



Relocation Framework and Methodology Plan

Site Selection, Deconstruction and Relocation of Willow Grove

Infrastructure NSW

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Advisian
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311015-00080: Relocation Framework and Methodology Plan – Site Selection, Deconstruction and Relocation of Willow Grove




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Acronyms and abbreviations

Acronym/abbreviation	Definition
BIM	Building Information Modelling
CMP	Conservation Management Plan
DA	Development Application
EIS	Environmental Impact Statement
ID	Identification
INSW	Infrastructure NSW
Parramatta CBD	Parramatta Central Business District
RFMP	Relocation Framework and Methodology Plan
SEARs	Secretary's Environmental Assessment Requirements

1 Introduction

Advisian Pty Ltd (Advisian) has been engaged by Infrastructure NSW (INSW) to prepare this Relocation Framework and Methodology Plan (RFMP) to satisfy the requirements of Condition B2 in the Development Consent issued on 11 February 2021 for the State Significant Development Application (SSD-10416) for the construction and operation of the Powerhouse Parramatta located in the Parramatta Central Business District (Parramatta CBD).

Condition B2 is provided in Table 1-1, with reference to where the requirements are addressed in this RFMP which relates to the site selection, deconstruction and relocation of the heritage item "*Willow Grove (and potential archaeological site)*".

Table 1-1 Condition B2 of the development consent for SSD-10416.

Condition B2	Where Addressed in this RFMP
<p><i>No work shall commence on the deconstruction of Willow Grove until a detailed Relocation Framework and Methodology Plan (RFMP) for the site selection, deconstruction and relocation of Willow Grove is prepared by the Applicant and submitted to and approved by the Planning Secretary. The RFMP must include (but shall not be limited to):</i></p> <p>(a) <i>a detailed outline of the site selection process, development approvals pathways and consultation that will be undertaken to determine a new site for Willow Grove, including the Phillip Street front fence</i></p>	Section 2.
<p>(b) <i>detailed engineering and heritage assessment(s) to determine the methodology for the deconstruction and relocation process, with input from a suitably qualified heritage specialist and/or a heritage engineer for sensitive demolition and relocation works and with reference to the Willow Grove Conservation Management Plan and the Addendum Statement of Heritage Impact prepared by Advisian (October 2020);</i></p>	Section 3.
<p>(c) <i>detailed consideration of the impact and mitigation measures required to avoid and minimise impacts of the deconstruction and relocation process of heritage fabric</i></p>	Section 4.
<p>(d) <i>details regarding the storage of the retained fabric</i></p>	Section 5.
<p>(e) <i>details of the engagement of a suitably qualified heritage specialist to oversee the deconstruction, relocation and reconstruction of Willow Grove. The heritage specialist shall be retained for the duration of the works and shall not be changed without prior written notice and approval of the Planning Secretary.</i></p>	Section 6.

This RFMP has been prepared in consultation with the appointed contractor responsible for the deconstruction and relocation of Willow Grove.

2 Relocation process

This section describes the site selection process, development approvals pathways and consultation that will be undertaken to determine a new site for Willow Grove.

Guidance in relation to the treatment of heritage items is provided within the *Burra Charter* (Australia ICOMOS, 2013): The relocation of a heritage item is described in 'Article 9. Location:'

"9.1 The physical location of a *place* is part of its *cultural significance*. A building, work or other element of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival."

As outlined in the Statement of Heritage Impact for Powerhouse Parramatta (Advisian, 2020), the physical location of Willow Grove is part of its history along with the significant associations and meanings between the local community and the place.

Whilst retention in place is preferable, the State Significant Development Application for Powerhouse Parramatta outlined the reasons why retention of Willow Grove within the Powerhouse site is not possible. This was considered as part of the assessment and the Conditions of Consent for Powerhouse Parramatta confirm approval for the relocation of Willow Grove.

The relocation of Willow Grove will aim to maintain the conservation values of the heritage item, having careful regard to site selection factors such as setting. These factors are described in Section 2.1.

2.1 Site selection process

A range of factors have been considered to guide the site selection process for Willow Grove and to ensure that the conservation values of the heritage item are maintained, as far as practicable.

2.1.1 Site selection factors

Article 9.3 of the *Burra Charter* states that:

"9.3 If any building, work or other element is moved, it should be moved to an appropriate location and given an appropriate *use*. Such action should not be to the detriment of any place of *cultural significance*."

The new site for Willow Grove must assist in retaining heritage significance and allow for appropriate adaptive re-use. The site must:

- allow for an appropriate setting for Willow Grove on sizeable land to accommodate the building, the Phillip Street front fence and landscaped surrounds, similar to existing conditions
- allow for continuous care of the building through access for maintenance and repair
- maintain sufficient curtilage around the building with sympathetic surrounding uses to ensure the surrounds do not detract from its heritage significance

- ensure an appropriate and sympathetic relationship between the built form of the relocated Willow Grove and any existing buildings, structures and spaces on the selected site or adjoining sites
- be located within the Parramatta Local Government Area.

A range of other factors will guide the site selection process for Willow Grove, as described below.

2.1.1.1 Planning

The new site must not be located on land that is subject to natural hazards which may detract from heritage significance in the event of a disaster. Hazards may include flooding or bushfire-prone land. Section 10.7 planning certificates will be obtained to assist in short-listing potential sites, and appropriate consideration will be given to land use zone objectives described in the *Parramatta Local Environmental Plan 2011*.

2.1.1.2 Site attributes

The new site must have an appropriate setting within a publicly accessible location to provide for community benefit through an appropriate adaptive reuse. The setting shall link to other civic facilities in Parramatta including (but not limited to) institutions, key spaces, parks or libraries. The curtilage at the new site shall enable sufficient space for plantings, landscaping and the Phillip Street front fence as a form of historical interpretation of the previous setting.

The landform at the new site must permit an appropriate use for Willow Grove. For these purposes, it is considered that flat, vegetated ground with minimal rocky outcrops would be preferred. Vegetation clearing at the new site may be required to accommodate the building and its landscaped setting.

Desirable attributes for the new site that will be considered include:

- the visual catchment at the new site including views to other local places and streetscapes in Parramatta and the Parramatta River
- location near other buildings with similar historical uses to Willow Grove in the Parramatta Local Government Area.

2.1.1.3 Accessibility

The new site must be within a publicly accessible location to provide an ongoing opportunity for the community to experience and appreciate the heritage significance of Willow Grove, particularly through an appropriate adaptive reuse.

2.1.1.4 Ownership

All appropriate sites will be considered regardless of existing ownership. However, priority may be given to sites under NSW Government ownership as this may ensure that transfer can occur within a timely manner to permit the reconstruction of Willow Grove.

2.1.1.5 Potential future uses

The new site will provide for an appropriate use such as an adaptive re-use. It is recommended that an appropriate use is considered as part of the site short-listing process in consultation with the community and stakeholders. The use must respect the heritage significance of Willow Grove.

2.1.1.6 Management requirements

The new site, including Willow Grove, will be managed by the owner. The owner will be responsible for the continuous care of the place such as through maintenance and repair.

2.2 Development approvals pathways

The reconstruction of Willow Grove at the new site and its future uses are expected to require the submission of a Development Application(s) (DA) and accompanying assessments to the City of Parramatta Council for planning approval. It is expected that the DA package will include:

- Statement of Environmental Effects (SEE)
- architectural and landscape drawings
- design report
- Statement of Heritage Impact (SoHI)
- site assessments such as geotechnical, contamination and services or utility reports
- structural engineering assessment
- landscape character and visual impact assessment.

The DA will be placed on public exhibition for a period to be determined by the consent authority.

2.3 Consultation

The site selection consultation strategy for the relocation of Willow Grove will be based around a short-listed number of sites. The consultation process will provide an overview of the sites' characteristics as well as opportunities and constraints. The Applicant will seek feedback on these opportunities and constraints to assist in determining the selected site.

The following parties will be targeted for consultation:

- City of Parramatta Council
- Registered Aboriginal Parties for the Powerhouse Parramatta project
- community and stakeholders that have registered for project updates on Powerhouse Parramatta
- the broader Parramatta local government area community
- organisations, groups and individuals who provided submissions to the exhibition of the Powerhouse Parramatta State Significant Development Application.

Consultation activities will include:

- targeted stakeholder meetings and workshops
- online community workshops
- email, newsletter and factsheet updates to disseminate information and encourage feedback.

Awareness for the consultation process will be raised through:

- advertising through local Parramatta channels (online and social media)
- email updates to stakeholders and community members registered on existing project databases
- working with City of Parramatta Council to distribute information to established groups and potentially interested parties.

The consultation process will be undertaken within six months of the commencement of works at Powerhouse Parramatta and occur over a three-month period. The consultation period is to be extended by two weeks if it falls within one week of 25 December. This timing will ensure the updated RFMP required under Condition D1 of the Development Consent addresses the feedback received in relation to site selection.

2.4 Determining site selection

The activities and factors outlined in Sections 2.1 - 2.3 will be utilised by the Applicant to arrive at a selected site for the relocation of Willow Grove. The feedback received from consultation will inform the site selection process in order to refine opportunities and constraints associated with the short-listed sites. The Applicant shall prepare an itemised record of the feedback received including confirmation of how the feedback has been considered, where the feedback is or is not adopted and include reasons. This record will be submitted in support of the updated RFMP required under Condition D1 of the Development Consent.

3 Methodology for deconstruction and relocation

This section describes engineering and heritage assessment(s) undertaken to determine the methodology for the deconstruction and relocation of Willow Grove, having regard to the following:

- the Willow Grove Conservation Management Plan (CMP)
- the Addendum Statement of Heritage Impact prepared by Advisian (October, 2020).

The Addendum Statement of Heritage Impact (Advisian, 2020) described a Heritage Management Strategy for the potential relocation of Willow Grove. It outlined the considerations associated with the relocation and conservation of Willow Grove in accordance with a practical understanding of *The Burra Charter* and NSW Heritage Office guidelines. Considerations that have informed the preparation of this RFMP include:

- potential relocation sites within an appropriate setting
- conservation of historical archaeological potential at Willow Grove
- conservation of significant elements identified in the Willow Grove CMP
- treatment of contents, fixtures and objects at Willow Grove during the deconstruction and relocation process.

The following methodologies relate to the original 1880s two-storey villa, the Phillip Street front fence including foundations and columns, the single room extension at the western elevation, and the raised sandstone garden beds. All other building additions including the rear 1990s glazed courtyard and the auditorium would be demolished; these additions detract from heritage significance¹.

The methodologies have been developed and will be undertaken, as far as practicable, in accordance with 'Article 3. Cautious approach' of the *Burra Charter*, which requires "*changing as much as necessary but as little as possible*". It is proposed to generally deconstruct and reuse as much existing fabric (except for intrusive fabric) as possible for the reconstructed building and landscaped setting.

In addition, it is recommended that Willow Grove be recorded during deconstruction and relocation as a record of changes to the heritage item and its relationship to context and setting. The recording will also capture the reconstruction of Willow Grove on its new site.

3.1 Retention of fabric

It is recommended that fabric of 'high' significance as identified in the Willow Grove Conservation Management Plan (CMP) (FORM Architects, 2017) is retained. The grading of significant fabric is shown in Table 3-1 – Table 3-3, and fabric of high significance is shown in red in Figure 3-1 – Figure 3-2.

Four-paneled doors and hardware (identified as being of 'little' significance) and the single room extension at the western elevation ('moderate' significance) shall be retained; these additions and alterations to the fabric of Willow Grove are evidence of its history and uses which are considered to be part of its heritage significance.

¹ Willow Grove Conservation Management Plan (FORM Architects, 2017).

In addition, moveable heritage such as contents, fixtures and objects at Willow Grove will be considered for retention. It provides historical information about the place; given that it is portable, moveable heritage may be removed or discarded during changes of ownership, fashion and use. Examples of this type of heritage at Willow Grove include fireplaces (cast iron inserts and remnant tiles) and doors. These elements will be retained and incorporated into the reconstruction of Willow Grove.

Table 3-1 Grading of significant fabric (Source: FORM Architects, 2017).

Ranking	Grading	Justification	Status
A	Exception (E) illustrated as yellow on the plan	Recent fabric, which adversely affects the significance of the site.	Fulfil criteria for local or state listing.
B	High (H) illustrated as red on the plan	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfil criteria for local or state listing.
C	Moderate (M) illustrated as green on the plan	Altered or modified elements. Elements with little heritage value, but which contributes to the overall significance of the item.	Fulfil criteria for local or state listing.
D	Little (L) illustrated as blue on the plan	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or state listing.
INT	Intrusive (I) illustrated as white on the plan	Damaging to the item's heritage significance.	Does not fulfil criteria for local or state listing

Table 3-2 External significant fabric (Source: FORM Architects, 2017).

Ranking	Element Prefix	Description	Rating	Colour
B	FF	Front Fence to Phillip Street (including rendered columns, palisade fence and gates)	High	Red
C	BF	Boundary Fences, various including masonry to northern boundary	Little	Blue
B	LS1	Established landscaping: Trees: Conifer, Jacaranda, Poplars and Camphor laurel (Note: these items cannot be relocated).	High	Red
C	LS2	Infill landscaping	Little	Blue
C	LS3	Landscaping bordering to raise beds (remnant sandstone)	Moderate	Green
B	RC	Roof covering (residence and verandah)	High	Red
B	Chm	Chimney including, pots	High	Red
B	Rpw	Rendered painted walls	High	Red
B	Dhw	Double hung windows	High	Red

Ranking	Element Prefix	Description	Rating	Colour
B	FDr	French doors with transom	High	Red
B	Edr	Entry doors with fixed highlights	High	Red
B	TFI	Tessellated tile floor covering (terracotta edge border-Moderate)	High	Red
C	LT	Lean-to extension western façade, single room	Moderate	Green
D	Rp	Raised concrete platform to auditorium, southeast of room	Little	Blue
INT	GCp	Glazed canopy (external and internal envelope) to courtyard including, fixing fixings into original wall structure. Paving units to courtyard ranking (D) Little (blue)	Intrusive	White
B	FV	Front verandah including cast iron columns, decorative frieze timber structure to upper floor	High	Red
D	Aud	Auditorium (external and internal envelope) including fixings and flashings to western end of original two store extension	Little	Blue
D	Str	Storage building attached to northern side of Auditorium and Glazed courtyard	Little	Blue

Furthermore, the gutters and downpipes are described in the CMP maintenance schedules as recent 'Colourbond' type elements in good condition. However, the downpipe on the projecting bay is deteriorated and needs replacing. These elements are considered to be of 'moderate' significance as they are of little heritage value but contribute to the function of the building.

Table 3-3 Internal significant fabric (Source: FORM Architects, 2017).

Ranking	Element Prefix	Description	Rating	Colour
B	Spa	Spatial arrangements of original residence	High	Red
INT	Fcv	Floor covering to all original spaces, i.e. floating laminate floor	Intrusive	White
B	Dcl	Decorative ceiling including Rose	High	Red
B	RPW	Rendered painted walls	High	Red
B	Tar	Timber architraves and skirting	High	Red
D	Pbc	Plasterboard ceiling	Little	Blue

Ranking	Element Prefix	Description	Rating	Colour
B	Drp	Internal door opening including original operable transom window and mechanisms	High	Red
D	Dr	Internal four panels door and hardware	Little	Blue
Int	Op	Internal opening between rooms	Intrusive	White
Int	Ptw	Internal partitions walls (masonry/plasterboard) to amenities spaces	Intrusive	White
Int	Ftm	Internal fitments to bathroom and kitchen spaces	Intrusive	White
B	Fp	Internal fireplace surround, including cast iron insert, remnant tiles around insert and to hearth	High	Red
B	Stc	Internal timber staircase, including newel post, balustrades, handrail, skirting, timber infill below stairs and treads/risers	High	Red
B	Dar	Decorative arch leading to stairs	High	Red
D	LT	Pendant light (x4 bulb or other)	Little	Blue
D	Wco	Window covering (curtains/blinds)	Intrusive	White



Figure 3-1 Significant fabric on the ground floor of Willow Grove (Source: FORM Architects, 2017).

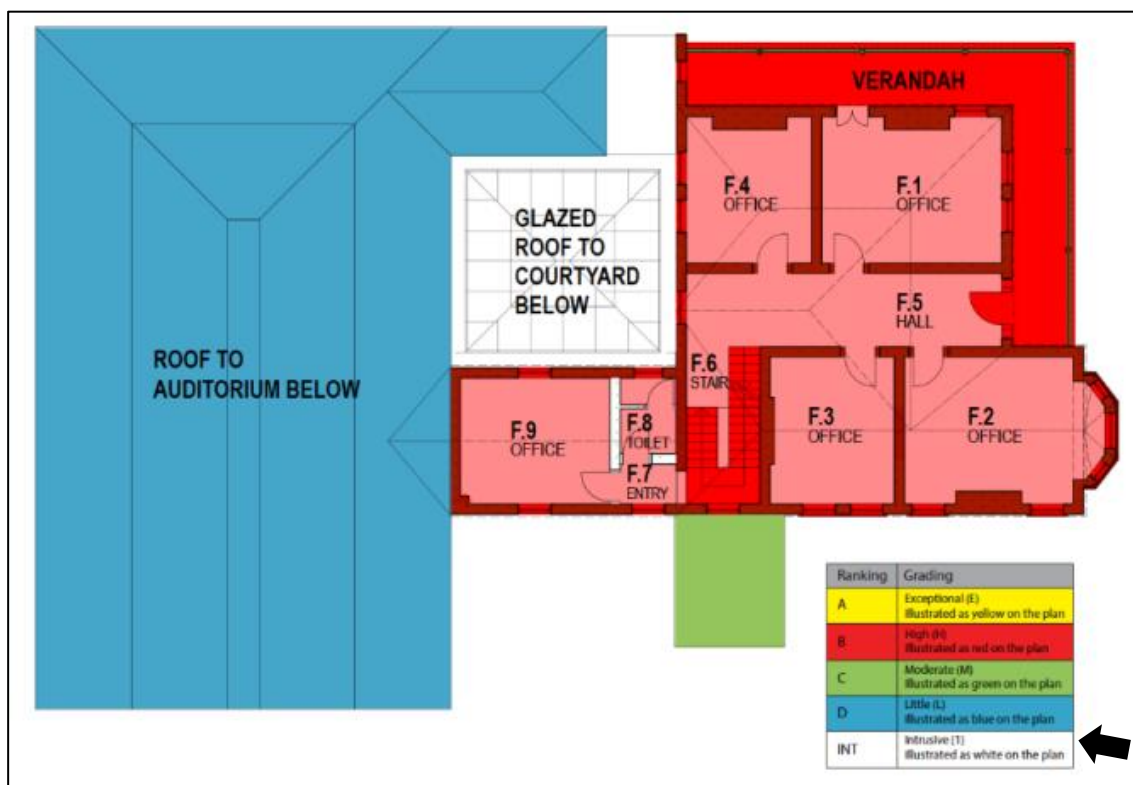


Figure 3-2 Significant fabric on the first floor of Willow Grove (Source: FORM Architects, 2017).

3.2 Methodology for deconstruction

The methodology for deconstruction would comprise the following key steps:

3.2.1 Planning and pre-construction works

The major planning and pre-construction works would generally be as follows:

1. building surveying and cataloguing, including Building Information Modelling (BIM). BIM would involve laser scanning of Willow Grove to obtain three-dimensional digital surveys and digital datasets which maps the fabric. It would allow for the exploration of potential interventions to fabric, inform decision-making and the base for the creation of numbered drawings for the deconstruction process
2. investigation of existing timber (i.e. flooring, ceiling, skirting, architraves, windows and roof truss members) and slate roof tiles to identify salvageable material and/or suitable replacement species types due to fabric decay. This would involve taking representative timber samples from non-visible areas, where possible, for analysis. This process would also ensure that any replacements are sourced prior to removal as lead times can be lengthy
3. testing of mortar, render and plaster to identify chemical compositions and suitable replacement materials. This would involve taking representative samples for analysis
4. creation of molds of in-situ significant fabric such as the cornices and decorative hallway and room arches as a record of their geometry and detail. The molds will be utilised to reproduce the elements should removal of such elements not be possible in their entirety
5. paint testing to identify potential for lead contamination
6. removal of contaminated materials including lead-based paint and asbestos. This would be undertaken by suitably experienced personnel. Formal clearance would be issued once materials have been removed to allow for the continuation of works.

3.2.2 Deconstruction

The major deconstruction works would generally be as follows:

1. demolition of elements that are identified as being of 'little' significance (blue) or 'intrusive' (white). The demolition of these elements would first separate the structures from any heritage fabric prior to removal by machinery
2. install and move scaffolding around the building during the deconstruction works
3. remove established landscaping, except those identified for retention including the mature Conifer, which is to be maintained as part of its retention
4. label and dismantle in segments the front fence to Phillip Street including the rendered columns, palisade fence and gates. The dismantled segments including any cut iron lacing would be numbered and wrapped in appropriate material and palletised for storage
5. label and dismantle doors, ceilings and windows, and store on timber pallets. Labelling would be undertaken in accordance with the numbered drawings and recorded in the BIM

6. label and dismantle staircase, fireplaces and surrounds, light fixtures, and store on timber pallets. Labelling would be undertaken in accordance with the numbered drawings and recorded in the BIM
7. label and carefully dismantle the roof including slate tiles, timber truss members, gutters and downpipes, and store on timber pallets. External scaffolding would be erected to safely access the roof. Labelling would be undertaken in accordance with the numbered drawings and recorded in the BIM
8. label and dismantle brick masonry walls in sections (beginning at the roof line), and chimneys, and store on timber pallets. Labelling would be undertaken in accordance with the numbered drawings and recorded in the BIM. Temporary wall supports would be utilised during deconstruction. Existing mortar and render would be carefully removed using a mallet and chisel. At ground level, foundation stones would be labelled, removed and palletised
9. label and dismantle original timber floors (ground and first floors and first floor verandah), and store on timber pallets. Labelling would be undertaken in accordance with numbered drawings and recorded in the BIM. Original timber floors would be removed via separation of floorboards from the floor structure with the floating laminate floor kept in place to provide protection to the original timbers floors. Any flagstones would also be labelled, removed and palletised. Conduct archaeological investigation of the underlying ground floor surface and salvage any archaeological remains
10. label and dismantle tessellated tile verandah flooring and store on timber pallets. Labelling would be undertaken in accordance with the numbered drawings and recorded in the BIM.

All timber and plaster fabric must be kept dry and would be stored in steel storage containers. Larger timber fabric such as roof truss members would be stored off the ground on racks and wrapped. Other fabric less sensitive to deterioration such as brick masonry and slate tiles may be covered with polyethylene or tarpaulin, as appropriate. All timber fabric must be stored in termite proof conditions.

Fabric will be tagged with individual identifiers as it is removed from Willow Grove before it is packaged for transport and storage. The identifiers will be annotated on hard copy plans and/or elevations as fabric is tagged. The annotations will then be recorded in the BIM so that hard copy and electronic records are available. The BIM will retain all details of recorded fabric in terms of its size and location within Willow Grove, including the unique identifier.

Finally, it is recognised that some original fabric will not be reused within the reconstructed building as the deconstruction process will not enable such reuse. This includes the brickwork mortar and render as well as non-salvageable timber and plaster components.

3.3 Methodology for relocation and reconstruction

The methodology for relocation and reconstruction would comprise the following key steps:

1. transport of deconstructed fabric via trucks from the nominated storage site to the new site. A forklift and/or crane would be used to load and unload timber pallets and/or storage containers. In addition, a tracking register with relevant information on each timber pallet and/or container would be implemented to track movements between sites.

2. reconstruction would generally involve the following work packages:
 - a. pre-reconstruction works
 - develop a methodology that specifies structural engineering and architectural requirements (with supporting reports and drawings) for the reconstructed building and new landscaped setting and detail all salvageable material and/or suitable replacement materials that are to be utilised. Advisian will provide advice on suitable replacement materials procured by the appointed contractor. All replacement materials will be physically and visually compatible with existing fabric, as far as practicable.
 - b. reconstruction of Willow Grove on engineered foundations
 - once the new site is selected, subsurface foundation works would be undertaken in accordance with the structural engineering and architectural drawings. The external walls would be first reconstructed using brick masonry. The roof truss members would then be lifted into place using a crane, slate tiles reinstalled and the roof covered to mitigate the risk of weather delays. Internal walls would then be reconstructed.
 - c. internal and external fit-out of Willow Grove for an appropriate use
 - following completion of wet trades, internal fittings such as flooring, windows, ceilings, joinery and doors would be installed. Other internal fittings to suit the appropriate use would be undertaken progressively such as bathrooms, kitchens, amenities, cabinetry and lighting. Finally, landscaping would be carried out to suit the new site's setting incorporating the salvaged front fence, gates and raised sandstone garden beds.

3.4 Construction processes

The following key construction processes for different types of fabric would be utilised during deconstruction and reconstruction of Willow Grove.

3.4.1 Masonry

3.4.1.1 Mortar mix

Based on the age of Willow Grove, the existing mortar between the bricks (and beneath the existing render) is likely lime-based, which is softer than cementitious mortar and would be expected to enable relatively easier deconstruction of masonry.

Testing of the existing mortar would be undertaken during the pre-construction phase to ensure the chemical composition of the new mortar mix is compatible with existing mortar and bricks. The new mortar mix would be used during reconstruction of the brick walls.

3.4.1.2 Brick walls and chimneys

Lead-based paint may be present on painted brick wall surfaces and would be removed during the pre-construction phase. In addition, all replacement mortar and render would be based on sample

testing undertaken during the pre-construction phase. Analysis of the testing would identify the chemical compositions of existing materials and suitable replacement materials.

Prior to removal, measured numbered drawings will be prepared illustrating in plan and elevation, the precise location, layout and size of the brick walls and how they are integrated into the building structure. Sections of the walls of the building are to be numbered and collapsed and the bricks from each section are to be cleaned and stacked in order on pallets. All existing render and mortar will be removed using a mallet and chisel to ensure all bricks are clean and ready for reinstallation.

In addition, wall features such as vents would be dismantled, stored and reused.

The chimneys would also be removed above the roof line as either a single piece (depending on condition of rendered brick and lime mortar), or the fabric dismantled, cleaned, stored and reused.

3.4.1.3 Sandstone

Lead-based paint may be present on painted sandstone surfaces and would be removed during the pre-construction phase.

Existing sandstone such as foundation stones, the Phillip Street front fence including foundations and columns, and raised sandstone garden beds would be removed, stored and reused.

The Phillip Street front fence (and gates) would be removed from the foundations and columns. The foundations and columns would be removed either in its entirety (if sandstone) or dismantled (if brick). Exploratory works would be undertaken initially at a fence post to determine the nature and depth of the foundations.

In addition, the raised sandstone garden beds would be labelled in accordance with numbered drawings and recorded in the BIM, removed, stored and reused for landscaping at the new site.

3.4.2 Fittings

The principle for various internal fittings is described below. Existing fixings such as nails, screws and bolts would generally be removed and replaced.

3.4.2.1 Flooring

The existing laminate floor coverings would be retained during the deconstruction process to provide protection for the original timber floors beneath. The laminate floor coverings would be disposed of when no longer required. The underlying original timber floors would be removed via separation of each plank from the floor structure, stored and reused. Investigation of existing timber would be undertaken during the pre-construction phase to identify salvageable planks and/or suitable replacement species types due to fabric decay.

3.4.2.2 Windows and doors

All windows, doors, architraves and transoms would be removed, stored and reused. Investigation of existing timber would be undertaken during the pre-construction phase to identify salvageable window components and/or suitable replacement species types due to fabric decay. In addition, lead-based paint may be present and would be removed during the pre-construction phase.

New fixings would be used for refitting the windows and doors. However, existing window and door hardware would be reused; hardware includes sash cords and weights, window locks and hook lifts, door latches, handles and hinges. All existing hardware would be inspected prior to removal of the windows and doors.

3.4.2.3 Ceilings

Investigation of existing ceilings including timber components would be undertaken during the pre-construction phase to identify salvageable material and/or suitable replacement species types due to fabric decay. The outermost ceiling lining would be removed to expose the upper ceiling structure (which may be timber) and conduct the investigation. The original ceiling structure would be dismantled, stored and reused.

Where the ceiling contains a ceiling rose, it would be labelled in accordance with the numbered drawings and recorded in the BIM, and then removed as a single piece, stored and reused.

In addition, the decorative ceiling at the single room extension at the western elevation would be removed as either a single piece, or in sections, stored and reused.

3.4.2.4 Cornices and skirting boards

A sample of each cornice type would be removed, stored and used to reconstruct cornices using suitable replacement materials.

Lead-based paint may be present on timber skirting boards and would be removed during the pre-construction phase.

Skirting would be removed in one piece from each room, numbered, stored and reused. Where skirting cannot be salvaged, investigation of existing timber would be undertaken during the pre-construction phase to identify suitable replacement species types due to fabric decay.

3.4.2.5 Archways

Decorative and plain archways would be removed, stored and reused.

3.4.2.6 Staircase

The staircase including posts, balustrade, timber floors and timber side panels would be removed, stored and reused. It would be removed either as a single piece or in sections and labelled in accordance with the numbered drawings and recorded in the BIM.

3.4.2.7 Fireplaces

All fireplaces including cast iron inserts, remnant tiles and timber trim would be carefully removed, stored and reused. Where existing tiles have already been lost or significantly damaged, suitable replacement tiles would be sourced for installation.

3.4.3 Verandahs

The tessellated tile floor and terracotta edge border at the ground floor verandah would be labelled in accordance with the numbered drawings and recorded in the BIM. Prior to removal of the tessellated

tile floor, exploratory works would be undertaken initially of a small section to determine its sub-surface nature and inform the removal methodology in order to minimise the extent of damage during removal that would likely be carried out in sections.

The ground and first floor verandahs including columns, frieze and timber structure would be removed, stored and reused. Investigation of existing timber would be undertaken during the pre-construction phase to identify salvageable timber structure components and/or suitable replacement species types due to fabric decay.

3.4.4 Roof structure

3.4.4.1 Timber truss members

All fixings from the members would generally be removed and replaced. Investigation of existing timber would be undertaken during the pre-construction phase to identify salvageable truss members and/or suitable replacement species types due to fabric decay.

3.4.4.2 Slate tiles

Investigation of the slate roof tiles would be undertaken during the pre-construction phase to identify the condition of the tiles. Where material is salvageable, the tiles would be removed, cleaned, stored and reused. The sections of the removed roof tiles are to be numbered and the tiles from each section are to be cleaned and stacked in order on pallets. Where material is damaged, the tiles would be removed and disposed of, and new slate tiles and/or suitable replacement type procured.

3.4.4.3 Verandah

The first floor corrugated iron verandah roof would be removed, stored and reused. The removed sections of the iron verandah roof are to be numbered and stacked in order on pallets.

3.4.5 Services

All existing services would generally be removed and disposed of; unless they are of heritage significance, in which case they would be stored and reused. Existing lighting would be safely disconnected, stored and reused.

3.4.6 Landscaping

Existing hard landscaping features such as the raised sandstone garden beds would be labelled in accordance with numbered drawings and recorded in the BIM, removed, stored and reused for the new landscaped setting incorporating the front fence and gates. The new landscaped setting is to be similar to that of the current setting, where possible, with suitable plantings to be selected.

3.5 Quality control

Quality control would be implemented and monitored by the appointed contractor for the duration of the works in conjunction with the Heritage Specialist. In addition, the appointed contractor's construction program would include 'hold points' allowing the Heritage Specialist to make informed decisions on deconstruction and relocation processes.

3.6 Engineering

The deconstruction works and methodology has been informed by specialist heritage and building personnel. An engineering assessment of the methodology for deconstruction cannot be undertaken in relation to the conservation of heritage fabric. Rather, engineering assessments will be undertaken as the works progress to ensure the maintenance of safe work practices.

Engineering resources will be required to assist in the reconstruction process of Willow Grove. This will be particularly relevant in relation to the structural integrity of the building as reconstructed. High-level civil and structural engineering groundwork considerations for the reconstruction process are outlined below:

Topographic survey

A topographic survey would be undertaken to inform the Architect in selecting an appropriate building position, orientation and floor level within the selected site.

Geotechnical investigation

A geotechnical investigation and accompanying report would be prepared to determine the nature of subsurface material at the selected site. It would also include recommendations for the type of footings to be provided; this may include reinstallation as existing, or construction of piled, strip footing and/or grade slabs, or raft slab and/or footings.

Services

The location of new services (i.e. above or belowground) and connection to existing utilities would need to be considered. Services would include electricity, gas, water, sewage and telecommunications.

Building compliance

Reconstruction works would need to be compliant with any Australian Codes or Australian Standards (AS) which may be specified by the relevant Regulator. These may include:

- National Construction Code (NCC) / Building Code of Australia (BCA)
- Australian Standards including:
 - AS 2870–2011 – Residential slabs and footing
 - AS 3600 – Concrete structures
 - AS 1170 – Structural design actions
 - AS 3700 – Masonry Structures
 - AS1720 – Timber Structures
 - AS4100 – Steel Structures.

It is expected that these groundwork considerations and other additional considerations will be further developed at a later stage by specialists such as the Heritage Specialist, Architect and Engineer, and will accompany Condition D1 of the Development Consent in relation to the reconstruction of Willow Grove at the selected site.

4 Impacts and mitigation measures

This section describes the impacts of the deconstruction and relocation of Willow Grove, and the proposed mitigation measures to avoid and minimise these impacts. These are described in Table 4-1.

Table 4-1 Impacts and mitigation measures

Impact	Cause	Mitigation Measure
Damage to significant fabric during deconstruction	Incorrect deconstruction methodology for masonry leading to cracking, spalling or splitting.	Suitably qualified and experienced construction personnel will undertake deconstruction works. The appointed contractor will be briefed on the heritage significance of Willow Grove prior to the commencement of deconstruction works.
	Deviation from deconstruction methodology damaging surrounding significant fabric.	Suitably qualified and experienced construction personnel will undertake deconstruction works. Deviations from the deconstruction methodology must be approved by the Project Manager and the Heritage Specialist prior to carrying out any deviation.
	Fabric deteriorates due to decay.	Investigation works would be undertaken during the pre-construction phase to identify salvageable material and/or suitable replacement materials.
	Improper sequence of deconstruction works.	The final sequencing of works will be developed by the appointed contractor with input and approval from the Heritage Specialist, based on the outcomes of the pre-construction works.
	Loss of fabric as part of the deconstruction process (i.e. plaster, mortar, original fixings).	An archival recording of Willow Grove will be prepared prior to deconstruction. In addition, Willow Grove will be photographically recorded during deconstruction to capture key dismantling stages as record of changes to fabric and its location within the building. Investigation works would be undertaken during the pre-construction phase to identify salvageable material and/or suitable replacement materials. Testing of mortar, render and plaster will be undertaken during the pre-construction phase to identify suitable replacement materials.
Damage to significant fabric during relocation (i.e. handling and loading)	Incorrect loading onto pallets and/or containers.	Suitably qualified and experienced construction personnel will handle significant fabric and operate equipment. Significant fabric would be suitably wrapped to provide protection.
	Equipment collides with fabric.	Suitably qualified and experienced construction personnel will operate equipment.

Impact	Cause	Mitigation Measure
	Equipment fails under heavy load.	Equipment sized to the weight of pallet with adequate safety factor. The maximum number of items assigned to a pallet will be defined.
Damage to significant fabric during relocation (i.e. transportation)	Unsecured fabric on trucks.	Fabric will be properly secured (i.e. wrapped, tied-down and with minimal space for lateral movement) prior to loading onto trucks.
	Traffic accident.	Suitably qualified and experienced truck drivers will transport fabric. Drivers will undergo regular fatigue management, drug and alcohol testing.
Loss of significant fabric as part of relocation and reconstruction works	Improper methodology of relocation and reconstruction.	The reconstruction methodology will specify structural engineering and architectural requirements (with supporting reports and drawings) for the reconstructed building and new landscaped setting and detail all salvageable material and/or suitable replacement materials that are to be utilised. The methodology will be prepared in accordance with the relevant articles of <i>The Burra Charter</i> and the Heritage NSW guidelines. Willow Grove will be photographically recorded during reconstruction to capture key reconstruction stages as records of progress. The reconstruction of Willow Grove at the new site and its future uses are to comply with all planning approvals received for the works.
	Deviation from relocation and reconstruction methodology damaging significant fabric.	Suitably qualified and experienced construction personnel will undertake relocation and reconstruction works. Deviations from the relocation and reconstruction methodology must be approved by the Project Manager and the Heritage Specialist prior to carrying out any deviation.
	Fabric deteriorates due to decay.	Fabric at the storage site is to be checked before transportation to the recipient site to ensure no fabric is missing or has deteriorated since the previous stocktake. A record and schedule of maintenance procedures is to be prepared and implemented by the building owner.

5 Storage of fabric

This section describes the storage of fabric retained during deconstruction and relocation processes.

Following deconstruction, all significant fabric must be carefully packaged and stored in accordance with this procedure. A storage site will be nominated by the appointed contractor.

The procedure is described below:

1. label fabric with an identification (ID) code referencing to the BIM catalogue in a manner which does not damage the fabric:
 - a. non-perishable tag fixed using a plastic tie around the fabric and/or;
 - b. permanent marker or pen on the non-visible rear face on non-porous fabric and/or;
 - c. chisel mark on the non-visible rear face of porous stone.
2. wrap fabric in a suitable material such as closed cell foam, polyethylene or tarpaulin
3. write the ID code in permanent marker on the outer surface of the wrapping fabric
4. place fabric in a numbered steel or timber storage container and/or on a timber pallet. An inventory sheet of the container and/or pallet will be created, laminated and stapled or screwed to the container and/or pallet on a readily visible surface once in storage
5. a copy of the inventory sheets is to be bound in a folder and kept at the storage site for reference when the storage site is accessed
6. access to the storage site will require individuals to make a written request as well as describe the purpose for access. Accordingly, access will be restricted to authorised persons. Fabric will not be removed from the storage site without prior permission
7. every year (if relevant), the storage site will be accessed by authorised persons and a condition report and stocktake undertaken to ensure no fabric is missing or has begun to deteriorate
8. provide appropriate security to the storage site throughout the duration of storage.

6 Project oversight

This section describes the engagement of a suitably qualified Heritage Specialist to oversee the deconstruction, relocation and reconstruction of Willow Grove.

INSW has engaged Advisian as Heritage Specialist for the duration of the works. The principal member from Advisian to be responsible for project oversight holds relevant qualifications and experience in heritage conservation.

During the deconstruction phase, the Heritage Specialist will provide advice to INSW and the appointed contractor including:

- provide briefing(s) to the appointed contractor on heritage significance
- supervise the works by attendance at the deconstruction works site, as required
- review and approve any deviations to the deconstruction methodology.

During the relocation and reconstruction phases, the Heritage Specialist will provide advice to INSW and the appointed contractor including:

- prepare an updated RFMP in accordance with Condition D1 for Planning Secretary approval within 12 months of deconstruction
- provide heritage impact assessment services for securing the required planning approvals for the new site and future uses
- provide briefing(s) to the appointed contractor on heritage significance
- supervise the works by attendance at the new site, as required
- review and approve any deviations to the relocation and reconstruction methodology.