site with times, not distances, to local facilities, such as public transport stops	\$5,000	Immediately
Provide lockers for keeping a change of clothes for on-site employees	As per construction	Immediately
Provide showers and changing room facilities for on-site employees	As per construction	Immediately
Take part in 'National Walk to Work Day'	-	Annually
Have some TravelSmart Get to Work days encouraging on-site employees to come by alternative modes of transport	-	Annually

Table 5.3: Walking Actions (Source- GTA Consultants, JM12820, ITP, Issue A)

Carpooling

Action	Cost	Date
Establish a carpooling database - Immediately	-	Immediately

Table 5.4: Carpooling Actions (Source- GTA Consultants, JM12820, ITP, Issue A)

Cycling

Action	Cost	Date
Establish an internal Bicycle Users Group (BUG). BUGs are formed by people who want to work together to improve facilities for cyclists and encourage cycling	-	Immediately
Organise a cyclists' breakfast	\$500	Monthly
Provide sufficient bicycle parking to meet peak needs	As per construction	Immediately
Have good, secure bicycle parking in an easily accessible location	As per construction	Immediately
Provide bicycle parking for visitors and ensure it is located near main building entrances	As per construction	Immediately
Ensure bicycle parking is clearly visible or provide signage to direct people to cycle bays	As per construction	Immediately
Provide secure bicycle lockers for on-site employees	As per construction	Immediately
Provide showers and changing rooms for on-site employees	As per construction	Immediately
Provide lockers for a change of clothes for on-site employees	As per construction	Immediately
Provide a pool bicycle for residents/staff to use when making short trips	\$300-\$500	On-going
Come to an arrangement with a local bicycle retailer for cheap or subsidised servicing of resident/staff bikes and other incentives	-	On-going
Provide an onsite bicycle maintenance service (either as a special one day event or on a regular basis)	\$1,500	Annually
Provide insurance cover for those cycling on work business	-	Immediately
Produce a map showing more leisurely bicycle routes to work	\$5,000	Immediately
Participate in annual events such as 'Ride to Work Day'	-	Annually

5.3.4 Implementation

As GTA outlines, the first stage of implementation of the Action Plan is to set up an Integrated Transport Plan Working Group to discuss the available options and develop and prioritise the preferred actions. The Working Group would comprise of 4-6 people representing residents, a range of tenants as well as Centre Management for the neighbourhood activity centre and community centre. This group would be led by a Integrated Transport Plan Coordinator (Centre Management representative) who would facilitate Working Group meetings and take responsibility for monitoring and reviewing the Integrated Transport Plan document.





Table 5.5: Cycling Actions (Source- GTA Consultants, JM12820, ITP, Issue A)
The primary aims of the Working Group would include:

- Review Integrated Transport Plan initiatives and determine a program for implementation.
- Provide suggestions and ideas.
- Provide feedback on activities and initiatives.
- Review material.
- Assist Integrated Transport Plan coordinator to promote activities.
- Assist Integrated Transport Plan coordinator to disseminate information.
- Advocate sustainable transport modes generally amongst employees and customers.

5.3.5 Developer Contributions

It is anticipated that the costs associated with the initial preparation of the plan and the implementation of actions within it would be borne by the developer. The requirement to undertake actions could be included as conditions of planning permits for the proposed uses. It is anticipated that costs associated with the ongoing monitoring of the plan would be borne by the developer in the first instance and then the relevant owners corporation(s) once the development is complete.

5.3.6 Monitoring and Reviewing

Monitoring

In order for the this Integrated Transport Plan to be effective, it must be reviewed on a regular basis to ensure that the objectives set out in Section 6 of this report are being met and that strategies are having their intended impact on car use and transport choices for occupiers of the subject site.

In order to account for the settling of activity levels at the site, it is accordingly recommended that the aforementioned mode splits are reviewed 18 months after the development is constructed and occupied. This review should be completed by undertaking travel mode questionnaire surveys for residents, visitors, customers and staff.

Potential Adaptive Measures

The results of these surveys should subsequently be used to assess the achieved mode splits towards the aforementioned targets and determine the necessity of potential adaptive measures.

In the event that the monitoring process reveals that the identified mode split targets are not occurring, a number of ameliorative measures could be adopted to further assist the achievement of the integrated transport goals.

These measures could include:

- Review the car parking management to ensure on-site car parking spaces are being fully utilised for their purpose (i.e. some spaces could potentially be reallocated for bicycle parking or for use via a Flexicar).
- Provide car pooling parking spaces within the on-site car park and/or adjust price or other incentives to increase participation.
- Provide more detailed information regarding nearby public transport services to occupiers or the provision of subsidised public transport tickets.

It is envisaged that the monitoring process would enable such adaptive measures to be specifically targeted to the user group (i.e. residents or staff) or mode which is failing to meet its specified targets.



5.4 Road Design Plans

The Road Design Plans sets out engineering details relating to the proposed north-south road adjoining McIvor Reserve, and intersection treatments for Fogarty Avenue and Francis Street. The re-design of Francis Street to include a central median has also been included on the engineering drawings.



CONNECTOR STREET













Figure 31. Cross-Section - across Francis St Approx.20m west of Roberts St





Figure 32. External Road Network - Overall Functional Layout





Figure 33. Francis Street / Richards Street Proposed Access



Figure 35. McIvor Road Functional Layout Plan



Figure 34. Francis Street / Roberts Street Proposed Access





Figure 36. Indicative Landscape Master Plan

6. Landscape Concept Plan

The indicative Landscape Master Plan has been prepared in accordance with the requirements of Section 3 of DPO7.

The landscape concept has been influenced by the existing site conditions and the context established by the surrounding residential setting. Surrounding streets contain a mixture of native and exotic trees.

Retention or removal of existing site trees has been determined on the basis of their physical condition and general suitability for use within the ultimate built environment. As much of the existing vegetation is introduced and located in areas which will be affected by ground level changes, infrastructure and building construction (to be confirmed through the detailed design process), all vegetation on site will be removed.

There are no specific City of Maribyrnong policies relating to landscape style or plant selection within the project site, but the landscape design must be appropriate to the new land uses and represent a high standard of contemporary design. Tree planting in the City of Maribyrnong generally includes a range of mainly indigenous and native species however exotic deciduous trees have been used along major boulevards, the Maribyrnong River, and within shopping centres and older residential areas, including the Yarraville area. The proposed landscape design for the Bradmill Precinct is based on a combination of indigenous and native tree planting, with exotic trees used as highlight planting in key locations.

Indigenous species will be used as background planting across the site to enhance environmental values and to improve habitat potential for indigenous fauna. This particularly applies to central open space area, access streets - levels 1 and 2. The design has also been structured to respond to the different land use precincts and landscape settings within the development and to use planting to highlight special use areas such as the central open

Landscape buffer planting between the development and adjoining land uses will be used to minimise any visual impacts to adjoining features and areas.

The Indicative Landscape Master Plan is presented at Figure 36.

6.3 Key Landscape Treatments

6.3.1 Central Open Space Reserve

A mix of native indigenous trees, and scattered exotic tree species to signify key nodal areas within the area, will distinguish the landscape character of the central open space reserve.

Key features of the reserve include:

- A sculptural play space for children, complementing the existing playground equipment located in McIvor Reserve. The area will comprise raised grass mounds, sculptural play pieces and non-standard play equipment, with shelter and BBQ facilities for residents to utilise.
- Shared user path running through the linear parkland, providing key • pedestrian and bicycle connections and promoting a strong east/west link between McIvor Reserve and Francis Street, as well as links to the greater area, including links to Newport Lakes and to CJ Cruikshanks Park.
- Feature Bioretention pool with indigenous/native understorey and tree • planting, pedestrian boardwalks, seating and interpretive signage.
- Central Linear Park to cater for passive recreation, with clear visual links and easy access to McIvor Reserve for more active pursuits.
- Feature linear Raingarden providing a strong east/west link along the length of the central park. Indigenous/native grasses, sculptural rockwork and integrated seating.
- Areas of park zoned to encourage passive uses for relaxation and contemplation and more active pursuits in open lawn areas.

6.3.2 Pocket Park

Various pocket parks creating open space links throughout the development are proposed. These parks are intended to provide passive social & recreation spaces for residents of adjacent houses.

Vegetation within these areas will generally consist of small to medium scale native tree species.

6.3.3 Landscape Buffer Planting (southern boundary)

Scattered clean trunk native trees will be planted along the rail boundary, with screening groups at intersections with roads.









Figure 40. Example of Sculptural Play Space

Figure 39. Typical Raingarden with Seating



6.3.4 Streetscape Planting

McIvor Reserve Streetscape

Major Road

Councils Streetscape Strategy.

Access Street - Level 3

- Species may include:
- Fraxinus griffithii; and
- Quercus palustris.

Access Street - Level 2

species.

Species may include:

- Eucalyptus mannifera;
- Eucalyptus microcarpa; and
- Angophora costata.

Access Street - Level 1

species.

Species may include:

- Hymenosposporum flavum;
- Callistemon viminalis; and

Access Lane

Rear access to terrace housing. No landscape treatment proposed.





Figure 44. Hymenosporum Flavum



Figure 41. Eucalyptus Mannifera





Figure 43. Quercus Palustris





Street Trees to match existing McIvor Reserve plantings

Francis Street streetscape with Medium tree and low understorey planting to central median and landscaped setbacks to front of dwellings. Species as per

Street trees to major roads. Large Exotic species.

Street trees to east/west minor roads. Medium/Large Indigenous/Native

Street trees to north/south minor roads. Small/Medium Indigenous/Native

Eucalyptus leucoxylon 'Euky Dwarf'.

6.4 Open Space Management

The landscape design will incorporate drought tolerant plant species and for areas of open space, warm season grasses will be recommended. Cardno will work with Tract and Council's open space team to design spaces that require little ongoing water requirement while providing a balance between passive recreation and urban heat island mitigation.

The development offers Maribyrnong the opportunity to inherit assets that support the governmental objectives of providing water sensitive cities that provide multiple benefits to the community and improve the liveability of urban environments.

During the detailed design phase, maintenance issues such as mulching, mowing angles and access will be discussed in consultation with Council. A landscape maintenance program will be implemented which will present the development site, as all times, as a high quality and well maintained environment.

The WSUD elements are expected to become Council assets and the management regime for these facilities will be similar to that for other similar facilities. Further detail can be provided in this regard when design development progresses.

6.5 Open Space and Remediation

All landscape works need to be consistent with the Site Remediation Strategy. Senversa has investigated the issue further, and has found that:

"Provided that the Site Remediation Strategy is implemented as described, current investigations have not identified contamination that would preclude the redevelopment of the site in accordance with the site masterplan" (Senversa – Site Remediation Strategy, pg 18, 29 May 2012).

As noted above, soil in areas of open space will, through the Environmental Audit process, be suitable for the proposed end use. The Landscape construction plans must include requirements for the use of either site validated (clean) or imported clean fill soils to be used in areas of planting to depths not less than 0.5m in thickness. In some areas where deep rooted species may be planted, the depth of clean fill will also need to be increased.



























Figure 46. Indicative landscape external street cross-section





1954-58: Initial site establishment



Figure 48. Boiler room under construction 1952-1954



Figure 50. Aerial view of the Bradmill site showing

Figure 52. The newly completed gatehouse





Figure 49. Bradmill Precinct Development Plan



Figure 51. Aerial view of the factory as largely completed, 1968



Figure 53. The boiler house, coal hopper & conveyor with its original chimney



1959: Various extensions including the relocation of the dye house





The authors of the CMP broadly concur with Schedule 125 to the Heritage Overlay (HO125) which identifies that the bold architectural forms in the south-eastern sections of the former Bradmill site combine to create a landmark presence - particularly as viewed from adjoining freeway. In saying this, the level of significance of the site noted in HO125, in their view, is overstated.

The CMP finds that the most significant buildings on the site are those dating from its initial five years of development commencing in 1954. These are stylistically related, being largely of red brick construction and comprise the most substantial buildings on the site. Of these, the boiler house with its associated coal hopper and conveyor are identified as being of high significance on account of its monumental architectural qualities, intactness and relatively unusual building type.

The other structures from this phase of development are considered to be of medium significance on account of their relatively plain, generic nature and conventional construction. Structures dating from after the 1950s are deemed to be of low significance.

7. Conservation Management Plan

7.1 Policy Context

In accordance with the provisions of Schedule 7 to the Development Plan Overlay, Conservation Management Plan (CMP) has been prepared. The document is contained within Volume 2.

7.2 Conservation Management Plan Findings

The CMP has been prepared by Bryce Raworth Pty Ltd and constitutes a part of the Development Plan documentation.

Bryce Raworth Pty Ltd has previously prepared a number of reports relating to the site including a Heritage Assessment in May 2006 and a Conservation Management Strategy in August 2007.

The CMP assesses the general Bradmill factory complex. It provides an outline of the development history of the site, provides individual assessments of the key buildings/elements, assesses their significance and the proposed controls of the heritage overlay, and provides a conservation strategy for the site in light of the proposed development.

It is noted that during the 1950's and early 1960's a number of other industrial buildings were constructed in metropolitan Melbourne. A comparison of the Bradmill structures against other examples suggests that they are a generic example of this built form type from this era.

The CMP recognises that there is considerable scope to adapt many of the buildings to new uses, while retaining a large proportion of their original fabric.

The report finds that, broadly speaking, the proposal will have little impact on the significance of the site. The key elements of significance, namely the boiler house and chimney, the conveyor and the coal hopper are to be retained along with the extensive dye house, and proofing buildings.

The report finds that the conservation of these key elements is consistent with the policies of the Maribyrnong Planning Scheme and the broad form of its Industrial Heritage Policy. The outcomes would facilitate the interpretation of the Municipality's industrial past and its importance to the development of Maribyrnong.

7.3 Heritage Interpretation Plan

The Heritage Interpretation Plan, prepared by Sue Hodges Productions, is an integral part of the Development Plan. The plan will help new residents and visitors to the former Bradmill Factory understand the site's value and significance.

The Bradmill site forms part of the cultural identity of the Maribyrnong area and interpretation will articulate its context, history and meaning to create a sense of place for the incoming residents, an identity for the community and a focal point for visitors.

The purpose of the Heritage Interpretation Strategy is to provide a thematic and interpretive framework for the site that will allow physical and nonphysical interpretation to be planned and implemented.

As the development is currently in its planning phase, it is not possible to provide a comprehensive plan that states exactly how and where the site's heritage will be interpreted in the report. The Heritage Interpretation Strategy instead outlines methods for interpreting the site's significance and stories and provides a guide for implementing the recommendations in future stages of the development.

7.3.1 Thematic Framework

The Thematic Framework is designed to convey the stories associated with the site in an innovative, integrated and cost-effective way. Achieving this is particularly important since the site does not have a clear or tangible narrative for people to 'read'.

Key themes that will be used include:

Theme 1 – 'Proudly Australian'

This theme explores the development and achievements of Australia's local textile industry, including the origins and growth of the industry and its eventual decline.

Theme 2 – Making Textiles

This theme discusses the technical processes required for textile production and explores the identities of the people who worked at the Francis Street site.

Theme 3 - Changing Uses of the Site

This theme explores how the uses of the site have changed over time.

7.3.2 Recommendations

Architectural and Landscape Design

Embedding heritage interpretation in the architectural and landscape design of the former Bradmill Factory will provide a cost-effective way of conveying the site's history and significance to future residents. This method of interpretation will also provide a way of creating an identity for the development, making it a desirable place to live and giving it a unique selling point.

Sue Hodges Productions suggest referencing the technical and industrial histories through subtle and non-intrusive devices such as use of the graphic motifs (the Davies, Coop & Co and Bradmill logos), abstract or literal forms of industrial details within the design (e.g. referencing of looms, cotton reels, cotton, wool, machinery, reams of fabric) and references within the paving, hard landscaping and so on. The report also suggests using remnant built fabric, symbols and references from the industrial history across time in the redevelopment.









Figure 55. Historical Bradmill Advertisements Photos

Landscaping

Sue Hodges Productions recommends plant selection should include native species that local Indigenous groups would have used as food or for other aspects of their daily lives.

This selection should be done in consultation with Indigenous stakeholders.

The report also recommends landscaping could also be used to reference the footprints of buildings that will be fully or partially demolished when the site is developed. Paving could be stylised to reference fabrics manufactured on the site, such as cotton and wool. Images and/or text as graphic could also be embedded in hard landscaping.

Overt Heritage Interpretation

The heritage of the former Bradmill Factory is difficult for audiences to 'read' based on the buildings that still remain on the site. After its redevelopment, some of the buildings on the site will have been removed, which means that interpretation must provide a way for new residents to make sense of the site's history.

The report states that the following types of media at the development will help achieve this:

Signage

Signage will provide an opportunity for integrating the several histories of the site to give new residents an understanding of its meaning and significance. Signage at the Bradmill site should provide some contextual information about the development of the Australian textile industry as well as specific information about the site and companies that occupied it. The signage should contain a combination of text and images and it may also be appropriate to include a site plan.

The design of the signage should complement the heritage buildings and the architecture and landscaping of the new development. Materials echoing the materiality of the site could be used in the framing, support and facias of the signs.

Signage should be located at the major entry point(s) to the new development so it gains the most exposure, preferably close to the historic buildings. Signage may also be appropriate at the canteen site after demolition.

Public art

Public artwork could be used to celebrate both the Indigenous and industrial heritage of the site. The Wurundjeri Tribe Land and Compensation Cultural Heritage Council and/or the Boon Wurrung Foundation Ltd should be commissioned to create/design artworks if possible and consulted about the stories to be interpreted. This will fulfil 'best practice' principles for Indigenous heritage interpretation. Where possible, an Indigenous person should be commissioned to design and produce the artwork.

Street naming

Street naming is a cost-efficient and effective way of interpreting the heritage of the former Bradmill site. Street names could be devised based on the themes, sub-themes and stories identified in this document. They could reflect the names of the companies and products made at the site as well as the processes and equipment used.

Street names will ne and guidelines.

Themed public spaces

The main public spaces can be themed to reflect the history of the site. Historic images of the factory and its workers as well as advertisements for the products made on the site could be used in visual treatments on the interior or exterior of new buildings, in paving, in landscaping and on fences at the development.

The children's play-spaces proposed for the development could also reference the site's history by incorporating custom-made play elements such as a giant cotton reel.



Street names will need to comply with Maribyrnong City Council's policies



8. Design Guidelines

8.1 Policy Context

The Residential and Neighbourhood Activity Centre Design Guidelines has been prepared by MGS Architects as per the requirements of Schedule 7 to the Development Plan Overlay. This document can be found within Volume 2.

8.2 Design Guidelines Context

The purpose of the Guidelines is to provide further clarity regarding the form of the future development of the Bradmill site by setting down design principles and a description of housing typologies for each of the five precincts identified in the Bradmill concept plan:

- Precinct 1 Francis Street;
- Precinct 3 Boulevard;
- Precinct 4 Rail Interface;
- Precinct 5 Neighbourhood Activity Centre.

Each precinct is focused around a key site interface. The guidelines document provides further certainty and clarity regarding the future development outcomes for the Bradmill site, and assist in the creation of an environmentally, socially and economically sustainable development.







- Precinct 2 McIvor Reserve Interface;

Figure 56. Precinct Key





8.3 Precinct Guidelines

8.3.1 Precinct 1 – Francis Street

This precinct is focused on the interface between the site and Francis Street to the north. The Precinct will feature low density housing in a landscaped setting along Francis Street, and provides for strong pedestrian connections between the Bradmill development and residential areas to the north.

Design Principles

- landscaped central median.
- and express separation of built forms.
- laneway vehicular access to dwellings.

- Street.
- paving and be open to the street.
- accordance with AS 2107:2000.
- residential and heritage fabric.



Provide an active and engaging interface to Francis Street by orienting the living spaces of dwellings to address the street, provide clear vistas looking east-west, and promoting high quality architectural design.

Promote an attractive street environment along Francis Street by providing generous landscaped setbacks at the front of dwellings and a

Promote 1-2 storey low rise dwellings fronting Francis Street that are complimentary to the existing character of residential areas to the north,

Allow for an active frontage to Francis Street by providing for rear

Enhance Francis St accessibility by providing pedestrian paths.

Facilitate pedestrian access to the Bradmill site from residential areas to the north by providing a central median and new signalised intersections to assist crossing of Francis Street.

Larger semi detached dwellings to Francis St to include low front fences and secluded private open space areas generally to the rear of dwellings to minimise the amenity impacts of air pollution and noise from Francis

Fences to return into entrance areas to avoid long expanses of uninterrupted fences. Entry areas to be provided with landscape and

Dwelling facades and layouts designed to mitigate traffic noise in

Materials to complement those utilised within the surrounding







Figure 58. Precinct 1 Section





 $\overline{\Lambda}$

APPROX. 25000

Figure 59. Typical Lot and Access Arrangements







Figure 61. Precinct 2 Plan







Design Principles

Reserve.

Centre.

design.

•

accordance with Rescode requirements.



This Precinct is focused on the interface with the Boulevard running east-west and linking to Francis Street through the centre of the site. The Boulevard is lined with wide, tree-lined nature strips with a shared path and passive recreation areas, creating a green corridor which directs views and pedestrian/ cycling traffic towards McIvor Reserve.

Promote the recreational role of the Boulevard by providing for passive recreation spaces such as seating and barbeque areas.

Promote east-west pedestrian and cycling connectivity by providing designated pedestrian and cycling paths along the Boulevard with strong connections to the Neighbourhood Activity Centre and McIvor

Provide for an active and engaging interface with the Boulevard by orienting the living spaces of dwellings to face the Boulevard and providing for rear lane vehicular access.

Provide for a range of medium and higher density housing types, with higher density housing focused around the Neighbourhood Activity

Promote the safety of public spaces by providing passive surveillance opportunities from adjacent dwellings.

Promote the use of native landscaping along the Boulevard to provide a natural vegetated setting for dwellings.

Incorporate Water Sensitive Urban Design treatments into the Boulevard

Ensure laneways are provided with appropriate passive surveillance and landscaping to promote a safe environment.

Materiality to complement the existing heritage fabric and tree line boulevard environment.

Apartments are appropriately oriented in terms of solar orientation, passive heating and ventilation and views to local amenity, and building shaped to prevent significant overshadowing of adjacent properties in









8.3.4 Precinct 4 – Rail Interface

This Precinct is focused on the interface with the Newport Goods Rail Line, which forms the western boundary of the site. The Precinct design features landscape buffers to visually screen the rail line and dwellings will be sensitively designed to create an acoustic buffer to the rail line and freeway.

Design Principles

- buffer to the rail line.
- 2107:2000.
- impacts.
- Provide for landscaped front setbacks.



Medium Density Precedents - Precinct 4



Provide a landscaping zone along the rail interface to act as a visual

• Locate service areas (garage/bathrooms) towards the freight line and freeway to the south as part of an acoustically treated wall. Facades and layouts designed to mitigate traffic noise in accordance with AS

Provide for medium density attached 2-3 storey built form with acoustically treated rear walls to appropriately manage the acoustic impacts of the Newport Goods Rail Line and the West Gate Freeway.

• Orient dwellings away from the rail line, with living spaces opening towards north-facing landscaped frontages to minimise acoustic

Ensure laneways are provided with appropriate passive surveillance and landscaping to promote a safe environment.

Robust materials that complement the existing heritage fabric.

Provide transparent fencing to rail line to minimise graffiti opportunities.









Figure 70. Typical Lot and Access Arrangements for Housing in Precinct 4

Tract

60

Tract Town Planners Urban Designers Landscape Architects

8.3.5 Precinct 5 – Neighbourhood Activity Centre

The Neighbourhood Activity Centre (NAC) Precinct is located in the northeast corner of the site, and provides a community hub for the proposed development and surrounding areas. The Precinct features a mix of uses, including speciality retail stores, a full-line supermarket, non-retail services, high density housing, and community services, including a library and medical centre. The design provides for ease of access to and circulation within the precinct, and active frontages facing McIvor Reserve.

Design Principles

- Ensure the NAC Precinct develops a mix of uses including retail, nonretail service, commercial and community facilities as well as the opportunity for high density accommodation.
- Provide the desire and ability for people to work and reside within a highly liveable Precinct through a variety of combination of uses.
- Create a strong visual identity for the NAC along Francis Street and encourage connection through to the centre via an interactive and sociable built form.
- Enable the precinct to operate effectively and appropriately at all times of the day through carefully located access points.
- Encourage the mixing of uses both horizontally and vertically.
- Encourage ground level uses such as outdoor dining which foster the natural surveillance of public spaces.
- Design diversity into building facades that front the public environment that reflects the different uses through a variety of built fabric grain.
- Provide active and engaging frontages to pedestrian and public spaces, including McIvor Reserve.
- Provide for safe and convenient pedestrian, cyclist and vehicular movement within the NAC.
- Provide for sufficient and appropriately designed car parking for the NAC that can be convenient accessed with minimal impact on surrounding areas.
- Provide bike storage and seating areas within the NAC.

- Incorporate disabled access at the NAC.
- Maximise active frontages, particularly on key frontages including McIvor Reserve and, so far as possible, all frontages of the Iconic Francis Road building
- Location of any accommodation on the edge of the NAC to face streets and public spaces.
- Promote views to Mclvor Reserve from the community facilit the Library.
- Provide safe and convenient pedestrian access to the NAC fro Street, McIvor Reserve and the Boulevard Precinct.
- Provide for conveniently located parking areas for the NAC be and surrounding the site for short and longer term visits to the
- Allow the separation of carparking for the residents, commercial users and visitors.
- Ensure vehicle access to the NAC minimises traffic impact on surrounding areas.
- Minimise the impact of the loading areas through visual screening and acoustic treatment.
- Include a corner pad site that activates one of the key corners of the Precinct.
- Provide landscaped edge treatments to the NAC.
- NAC buildings should incorporate exemplary ESD principles in the design of buildings and public areas.











Figure 71. Neighbourhood Activity Centre





Tower setback with living spaces oriented to street Anartment

Centre Retail





Figure 73. Precinct 5 Section A



Figure 74. Precinct 5 Section B

Figure 75. Precinct 5 Section C

8.3.6 McIvor Road and Reserve Interface

The creation of McIvor Road will provide a new road that will service as both of key entrance point to the residential masterplan and activity centre, as well as providing access to the western edge of McIvor Reserve. This secondary function will potential enable the deletion of the existing dirt access road along the western boundary of the reserve, and the development of rejuvenated park interface to the new residential and activity centre development.

Design Principles

- Signalised intersection requires the addition of a dedicated right turn • lane, necessitating the widening of Francis Street.
- The new road widening will not impinge on the title boundaries of the lawn bowls club. The footpath width shall be maintained along the length of the footpath, however the verge will reduce where required at pinch points. In areas where right-hand turn lanes have been extended on Francis Street, the central median has been reduced.
- The existing reserve access road along the western boundary of the reserve shall be landscaped to provide a seamless and attractive interface between the development site and the reserve, as well as provide a landscape buffer to the bicycle/pedestrian trail from McIvor Road.
- Provide community facilities such as a covered BBQ area at the interface between the new linear park and the reserve to encourage social and community interaction both within the development and broader community. The facility could pay homage to "The Canteen' of the former industrial site through use and architectural expression - see 'The Canteen community BBQ facilities for further details'.
- Incorporate interpretive landscaping and information to mark the northern alignment of the former canteen building on the southern side of the linear park.
- Provide pedestrian links between the development site and the reserve • at key activity and intersection points.
- Create active frontages along the McIvor Road interface and to Francis Street to provide informal surveillance to the adjacent reserve.





Figure 77. McIvor Road & Reserve Enlargement 1





Figure 78. McIvor Road & Reserve Enlargement 2



Bradmill Precinct will incorporate a range of Ecologically Sustainable Development (ESD) and Water Sensitive Urban Design (WSUD) initiatives into the development and will seek to meet or exceed all relevant Federal and State Government regulations with regard to energy and water conservation, passive design of buildings, waste management, water sensitive urban design and planning.

and transport.

In accordance with Schedule 7 to the Development Plan Overlay, Aurecon has prepared an ESD strategy. The purpose of the report, which is found within Volume 2, is to present a description of potential ESD strategies and initiatives that could be implemented at the Bradmill precinct.

9.2 ESD Strategy

9.2.1 **ESD** Initiatives

consideration are as follows:

- resources;

The ESD strategy considers measures that could be utilised in order to respond to the objectives of ESD principles. Key areas of the development where ESD initiatives have been identified for integration are outlined below:

Passive Design

the following:



Figure 81. Yarraville Train Station



Figure 82. Recycling Facilitiles in Public Spaces



Figure 79. Northern Orientation



Figure 80. Low Environmental Impact Materials

9. Ecologically Sustainable Design

9.1 Policy Context

The Bradmill development intends to make the most of the opportunities that the synergies of this mixed use development provides in order to achieve higher sustainability levels based on four main pillars: energy, water, materials

Appropriate ESD principles for this development that will be taken into

Minimise the consumption of resources, especially non-renewable

Minimise pollution of soil, air and water;

Maximise the health, safety and comfort of building users; and

Increase awareness of environment issues.

Design of all buildings within the development will include consideration of

Orientation of the buildings so that the main facades face north and south to maximise sun access;



Figure 83. Rainwater Collection Tank



- Solar absorption of external building materials and appropriate colour . selection;
- Thermal mass consideration to provide thermal stability;
- Daylight Optimisation maximising the use of natural lighting within buildings;
- Internal reflectance and use of light internal finishes;
- Passive heating and including external louvres, blinds and structural overhangs to provide protection from the harsh summer sun whilst allowing the warm winter sun to penetrate buildings;
- Natural ventilation through buildings. This can be achieved by incorporating openable facades, adjustable air flow rates and night purging.

Efficient Building Design

The mechanical design of buildings within the development will include consideration of the following:

- Internal zoning of areas within the development: i.e. Individual air conditioning systems for areas operating outside core trading hours;
- Efficient Heating Ventilation and Air Conditioning (HVAC) System design:
 - Maximise use of gas heating rather than electric resistance heating; -
 - Local timer controls, minimise out of hours use;
 - Variation of comfort criteria to suit type of space and anticipated usage;
 - Heating of building to be assessed based on internal heat generation;
 - High efficiency plant and equipment; -
 - Demand controlled ventilation;
 - Air Side economisers;
 - Insulation of all ducts and pipe work; and

- Consideration of direct or indirect evaporative cooling.

Water Conservation and WSUD

consideration are as follows:

- development;
- agreements;
- Individual tenancy metering;
- Dual low flush toilets throughout;
- Installation of a leak detection system;
- Roof-top gardens;
- Pervious pavement; and
- Grey water reuse.

Waste Management

may include the following:

- energy.
- timber and asphalt.

- Develop a strategy to consider linking outputs and inputs to allow reuse of waste. This may include the production of compost from organic waste for landscaping.
- time.



Natural carpark ventilation or CO2 controlled carpark ventilation.

- Water Conservation and WSUD measures that have been identified for
 - Rainwater collection tanks and reuse within sections of the
 - Appropriate landscaping to minimise irrigation requirements;
 - Water saving fixtures and water reduction guidelines included in tenancy
- The design of the development will include consideration of the waste collection and storage area requirements, with allowances made for the inclusion of a multi-stream waste collection system. Additional requirements
 - Developing a list of local construction materials with low embodied
 - The use of 6 key recycled materials: concrete, steel, glass, aluminium,
 - Utilise modular construction to minimise on-site construction cost and





 Implementation of Waste & Environmental Management Plans (WMP & EMP). Recycling, or reusing, 80% of construction waste is recommended to be set up in the WMP.

Building Fabric/Materials

The following opportunities have been identified for consideration at the detailed design stage of the development of Bradmill precinct in order to avoid and reduce environmental impacts of building fabrics/materials:

- Insulation:
 - Ceiling Insulation A minimum of R3.0 insulation;
 - Wall Insulation A minimum of R1.5 insulation for external walls and b/w air-condition and non-air conditioned spaces;
 - Floor Insulation A minimum of R1.0 under suspended floors.
- Double glazed windows very efficient noise insulator, and has an enormous impact on interior comfort, keeping rooms cooler in summer and warmer in winter;
- Well-sealed, weather stripping on windows and doors;
- Aluminium window frames;
- Life cycle assessment of external material maximise use of precast elements, block work, recycled or sustainable timber, aluminium framing;
- No ozone depletion potential for refrigerants;
- Minimisation of PVC throughout the development.

Transportation

The development will include consideration for the following provisions:

- Create safe and appealing pedestrian and cyclist connection environments that support public health and encourage daily physical activity between the precinct and key destinations such as recreational areas, shopping centre and public transport stops. Sealed footpaths are proposed to be provided on both sides of all roads, except access lanes.
- Shared bicycle and pedestrian paths are proposed along the eastern side of McIvor Reserve Road and within the green belt and the south/west

side of the Access Street between McIvor Reserve and the Francis Street/ Richards Street intersection as stated in GTA traffic report.

- A Green Spine is proposed where pedestrians and cyclists have priority for access and movement.
- Existing public transport routes within walking distance include Yarraville train station, bus routes (411, 412, 414, 431 & 432)

Lighting and Electrical

Electrical and lighting design of all buildings within the development will include consideration of the following:

- Individual air-to-air heat exchangers to commercial or community use buildings to pre-warm the incoming outdoor air, thus reducing the energy required for heating.
- Low energy heating techniques for buildings. This may include hydronic heating system for residential buildings.
- Use of heat recovery units or heat exchangers to use the outgoing stale air to warm up the incoming fresh air.
- Efficient lighting system with integrated PIR and daylight sensors for common areas of all type of buildings. The goal for lighting power density should be no more than 3W/m², thus may be achieved with a combination of compact florescent and LED lights.
- Implementation of smart metering to reduce peak energy demand. Smart meters could interact with the next generation of 'talking' thermostats, appliances and other communicating devices that will allow consumers to save the maximum energy and money 24/7 through simple programming.

9.2.2 ESD Commitments

It is important to understand that the strategy will evolve over time in response to advances in ESD principles. Council will be a key player through consultation, implementation, management, maintenance and monitoring programs.





Figure 85. Typical WSUD Rain Garden



Figure 86. Deidicated Cycling Lanes

Appropriate solar access for future dwellings is one of many environmental principles adopted for within the Development Plan. Other key initiatives include:

- Providing a pedestrian and cycling focused street network which promotes sustainable movement patterns.
- Implementation of tree-lined and shaded sidewalks for safe pedestrian and bicycle use
- Bicycle racks provided in secure or weather enclosed areas for occupants and visitors to the commercial and multi-unit buildings
- Provision for future bus routes to connect the precinct
- Provision of thermally efficient buildings, achieving over an average of 6 Stars NatHERS (National House Energy Rating Scheme).
- Using solar photovoltaic energy and solar domestic hot water systems for multi-unit buildings
- Installation of a minimum of 20kW of photovoltaic cells in a highly visible location or building
- Incorporation of landscaping and light colour roofs to minimise heat island effect
- Utilising low energy heating techniques for buildings such as hydronic heating system for residential buildings.
- Rainwater and stormwater harvesting via a centralised collection system and reuse of 7,950L per day using a 3rd pipe system to the Neighbourhood Activity Centre and a minimum of 225 dwellings
- Water sensitive urban design applied throughout the precinct including, wetland areas and an 80KL bio-retention system.
- Utilising a list of local construction materials with low embodied energy.
- Incorporation of key recycled materials into the building design including concrete, steel, glass, aluminium, timber and asphalt.
- 60% of demolition and construction waste to be reused or recycled.

9.3 Stormwater Management

Cardno were engaged to review stormwater management issues for the proposed Bradmill Precinct development. Their assessment focuses on overland flow conveyance in the vicinity of the subject site and Water Sensitive Urban Design (WSUD) measures which may be incorporated into the proposed development.

9.3.1 Overland Flow Assessment

An existing stormwater drain conveys runoff from a 65ha catchment (approx.) along Francis Street north of the subject site. **Figure 91** illustrates the expected overland flow and stormwater conveyance.

9.3.2 Stormwater Conveyance

Where applicable WSUD measures will be considered to assist mitigation of stormwater quality problems generally associated with conventional stormwater conveyance.

9.3.3 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design (WSUD) represents an engineering approach to managing stormwater runoff. The scale of the proposed Bradmill Precinct development provides an excellent opportunity to incorporate WSUD measures. The following WSUD measures have been evaluated as part of this assessment:

- Rainwater tanks;
- Constructed wetlands;
- Bioretention systems; and
- Stormwater harvesting and treatment.

Rainwater Tanks

Rainwater tanks collect runoff from roof areas thereby reducing stormwater pollutant discharges and provide a source of water for reuse, typically reuse for the purpose of toilet flushing. Rainwater tanks are available in a variety of shapes and sizes and can be integrated into proposed building design so as not to adversely affect aesthetics.

Constructed Wetland Systems

Constructed wetlands are shallow, extensively vegetated water bodies which remove pollutants from stormwater by enhanced sedimentation, fine





Figure 87. Example of Recycled Material

Figure 88. Typical Bicycle Rack



Figure 89. WSUD Stormwater Channel



Figure 90. Typical Photovoltaic Cells

filtration and pollutant uptake processes. Following rainfall events, water levels in wetlands rise and the outlet is controlled to slowly release stormwater over a three day period back to dry weather water levels.

Stormwater pollutants are removed via an inlet zone comprising of a sedimentation basin to remove coarse particles and subsequently by passing through heavily vegetated areas for pollutant uptake through fine filtration.

Wetlands provide a habitat for wildlife, can become a recreational asset in a development and have the potential to be integrated into a proposed development's landscaping.

Bioretention Systems

Bioretention basins operate by passing stormwater through prescribed filtration media which provides treatment and nutrient removal through fine filtration and extended detention. Basins are typically located adjacent to roads and other paved surfaces with stormwater conveyed directly from adjacent pavement for treatment, prior to entering the drainage network.

Bioretention systems are particularly efficient at removing nitrogen and other soluble contaminants and can form attractive features within a development streetscape.

Stormwater Harvesting

Stormwater harvesting offers a sustainable method of sourcing an alternative water resource that is fit for purpose and has a positive environmental impact. The scale of supply is dependent on the size and type of the contributing catchment and size of the storage tank.

In general, it is desirable to connect to the largest drainage system as possible to ensure the reliability of supply is high and that full advantage is made of small rainfall events across large urban areas.

A robust treatment train approach to stormwater harvesting is considered optimal including a gross pollutant trap and stormwater quality improvements in order to meet Best Practice Guidelines.

A Gross Pollutant Trap (GPT) is recommended in order to collect litter and debris which is conveyed during first flush storm events and will prevent debris entering the underground storage tank system.

Tank sizing is dependent on catchment availability, irrigation demand and pump out rate from the storage tanks. The location and depth of the underground tanks will be dependent on the site stormwater network design and the incoming pipe invert levels, with the base of the tank typically 3m-4m below ground level.

Stormwater Reuse

Stormwater reuse will be sourced from the underground secondary storage tank for potential irrigation of open space and toilet flushing. Preliminary stormwater reuse has been estimated and included in the water quality modelling as follows:

- •
- •



•All overland flow to be directed to the Legal Point of Discharge as per contou





Irrigation of 2.1ha of parkland and open space throughout the development with an irrigation demand of 7.3ML per annum, based on Best Practice Turf Irrigation Management (University of Melbourne 2005);

Reuse for the purpose of toilet flushing at up to 225 dwellings based on an average use of 15L/person/day and average occupancy of 2 people per unit, resulting in a daily reuse of 6,750L; and

Reuse for the purpose of toilet flushing at the commercial activity centre with a reuse of 1,200L per day.

Figure 91. Stormwater Flows









10.1 Policy Context

In accordance with the provisions of Schedule 7 to the Development Plan Overlay, a site remediation strategy has been prepared.

The strategy has been prepared with input from two of Senversa's EPA Environmental Auditors and in consultation with Joe Duran, the appointed Environmental Auditor for the site. The stratregy is found within Volume 2.

10.2 Site Remediation Plan

Senversa Pty Ltd has been engaged to prepare a Site Remediation Strategy for the redevelopment of the site.

The objective of the Strategy is to present a framework for the overall management of contaminated land issues at the site that is integrated with the redevelopment plans for the site and the requirements of the State legislation on the assessment and management of contaminated land.

10.2.1 Background Assessments

Senversa understands the following environmental site assessments are have been completed at the site:

The work was completed as a supplementary investigation to the Egis (2001) investigation. GHD concluded that the site in its then current condition was suitable for ongoing industrial use provided that some further investigation and management of the elevated antimony concentrations to the south of the boiler house was undertaken. The site was not considered suitable for more sensitive uses such as residential development, primarily due to the aesthetic condition of the site.

10. Site Remediation Strategy

Environmental Site Assessment, Bradmill Site, 341 Francis Street, Yarraville. Egis Consulting Australia. June 2001.

The assessment found the site in its then current state was suitable for ongoing commercial/industrial use, but that future more sensitive use (e.g. residential) would require further environmental investigations and a Statement or Certificate of Environmental Audit to be obtained.

Supplementary Due Diligence Environmental Investigations, 341 Francis Street, Yarraville. GHD Pty Ltd, June 2003.

Preliminary Environmental Soil Assessment, Proposed Yarra Garden Site, 341-363 Francis Street Yarraville, EnviroProtect (Vic) Pty Ltd, June 2007.

The review found no unusual odours or elevated volatile organic compounds. The laboratory analytical results indicated generally low concentrations of heavy metals (nickel and tin) and polycyclic aromatic hydrocarbons. No CoPC were reported at concentrations above the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) health investigation levels applicable for assessing the suitability of soil for a high-density residential land use.

Enviroprotect recommended a more detailed ESA be completed under the instruction of an Environmental Auditor in accordance with industry standards.

- Preliminary Environmental Soil Assessment (Soil Report), Yarra Gardens Project Yarraville Site, EnviroProtect (Vic) Pty Ltd, July 2009. As part of these works Enviroprotect engaged a subcontractor to complete the following:
 - Preliminary Hydrogeological Assessment of Yarra Gardens, Francis Street, Brooklyn, EarthEon Pty Ltd, July 2009.

The conclusions and recommendations of the report included:

- The probability of major soil contamination at the site was considered to be low, however as no assessment was completed under buildings or around identified underground storage tanks (USTs), further assessment and remediation was warranted, including:
- Identification and removal of all USTs across the site (only 4 identified for removal to date).
- Investigation of areas where access was limited (i.e. beneath concrete slabs and other obstructions).
- Removal of asbestos contaminated soil generally, and particularly in the vicinity of identified locations on the Bradmill Property site (i.e. T9, T12, T15 etc). It is also noted that the Auditor's review of this report indicated that additional soil sampling with assessment for asbestos fibres in soil would be required.
- An increase in the overall density of grid and targeted sampling to meet the minimum requirements of the Australian Standard AS4482.1-2005, including an additional 74 sampling locations across the site once buildings have been removal (subject to Auditor agreement).

• The results of the hydrogeological assessment indicated that the groundwater in the south-east corner of the Bradmill site is polluted due to nitrate and the chlorinated hydrocarbon tetrachloroethene (PCE), presumably due to a former effluent pit and sewer system leakage.

10.2.2 The Approach

Senversa has reviewed the available information to form an understanding of data gaps and additional works which would be required to obtain Statements of Environmental Audit across the site. Further works will be completed with the agreement of the Environmental Auditor.

The overarching approach for the redevelopment of potentially contaminated land at the site is presented below:

- Appoint an Environmental Auditor to review available information and provide comment on site assessment works and the need for clean up (completed). Joe Duran has been appointed as the Auditor for the site. Senversa has met with the Auditor during the preparation of this strategy document, and recommends ongoing consultation to ensure that Auditor concerns are identified and addressed in a timely and costeffective manner throughout the investigation and remediation process.
- Complete necessary additional investigations in an agreed manner with the Environmental Auditor. As an initial step a detailed site history will be completed to assess the areas and contaminants of potential concern at the site. This will guide the scope of additional investigations at the site to be agreed by the Auditor and will enable staging of audit area sign off and redevelopment.
- Review the potential health and environmental risks associated with the proposed use of the site based on the Master Plan and the identification of contamination.
- Develop a site remediation action plan (RAP) detailing the clean up design and the validation program that is linked to the pattern of development across the site. The RAP will require approval by the Environmental Auditor and the Responsible Authority (Council) to ensure the feasibility of the approach.
- Given the scale and size of the site, staged Certificate(s) and/or Statement(s) of Environmental Audit are likely to be the best way of achieving land use objectives that vary according to the pattern of development proposed for the site. In this case the site will be divided



Figure 92. Conveyor



Figure 93. Former Dye House (External)




Figure 94. Former Dye House (Internal)



Figure 95. Looking North Along Eastern Boundary

into a number of audit stages that align with the level of contamination and the sensitivity of the development.

- Liaison with the Responsible Authority (Council) seeking approval for any Statement conditions to ensure that they are consistent with planning criteria and can be given effect through planning tools.
- Development of Environmental Management Plan(s) for various areas of the site should ongoing management of soil and/or groundwater contamination be warranted.

10.2.3 The Remediation Strategy

The Site Remediation Strategy has been prepared in a manner consistent with the requirements of Schedule 7 to the Development Plan Overlay.

From the outset, Senversa has found that provided that the Site Remediation Strategy is implemented as described, current investigations have not identified contamination that would preclude the redevelopment of the site in accordance with the site masterplan.

The remediation strategy is generally presented as follows:

Approach to Remediation

This section addresses and makes recommendations in relation to the 'Options and a preferred approach to the remediation of soil and groundwater'.

Soil

Based on the varying sensitivity of the pattern of development across the site, it is proposed to manage the majority of contaminated soil on site, on the principle of no net bulk soil removal from site.

Areas or patterns of land use where the retention of materials may be acceptable to the Environmental Auditor, EPA and the Responsible Authority (Council) include:

- Placement beneath structures such as commercial buildings (e.g. • the supermarket precinct in the north-east corner of the site), under common pavements and roadways and in open space areas.
- . Infilling former effluent pits and sumps to reinstate ground levels to the finished levels proposed for the site.

Groundwater

The initial steps to be carried out in order to protect groundwater will comprise source identification and removal. Initially it is proposed to complete a detailed site history review to identify areas of the site to target suspected contaminated areas for further groundwater investigation. Groundwater investigation locations will also be identified based on the results of additional soil contamination assessment works. Where pollution of groundwater is identified, groundwater remediation options will be investigated as part of a remediation feasibility assessment to determine if there are practical options available for the clean up of groundwater.

Site Land Uses

recommended:

Targeted Condition of the Site

This section addresses and makes recommendations in relation to the 'Locations across the site of proposed clean up work'.

This section addresses and makes recommendations in relation to the Targeted condition of the site as specified by the Environmental Auditor to suit the range of land uses.



This section addresses and makes recommendations in relation to the 'Proposed pattern of land uses across the site'.

Upon completion of additional targeted investigation at the site, a staged approach to the redevelopment of the site will be developed that is consistent with the development schedule.

However, if further investigation contamination identifies significant constraints to the proposed pattern of land use the following will be

Changes to the sequencing of works to allow areas of significant impact to be properly assessed and managed in an orderly fashion whilst progress is made in other areas.

Consideration of modification to the proposed pattern of land use to allow for less sensitive land use (e.g. commercial) as an element of managing ongoing risks such (e.g. risk to indoor air guality from vapour migration from groundwater)

As described in the Auditor Guidelines, the role of the auditor is to provide an independent opinion on the condition of land and its suitability for use. The range of uses for which the Auditor must be satisfied will be protected, will be linked to the proposed pattern of land uses across the site.

It is expected that the Auditor will be able to issue Statement(s) of Environmental Audit with appropriate conditions to manage exposure to residual contamination based on the pattern of land use proposed. For example conditions may require the maintenance of a suitable physical barrier beneath open space areas. This approach is consistent with the Auditor Guidelines.

Locations of Proposed Clean Up

Subject to the findings of additional investigations, it is likely that clean up will be required in the following areas:

- Effluent pits, sumps and process areas.
- Underground services in particular trade waste discharge pipes and associated infrastructure which may be impacted and contain residues. These assets also provide preferential pathways for contaminant migration.
- Removal of all USTs and associated impacted packing sands and soil.
- Soil removal/movement will be required for aesthetically unacceptable and asbestos containing materials generally, but specifically in the vicinity of identified locations on the Bradmill Property site (i.e. T9, T12, T15 etc).

Other areas may be identified following additional soil and groundwater assessment works at the site. Once identified, these works will be incorporated into a Remediation Action Plan to be developed for the site.

Remediation Options

This section addresses and makes recommendations in relation to the 'Options for remediation technologies taking into account logistics, technology availability, estimated cost and likely effectiveness'.

Generally in Victoria, proven soil remediation techniques usually comprise excavation and management on-site or off-site disposal to a licensed facility. However, the proposed approach to remediation at the site would minimise the removal and off-site disposal of contaminated soil and incorporate it into the development where appropriate.

Groundwater remediation options (if required) would also be investigated as part of a remediation feasibility assessment to determine if there are practical options available that can be implemented in a cost effective manner. Where the groundwater pollution is considered to be sourced from site activities, EPA will require that the Auditor consider the practicability of groundwater clean up.

Remediation Schedule

This section addresses and makes recommendations in relation to the schedule of remediation activities.

The works schedule for remediation will be planned to coincide with the development schedule for the site (where possible). However, there may be areas of the site that require additional investigation and remediation that will be completed off-line form the development schedule to minimise development delays. Following additional soil and groundwater investigations and completion of a remediation feasibility assessment, a remedial action plan (RAP) incorporating a validation plan will be developed to outline the schedule and timing of works.

Staging and Timeframes for the Environmental Audit

This section addresses and makes recommendations in relation to the expected pattern/staging and indicative timeframes for signed Certificates and Statements of Environmental Audit across the site following the clean up of the site.

The development of a RAP will outline the staging and timing for the clean up of the site. The RAP will detail the environmental control measures and the approach to be used to validate the effectiveness of the remediation.

Management and Monitoring Controls

This section addresses and makes recommendations in relation to the 'Indicative site management and monitoring controls that will be necessary following each clean up activity'

The likely management and monitoring controls will be outlined in any condition on a Statement of Environmental Auditor for the various stages of works.

Responsible Parties

This section addresses and makes recommendations in relation to the 'Identifying the parties responsible for key activities and for subsequent site

management and monitoring'.

Any EMP developed for the site will outline the roles and responsibilities for the management of the residual environmental risk posed by the site. The EPA's broadcast email guidance to Auditors for implementing statement conditions indicates with respect to roles and responsibilities that:

- . demonstrating compliance.

It is anticipated where Statement conditions do not require more than one level of control that these conditions would be managed implicitly by the future individual occupiers of the land.

10.2.4 Auditors Report

Pursuant to the Environmental Protection Act, 1970, Joe Duran of BlueSphere Environmental has been appointed the environmental auditor of the site.

The environmental auditor reviewed the report prepared by Senversa titled "Site Remediation Strategy". Specific comments on the report are enclosed within Volume 2.

Overall, the environmental auditor does not have any significant issues with the proposed approach. The auditor believes that the overarching remedial strategy addresses the intent of Schedule 7 of the Development Plan Overlay, and the City of Maribyrnong Planning Scheme Amendment C63.

As discussed at a meeting on 5 April 2012, Senversa noted that it was intended to prepare a Remediation Action Plan as part of each audit area in conjunction with the proposed staged development. The auditor agrees that this is the most logical approach and ensures that appropriate investigations and cleanup are competed in line with the proposed staged development and considers the intended land-use and any conditions imposed by a Statement of Environmental Audit. This approach is consistent with the Planning Scheme Amendment C63. Furthermore, in this regard, as clearly noted in the Senversa report, any conditions of a Statement of Environmental Audit for each segment of the staged development will be clearly discussed with the City of Maribyrnong to ensure that they are consistent with the Planning intent and can be effectively implemented.



The Auditor is not responsible for specifying who is responsible for enforcement or compliance with conditions.

The site owner/occupier has primary responsibility for ensuring and

The site owner/occupier is responsible for ensuring that prospective purchasers are aware of an existing Statement for the site.

The auditor considers that the Site Remediation Strategy appropriately considers the necessary statutory regulatory framework for the management of contaminated land and also meets the general requirements of Schedule 7 of the City of Maribyrnong Planning Scheme Amendment C63.

The auditor considers that the proposed strategy and approach will ensure that necessary investigation and cleanup are completed and that Statements of Environmental Audit are completed for defined segments before any development can occur.





11.1 Policy Context

In accordance with Schedule 7 to the Development Plan Overlay, GHD Pty Ltd and Acoustic Logic have undertaken adverse amenity impact assessments which identify potential odour, dust, noise and vibration impacts. These assessments are found within Volume 2.

11.2 Odour and Dust Impact

premises.

11.2.1 Odour Impact Assessment

Odour Complaints in Yarraville and Brooklyn

for each company.

The industry whose odour was most often reported in surrounding residential areas was SITA Australia (including reports of the former operators Organic Recyclers). These reports have occurred in every month for the time period represented.

Reports of odour sourced to Swift Australia (including the former operator Tasman Group Services and Braybrick) are also represented. There have been a significant number of reports sourced to Swift since October 2008, which suggests an apparent ineffectiveness of Swift's odour control processes. Reports of odour coming from Brooklyn Meat Processors and Cargill Processing have decreased since mid 2008.

prosecution by EPA Victoria.



11. Adverse Amenity Impact Report

GHD Pty Ltd has undertaken a buffer assessment and odour impact review of the site. The assessment evaluated the potential for odour/dust impact at the site during both routine operations and 'upset' scenarios at nearby industrial

Reported odour complaints from July 2007 to February 2009 indicate that various industries contribute to community complaints associated with detectable off-site odour. EPA Victoria assigns the odour reports to a 'likely' source based on wind direction, odour description from the complainant and recent activities of the included industries.

GHD has found that the number of odour reports varies throughout the year

There are regular reports sourced to Australian Tallow Producers, and these have increased in recent months. While there have been more recent instances of odour events from particular industries that have led to

Wind Conditions

Local wind climate largely determines the pattern of off-site odour dispersion.

The effect of wind on odour dispersion can be examined using the general wind climate and atmospheric stability class distribution. The general wind climate at a site is most readily displayed by means of wind rose plots, giving the incidence of winds from different directions at set wind speed ranges.

Annual Wind Distribution

- The predominant wind directions are from the north and south;
- Westerly component winds are also prevalent, with easterly winds least prevalent;
- Light <2 m/s) winds occur most frequently from the northwest sector; and
- Moderate -strong (> 5 m/s) winds are distributed evenly from all . prevailing directions.

Seasonal Wind Speed Distribution

- Prevailing wind directions vary seasonally, with winter being predominantly northerly, and summer predominantly southerly. Autumn and spring are transitional, with significant incidence in both of these directions;
- The seasonal variation in incidence of high winds (>6 m/s) is greatest in spring, and is lowest in autumn;
- The incidence of light <2 m/s) winds is greatest in autumn, followed by winter and is least in spring; and
- The direction of light winds in winter is predominantly northerly, reflecting the direction of cool air drainage flow from the hills to the north of Port Phillip Bay and the Maribyrnong River Valley.

The Yarraville residential area is located immediately to the east and north of the Bradmill site. The complaint data from the Yarraville area can be used as an indication of the expected impact conditions at the Bradmill site after it is developed. The industries that are attributed as the likely sources of most odour reports from Yarraville residents in the years 2007/2008 are Swift, SITA and Cargill.

Effect of Mitigation Measures at Industrial Premises

The EPAV has a variety of enforcement measures to control emissions-toair from industrial premises, including works approvals, licences, penalty infringement notices (PINs) and pollution abatement notices (PANs). EPAV licences can be applied to those industries so designated in the Scheduled Premises and Exemptions Regulations - 2007, and includes composting facilities, rendering plants and edible-oil processing works. These licences require holders to meet specific emission limits, monitoring and reporting goals, and allow EPAV to penalise the licencees in the case of a licence limit exceedance.

Whether or not premises require a licence, EPAV can serve a PAN to control emissions. A PAN can specify measures to reduce emissions, including operations and/or activities to be conducted, equipment to be used in a certain way, or new equipment to be installed. Failure to comply with a notice can lead to a PIN (penalty infringement notice) and a fine being imposed.

EPAV has imposed these measures via PANs at some of the industrial premises in Brooklyn. These measures have required changes in plant operation and equipment in order to mitigate emissions, and have led in turn to a reduction in odour complaints sourced to the company. These mitigation measures are detailed in Table 2. The table shows that in the case of Cargill for example, mitigation measures have significantly reduced the number of odour reports in subsequent months, from approximately 50 in September to none between November 2007 and February 2008. After that date there were five months (March, May, July, August and September) when fewer than 10 reports in a month were recorded.

11.2.2 Dust Impact Assessment

The monitoring conducted by EPA Victoria has focussed on fine particles, principally PMIO, and the elevated levels have extended to Site 1 (immediately to the north of the Bradmill site). However, the particle size ranges that lead to disamenity are at higher size ranges - up to -80 micron. At these size ranges the dust particles have sufficient fall velocity to deposit onto the ground/horizontal surfaces at comparatively short range from the Industry Precinct, - some 100's of metres. Hence the disamenity from dust deposition arising from Industry dust emissions will be very much muted (if not undetectable) at the Bradmill site, (which is greater than 1 km east of the east margin of the Brooklyn Industrial Estate).



Figure 96. Selected Buffers for Surrounding Odour-producing Industries



Figure 97. Selected Buffers for Surrounding Odour-producing Industries



Key Findings

Application of the EPA Victoria default buffer distances indicates that there is insufficient separation of the Bradmill site from Swift and Jotun to comply with these buffers. GHD does however note that the default buffer of 1000 metres is considered by GHD to be excessive.

On the basis of the recommended buffers, there is sufficient separation of the site from all other industries investigated herein; therefore odour from these industries should not result in odour complaints in an upset scenario (depending partly on wind conditions and site-specific operations). As there is no record of odour complaints being sourced to Jotun, the impact of this industry on the Bradmill site is also likely to be low.

Recent complaint data and the mitigation measures being taken by industries show that improvements in plant operation and design have reduced the number of odour reports received by the EPA Victoria, indicating that consequent odour disamenity has also been reduced. This trend will continue as EPA Victoria continues to reduce industry odour emissions in the future (see for example the introduction of the SAWT process at SITA).

The EPA Victoria programme of dust mitigation at the industries in Brooklyn seems to be effective in reducing PM10 levels at nearby residential areas, and the Bradmill development will be a beneficiary of these successes.

This process of improvement being led by EPAV suggests that odour and dust impacts at the Bradmill site will progressively reduce in the future, and be no greater than impacts in other nearby suburbs.

11.2.3 Air Quality

A risk assessment on exhaust emissions from vehicle traffic on Francis St has been undertaken. The assessment was based on a range of EPA roadside monitoring studies. The assessment found that residential development within the Bradmill Precinct will have air pollution amenity protection for future residents due to:

- The site master plan designating low density product on the south side of Francis Street;
- Location of private open space and living areas within low density product at the rear of dwellings away from Francis Street;
- Car parking fronting Francis Street, which acts as a buffer for the . Neighbourhood Activity Centre (NAC);

- . Locating sensitive uses in appropriate locations;
- Environmental regulation on vehicle emissions (through the national Australian Design Rules); and
- The State regulatory authority continuing with an agenda to reduce ambient particulate levels, which are the major contributor to any roadside elevated levels that threaten beneficial uses of the air environment.

11.3 Noise and Vibration Impact

Acoustic Logic Consultancy has conducted an acoustic assessment of the proposal. This assessment investigates noise and vibration impacts in principle from the following:

- Noise associated with the rail corridor to the South West of the development impacting future residential dwellings.
- Noise impacts associated with Francis Street to the North and the West Gate Freeway to the South on residential uses as part of the development.
- Loading dock noise associated with the neighbourhood activity centre.
- Mechanical services noise servicing the shopping centre.
- Vibration associated with Francis Street and the West Gate freeway. .
- Vibration associated with Freight Rail movements along the south western boundary of the site.

From the outset, Acoustic Logic found that provided the Acoustic recommendations are implemented as described, current investigations have not identified any impediment that would preclude the redevelopment of the site in accordance with the site Masterplan.

11.3.1 Existing Acoustic Environment

The acoustic environment in the vicinity of the development can be categorised by the following:

- High background noise levels throughout the site associated with latent traffic noise from the West Gate Freeway and Francis Street.
- High traffic noise levels along the north and south boundaries of the • development.







Figure 99. Rail line



Figure 98. Noise and Vibration Measurement Locations

High train noise levels associated with the rail corridor to the South and West which carries heavy freight.

11.3.2 Noise Measurements

Unattended noise monitoring was conducted at the site to determine the following noise sources potentially impacting the development:

- Traffic noise along the West Gate Freeway.
- Traffic noise along Francis Street.
- Freight trains using the rail corridor to the West.
- The typical repeatable background noise levels in the area.

The findings are contained within the Acoustic Assessment within Volume 2.

11.3.3 Traffic Noise Impact

Traffic noise levels have been modelled for each of the 7 stages of the development using projected building heights and locations. An analysis of predicted noise impacts has confirmed that the each use within the development can comply with the internal noise level criteria.

The development will be designed to ensure compliance with the nominated noise criteria which has been based on Australian / New Zealand Standard 2107:2000. Conventional construction materials and glazing systems can be employed to ensure compliance with the nominated criteria.

Finalisation of the façade construction materials will be provided during the planning permit stage of each phase of the development.

In addition we note that it is not practical given the site layout and elevated freeway to provide acoustic barriers to meet VicRoads outdoor noise criteria at the facades of the residential buildings located closest to Francis Street or the Freeway. However there will be outdoor recreation areas within the development that will comply with Vicroads L10,18 hr 63 dB(A) criteria and therefore will provide areas for future residents to undertake passive outdoor recreational activities.

Acoustic Treatments

Acoustic treatments to residential uses may include light to heavy weight acoustic glazing and potential upgrades to the roof ceiling construction (where concrete is not adopted).

Heavy weight construction of the buildings will be acoustically acceptable in all instances, however light weight elements should be reviewed prior to the planning permit of each stage in satisfying the project noise intrusion requirements.

11.3.4 Train Noise

Noise from the rail corridor bordering the south boundary of the site has been determined for each consecutive stage of the development. It should be noted that Stages 3, 4 & 6 of the development will effectively act as a noise barrier to the rest of the site.

Noise associated with freight using the rail corridor to the south will generally have most impact on the residential buildings proposed for Stages 1, 3, 4 & 6. Noise modelling has been conducted in accordance with PTV directions.

The highest concentration of noise levels will be associated with the Stage 3 & 4 rail buffers which will experience external noise levels of 66dB(A) Leg 1 hour.

As previously mentioned, the implementation of buildings associated with Stages 3, 4 & 6 will dramatically decrease the level of train noise penetrating into the site.

Acoustic Treatments

There are several construction methods available to construct the proposed buffer wall dwellings. These include:

- Precast concrete panels which incorporate internal drywall construction and insulation.
- Brick veneer construction has been used in many locations including under flight paths for domestic housing, along freeways and adjoining rail corridors.
- Hebel/Aerated Concrete veneer construction - Similar to brick veneer but using aerated concrete panels.
- Timber framed construction with multiple layer linings. This would comprise of either staggered or double stud timber or metal framed walls with typically two layers of fibre cement sheet externally and two layers of plasterboard internally. The cavity would be lined with insulation.

- of the sheet metal roof.
- acoustic seals.

The final construction option would be confirmed during the planning permit stage of the proposed buffer wall buildings and dwellings exposed to predicted noise levels as per the Soundplan® Modelling. We note that all systems can be designed to ensure compliance with internal noise criteria.

11.3.5 Industrial Noise

The EPA indicate that the impact of industrial noise from the industrial sites to the south and south west should be addressed.

- 2012
- . movement on the adjoining rail corridor.
- .



Light weight roofs would also be upgraded and generally sheet metal with insulation and two layers of plasterboard below the light weight roof. The roof construction may require additional lining to the underside

Glazing systems - Based on the location the buffer dwellings glazing installed facing the rail corridor is expected to be heavy/proprietary double glazed systems or large airgap double glazed windows with

Acoustic Logic Consultancy have attended site on several occasions during both daytime, evening and night time periods in both 2011 and

We confirm that at each site attendance at the dominant noise source at the subject development site is that associated with traffic movement on the Westgate Freeway and Francis Street as well as noise from rail

Noise from the adjoining industrial sites was not audible above the existing noise level generated by traffic and the adjoining rail corridor.

Provided noise intrusion associated with traffic noise and rail noise is treated to ensure compliance with the nominated noise criteria in the acoustic report amenity for future residents will be preserved.

It is also noted that buildings located along the rail corridor will generally incorporate nonhabitable spaces facing the corridor itself where possible to improve internal acoustic amenity for future residents.



11.3.6 Railway Vibration Assessment

Trains induce ground borne vibration that is transmitted through the subsoil. This vibration can be perceptible close to railways.

The result of the tactile vibration investigation indicates that internal levels of human comfort will comply with the relevant criteria without any additional treatments.

11.3.7 Road Vibration

A review of the site in relation to its proximity to surrounding roadways for potential vibration impacts from heavy vehicle traffic has been conducted. Acoustic Logic considers vibration impact from road bound traffic will not generate significant vibration levels, and as such will be acceptable.









Figure 100. Bradmill Affordable Housing Zones

12.1 Policy Context

In accordance with Schedule 7 to the Development Plan Overlay, a Affordable Housing Strategy has been prepared by MGS Architects. This report, as well as a supplementary report, can be found within Volume 2.

12.2 Affordable Housing Strategy

Ultimately, more than 1,000 households may be accommodated within the Yarraville Gardens area of which up to 5% may be Community Housing. Community Housing is expected to be dispersed through the precinct in each stage of development in an integrated form.

12.2.1 Recommendations

others, should be contemplated:

- development plan.
- development plan.
- manage the housing stock.

12. Affordable Housing Strategy

It is recommended that the following residential accommodation, amongst

Conventional Own-Your-Own (OYO) apartments that target diverse market of all age groups segments including singles, couples and families which will necessitate various built forms and building heights (lifted and walk-ups) and various unit mixes incorporating studios, 1, 2 and 3 bedroom apartments although the latter configuration would be limited; These siting and housing choices are identified in the

Affordable / entry level OYO apartments for First Home Buyers and Key Workers that emphasise smaller and lower-specified accommodation with high standard of accessibility and ESD (lower longer term living and management costs). These have been identified as areas of focus for shop top and warehouse conversion areas of the site in the

Community rental apartments (developed by Housing Associations) that target single and family households. A target of 5% of housing is earmarked for this sector. It will be preferable to develop a partnership with a single Community Housing provider to both develop and

Low-care aged accommodation that could provide a managed environment for older residents, particularly singles, to remain in their community when their personal circumstances change. Given the ageing ethnic communities associated within Yarraville, there are opportunities to meet particular cultural needs of such long-term residents as a partnership between the developer and a Aged care provider in larger footprint parcels in the western end of the precinct if

demand and development viability exists.

- Student and youth apartments and colleges aligned with Universities that benefit from the site's public transport connectivity to Footscray and the sites direct interface with the Federation trail, linking the facility to the CBD and University sector in the northern City Fringe (i.e. University of Melbourne, RMIT, Monash University – School of Pharmacy, VU and Kangan Docklands.)
- Serviced apartments to allow for visitors (leisure, business) to stay in Yarraville as a centre for access to the large local business and logistics infrastructure in the region. It becomes a more vibrant retail and commercial hub offering excellent accessibility to the City and Airport. Ideally such a building should be located with a Bell Street exposure.
- Home-offices with links to a small business support services: This concept is well suited to an Activity Centre location given that it provides a suitable interface between commercial and residential users, and also support the emerging apparent attractiveness of this area for professional and creative arts sectors.
- It is envisaged that of all the new housing stock within the activity centre, 5% will target affordable housing through Community Housing Agencies and related entities and 95% will be developed by the private sector(some of this will also target affordable products). It is anticipated that over 1,000 dwellings could be provided within the site. This equates to over 50 community housing units within the town centre area where high needs and synergies with key place attributes exist for:
 - Young singles
 - Older persons
 - Small families
 - Large family accommodation
- Housing Choices Australia (HCA) and Port Phillip Housing Limited (PPHA) are the chosen preferred specialist community housing partners for partnership investigation. Both have a proven track record of both development and partnership with the private sector as well as ongoing management. Housing will be predominantly focused on the needs of smaller households with a particular focus on:
 - Older persons housing.

- Housing for single persons.
- Households with low car usage. The competing demands between traders and some household types for car-parking also establish opportunities for household types with lower car-parking needs. Household profiles which fit this category include older persons, student accommodation and smaller household(particularly those from lower income families).
- Those eligible for OOH waiting list for Public Housing.
- Households of high need with long local associations.

12.2.2 Assessment Criteria For Determining Housing Priorities And Choices

Assessment Criteria

The locations of housing types should seek to maximise convenience and proximity whilst minimising occupancy costs and hence have regard to the unique strengths of each neighbourhood.

Zone 1

The western Precinct will be primarily developed for attached and semi attached housing for families. Potential exists for promotion of private sector engagement in delivery of affordable rental stock through new Federal Government initiatives and for housing for downsizing families Larger footprint sits to the western end of the spine may be suitable for specialist aging-in place housing operated by the private of MNFD sector.

The Yarraville Gardens NAC precinct is the most compromised location for private car ownership. It will also exhibit the most vibrant 24/7 characteristics owing to its retail and hospitality activity and regional library service. The location offers convenient and safe access to a range of bus, bicycle and walking regional networks via new generously scaled public spaces. Affordable housing in this context should target groups with low parking demand such as student housing, rooming-house accommodation, agedcare housing, serviced-apartment accommodation and housing for singles. The large ground floor footprints of neighbourhood supermarkets and retail provide considerable opportunities for significant long-term discounted rental accommodation. Higher density apartment style development over ground floor commercial activity will predominate in this precinct.

Zone 2

This area enjoys proximity to the recreation precinct of McIvor Reserve and

the proposed NAC and would support single and two person households and some home office at lower levels.

Opportunities exist to deliver diverse housing choices in this location for households who have generally low levels of car ownership and whose quality of life might be enhanced through proximity to central area activity and community facilities as well as regional open space such as the aged, the disabled, singles, students and small family households. In addition, the location can also serve to provide an attractive location for affordable private sector housing offering as it does a high level of amenity and convenience. Opportunities may also exist for home/studio premises for household groups such as start-up and small businesses that might benefit from larger pedestrian volumes along secondary streets.

Zone 3

This interface provides for terrace housing stock. This suggests there are particular synergies for family households.

Refer to Figure 100 for further detail.

Sources of Funding

The sources of funding will influence the nature of housing and the timing and order of development within the precinct and hence needs to be established as early as possible a Key funding partners to invite into discussions early in the process will be:

- State Agencies: OoH and DHS
- Local Government: City of Maribyrnong

Potential partners with housing needs and investment capacity including:

- Local tertiary institutions.
- aging-in-place operators.





Federal Government: Department of Families, Housing, Community Services and Indigenous Affairs under their recent initiatives including, specialist programs such as homeless and disability initiatives

Community Housing Groups: HCA and PPHA

Specialist housing providers such as serviced apartment operators and











Figure 101. Indicative Construction Management Plan

13.1 Policy Context

In accordance with Schedule 7 to the Development Plan Overlay, a Construction Management Plan has been prepared to detail how the development of the land will be managed to ensure the amenity of the nearby area is not detrimentally affected. This plan is provided within Volume

13.2 Construction Management Plan

The Construction Management Plan identifies potential construction and environmental issues for the proposed Bradmill Precinct development. These identified issues need to be managed so as not to adversely affect the amenity of the surrounding area.

The following items have been identified as having a potential significant environmental affect at the site:

- Noise;
- Dust;
- Waste;
- Flora and Fauna; and

Each item is assigned a risk level ranging from low to high and associated mitigation measures are proposed and documented diagrammatically on the Construction Management Plan.

The Construction Management Plan is to be used as a base for the site Contractor to provide details of their specific construction and environmental management measures to be adopted in relation to the Works. It is to be updated at each project stage as design proceeds, up until and including construction.

The Construction Management Plan provided at **Figure 101** is a base template for the project that will be refined for each stage of construction.

13. Construction Management Plan

Construction Site Management;

Erosion and Sediment Control;

Use of historical chemicals on site;

Archaeological and Heritage.

Tract

Tract Town Planners Urban Designers Landscape Architects

It is critical that as part of this refinement process the Construction Management Plan has input from the works contractor for it to be an effective working document.

As the appointment of a contractor is some way off it is difficult to provide definitive answers for all of the items raised within DPO7. In saying this, Cardno has provided the following advice into the following matters:

Traffic Management

For each stage of the works the contractor will be required to prepare a detailed, standalone Traffic Management Plan that will address traffic management issues including routes for construction vehicles, site access, parking, road closures etc.

Francis Street will be the primary external route for construction vehicles. VicRoads and Council approval to the TMP for each stage will be required.

Crane Locations

It is not expected that cranes will be required for the general subdivisional construction activities proposed on site. Cranes are more likely to be utilised in the construction of the shopping centre and redevelopment of the existing heritage buildings, however their locations will be depend on the builders requirements which at this stage are difficult to predict.

Tree Protection Methods

Trees to be protected will typically be fenced at the canopy line to prevent activities such as vehicle access, material storage and works within the critical root zone.

Redirection of Services

Details of existing authority services in the vicinity of the site have been obtained via the Melbourne One Call system. Existing private services within the site will be identified by a detailed site audit. Where the works impact upon the existing services, their redirection or removal will be managed as a part of the process.

Contaminated Land

The procedures for dealing with contaminated land will be specifically addressed as a part of the environmental audit process. It is anticipated that any contamination will be managed prior to subdivisional works commencing to minimise any interaction between construction works and

contamination.

Where this is not possible, the requirements for working with contaminated land will be specifically documented as a part of the works package.

Site Night Lighting

Working hours on site will be typically during daylight hours with low level security lighting only overnight. Should occasions arise where stronger lighting be required then this will be suitably baffled to minimise any adverse impact on surrounding residents and activities.

The Indicative Construction Management Plan is illustrated at Figure 100.

















Source: MGS Architects (October, 2011)

The development will offer a vibrant and sustainable residential community that will integrate with the existing urban environment.

The Bradmill Precinct will also provide community benefits in addition to residential, retail, and commercial facilities. A significant green space in the centre of the site adds to the network of open space in the neighbourhood and improves pedestrian and cycle networks. Community facilities will add to the diversity of activity on the site whilst ongoing employment associated with the activity centre has the potential to provide direct community benefit.

The land represents a significant opportunity for infill development of a mixed nature comprising residential, retail, and open space activities that will provide a unique neighbourhood identity.

The development of the Bradmill Precinct is consistent with State and Local Government Policy which supports the revitalisation of strategic redevelopment sites and urban consolidation.

Development in accordance with this Development Plan ensures that the potential of the site is realised in a manner which respects the existing character of the area whilst setting a new benchmark for infill development.