

MEMORANDUM**MEMO-001.A**

Project	NEW DUNEDIN HOSPITAL : PRELIMINARY SITE MASTERPLANNING	
Subject	Cadbury Heritage Facades	
Date	08 October 2019	
Prepared by	Adam Flowers,	Director, CCM Architects
Prepared for	Ministry of Health	

1.0 Introduction

This memorandum has been prepared for the Ministry of Health as a commentary to inform decision making on the possible retention (or otherwise) of the Cadbury facades on Cumberland and Castle streets in the context of Preliminary Site Masterplanning and facility healthplanning. This memorandum should be read in conjunction with the WSP Opus Engineering Assessment of Existing Facades and the New Dunedin Hospital Preliminary Site Masterplan document. This memorandum does not make any comment on the history of the site, heritage value, or quality of the existing buildings or facades; reference should be made to specialist architectural heritage advice in this regard.

2.0 Preliminary Site Masterplan

An excerpt from the Preliminary Site Masterplan Report (the Masterplan) is attached as Appendix 1. It sets out the preferred configuration for the Acute Services Building (ASB) and the Ambulatory Services Centre (ASC) related to the New Dunedin Hospital project.

As set out in the Masterplan document, the preferred configuration was developed using a range of principles and criteria including geo-technical conditions, urban design, heritage features, land ownership and, importantly, the functionality and accessibility of the buildings for their principal purpose. These criteria were articulated through a workshop process with the Southern District Health Board. The principles and the Masterplan have been endorsed by the Southern Partnership Group. The criteria are described in detail in the Masterplan. Options were assessed against these principles and criteria.

As part of the master-planning process, engagement with a wide range of parties was undertaken. This included extensive functional briefings with the clinical users to determine the requirements of the building and high-level engagement with the Dunedin City Council, Heritage New Zealand, Ngai Tahu, and University of Otago. The project has also been discussed with the Otago Polytechnic, Otago Regional Council, and NZTA through the Local Advisory Group established through the New Dunedin Hospital project.

3.0 Spatial Arrangement

Various spatial arrangements were tested during this process including:

- > Locating both buildings on the northern block (known as the Wilsons block)
- > Locating both buildings on the southern block (known as the Cadbury Block)
- > Locating the larger Acute Services Block (ASB) on the Wilsons Block, with the smaller Ambulatory Services Building (ASC) on the Cadbury block
- > Locating the ASB on the Cadbury Block with the ASC on the Wilsons Block.

Through a series of workshops with the SDHB it was determined that locating the ASB on the Cadbury Block with the ASC on the Wilsons Block provided the optimal spatial configuration for the following reasons:

- > It locates the smaller and lower buildings (ASC) in the northern block and the largest and tallest building form (ASB) in the southern block. This provides a preferred urban form within the context of the grain of the wider CBD.
- > It locates the main entrances of the hospital facilities closer to the centre of Dunedin and to the new Bus Hub
- > It creates the opportunity for public outdoor amenity to the north and west of the site where it benefits from good sun and daylight. The reverse configuration would create the undesirable effect of over-shadowing of the newly created outdoor space.
- > It provides an excellent linkage between the ASC with the existing hospital facilities (including the Southern Blood and Cancer Building that will remain in operation when the hospital relocated to the new site), and the University research and education precinct
- > Advice during the Preliminary Site Masterplanning indicated variability in the geo-technical conditions of the northern block. This variability creates a more difficult in-ground engineering challenge for the ASB. The ASB is a very large building, required to be built to Importance Level 4 (IL4) standard, while the ASC is expected to be constructed to a lower Importance Level 3 (IL3) standard. Initial indications from the geo-technical and structural engineers suggest that locating the larger IL4 building on the Wilson site would be technically difficult due to the variability of soil conditions expected under that particular site. The Cadbury block is considered to be preferable for appropriate piling for the IL4 ASB facility due to the more consistent in-ground conditions across this site.
- > It allows for retention of the existing electricity sub-station in the short to medium term while a replacement sub-station is constructed, enabling a timely commencement of works.
- > It utilises the existing Crown ownership of the Cadbury site allowing for the timely commencement of the most complex parts of the new Hospital. The size and scale of the ASB is such that any delays in commencement of the build would increase the clinical and health and safety risks of staying in the existing premises longer than is necessary.

4.0 Heritage Considerations

Having determined the preferred spatial arrangement of the building elements, early design studies considered the implications for the listed heritage facades and the “Dairy Building” on the Cadbury site. While it has been possible to plan the new facility whilst retaining the Dairy Building at the south end of the site, a design solution that would allow retention of the heritage facades has not been developed. The reasons for this are as set out below.

The key drivers for the effective functioning of the ASB are the clinical relationships and area needs across the ground floor public and emergency care activities and the operating theatre floor above. Safe and efficient patient care requires adjacency of hospital departments across the podium floors to manage clinical flows. Our briefing process has tested the area and adjacency requirements for the hospital, and these briefing requirements drive the overall size and dimensions for the podium. Effectively, this means that the footprint for the new facility will be optimally determined by the areas required by each department and their functional relationships with other departments and access points. The resultant building footprint is not immediately compatible with the retention of the existing buildings on site. It becomes impractical to split clinical floors to reduce the footprint in order to retain the existing listed facilities. Moreover:

- > The ASB is required to be built to IL4 standard, requiring particularly high structural resilience. The existing heritage buildings do not meet this standard. The WSP Opus Engineering Assessment suggest that most of the existing buildings are in the order of 20% NBS against an

IL2 standard (which is significantly lower than the IL4 standard required for the new ASB). The WSP Opus report offers a range of options for façade retention that all have negative impacts on clinical planning & user experience, building methodology, seismic resilience, cost and construction programme. Some options impact the traffic flows on state highways during the construction period. The report concludes that “it is feasible to retain the façades; however, this will affect the layout and usage of the site.” It is our opinion that all of the retention options would severely restrict the optimal and efficient planning of a modern fit-for-purpose acute hospital.

- > Integration of the acute clinical services within the existing buildings and floor levels would not be efficient for fit-for-purpose acute clinical activities. Adaptive re-use for workspace or other support activities would be thinkable, but would be dependent on being able to fit all acute clinical activities efficiently onto other areas on site, which has not been achievable on the current area schedule and functional brief.
- > The clinical activities of the ASB require very specific ceiling heights and are heavily serviced. These space requirements, plus the structural beam depth determine the floor-to-floor heights. Detailed design work is required to determine the new building floor levels with accuracy. Initial concept design work incorporating inputs from hydrologists, structural engineers, services engineers, and health planners suggests that the required new floors will not align with the levels of the existing heritage buildings, meaning that the existing buildings are not considered to be suitable for efficient adaptive re-use as a clinical building. Furthermore, existing changes of level between buildings would not allow for easy transfer of patient beds, wheelchairs, and logistics trolleys, which is an important aspect of efficient clinical planning.
- > Any consideration for retention of sections of the existing buildings (for example the southern section (Block 1 as described in the WSP Opus report), should be mindful of the fall risk and collapse zone that would be required around retained buildings, and how they may impact on the post-disaster functionality of the hospital and access to the hospital.

Retaining only the existing heritage facades as part of the new ASB design was also considered however this was rejected for the following reasons:

- > The new hospital is expected to be base-isolated. Maintaining the existing facades would require the facades to be either detached from their foundations and supported off a new base-isolated structure, or engineered to be free-standing with a base-isolated structure allowed to move independently behind it. Refer to WSP Opus Engineering Assessment options. Façade retention solutions are extremely problematic in engineering terms, and would place an overly-restrictive and unacceptable burden on the construction of a new hospital.
- > The floor to floor heights of the new ASB are incompatible with the existing window locations on the facades. This would result in interior spaces in the new hospital that do not have adequate daylighting or views. Misaligned floors would pass across existing façade windows in a manner which is unlikely to be sympathetic to the existing architecture.
- > Access points are a key issue for hospital planning. For safety reasons, emergency ambulance traffic is separated from public vehicle activity around the hospital but public vehicle drop-off, shuttle drop-off, and taxi drop-off areas remain critical features of an efficient and effective public hospital. Masterplan stage hydrology studies indicate that a raised ground floor level approximately 2m above street level will be required to mitigate flood risk. This level change will require considerable ramping from the road for vehicles to navigate. The masterplan proposes a formal landscaped drop-off area to Cumberland Street which enables the roads to ramp up to the front door, creating a formal landscaped entry to Cumberland Street. This setback facing west-northwest creates considerable

public amenity which is appropriate for a civic building of this nature.

The WSP Opus option for replacement of the existing facades with lightweight GRC replicas is not considered appropriate. While likely to be cheaper than retention of existing façade, this option would repeat the same issues with retained facades of misaligned floor levels to windows. The loss of authenticity as a result of replacement of heritage construction with lightweight replicas would be the subject of heritage and conservation architectural discussion.

Conclusion

A robust preliminary site masterplanning process identified a preferred arrangement of buildings across the two sites with the new Acute Services Building located on the existing Cadbury factory site.

The post-disaster requirements for the new hospital require an acute facility that meets 100% NBS for an Importance Level 4 building. The existing buildings and their facades fall well short of this structural standard, and would require significant strengthening to meet the code. The new facility is likely to be base isolated, which increases the engineering difficulty of integrating the new facility with existing buildings or facades. Engineering assessment by WSP Opus has explored a range of options for façade retention.

Efficient clinical planning for an acute healthcare facility is not compatible with the configuration of the heritage buildings on site as they currently stand.

Façade retention, while possible, establishes a structural engineering challenge. We believe that façade retention would burden the planning of the new facility in a manner which would compromise optimal efficient clinical planning.

A requirement to retain the existing facades would require a fundamental re-think of the masterplanning preferred option and would negatively impact:

- > The ability to optimally plan the new facility for best clinical and support flows
- > The ability to optimally plan the site for vehicle and public access
- > Alignment of required floor levels with existing floors
- > Control over location of fenestration to suit internal activities
- > Project cost
- > Project programme
- > The ability to access the site in optimal locations for emergency vehicles
- > Locating a ground floor that is appropriately above the flood plane, and is readily accessible from the street.
- > A flexible expansion strategy for the hospital

APPENDIX 1

New Dunedin Hospital Preliminary Site Masterplan
Preferred Option