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Image: Adaptation of heritage industrial buildings integrated with a new public plaza looking west from Public Plaza.

PTW 01 Executive Summary

This urban design report has been prepared by PTW Architects for Dyldam. It describes the urban vision for the redevelopment of the former Bond's Industrial site at Pendle Hill and includes site analysis, an appreciation of urban development and a proposed revised masterplan. Also included in this document are indicative built form controls, public domain interface controls, a landscape strategy for the public open spaces and floor space areas, together with a comparative analysis of the previous masterplan for the site.

Informing this urban design report in support for the revised masterplan of the Former Bond's Industrial Site at 190-192 Dunmore Road, Pendle Hill, is an analysis of the site and surrounding urban context.

This important unfragmented 8ha site is strategically located in close proximity to Pendle Hill railway station and Pendle Hill commercial strip. Pendle Hill, Darcy Road and Girraween Public Schools are all within a 15minute walk from the site. Also nearby are a number of district open spaces and recreational uses.

We confirm that in our professional opinion the proposed masterplan is capable of achieving the intent of the design principles set out in State Environmental Planning Policy 65 - Design Quality of Residential Flat Development.

The benefits of the revised masterplan considers the following:

- provides significant public open space to the north of the site;
- integrates built industrial heritage with an active mixed-use community precinct;
- allows views and vistas into and across the site;
- retains existing vegetation strips;
- provides pedestrian connections across the site
- allows links with nearby Pendle Hill Station;
- creates a new residential precinct of streets and landscape corridors; and
- relocates taller buildings into the centre of the site with a reduced impact to adjoining properties through a reduction in building height.



Image: New public open space looking north.

Regional Context

The site is located 4 km from the City of Parramatta within the suburb of Pendle Hill. Parramatta City is identified by the Metropolitan Strategy as Sydney's second CBD and has been planned for significant commercial and housing growth. Pendle hill and Wentworthville are strategically important and will experience growth in the demand for more housing due to their proximity to Parramatta City.

The position of this site affords easterly views of vegetated ridge lines to Westmead and Parrramatta beyond.

The local urban context illustrated: Top Left: Pendle Hill railway station

(image by PTW)

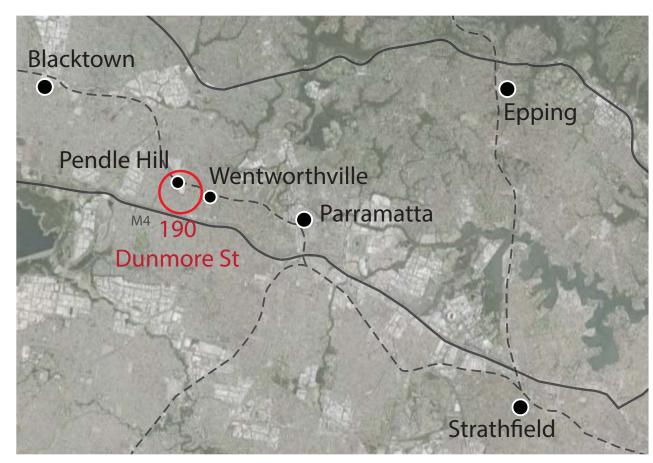
Top Right Middle: Mid-rise residential apartments, Dunmore Street (image by Google Street View)

Top Right: Low rise retirement uses within residential form, the Churches of Christ Retirement Village

(image by Google Street View)

Lower Left: Free standing Dunmore House (image by Google Street View)
Lower Middle: Low rise free-standing suburban pattern to Jones and Rogers Streets
(image by PTW)

Lower Right: Low rise free-standing suburban pattern to Rowley Street (image by Google Street View)















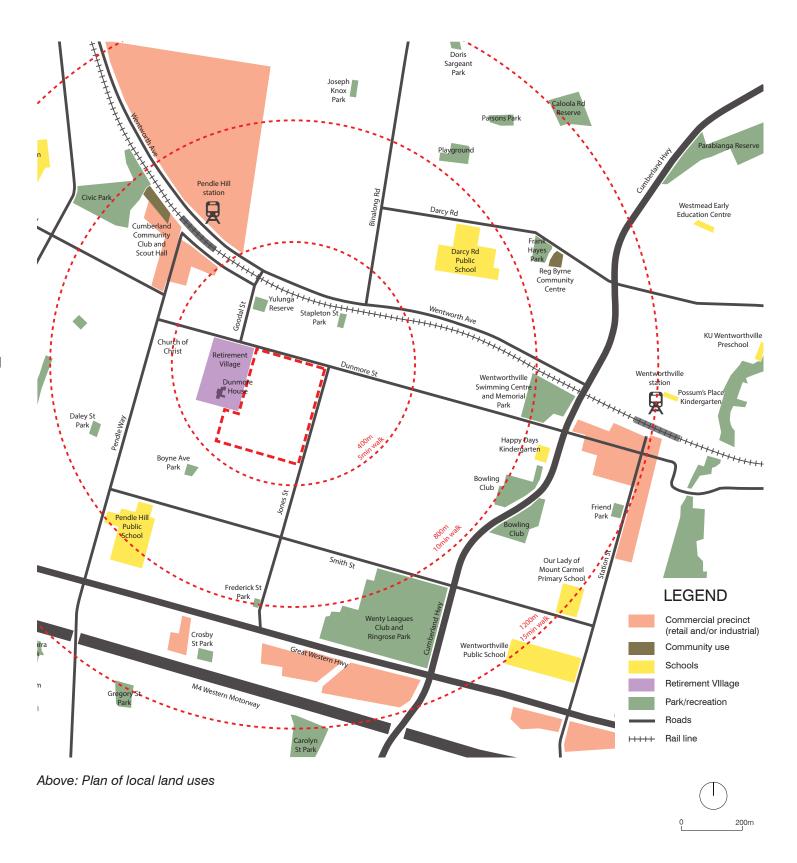
Local Urban Context and Street Network

The study area is a large unfragmented site under single ownership with a total site area of almost 8 hectares. The site is located 4 km from the City of Parramatta within the suburb of Pendle Hill.

The site is bounded by Dunmore Street to the north, Jones Street to the east, residential properties to the south and Dunmore House (with associated retirement village) to the west. The primary urban address is off Dunmore Street while a secondary address with additional vehicle entries, is available off Jones Street.

The urban character of the locality consists of low to medium rise residential buildings. To the north, and closer to Pendle Hill Railway Station, are taller apartments while to the east and south are low-rise free standing residential properties. Within the property containing Dunmore House are a number of low-rise free standing residential buildings for aged care uses within an open landscape of the Churches of Christ Retirement Village.

This is currently a private site with no public access. The site is edged by Dunmore Street to the north and Jones street to the east. The surrounding street network is generally set out on a grid pattern with large street blocks.



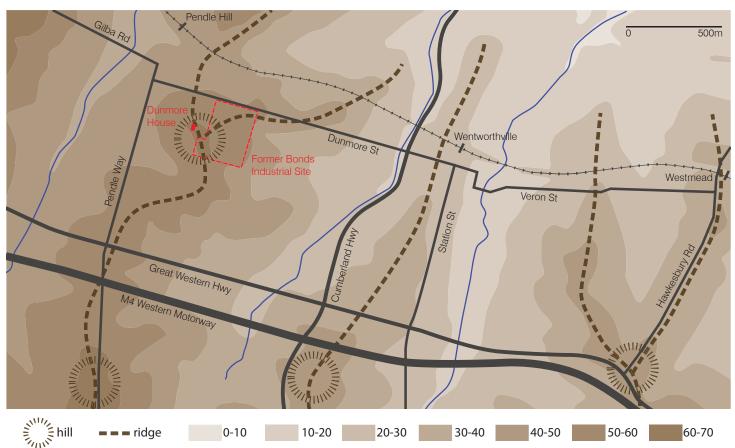
Land form

The topography of the local area has resulted in a grid pattern of streets roughly aligned to the creek lines and ridges. While Dunmore Street follows a northeast spur before it dips to cross a channelised drainage line at Wentworthville, Jones Street roughly follows a contour line. The area is characterised by long streets of varying widths; with the roadways of more recent subdivisions being the narrowest. Nearby, the Western Railway Line, Cumberland Highway and Great Western Highway cut across this urban pattern and undulation landscape.

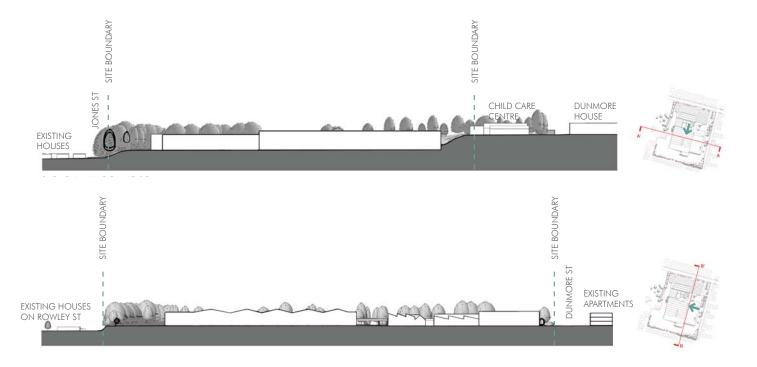
This large and unfragmented site on elevated ground has been benched to meet the requirements of former industrial uses. This has presented significant grades and vegetated earth banks to the eastern boundary edge (facing Jones Street) and southern boundary edge (facing adjoining freestanding residential uses.



Above: image identifying the existing industrial buildings and vegetation strips (diagram by RobertsDay)



Above: Diagram identifying the relationship between land form and roadway network



Above: Site Sections identifying the relationship at each property boundary (diagram by RobertsDay)

Site Features and Neighbourhood Character

The site has frontages to the north and east off Dunmore and Jones Streets. To each street are secured entries. Besides being within walking distance of Pendle Hill Railway Station, the site is served by a number of privately operated bus routes.

The site, with a slope from the west to the east, is now greatly benched. The highest point of the site, along the western boundary is part of a prominent hill on which Dunmore House is located. The greatest level change occurs along the eastern and southern boundaries where these embankments are now vegetated with native plantings. This vegetation provides and effective screen and are recommended for retention.

The urban neighbourhood character of the site is defined by its streetscapes, consisting of:

Dunmore and Goodall Streets: local streets which link Pendle Hill with Wentworthville and containing a range of residential buildings from apartments, retirement homes and single free-standing residences;

Jones Street: a wide residential street with single free - standing residences; and

Collins and Rowley Streets: narrower residential streets with free-standing residences.



Adjoining streetscape character:
Far Left: Dunmore Street (image by Google Street View)
Far Right: Jones Street (image by Google Street View)
Bottom Left: Stapleton Street (image by Google Street View)
Bottom Right: Collins Street (image by Google Street View)









Heritage Features

The site contains a range of low-rise and large foot print industrial buildings with the earliest of these dating from the 1930s. It is recommended that a number of these former industrial buildings be retained and adaptively reused.

Under the proposed masterplan a number of significant buildings are to be retained and integrated into the development. These are:

- 1. former Administration and Fabric Store (photograph of parapet detail at entrance by PTW)
- 2. former Cutting Room (photograph of interior by PTW)
- 3. consideration of the Dunmore House view line into the site (photograph courtesy of RobertsDay)
- 4. former Store / First Aid and Boiler House (photograph of former internal street by PTW)
- 5. former Cafeteria Dance Hall (photograph of southern face by PTW)
- 6. former Old Bale Stores and Compressor Room (photograph by PTW)



Development Opportunities and Constraints

The **opportunities** for the redevelopment of the site are:

- A large unfragmented site which is capable of supporting higher built form
- Provision of new public open spaces for community uses
- The creation of a new residential precinct
- Opportunity to integrate with adjoining streetscape
- Proximity to Pendle Hill and Wentworthville railway stations
- Proximity to employment areas of Parramatta and Westmead
- Served by local bus routes
- A northerly orientation promotes solar access
- Elevated ground with views towards the east
- Two street frontages with an opportunity for a public through site connections
- Opportunity for the adaptation of a number of historic industrial buildings
- Retain existing vegetated strips along the northern, eastern and southern boundaries

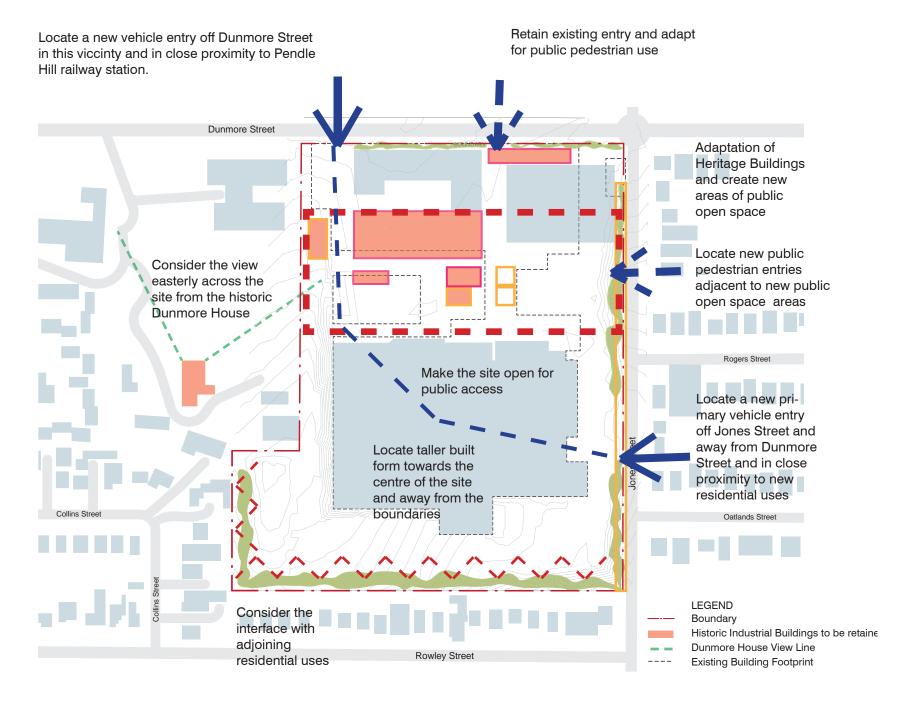
The **constraints** for redevelopment of the site are:

The location of higher density built form which respects the industrial heritage items. The resultant location will be restricted to the southern and middle sections of the site.

Existing land form and benching across the site with steep banks to the western and southern boundaries. The significant grades and benching of the site requires consideration of the cut and fill.

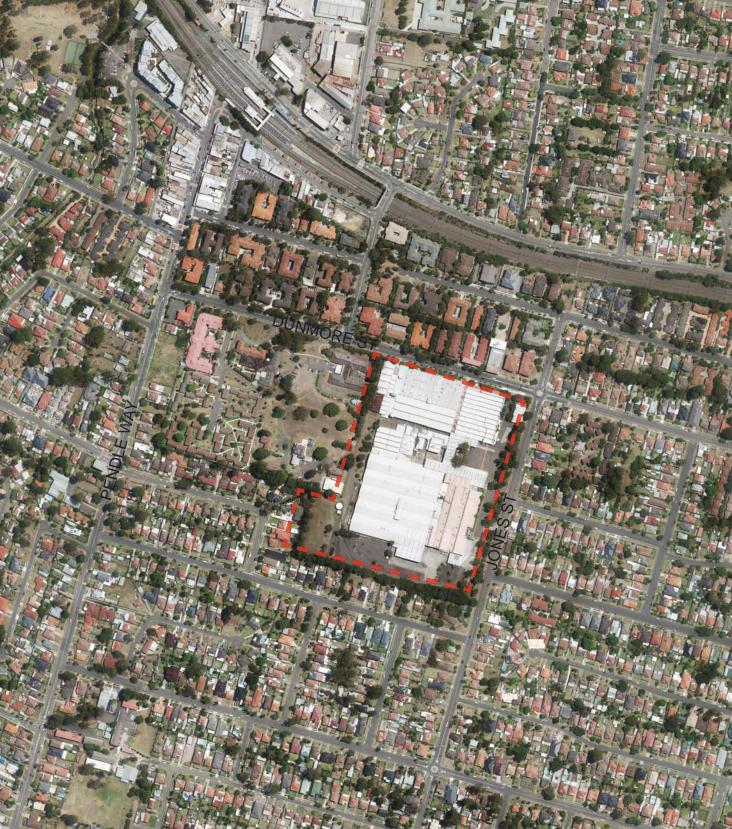
Adjust the built form and interface along the southern edge of the site to ensure solar access to the adjoining residential uses.

The integration of the Dunmore House view lines towards the north-east across the site.



Evolution of the Site from the 1940s to the present





PTW 03 Vision Statement

This site will become an important part of the local community through the provision of new open space integrated with a new mixed-use community precinct. In the redevelopment of the Former Bond's Industrial Site, a valuable community asset is to be realised with many historic elements being celebrated for new community uses.

Consideration has been given to providing new residential uses across the site with the integration of new community uses to the north of the site off Dunmore Street in association with the historic buildings and open space area. New roadways and pathways will provide access across the site and facilitate easy access to nearby Pendle Hill Railway Station.

Modulated taller built form is provided within the centre of the site and will be step in height towards the boundaries. New built form is to align roughly north south in the consideration of correct solar orientation and will be designed to contribute to an active public domain.



Image: New public open space looking north.



Image: New public open space looking east.

PTW 04 Masterplan Strategy

EXISTING SITE



Concept Development:

The former Bond's industrial site is a large unfragmented industrial site that is out of character within its surrounding residential context.

It is now unsuitable for industrial uses. Many buildings are vacant and falling into disrepair

It is private property with no public access.

Provides little to no benefit to the local community

HERITAGE RETENTION AND PUBLIC OPEN SPACE



Retain heritage buildings and integrate these with a new community public open space area. The heritage buildings to be retained are:

- 2a Administration building
- 2b The Dance Hall
- 2c Cutting Room
- 2d Cotton Bale Room
- 2e John Austin Centre
- 2f Boiler Room

Adaptively reuse these heritage buildings. Integrate new open space links between areas of new residential development with the new community open space area. Consider the stepping of built form as a transition to adjoining residential uses along the southern boundary.

LANDSCAPE RETENTION AND ACCESS LINKS



Most of existing trees along the site boundary are to be retained and integrated into new public and communal open spaces. Existing landscape features along the boundary edges will improve and soften the appearance of the development site and provide a screened buffer to surrounding residential uses. New public access linkages will make the site permeable and give urban address to new residential uses.

Summary

In summary the revised Masterplan will provide:

- New community open space
- A permeable and publicly accessible site with new roads and pedestrian pathways
- Green links providing access and amenity to new residential areas
- The adaptation of industrial heritage buildings in a new community area
- Overall (Average) site FSR of 1.9:1
- Building envelopes providing up to 1,640 dwellings
- 6,000 approx sqm of non-residential uses



The Concept Masterplan



Open Space Structure

Dance Hall Garden



New Public Plaza

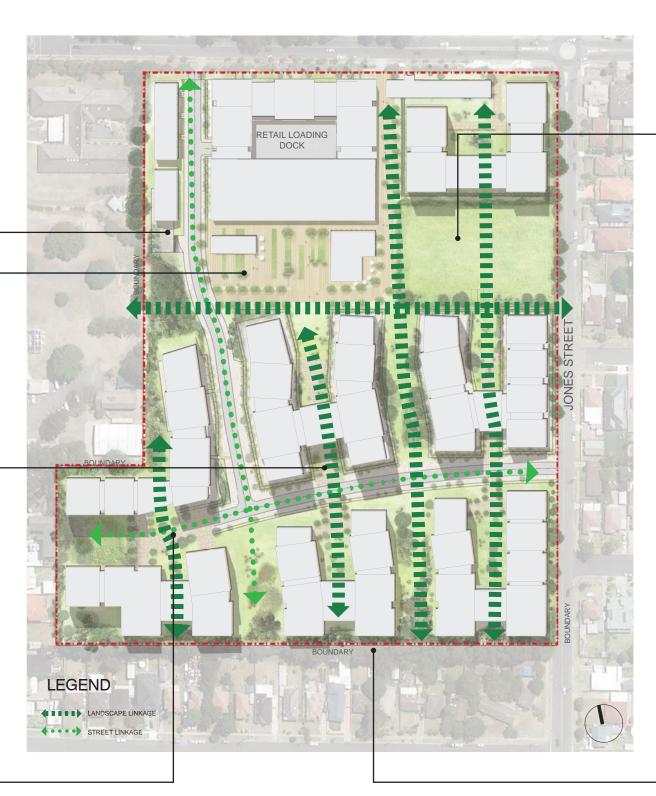


Communal Open Space



Landscaped Streets





Multi-Use Public Park



A series of active and passive public open spaces are located next to retained heritage buildings to give greater public focus to a new mixed use precinct.

'Green corridors' will provide linkages to the new urban core and public open spaces.

Within the open space areas, new amenities to local community and residents, such as playgrounds, gardens outdoor seating and BBQ facilities, will be provided.

3.39 hectares (42.6%) of the site is proposed for new open space including:

- Multi-use public park (5,310 sqm)
 Public plaza (6,190sqm)
 Smaller pocket parks located within the southern residential area (13,630 sqm); and
- Landscaped streets
- Communal courtyards

Buffer to adjacent properties



Open Space Analysis

Open Space Summary

Site Area: 79,646 sqm

Total Public Open Space: 31.54%

Total Community Open Space and Public Open Spaces: 42.6%



Communal Open Space Diagram





Public Open Space Diagram

PUBLIC OPEN SPACE 25,120 sqm

MULTI-USE PUBLIC PARK 5,310 sqm

PUBLIC PLAZA 6,190 sqm

POCKET PARKS 13,620 sqm
THROUGH SITE LINKS

Open Space Analysis



Private Gardens & Terraces





Deep Soil Diagram

REQUIRED (DCP) 25% 19,991 sqm

PROVIDED 27% 21,830 sqm

HERITAGE BUILDINGS

OUTLINE OF PROPOSED BASEMENT VEHICLE PARKING AREAS

DEEP SOIL AREA

Site Heritage

Provide public access to allow the community to appreciate the quality of the heritage buildings and provide insight to the site history.

Sympathetically adapt and reuse former industrial buildings as part of a mixed-use community precinct.

Integrate industrial archaeology within the public domain and public open space areas to give greater meaning - as an integrated heritage trail across the development site.

Integrate heritage interpretation into public open space such as information signage and public artwork to provide visitors a time line highlighting important events and characters from the site history.

Provide a public art strategy to interpret the former industrial use and the history of bonds.

LEGEND

2A: ADMINISTRATION & FABRIC STORE

2B: CAFETERIA (DANCE HALL)

2C: CUTTING ROOM

2D: OLD BALE STORES & COMPRESSOR ROOM

2E: STORE & FIRST AID (JOHN AUSTIN CENTRE)

2F: BOILER HOUSE

HERITAGE BUILDING

HERITAGE INDUSTRIAL 'SCULPTURE'





Image: New public open space looking north.



Image: Adaptation of heritage industrial buildings integrated with a new public plaza.

Development outcomes

The redevelopment of the Former Bonds Industrial site as a new residential neighbourhood, the site will incorporate an activated public domain and mixed use heritage precinct. Adaptive reuse of heritage buildings for non-residential uses such as retail, local services, medical uses, supermarket, community and indoor recreational uses are considered an important part in ensuring a vital community and promoting community appreciation of the site's unique heritage qualities.

Total Site area = 79,646 sqm Residential GFA = 143,982 sqm Non-Residential GFA = 6,000sqm Overall (Average) FSR = 1.9:1

The proposed building envelopes could support up to 1,640 dwellings based on an efficiency of 85% and unit mix of 20% one bedroom, 70% two bedroom and 10% three bedroom in accordance with SEPP65 apartment sizes.

Note: Calculation of apartment numbers is indicative and will be confirmed at the detailed design.

Up to 6,000 sqm of non-residential uses may be provided within the retained heritage buildings through adaptation and may provide opportunities for mixed uses such as commercial/retail, local services (i.E. Medical uses), supermarket, community and recreational uses.

Provide a public art strategy to interpret the former industrial use and the history of bonds.

LEGEND

- 1. APARTMENT BUILDING
- 2. HERITAGE BUILDINGS TO BE RETAINED
- 2A: ADMINISTRATION & FABRIC STORE
- 2B: CAFETERIA (DANCE HALL)
- 2C: CUTTING ROOM
- 2D: OLD BALE STORES & COMPRESSOR ROOM
- 2E: STORE & FIRST AID (JOHN AUSTIN CENTRE)
- 2F: BOILER HOUSE
- 3. COMMUNAL OPEN SPACE AND ROOF TOP GARDENS
- 4. PUBLIC OPEN SPACE
- 5. PUBLIC PLAZA
- HERITAGE INDUSTRIAL 'SCULPTURE'



Access Linkages and On-site Vehicle Parking

Provide a road network that opens the site to the community and provides:

Access to new public open spaces and community facilities.

Promote site permeability through the creation of vehicular, cyclist and pedestrian links to Pendle Hill railway station.

Activate the heritage buildings within a public plaza area.

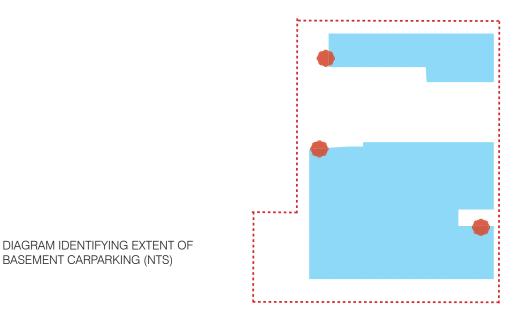
_Conceal car parking and vehicle movements within an underground basement. (Two basement areas are likely to be provided)

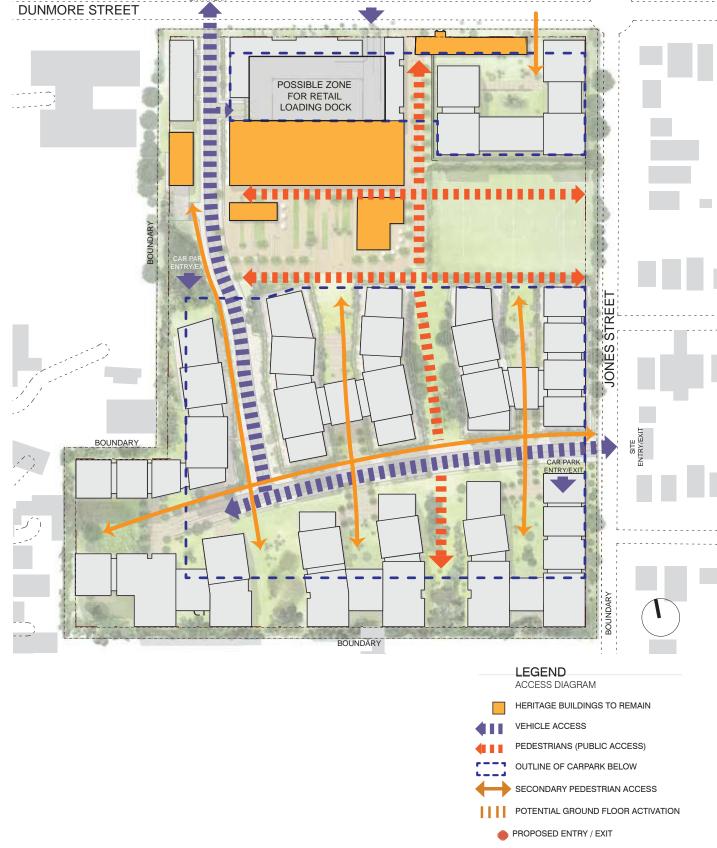
_Give clarity through a hierarchy of access.

_Provide two way public roads with potential for provision of on-street parking within the development.

The concept masterplan provides the following parking: Residential parking: 1,700 spaces (1 per dwelling) Visitor parking: 340 spaces (1 per 5 dwellings) Retail parking: 140 spaces (1 per 44sqm GFA)

Please note that parking numbers are indicative only. The basement design and layout will be confirmed at the DA stage.





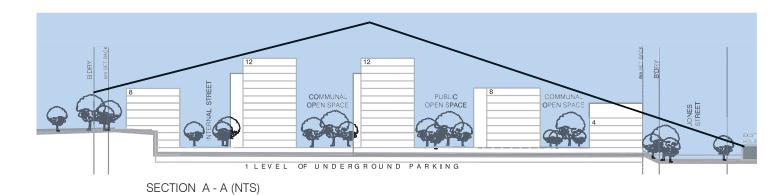
Building Height

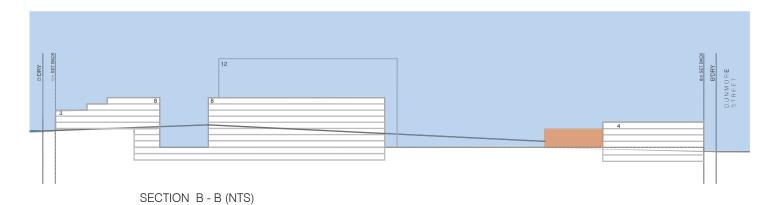
Provide a distribution of building height with maximum height at the centre of the site.

Step building height at the boundary to reduce shadow impact to adjoining properties.

Selectively increase height to corner elements to highlight gateway to the development.

Integrate new basement parking with existing benched levels and create new landscaped communal open space areas.









Gateways and Built Form

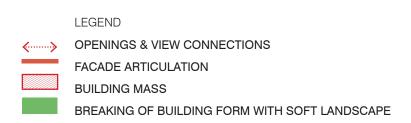
Provide new public domain and built form elements to spatially frame new urban entries

Provide modulation in built form with more landscape elements to the eastern and southern edges of the site

Through the stepping of built form, reduce the bulk and scale of new development as an appropriate transition with the adjoining suburban areas. Refer to image below.



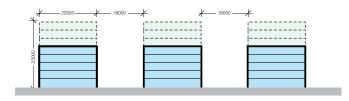
Concept Image of stepped built form to the southern boundary.

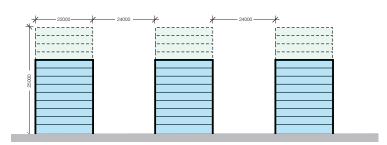




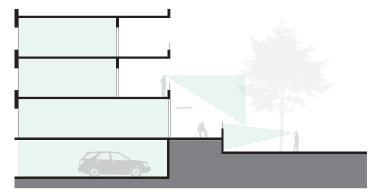
Building Separation, Depth and Width Response







BUILDING SEPARATION REQUIREMENT Resource: ADG



PRIVACY AND SURVEILLANCE Resource: ADG



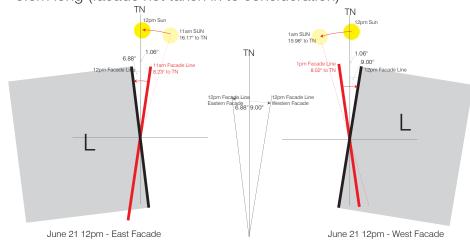
Building Geometry

For June 21 key times and angles

Angle the residential facade to the proposed development to achieve 1sqm of winter sunlight in a living room 3.8M long.

(Articulation of facade not taken into consideration)

Angles of Facades Required to Achieve 1sqm in a living room 3.8m long (facade not taken in to consideration)





Solar Access and Building Cross Ventilation

Provide a clarity of entry and street address so that each residential building have visible street entries which relate to each lift core.

Orientate each apartment to enable improved solar access and outlook.

Achieve cross ventilation through a mixture of dual aspect apartments, corner apartments and cross-through apartments.

LEGEND





PUBLIC OPEN SPACE AREAS WITH ADEQUATE SOLAR ACCESS



Masterplan Statement

The following nine principles underpin the revised masterplan concept:

1: Context and Neighbourhood Character

The site is an 8Ha former industrial precinct in single ownership, surrounded entirely by residential uses of varying scales. It is 400m from a train station and town centre which is two stations from the Parramatta CBD – Sydney's second CBD.

The revised masterplan responds to its context by increasing its permeability through the formerly gated and private property site. The built form responds to the site's edges and interface with surrounding residential areas, whilst massing of the built form increases towards the centre to best utilise the site. Existing landscaping is maintained and embellished at the site edges.

The site contributes to its surrounds by providing additional open space (recognised as being in short supply), community and retail opportunities to benefit future residents and those surrounding. Importantly, the site's significant heritage buildings are integrated into the new public domain and are opened up to the wider Holroyd LGA community to cherish and celebrate.

Principle 2: Built Form and Scale

The site is located within an evolving urban area proximate Sydney's second CBD and geographic heart of metropolitan Sydney. It is considered that, being proximate to a heavy rail node, housing stock is likely to change over the short to medium term. The proposed urban form is consistent with state and local government policies on the location of denser, urban infill development close to transport and employment areas.

The revised masterplan proposal has responded better to the scale of the surrounding area by locating building mass to the centre of the site, away from adjacent existing residential areas and important heritage items to mitigate potential impacts.

The revised masterplan concept has aligned buildings in a north-south arrangement that allows greater solar access, site permeability and open space. It reflects the linear built form of the existing street grid and allows better accessibility for surrounding residents travelling into and through the site.

The revised masterplan concept provides strong built edge with northern facing units fronting the main open space and public plaza focussing around the maintained heritage items. Further, the north-south building alignment allows views through the site to these key community facilities creating further amenity for all residents and site users.

Principle 3: Density

The revised masterplan concept provides a higher level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context. The current concept allows for up to 1,640 units which is considered appropriate and consistent with the area's projected population mindful of its location proximate to Parramatta CBD. Importantly, the proposal is supportable in terms of environmental impacts.

The provision of a greater level of open space, as well as community facilities and renewal and activation of significant heritage items further support the densification of the 8ha former industrial site.

In addition, the principles of transit orientated development (TOD) also apply, as reflected in State Government planning policy of the '30 minute city' whereby increased housing densities are provided in closer accessibility to employment, recreation, health and education facilities.

Principle 4: Sustainability

The revised concept includes the adaptive reuse of existing heritage items on the site, combining it with community and other facilities following engagement with stakeholders. Existing vegetation is maintained and augmented, as well as increased deep soil zones for groundwater permeability. The reduced building footprint compared to the existing industrial buildings and the provision of open space provides opportunities for storm-water management. The revised scheme provides better opportunity for natural cross ventilation of buildings and significantly increases sunlight access to units through the provision of more slender, north-south building forms.

The development will seek to recycle and reuse materials and waste throughout the construction process and use sustainable materials where possible.

Principle 5: Landscape

The design recognises the interaction of the landscape and buildings through providing external facing aspects to all units within the development to increase amenity for all users. The north-south open space linkages will provide landscaped ribbons through the development, providing amenity to dwelling occupants and pedestrians/cyclists alike. The building alignment will also allow greater passive surveillance and therefore encourage greater use of these spaces.

The revised concept proposes greater areas of open space as well as increased deep soil areas and therefore opportunities for landscaping and significant tree planting.

The proposal retains the majority of existing trees on the site, particularly edge trees that have a screening function to maintain privacy for adjacent residences.

Principle 6: Amenity

The revised masterplan proposal provides a greater level of amenity for both building occupants and ground level users – in addition to carefully considering amenity to adjoining residences.

A better connected and activated central open space provides a focus for the new community adjacent the heritage uses that will house new retail, commercial and community uses. This open space will be complemented by a string of other open spaces and green links connecting them.

A stronger street legibility that is activated by built form encourages greater use. In turn, these streets better activate the re-used heritage buildings for a range of civic uses and will provide a place of pride and delight for the local community to cherish.

The outlook afforded by proposed occupants will be added to through the stepping down of built form, in addition to the prominence of the site at Dunmore Hill. However, importantly, heritage views, particularly the view corridor from Dunmore House, are respected and maintained.

Building separation on the main built elements is increased which results in better solar access.

Principle 7: Safety

The proposed masterplan concept provides a more legible road layout that is activated by the main north-south built form to allow for greater passive surveillance, but also focusses pedestrian and cyclists along a primary route through the site and towards the main civic and open spaces centred on the heritage items. This main civic space is further activated via north facing units overlooking these key public areas and providing passive and active surveillance opportunities.

All north-south public spaces and desire lines through the site are overlooked by the north-south aligned buildings, with the network of public open spaces being connected and well surveyed to encourage use and maintain safety.

The proposal is consistent with Crime Prevention Through Environmental Design (CPTED) and optimises the safety of the public domain.

Principle 8: Housing Diversity and Social Interaction

The opening up of the site to the broader and surrounding community and activity provided within the site through the retail, commercial, public open space and community uses will encourage use and activation as well as social interaction.

The re-use of significant heritage items and associated heritage interpretation throughout the site, in addition to the accessibility to these items will provide opportunities for social interaction among residents and enable a sense of place and pride.

The public open space and features such as playgrounds, community gardens, marketplace plaza and passive recreation areas will be an incredible public benefit to the local community and promote seamless social integration between new residents and the existing community.

A Social Impact Assessment (SIA) has been provided that also analyses the open space requirements for the site that has informed the refinement of the master plan. The SIA makes a series of mitigation measures that will be followed in the concept refinement. Items such as housing diversity will meet DCP and SEPP 65 requirements to provide a development that provides opportunity for a mix of household types, sizes, mix and affordability ranges.

Principle 9: Aesthetics

The revised masterplan concept responds best to the site analysis undertaken, specifically solar orientation, desire lines, level differences and interfaces to the adjoining residential areas. A key driver has been the heritage of the site and ensuring the design responds to, and champions this important aspect of the region's history.

The concept provides the opportunity for a range of architectural expressions, mindful of and complimentary to the heritage aesthetic as well as the palette of materials of the surrounding area.

A key component of the concept has been the retention of the 'height pyramid'. A site of this size (8ha) enables the opportunity to place the main building mass in the centre of the site, whilst scaling the heights down to interface with adjoining residences.

Dunmore Street Interface



Jones Street Interface



PTW 06 Conclusion

PTW Architects and the project team have undertaken extensive urban design analysis to consider revision to the masterplan for the redevelopment of the former Bond's Industrial site.

In line with this analysis, this report has concluded that the proposed redevelopment of the site can enhance the character of the site through new public domain with renewed vitality to existing industrial heritage items and a new and distinct residential neighbourhood.

The subject site, as a large parcel of land is unique in Pendle Hill. It presents a great opportunity to provide a holistic development that will deliver a landmark residential development, active uses to the north of the site and a new and improved public domain across the site.

This report has arrived at the proposed built form after careful consideration and thorough analysis of any potential impacts to the surrounding and the site's own amenity. The proposed strategy for the public open space seeks to establish a high quality and sustainable environment for people to work, live and visit. The revised masterplan therefore will provide benefit to the local community through the provision of new open spaces.

Based on the above, PTW Architects recommends the proposed amendments to the applicable statutory controls including zoning, height and FSR controls.



Image: Adaptation of heritage industrial buildings integrated with a new public plaza.

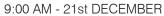
PTW APPENDIX Solar Access Study - December

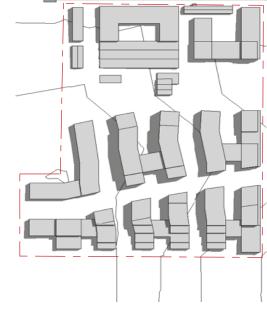
Note:

Building separation on the main built-form elements is increased which results in better solar access within the development.

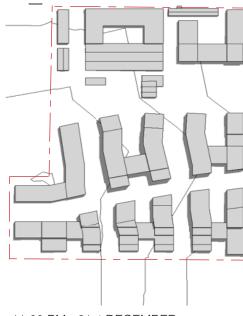
Stepped built form to the southern boundary edge considers the mitigation of overshadowing to adjoining properties. The solar access studies on the following pages demonstrate overshadowing to be less than 50% of the open space area within these properties between 9.00 and 15.00 during the Winter Solstice.





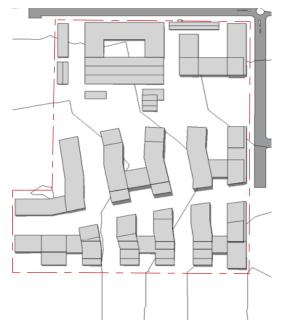


10:00 PM - 21st DECEMBER

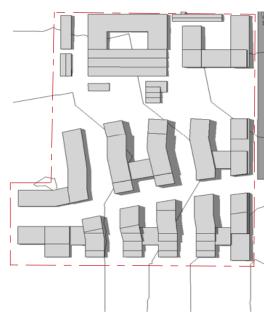


11:00 PM - 21st DECEMBER

Summer Solstice - proposed masterplan



12:00 PM - 21st DECEMBER



13.00 PM - 21st DECEMBER



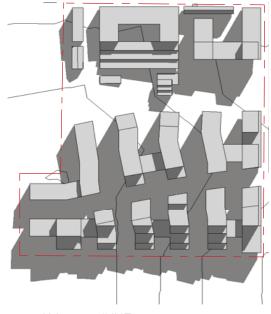
14:00 PM - 21st DECEMBER

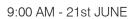


15:00 PM - 21st DECEMBER

Solar Access Studies are NTS

PTW APPENDIX Solar Access Study - June



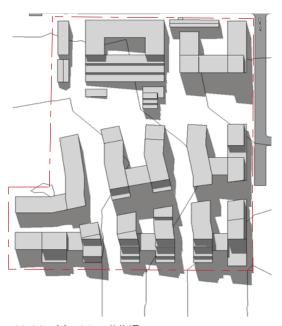


10:00 AM - 21st JUNE

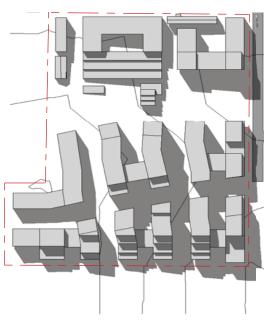


11:00 AM - 21st JUNE

Winter Solstice - proposed masterplan



12:00 pM - 21st JUNE 13:00 AM - 21st JUNE

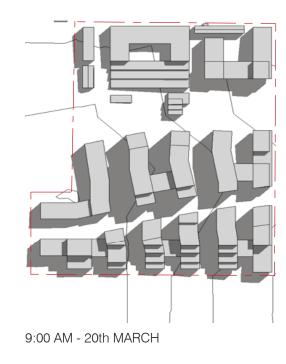


14:00 PM - 21st JUNE

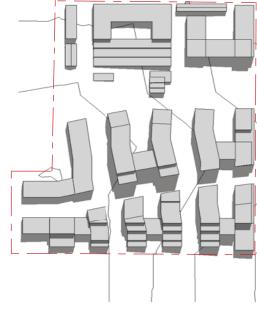


Solar Access Studies are NTS

PTW APPENDIX Solar Access Study - March

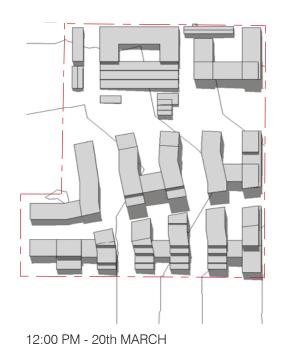


10:00 AM - 20th MARCH



11:00 AM - 20th MARCH

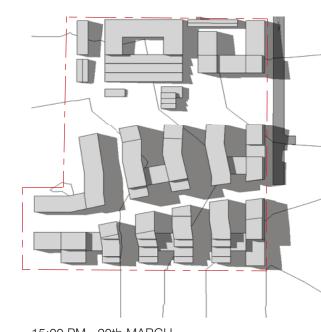
Autumn - proposed masterplan



13:00 PM - 20th MARCH



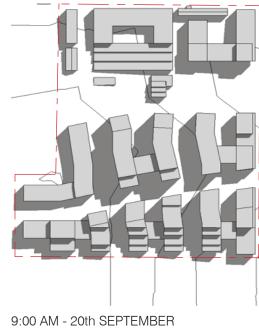
14:00 PM - 20th MARCH



15:00 PM - 20th MARCH

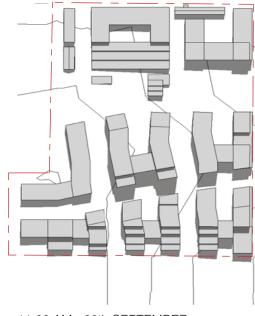
Solar Access Studies are NTS

PTW APPENDIX **Solar Access Study - September**



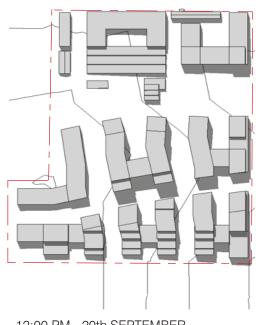


10:00 AM - 20th SEPTEMBER

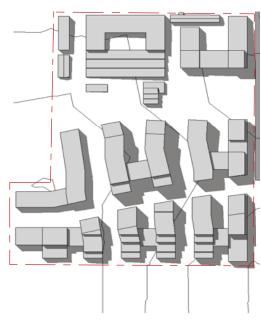


11:00 AM - 20th SEPTEMBER

Spring - proposed masterplan



12:00 PM - 20th SEPTEMBER



13:00 PM - 20th SEPTEMBER



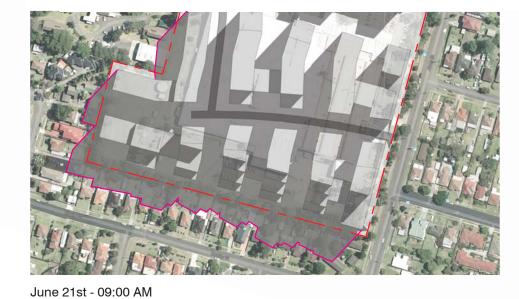
14:00 PM - 20th SEPTEMBER



15:00 PM - 20th SEPTEMBER

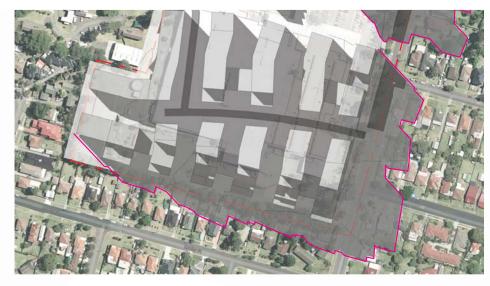
Solar Study to Southern Boundary: Winter

Shadow Line of Proposed Envelope









June 21st - 3:00 PM

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