

Clause 4.6 Variation Request

Height of Buildings Clause 4.3 Penrith Local Environmental Plan 2010

14-18 Phillip Street, St Marys

Submitted to Penrith City Council On Behalf of Land and Housing Corporation

June 2020



REPORT REVISION HISTORY

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Appendix No	Document Title	Prepared by
1	Architectural Plans	McGregor Westlake Architecture
2	Acoustic Report	Rodney Stevens Acoustics



1. EXECUTIVE SUMMARY

The proposal involves the demolition of the remaining structures onsite and the construction of a five (5) storey residential flat building with basement parking and landscaping.

This Clause 4.6 variation is to address a contravention to Clause 4.3(2) relating to the height of buildings development standard of the *Penrith Local Environmental Plan* 2010 (PLEP). Specifically, Clause 4.3(2) states "*the height of a building on any land is not to exceed the maximum height shown on the land on the Height of Buildings Map*". The height of buildings map identifies the applicable maximum building height for the site at 15m.

The proposed maximum building height is RL63.15 at the clerestory windows on the roof, this represents a maximum height of 16.15m measured from the existing ground level. Subsequently the proposed development exceeds the maximum permissible building height by 1.15m or 7.6% of the numerical value of the standard. The portions of the building that contravene the building height limit relate to the clerestory windows (RL63.15), lift overrun (RL62.40), the north-west corner of the maintenance access to the roof (RL61.30) and part of the roof of apartment A4.01 (RL61.75) The non-compliant area of the roof is 50m², representing 5.6% of the total roof area.

The variation to the development standard does not waver how the proposal is in keeping with the desired future character of the locality as a high-density environment in close proximity to a mixed-use centre and transport services. The location and extent of the building height non-compliances is a consequence of the significant fall in the land. Therefore, the built form is responsiveness to the topography and considers the existing and potential future development in the surrounding area. The building has been designed to minimise the extent of the variation in providing a four (4) storey mass at the western end and a five (5) storey mass at the eastern end of the development. Further, the design staggers the setbacks of apartment roofs at Level 4 and across the building more widely, this is illustrated in Appendix 1.

The contraventions to the height limit are minor. The design seeks to minimise the visual impact of these non-compliances. The proposed clerestory windows and lift overrun exceed the height standard but are nonetheless centrally located on the roof and are indiscernible from the street level (except a minor portion of the lift overrun as viewed from the south-west corner). The clerestory windows improve solar access and amenity to the south facing apartments at Level 4. The variation at the lift overrun is minor and the lift is required to facilitate equitable access to Level 4 of the proposal. The light coloured finish and metal materiality of the non-compliant roof area associated with apartment A4.01 mitigates the visual prominence of this portion of the building. The lift overrun results in very minor additional overshadowing to Lethbridge Street at 9am and small portion of the side setback zone at 4 Champness Crescent at 12pm. No shadows are cast by the non-compliant height plane at 3pm. The proposed height does not restrict how the development is of a high quality, reflects the anticipated density for the area, responds the mass and scale of other high density development in the locality and transitions the built form across the site to minimise environmental impacts. The proposal positively services the community through the provision of affordable housing.

This request demonstrates compliance with the building height development standard is unreasonable and unnecessary in the circumstances of the proposed development and that there are sufficient environmental planning grounds to justify the variation. The development, as a whole, satisfies the assumed objectives of the height standard, as well as the objectives of the R4 High Density Residential Zone and is therefore in the public interest. Strict adherence to the height standard in this instance is thus unreasonable and unnecessary.



2. INTRODUCTION

This is a formal request that has been prepared in accordance with Clause 4.6 of the PLEP 2010 to justify a variation to the height of buildings development standard proposed in a development application (DA) for a new residential flat building at 14-18 Phillip Street, St Marys.

The objectives of Clause 4.6 are to provide an appropriate degree of flexibility in applying development standards to achieve better outcomes for, and from, development.

As the following request demonstrates, a better planning outcome would be achieved by exercising the flexibility afforded by Clause 4.6 in the particular circumstances of this application.

This request has been prepared having regard to the Department of Planning and Environment's Guidelines to Varying Development Standards (August 2011) and various relevant decisions in the New South Wales Land and Environment Court and New South Wales Court of Appeal (Court).

Clause 4.6 requires that a consent authority be satisfied of three (3) matters before granting consent to a development that contravenes a development standard (see *Initial Action Pty Ltd v Woollahra Municipal Council* [2018] NSWLEC 118, *RebelMH Neutral Bay Pty Limited v North Sydney Council* [2019] NSWCA 130 and *Al Maha Pty Ltd v Huajun Investments Pty Ltd* (2018) 233 LGERA 170; 2018 NSWCA 245):

- 1. That the applicant has adequately demonstrated that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case [clause 4.6(3)(a)];
- 2. That the applicant has adequately demonstrated that there are sufficient environmental planning grounds to justify contravening the development standard [clause 4.6(3)(b)];
- 3. That the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out [clause 4.6(4)]

This request also addresses the requirement for the concurrence of the Secretary as required by Clause 4.6(4)(b).



3. STANDARD TO BE VARIED

The site is located within the R4 High Density Residential zone. Residential flat buildings are permitted with development consent in the R4 zone.

The standard that is proposed to be varied is the "height of buildings" development standard which is set out in Clause 4.3(2) of the PLEP as follows:

4.3 Height of buildings

(2) The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.

The numerical value of the development standard in this instance is 15m (Figure 1).



Figure 1: Extract of the Height of Buildings Map with the site outlined in red and showing the permissible building height at 15m (Source: PLEP 2010)

The development standard to be varied is not excluded from the operation of Clause 4.6 of the PLEP.



4. EXTENT OF VARIATION

The definition of building height within the PLEP is:

building height (or height of building) means:

(a) in relation to the height of a building in metres- the vertical distance from ground level (existing) to the highest point of the building, or

(b) in relation to the RL of a building- the vertical distance from the Australian Height Datum to the highest point of the building,

Including plant and lift overruns, but excluding communication devices, antennae, satellite dishes

As demonstrated by the plans prepared by McGregor Westlake Architecture (Appendix 1), the proposal has a maximum building height of RL63.15 at the clerestory windows, which represents a maximum building height of 16.15m measured from the existing ground level. Subsequently the proposed development exceeds the maximum permissible building height by 1.15m or 7.6% of the numerical value of the standard. The portions of the building that contravene the building height limit relate to the clerestory windows (RL63.15), lift overrun (RL62.40), the north-west corner of the maintenance access to the roof (RL61.30) and part of the roof of apartment A4.01 (RL61.75) (Figure 2). The non-compliant area of the roof is 50m², representing 5.6% of the total roof area.

For further detail, refer to the Architectural Plans provided at Appendix 1.



Figure 2: Extract of the height plane diagram (Source: McGregor Westlake Architecture)



5. UNREASONABLE OR UNNECESSARY

In this section we demonstrate why compliance with the development standard is unreasonable or unnecessary in the circumstances of this case as required by Clause 4.6(3)(a) of the PLEP.

The Court has held, in *Wehbe v Pittwater Council* [2007] NSWLEC, that there at least five different ways, and possibly more, in which an applicant might establish that strict compliance with a development standard is unnecessary (it is achieved anyway) and unreasonable (no purpose would be served) including:

- Compliance with a development standard is unreasonable or unnecessary;
- Underlying objective or purpose is not relevant to the development with the consequence that compliance is unnecessary;
- The underlying objective or purpose would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable;
- The development standard has been virtually abandoned or destroyed by the Council's own actions in granting consents departing from the standard and hence compliance with the standard is unnecessary and unreasonable; or
- The zoning of particular land was unreasonable or inappropriate so that a development standard
 appropriate for that zoning was also unreasonable or unnecessary as it applied to that land and
 that compliance with the standard in that case would also be unreasonable or unnecessary.

It is sufficient to demonstrate only one of these ways to satisfy Clause 4.6(3)(a) (*Wehbe v Pittwater Council* [2007] NSWLEC, *Initial Action Pty Limited v Woollahra Municipal Council* [2018] NSWLEC 118 at [22] and Rebel MH Neutral Bay Pty Ltd v North Sydney Council [2019] NSWCA 130.

In this case, the objectives of the development standard are achieved notwithstanding non-compliance with the standard.

5.1. The objectives of the development standard are achieved notwithstanding non-compliance with the standard.

Clause 4.3 nominates objectives to underpin the intent of the development standard. These are outlined in Table 1 below. Discussion is provided on the elements which contravene the development standard in relation to these objectives.

Objective		Discussion
(a) to ensure buildings are compa with the height, bulk scale of the existing desired future char of the locality.	a) to ensure that buildings are compatible	The variation to the development standard does not result in an inconsistency with this objective.
	with the height, bulk and scale of the existing and desired future character of the locality.	The proposal is consistent with the existing character of the locality and the desired future character of the immediate area as stipulated by the applicable planning controls and the bulk and scale of existing residential flat buildings in the locality.
		The overall built form, including the building height, is carefully considered and is not incongruous with the locality and a number of multi-storey residential flat buildings opposite and in proximity to the site. The non- compliance with the development standard mostly relates to non-habitable space which includes roof structures such as the lift overrun and maintenance access. Where habitable space exceeds the height standard, its bulk is mitigated through staggered setbacks from the northern boundary and light materiality.
	(b) to minimise visual impact, disruption of views, loss of privacy and loss of solar access	The contravention to the development standard does not result in an inconsistency with this objective.

Table 1: Achievement of Development Standard Objectives





Objective	Discussion
to existing development and to public areas, including parks, streets	The design utilises materiality and articulation to minimise the minor bulk and scale impacts resulting from the non-compliance with the height standard. These are now discussed.
and lanes.	Visual Impact
	The variation to the building height causes minor additional visual impact, however, these areas are mostly indiscernible from the streetscape (Figure 3 in orange).
	GROWTHBUILT

Figure 3: Extract of height plane diagrams views from the street (Source: McGregor Westlake Architecture)

Despite varying the development standard, the clerestory windows and lift overrun (except a minor portion on the south elevation) are not visible from the street. The visual presentation of the roof at apartment A4.01 is minimised through the proposed *Lysaght Enseam Colorbond Surf Mist* metal sheet. This finish is proposed on Levels 3 and 4 and designed to perceive the upper levels as minimalist and recessed, complementing the mix of brick work on the lower floors. Further, the non-compliant portion of the roof is adjacent to the recessed part of the building containing the lift/lobby area. The reduced built form in this location minimises the visual impact of this non-compliant area.

Views

The notion of view sharing is invoked when a property enjoys existing views and a proposed development would share that view by taking some of it away from its own enjoyment. The site and surrounding development benefit from views of the Blue Mountains located to the west. While the proposal causes minor view loss for the properties to the south, it is not the non-compliant portions of the building which cause this loss. A compliant building at 15m would result in the same view loss.

Privacy

The proposed contravention does not result in adverse acoustic or privacy impacts. The variation is centrally located on the roof and where it is located on the outer edge, no windows are situated at the contravention and do not facilitate opportunities for overlooking or accentuate noise generation from apartments. The clerestory windows are provided to enhance solar access and due to their location cause no privacy impacts for neighbouring properties. An Acoustic Report (Appendix 9) assesses the noise impacts of mechanical services, including the lift and it was



Objective	Discussion	
	determined the lift overrun will not result in adverse acoustic issues for future residents or surrounding development.	
	Overshadowing	
	McGregor Westlake Architecture have prepared shadows diagrams in Appendix 1. These demonstrate the proposed shadows resulting from the building height contravention. The non-compliant portion of the lift overrun results in a very minor shadow cast at 9am onto Lethbridge Street. The minor shadow onto 4 Champness Crescent occurring at 12pm falls onto the side boundary and this area constitutes an access path along the side of the house and not private open space. No shadows are cast by the non- compliant height plane at 3pm. Refer to Figure 4 in orange and Appendix	
	2 21 June 1200	
	3 21 June 1500	
	Figure 4: Extract of the shadow diagrams indicating the shadow cast by the height plane non- compliance (Source: McGregor Westlake Architecture)	
	The variation to the height standard causes very minor overshadowing impacts at 9am and 12pm and no loss of solar amenity for adjoining properties or the public domain.	
(c) to minimise the adverse impact of dovelopment	The non-compliance of the development standard does not result in an inconsistency with this objective.	
development on heritage items, heritage conservation areas and areas of scenic or visual importance.	The proposed contravention does not cause any impact by the way of heritage. This is because the site is not a heritage item, located in the vicinity of heritage items, in a conservation area, or areas of scenic or visual importance. Refer above for discussion on view impacts to and from the site.	
(d) to nominate heights that will provide a high	The variation of the development standard does not result in an inconsistency with this objective.	
quality urban form for all buildings and a transition in built form and land use intensity.	The overall built form (including the height) of the proposal has been carefully designed to enhance residential amenity to and from the building, minimise the bulk and scale effects of the proposal and provide an attractive and carefully articulated building. The articulation and quality of materials proposed will result in a modern and desirable development. The	



Objective	Discussion	
	rooftop structures which marginally exceed the permissible height limit have been mostly centrally located, where possible, to ensure these elements are undiscernible from the intervening streetscape and adjoining dwellings below.	
	Despite the minor variation, the proposed built form is appropriate to the site and is contextually in keeping with the scale of the future character of the area	
	When viewed from the streetscape below and adjoining roads, the proposed building will read as well-defined and an appropriately scaled residential building, which is compatible with its locality and adjoining development. The non-compliance of A4.01 roof is setback the furthest from Phillip Street when considering only the eastern part of the building. The building transitions from a five (5) storey development at the east of the site to a four (4) storey building on the west. The height non-compliances are not incongruent with the existing and desired urban form of the area.	
	The immediate surrounding locality is in a state of transition, reflecting the R4 high density residential zoning. In this regard, the locality includes high density developments, with a five (5) storey development located to the north of the site at 11-15 Phillip Street. As such, there is little opportunity for the additional height to protrude above the established and anticipated future height for the locality.	

As demonstrated in Table 1 above, the objectives of the height of buildings development standard are achieved notwithstanding the proposed variation.

In accordance with the decision in *Wehbe v Pittwater Council* [2007] NSWLEC, *Initial Action Pty Limited v Woollahra Municipal Council* [2018], *RebelMH Neutral Bay Pty Limited v North Sydney Council* [2019] NSWCA 130) and *Al Maha Pty Ltd v Huajun Investments Pty Ltd (2018) 233 LGERA 170; 2018 NSWCA 245*, therefore, compliance with the height of buildings development standard is demonstrated to be unreasonable or unnecessary and the requirements of Clause 4.6(3)(a) have been met on this way alone.

For the sake of completeness, we consider the other recognised ways as follows.

5.2. The underlying objective or purpose is not relevant to the development with the consequence that compliance is unnecessary;

On this occasion we do not believe that the underlying objective or purpose is not relevant to the development and therefore we do not rely on this reason.

5.3. The objective would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable.

We do not consider the objective would be defeated or thwarted if compliance was required, even though we have demonstrated above that the objectives of the standard are also achieved by the elements that do not comply with the development standard. In this regard we do not rely on this reason.

5.4. The development standard has been virtually abandoned or destroyed by the Council's own actions in granting consents departing from the standard and hence the standard is unreasonable and unnecessary; or

We do not rely on this reason.



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5.5. The zoning of the land is unreasonable or inappropriate.

We do not consider the zoning of the land is unreasonable or inappropriate and therefore we do not rely on this reason.



6. SUFFICIENT ENVIRONMENTAL PLANNING GROUNDS

In this section we demonstrate that there are sufficient environmental planning grounds to justify contravening the height of buildings development standard as required by Clause 4.6(3)(b) of the PLEP.

In *Initial Action Pty Ltd v Woollahra Council* [2018] NSWLEC 118, Preston CJ observed that in order for there to be 'sufficient' environmental planning grounds to justify a written request under Clause 4.6 to contravene a development standard, the focus must be on the aspect or element of the development that contravenes the development standard not on the development as a whole.

In *Four2Five Pty Ltd v Ashfield Council* [2015] NSWLEC 90, Pain J observed that it is within the discretion of the consent authority to consider whether the environmental planning grounds relied on are particular to the circumstances of the proposed development on the particular site.

As demonstrated in Section 5, the variation is minor and relates to various roof structures, with the maximum contravention occurring at the clerestory windows. A compliant development would clearly result in a lesser built form, but in this case the parts of the building that contravene the standard do not cause adverse impacts to surrounding residential properties. Therefore, it can be concluded that the proposal does not result in any unreasonable environmental impacts and it is considered there are sufficient environmental planning ground to justify the contravention.

Specific environmental planning grounds to justify the contravention of the standard are summarised below:

- The proposal represents the orderly and economic redevelopment of the site through the provision of an 100% affordable and social housing development that is well connected to transport and community services and the contravention of the standard does not affect this.
- The residential flat building, as it varies the development standard, reflects the mass and scale of R4 high density residential development on Phillip Street and in St Marys more widely, and achieves the desired future character of the locality.
- The location and extent of the contraventions are a consequence of the sloping topography which is a circumstance particular to the site.
- Because the proposal is for public housing, it is required to be designed to be 100% accessible which prevents the floorplate from being stepped to match the fall of the land, notwithstanding as demonstrated throughout this variation request, that the environmental impacts of the resulting variation are negligible.
- A completely accessible building is a desirable environmental planning outcome in its own right.
- The minor variation to the height standard does not occur at the prominent street frontage of Lethbridge Street and only a very small portion of roof area is non-compliant fronting Phillip Street. This visible non-compliance at Phillip Street is setback, adjacent to the recessed part of the building and is minimised through materiality.
- The proposal respects the topography of the land, falling east to west, and generally complies with the height control at the western end of the building.
- The proposed contravention is minor, with the maximum variation occurring at the centre of the building which is not visible from the streetscape.
- There are no adverse environmental impacts such as unacceptable additional overshadowing (in fact very minor) or privacy implications as a result of the proposed contravention of the standard.
- The proposed development satisfies the assumed objectives of the standard (Section 5) and the objectives of the zone (Section 7).
- The proposal would result in a better planning outcome than if compliance were to be achieved, as it allows for the co-ordinate redevelopment of the site and provision of affordable and social housing to the service community.



7. PUBLIC INTEREST

In this section we explain how the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out as required by Clause 4.6(4)(a)(ii) of the PLEP.

In Section 5 it was demonstrated that the objectives of the development standard are achieved notwithstanding the variation of the development standard.

Table 2 below considers whether the proposal is also consistent with the objectives of the zone.

Objectives of R4 High Density Residential Zone	Discussion
To provide for the housing needs of the community within a high density residential environment.	The variation of the standard does not result in an inconsistency with this objective. The proposed variation does not impact how the proposal delivers additional affordable and social housing consistent with the desired vision for the locality in proximity of local services, transport and amenities. The non-compliant parts of the building relate mostly to services, increased solar access and a small portion of habitable roof space and together assist in the provision of housing with high amenity for the St Marys community in the high-density environment.
To provide a variety of housing types within a high density residential environment.	The non-compliance of the standard does not result in an inconsistency with this objective as the proposal continues to provide a mix of one-bedroom and two-bedroom dwellings within a high-density residential development in a location that benefits from good access to transport, employment and local services and facilities.
To enable other land uses that provide facilities or services to meet the day to day needs of residents.	The non-compliance of the standard does not result in an inconsistency with this objective. The proposed non-compliant portions of the building are residential, as is the entire proposal. This clause is therefore irrelevant to the development. It is noted however that the site is nearby St Marys Town Centre and will support the viability of the uses within the town centre.
To ensure that a high level of residential amenity is achieved and maintained.	The contravention of the standard does not result in an inconsistency with this objective. The proposal constitutes a high quality building which elevates the amenity for the future residents and does not adversely diminish the quality of living for neighbouring properties, particularly those to the east and south. The variation to the building height limit does not compromise the development's compliance with, and exceedance of, the Apartment Design Guide provisions for cross ventilation, deep soil, communal open space, parking and solar access (except the number of apartments receiving no sun at mid-winter). The design also includes generous balconies and apartment sizes. It is important to note that amenity is fundamental to the design and LaHC consider the provision of high quality outcomes necessary for affordable and social housing development of this nature. Whether the management of the tenancies will be provided by LaHC or an external community housing provider, the ongoing maintenance in relation to amenity will inherently be their

Table 2: Consistency with Zone Objectives.



	responsibility and the building height non-compliance will not interfere with this action.
To encourage the provision of affordable housing.	The variation of the standard does not result in an inconsistency with this objective. The proposed non-compliances do not affect how the development is a high amenity residential flat building that is 100% affordable and social housing delivered by LaHC.
To ensure that development reflects the desired future character and dwelling densities of the area.	The non-compliance of the standard does not result in an inconsistency with this objective. The built form, including the non-compliant areas, reflect the desired future character and dwelling density of the area. The built form controls, exclusive of floor space ratio (as it is not applicable to the site), drive the character and density of the locality. The R4 high density residential zone and height of buildings provisions for site, but also other sites to the west of the subject zone, shape and inform development outcomes. The immediate locality is in a state of transition toward high density residential living supported by necessary local services. The proposal is representative of the mass and scale established at 11-15 Phillip Street. In achieving the desired future character, the proposed building seeks to provide a high concentration of housing in a location nearby to transport, employment and local facilities. The additional height proposed reinforces the objective to provide a development which reflects the desired future character and dwelling densities of the

As demonstrated in Table 2, the proposal is consistent with the objectives of the zone and in Section 5 it was demonstrated that the proposal is consistent with the objectives of the development standard. According to Clause 4.6(4)(a)(ii), therefore, the proposal in the public interest.



8. STATE OR REGIONAL ENVIRONMENTAL PLANNING

In this section we consider whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and the public benefit of maintaining the development standard, and any other matters required to be taken into consideration by the Secretary before granting concurrence required by Clause 4.6(5).

There is no identified outcome which would be prejudicial to planning matters of state or regional significance that would result as a consequence of varying the development standard as proposed by this application.

As demonstrated already, the proposal is consistent with the objectives of the zone and the objectives of the development standard and in our opinion, there are no additional matters which would indicate there is any public benefit of maintaining the development standard in the circumstances of this application.

Finally, we are not aware of any other matters required to be taken into consideration by the Secretary before granting concurrence.



9. CONCLUSION

This Clause 4.6 variation request demonstrates that:

- Compliance with the development standard would be unreasonable and unnecessary in the circumstances of this development;
- There are sufficient environmental planning grounds to justify the contravention;
- The development achieves the objectives of the development standard and is consistent with the objectives of the R4 High Density Residential zone notwithstanding the non-compliance with the height of buildings standard;
- The proposed development, notwithstanding the variation, is in the public interest and there is no public benefit in maintaining the standard in the circumstances; and
- The variation does not raise any matter of State or Regional Significance.

On this basis, therefore, it is appropriate to exercise the flexibility provided by Clause 4.6 in the circumstances of this application.



Clause 4.6 Variation Request Clause 4.3(2) Height of Buildings 14-18 Phillip Street, St Marys Project # 19-326 June 2020

APPENDIX 1

Architectural Plans

DEVELOPMENT APPLICATION



Phillip and Lethbridge Street corner looking south-east

** photomontage is an artist's impression and shows trees after establishment



GROWTHBUILT 🖓

	Cover sheet and drawing list	NTS	
		NTO	
DA.00.02 (A		1:5000	
DA.00.03/A	Site and velocition	1.5000	
DA 00.05 / P	Domolition plan	1.200	
	Basement plan	1.200	
DA.01.01/C	Cround floor plan	1.200	
DA.01.02/C		1.200	
DA.01.03/C		1.200	
DA.01.04/C	Level 2,5 pian	1.200	
DA.01.05/C		1.200	
DA.01.00/C	Root plan	1.200	
DA.02.01/C	North elevation	1.200	
DA.02.02/C		1.200	
DA.02.03/C	Southelevation	1.200	
DA.02.04 / C	East elevation	1.200	
DA.03.01/C	Section A	1.200	
DA.03.02/C	Section B	1.200	
DA.03.03/C	Section C	1.200	
DA.03.04 / A	Facade/balcony section, elevation	1:50	
DA.03.05/A	Construction section	1:20	
DA.03.06 / A	Balcony threshold detail	1:00	
DA.03.07 / A	Balcony layout diagram	1:20	
DA.03.08 / A	Precedent - floor-to-floor height	NIS 1.50	
DA.03.09/A		1:50	
DA.03.10/A	Substation - section A	1:50	
DA.03. N / A	Substation - Section B	1:50	
DA.03.12/A	AG.01 section	1:50	
DA.03.13/A	AG.02 section	1:50	
DA.03.14 / A	AG.03 section	1:50	
DA.03.15/A	AG.04 section	1:50	
DA.03.16/A	AG.05 section	1:50	
DA.03.17 / A	AG.06 section	1:50	
DA.04.01 / A	North wast corner view	NIS	
DA.04.027C	North-west corner view	NIS	
DA.04.05/C	South-west corner view	NIS	
DA.04.04 / A	South-east corner view	NIS	
DA.04.05 / A	Phillip Street entry view	NIS	
DA.04.06 / F	Phillip + Lethbridge Street corner view	NIS	
DA.05.01 MA	External materials and finishes	NIS	
DA.05.02 / A	External materials and finishes - 2	NTS NTO	
DA.05.03 / A	External materials and finishes - 3	NIS 1.500	
DA.06.01/A	Shadow diagrams (3 sheets A-C)	1:500	
	View-from-sun diagrams (13 sneets A-ivi)	NIS	
DA.07.01/A	LEP neight plane diagram	NIS	
DA.07.02 / A	LEP neight plane diagrams - views from street	1,200	
DA.07.03/A	ADG building separation	1.200	
DA.07.04 / A	ADG building separation - level 4	1:200	
DA.07.05/A	ADG bailding separation - section	1:200	
UA.07.06/A	ADG side and rear setbacks	1:200	
DA.07.07/C	DCP street setbacks	1:200	
DA.07.08/A	ADG communal open space	1:200	
DAULUS NA	ADG viewel aviation	1:200	
DA.07.10/A		1:200	
DA.U7.11/A	ADG visual privacy - level 4	1:200	
DA.07.12/A	ADG winter sun - overview	NIS	
DA.07.13/A	ADG winter sun - south apartments	NIS 1.FC	
DA.07.14 / A	ADG winter sun - cierestory windows	1:50	
DA.07.15/A		1:200	
DA.U/.16/A	ADG storage	1:200	
DA.07.17/A	ADG common circulation	1:200	
DA.07.18/A	DCP landscaped area	1:200	
		DDO IFOT #	-

PROJECT # 190819
DWG #
DA.00.01

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	BA	SIX COMMITMENT	S NOTES		INACHERS SUMMARY TOP	- 14-10 Primp Street St Morys 2760	
		SIA COMMITTICITI	SHOILS		Building Elements	Material	Detail
WATER	.,	O BE READ IN CONJUNCTION WITH AP	PPROVED BASIX REPORT*		External walls	Brick Verseer Lightweight cladded walls	R2.5 insulation (product volue)
Fixtures	All Shower Heads	All toilet flushing systems	All kitchen taps	All bathroom taps	Internal walls - except as stated below	Plasterboard on studs	
	3 star(>4.5but<=6L/min)	4 star	5 star	6 star	Internal walls - unit AG.04	Plasterboard on studs	R2.0 insulation (product value) to walk adjacent to bathroom for unit AG.04 only
Rainwater	Central rainwater tank	Minimum 5000L to collect ru	n-off from at least 200	0m2 of roof area.	Common walls between dwelling	Hebel power panel	·
tank	Rainwater tank conner	ted to toilets of ground floor u	units only		Common walls between units and corridors	Hebel power panel	R2.5 Insulation (product value)
ENERGY	Rathreem westileties	instantaneous 5 star	to facade or roal man	wal witch on loff	Common walls between units & lifts/fire stairs	200mm concrete + stud + plasterboard	R1.5 Insulation (product value)
	boundom ventriotion:	but down territorial system. Individual fair, docted to façade of foot mandar switch on off			Ceiling	Plasterboard	R2.5 insulation (product value) to cellings with roof above
	Kitchen ventilation system: Individual fan, ducted to facade or roof manual switch on/off				Floors	Concrete	·
REFER TO						Concrete	
APPROVED	Loundry ventilation sy	tem: Individual fan, ducted to	façade or roof manua	al switch on/off	Windows/Doors - except as stated below	Awning windows: Aluminium frame, single glazed clear	U value 6.70 or less and SHGC 0.57 +/- 10%
BASIX	Artificial lighting: As p	er BASIX				Sliding windows/doors & lowre windows: Aluminium frame, single glazed clear	U value 6.70 or less and SHGC 0.70 +/+ 10%-
	Appliances:				Windows/Doors - unit AG.04 & AG.06, A1.05	Sliding door: Aluminium frame, performance glazing	U value 4.80 or less and SHGC 0.59 +/- 10%
	Gas cooktop & electric Indoor or sheltered clo	oven in the kitchen of the dw thes drving lines to the units	ellings			Awning windows: Aluminium frame, performance glazing	U value 5.40 or less and SHGC 0.49 +/- 10%
	Alternative energy sup	ply Photovoltaic system Rated	electrical output (min	n): 15.0 peak kW		Awning windows (wet area): Aluminium frame, single glazed clear	U value 6:70 or less and SHGC 0.57 +/- 10%-
COMMON	Refer to approved BASIX cert			Edgebig: These units have been relet whit non-sensitive UID available or yer NatHRS ContScient. Split: In one-climite ranes, invaluation should be instabled with due consideration of exodencetion with explaining building nette Split: End (nating shoupe to all release) fees.			

McGregor Westlake Architecture	A B	DATE 9/12/19 26/05/20	REVISION DEVELOPMENT APPLICATION RESPONSE TO COUNCIL RFI - CHANGES CLOUDED (BLUE)	Comply with relevant Authorities requirements, the Building Code of Australia and all relevant Australian Standards when executing works described in this drawing Dimensions in millimetres. Confirm all dimensions on site	PROJECT 14-18 Phillip Street CLIENT Growthbuilt P/L
ABN 74 090 136 066 © Copyright Level 5 68-72 Wentworth Avenue Surry Hills NSW 2010 Australia T 612 9211 8151 F 612 9281 3171 studio@mwarchitects.com.au www.mwarchitects.com.au				prior to commencing work. Use figured dimensions only. Do not scale. If discrepancy exists notify architect. If in doubt ask.	SCALE @ A3 1:200

ABN 74 090 136 066 © Copyright Level 5 68-72 Wentworth Avenue Surry Hills NSW 2010 Australia T 612 9211 8151 F 612 9281 3171 studio@mwarchitects.com.au www.mwarchitects.com.au Australia and all relevant Australian Standards when executing works described in this drawing Dimensions on site prior to commencing work. Use figured d

	GROWTHE	
		FFL 58.60 - level 4
·		FFL 55.60 - level 3
·		FFL 52.60 - level 2
·		FFL 49.60 - level 1
		FFL 46.60 - ground floor
		FFL 42.60 - basement
		PROJECT #
St Marys		190819 DWG #
		DA.02.02
DM/JH	РМ	C

	McGrogor	ISSUE	DATE	REVISION	Comply with relevant Authorities	 PROJECT
	wicdregor	A	9/12/19	DEVELOPMENT APPLICATION	Australia and all relevant Australian	14-18 Phillip Street
	Westlake	В	26/05/20	RESPONSE TO COUNCIL RFI - CHANGES CLOUDED (BLUE)	Standards when executing works	
	Architactura	С	18/06/20	RESPONSE TO COUNCIL RFI - CHANGES CLOUDED (RED)	described in this drawing	Growthbuilt P/L
	Architecture				Dimensions in millimetres.	DWG
ABN 74 090 136 066	© Copyright				prior to commencing work.	South elevation
Level 5 68-72 Wentworth Avenue	Surry Hills NSW 2010 Australia				Use figured dimensions only. Do not scale.	SCALE @ A3 DR
T 612 9211 8151 F 612 9281 31	71 studio@mwarchitects.com.au				If discrepancy exists notify architect.	1:200
www.mwarchitects.com.au					If in doubt ask.	

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	DA	CIV COMMANTAAENIT	S NIOTES		NatHERS summary for	- 14-18 Phillip Street St Morys 2760		
	BA	SIA CONTINITIVIENT	SNUIES		Building Elements	Material	Detail	
WATER		TO BE READ IN CONJUNCTION WITH A	PROVED BASIX REPORT*		External walls	Brick Veneer: Lightweight cladded walls	R2.5 insulation (product volue)	
Fixtures	All Shower Heads	All toilet flushing systems	All kitchen taps	All bathroom taps	Internal walls - except as stated below	Plasterboard on studs	*	
	3 star(>4.5but<=6L/min)	4 star	5 star	6 star	Internal walls - unit AG.04	Plasterboard on studs	R2.0 imulation (product value) to walls adjacent to bathroom far unit AG.04 only	
Rainwater	Central rainwater tank	k: Minimum 5000L to collect ru	n-off from at least 200	Dm2 of roof area.	Common walls between dwelling	Hebel power panel	·	
tank	Rainwater tank conne	cted to toilets of ground floor (units only		Common walls between units and corridors	Hebel power panel	R2.5 insulation (product volue)	
ENERGI	Bathroom ventilation	system: Individual fan. ducted	to facade or roof man	ual switch on/off	Common walls between units & lifts/fire stairs	200mm concrete + stud + plasterboard	R1.5 insulation (product value)	
	Boundom venchabon system. Individual ran, docted to ração or root mandal switch onyo		iour switch onyon	Ceiling	Plasterboard	R2.5 insulation (product value) to cellings with roof above		
	Kitchen ventilation sys	tem: Individual fan, ducted to	facade or roof manua	I switch on/off	Floors	Concrete	1	
REFER TO					Roof	Concrete		
APPROVED	Loundry ventilation sy	iry ventilation system: Individual fan, ducted to façade or roof manual switch on/off		al switch on/off	Windows/Doors - except as stated below	Awning windows: Aluminium frame, single glazed clear	U value 6.70 or less and SHGC 0.57 +/- 10%	
BASIX	Artificial lighting: As p Natural lighting: As pe	er BASIX				Sliding windows/doors & lowvre windows: Aluminium frame, single glazed clear	U value 6.70 or less and SHGC 0.70 +/- 10%	
	Appliances:	1.000			Windows/Doors - unit AG.04 & AG.06, A1.05	Sliding door: Aluminium frame, performance glazing	U value 4.80 or less and SHSC 0.59 +/- 10%	
	Gas cooktop & electric Indoor or sheltered clo	c oven in the kitchen of the dw othes drving lines to the units	ellings			Awning windows: Aluminium frame, performance glazing	U value 5.40 or less and SHGC 0.49 +/- 10%	
	Alternative energy sug	oply Photovoltaic system Rated	electrical output (min	n): 15.0 peak kW	1	Awning windows (wet area): Aluminium frame, single glazed clear	U value 6:70 pr less and SHGC 0.57 +/- 10%-	
COMMON AREAS	Refer to approved BAS	SIX cert			Lighting: These units have been figure. In some climitie zones, in Note: Self-clusting domper to al Note: Additional insulation min	r roted with non-ventilated LED downlights as per NatH awietion should be instelled with due consideration of co y be required to over acoustic requirements	AS Certificate. sedencetion and essociated interaction with adjuining building methods.	
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	GRO	WTH	SUILT 🕻
PHILLIP STREET			
			FFL 58.60 - level 4
	·		FFL 55.60 - level 3
	·		FFL 52.60 - level 2
			FFL 49.60 - level 1
			FFL 46.60 - ground floor
	·		FFL 42.60 - basement
St Marys			PROJECT # 190819 DWG #
			DA.02.04
DM/JH	СНКD	РМ	REVISION

	BASIX COMMITMENTS NOTES	NatHERS summary Building Elements	for - 14-18 Phillip Street St Morys 2760 Material	Detail					
	* TO BE READ IN CONJUNCTION WITH APPROVED BASIX REPORT*	External walls	Brick Veneer	R2.5 insulation (product value)					
WATER	All Shower Heads All toilet fluching surfame All Litchen tans	Internal walls - except	as Plasterboard on studs	-					
Fixtures	All tollet flushing systems All kitchen taps All bathr	internal walls - u	mit Plasterboard on studs	R2.0 insulation (product value) to walks adjacent to	a bathroom				
alowater	Central rainwater tank: Minimum 50001 to collect run-off from at least 200m2 of roof ar	AG.04 Common walls betwee	n Hebel power panel	for unit AG.04 only					
ank	Rainwater tank connected to toilets of ground floor units only	dwelling Common walls betwee	m Hebel power panel	R2.5 Insulation (product value)					
ENERGY	Y Hot water system: Gas instantaneous 5 star	units and corridors Common walls betwee	n 200mm concrete + stud + plasterboard	R1.5 Insulation (product value)					
	Bathroom ventilotion system: Individual fan, ducted to façade or roof manual switch on/	f units & lifts/fire stairs Ceiling	Plasterboard	R2.5 insulation (product volue) to call not with roo	above				
	Kitchen ventilation system: Individual fan, ducted to façade or roof manual switch on/of	Floors	Concrete						
PPROVEL	Loundry ventilation system: Individual fan, ducted to façade or roof manual switch on/o	Windows/Doors - exce	ept Awning windows	the second s					
BASIX	Artificial lighting: As per BASIX	as stated below	Sliding windows/doors & lowre windows:	0 value 6.10 or less and seloc 0.57 47+10%					
	Natural lighting: As per BASIX Appliances:	Windows/Doors - u	nit Sliding door.	U value 6, r0 or less and SHOC 0.70 +/- 10%					
	Gas cooktop & electric oven in the kitchen of the dwellings	AG.04.8 AG.06, A1.05	Aluminium frame, performance glazing Awning windows	U value 4.80 or less and SHSC 0.59 +/- 10%					
	Indoor or sheltered clothes drying lines to the units		Aluminium frame, performance glazing Awning windows (wet area):	U value 5:40 or less and SHGC 0.49 +/- 10%					
	Alternative energy supply Photovoltaic system kated electrical output (min): 15.0 peak k	Lighting: These units have i	Aluminium frame, single glazed clear been roted with non-ventiloted GD downlights os per NotH	U value 6.70 or less and SHGC 0.57 +/- 10%- IRS Certificate.					
OMMON	W Refer to approved BASIX cert	Note: Self-classing damper t	ta, insulation should be installed with due consideration of o to all exhaust fame	and mattion and associated interaction with adjuining building m	efensión.				
	1								
15m he	height plane				<u>+-</u>			RL 62.4	40 FL 64 20
	×						~		RL 61.30
		1 BED		BED	1 BED	1.BED			
		A4.04		44.03	A4.02	A4,01	LOBBY		
FI 58 60 -	- level 4							· /	
2 00.00									
	Via Str.							/	
		1 BED		BED	1 BED	1.BED			
		1 BED A3.04		_ BED	1 BED	1 BED A3.01	LOBBY	1 BED A3,10	
		1 BED A3.04		BED	1 BED		LOBBY	1 BED A3,10	
FL 55.60 -) - level 3	1 BED		BED A3.03 -	1 BED A3.02 _	1 BED A3,01	LOBBY	1 BED A3.10	
FL 55.60 -) - level 3	1 BED 			1 BED A3,02	1 BED 	LOBBY		
FL 55.60 -) - level 3	1 BED			1.BED	1 BED	LOBBY		
FL 55.60 -) - level 3	1 BED 		BED	1 BED A3.02 	1 BED A3.01 	LOBBY	1 BED A3,10 1 BED A3,10	
FL 55.60 -) - level 3	1 BED A3.04 - 1 BED A2.04 -		-BED 	1 BED A3.02 1 BED A2.02 -	1 BED A3.01 A3	LOBBY		
FL 55.60 - FL 52.60 -) - level 3	1 BED A3.04 - 1 BED A2.04 -		B∉D A3.03 - - - - - - - - - - - - -	1 BED A3.02 1 BED A2.02	1 BED A3.01 A3.01 A2.01 A2.01	LOBBY		
FL 55.60 - FL 52.60 -)- level 3	1 BED A3.04 		BĒD A 3.03 - - - - - - - - - - - - -	1 BED A3.02 1 BED A2.02	1 BED A301 1 BED A201	LOBBY		
FL 55.60 -	0 - level 3	1 BED A3.04 - 1 BED A2.04 -		BED	1 BED A3.02 A2.02 A2.02	1 BED A301 A301 A201 A201	LOBBY		
FL 55.60 -) - level 3	1 BED		BED 	1.BED A3.02 -1.BED A2.02 -1.BED -1.BED -1.BED -1.BED	1 BED A3.01 A3.01 A3.01 A2.01 A2.01 A2.01	LOBBY		
FL 55.60 -	0 - level 3	1 BED A3.04 - 1 BED A2.04 - - - - - - - - - - - - -		BED A2.03 	1 BED A3.02 1 BED A2.02 	<u>+ BED</u> A301 <u>+ BED</u> A201 <u>+ BED</u> A201 <u>+ BED</u> A1,01	LOBBY		
FL 55.60 - FL 52.60 -) - level 3 - level 2 timber paling fence 1.8m high	1 BED A3.04 A3.04 A2.04 A2.04 A1.04 A1.04		BED A2.03 - BED A2.03 - - - - - - - - - - - - -	1 BED A3.02 A3.02 A2.02 A1.02 A1.02	1 BED A301	LOBBY		
FL 55.60 - FL 52.60 -	0 - level 3	1 BED A3.04 - - - - - - - - - - - - - - - - - - -		BED - BED - BED - - - BED - - - BED - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	1 BED A3.02 1 BED A2.02 A2.02 A1.02	1 BED A301 A301 A301 A201 A201 A201 A201 A201 A201	LOBBY		
FL 55.60 - FL 52.60 -	0 - level 3 0 - level 2 timber paling fence 1.8m high	1 BED A3.04 A3.04 - 1 BED A2.04 - 1 BED A1.04 -		BED BED BED BED BED C C C C C C C C C	1 BED A3.02 1 BED A2.02 1 BED A1.02 A1.02 A1.02	1 BED A301 A301 A201 A201 A201 A201 A101 A101	LOBBY		
FL 55.60 - FL 52.60 -) - level 3	1 BED A3.04 		BED	1 BED A3.02 A3.02 A2.02 A2.02 A1.02 A1.02 A1.02 A1.02 A1.02	1 BED A301 A301 A301 A201 A201 A201 A201 A201 A201 A201 A201 A201 A201	LOBBY LOBBY LOBBY		6750 @ 15.4
FL 55.60 - FL 52.60 -) - level 3 - level 2 timber paling fence 1.8m high	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - - -		BED A2.03 - BED A2.03 - - - - - - - - - - - - -	1 BED A3.02 1 BED A2.02 A2.02 A1.02 A1.02 A1.02 A1.02 A1.02	1 BED A301	LOBBY LOBBY LOBBY LOBBY	1 BED A3_10 1 BED A2_10 1 BED A1_10 4000 @ 8.3%	6750 @ 15.4
FL 55.60 - FL 52.60 - FL 40.00	p - level 3	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 -		BED A2.03	1 BED A3.02 1 BED A2.02 A2.02 A2.02 A1.02 A1.02	1 BED A301	LOBBY LOBBY LOBBY LOBBY		6750 @ 15.4
FL 55.60 - FL 52.60 - FL 48.00 FL 48.00	0 - level 3 0 - level 2 timber paling fence 1.8m high grouted there	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - -		BED A2.03 - BED - - - - - - - - - - - - -	1 BED A3.02 1 BED A2.02 - A2.02 - A1.02 - AG.02	1 BED A301 A301 A301 A201	LOBBY LOBBY LOBBY LOBBY		6750@154
FL 55.60 - FL 52.60 - FL 40.00 FL 40.00	0 - level 3 0 - level 2 timber paling fence 1.8m high Server	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - - -		BED -BED -BED 	1 BED A3.02 1 BED A2.02 A2.02 A2.02 A3.02	1 BED A3.01 1 BED A3.01 1 BED A2.01	LOBBY LOBBY LOBBY		
FL 55.60 - FL 52.60 - FL 40 40 40 FL 40 50	0 - level 3 0 - level 2 timber paling fence 1.8m high ground floor	1 BED A3.04 A3.04 A3.04 - HBED A2.04 - HBED A1.04 - -		BED Image: Constraint of the second	1 BED A3.02 1 BED A2.02 1 BED A2.02 - - 1 BED A1.02 - <	1 BED A301 A301 1 BED A201 A201	LOBBY LOBBY LOBBY		6750@154
FL 55.60 - FL 52.60 - FL 40.00 FL 40.00	- level 3 - level 2 timber paling fence 1.8m high	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - - - -		BED Image: Constraint of the second	1 BED A3.02 1 BED A2.02	1 BED A301 A201 A201 A201 A301 A301 A301 A301 A301 A301 A301	LOBBY LOBBY LOBBY	A3_10 A3_10 A3_10 A3_10 A3_10 A3_10 A3_10 A1_10 A1_10 A1_10 A1_10	6750@15.4
FL 55.60 - FL 52.60 - FL 48.80 FL 48.80	p - level 3	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - -		BED Image: Constraint of the second	1 BED A3.02 1 BED A2.02 1 BED A2.02 1 BED A1.02	1 BED A301	LOBBY LOBBY LOBBY	A3,10 A3,10 A3,10 A3,10 A3,10 A3,10 A4,10	6750 @ 15.4
FL 55.60 - FL 52.60 - FL 40.60	- level 3 - level 2 timber paing fence 1.8m high	1 BED A3.04 - 1 BED A2.04 - 1 BED A1.04 - -		BED A2.03 BED A2.03 BED A0.03 BED A0.03 BED A0.03	1 BED A3.02 1 BED A2.02 - 1 BED A2.02	1 BED A301 A201 A201 A201 A201 A201 A201 A201 A301 A201 A201 A201 A201 A201 A201 A201 A201 A301 A201 A301 A3	LOBBY LOBBY LOBBY		6750 @ 15.4
-L 55.60 - -L 52.60 -	- level 3 - level 2 timber paling fence 1.8m high Sgraund floor	1 BED A3.04 - 1 BED A2.04 - - -		BED A2.03 BED A2.03 BED A2.03 BED A1.03 BED AG.03	1 BED A3.02 1 BED A2.02 1 BED A1.02 A1.02 A1.02 A3.02 A1	1 BED A301 - A201 - A201 - A101 - AG01 - AG01 -	LOBBY LOBBY LOBBY		

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2 BED A3.09

2 BED A2.09

2 BED A1.09

RESPONSE TO COUNCIL RFI - CHANGES CLOUDED (BLUE)

	McGregor
IVVV	Architecture
ABN 54 000 400 000	0. Convicts

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	GRO	WTHE	
15m height plane			
			FFL 58.60 - level 4
			FFL 55.60 - level 3
			FFL 52.60 - level 2
			FFL 49.60 - level 1
			FFL 46.60 - ground floor
			FFL 42.60 - basement
St Marys			PROJECT # 190819
,			DWG# DA.03.02
DM/JH	СНКО	PM	REVISION

CLIENT

SCALE @ A3

Dimensions in millimetres. Confirm all dimensions on site

prior to commencing work. Use figured dimensions only. Do not scale.

If discrepancy exists notify architect. If in doubt ask.

Growthbuilt P/L

1:200

Section B

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Confirm all dimensions on site

prior to commencing work. Use figured dimensions only. Do not scale. If discrepancy exists notify architect. If in doubt ask.

Section C SCALE @ A3 1:200

	GROWTHE	
		FFL 58.60 - level 4
		FFL 55.60 - level 3
		FFL 52.60 - level 2
	·	FFL 49.60 - level 1
	·	FFL 46.60 - ground floor
		FFL 42.60 - basement
St Marys		PROJECT # 190819
-		DWG # DA.03.03
DM/JH	РМ	REVISION

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St Maryo		PROJECT#
St Marys		190819 DWG#
		DA.04.03
view		
JH/DM	РМ	REVISION

	McGregor Westlake Architecture	D E F	DATE 30/10/19 14/11/19 18/6/20	REVISION LAHC REVIEW 2 DRAFT DA FOR LAHC REVIEW 18/06/20 RESPONSE TO COUNCIL RFI	Comply with relevant Authorities requirements, the Building Code of Australia and all relevant Australian Standards when executing works described in this drawing Dimensions in millimetres. Confirm all dimensions on site	14-18 Phillip Stree
ABN 74 090 136 066 © Copyright Level 5 68-72 Wentworth Avenue Surry Hills NSW 2010 Australia T 612 9211 8151 F 612 9281 3171 studio@mwarchitects.com.au				prior to commencing work. Use figured dimensions only. Do not scale. If discrepancy exists notify architect.	SCALE @ A3 NTS	


GROWTHBUILT 🗘

Penrith Development Control Plan 2014

2.5.6 Front and Rear Setbacks

A. Objective

Setbacks are to reflect the character of established garden suburbs, and provide for development of flora and fauna corridors.

- B. Controls
- 3) Determine an appropriate front setback:
- a) either average the setbacks of the immediate neighbours; or
- b) 5.5m minimum whichever is the greater dimension.
- 4) Permissible encroachments within the front setback are:
- a) verandahs and pergolas only which are a 4.5m minimum setback to the face of the verandah or pergola; and maximum 50% of elevation.

2.5.11 Corner Sites and Park Frontages

A. Objective

For allotments facing two streets or adjoining a public park, apply traditional principles of orientation and articulation to both of the public frontages.

- B. Controls
- 2) For corner lots and park frontages:
- a) the rear and front setbacks may be measured relative to the shortest boundaries;
- *b*) living rooms, dwelling entrances and verandahs may face either public frontage;
- c) building forms should be articulated for both frontages;
- d) all fences along public frontages should be designed in accordance with the parts in this section on fences and retaining walls;
- e) driveway access should be from the shortest street frontage, with garages concealed from both public frontages; and
- 3) For frontages to a second street:
- a) minimum setback to dwellings and garage entrances should be 5.5m;
- b) minimum verandah setback should be 3m;
- c) garden areas facing the street should be landscaped as private courtyards.
- d) Facing the street corner, the profile of the buildings should be varied with:
- a) A distinctive roof element; and/or
- b) Limited encroachments: external walls to corner rooms that measure up to5 m in width may extend 2m beyond both street front setbacks

AWN		DM	CHKD	PM		
s					DA.07.07	
St	St Marys 190819					
		permissib	le encroachme	ent		
		encroache	es on setback	requirement - 8m2	2	
_		exceeds r	exceeds required setback - 102m2			
		5.5 metre	setback			



Indicative of shadow cast by



	GROWTHE	
y height plane non o	compliance	
St Marys		PROJECT # 190819 DWG #
21 June 0900	СНКД	DA.06.01.A
JH/DM	PM	A





GROWTHBUILT 🗘 Indicative of shadow cast by height plane non compliance PROJECT # 190819 DWG # DA.06.01.B REVISION JH/DM А ΡM





GROWTHBUILT 🗘







Indicative of



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DEVELOPMENT APPLICATION

Comply with relevant Authorities requirements, the Building Code of Australia and all relevant Australian Standards when executing works described in this drawing

Dimensions in millimetres. Confirm all dimensions on site prior to commencing work. Use figured dimensions only. Do not scale. If discrepancy exists notify architect. If in doubt ask.





Clause 4.6 Variation Request Clause 4.3(2) Height of Buildings 14-18 Phillip Street, St Marys Project # 19-326 June 2020

APPENDIX 2

Acoustic Report





REPORT R190480R1

Revision 2

Noise Impact Assessment Proposed Residential Development 14 - 18 Phillips Street, St Marys

PREPARED FOR: Growthbuilt Pty Ltd L9, 100 William Street SYDNEY NSW 2010

9 December 2019

PO Box 522 Wahroonga NSW 2076 P 02 9943 5057 F 02 9475 1019 mail@rodneystevensacoustics.com.au



Noise Impact Assessment

Proposed Residential Development

14 - 18 Phillips Street, St Marys

PREPARED BY:

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DOCUMENT CONTROL

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1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (here forth referred to as RSA) has been engaged by Growthbuilt Pty Ltd to conduct a road and mechanical plant noise impact assessment for development application (DA) lodgement of the proposed residential development at 14 - 18 Phillip Street, St Marys. In addition, a Construction Noise & Vibration Management Plan also forms part of this assessment.

This report addresses the road traffic noise impacts from Phillip Street and the surrounding area on the amenity of the proposed residential development. NPfI criteria has also been established as will be used in assessing mechanical plant noise intrusion from the development and the provision of the Construction Noise & Vibration Management Plan. Macgregor Westlake Architectural Drawings Ref: 190819 Revision F dated 14/11/19 have been used as a basis for this assessment.

This assessment is to form part of the supporting documentation for the DA submission to Penrith City Council. Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in Appendix A.

2 PROJECT DESCRIPTION

2.1 Site Location

The proposed development site is located at 14 - 18 Phillip Street, St Marys. The site will be bounded by residential dwellings to the south, east and west with Phillip Street to the north. The site and its surroundings are shown in Figure 2-1.

Figure 2-1 Site Location



Aerial image courtesy of Near Map © 2019

2.2 Proposed Development

The proposal is to construct a new 5 storey multi residential development. The floor plans of the proposed residential development are presented in Appendix C.

3 BASELINE NOISE SURVEY

3.1 Unattended Noise Monitoring

In order to characterise the existing acoustical environment of the area, unattended noise monitoring was conducted between Friday 25th October and Friday 1st November 2019 at the logging location shown in Figure 2-1. 2 noise loggers were set up on site. The first logger was located in the front yard of the site overlooking Phillip Street and Lethbridge Street, this location is representative of the traffic noise levels that the site will be exposed to.

The second logger was located on the rear yard of the site, noise monitoring at this location is representative of the typical ambient environment of the site.

Logger locations were selected with consideration to other noise sources which may influence readings, security issues for noise monitoring equipment and gaining permission for access from residents and landowners.

Instrumentation for the survey comprised of 2 RION NL-42 environmental noise loggers (serial numbers 133010 and 572542) fitted with microphone windshields. Calibration of the logger was checked prior to and following measurements. Drift in calibration did not exceed ±0.5 dB(A). All equipment carried appropriate and current NATA (or manufacturer) calibration certificates. Measured data has been filtered to remove data measured during adverse weather conditions upon consultation with historical weather reports provided by the Bureau of Meteorology (BOM).

The logger determines LA1, LA10, LA90 and LAeq levels of the ambient noise. LA1, LA10, LA90 are the levels exceeded for 1%, 10% and 90% of the sample time respectively (see Glossary for definitions in Appendix A). Detailed results at the monitoring location are presented in graphical format in Appendix B. The graphs show measured values of LA1, LA10, LA90 and LAeq for each 15-minute monitoring period.

3.2 Ambient Noise Results

In order to establish the ambient noise criteria of the area, the data obtained from the noise logger has been processed in accordance with the procedures contained in the NSW Environmental Protection Authority's (EPA) Noise Policy for Industry (NPfI, 2017) to establish representative noise levels that can be expected in the residential vicinity of the site. The monitored baseline noise levels are detailed in Table 3-1.

	Maaaaaaa	Measured Noise Level – dB(A) re 20 μPa				
Location	Descriptor	Daytime 7 am - 6 pm	Evening 6 pm – 10 pm	Night-time 10 pm – 7 am		
Logger at southern	LAeq	56	54	50		
boundary of site	RBL (Background)	44	39	35		

Table 3-1 Measured Baseline Noise Levels Corresponding to Defined NPfI Periods

Notes: All values expressed as dB(A) and rounded to nearest 1 dB(A);

LAeq Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

LA90 Noise level present for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).



3.3 Noise Intrusion (State Environmental Planning Policy (Infrastructure) 2007)

To assess noise intrusion into the proposed multi residential development, the data obtained from the first logger location has been processed to establish representative ambient noise levels at the facades most exposed to Phillip Street and Lethbridge Street.

The time periods used for this assessment are as defined in the State Environmental Planning Policy (Infrastructure) 2007 and the Development near Rail Corridors and Busy Roads Interim Guideline. Results are presented below in Table 3-2.

Table 3-2	Traffic Noise Levels Corresponding to Defined SEPP 2007 Periods
-----------	---

Location	Period	External Noise Levels dB(A)
Approximately 7m from	Day Time 7:00 am - 10:00 pm L _{Aeq(15hour)} 63	
Phillip Street	Night Time 10:00 pm - 7:00 am	L _{Aeq(9hour)} 56

4 NOISE GUIDELINES AND CRITERIA

4.1 Road Noise Criteria

The determination of an acceptable level of traffic noise impacting the internal residential spaces requires consideration of the activities carried out within the space and the degree to which noise will interfere with those activities.

As sleep is the activity most affected by rail noise, bedrooms are considered to be the most sensitive internal living areas. Higher levels of noise are acceptable in living areas without interfering with activities such as reading, listening to the television etc. Noise levels in utility spaces such as kitchens, bathrooms, laundries etc. can be higher.

4.1.1 State Environmental Planning Policy (Infrastructure) 2007

The NSW Government's State Environmental Planning Policy (Infrastructure) 2007 (SEPP (Infrastructure) 2007) was introduced to facilitate the delivery of infrastructure across the State by improving regulatory certainty and efficiency. In accordance with the SEPP, Table 3.1 of the NSW Department of Planning and Infrastructure's "*Development near Rail Corridors and Busy Roads - Interim Guideline*" (the DP&I Guideline) of December 2008 provides noise criteria for residential and non-residential buildings. These criteria are summarised in Table 4-1.

Table 4-1 DP&I Interim Guideline Noise Criteria

Type of occupancy	Noise Level dB(A)	Applicable time period
Sleeping areas (bedroom)	35	Night 10 pm to 7 am
Other habitable rooms (excl. garages, kitchens, bathrooms & hallways)	40	At any time

Note 1: Airborne noise is calculated as LAeq(15hour) daytime and LAeq(9hour) night-time

The following guidance is also provided in the DP&I Guideline:



"These criteria apply to all forms of residential buildings as well as aged care and nursing home facilities. For some residential buildings, the applicants may wish to apply more stringent design goals in response to market demand for a higher quality living environment.

The night-time "sleeping areas" criterion is 5 dB(A) more stringent than the "living areas" criteria to promote passive acoustic design principles. For example, designing the building such that sleeping areas are less exposed to road or rail noise than living areas may result in less onerous requirements for glazing, wall construction and acoustic seals. If internal noise levels with windows or doors open exceed the criteria by more than 10 dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."

The noise criteria presented in Section 4.1.1 and in Table 4-1 apply to a 'windows closed condition'. Standard window glazing of a building will typically attenuate noise ingress by 20 dB(A) with windows closed and 10 dB(A) with windows open (allowing for natural ventilation). Accordingly, the external noise threshold above which a development will require mechanical ventilation is an $L_{Aeq(9hour)}$ 55 dB(A) for bedrooms and $L_{Aeq(15hour)}$ 60 dB(A) for other areas.

Where windows must be kept closed, the adopted ventilation systems must meet the requirements of the Building Code of Australia and Australian Standard 1668 – The use of ventilation and air conditioning in buildings.

4.2 Operational Project Trigger Noise Levels

Responsibility for the control of noise emissions in New South Wales is vested in Local Government and the EPA. The EPA oversees the Noise Policy for Industry (NPfI) October 2017 which provides a framework and process for deriving project trigger noise level. The NPfI project noise levels for industrial noise sources have two (2) components:

- Controlling the intrusive noise impacts for residents and other sensitive receivers in the short term; and
- Maintaining noise level amenity for particular land uses for residents and sensitive receivers in other land uses.

4.2.1 Intrusiveness Noise Levels

For assessing intrusiveness, the background noise generally needs to be measured. The intrusiveness noise level essentially means that the equivalent continuous noise level (LAeq) of the source should not be more than 5 dB(A) above the measured Rated Background Level (RBL), over any 15-minute period.

4.2.2 Amenity Noise Levels

The amenity noise level is based on land use and associated activities (and their sensitivity to noise emission). The cumulative effect of noise from industrial sources needs to be considered in assessing the impact. The noise levels relate only to other industrial-type noise sources and do not include road, rail or community noise. The existing noise level from industry is measured.

If it approaches the project trigger noise level value, then noise levels from new industrial-type noise sources, (including air-conditioning mechanical plant) need to be designed so that the cumulative effect does not produce total noise levels that would significantly exceed the project trigger noise level.

4.2.3 Area Classification

The NPfl characterises the "Suburban" noise environment as an area with an acoustical environment that:



- has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry.
- This area often has the following characteristic: evening ambient noise levels defined by the natural environment and human activity

The area surrounding the proposed development falls under the "Suburban" area classification.

4.2.4 Project Specific Trigger Noise Levels

Having defined the area type, the processed results of the attended noise monitoring have been used to determine project specific project trigger noise level. The intrusive and amenity project trigger noise level for nearby residential premises are presented in Table 4-2. These project trigger noise levels are nominated for the purpose of assessing potential noise impacts from the proposed development.

In this case, the ambient noise environment is not controlled by industrial noise sources and therefore the project amenity noise levels are assigned as per Table 2.2 of the NPfI (Recommended Amenity Noise Levels). For each assessment period, the lower (i.e. the more stringent) of the amenity or intrusive project trigger noise level are adopted. These are shown in bold text in Table 4-2.

		eje et gget				
			Meas	ured	Project Trigger Noise Levels	
Receiver	Time of Day	ANL ¹ L _{Aeq(15min)}	RBL ² LA90(15min)	Existing L _{Aeq(Period)}	Intrusive L _{Aeq(15min)}	Amenity L _{Aeq(15min)}
	Day	55	44	56	49	58
Residential	Evening	45	39	54	44	48
	Night	40	35	50	40	43

 Table 4-2
 Operational Project Trigger Noise Levels

Note 1: ANL = "Amenity Noise Level" for residences in Suburban Areas.

Note 2: RBL = "Rating Background Level".

5 NOISE IMPACT ASSESMENT

5.1 Traffic Noise Assessment

In order to ascertain the existing traffic noise levels from Phillip Street and the surrounding area, the measured noise logger data was processed in accordance to the NSW Department of Planning and Infrastructure's *"Development near Rail Corridors and Busy Roads - Interim Guideline"* assessment time periods as shown in Table 3-2.

The final façade noise levels were predicted for each time period considering the distance attenuation from each respective source, virtual source, façade's orientation and any barrier effects.

The required noise reduction via the building façade for each respective room for each time period will be compared to determine the appropriate design criteria levels.

It is typically accepted that an open window (fractionally open to meet ventilation requirements) results in an attenuation of external noise by 10 dB(A). This reduction has been used to predict the room noise level in the window open condition.

5.2 Recommended noise control treatment

The calculation procedure establishes the required noise insulation performance of each surface component such that the internal noise level is achieved whilst an equal contribution of traffic noise energy is distributed across each component. Building envelope components with a greater surface area must therefore offer increased noise insulation performance.

The recommended acoustic treatment is based on the following floor finishes:

- Bedrooms: Carpet and underlay
- Living Room Hard Flooring
- Kitchen/Wet Areas: Tiles

The acoustic requirements shown in this report will increase further where the bedroom floor finishes are tiled or timber.

All recommendations must be checked by others to ensure compliance with other non-acoustic requirements that Council or other authority may impose (e.g. Thermal requirements for BASIX compliance).

5.3 Glazing

The R_w rating required for each window will vary from room to room. Recommendations for windows also apply to any other item of glazing located on the external facade of the building in a habitable room unless otherwise stated.

Note that the R_w rating is required for the complete glazing and frame assembly. The minimum glazing thicknesses will not necessarily meet the required R_w rating without an appropriate frame system. It will be therefore necessary to provide a window glass and frame system having a laboratory tested acoustic performance meeting the requirements in Table 5-1.

The window systems must be tested in accordance with both of the following:

- Australian Window Association Industry Code of Practice Window and Door Method of Acoustic Testing; and
- AS 1191 Acoustics Method for laboratory measurement of airborne sound insulation of building elements.



It is necessary to submit such Laboratory certification for the proposed glazing systems (i.e. windows and framing systems) (e.g. NAL or CSIRO) for approval by RSA prior to ordering or commitment.

The entire frame associated with the glazing must be sealed into the structural opening using acoustic mastics and backer rods. Normal weather proofing details do not necessarily provide the full acoustic insulation potential of the window system. The manufacturers' installation instructions for the correct acoustic sealing of the frame must be followed.

It is possible that structural demands for wind loading or fire rating or the like may require more substantial glass and framing assemblies than nominated above. Where this is the case the acoustic requirements must clearly be superseded by the structural or fire rating demands.

Table 5-1 presents the minimum recommended R_w (weighted noise reduction) for glazing elements.

Location	ation Glazing Type Minimum Rating		Indicative Glazing System
	All Units F	acing Phillip Street*	
Living Rooms	Sliding Door	Rw 27	6mm clear glass in acoustically sealed frame*
	Sliding Window	Rw 27	6mm clear glass in acoustically sealed frame*
Podrooms	Sliding Door	Rw 30	6.38mm laminated glass in acoustically sealed frame*
Belloons	Sliding Window	Rw 30	6.38mm laminated glass in acoustically sealed frame*

Table 5-1Minimum Recommended Rw Glazing Recommendations

Note *: This refers to all 25 units of the northern building side facing Phillip Street.

5.4 Alternate Ventilation

Alternate/mechanical ventilation will be required for all rooms (Ground Floor - Level 2) with facades facing Phillip Street, where mechanical ventilations is required, it must be approved by Council and in accordance with the relevant regulations such as the National Construction Code (NCC Vol.1, Part 4.5 *Ventilation of rooms*) and AS1668.2-2002 *The use of ventilation and air conditioning*.

5.5 Detailing

Note that well-detailed construction and careful installation is needed to achieve the required R_w acoustic ratings. All gaps are to be minimised and fully sealed with an acoustic rated sealant, such as FireBan One by Bostik or Sikaflex Pro 2HP by Sika.

5.6 Mechanical Plant Noise Assessment

Mechanical plant of potential significance in regard to environmental noise emissions includes the following AC condenser units:

Model			Sound powe	er levels (dB)	(outdoor u	unit)		
				(Hz)				
	63	125	250	500	1k	2k	4k	8k
FDXS50LVMA / RXS50LBVMA	53	53	52	49	47	42	35	28
SEZ-KD50VAQL / SUZ- KA35VAD	58	61	54	52	47	42	38	-
ARTG18LLTA / AOTG18LACC	58	56	52	47	46	43	38	32

Table 5-2 Mechanical Plant Equipment

The current AC design has been reviewed. All outdoor AC units will be installed on the balconies of the apartments, attenuated by the balustrades, dedicated screening and the proposed boundary fences. It must be noted that all AC units are facing away neighbouring sensitive receivers. The noise impact of the mechanical plants operating simultaneously is presented below:

Tuble 0 0 Micoliai		ipuol		
Receiver	Noise Source	Resultant Noise Level at Sensitive Receiver	Criteria	Compliance (Y/N)
11-19 Phillip Street	Mechanical Plant	39		Y
7 Lethbridge Street	Mechanical Plant	23	Day: 49 dB(A)	Y
12 Phillip Street	Mechanical Plant	28	Night: 40 dB(A)	Y
2-6 Champness Street	Mechanical Plant	28		Y

Table 5-3 Mechanical Plant Noise Impact

The operation of the mechanical plants shows compliance to the established noise criteria. No further acoustic measures are required.

Note: Council waste trucks will service the basement garbage room. The trucks will follow normal area procedure for garbage pickup. The truck will enter the enclosed basement were pickup operations will take place and are deemed to not cause any offence to sensitive receivers.



6 CONSTRUCTION NOISE & VIBRATION MANAGEMENT

6.1 Proposed Construction Works

All construction works required to complete the proposed development will be undertaken during standard daytime construction hours of 7:00 am - 5:00 pm Monday to Friday and 8:00 am - 5:00 pm Saturday only. Works outside of the standard daytime construction hours will only be undertaken with prior assessment and required approvals.

The construction program is to include the following key work stages and potential noise and ground vibration generating activity:

- Demolition of the parts of the existing building located at the project site;
- Excavation of some of the bedrock adjacent to the residence;
- Construction of the new parts of the residential building including foundation works, concreting and infrastructure installation of framework, walls, roof and electrical fit out;

The construction phases will include some limited site clearance, foundation preparation and infrastructure installation. It is our understanding that the construction programme is proposed to be more than 3 weeks in duration.

6.2 Construction Noise and Vibration Criteria

6.2.1 Construction Noise

Noise criteria for construction works are established in accordance with the EPA *Interim Construction Noise Guidelines* (ICNG).

All construction works are to be undertaken during daytime core hours of 7:00 am - 5:00 pm Monday to Friday and 8:00 am - 5:00 pm Saturday. No construction works are anticipated to be required outside of the standard daytime standard construction hours unless otherwise approved.

The ICNG provides recommended construction (airborne) noise management levels for residential receivers as detailed in Table 6-1.

Site specific noise management levels (NML) have been established adopting the background noise levels (L_{A90}) measured within the project site.

The noise management levels are design as a trigger for the project to investigate feasible and reasonable noise management and mitigation measures to reduce noise impacts at nearest noise affected receivers.

Table 6-1 Recommended Residential Construction Noise Criteria

Time of construction	Noise Management level L _{Aeq, 15min}	Adopted noise NML LAeq, 15min at neighbouring residences	
Standard construction hours			
Monday to Friday 7 am – 5 pm	Noise affected receivers RBL +		
Saturday 8 am - 5 pm	10 dB(A)	54 dB(A)	
No work on Sundays or public holidays			

Note: RBL rating background level, the measured L_{A90} noise level.

As construction works for the proposed development will only be carried out during the daytime period a standard daytime construction noise management level for the neighbouring residential receivers of L_{Aeq, 15min}



54 dB(A) has been adopted in accordance with the ICNG. NMLs for the evening and night periods are not applicable to this assessment.

There are no noise sensitive receivers such as schools or places of worship that have been identified within the study area. However, there is a hospital in the immediate vicinity of the development.

A L_{Aeq,15min} 75 dB(A) highly noise affected construction noise management level will be applied as a trigger for the application of additional construction noise controls such as respite periods or restriction of construction hours of operation. This trigger would apply to noise impacts on residential receivers only.

The recommended noise management levels are planning goals only. Factors such as the social benefits of the activity, economic constraints, and the nature and duration of the proposed construction program need to be considered when assessing potential noise impacts from construction works.

6.2.2 Construction Vibration

Vibration during construction works is considered an intermittent source associated with two main types of impact; disturbance at receivers and potential architectural/structural damage to buildings.

Generally, if disturbance issues are controlled, there is limited potential for structural damage to buildings.

Council recommends the criteria outlined in EPA *Interim Construction Noise Guidelines* be adopted for the construction of the proposed development.

Detailed in Table 6-2, the ICNG guidance adopts the *Environmental Noise Management Assessing Vibration: a technical guideline* (2006) for the assessment of human annoyance due to construction vibration. German Standard DIN 4150: Part 3-1999, provides guidelines for evaluating the effects of vibration on structures.

Dependent upon the dominant frequency of vibration, assessed in Hertz (Hz), structural vibration limits are established at the foundation of nearest buildings.

Dessiver	Annoyance VDV criteria, m/s	S ^{1.75}	Structural PPV criteria,	
Receiver	Preferred	Maximum	mm/s	
Residential	0.2	0.4	0.28 – 0.56	
Critical working areas (hospital operating theatres)	0.1	0.2	0.14 – 0.28	

Table 6-2 Adopted Vibration Constriction Criteria

Notes: structural vibration goals established for < 10 – 100 Hz dominant frequency of vibration. VDV = vibration dose value; PPV = peak particle velocity

6.3 Construction Noise & Vibration Management Plan

6.3.1 Construction Noise

The basis for the project-specific construction airborne noise goals for approved daytime hours is shown in Table 6-1.

Where the noise goals shown in Table 6-1 cannot be achieved, the construction contractor will use all reasonable and feasible noise mitigation and management measures to reduce noise generation and impacts.



The construction contractor will, if required, ensure compliance with the criteria of Table 6-2. It is anticipated that there will be minimal Construction Vibration within this development.

6.3.3 Typical Plant & Equipment Sound Pressure Levels

Sound pressure levels for typical items of plant are listed in Table 6-3. These noise levels are representative of modern plant operating with noise control measures in good condition.

Table 6-3	Noise Levels of Typical Construction Plant & Equipment
-----------	--

Item	Typical Plant Type	Typical L _{Aeq} Noise Level at 15 metres – dB(A)
Excavator	5 to 8 tonne	75
Bob Cat		71
Tip trucker		72
Hand Tools:- saws, nail gun, drills, hammers,		70
Concrete pump		75
Cement mixer		75
Crane		70
Kango		75

6.4 Noise & Vibration Mitigation Measures

6.4.1 Noise Control

The following noise mitigation measures will, if required, be implemented. The construction contractor will, where reasonable and feasible, apply best practice noise mitigation measures including:

- Maximising the offset distance between noisy plant items and nearby noise sensitive receivers.
- Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers.
- Minimising consecutive works in the same locality.
- Orienting equipment away from noise sensitive areas.
- Carrying out loading and unloading away from noise sensitive areas.

In order to minimise noise impacts during the works, the construction contractor will take all reasonable and feasible measures to mitigate noise effects.

The contractor will also take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers.

Silenced air compressors, fitted with noise labels indicating a maximum (L_{Amax}) sound pressure level of not more than 75 dB(A) at 7 m will be used on site. The sound pressure level of noise emitted from a compressor used will comply with noise label requirements.

6.4.2 Vibration Control

The following vibration mitigation measures will be implemented by the construction contractor:

- Relocate any vibration generating plant and equipment to areas within the site in order to lower the vibration impacts.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment.
- Use lower vibration generating items of excavation plant and equipment e.g. smaller capacity rockbreaker hammers.
- Minimise consecutive works in the same locality (if applicable).
- Schedule a minimum respite period of at least 1 hour before activities commence which are to be undertaken for a continuous four-hour period. The respite period is to be between 12:00 pm to 1:00 pm prior to the 1:00 pm to 5:00 pm continuous four-hour activity.

6.4.3 Summary of Mitigation Measures

The noise and vibration mitigation measures to be implemented by the construction contractor are listed in Table 6-4.

Item	Description
Construction Hours	Works will be carried out within the standard construction hours.
Deliveries	Deliveries will be carried out within the standard construction hours.
Site Layout	Where possible, plant and equipment will be located and orientated to direct noise away from sensitive receivers.
Quietest Suitable Equipment	Plant and equipment will be selected to minimise noise emission, where possible, whilst maintaining efficiency of function. Residential grade silencers will be fitted and all noise control equipment will be maintained in good order.
Hammer Equipment	Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles at site, and monitor the profiles in use.
Reversing Alarms	Mobile plant and trucks operating on site for a significant portion of the project will have reversing alarm noise emissions minimised, where possible, recognising the need to maintain occupational safety standards.
PA System	No public address system will be used at this site.
Truck Noise (off site)	All trucks regularly used for the project are to have mufflers, and any other noise control equipment, maintained in good working order. Trucking routes will use main roads, where feasible.
Construction Hours	Works will be carried out within the standard construction hours.

Table 6-4 Summary of Noise & Vibration Mitigation Measures

6.5 Identifying and Managing Future Noise & Vibration Issues

If additional activities or plant are found to be necessary that will emit noise and/or vibration emissions significantly exceeding those assumed for this assessment, these will, if required, be assessed by the Acoustical Consultant on a case-by-case basis and appropriate mitigation measures will be implemented.

6.6 Complaint Handling

The construction contractor will adopt the following protocol for handling complaints. This protocol is intended to ensure that the issues are addressed and that appropriate corrective action is identified and implemented as necessary:


- The project manager will record all verbal and telephone complaints in writing and will forward all complaints to the contractor, together with details of the circumstance leading to the complaint and all subsequent actions.
- Complaints received by the contractor will, as an initial step, be referred to the project manager who will respond as described above.
- The contractor will investigate the complaint in order to determine whether a criterion exceedance has occurred or whether noise and/or vibration have occurred unnecessarily.
- If excessive or unnecessary noise and/or vibration have been caused, corrective action will be planned and implemented by the project manager.
- Complainants will be informed by contractor that their complaints are being addressed, and (if appropriate) that corrective action is being taken.

Complainants will be informed of the implementation of the corrective action that has been taken to mitigate the adverse effects.

7 CONCLUSION

RSA has conducted a noise impact assessment of the proposed residential development at 14 - 18 Phillip Street. The assessment has comprised the establishment of noise criteria and assess noise impacts with regard to relevant statutory requirements in respect to road traffic, mechanical plant and noise and vibration.

A noise survey has been conducted and the processed data has been used to determine traffic noise from Phillip Street and the surrounding area to the project site.

Based on the noise impact study conducted, the proposed development is assessed to comply with the SEPP (Infrastructure) 2007 and the EPA's NPfI noise criteria with recommendations from this report. It is therefore recommended that approval be granted for the proposed development on the basis of acoustics.

Approved: -

in O. Sterma.

Rodney Stevens

Manager/Principal

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Appendix A Acoustic Terminology

A-weighted sound pressure	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz ($1000 - 4000$ vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic ' <i>A</i> -weighting' frequency filter is applied to the measured sound level $dB(A)$ to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).	
Ambient noise	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.	
Community annoyance	Includes noise annoyance due to:	
	character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content)	
	character of the environment (e.g. very quiet suburban, suburban, urban, near industry)	
	miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations)	
	human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).	
Compliance	The process of checking that source noise levels meet with the noise limits in a statutory context.	
Cumulative noise level	The total level of noise from all sources.	
Extraneous noise	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.	
Feasible and reasonable measures	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, considering the following factors:	
	Noise mitigation benefits (amount of noise reduction provided, number of people protected).	
	Cost of mitigation (cost of mitigation versus benefit provided).	
	Community views (aesthetic impacts and community wishes).	
	Noise levels for affected land uses (existing and future levels, and changes in noise levels).	



Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.
Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance- based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10^{th} percentile min L _{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of $2 \times 10-5$ Pa.
	The picture below indicates typical noise levels from common noise sources.



dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

Sound power Level (SWL) The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in dB(A).

The level of noise, usually expressed as SPL in dB(A), as measured by a standard sound level meter with a pressure microphone. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:





Sound Pressure

Level (SPL)

Statistic noise

levels



L_{Amax} Maximum recorded noise level.

L_{A1} The noise level exceeded for 1% of the 15 minute interval.

L_{A10} Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.

L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

L_{A90} Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold The lowest sound pressure level that produces a detectable response (in an instrument/person).

Tonality Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dB(A) penalty is typically applied to noise sources with tonal characteristics







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Ambient

14-18 Phillip Street, St Marys



Ambient

14-18 Phillip Street, St Marys



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Ambient

14-18 Phillip Street, St Marys



Ambient

14-18 Phillip Street, St Marys



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Ambient

14-18 Phillip Street, St Marys



Ambient

14-18 Phillip Street, St Marys





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Road Traffic

14-18 Phillip Street, St Marys



14-18 Phillip Street, St Marys



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Road Traffic



14-18 Phillip Street, St Marys



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Road Traffic

14-18 Phillip Street, St Marys



14-18 Phillip Street, St Marys



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Road Traffic



14-18 Phillip Street, St Marys



Appendix C Calibration Certificate Acoustic Unit 36/14 Loyalty Rd North Rocks NSW AUSTRALIA 2151 Research Ph: +61 2 9484 0800 A.B.N. 65 160 399 119 abs Pty Ltd www.acousticresearch.com.au Sound Level Meter IEC 61672-3.2013 Calibration Certificate Calibration Number C19389 Rodney Stevens Acoustics Pty Ltd **Client Details** 1 Majura Close St Ives Chase NSW 2075 Equipment Tested/ Model Number : Rion NL-42EX 00133010 Instrument Serial Number : Microphone Serial Number : 144601 Pre-amplifier Serial Number : 23060 Post-Test Atmospheric Conditions **Pre-Test Atmospheric Conditions** Ambient Temperature : 24.8°C Ambient Temperature : 25°C Relative Humidity : 41.5% Relative Humidity: 41.7% Barometric Pressure : 100.8kPa Barometric Pressure : 100.8kPa Secondary Check: Eloise Burrows Calibration Technician : Lucky Jaiswal Calibration Date : 2 Jul 2019 Report Issue Date : 8 Jul 2019 Approved Signatory : Ken Williams Result Result **Clause and Characteristic Tested Clause and Characteristic Tested** Pasi 12: Acoustical Sig. tests of a frequency weighting 17: Level linearity incl. the level range control Pass 18: Toneburst response Pass 13: Electrical Sig. tests of frequency weightings Pass Pass 14: Frequency and time weightings at 1 kHz Pass 19: C Weighted Peak Sound Level Pasi 15: Long Term Stability Pass 20: Overload Indication 21: High Level Stability Pass Pass 16: Level linearity on the reference level range The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3 2013, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2013 because evidence was not publicly available, from an independent testing organisation resonable for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1.2013 and because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1.2013. Least Uncertainties of Measurement Environmental Conditions Acoustic Tests ±0.2℃ 31.5 Hz to 8kHz -0 15dB Temperature Relative Humidity 12.126 =0.2dB 12 SkH= =0.015kPa Barometric Pressure 16kH: +0.29dB Electrical Tests 31.5 H: to 20 kH: =0.11dB All uncertainties are derived at the 95% confidence level with a coverage factor of 2. This calibration certificate is to be read in conjunction with the calibration test report Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172 Accredited for compliance with ISO/IEC 17025 - calibration The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports. PAGE LOF 1





Sound Level Meter IEC 61672-3.2013

Calibration Certificate

Calibration Number C19390

Client Details	s Rodi 1 Mi St Iv	ney Stevens Acoustics P ajura Close es Chase NSW 2075	ty I.td			
Equipment Tested/ Model Number	: Rion	NL-42EX				
Instrument Serial Number	: 0057	2542				
Microphone Serial Number	: 1703	70				
Pre-amplifier Serial Number	: 7288	80				
Pre-Test Atmospheric Conditions		Post-Test Atmos	pheric Condit	ions		
Ambient Temperature : 23.7°C		Ambient Temperature : 23.3		23.8	1.8°C	
Relative Humidity : 38.9% Barometric Pressure : 101.88kPa		Relative Humidity : 38.4		38.99	9%	
		Barometr	ic Pressure :	101.8	8kPa	
Calibration Technician : Lucky Jaiswal		Secondary Check:	Eloise Burroy	NS		
Calibration Date : 3 Jul 2019		Report Issue Date :	8 Jul 2019			
Approved Signatory	: th	20-		Ken	Williams	
Clause and Characteristic Tested R		Clause and Characte	ristic Tested	-	Result	
12: Acoustical Sig. tests of a frequency weighting P		17: Level linearity incl. th	ie level range con	fortn	Pass	
13: Electrical Sig. tests of frequency weightings F		18: Toneburst response			Pass	
14: Frequency and time weightings at 1 kHz		19: C Weighted Peak Sou	nd Level		Pass	
15: Long Term Stability		20: Overload Indication			Pass	
16: Level linearity on the reference level range		21: High Level Stability			Pass	

The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3.2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1 2013 because evidence was not publicly available, from an independent sesting organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1 2013 and because the periodic tests of IEC 61672-3 2013 cover only a limited subset of the specifications in IEC 61672-1 2013.

		Least Uncertainties of Measurement -		
Acoustic Tests 31.5 Hz to 8kHz 12.5kHz 16kHz	=0.15dB =0.2dB =0.29dB	Environmental Condutions Temperature Relative Humahry Barcometic Pressure	+0.2%* +2.4% +0.0/3kPa	
Electrical Tests 31.5 Hz to 20 kHz	=0.11dB			

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report



Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172 Accredited for compliance with ISO/IEC 17025 - calibration The tesults of the tests, calibrations and/or incastarements included in this document are traceable to

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NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports

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