From: Nicky Barton

Sent:Tuesday, 12 July 2022 5:07 pmTo:Rose Boele van HensbroekCc:HIU (Health Infrastructure Unit)

Subject: RE: dunedin hospital

Categories: New Dunedin Hospital (NDH), Comms and engagement

The Government has committed \$1.4 billion to a new hospital in Dunedin as part of the billions of dollars we are pouring into infrastructure for the health system to make up for years of neglect under the previous government.

- The new Dunedin hospital is a massive project one of the biggest ever undertaken in New Zealand and will take years.
- Work on the first stage, a much-needed new outpatients' facility, is on track to be completed in 2025.
- Piling began on the site in early June.
- We are on track to commence construction on the inpatient building next year.
- We expect the inpatients building to be finished in 2028.
- (If pushed)
 - As with any project this size, there can be a need for some changes as the design process progresses.
 - Building costs and supply-chains have been affected by the COVID-19 pandemic and we are looking at how they affect all projects.
- The Outpatient Building is proceeding, we are currently negotiating with the preferred main contractor and will commence construction shortly for completion in 2025.
- The Inpatient Building will remain on track to be complete in 2028.

From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Tuesday, 12 July 2022 4:02 pm

To: Nicky Barton < Nicky.Barton@health.govt.nz>

Cc: HIU (Health Infrastructure Unit) < hiu@health.govt.nz>

Subject: RE: dunedin hospital

Hi Nicky,

Ignore the line Beth says these are all good that was from April.

Media guery will need this ASAP.

Thanks,

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobiles 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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Authorised by Hon Andrew Little MP, Parliament Buildings, Wellington 6160, New Zealand

From: Nicky Barton [mailto:Nicky.Barton@health.govt.nz]

Sent: Tuesday, 12 July 2022 3:56 PM

To: Rose Boele van Hensbroek < Rose. Boele van Hensbroek @parliament.govt.nz >

Cc: HIU (Health Infrastructure Unit) < hiu@health.govt.nz >

Subject: RE: dunedin hospital

Hi Rose,

Can you give me the context on what these are for (or what you guys are anticipating they might be for)?

Who is Beth and what is her involvement here?

Just keen for that background and then I will chase up ASAP.

Nicky

From: Rose Boele van Hensbroek < Rose. Boelevan Hensbroek @parliament.govt.nz>

Sent: Tuesday, 12 July 2022 3:51 pm

To: Nicky Barton < Nicky.Barton@health.govt.nz>

Cc: HIU (Health Infrastructure Unit) < hiu@health.govt.nz>

Subject: FW: dunedin hospital

Importance: High

Hey Nicky,

Can you please confirm these lines from April below are still relevant and all good to use?

Thanks,

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile s 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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Document 1

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From: Adelia Hallett

Sent: Tuesday, 12 July 2022 3:46 PM

To: Kaden Wilson < Kaden. Wilson@parliament.govt.nz>; Rose Boele van Hensbroek

<Rose.BoelevanHensbroek@parliament.govt.nz>

Subject: dunedin hospital

Hi can you please advise whether these lines prepared in April remain current:

The Government has committed \$1.4 billion to a new hospital in Dunedin as part of the billions of dollars we are pouring into infrastructure for the health system to make up for years of neglect under the previous government.

- The new Dunedin hospital is a massive project one of the biggest ever undertaken in New Zealand and will take years.
- Work on the first stage, a much-needed new outpatients' facility, is on track to be completed by 2025.
- We expect the inpatients building to be finished in 2028.
- (If pushed)
- o As with any project this size, there can be a need for some changes along the way as circumstances change.
- o Building costs and supply-chains have been affected by the COVID-19 pandemic and we are looking at how they affect all projects.
 - o Some non-clinical aspects of the new Dunedin Hospital project may not go ahead at this time.

The Outpatient Building is proceeding, we are currently evaluating main contractors and will commence construction shortly for completion in 2025.

The Inpatient Building will remain on track to be complete by 2028.

Ngā mihi

Adelia Hallett

Senior Press Secretary to Hon Andrew Little MP

DDI +64 4 817 9685 | Mobile S 9(2)(a) | Email adelia.hallett@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand



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From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Friday, 2 September 2022 6:16 pm

To: Monique Fouwler

Cc: Graham Smith; Nicky Barton; Helen (Telford); Tony Lloyd; HIU (Health Infrastructure

Unit)

Subject: RE: NDH comms

Follow Up Flag: Follow up Flag Status: Flagged

MATION ACT 1982 New Dunedin Hospital (NDH), Comms and engagement **Categories:**

Thanks so much!!!

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile's 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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Authorised by Hon Andrew Little MP, Parliament Buildings, Wellington 6160, New Zealand

From: Monique Fouwler [mailto:Monique.Fouwler@health.govt.nz]

Sent: Friday, 2 September 2022 5:51 PM

To: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Cc: Graham Smith <Graham.Smith@health.govt.nz>; Nicky Barton <Nicky.Barton@health.govt.nz>; Helen (Telford) <helen@telfordconsultants.com>; Tony Lloyd <Tony.Lloyd@health.govt.nz>; HIU (Health Infrastructure Unit)

<hiu@health.govt.nz> Subject: FW: NDH comms

Hi Rose

Further to your phone call this afternoon re a response to the ODT, please find below some messages we have put together

- All infrastructure projects are currently facing major cost increases as a result of supply-chain issues, the war in Ukraine and global inflation pressures.
- It is important that people in the public health sector keep control of their budgets.
- My expectation is that all project leaders will look at appropriate steps to mitigate the risk of cost escalation.
- Managing those cost escalations is an operational issue for Te Whatu Ora to deal with.
- It is my expectation that if there is to be any change to scope or services, that I am consulted before any decisions are made.

Out of Scope

CIAL INFORMATION ACT A 9882 Please let me know if you require anything further, but if not, have a great weekend.

Ngā mihi nui

Monique

Monique Fouwler (she/her)

Director - Delivery | Pou Whakahaere Infrastructure and Investment

waea pūkoro: S 9(2)(a) | īmēra: monique.fouwler@health.govt.nz



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From: Monique Fouwler

Sent: Wednesday, 28 September 2022 2:17 pm

Rose Boele van Hensbroek To: Cc: Graham Smith; Sarah Wales

Subject: RE: NDH Value management report

Thanks Rose

Just one wee typo below.

Ngā mihi nui

Monique

Monique Fouwler (she/her)

Director - Delivery | Pou Whakahaere Infrastructure and Investment

waea pūkoro: \$ 9(2)(a) | īmēra: monique.fouwler@health.govt.nz



Te Whatu Ora - Health New Zealand

TeWhatuOra.govt.nz

From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Wednesday, 28 September 2022 1:38 pm

To: Monique Fouwler < Monique. Fouwler@health.govt.nz >

Cc: Graham Smith < Graham.Smith@health.govt.nz>; Sarah Wales < Sarah.Wales@health.govt.nz>

Subject: RE: NDH Value management report

Thanks Monique – really good report.

Please see below my suggested lines to Ministers. Let me know if you have any issues.

- You are meeting with Pete tonight to discuss the New Dunedin Hospital and the value management exercise being undertaken to manage further cost escalation.
- As a way of context, Ministers provided an additional \$111m in Budget 2022 to address cost escalation estimates of \$200m for the NDH project.
- Since then value management activities have realised that it is not possible to achieve the savings articulated to Ministers and further changes to the design would be required. You are receiving a paper this weekend on three options that are being considered to address the cost escalation issues, which will be considered by Te Whatu Ora Board at the end of October. Option B below has been endorsed by the Executive Steering Group.
 - a) Option A: Make no changes to the design of the New Dunedin Hospital and hence no capital savings and seek additional funding above the \$111m allocated in B22 in future budgets if, or when, the escalation risk crystalises. In terms of design, programme, clinical, Iwi and stakeholder risk this option is least risky.

JACT 1982

- b) **Option B:** The recommended option of the Executive Steering Group (ESG) saves an estimated \$90m in capital costs but changes the design of the New Dunedin Hospital. With the inclusion of the \$17m released from the ILC, this option would utilise \$93m of the Budget 22 cost escalation provided. In terms of design, programme, clinical, Iwi and stakeholder engagement, this option is the riskiest.
- c) **Option C:** Design Lite recommended by Southern District Leadership. A hybrid approach that, albeit not tested, retains almost all the current design, and save an estimated saving of \$35m. With the inclusion of the \$17m released from the ILC, this option would utilise an additional \$37m of the Budget 22 cost escalation provided. This additional funding could be sought from future budgets if, or when, the escalation risk chrysalises. In terms of design, programme, clinical, Iwi and stakeholder risk, this option is more closely aligned to Option A and less risky than Option B.

• S9(2)(g)(i)

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobiles 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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From: Monique Fouwler [mailto:Monique.Fouwler@health.govt.nz]

Sent: Wednesday, 28 September 2022 11:48 AM

To: Rose Boele van Hensbroek < Rose. Boelevan Hensbroek @parliament.govt.nz >

Cc: Graham Smith Graham.Smith@health.govt.nz>; Sarah Wales Sarah Wales <a href="mailto:Sarah.Wales.Males

Subject: NDH Value management report

Hi Rose

As discussed, here is the DRAFT report and appendices. The final copy will come to you later today hopefully.

Ngā mihi nui

Monique

Monique Fouwler (she/her)

Director - Delivery | Pou Whakahaere

Infrastructure and Investment

waea pūkoro: \$ 9(2)(a) | īmēra: monique.fouwler@health.govt.nz



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From: Sarah Wales on behalf of HIU (Health Infrastructure Unit)

Sent: Wednesday, 28 September 2022 4:54 pm

To: Rose Boele van Hensbroek

Cc: Monique Fouwler; Graham Smith; HIU (Health Infrastructure Unit); Susan Corbitt;

Health New Zealand Govt Services

Subject: HNZ00004354 New Dunedin Hospital Value Management

Attachments: HNZ00004354 New Dunedin Hospital Value Management.pdf; HNZ00004354

Appendix 1 Value Management Report to ESG.pdf; HNZ00004354 Appendix 2 Clinical Impact Assessment.pdf; HNZ00004354 Appendix 3 NDH Southern Leadership Response on Option B.pdf; HNZ00004354 Appendix 4 NDH

Contingency Status as at Sept 22.docx

Hi Rose,

Please find attached the briefing HNZ00004354 New Dunedin Hospital Value Management.

Thanks Sarah

Sarah Wales (she/her)

Principal Advisor

Infrastructure and Investment Group

waea pūkoro: § 9(2)(a) | īmēra: sarah.wales@health.govt.nz 83 Molesworth Street, Wellington | PO Box 5013, Wellington, 6140



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Aide-Mémoire

New Dunedin Hospital - Value Management

То	Hon Andrew Little, Minister of Health	Report No	HNZ00004354
From	[Graham Smith, Interim Chief, Infrastructure & Investment Group, Te Whatu Ora - Health New Zealand	Date	28/09/2022
Сору	Hon Grant Robertson, Minister of Finance Margie Apa, Chief Executive, Te Whatu Ora	Security level	In Confidence

Contact for telephone discussion (if required)						
Name	Position	Telephone	1st contact			
Graham Smith	Interim Chief Infrastructure and Investment Group	s 9(2)(a)	x			
Monique Fouwler	Director- Delivery, Infrastructure and Investment Group	s 9(2)(a)				

Purpose/Background

- This Aide-Memoire provides you with a report to Joint Ministers on the value management exercise that has occurred at New Dunedin Hospital by 29 September as requested.
- This paper has been noted by the Te Whatu Ora Board, but due to the recent timing of advice from the Project Steering Group and Management, the Board has not been able to adequately review the value management options nor are they in a position at this stage to provide recommendations to Ministers.
- 3. The Capital and Infrastructure Committee and Board will consider the advice in October, after which recommendations can be provided to the Minister of Health.

Executive Summary

4. In March 2022, joint Ministers of Health and Finance agreed to a series of cost saving measures to address and the provision of an additional \$111m in Budget 22 to address cost escalation estimates of \$200m for the New Dunedin Hospital project. Joint Ministers noted that any further significant deviations from what has been agreed needed approval from Joint Ministers.

- Value management activities since then have realised that it is not possible to achieve the savings articulated to joint Ministers and further changes to the design would be required.
- 6. Joint Ministers have sought a report back on the value management activities by 29 September 2022. Note this is ahead of the Te Whatu Ora Capital and Infrastructure Board Committee or Board having the opportunity to consider the options or provide the Minister of Health with its recommendation. The Te Whatu Ora Board and the Board Committee are rapidly inducting themselves on projects that are in flight and already mid-way through decision making and implementation.
- 7. Three options are available for consideration, these being:
 - a) Option A: Make no changes to the design of the New Dunedin Hospital and hence no capital savings and seek additional funding above the \$111m allocated in B22 in future budgets if, or when, the escalation risk crystalises. In terms of design, programme, clinical, lwi and stakeholder risk this option is least risky.
 - b) Option B: The recommended option of the Executive Steering Group (ESG) saves an estimated \$90m in capital costs but changes the design of the New Dunedin Hospital. With the inclusion of the \$17m released from the ILC, this option would utilise \$93m of the Budget 22 cost escalation provided. In terms of design, programme, clinical, lwi and stakeholder engagement, this option is the riskiest.
 - c) Option C: Design Lite recommended by Southern District Leadership. A hybrid approach that, albeit not tested, retains almost all the current design, and save an estimated saving of \$35m. With the inclusion of the \$17m released from the ILC, this option would utilise an additional \$37m of the Budget 22 cost escalation provided. This additional funding could be sought from future budgets if, or when, the escalation risk chrysalises. In terms of design, programme, clinical, lwi and stakeholder risk, this option is more closely aligned to Option A and less risky than Option B.
- 8. The relative risks associated with each Option are summarised in the table below.

	Capital Cost	Operating Costs	Inpatient Construction Start	Inpatient Go Live	Design Risk	Clinical risk	lwi and stakeholder risk
A. Base case	~\$1,670m	Large bldg	April 23	June 28	Nil		
B. ESG Endorsed	~\$1,563m (\$90m + \$17m)	Tsf of costs	January 24	March 29	Moderate		
C. Design Lite Option	~\$1,618m (\$35m +\$17m)	Large bldg	April 23	June 28	Minor		

Background

 The Detailed Business Case (DBC) for delivery of the New Dunedin Hospital (NDH) was approved by Cabinet in April 2021 [CAB-21-MIN-0124]. The DBC concept design comprised:

- a) Inpatient Building (including link bridges and an Ancillary Building located on the Bow Lane site): 77,591 m²
- b) Outpatient Building:

13,391m²

- 10. The DBC identified clinical service capacity requirements out to year 2043 based on a high efficiency service demand model. It does, however, acknowledge a risk that demand may exceed forecast, or that efficiency assumptions may not be achieved, and it therefore highlights the need for expansion capacity in key areas such as ICU beds and theatres. Of note the hospital was to include:
 - a) 410 Beds including 30 ICU or high dependency beds (expandable to 40)
 - b) 16 Acute, Elective and Same Day Theatres (expandable to 20)
- 11. In addition to the above clinical requirements, the Business Case also commits to:
 - a) The design future proofing for flexibility and immediate easy expansion based on the principle of 'long life, loose fit'
 - b) A carbon neutrality programme and a 5 Star Greenstar accreditation target
 - c) Pandemic readiness planning
- 12. In March 2022, in response to forecasted cost escalation of \$200 million on the budgeted \$1.47 billion, the Ministry of Health provided a briefing to joint Ministers [HR20220041 refers] on options to achieve savings between ~\$50m and ~\$200m.
- 13. Joint Ministers agreed to an option that indicatively achieved \$89m in savings and provided a budget top up in B22 of a further \$111m, to meet the forecast budget shortfall. The option chosen by the joint Ministers had the following key features:
 - Removal of the Pavilion Building and incorporation of the components into the Logistics and Inpatient Buildings, enabled through the reduction of clinical and nonclinical areas.
 - b) Retention of one link bridge between Inpatients and Outpatients buildings.
 - c) Third party financing of the ILC releasing \$17m additional budget to cover cost pressures (see note below re ILC)
 - d) Value engineering of the facade
 - e) Reduction of the Major Medical Equipment (MME) budget
 - f) Delivery of the Mental Health Services of Older People IPU service in the community.
- 14. A key underlying assumption to the recommended option provided to Ministers was that it avoided major re-design of the Inpatient Building and risks associated with significant programme delays due to re-undertaking the Concept and Preliminary Design which would create addition escalation pressures. The Inpatient Building is currently 75% of the way through Developed Design.
- 15. Subsequent to that advice, furthermore detailed investigations were undertaken and it became clear that the approach outlined to joint Ministers would not yield the savings as envisaged.

- 16. In May 2022 the project team began a detailed design optimisation study to further develop and refine the above option, with a target of realising a net \$100m saving.
- 17. A key consideration was the need to minimise programme impact both in terms of redesign and Inpatient Building opening date, as offsetting associated time related costs significantly increases the building savings required to be achieved.
- 18. The project team explored and tested various design schemes as part of the optimisation study with an aim to achieve the required savings by:
 - a) Improving building efficiency through bulk and form
 - b) Refining building systems and materiality
 - c) Maximising building spatial use and efficiency
 - d) Minimising the required reduction of day-one clinical services and capacities
 - e) Minimising the extent of clinical replanning
 - f) Utilising collaborative workspace flexibility (by taking a distributed approach)
 - g) Minimising loss of building resilience and energy efficiency
 - h) Minimising any adverse impact to building maintenance and operation
- 19. Design exploration and associated clinical / operational user engagement resulted in an iterative design process and development of a scheme that resulted in an estimated net saving in capital costs of \$90m.

Key Design Changes

- 20. The key changes from the current developed design, in addition to that already agreed by the joint Ministers, that were presented to the Executive Steering Group are attached in Appendix 1. A summary is provided below.
 - a) Removal of logistics building and replaced with a generator and heat pump chiller facility.
 - b) Inpatient building repositioned to enable Loading Dock to the south and future develop site to the north
 - c) Reduction in Inpatient Unit bed numbers by 32.
 - d) Remove of the 24 older persons mental health inpatient beds.
 - e) Reduction in fitted out theatres from 16 to 15 and 2 fewer shelled theatres i.e., 3 fewer theatres in total.
 - f) Removal of the PET/CT scanner
 - g) Removal of Pharmacy Production Unit
 - h) Reduction in Pathology Lab space to a 24-hour Collection Point / 'Hot Lab' for acute clinical functions.

Key Design, Programme and Financial Risks and Issues

- 21. The key risks and issues noted by the project team of the recommended option are:
 - a) The value managed scheme is at a feasibility / concept design stage and will require the project to revisit preliminary design for the new and significantly impacted design elements. With respective to the existing Inpatient Building design, significant changes include spatial replanning for Level 0, 1, 2, 3 and 6, and the Level 3 and 10 plant rooms.
 - b) Therefore, there is a level of design development required to fully verify the scheme both technically and functionally with users, and in terms of understanding and quantifying the delivery impacts. The project team proposes to incorporate a fast track 'key user' engagement and design review and approvals processes for the revisited Preliminary Design and Developed Design phases. Enabling a seamless redesign will be essential for minimising programme impact.
 - c) The impact on programme is forecasted in the table below.

	Current Programme Rev 4.	Optimisation Programme	Delay Impact
Design (prolongation to 100% Detailed Design Completion)	August 2023	September 2024	12 months
Inpatient Building Construction Start (piling)	April 2023	January 2024	9 months
Inpatient Building Opening "Go Live"	June 2028	March 2029	9 months

Note:

- a. The above dates are forecast on Te Whatu Ora approval to commence redesign as of 16 September 2022
- b. Programme 'Delay Impact' is <u>not</u> cumulative.
- d) A high-level feasibility estimate of the net savings achieved for the value managed scheme has been provided, a summary of which is in table below.

Estimated Cost Saving

Building Cost Saving: \$117,000,000

Less:

Consultant Fees: \$ 12,000,000

Escalation: \$ 15,000,000

Estimated Net Project Saving: \$ 90,000,000

- e) Actual savings achieved will not be confidently known until the design has gone through the Preliminary Design and Developed Design phases which are forecast to extend out to December 2023. Cost checks will be undertaken at the conclusion of each phase given their short durations of 5 months and 6 months respectively.
- f) Other financial risks include:
 - Redesign programme not being achieved or enabled due to consenting, stakeholder engagement, approval processes, and ability to progress early procurement of critical trades
 - ii. Escalation rates applied being exceeded
 - iii. Interior design replanning impacted by unforeseen obstructions (e.g., new risers) or clinical requirements

- iv. Building services value management savings not obtaining final agreement
- v. Consultant fee variations exceed budget allowance
- vi. Unanticipated urban design requirements

Clinical and Operational Risks and Issues

- 22. In response to the project teams report, Southern Clinical Leadership issued a Clinical Impact Statement and Report. These are attached in Appendices 2 and 3. In summary it noted the following:
 - a) The current design for the New Dunedin Hospital has taken four years of careful planning
 - b) There has been insufficient time to enable a full consideration of the clinical risks on the value management option recommended to the ESG, for example:
 - c) Critical loss of bed capacity leading to a sustained and high risk of patient harm along with significant impacts on planned care and operational failure
 - d) The impact of space reduction allocated to Pathology services will require an indepth study of the requirements for delivery of a two+ site pathology service.
 - e) The proposed changes to Mental Health Services for Older People (MHSOP) Unit will require a regional study into a new model of care approach for delivery of this service.
 - f) National strategic direction for provision of PET-CT.
 - g) Regional planned care provision.
 - h) There has been insufficient consideration of the operational cost or deferred capital cost impact of the proposed changes, for example, moving services (partially or fully) out of scope of the NDH still requires a facility to be provided.
 - i) Mana whenua and stakeholder groups have been well engaged in the design process to date but have not had the opportunity to fully detail the impact of the proposed option from their perspective.
- 23. In response to the Clinical Impact Report, the Executive Steering Group have agreed to
 - a) Reinstate the 32 inpatient beds at a cost of \$9(2)(b)(ii) and
 - b) Reinstate 12 of the 24 acute older persons mental health beds at a cost of section.
- 24. The additional cost of \$20(2)(0)(0) will be funded from the design contingency. Total design contingency for Inpatient Buildings is \$20(2)(0)(0) with no contingency spent to date see Appendix 4 for overall project contingencies.
- 25. However, even with the reinstatement of 44 beds it still leaves the New Dunedin Hospital with 12 fewer beds than in the current business case.
- 26. The balance of the older persons mental health beds would look to be delivered in community. However, there is currently no clinical service planning or funding allocated to deliver the remainder of the beds nor is the model of care sufficiently developed to

- fully understand the number and types of beds required and options that may not require capital.
- 27. Clinical representation on the Executive Steering Group made the following comments in relation to residual clinical risk:
 - a) It is good to see the beds reinstated in the model as that provides immediate flexibility for future growth and changes in model of care
 - b) It is also good to see Southern accept that the model of care for MHSOP needs review and that might result in fewer inpatient beds releasing space for future flexibility e.g., adult med/surge growth
 - c) The plan to move the kitchen allows for the Ops centre and clinical engineering to move. Arguably the Ops centre will be in a better place closer to ED.
 - d) There is sufficient shared space for teams and meetings noting that so many more people now work from home or zoom from other sites.
 - e) It is reassuring to see the Operating Room shells for the future retained. Overall, there is plenty of capacity for future growth.
 - f) The building is impressive, large, and future proofed and will allow for greatly enhanced safety and clinical/patient/family experience. Key colocations have been preserved.
 - g) There is never enough money for every clinical desire to be realised but the designers have done a great job and the clinical leadership team have been very constructive in ensuring preservation of key spaces and future resilience.
- 28. To further mitigate the design and clinical risk, the project team are looking to engage a health planner to provide independent advice as the design progresses.

Alternative Proposal

- 29. The Southern Leadership Team have provided an alternative proposal that they believe addresses many of the key risks and issues associated with the Executive Steering Groups recommended value management scheme by adopting a 'design lite' approach.
- 30. Essentially, the alternative proposal retains the Pavilion and Logistics Building and the current design of the Inpatient Building except:
 - a) Staging approach including radiology (cold shell 1x MRI and 2x X-rays), cold shell PET-CT and hybrid 1x down spec.
 - b) Removal of blue bridge.
 - c) Cold shell 12 beds MHSOP.
 - d) Adjusting the single:twin ratio from 75% to 62% in inpatient wards
 - e) Redistributing workspace in the Pavilion Building to the Inpatient Building
 - f) Deleting a floor off the Pavilion Building
 - g) Deletion of two theatres.

31. They acknowledge that this option has not been investigated by the Project Team nor has it been through the Clinical Leadership but based on information they have to hand they have estimated a potential \$35m capital saving whilst also incurring far less clinical, operational and design risk.

Overview of Options

- 32. There are essentially three options available in response to the cost escalation pressures for the New Dunedin Hospital. These are:
 - a) Options One: Retain existing design and seek further funding when the escalation risk chrysalises.
 - This option acknowledges that escalation risk of \$200m has been presented and that
 there is currently \$111m additional funding set aside in B22 that contributes toward
 the mitigation of that risk. Given the market uncertainty at the current time, it is not
 known whether the \$200m will be the final escalation cost or not. In a year or two's
 time, when costs are better understood and impacts on remaining budget can be
 assessed including remaining contingency, further funding may or may not be
 required.
 - b) Option Two: Undertake value management option as recommended by the Executive Steering Group
 - This option saves ~\$90m in capital costs but increases programme, operational, clinical and stakeholder risks. As per the above, given market uncertainty it is still not know whether the savings and additional budget allocated will be sufficient to cover escalation risk and further funding in the future may be required. With the addition of the \$17m released from the ILC contribution provides a \$107m reduction in funding required, calling on only \$93m from the Budget 22 allocation.
 - c) Option Three: Design Lite option recommended by Southern District Leadership
 - This option is a hybrid approach between Options A and B. It has not been tested by the project team but seeks to reduce ~\$35m in capital costs, whilst minimising or eliminating the clinical, operational, programme and stakeholder risks. The same risks relating to escalation hold for this option also. With the addition of the \$17m released from the ILC contribution this option provides a \$52m reduction in funding required but would therefore require a funding top up of an additional \$37m over the Budget 22 allocation or from future budgets.
- 33. The table below shows the key design changes to the current developed design:

2	# of IP Beds	# of theatres	PET CT Scanner	MRI	General X-Ray	Pathology Laboratory	MHOPU beds	Pavilion Bldg	Logistics Bldg
A. Base case	410	16 Exp to 20	1	3	8	1 (shell)	24	Remains	Remains
B. ESG Endorsed	398	15 Exp to 18	0	2 Exp to 3	6 Exp to 8	Reduced to 24hr hot lab/collection shell	12?	Removed	Removed
C. Design Lite Option	398 expandable to 410	15 Exp to 18	1 (shell)	2 Exp to 3	6 Exp to 8	1 (shell)	12?	Remains - 1 floor	Remains

34. The table below shows the impact of each proposal on key risk elements, with the original design being used as the base case for comparison.

	Capital Cost	Operating Costs	Inpatient Construction Start	Inpatient Go Live	Design Risk	Clinical risk	lwi and stakeholder risk
A. Base	~\$1,670m	Large bldg	April 23	June 28	Nil		
case							
B. ESG	~\$1,563m	Tsf of	January 24	March 29	Moderate		
Endorsed	(\$90m	costs					
	+\$17m)						
C. Design	~\$1,618m	Large bldg	April 23	June 28	Minor		Ο.
Lite	(\$35m						20V
Option	+\$17m)						700

Engagement with Te Aka Whai Ora

- 35. Te Aka Whai Ora have not been engaged to date on the New Dunedin Hospital. Ngai Tahu are represented on the Executive Steering Group and local mana whenua have been engaged over the last four years in relation to the design.
- 36. There have been several briefing and follow-up co-design workshops held with Aukaha and Mana Whenua representatives on the optimisation process and resultant options. Whilst Aukaha expressed that the loss of the Pavilion Building and 'cloak' façade has been disappointing, there has been understanding of the context and need for savings in the discussions to date.
- 37. The Mana Whenua panel continue to discuss whether the interim project name of "Whakatuputupu" will remain or be withdrawn. It is envisaged that all other aspects of the Māori Models of Care and the Cultural Narrative will continue to be represented appropriately in the Executive Steering Group Scheme. It should be noted that sufficient time and budget fee allowance needs to be made to allow for the future co-design process with Aukaha and mana-whenua, to achieve the appropriate expressions of the cultural narrative in the Inpatients Building and landscape design.





Conclusion

- 41. The current design process is approximately 75% of the way through the Developed Design phase. It is unusual that such a significant level of cost saving is required to be found at this stage of the process. Nonetheless, the project team consider that there have been some significant efficiencies and savings found that nearly achieves the full business case scope which would result in a capital saving of ~\$90m.
- 42. The Executive Steering Group agreed that the 32 bed IPU be retained and funded through the release of design contingency. In terms of the older persons mental health beds, the Executive Steering Group also recommended that there was a need for acute older persons mental health beds and that a portion of contingency should be released to reinstate an unspecified number of beds. For planning purposes the design is accounting for 12 beds. There remains a need for further engagement to address other issues raised in the Southern Clinical Impact Statement with a view to resolving them where possible as part of the design process.
- 43. Te Whatu Ora Southern Leadership recommended an alternative option of keeping the design developed to date including the Pavilion Building. The approach would involve cold shelling or staging of components of the current design (estimated \$35m) and avoiding additional costs for professional fees and programme delay.

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Next steps

- 44. Once a final option is endorsed by the Board, advice will be provided to Joint Ministers for approval.
 - a) The project team will continue with the design and consultation as required
 - b) A communication plan will be developed with the Ministers office for release as soon as possible

Graham Smith Interim Chief

Infrastructure and Investment Group
Te Whatu Ora - Health New Zealand

Hon Andrew Little Minister of Health

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28 / 09 / 2022

Appendices

Appendix 1: Value Management Report recommended by Project Team to the Executive Steering Group

Appendix 2: Clinical Impact Statement

Appendix 3: Southern Leadership Response on Option B

Appendix 4: New Dunedin Hospital Contingency Status as at September 22



Memorandum

i (Ci	
7 September 2022	

Project	New Dunedin Hospital	Date	7 September 2022
То	Tony Lloyd	Revision	5
From	RCP	Status	FINAL
Subject	Inpatient Building & Logistics Building Design Optimis		
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1 Purpose

This paper:

- a) provides the New Dunedin Hospital Executive Steering Group (ESG) with a summary of the Inpatient Building and Logistics Building design optimisation study, and
- b) seeks endorsement of the Recommended Scheme and approval to commence redesign.

2 Background

2.1 Project Benefits and Fundamental Requirements

The approved Final Detailed Business Case (Business Case) for delivery of the New Dunedin Hospital (NDH) was issued 22 March 2021.

The Business Case confirmed the project fundamental requirements for clinical services and capacities based on a two-building site plan (Inpatient Building on the former Cadbury site and Outpatient Building on the former Wilson site) and a 90,982m² concept design comprising:

- Inpatient Building (including Links and Ancillary Building): 77,591 m²
- Outpatient Building: 13,391m²

In addition, the concept design included precinct expansion and development opportunities to the south of the Inpatient Building and to the north of the Outpatient Building.

While the Business Case identified a two-building site plan as the preferred option, it is noted that the Concept Design was in fact a three-building site plan comprising:

- Inpatient Building on the Cadbury site
- Ancillary Building (Logistics Building) on the Bow Lane site
- Outpatient Building on the Wilson site

The Business Case outlines the investment objectives with the following associated benefits sought:

- **Better health outcomes**: patient care being delivered more efficiently, improved quality and an improved experience for patients, families/whānau and staff.
- Improved efficiency: better clinical planning improving resource efficiency and productivity.
- Improved patient safety and experience: patients and their families have an improved experience of care, contributing to more engagement and improved patient recovery.
- Improved experience for staff: improved workplace experience, contributing to more engagement, fewer absences and improved staff retention rates, lower turnover and better staff recruitment.
- A more resilient system: a new hospital with digital infrastructure and systems bringing benefit in the form of greater resilience to the local health system.

The Business Case identifies clinical service capacity requirements out to year 2043 based on a high efficiency service demand model. It does, however, acknowledge a risk that demand may exceed forecast, or that efficiency assumptions may not be achieved, and it therefore highlights the need for expansion capacity in key areas such as ICU beds and theatres. The modelling confirmed the clinical services and capacities as detailed in Section 1.4 and Appendix A respectively of the Business Case (refer **Attachment A**). Of note the hospital was to include:

- 410 Beds (note: Business Case count error for beds at 421, should be 410)
- 16 Acute, Elective and Same Day Theatres (expandable to 20)
- 30 ICU or high dependency beds (expandable to 40)

In addition to the above fundamental requirements, the Business Case also commits to:

 Design future proofing for flexibility and immediate easy expansion based on the principle of 'long life, loose fit'

- A carbon neutrality programme and a 5 Star Greenstar accreditation target
- Pandemic readiness planning

2.2 Design Development

Design scope parameters were issued to the Design Team in the form of a two page Scope Parameter Memo dated 11 March 2020 (refer **Attachment B**) which confirmed construction budget, required clinical services and capacities, maximum gross floor area and target design efficiencies for travel (18%) and engineering (21%).

Underpinned by the Australasian Health Facility Guidelines (AusHFG), the clinical and technical design briefs were developed with input from the clinical and operational users. These briefs define the functional and future re-fit / expansion requirements and resulted in the current developed design efficiencies in Table 1 below.

Table 1 – Current design efficiency

	Outpatient Building	Inpatient Building	Logistics Building	Total
Gross Floor Area (GFA)	15,425m ²	73,485m ²	6,119m ²	95,029m ²
Gross Departmental Area (GDA)	9,281m²	48,765m ²	2,217m ²	60,263m ²
Engineering % GDA	40.4%	31.5%	143.6%	-
Travel % GDA	11.9%	17.9%	10.6%	-

Figure 1 – Current design image



2.3 Forecast Construction Cost and Programme

The forecast construction cost and key programme milestones for the current developed design is provided in Table 2 and 3 below.

Table 2 - Current cost position1

	Construction Budget (Excluding contingency)	Estimated Construction Cost	Variance
Outpatients Building	S9(2)(b)(ii)		
Inpatient Building & Logistics Building			2
			. 0,0

Table 3 – Developed design programme milestones²

	Detailed Design Completion	Construction Start (Piling)	Opening "Go Live"
Outpatient Building	4 April 2022	19 April 2022	19 January 2025
Inpatient Building	3 August 2023	19 April 2023	8 June 2028
Logistics Building	21 April 2023	2 May 2023	8 June 2028

2.4 Ministerial Direction in Response to Cost Escalation Pressures

In March 2022, in response to the forecast \$200 million cost escalation over and above the project budget (\$1.47 billion), the Ministry of Health provided a briefing to Ministers of Health and Finance (joint Ministers) on options to achieve savings and bring forecast project costs closer to budget. Joint Ministers indicated support of an option (option 2c), with potential to achieve up to \$100 million in savings. Option 2c had the following key features:

- Removal of the Pavilion Building
- Third party financing of the Interprofessional Learning Centre (ILC) Noted to no longer be an option
- Value engineering of the facade
- Reduction of the Major Medical Equipment (MME) budget
- Retention of the "red" link bridge for clinical services between Inpatients and Outpatients
- Delivery of the Mental Health Services of Older People IPU service in the community
- Relocation of pathology to the Logistics Building and re-purposing of the vacated space
- A reduction in engineering and select clinical areas, backfilled within staff workspace, which could be converted back to clinical spaces in the future when required.

In May 2022, the project team were directed to undertake a detailed design optimisation study to further develop and refine the above option, with a target of realising a net \$100 million saving.

¹ Figures based on RLB Memo 'New Dunedin Hospital Inpatients Building Optimisaton Estimated' dated 30 August 2022

² Programme dates based on Master Programme Rev 4, not current actuals for Outpatient Building. Inpatient Building dates are now subject to delay due to the design optimisation study (3 months sunk time to date)

3 Optimisation Study

3.1 Approach

The optimisation study was led by RCP and Warren & Mahoney and has drawn on the expertise and input of the full project team, including the ECE Contractor.

A project team briefing workshop was held with client representatives on 17-18 May 2022 which confirmed the following design optimisation study key constraints:

- Business Case benefits sought and fundamental requirements to be realised, or able to be realised at 'end state'
- 'Day one' clinical impact to be minimised
- Pavilion Building to be removed (northern section of the Inpatient Building)
- Outpatients Building to be retained in its current design form
- Red bridge connection to the Outpatient Building to be retained
- Future site expansion and flexibility to be retained
- Building excavation depth not to be increased
- Pandemic Response design intent and capacity to be retained
- 5 Star Greenstar accreditation target to be retained

3.2 Design Optimisation

The project team explored and tested various design schemes as part of the optimisation study with an aim to achieve the required savings by:

- Improving building efficiency through bulk and form
- Refining building systems and materiality
- Maximising building spatial use and efficiency
- Minimising the required reduction of day-one clinical services and capacities
- Minimising the extent of clinical replanning
- Utilising collaborative workspace flexibility (by taking a distributed approach)
- Minimising loss of building resilience and energy efficiency
- Minimising any adverse impact to building maintenance and operation

Another key issue was the need to minimise programme impact both in terms of redesign and Inpatient Building opening date, as offsetting associated time related costs significantly increases the building savings required to be achieved.

Design exploration and associated clinical / operational user engagement resulted in an iterative design process and development of a single Recommended Scheme, this being referred to as Option 4.3 (refer **Attachment C**).

The Recommended Scheme maximises the Inpatient Building spatial use and absorbs both the Pavilion Building café, staff amenities and collaborative workspace, and the Logistics Building loading dock, back-of-house and main kitchen facilities. Displaced building services plant from the Pavilion Building (heat pump chillers) and the Logistics Building (generators) remain to be located on the Bow Lane site and housed or mounted using cost-effective on grade design solutions. Noting the generator facility is proposed to supply both the Inpatient Building and Outpatient Building.

Future precinct expansion and development opportunities are achieved to the north (as designated) and south (Diary Building or above the Loading Dock) with the Inpatient Building Level 1 planning retaining the ability to create the required link connections. Furthermore, it is noted that the project team continues to investigate the feasibility of locating the heat pump chillers on the Inpatient Building site in order to create a future development opportunity on the Bow Lane site (discussed further below).

The Recommended Scheme realises the Business Case benefits sought and fundament requirements subject to the day-one departures detailed in Table 4 below. Refer to **Attachment C** for a full

compliance and departure comparison with the Business Case for both the Recommended Scheme and current design.

Table 4 – Day-one Business Case departures

	Business Case	Current Hospital	Recommended Scheme
Inpatient Beds	410 ³	352	354 (Expandable to 3864)
Acute, Elective and Same Day Theatres	16 (Expandable to 20)	11	15 (Expandable to 18)
DSA / Angiography	2	2	2 ⁵ (Including Hybrid tbc)
Cardiac Catheter Laboratory	2	2	2 ⁵ (Including Hybrid tbc)
PET CT Scanner	1	-	. 🛇 -
MRIs	3	26	2 (Expandable to 3)
General X-Ray	8	6	6 (Expandable to 8)
Pathology Laboratory	1 (1,300m² shell)	1 (1,500m²)	Reduced to Acute 24hr 'hot lab' / collection shell

The recommended scheme design efficiency and a summary of the scheme changes from the current developed design is provided in Table 5 and 6 below.

Table 5 – Recommended Scheme design efficiency

	Current Design (Inpatient + Logistics Building)	Recommended Scheme ⁷	Change
Gross Floor Area (GFA)	79,604m²	71,428m²	(8176m²)
Gross Departmental Area (GDA)	50,982m ²	51,826m ²	844m ²
Engineering % GDA	36.4%	26.9%	(9.5%)
Travel % GDA	17.6%	15.9%	(1.7%)

³ Business Case noted to have a count error for beds at 421, should be 410.

⁴ Expandable via shelled 32-bed IPU on Level 8. Also see discussion in Section 4.3 regarding opportunity to reinstate Level 6 south as 24-bed MHSOP or a 32-bed IPU which would reinstate the full Business Case bed capacity.

⁵ The SoA included modifying one of each of the DSA and Cath Labs to Hybrid Theatres. Southern has agreed to down-graded one Hybrid Theatre to a standard DSA or Cath Lab (which tbc).

⁶ Business Case noted 1 x MRI, however Southern have recently installed a second MRI.

⁷ Recommended Scheme figures are estimates due to the scheme being at a feasibility / concept design stage (reference Warren & Mahoney email dated 2 September 2022).

Table 6 – Recommended Scheme key changes from the current developed design

Site Planning / Bulk and Location

Cadbury Site

- Pavilion Building removed (Inpatient Building north of Grid 19)
- Inpatient Building repositioned to enable Loading Dock (south) and future 1734m² development site (north)
- Southern Ambulance Bay undercroft infilled
- Central Courtyard partially infilled on Level 1, 2 and 3
- Public 'blue link' to Outpatient Building removed
- Car parking reduced

Bow Lane Site

- Logistics Building removed
- Generator and Heat Pump Chiller facility created

Wilson's Site

No change to Outpatient Building

Departmental Block and Stack (excluding Collaborative Space)

[Changes in Red]

Current Design	Recommended Scheme
Level 0 – ED, EPS, APU, Stat Radiology, BOH Stores, Retail, <mark>Staff Amenities, Cafe</mark>	Level 0 – ED, EPS, APU, Stat Radiology, BOH Stores, Retail, Loading Dock and associated BOH
Level 1 – Radiology, Nuc Med, Mortuary, Spiritual Centre, Mana Whenua, Pathology Lab, Pharmacy, NZ Blood	Level 1 – Radiology, Nuc Med, Mortuary, Spiritual Centre, Mana Whenua, Pathology 'Hot Lab' / Collection, NZ Blood, Staff Amenities, Main Kitchen, Café, BOH
Level 2 - CIS, ICU, CETES, IOC / Security	Level 2 – Theatre Suite, PACU / DOSA, 23hr Ward
Level 3 – Theatre Suite, PACU / DOSA, 23hr Ward	Level 3 – Pharmacy, CSSD, Plant Room
Level 4 - Plant Room, CSSD	Level 4 - CIS, ICU
Level 5 – Maternity, NICU, Paeds	Level 5 – Maternity, NICU, Paeds
Level 6 – MHSOP, Rehab IPU	Level 6 – IOC, CETES, Rehab IPU
Level 7 – Haem/Onc IPU, Med High Acuity IPU, Dialysis	Level 7 – Haem/Onc IPU, Med High Acuity IPU, Dialysis
Level 8 – Medical / Surgical IPU, Cardiac High Acuity IPU	Level 8 – Medical / Surgical IPU (cold shell), Cardiac High Acuity IPU
Level 9 – Medical / Surgical IPU x 2	Level 9 – Medical / Surgical IPU x 2

Clinical Services and Capacities

	Current Design	Recommended Scheme
Acute, Elective and Same Day	16 + 4 shell	15 + 3 shell
Theatres		
ICU Bays	30 x ICU Bays + 10 Bays shelled	20 x ICU Bays + 10 x HDU Bays + 10 x Bays shelled
Hybrid Theatres	2	1 x Hybrid + 1 down-graded DAS or Cath Lab
Pathology	1300m² Laboratory	180m² 24 hour 'Hot Lab' / Collection Point
Mental Health of Services of Older People	21-Bed Mental Health + 3-Bed Medical IPU	IPU removed, Acute Mental Health Beds provided in Rehabilitation IPU (bed numbers TBC)
Level 8 Med / Surg IPU	32-Bed IPU	32-Bed IPU cold shell
Haem/Onc IPU and Med/Surg IPUs	Single bedroom ratio of 75% or 4 Doubles : 24 Singles	Single bedroom ratio reduced to 62%, or 6 Doubles : 20 Singles
MRIs	3	2 + 1 x cold shell
General X-Ray	8	6 + 2 x cold shell

PET CT Scanner	1	0 (180m² removed from Nuclear Med)
Pharmacy Production Unit	1	0 (139m² removed from Pharmacy)
Collaborative Workspace	3472m² – all fitted out	3153m ² (10% reduction), including 741m ² cold shell

Back of House and Logistics

- Loading Dock dedicated Food Truck dock removed
- Red Core Logistics Lifts reduced to 3 lifts + 1 shelled core (change from 4 fitted out).

Building Services

- Heat pump chillers relocated from Pavilion roof to Bow Lane site.
- Generators housed in a dedicated enclosed facility on Bow Lane site
- Multi-zone air handling units (AHUs) changed to variable air volume (VAV) systems to reduce AHU quantities
- Return air systems removed from AHUs and changed to in line fans.
- Ventilation heat recovery systems reduced as required to enable air handler unit (AHU) double stacking (efficiency reduction)
- Isolation Room ventilation systems combined introducing in-ceiling HEPA filtration requirement
- Heat pump chiller redundancy removed (rely solely on back-up diesel boiler)
- Thermostatic mixing valve (TMVs) reduced in quantity by serving multiple rooms and changed from in-wall to in-ceiling

Structural Solution

 No change. The Inpatient Building remains a based isolated steel moment resisting frame (Importance Level 4, low damage design solution)





Note:

- a. Preliminary impression only (not accurate).
- b. Inpatient Building Loading Dock and Ambulance Bay changes not updated.
- c. Bow Lane site generator and heat pump chiller plant facility not indicated.

4 Impact Assessment

4.1 Delivery Impacts

The Recommended Scheme is at a feasibility / concept design stage and will require the project to revisit preliminary design for the new and significantly impacted design elements. With respective to the existing Inpatient Building design, significant changes include spatial replanning for Level 0, 1, 2, 3 and 6, and the Level 3 and 10 plant rooms.

Therefore, there is a level of design development required to fully verify the scheme both technically and functionally with users', and in terms of understanding and quantifying the delivery impacts.

Based on the current level of design, the project team's initial assessment of the impacts and the associated risks of the Recommended Scheme are outlined below.

4.1.1 Programme

The Inpatient Building critical path in simple terms tracks through structure design, superstructure steel procurement, superstructure erection to circa Level 6, podium fitout, and commissioning. It is noted that the Pavilion Building and Logistics Building did not appear on the critical path, and therefore, their removal serves only to de-risk programme in terms of resourcing. It is acknowledged however, that there are possible efficiencies for steel procurement and erection, and potential preliminary & general savings that need to be further assessed with CPB (no allowance has been made at this stage).

In order to mitigate the redesign delays, the project team have focused on the structure both in terms of alternative solutions and design acceleration. Alternative solutions included consideration of change of materiality and removal of the base isolation system. However, these alternatives were discounted due to the construction efficiency benefits being out-weighed by redesign delay and associated time- related costs. It is therefore proposed to accelerate the design for the existing structure solution and associated deliverables for piling indent and design, substructure design, and primary steel indent and design. This proposal (refer **Attachment D**) comes with design coordination risk as the structure design will be developed to some extent in isolation and out of sync with the traditional design phases. This risk will need to be carefully managed to ensure coordination is as complete as possible, but acknowledging that some coordination redesign may eventuate.

In addition, the project team also proposes to incorporate a fast track 'key user' engagement and design review and approvals processes for the revisited Preliminary Design and Developed Design phases. Enabling a seamless redesign will be essential for minimising programme impact.

Based on the above, an elemental redesign programme has been developed by Woods Harris (refer **Attachment E**) with the delivery impacts summarised in Table 7 below. It is noted that the design and delivery programmes will require further development and refinement to verify impacts following endorsement of the Recommended Scheme.

Table 7 – Programme impact

	Current Programme Rev 4.	Optimisation Programme	Delay Impact
Design (prolongation to 100% Detailed Design Completion)	August 2023	September 2024	12 months
Inpatient Building Construction Start (piling)	April 2023	January 2024	9 months
Inpatient Building Opening "Go Live"	June 2028	March 2029	9 months

Note:

- a. The above dates are forecast on Te Whatu Ora approval to commence redesign as of 16 September 2022
- b. Programme 'Delay Impact' is not cumulative.

4.1.2 Financial

RLB has provided a high-level feasibility estimate of the net saving achieved for the Recommended Scheme (refer **Attachment F**).

It is noted that the saving target of \$100 million has not been achieved and that the project team continue to seek further savings via value management and programme delay mitigation opportunities as the design progresses. These future potential saving opportunities will continue to be explored with the ECE Contractor and key subcontractors.

Estimated Cost Saving

Building Cost Saving: \$117,000,000

Less:

Consultant Fees: \$ 12,000,000
Escalation: \$ 15,000,000 **Estimated Net Project Saving:** \$ 90,000,000

Actual savings achieved will not be confidently known until the design is redeveloped through the Preliminary Design and Developed Design phases which are forecast to extend out to December 2023. Cost checks will be undertaken at the conclusion of each phase given their short durations of 5 months and 6 months respectively.

With respect to the accelerated structure design, which will develop out of sync with the traditional design phases, cost estimates will be undertaken as the design progresses, i.e. there will be no design hold points.

Other financial risks include:

- a. Redesign programme not being achieved or enabled due to consenting, stakeholder engagement, approval processes, and ability to progress early procurement of critical trades
- b. Escalation rates applied being exceeded
- c. Interior design replanning impacted by unforeseen obstructions (e.g. new risers) or clinical requirements
- d. Building services value management savings not obtaining final agreement
- e. Consultant fee variations exceed budget allowance
- f. Unanticipated urban design requirements

4.2 Clinical and Operational Engagement and Impact Assessment

Te Whatu Ora Southern Management and Project Management Office (PMO) leads have been actively consulted and engaged throughout the design optimisation study.

Further clinical, operational and building & property user engagement meetings were undertaken during late August 2022. This consisted of a full presentation and overview of the Recommended Scheme, followed by focused building & property and impacted departmental feedback sessions.

Te Whatu Ora Southern have subsequently provided a Clinical and Operational Impact Statement (refer **Attachment G**) which has identified both matters for Te Wahtu Ora consideration and design team consideration – some such key matters being discussed in the 'design refinement opportunities' section below.

4.3 Design Refinement Opportunities

The Recommended Scheme is continuing to be refined and opportunities are being explored to address the loss of clinical services and capacities and to enable a future expansion opportunity on the Bow Lane site. These opportunities are discussed below.

Mental Health Services of Older People (MHSOP)

The Recommended Scheme removes the MHSOP IPU and utilises the space for CETES (491m²), IOC / Security (470m²) and Collaborative Workspace(465m²). These departments have been allocated to this space given their 'soft fitout' nature and ability to be relocated in the future, allowing the space to be repurposed as 24-Bed MHSOP IPU or a 32-Bed Med/ Surg IPU.

Strengthening and repurposing the Dairy Building could present an opportunity to enable the relocation of these spaces (or other services) to enable replanning efficiencies, with a Ground Floor area of circa 1200m² plus mezzanine which could provide a further 1000m² if desired. The Diary Building is suitable for departments or spaces that are not required to be located either within the Inpatient Building or within an Importance Level 4 facility. Therefore, this may present an opportunity to house the Main Kitchen (1000m²), Staff Amenities (230m²) and Collaborative Workspace for administration services (say 300m²). This could free up 1458m² on Level 1 and potentially enable the full relocation of CETES, IOC / Security and Collaborative Workspace from Level 6. Note IOC / Security requires adjacent collaborative workspace for emergency scenarios.

This opportunity is currently prohibited due to cost. However, the project team will confinue to explore this with the ECE Contractor as the design progresses to better define the likely cost impact.

Nuclear Medicine PET-CT Scanner

The PET-CT scanner and associated support space (180m²) has been permanently removed in the Recommended Scheme. Its removal was proposed due to this service generally being provided by the private sector, and in the knowledge of Pacific Radiology planning to open a private PET-CT in Dunedin by 2023.

However, there is an opportunity being explored with Aukaha to relocate the Level 1 Mana Whenua space to one of the Ground Floor retail units. This would free up cira 210m² of space on Level 1 potentially allowing the Spiritual Centre (currently adjoining Nuclear Medicine) to be relocated and a 'cold' or 'soft' shell created for a future PET-CT Scanner.

This is feasible within the current savings estimate and continues to be explored with stakeholders. The negative impact would be the permanent loss of one retail space leaving the hospital with an absolute minimum public convenience offering.

Pharmacy Production Unit

The Pharmacy Production Unit (180m²) has been permanently removed in the Recommended Scheme. This service being proposed to remain in its existing location and incorporated into the future Southern Blood and Cancer Centre (due 2030-2040).

However, with the Pharmacy located on the Level 3 Plant Room floor plate, the design team are exploring and challenging plant spatial requirements to enable additional space for use as collaborative workspace / future Production Unit shell space. This requires maximising the Level 10 Plant Room, and therefore, would need to be explored during the revisited Preliminary Design phase.

Pathology Laboratory

The Recommended Scheme currently reduces the currently designed 1300m² Pathology Lab to a 180m² 24-hour Collection Point / 'Hot Lab' for acute clinical functions. This area has been advised by Southern Community Laboratories to be less than their considered minimum 500m² for acute clinical functions.

As discussed above for the Pharmacy Production Unit, there may be opportunity to enable this extent of additional space within the Level 3 Plant Room. This will be challenging to realise, as can be seen in scale on the Recommended Scheme plans, and would require a collection point to be maintained on Level 0 or 1.

Bow Lane Site Future Development Opportunity

There is potential to create a future development opportunity on the Bow Lane site should the design enable relocation of the heat pump chillers to the Inpatient Building site.

Level 10 of the Inpatient Building would be the most cost-effective solution, however it is currently not feasible due to proximity to the Helipad (concerns with heat inversion in an emergency landing situation) and the desire to minimise plant room space on Level 3 preventing the required size reduction of the Level 10 plant rooms. In addition, there is concern with maintenance and replacement access.

Other locations, such as the chillers being elevated over the Loading Dock, have increased costs and urban design and acoustic issues to be worked through. Noting there are 14 no. large chillers requiring a circa 1000m² footprint.

The project team will continue to explore this opportunity.

4.4 Other Considerations

4.4.1 Resource Consenting

Resource consenting advice has been sought from Greenwood Roche and Boffa Miskell on the recommended pathway and risks associated with the Recommended Scheme (refer **Attachment H**). This advice is summarised as follows:

Inpatient Building Enabling Works Resource Consent

Excavation and piling works can commence under the existing consent where they fall within the consented scope.

However, given the building footprint and location is to be modified, there will technically be unconsented elements which are recommended to be consented via variation application to Dunedin City Council (DCC) and Otago Regional Council (ORC). Variation being the recommend pathway provided the variation is assessed to have less than minor adverse effects, and therefore, can be processed on a non-notified basis avoiding the risk of appeal. If adverse effects assessed are more than minor, and the variation is likely to be notified, it is recommended that a new Enabling Works consent be sought under the COVID-19 Recovery (Fast-track Consenting) Act 2020 (FT Act).

Inpatient Building Above Ground Resource Consent

The Inpatient Building resource consent is recommended to remain to be sought through the FT Act.

Bow Lane Plant Facility Consent

The Bow Lane site is located within an Industrial Zone, which is a different zone to the Inpatient and Outpatient Buildings. Initial assessment of the Recommended Scheme has indicated that the plant facility would likely be assessed as a non-complying and therefore would be notified. It is therefore recommended that this consent be sought under the FT Act separately to the Inpatient Building above ground consent.

<u>Urban Design</u>

Preliminary commentary has been sought from McIndoe Urban and the Recommended Scheme could be supported on urban design grounds subject to the following being enhanced through better urban design outcomes:

- Greater articulation of the Inpatient building's north elevation (which would be more visually prominent without the Pavilion building)
- Provision of a two-way vehicle access to the public parking area on the Inpatient site
- Appropriate aesthetic enhancement of the proposed services gantry over Castle Street, or undergrounding of services
- Increasing the architectural compatibility for the Bow Lane plant buildings
- Introducing a landscape strategy for the Bow Lane site.

Note costs for the above urban design enhancements have not been included in the Recommended Scheme feasibility cost estimate.

4.4.2 Traffic

An initial traffic assessment has been undertaken as part of the Recommended Scheme development (refer **Attachment I**). This has validated the scheme layout for transportation matters. In addition, the following vehicle parking capacity is noted:

- Pick-up / Drop-off: 16
- Emergency Department Car Park: 22 (including 5 mobility)

While car parking has reduced, it is noted that recent legislation change has removed the requirement for hospital car parking from the District Plan (previously the requirement was 184 parks).

The previous agreement with Southern to provide 250 car parks (inclusive of ambulance bays, truck docks, etc) will require revisiting. Noting alternative car parking has not been allowed for in the Recommended Scheme feasibility cost estimate.

Bike parking provision is unchanged from the current design. However, there is opportunity to relocate Inpatient Building bike store to the northern side of the Inpatient Building to provide improved safer access.

4.4.3 Greenstar Accreditation

Based on an initial assessment, Beca has advised that the project will likely still have sufficient points for 5 Star accreditation. However, the loss of some points under the Recommended Scheme increases the need to ensure all targeted points are achieved through the course of the redesign (refer **Attachment J**).

4.4.4 Pandemic Response Planning

As established in the key constraints for the design optimisation study, the previously developed Pandemic Response design intent and capacity has been retained in the Recommended Scheme. Noting however, that the pandemic design will need to be redeveloped due to changes to spatial planning and building services during the preliminary design phase.

In particular, it is noted that Loading Dock capacity will be halved in a pandemic scenario and will require further development for pandemic access and flows. Reduced dock capacity would be supplemented by the Outpatient Building Loading Dock in a pandemic scenario, as the Outpatient Building Loading Dock has ample capacity.

4.4.5 Mana Whenua

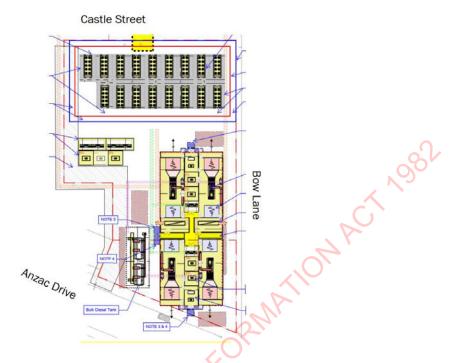
There have been several briefing and follow-up co-design workshops held with Aukaha and Mana Whenua representatives on the optimisation process and resultant options. Whilst the loss of the Pavilion Building and 'cloak' façade has been disappointing, there has been understanding of the context and need for savings in the discussions to date.

The Mana Whenua panel continue to discuss whether the interim project name of "Whakatuputupu" will remain or be withdrawn. It is envisaged that all other aspects of the Māori Models of Care and the Cultural Narrative can continue to be represented appropriately in the Recommended Scheme. It should be noted that sufficient time and budget fee allowance needs to be made to allow for the future co-design process with Aukaha and mana-whenua, to achieve the appropriate expressions of the cultural narrative in the Inpatients Building and landscape design.

4.4.6 Acoustics

Acoustics Engineering Services (AES) have undertaken a preliminary assessment of the proposed Bow Lane Site generator and open air heat pump chiller pant facility (see figure 3) and have confirmed that boundary noise limits can be achieved subject to appropriate acoustic treatments.

Figure 3 – Proposed Bow Lane Site



4.4.7 Seismic Design Code Changes

The redesign programme for the Inpatient Building requires reassessment of the pending seismic design code changes which will now likely come into effect during the design phase.

The National Seismic Hazard Model (NSHM) is currently being revised with a planned public release by September 2022. Other broader reviews of seismic risk settings are also taking place - collectively referred to as the Seismic Risk Work Programme. There are currently two Building Code updates proposed in relation to this work, one in the 2023 cycle and one in the 2025 cycle. MBIE have communicated to the industry that the 2023 changes are likely to be applied largely within the current structure the loading and design standards. The second updated in 2025 would be a broader change to the standards framework as a whole.

The update to occur in the 2023 cycle will relate to the Probabilistic Seismic Hazard Analysis (PSHA) and will likely come into effect November 2023 with a 12 month transition period during which time both the prior revision and the new revision of the design standard can be used.

As outlined in Section 4.1.1 above, Inpatient Building design programme is anticipated to conclude in mid-2024 prior to the 2023 cycle change becoming mandatory in November 2024. Therefore, the accelerated structure design and building consent programme will straddle the design code update.

As per previous ESG direction, the Inpatient Building is to be designed to the current PSHA(1) and check to PSHA(2) using nominal properties (as per an existing building assessment). This direction will be reassessed during the redesign programme September – October 2022 'Mobilisation / Prestart' phase utilising the September 2022 NSHM release to determine the potential impact and risks for further ESG consideration, if required.

Refer to Holmes advice in Attachment D.

4.4.8 Delivery Model





5 Summary

The Recommended Scheme results in:

Estimated cost saving: \$90,000,000
Programme delay: 9 Months

Business Case service and capacity departures:

Inpatient Beds: 354, expandable to 386 (reduction from 410)

General Theatres: 15, expandable to 18 (reduction from 16,

expandable to 20)

DAS / Angiography: 2, including Hybrid tbc*
Cath Labs: 2, including Hybrid tbc*

PET Service:

Removed (reduction from 1 PET-CT scanner)

ARIS

2, expandable to 3 (reduction from 3 fitted out)

4, expandable to 8 (reduction from 8 fitted out)

Acute 24hr 'hot lab' / connection shell (reduction

from full lab shell)

Note: * One Hybrid Theatre is to revert to a DSA or Cath Lab by agreement with Southern.

Design efficiency improvements on current design:

Gross floor area (GFA) reduction: (8,176m²)
Gross Departmental Area (GDA) increase: 844m²
Engineering % GDA reduction: (9.5%)
Travel % GDA reduction: (1.7%)

Risks Profile:

Financial: Medium (savings realisation)

Programme: Medium (accelerated redesign realisation)

Clinical outcomes: Medium

Clinical capacity: Medium-High (loss of beds capacity)

Building operations: Low

Reputation: Medium (public perception)

Resource consenting: Low-Medium
Greenstar: Low-Medium
Seismic Code Changes: Low-Medium

6 Recommendation

It is recommended the ESG:

- 1. Endorse the Recommended Scheme noting the outlined impacts and risks.
- 2. Endorse the release of \$9.8 million of contingency to enable fitout of the Level 8 IPU and bring day-one bed capacity to 386.
- 3. Endorse immediate commencement of the Recommended Scheme redesign, in full or part, while formal approvals are addressed.
- 4. Note that the Recommended Scheme is at feasibility / concept design and will need development as part of the normal design process.
- 5. Note the concurrency of the redesign programme and anticipated seismic design code changes.

Note: All financials in this memorandum are GST exclusive.

ATTACHMENTS

- A Final Detailed Business Case Clinical Services and Capacity Requirements
- B Design Team Briefing Memo dated 11 March 2020
- C Warren and Mahoney Memo 'NDH Optimisation Option 4.3 Summary' Rev C dated 5 September 2022
- D Holmes Memo 'Overview of the structural design pathway and acceleration dated 29 August 2022
- E Woods Harris Memo 'NDH Inpatients Design Optimisation' dated 26 August 2022
- F RLB Memo 'NDH Inpatient Building Optimsation Estimates' dated 30 August 2022
- G Te Whatu Ora Southern 'Clinical and Operational Impact Statement' dated 2 September 2022
- H Greenwood Roche / Boff Miskell Memo 'Inpatient Building amended design updated consenting risk assessment' dated 30 August 2022
- Novo Group Memo 'NDH Inpatient Optimsiation Transport Review' dated 29 August 2022
- J Beca Memo 'Design Reset Executive Summary Building Services and Fire Engineering' dated 31 August 2022

Final Detailed Business Case Clinical Services and Capacity Attachment A



- approving a preferred option: an Inpatient Building on the Cadbury site and an Outpatient Building on the former Wilson Parking site, August 2020 (CAB-20-Min-0413)
- releasing \$127 million to progress the project throughout 2021, including preliminary design work, demolition, piling, project management and appointment of a main contractor as part of early contractor engagement, August 2020 (CAB-20-Min-0413).

1.4 Services in and out of scope remain constant

Southern DHB requires a hospital in Dunedin able to support acute and elective services with appropriate physical infrastructure, to support modern flexible models of care, greater accessibility, and standardization. The hospital will be built to modern building codes and offers considerable resilience including IL4 for critical areas. The hospital will include 421 beds, 16 theatres (expandable to 20 theatres) and 30 ICU or high dependency beds (expandable to 40), with associated spaces to support greater delivery of ambulatory care. The scope of work also includes demolition of buildings currently on-site including demolition of the Cadbury factory.²

The decisions of what to include or exclude from the NDH construction programme have remained stable since 2019 and include all the services need for acute and elective care across medical and surgical services with an expansion plan. The level of care is tertiary level and includes neonatal services, for instance, and services for trauma.

The table below summarises the scope of the NDH, from front-of-house services such as outpatients, to inpatient units, to back-of-house services such as security.

Table 2 Departments included in the NDH project

Inpatient Building (77,591m² including links and Ancillary Building)

Patients Areas

Medical/Surgical Inpatient Unit
High Acuity Inpatient Unit
Rehabilitation Inpatient Unit
Mental Health Services Older Persons
Children's Inpatient & Paediatric Assessment Day Unit
Intensive Care Unit (10 Shelled Bays)
Acute Renal Dialysis Unit
Neonatal Intensive Care Unit
Maternity Unit + Interventional Suite
Primary Birthing Unit
Haematology & Oncology Inpatient Unit

Interventional Areas

Operating + Interventional Suite (4 Shelled Theatres)
23 Hour Ward
Emergency Department including & Satellite Radiology
Emergency Psychiatric Service (EPS)
Assessment Planning Unit
Acute Radiology

Labs & Processing Areas

Medical Physiology Labs Pathology Laboratory (Shell only) NZBS - Blood Bank (Shell only)

Supplementary Services

Pharmacy
CETES: Clinical Engineering
Sterile Services Unit
Security
Information Services
Building & Property
Integrated Operations Centre
Staff Amenities
Heliport
Collaborative Workspace (Shell only)

² The accommodation schedule is set out as Appendix A.



Nuclear Medicine Mortuary Day Surgical Unit

Cardiac Interventional Suite

Public & Community Areas

Front of House Retail (Shell Only) Multi-Faith Centre Whānau Spaces **Ancillary Building**

(linked to Inpatients)

Supplementary Services

Back of House - Linen, Waste, Mail & Support Food Services (*Shell Only*) Procurement & Supply

Outpatient Building (13,391 m²)

Clinical AreasDay Procedures Unit Planned Radiology

Specialist Clinics

Day Medical Unit

Public & Community Areas

Front of House Retail (Shell only) **Labs & Processing Areas**

Transit Care Unit
Pathology Collection (Shell only)
Supplementary Services
Back of House - Linen, Waste & Support

Satellite Security
Satellite CETES

Out-of-scope services are services at Southern DHB's second major site, Wakari, such as mental health buildings, or services housed in facilities close by but not in the existing CSB or Ward Block. The cancer service will continue to operate in its current facility and will be relocated in time. Orthotics and Prosthetics will be located off-site but nearby. A Master Site Plan is being developed to understand where these services might be housed in future and how they might relate to a planned tertiary education and research precinct. Services such as community mental health and intellectual disability services are tentatively proposed to be in community care hubs and are out of scope of the new build project.

Table 3 NDH services out of scope

Service	Status at 22/10/19 (Project Steering Group records)	Suitable location for medium term outlook
Ambulatory		-
Breast Care including BreastScreen Aotearoa	Off-site Pacific Radiology Service (third- party provider) -Supported by CLG but to be agreed	Currently has accommodation to 2028 and beyond
Community Care Hub based Ambulatory services	Off-site – Agreed	Currently has accommodation to 2028 and beyond
Sexual Health	Off-site – Agreed	Currently has accommodation to 2028 and beyond
Urgent Care Centre	Off-site – Agreed	Not currently provided by the DHB and is not part of an accommodation plan
Orthotics and Prosthetics	Out of Scope – Agreed	Currently has accommodation to 2028 and beyond
NZ Artificial Limb Service	Out of Scope – Agreed	Currently has accommodation to 2028 and beyond; a third party, and currently provided space



Renal Home Training Unit	Out of Scope – Agreed	Currently has accommodation but being reviewed for a better patient experience
Administration		
Clinical and Corporate Information Management	Off-site – Agreed	Currently has accommodation to 2028 and beyond
Central Intake Service (ref. FDB C 24.14.3)	Off-site – Agreed	Currently has accommodation to 2028 and beyond
Information Services	Partially off-site – Agreed	Currently has accommodation to 2028 and beyond
Transport	Off-site – Agreed	Currently has accommodation to 2028 and beyond
Building and Property	Partially off-site – Agreed	Currently has accommodation to 2028 and beyond
Procurement & Supply	Partially off-site – Agreed	Currently has accommodation to 2028 and beyond
Additional carparking	Southern DHB to develop transport plan	250 car parks are in the scope of the new hospital. Further car parking is being explored separately
Creche	Southern DHB to develop childcare plan	Agreed to 2028, provided by a third party not-for-profit
Mental health services		
Gibson Day Unit (Older persons' mental health)	Out of scope - Agreed	Is being looked at in a mental health review

Source: Revised SoA and Capacity, SPG and Project Steering Group, October 2019

1.5 Additional elements in the Final DBC

This Final DBC reflects further work as follows:

- update of the Financial Case
- confirmation and refinement of the procurement approach
- an update of governance arrangements
- consideration of risks, including a Quantitative Risk Assessment
- a Benefits Realisation Plan
- a description of Southern DHB's Change Management Plan is out of scope but is a critical dependency of the NDH project.



Appendix A Schedule of Accommodation

We set out existing capacity and future capacity in the table below.

We caution against direct comparison as rooms and their uses will vary. For instance, an existing operating theatre is much smaller than a new one and has less and sometimes no perioperative space. Modern treatment focuses less on medical beds and more on patient flow, from the front door of the hospital if not beyond, with a different mix of rooms and beds on the patient's in-hospital journey.

Table 41 Inpatient unit overnight bed supplied capacity

Ward	Current	NDH
Maternity	21	24
Neonatal	19	22
Self-care, transitional beds	4	12
Paediatric	19	16
Medical / Surgical (includes Medical HDU)	227	246
Mental health services of older people	12	21
Rehabilitation	34	40
Intensive care, HDU surgical	16	40 (incl 10 built shell)
Total	352	421

Table 42 Operating theatre requirements

Operating theatres	Current	NDH
Acute and elective	9	15 (incl 4
		built
		shell)
Same day	2	5
DSA / angiography	1	2
Cardiac catheter laboratory	1	2
Endoscopy rooms	3	4
Total	16	28



MFORMATION ACT 1982

Table 43 Same day and ambulatory rooms

	Current	NDH
Same day/bed equiv.		
Acute dialysis unit	10 ¹⁷	8
Day medical	5	16
Day surgical	11	27
Day recovery	17 ¹⁸	22
23-hour unit	O ¹⁹	20
Birthing rooms	7	10
Maternity assessment unit	4	7
Paediatric assessment unit	5	4
Paediatric day unit	2	4
ED bays	31	53
Emergency psychiatric	5	5
Ambulatory rooms		
Clinic consult rooms	n/a ²⁰	64
Specialty clinic rooms	n/a	20
Procedure rooms	1	4
Medical physiology labs	24	29
Transit care	0	12

Table 44 Imaging requirements

Modality	Current	NDH
MRI	1	3
СТ	1 ²¹	3
Ultrasound	4	6
Fluoroscopy	1	1
OPG/cone	0	1
General x-ray	6	8

¹⁷ Southern DHB operates a world class home dialysis training model – this is community based (although currently at the hospital) and of a sufficient size so as to reduce the requirement for acute beds.

¹⁸ Dedicated day recovery is currently only provided in the Endoscopy suite. Dual clinic/interventional spaces are used by other services to support day procedures (e.g. radiology).

¹⁹ The 23 hour unit is a new model of care that will seek to get greater efficiency from operating theatres and inpatient beds

²⁰ Unable to determine current number of functioning clinic consult rooms and speciality clinic rooms as outpatient activity occurs in a variety of spaces including dedicated outpatient clinic rooms plus offices.

²¹ A second CT scanner is primarily used as a treatment planning scanner for Southern Blood & Cancer which is out of scope of NDH project.



Mobile x-ray	7	6
Mobile image intensifiers	3	4
Mammography	3rd party	0
SPECT CT	1	1
DEXA	1	1
PET CT	0	1

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1988.

Attachment B Design Team Briefing Memo dated 11 March 2020

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<u>Concept Design – Scope Parameter Memo</u>

The purpose of this memo is to detail the New Dunedin Hospital Concept Design parameters, for which the Design Consultants are required to base their Concept Design fee.

Expectation that due credit is given to the client for previous work carried out that can be reused in the current Concept Design Period, the overall reduced size of the total building area and in particular the reduction in acuity, complexity and scale of the Outpatients building.

	Outpatient	Inpatient	
Concept Design Period	24 Weeks – 17 March to 28 Au	24 Weeks – 17 March to 28 August	
CD Approval Period	4 Weeks - 9 September to 6 (October	
Construction Budget total	S9(2)(b)(ii)		
Minimum Floor Level (incl	General Open Space	(lin10)102.87m	
500mm of freeboard)	Habitable Floor (1 in 1)	00) 103.38m	
TBC subject to review	 Critical Floor (1 in 500) 	103.67m	
User Group Cycles	Three User Group Cycles for A	ASC, ASB (including Standard Rooms)	
	the week of:		
	• 4 May		
	8 June	O.M.	
	• 13 July		
Maximum GFA	89,000m2		
Current T&E allowance	T: 18% E: 21% (TBC)	T: 18% E: 21%	
Approximate GFA per Building	Circa 12,000m2	Circa 77,000m2	
Importance Level	IL3	IL4	
Number of Overnight Beds	-	378 overnight beds (incl. 10 shell)	
Number of Theatres	4 Endoscopy and 4	5 pods x 4 Operating Rooms	
	Procedure	including a hybrid OR 1 pod x 4	
		Interventional Rooms.	

Outpatient Department areas as understood currently are detailed in the table below.

Outpatient	Core Capacity	GDAm2
Day Medical Unit	16 Bays	377
Day Procedures Unit	4 Endoscopy / Operating Rooms @ 42m2	1610
Transit Care	4 beds/trolleys, 8 chairs/recliners	256
Satellite Radiology Unit	1 CT, 1 MRI, 2 Ultrasound, 4 General x-ray	504
Front of House	Drop off, lobby, display, reception, waiting, WCs	285
Front of House Retail	Café, community pharmacy, equip loan, ATM	440
Pathology Collection	Specimen unit with 2 Collection rooms	129
Specialist Clinics	81 Clinic Rooms includes 4 generic clinics of 16	3406
	consultant rooms (2 pods of 8 rooms) and adjoining	
	17 specialty clinic rooms	
Collaborative Workspaces	189 workstations	1166

Inpatient Departments areas as understood currently are detailed in the table below.

Inpatient	Core Capacity	GDAm2
Medical/Surgical Inpatients	160 Beds - (5 x 32 @75% single beds)	6500
Cardiac Care Medical	32 Bed	1475
Inpatients Unit		
Medical/Surgical Ass. Unit	32 Bed	1112
Rehab. Inpat. Unit	48 Bed	2539









Older Persons MH / Inpat. Unit	24 Bed	1336
Child Inpat & Paed Ass. Day Unit	18 Bed plus 5 Day assessment & 4 procedure beds	1386
ICU	30 Bed plus 10 shell (incl. 2 bed outdoor access)	2951
Acute Renal	8 Treat. Bay (includes 2 isolation, one -ve pressure)	284
NICU	24 Bed (10 x Lev III, 10 x Lev II and 4 x transit care)	1487
	plus 4 self-care and 4 boarder mums.	
Mat. Unit & Interventional Suite	24 Bed (includes 2 HDU), 5 birthing, 1 loss & 7 bay	1950
	assessment	
Primary Birthing	4 birthing and 1 assessment	378
Operating and Interventional	5 pods x 4 Operating Rooms including a hybrid OR	7329
Suite	1 pod x 4 Interventional Rooms. 24 Preop, 32 PACU	0,0
	and 38 Postop	100
23 Hour Inpatient	18 Acute Care Bays and 2 Isolation Rooms	511
Emergency Department inc. SSU	1 Decontamination, 4 Resus, 10 fast, 20 Acute, 10	2649
	Short Stay, 8 Paed fast/acute/short	
Emergency Psychiatric Service	3 Interview and 4 Bedrooms	264
(EPS)		
Radiology	3 MRI, 2 CT, 4 U/S, 1 Fluro, 1 Cone Beam, 6 General,	2157
, nadiology	14 Hold/Recovery	2107
Nuclear Medicine	1 SPECT/CT, 1 Bone Density, 1 PET/CT	761
Medical Physiology Labs	16 Cardiac, 4 Resp, 6 Neuro, 6 Vascular	1329
Pathology Laboratory (shell only)	On-site core pathology – strategy to be determined	865
NZBS – Blood Bank	On site blood matching and processing	280
	12 Dispensing stations, clinical trials, 2 cleanrooms	919
Pharmacy CETES: Clinical Engineering		580
Sterile Services Unit	Biomed Workshops and Medical Equipment stores	1076
	4 Steam and 2 low temperature sterilisers	
Front of House	Drop off lobby, Reception, amenities, whanau	618
Front of House Retail (Shell only)	Café, Food Hall - strategy to be determined	220
Multifaith Centre	Multifaith Room and Prayer Room	146
Collaborative Workspace Admin	Interactive workspace based on Burwood	1889
Collaborative Workspace Acute	Allocated and non-allocated spaces	1065
Hospital Operations Centre	Allocated workspace for duty managers, patient	383
	flow, telephony, Emergency Operations etc	
Information Services	Workspace for up to 12 Technicians	133
Mortuary	Viewing and whanau facilities with access to	311
	courtyard, body hold for 9 with autopsy room	
Security	Security services	96
Building and Property	Coordination/BMS Workroom, Trades workshop,	137
V	storage	
Back of House – Linen, waste,	Includes distributed interchange hubs, shared staff	1211
Mail, support	amenities, meeting and training room	
Procurement and Supply	4 Loading docks, stores, goods in and out, trolley	671
	parking	
Food Services (Shell only)	Cook fresh kitchen, excluding loading dock	920
Staff Amenities (Centralised)	Central staff change rooms and end of trip facilities	434
Heliport	Capacity for 1 helicopter with a direct vertical	72
	"hot" lift	

N.B.

Shell spaces may not require the same level of design.



Attachment C Warren and Mahoney Memo 'NDH Optimisation Option 4.3 Summary' Rev C dated 5 September 2022

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FILE NOTE

WAM-FN-111-AR-0007

Project	8167.AR.01 New Dunedin Hospital – Inpatient Building
Report	NDH Optimisation Option 4.3 Summary
Document Number	WAM-FN-111-AR-0007
Document Revision	29 August 2022
Prepared	on behalf of Warren and Mahoney Architects New Zealand Ltd and HDR
Revision	C (05.09.2022)
Client	Te Whatu Ora, RCP.



CONTENTS

1.0	NDH OPTIMISATION SUMMARY
2.0	OPTIMISATION OPTION 4.35
3.0	APPENDIX A
	OPTIMISATION COMPARISON TO BUSINESS CASE
4.0	APPENDIX B
	OPTION 4.3 DRAWINGS
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Optimisation Summary

1. Site rationalisation:

The design team have been directed to examine a site rationalisation as part of the overall optimisation process for the NDH project across the Inpatient and Logistics Buildings.

2. Main site planning:

Pavilion building removed North of beyond Grid 19.

Inpatients building moved North to enable vehicle access at the required points across the Eastern and Western edges of the site.

Infill of undercroft space at Southern edge of ground floor to facilitate BoH and ED area.

Infill to the North zone of the central courtyard over 3 levels to allow theatre, radiology and plant infills into this void.

Future development site is provided to the North of the Inpatients Building with a 1734m² footprint. Maintained red bridge connection at Level 1, to the Outpatient Building.

3. Bow Lane:

Logistics Building on Bow Lane is deleted and the BoH and Food Services area accommodated into the main frame of the Inpatients Building.

Plant previously accommodated in the Logistics Building (heat pumps and generators) are now located on the Bow Lane site, with a gantry connection over Castle Street into the Inpatients Building. This removes the future site development opportunity of Bow Lane.

4. Strategic reallocation of spaces and functions:

Pavilion functions rationalised and largely moved to locations within the main frame of the Inpatients Building

Collaborative workspaces, staff amenity areas and the staff café are relocated into locations with sensible relationships to red and blue circulation, and cost benefits.

Stacking of departments redistributed, with ICU/CIS moving to Level 4 to maintain perimeter and theatres moving to L02 and plant moving to L03 within the stack to allow the partial infill of void.

Nuclear medicine reduced by 180m² with the removal of PET CT and associated support spaces.

Nuclear Medicine moved into the main frame with replanning of Level 1 and the Spiritual Centre to accommodate these relocations.

Pathology area reduced to 180m²

Pharmacy relocated on L03, and the production unit is removed.

32 bed IPU on L08 shelled.

24 bed IPU on L06 accommodates support spaces.

Single bedroom ratio decreased from 75% to 62%.

Operating theatres reduced to 16 theatres (with 2 x future shell and support space) within Option 4.3.

Redistribution of plant space between Level 3 and Level 10 plantrooms.

5. Planning Options assessed and discounted:

Extended tails to the ward floors for collaborative workspace (North executed)

More collaborative workspace in plant floor(s)

More collaborative workspace in external recesses to the West face.

Rearrangement of blue core and the infill to recesses.

Rearrangement of level 1 – 3 West face zones for more retail and collaborative workspace.

Maternity cantilever flip.

Logistics Building located at the South end of the Cadbury site.

Heat pumps located on Level 10.

Generators accommodated within the Inpatients Building.

6. Summary of clinical space relocated removed:

Option 4.3

1 x 32 bed ward shelled on Level 8.

MHSOP – Removed. A proposal for a contained 4 bed pod for a partial Acute MHSOP is provided.

Alternate options to make up the service and for non-acute provision to be determined.

Theatres further reduced to 16 with 2 x future shell theatres (2 x future theatres deleted from scope).

Nuclear Medicine – PET CT and associated support spaces removed.

Pathology onsite provision reduced to 180m² for key acute clinical support functions (Area TBC by Southern).

Logistics Building functions incorporated into the Inpatients Building main frame.

Production unit removed from Pharmacy (139m² removed).

Collaborative workspace reduced to 90% of brief.

7. Collaborative Workspace summary:

Collaborative workspace of $3472m^2$ required based on Business Case and current design. Option 4.3:

Floor Level	Provision of Collaborative Workspace	Shell	Fixed	Total
Level 1	Adjacent staff cafe	0	228	
Level 2	Theatre shell (built within future theatre support space)	276	0,	
Level 3	Area to be confirmed by Beca		633	Excl.
Level 4	55m² meeting room and beverage bay	0	62	
	ICU shell (built within ICU future pod space)	545	0	
	Northern collab space	0	635	
Level 5	Structural slab infill behind red lift core	0	129	
Level 6	Shell – Built within future ward if Level 6 is displaced	465	0	
	Structural slab infill behind red lift core	0	143	
Level 7	62% single beds and structural slab infill behind red lift core	0	208	
Level 8	62% single beds and structural slab infill behind red lift core	0	208	
Level 9	62% single beds and structural slab infill behind red lift core	0	254	
		1286	1867	3153
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AS	62% single beds and structural slab infill behind red lift core 62% single beds and structural slab infill behind red lift core			

Option 4.3 - 29 August 2022

Collaborative workspace summary, 3472m² required as current drawn area.

Floor Level	Provision of Collaborative Workspace	Shell	Fixed	Total
Level 1	Adjacent staff cafe	0	228	
Level 2	Theatre shell (built within future theatre support space)	276	0	
Level 3	Area to be confirmed by Beca		633	Excl.
Level 4	55m ² meeting room and beverage bay	0	62	
	ICU shell (built within ICU future pod space)	545	0	
	Northern collab space	0	635	
Level 5	Structural slab infill behind red lift core	0	129	
Level 6	Shell – Built within future ward if Level 6 is displaced	465	0	/
	Structural slab infill behind red lift core	0	143	
Level 7	62% single beds and structural slab infill behind red lift core	0	208	
Level 8	62% single beds and structural slab infill behind red lift core	0	208	
Level 9	62% single beds and structural slab infill behind red lift core	0	254	•
		1286	1867	3153

Excludes IOC, Information Services and Security provided in Level 6 – 470m² built within future ward if Level 6 is displaced.

Item	Functional Change	Option 4.3	Comments
			Comments
1.0	Business Case - Non-specific	·	
1.1	Remove Pavilion.	Yes	
1.2	Removal of Blue Bridge.	Yes (Future proofed)	
1.3	MHSOP deleted	Yes	Future ward footprint maintained if Level 6 infill functions are relocated.
1.4	Relocate Logistics Building functions into IB main frame.	Yes	
1.5	Northern future expansion space.	Yes	1734m² future site.
1.6	Logistic Lift reductions.	2 x Logistics lifts shelled	Future proofed with 4 x shafts to be built. 2 x logistics lifts to be installed.
1.7	Staff Café Location	Moved to Level 1	Staff café connected to main kitchen at Level 1 deleting satellite kitchen previously associated with staff café.
1.8	ICU / HDU Surgical ratio (40 including 10 x shell required)	20 x ICU + 10 x HDU + 10 Shell (Pod) for Collab	Pods 1 and 2 to have 5 x HDU each.
1.9	Multifaith location	Level 1 Courtyard	Multifaith maintains blue and red corridor access.
1.10	Single: Double bed ratio change	62% singles to allow collab and infill of structural slab.	SDHB agreeable to 62%.
1.11	Collaborative workspace	Included as noted above.	SDHB revised workforce modelling with 10% buffer on current design workstation allowance (with no corporate). CPB report required before Dairy Building considered as an option.
1.12	External Courtyards deleted	MHSOP 3 x Deleted	
2.0	Business Case - Specific Requ	uirements	
2.1	MHSOP (21 + 3 Beds)	Level 6 infilled with support functions.	Note Level 6 has capacity for 32 bed unit.
2.2	IPU Ward (32 beds)	Shelled	Level 8
2.3	PET CT + support space	Deleted	180m² reduction including support space associated with PET CT
2.4	Level 3 Theatres	16 built + 2 x future shell	Collab infill into shell support space.
2.5	Hybrid x 1 down spec (MME saving only)	Yes	Theatre and details to be confirmed.
2.6	Radiology - MRI (3)	Cold Shell x 1 in Acute	

2.7	Radiology General X-ray (8)	Shell x 2	Note Southern wish to shell 1 x OB and 1 x IB.
2.8	Pathology (shell only no specified area)	Reduced to 180m² on Level 1.	Function and area to be confirmed by Southern.
2.9	Pharmacy	Production unit removed.	

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Mahoney | HDR

Warren and Mahoney | HDR

Optimisation Comparison to Business Case

Appendix A

NEW DUNEDIN HOSPITAL DETAILED FINAL BUSINESS CASE VERSION 4

.ED FINAL BUSINESS CASE VERSION 4 Revision C - 05 September 2022

Section 1.4 Services in and out of Scope

Inpatient Building		
Service Requirement	Current Designed Area	Option 4.3
Patients Areas		
Medical/Surgical Inpatient Unit	4330	Includes shell spaces
High Acuity Inpatient Unit	3513	3513
Rehabilitation Inpatient Unit	2681	2681
Mental Health Services Older Persons	1518	Infilled with CETES IOC/Info/Sec and Collab
Children's Inpatient & Paediatric Assessment Day Unit	1343	1343
Intensive Care Unit (10 Shelled Bays)	30 Beds (+580 shell) 2815	30 Beds (+580 shell) 2815
Acute Renal Dialysis Unit	236	236
Neonatal Intensive Care Unit	1695	1695
Maternity Unit + Interventional Suite	2321	2321
Primary Birthing Unit	481	481
Haematology & Oncology Inpatient Unit	1689	1689
Interventional Areas		
Operating + Interventional Suite (4 Shelled Theatres)	6091	Reduced shell capacity
23 Hour Ward	540	540
Emergency Department including & Satellite Radiology	3226	3226
Emergency Psychiatric Service (EPS)	240	240
Assessment Planning Unit	1163	1163
Acute Radiology	1803	1803
Nuclear Medicine	728	(Delete PET - 180 total) 548
Mortuary	314	314
Day Surgical Unit	426 Included in OIS 2206	426 Included in OIS
Cardiac Interventional Suite	2206	2206
Public & Community Areas		
Front of House including Mana whenua and Public Amenitites	1002	1002
Retail (Shell Only) Staff café 405 Retail 174 Staff café reduced in option 4.3 with kitchen removed	Includes Staff Café 579	Includes Staff Café at 350 524
Multi-Faith Centre	152	152
Whānau Spaces	(180) Included in Front of house	No change
Labs & Processing Areas		
Pathology Laboratory (Shell only)	1291	Reduced to 180m²
NZBS - Blood Bank (Shell only)	217	240 required
Supplementary Services		
Pharmacy	939	800
CETES: Clinical Engineering	470	491
Sterile Services Unit	1167	Reduced to 1100
Security	75	75
Information Services	108	108
Back of House - Linen Waste Mail & Support Procurement and supply	(GF - ED shell space) 367	(GF - ED shell space) 367
Building & Property (Included in Back of House)	0	Included below
Integrated Operations Centre	286	286
Staff Amenities including bike store	355	230
Heliport	114	114
Collab - Support services	894	
Collab - Clinical acute	1593	2332
Collab - ICU Shell	580	545
Collab - Operating theatre shell	407	276
Collaborative workspace total	3474	3153
	34/4	3153
Excludes courtyards		
Ancillary Building (linked to Inpatients) Supplementary Services	6119	
Back of House - Linen Waste Mail & Support	1130	1358
Food Services (Shell Only)	1157	1000
Bridges	617	Reduced to red bridge only
	017	Reduced to tea bridge of the
Outpution Ruilding		

Outpatient Building		
Service Requirement	Current Design	Option 4.3
Clinical Areas		
Day Procedures Unit	1836	
Planned Radiology	988	
Specialist Clinics	3810	
Day Medical Unit	452	
Medical Physiology Labs	474	
Public & Community Areas	0	
Front of House Includes Mana whenua and public amenity	523	
Retail (Shell only)	103	No change in area
Labs & Processing Areas	0	

Transit Care Unit		256
Pathology Collection (Shell only)		131
Supplementary Services		0
Back of House - Linen Waste & Support		374
Satellite Security		0
Satellite CETES		0
Collab workspace	_	881

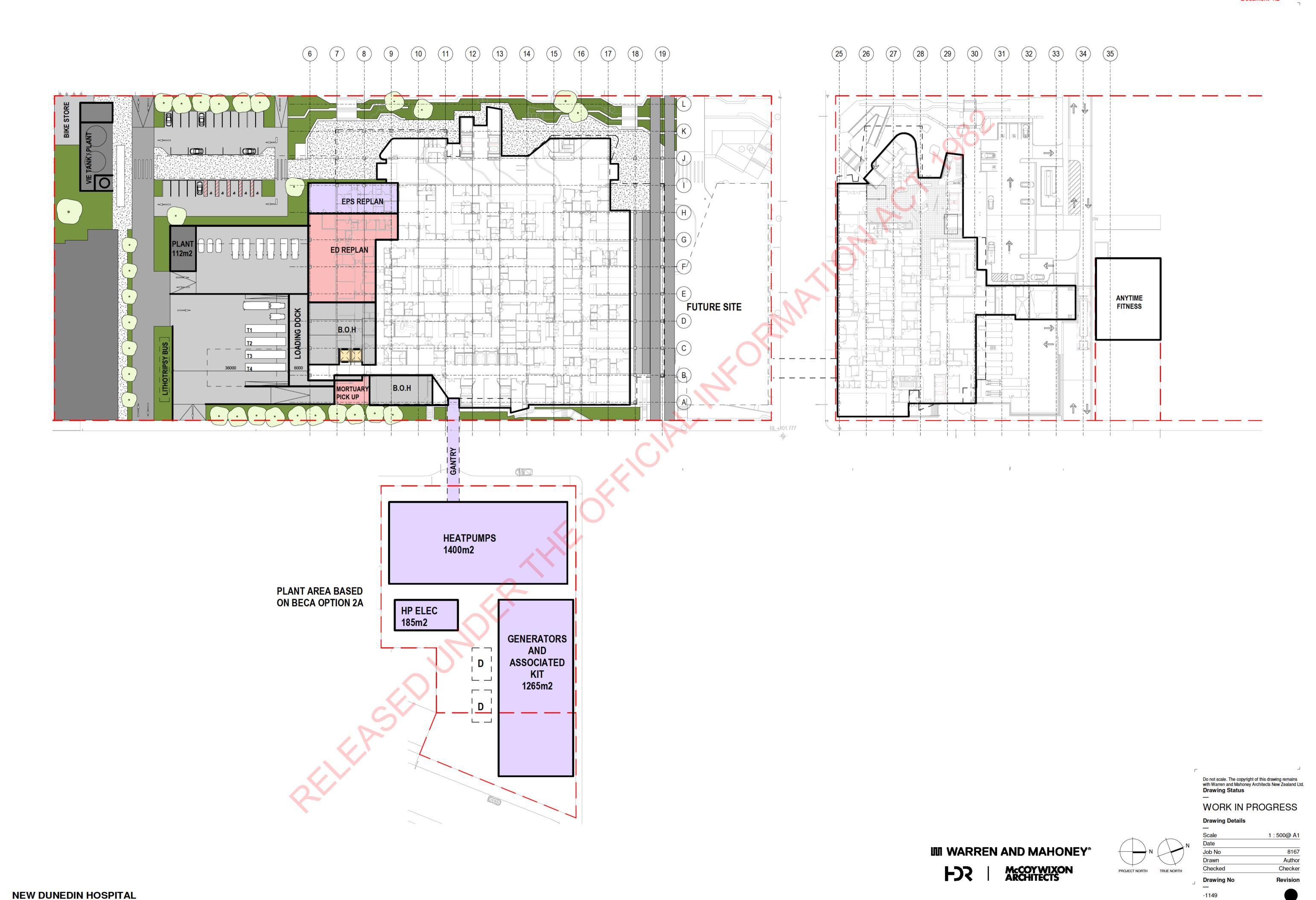
Appendix A - Capacity Requirements (IB + OB)

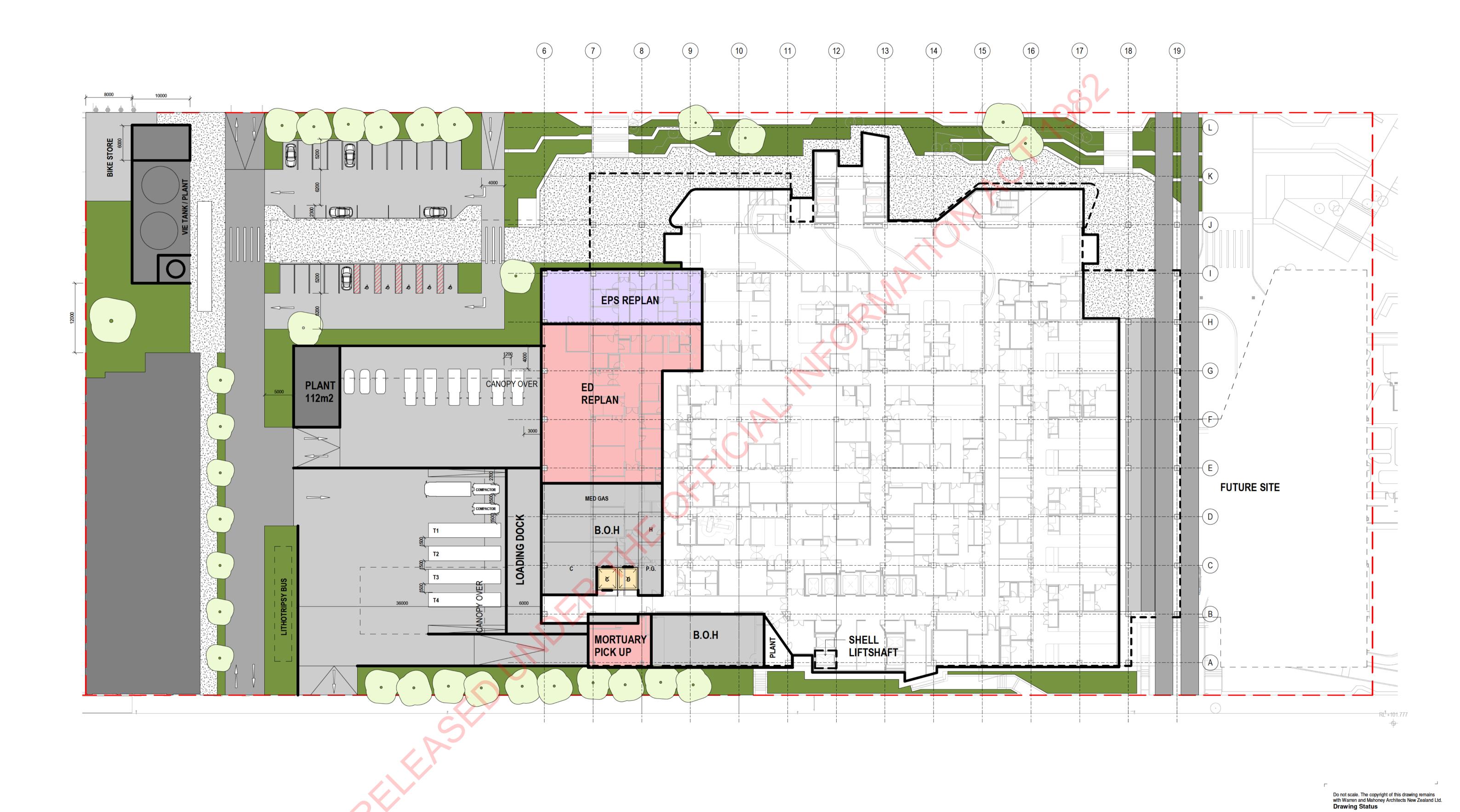
Service	Required Capacity	Current Design Capacity	Option 4.3
Inpatient unit overnight bed supplied capacity	Business case (Corrected bed numbers)		
Maternity	24	24	24
Neonatal	22	22	22
Self-care transitional beds	12	12	12
Paediatric	16	16	16
Medical / Surgical (includes Medical HDU) (235 - 11 = 224)	224	224	192 (+32 shell on Level 8)
Mental health services of older people (21 + 3 = 24)	24	24	0
			<u> </u>
Rehabilitation (40 + 8 = 48)	48	48	48
Intensive care HDU surgical	40 (incl 10 shell)	40 incl 10 shell)	40 incl 10 shell)
Total bed numbers	410	410	354 (+32 bed shell on Level 8)
Operating Theatre Requiremements (OB, IB Level 02 + 04)			
Acute and elective	15 (incl 4 shell)	16 (incl 3 shell)	13 (incl 3 shell)
Same day	5	5	5
DSA / angiography	2	1	2 (including 1 x Hybrid)
Cardiac catheter laboratory	2	2 (incl 1 shell)	2 (including 1 x Hybrid)
Endoscopy rooms	4	2 + 2 Gen (OB)	2 + 2 Gen (OB)
Total interventional spaces	28	28 (incl 4 shell)	26 (incl 3 shell)
Same day and ambulatory rooms			
Same day/bed equiv.			
Acute dialysis unit	8 (2+2 treatment bays)	2 + 2 (bays)	No change
Day medical	16	16 (OB)	OB - No change
Day surgical	27	30 + 15 recliners DOSA	No change
Day recovery 23-hour unit	22 20	21 + 14 recliners (OB) 20	OB - No change No change
Birthing rooms	10	5 + 3 (natural) + 3 (patient rooms) + 1	No change
Billing rooms	10	(loss)	No change
Maternity assessment unit	7	7	No change
Paediatric assessment unit	4	4 (LO5)	No change
Paediatric day unit	4	2 + 6 recliners (DOSA)	No change
ED bays	53	53	No change
Emergency psychiatric	5	5	No change
Ambulatory rooms Clinic consult rooms	64	OB - No change	OB - No change
Specialty clinic rooms	20	OB - No change	OB - No change
Procedure rooms	4	OB - No change	OB - No change
Medical physiology labs	29	OB - No change	OB - No change
Transit care	12	OB - No change	OB - No change
Imaging requirements			
MRI	3	2 + 1 (OB)	2 + 1 (IB shell)
CT	3	2+1 (OB)	No change
Ultrasound	6	4 + 2 (OB)	No change
Fluoroscopy OPG/cone	1	1	No change
OPG/cone General x-ray	1 8	1 4 + 4 (OB)	No change
General x-ray Mobile x-ray	8	4 + 4 (OB) No change	No change No change
Mobile image intensifiers	4	No change	No change
Mammography	0	No change	No change
SPECT CT	1	1	No change
DEXA	1	1	No change
PET CT	1	1	0

Warren and Mahoney | HDR

Option 4.3 Drawings

Appendix B





NEW DUNEDIN HOSPITAL

OPTIMISATION OPTION 4.3 - GF - 02.09.2022

Drawing Details

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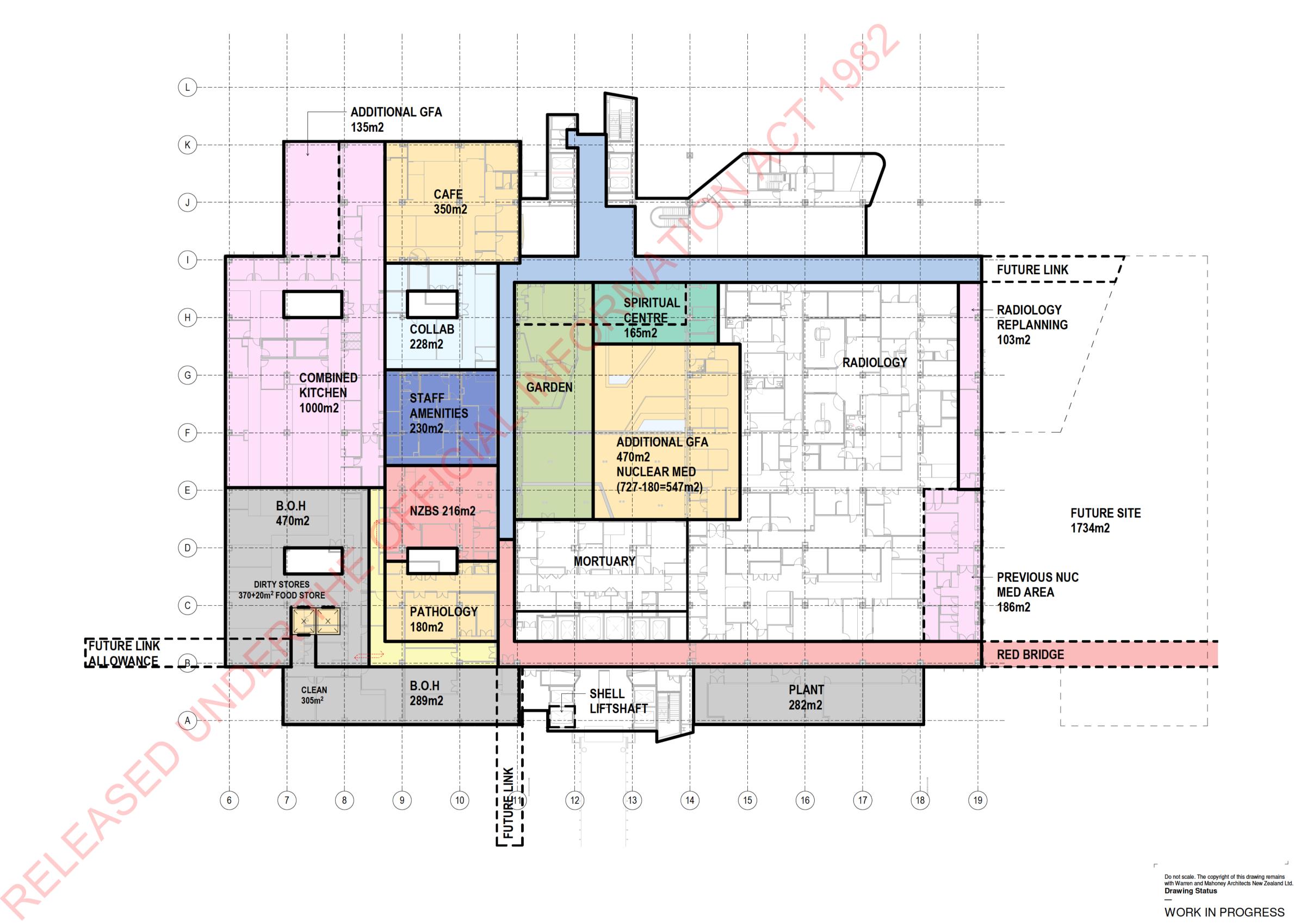
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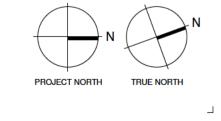
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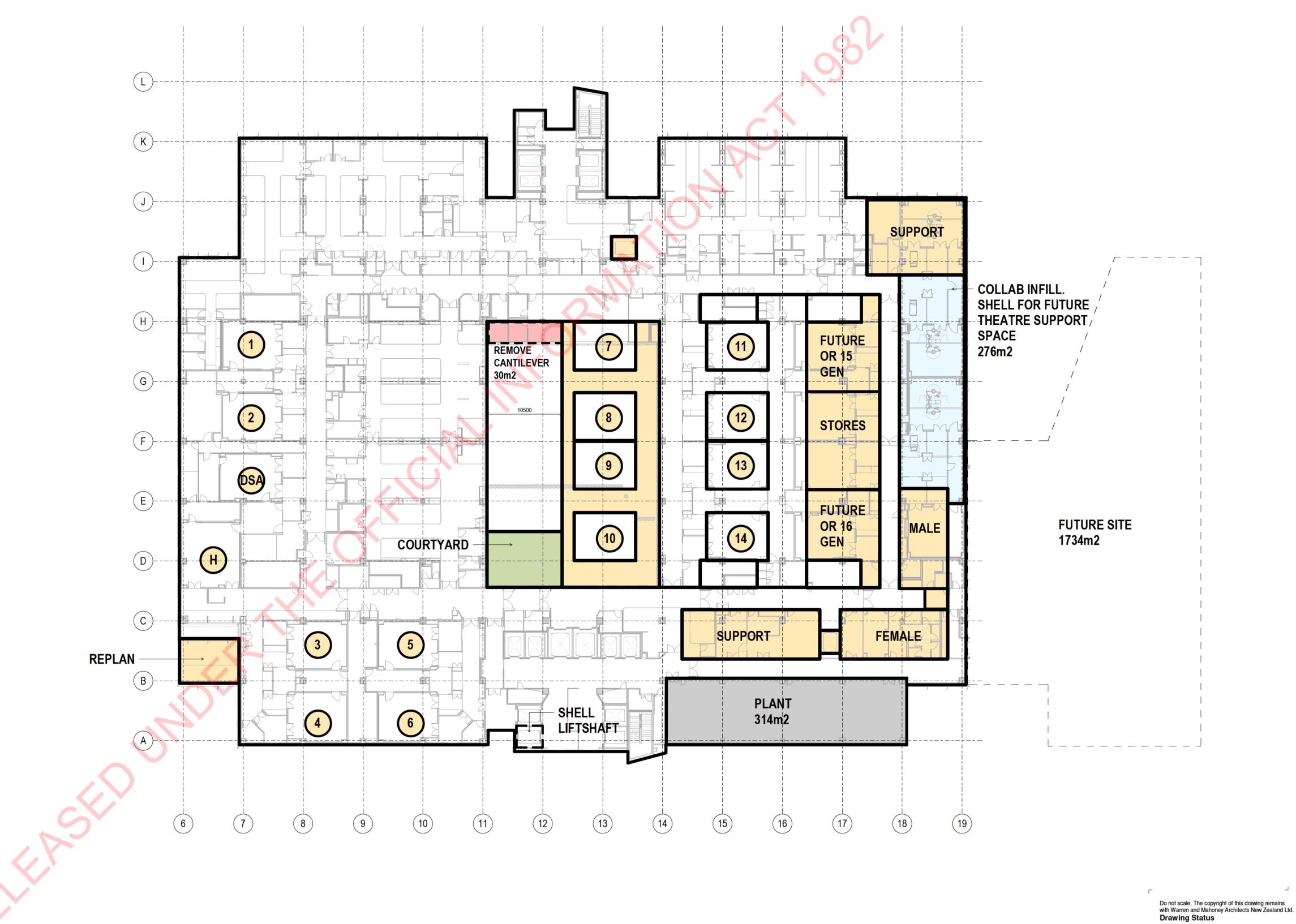


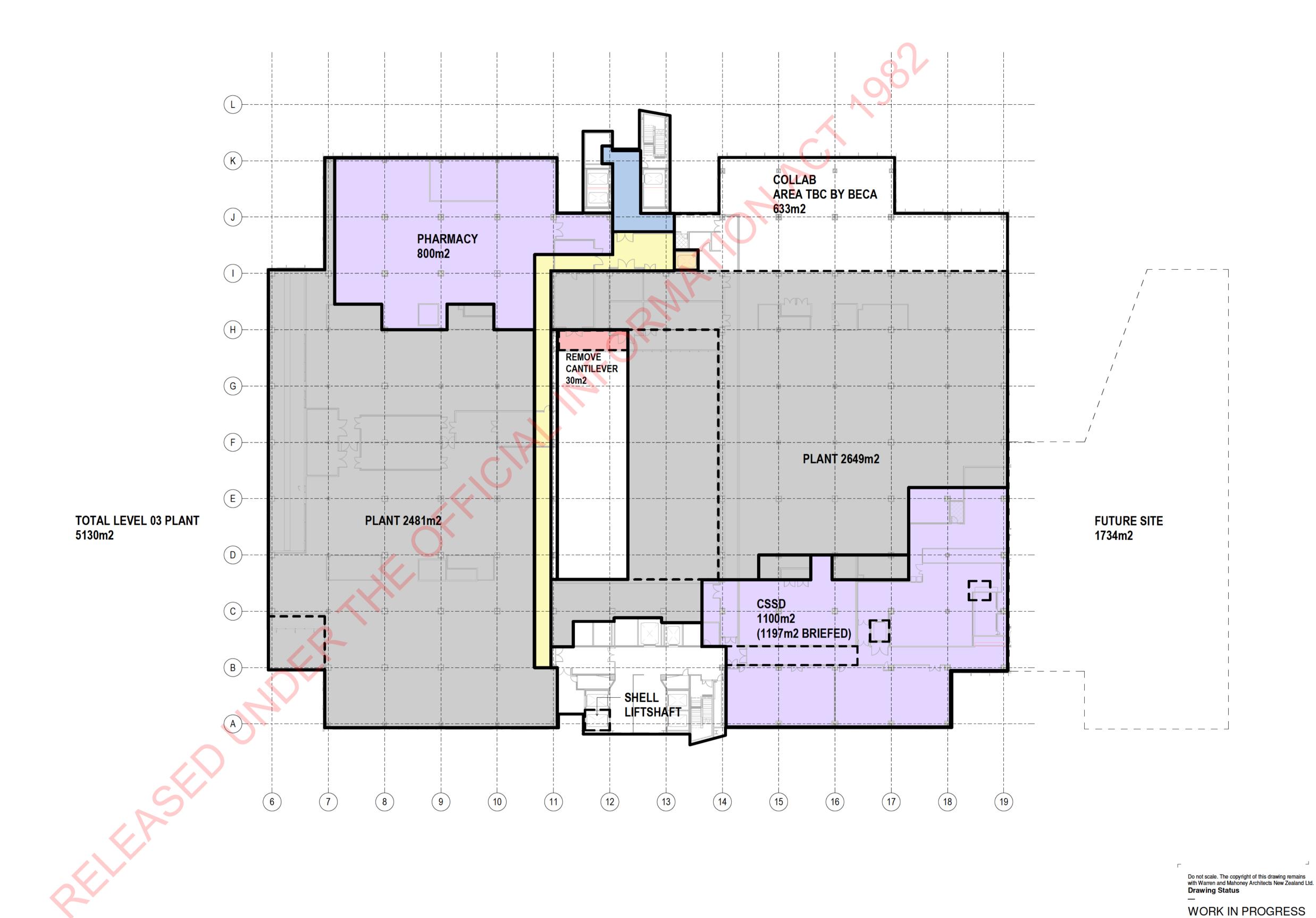
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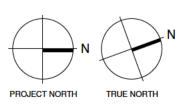
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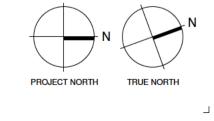


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FUTURE SITE

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III WARREN AND MAHONEY® FDS

17

COLLAB

CATH

PLANT

315m2

635m2

G

SHELL

14

15

COLLAB

62m2

SHELL

LIFTSHAFT

13

OPTION FOR COLLAB INFILL SHELL FOR FUTURE ICU POD

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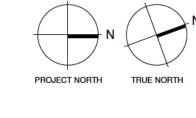
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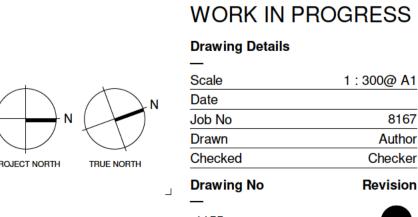
COURTYARD

NEW DUNEDIN HOSPITAL

NEW DUNEDIN HOSPITAL

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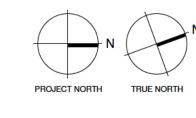
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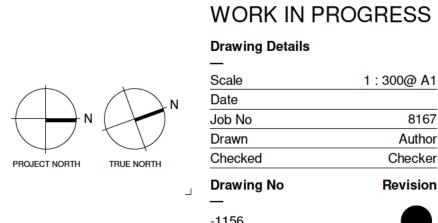
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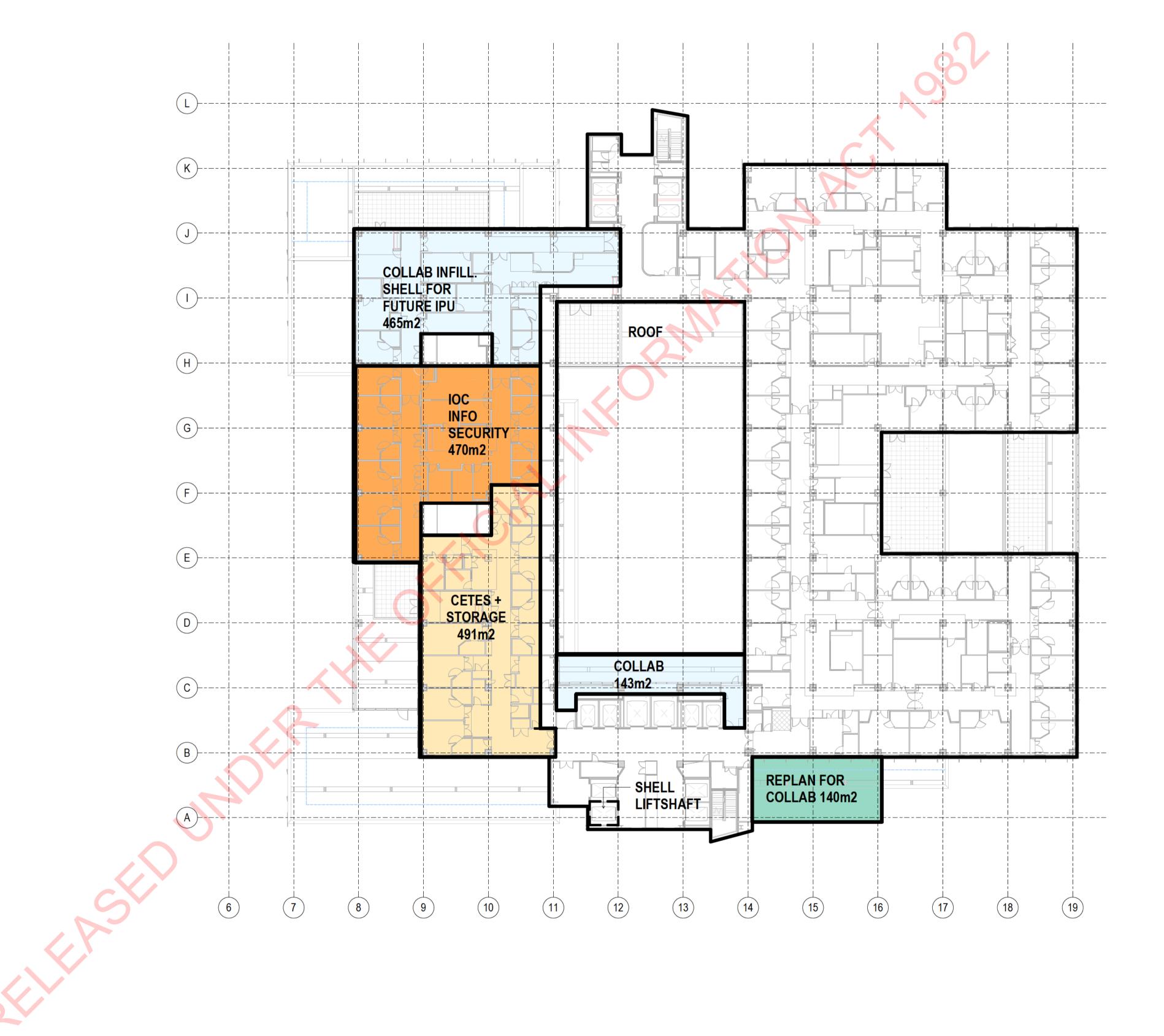


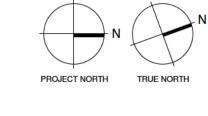


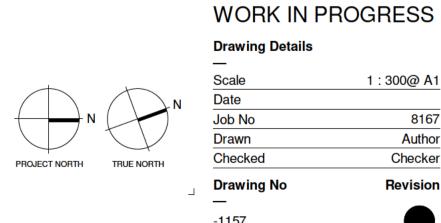
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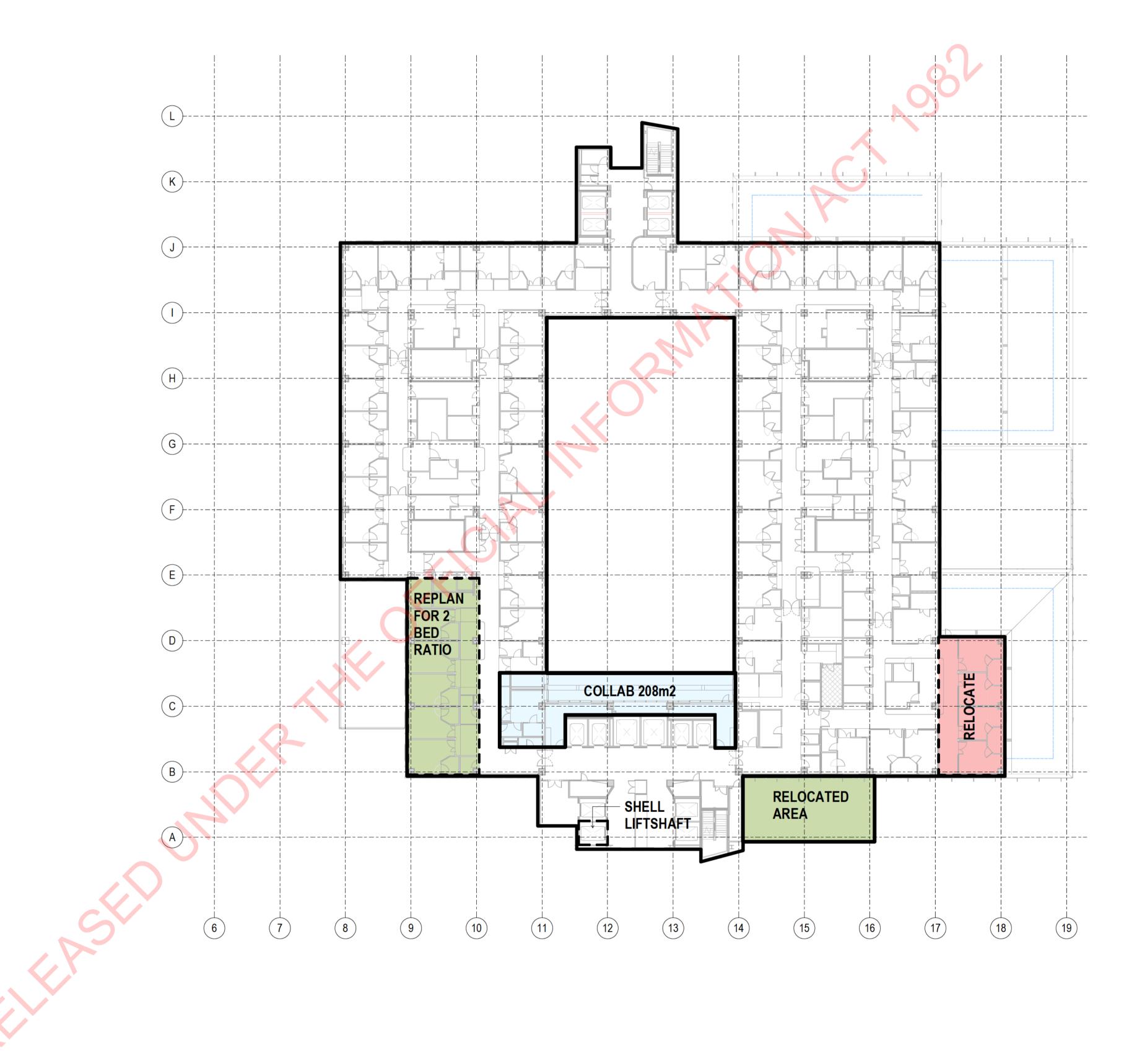


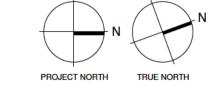


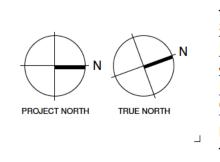
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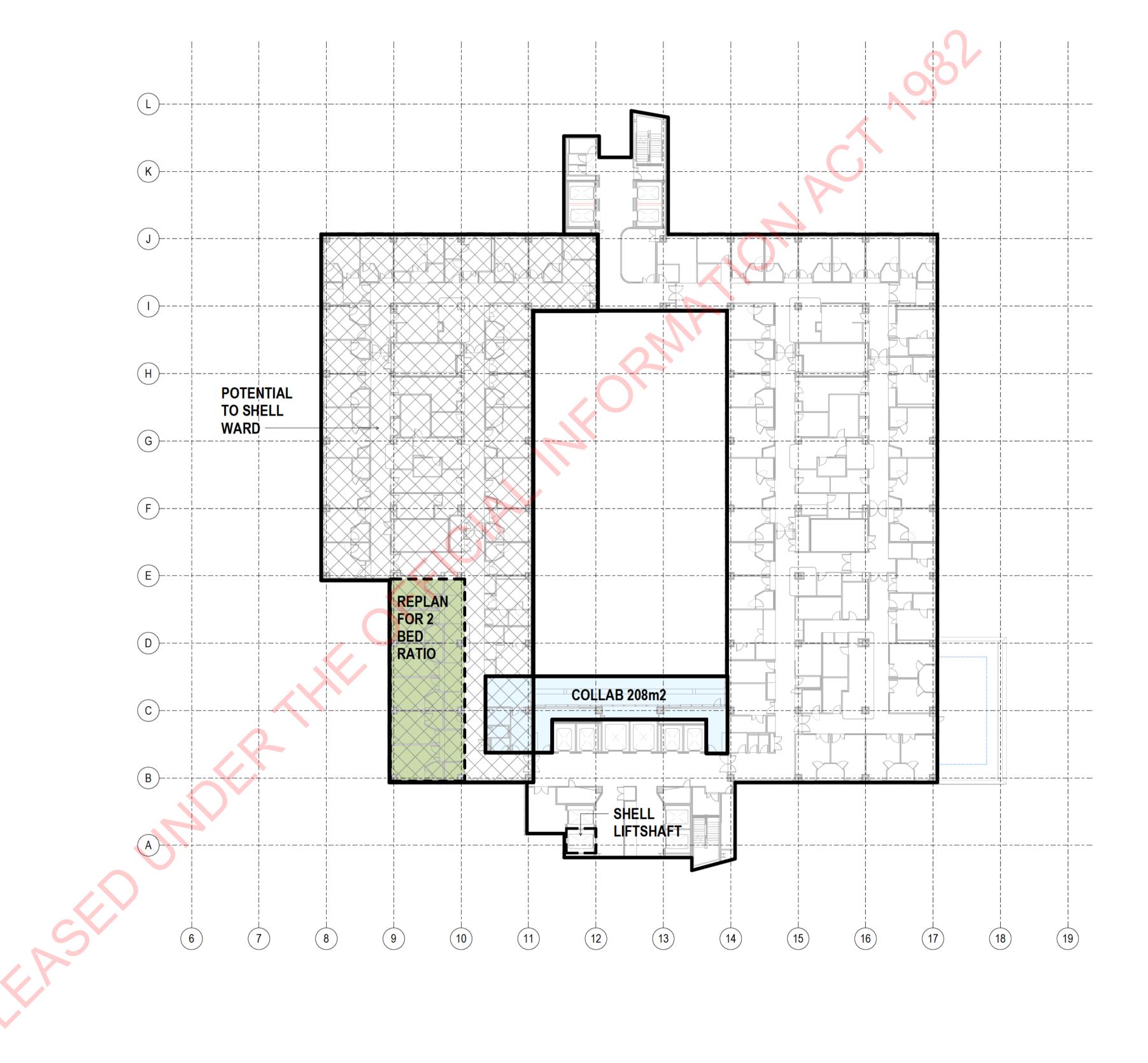


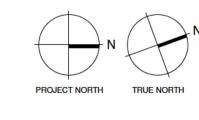
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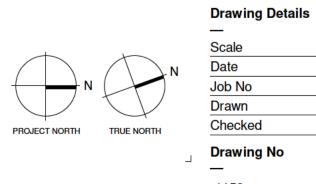
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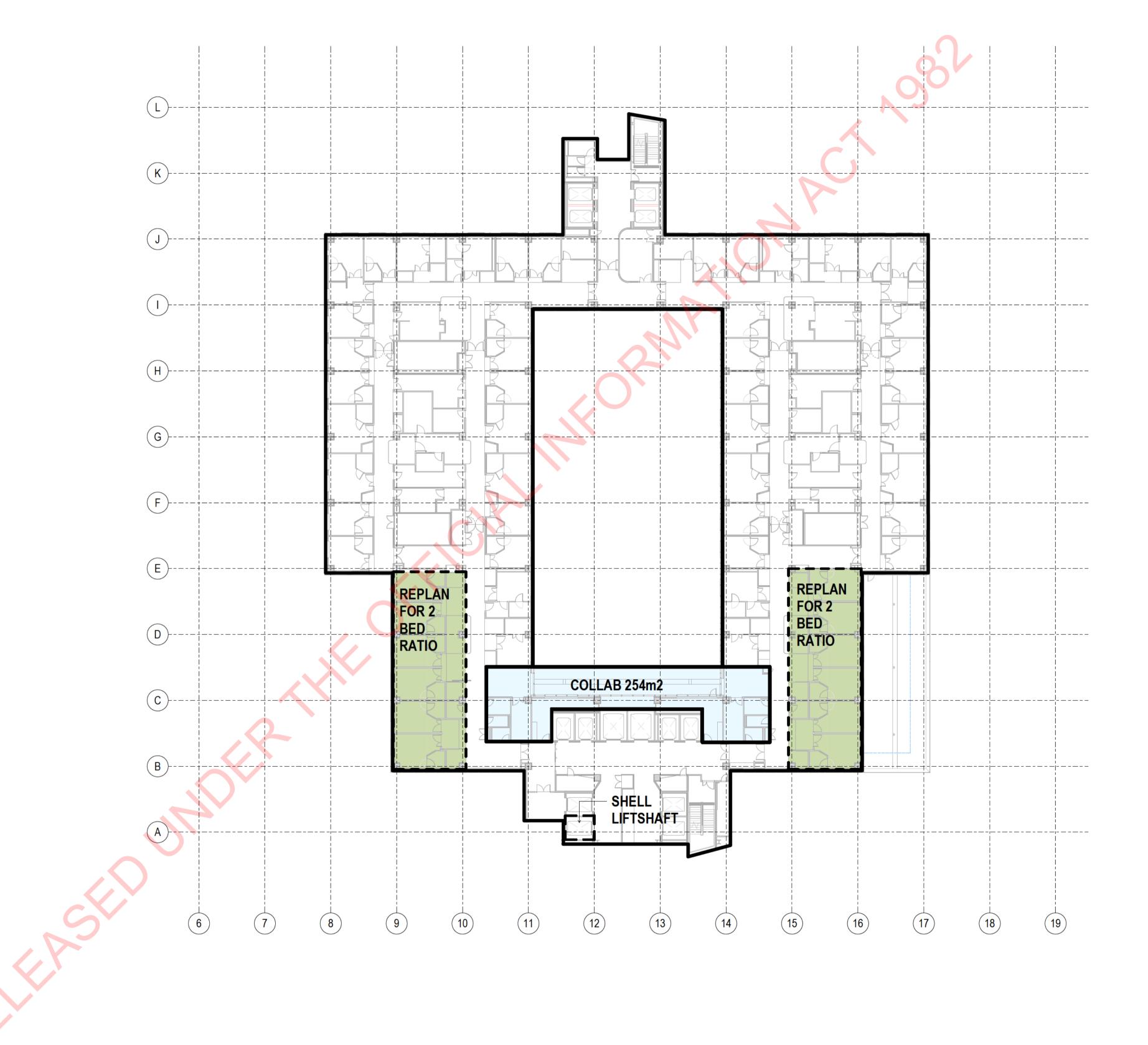


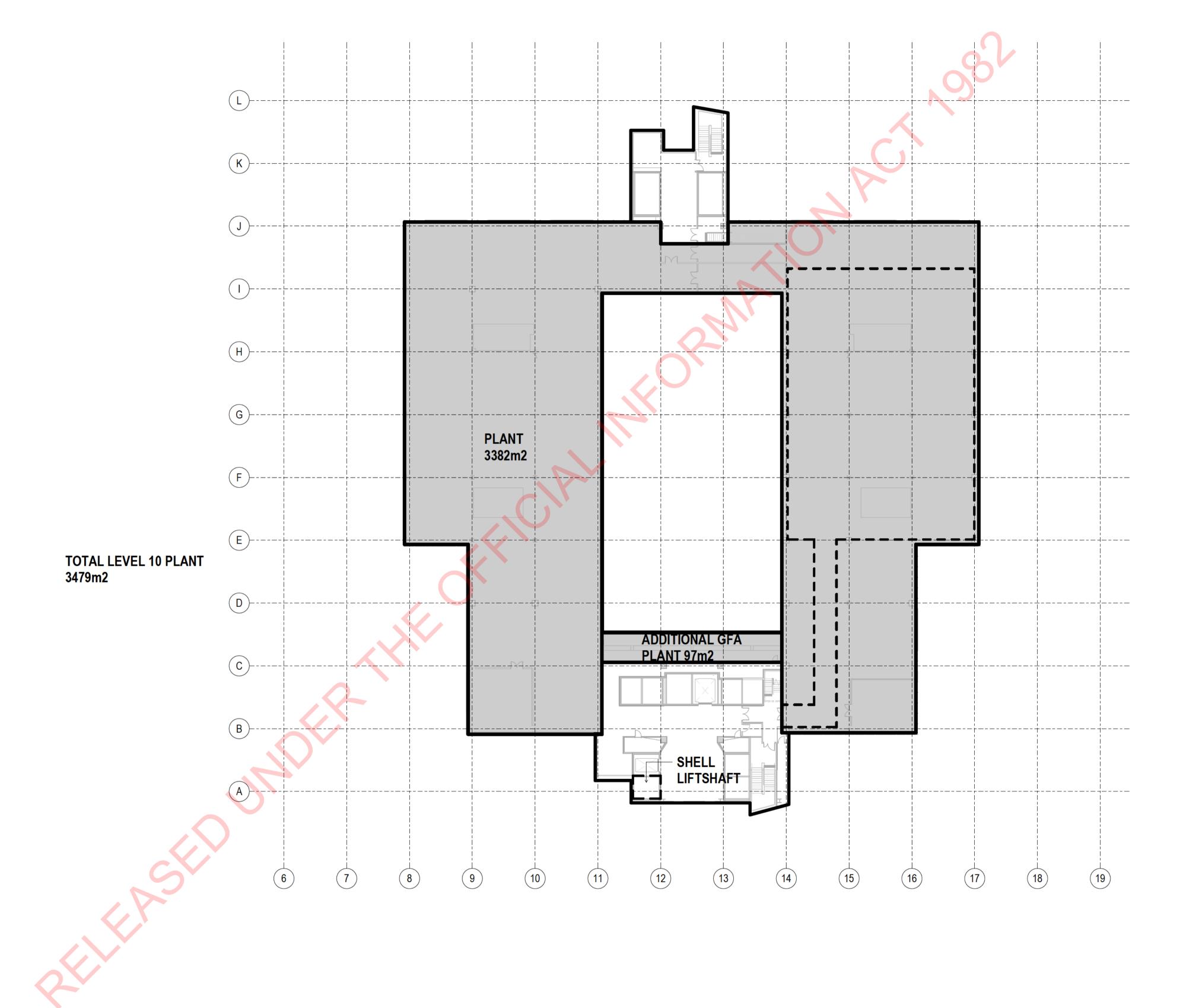
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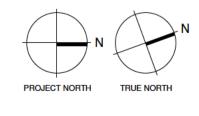
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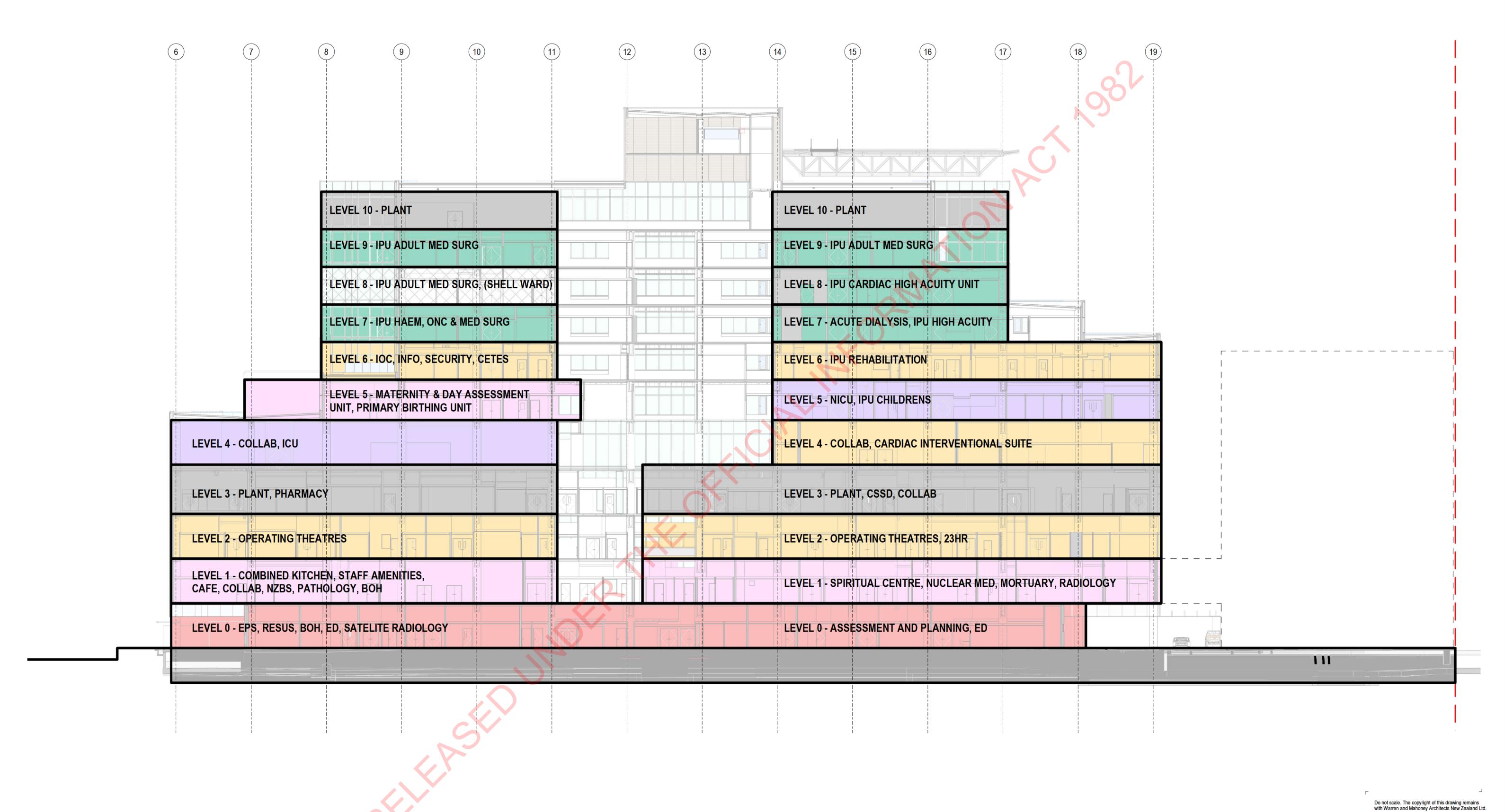


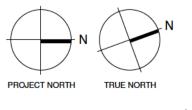


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Attachment D Holmes Memo 'Overview of the structural design pathway and acceleration dated 29 August 2022

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GridAKL, Level 5, 12 Madden Street Wynyard Quarter PO Box 90745 Auckland 1010 holmesanz.com

Memorandum

To: Kris Thomas

Company: RCP

From: Jeff Matthews

Date 29 August 2022 Project No: 138817.13

Subject: NDH Inpatient Building - Overview of the structural design pathway and acceleration

Dear Kris,

Options to accelerate the structural and geotechnical engineering design of the Inpatient Building have been investigated as part of the reset of the design of the building to mitigate some of the potential programme impact of the Design Optimisation Studies and the Design Reset. The options are outlined in the Holmes report titled HCG-RPT-0110-ST-004 Holmes Inpatient Building Optimisation Study Report dated 29 August 2022.

The structural and geotechnical engineering design is proposed to be accelerated to meet the requirements for the critical path activities – Pile Indent, Piling Detailed Design, Steel Structure Indent (beams and columns), Substructure Detailed Design and Primary Steelwork Detailed Design.

The programme for the redesign work is being developed by Woods and Associates. An overview of the structural design pathway and acceleration for the Inpatient Building as part of the New Dunedin Hospital Project is outlined herein. This memo focuses on Optimisation Option 4.3.

Proposed Programme for Acceleration of the Structural and Geotechnical Design

The proposed programme for the acceleration of the structural and geotechnical engineering design is attached to this memo. The assumptions on which the accelerated programme are based, the "Locked Information Points" and the contents of each structural package are outlined. The proposed programme represents the most optimistic outcome.

In determining the proposed structural design programme, a number of information points are needed to enable us to advance our design. Successful delivery of the structural and geotechnical engineering design to the accelerated programme relies on Health NZ providing various approvals and other members of the Design Team providing aspects of their design ahead of the design phase they are working in.

The proposed acceleration programme includes a "Prestart" period in which all the critical decisions for the basis of the design of the building are made to enable the analysis of the structure to commence.

Initial input has been received from Warren and Mahoney and Beca into the structural design programme. Further input is required.

Building Code Update Incorporation

The National Seismic Hazard Model (NSHM) is currently being revised with a planned public release by September 2022. This is only one scientific input. Other broader reviews of seismic risk settings are also taking place—collectively referred to as the Seismic Risk Work Programme. There are currently two Building Code updates for the design of buildings (Building Code reference is B1/VM1) proposed in relation to this work, one in the 2023 cycle and one in the 2025 cycle. MBIE have communicated to the industry that the 2023 changes are likely to be applied largely within the current structure of our loading and design



standards. The second updated in 2025 would be a broader change to the standards framework as a whole.

Typically, Building Code updates (such as the proposed updates to Verification Method B1/VM1 for Structure) follow an annual cycle. They are issued in April for public consultation – which would be the "first look". Submissions are reviewed and edits made, and the document is then published in November of that year and is effective at that time. There is usually a minimum transition of 12 months, during which time both the prior revision and the new revision of the document can be used. This allows existing projects to be completed and changes to be incorporated in new projects. During the transition period either the new or the old provisions can be consented. Following this process, the 2023 cycle updates would become mandatory in November 2024, and the 2025 cycle in November 2026. The Seismic Risk Work Programme timeframes are proposals and so these dates are subject to change.

How the changes to the NSHM will be incorporated into the Building Code documents is not known – and the Seismic Risk Work Programme is tasked with preparing these recommendations over the coming years.

A detailed discussion on the pending Building Code Update and the options for incorporating the Building Code Update in the design of the Inpatient Building including the risks associated with each option are outlined in the Holmes report titled HCG-RPT-0110-ST-004 Holmes Inpatient Building Optimisation Study Report dated 29 August 2022.

The option that has been instructed to be included in the design of the Inpatient Building is designing the building to current PSHA(1) and check to PSHA(2) using nominal properties (as per an existing building assessment). This option includes some allowance for the pending Building Code Updates, however there is a residual risk that the building may not be compliant with the Building Code at the time of opening.

The accelerated programme does not include an allowance to update the PSHA to the revised NSHM or the draft update to Verification Method B1/VM1 for structure. We recommend that the PSHA is updated to the revised NSHM in parallel during the "Prestart" and analysis periods to determine the impact and then the cost and programme implications can be assessed if any changes are recommended.

The accelerated programme for the design of the Inpatient Building is such that the Building Consents are likely to straddle the Code Updates.

Accelerated Programme Assumptions

The assumptions on which the accelerated programme is based include:

- Option 4.3
- The structure is as per the current design philosophy (steel moment frame structure on baseisolators)
- Construction is not staged. If staging is required, is it achieved by shelling areas.
- Design the building to PSHA(1) and check to PHA(2) using nominal properties (as per an existing building assessment.
- The current structure is utilised limited refinement of the structural sizes. The option to change to open section columns for the one-way columns in the seismic frames has been included (added three weeks to the programme)



 Modular bathrooms, if included, are instructed prior to the commencement of the mobilisation to enable the redesign associated with incorporating an 80mm setdown to be completed in the "Prestart" period.

Structural Deliverables Under an Accelerated Programme

The deliverables for structural engineering would not be in accordance with the NZ CIC Guidelines.

The proposed accelerated programme will have the following structural deliverables:

- Pile indent
- Piling Detailed Design
- Subfloor Detailed Design
- Primary Steel indent
- Primary Steel Detailed Design
- Remainder of Primary Structure Detailed Design
- Secondary Structure (aligns with the Detailed Design for the other disciplines)

Seismic Restraint will be delivered in the lag periods following Preliminary, Developed and Detailed Design, as per the current programme.

There are no clean Preliminary, Developed or Detailed Design delivery points. Aspects of the design will be at one or all of these phases at any one time. There will therefore be no Preliminary Design, Developed Design or Detailed Design overall milestone issues.

No Preliminary or Developed Design structural and geotechnical reports are proposed. Progressively through the design, key design decisions will be documented in memorandum for Health NZ sign-off. A Detailed Design report could be provided at the completion of the overall Detailed Design phase, if required.

No interim design issues or reporting have been included in the accelerated programme for the structural deliverables. These could be added in, if required, however this will impact the ability to accelerate the structural design and require the programme duration to be extended.

Information Requirements for the Accelerated Structural Programme

The structural design is delivered ahead of the other disciplines. Delivery of the structural packages is reliant on information being provided (and locked) by the Architect and Services Engineer. This information has been highlighted in the attached structural acceleration programme as "Locked Information Points".

Some of the information required to be provided by the Architect and Services Engineer will require them to lock the information ahead of when the design is complete and require Health NZ sign-off in advance. Initial input has been received from Warren and Mahoney and Beca into the structural design programme. Further input is required.



The information supplied to us by others may need to be conservative given where their design is at relative to ours and could result in aspects of the structure being more expensive than if our programme was to align with the rest of the design team.

Risks of accelerating the structural design

Advancement of the structural design ahead of the rest of the design team is possible, however there are risks associated with the acceleration. Potential risks to both programme and cost include:

- Structural design is accelerated ahead of the design by the other disciplines. Early delivery of the structural packages is reliant on information being provided (and locked) by the Architect and Services Engineer. The Architect and Services Engineer will be required to lock elements of the design before their design is complete. No allowance has been included in the accelerated programme to reanalyse/check to see if any changes that occur, as the Architects and Services Engineer progress their design, can be incorporated. Late changes will not be able to be accommodated within the proposed programme. Late changes that require redesign will incur:
 - o Additional fees/abortive costs
 - o Additional time that may compromise the programme benefits from acceleration.

Prompt and early sign off of critical decisions will be required from Health NZ. Risk that delays in obtaining the required decisions will delay the structural design.

Additional Project/Design Management will be required to ensure that all information that is required to be locked, including Health NZ sign-off of key decisions, is provided on time to minimise the risk of programme delays.

- Risks that assumptions that are required to be made to enable the structural design to accelerate:
 - Will lead to increased cost of the structure due to conservatisms required to be made due to status of the design of the other disciplines at the time elements have to be locked and to reduce risk of change
 - may result in suboptimal solutions.
- Structural design is not completed in accordance with the CIC Guidelines. There are no Preliminary Design or Developed Design reports, nor interim deliverables included in the programme. Progressively during the design, key design decisions will be documented in memorandum for Ministry sign-off. Risk that there are no combined design milestones or hold points for cost checks and Heath NZ sign-off while the structure accelerates.

Documents will be issued at the key structural milestones (Pile indent, Pile Detailed Design, Steel Structure Indent etc). Although these documents will be available for cost checks and Health NZ review, there are no hold points in the programme for these reviews and no allowance is included in the programme to make any changes following these checks/reviews.

Risk that the structural design is progressed ahead of cost checks and any requirement to incorporate changes from Value Management Activities will have a cost and programme impact. If hold points are required for Ministry review or cost checks, the programme will be required to be extended to incorporate them.



- Due to the accelerated nature of the programme, design decisions will be forced to be made that may have implications with respect to cost, construction and the later design phases. The Quantity Survey and the ECE Contractor will need to be at the table during the design process to ensure that cost consequences or implications of design decisions are identified and to flag any cost or other issues.
- Risk that all the critical decisions required in the "Prestart" period are not made in time to enable the analysis of the structure to commence. Risk that the "Prestart" period may need to be extended.
- The decision to include modular bathrooms in the design is required to be made in time to allow the additional four weeks of design required for the redesign of the gravity structure of the tower floors to be completed in the "Prestart" period. Risk that the "Prestart" period and the overall programme duration may be increased.
- Some allowance has been included in the design for the pending Building Code Updates residual risk that the building may not be compliant with the Building Code at the time of the opening.
- Building Consents will straddle the pending Building Code Updates. We recommend consultation
 with the Dunedin City Council to mitigate the risks associated with this.

The risks identified are those assessed by Holmes as the Structural Engineer only and will not be fully inclusive of all potential risks of adopting the acceleration of the structural design.

It is the responsibility of Health NZ, their Project Managers and Quantity Surveyors to further assess both those identified risks and other potential risks that may be subject to future variation. Allowance for additional fees associated with the design or programme risk implications of adopting an accelerated programme will need to be included. Redesign and programme risk and any associated contingencies are owned by the Health NZ.

Regards,

Jeff Matthews
PROJECT DIRECTOR

Holmes NZ LP



Attachment E Woods Harris Memo 'NDH – Inpatients Design Optimisation' dated 26 August 2022

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NDH - Inpatients Design Optimisation

26th August 2022

Programme development has been based on initial design deliverables options workshop in June 2022 and the subsequent refinement at programme development meetings over the July – August 2022 period. In addition, we have received direct feedback from the structure, architecture, and services consultants.

It must be recognised that the information (and programme developed and presented on its basis) remain elemental with a significant amount of detail that has yet to developed and integrated.

However, the team remain confident that the programme durations and logic presented are achievable; every effort will be made to ensure compliance with this timeline is achieved.

The revised architecture, in general terms being the removal of the "Pavilion" and reconfiguration several of the clinical areas, has had little impact on the structure design. However, because of the time lost during this "Optimisation" process we needed to consider an "acceleration" of the structure design process. The traditional process of the design disciplines working equally through each design phase is the most efficient and produces the least risk of "rework" at the shop-drawing/construction phase; however, if we were following this process the project likely forecast completion date would sit at the end of 2029. This would also incur a significant increase in costs due to consultant and contractor fee extensions and further escalation in build values.

It was for these reasons the team has pursued and developed the "accelerated structure design" model. It allows early issue of key procurement information including.

- 1. Pile tube indent specifications
- 2. Piling design
- 3. Structural steel indent specifications
- 4. Inground, sub and superstructure consent packages.

With this key information provided as soon as possible we can provide the contractors with a pathway to expedite early works packages. As noted above this comes at some risk, with coordination to the standard level not being achieved however with the involvement of the ECE contractor, this risk will be closely monitored and managed.

The team have considered and rejected a structure philosophy change (excluding base isolation and redesign of the steel frame) given the significant programme impact caused by the additional time needed to implement.

The programme presents with the Design Optimisation proposal is titled –

"NDH – IB Design Optimisation – Arch Option #4.3 (structure expedite) V01b 220826".

Programme Impact

C.E.K	Optimisation Programme	Current Programme Rev 4.	Delay Impact
Design (prolongation to 100% Detailed Design Completion)	16/9/24	3/8/23	12 months
Inpatient Building Construction Start (piing)	17/1/24	17/4/23	9 months
Inpatient Building Opening "Go Live"	14/3/29	8/6/28	9 months

Note: Programme 'Impact' is NOT cumulative.



Programme assumptions / provisions:

- 1. ESG endorsement at the 9th September 2022 meeting and subsequent HNZ approval by 15th September 2022
- 2. 6 week "mobilisation & pre-start period" to allow consultant teams to confirm deliverable, reengage their teams and agree contractual matters
- 3. Delivering the key information required by the structure team as noted on the milestone dates (lines 33-51)
- 4. UG meetings being limited to "key" staff and only for areas where endorsements have not already been provided.
- 5. 3 x UG in Prelim and Developed Design, no UG in Detailed design.
- Provides for QS costing and peer review completion to allow approvals to proceed to the next phase of design whilst formal approvals are occurring concurrently.
- 7. Acceptance of the above process (as previously endorsed for this project) will likely see some change requests resulting from the final approvals/endorsement process.
- 8. Includes for a "generic" design sequence for the yet to be defined plant facility proposed for Bow Lane site.
- 9. Assumes an amendment to the ground Works Resource Consent to allow piling (as redesigned)
- Allows for a Restricted Discretionary RC process for above ground works and therefore needs to be lodged prior to the end of January 2024 (programme target is 16th June 2023).
- 11. Assumes a progressive engagement of key trades (piling, structural steel, façade etc) for design input and procurement activities.
- 12. Construction durations and sequences are based on the latest ECI offering (issued Feb 2022).

WOODS HARRIS CONSULTING LIMITED

Paul Tonkin

Attachment F RLB Memo 'NDH Inpatient Building Optimsation Estimates' dated 30 August 2022

PELEASED UNDER THE OFFICIAL INFORMATION ACT 1988?



MEMO

To: Resource Coordination Partnership – Kris Thomas

Cc: Te Whatu Ora - Tony Lloyd

From: Rider Levett Bucknall - Neil O'Donnell

Date: 30th August 2022

Re: New Dunedin Hospital Inpatients Building Optimisation Estimates

The Project Team has been tasked to identify design optimisation opportunities across the NDH Project so as to partially offset recent and ongoing extraordinary cost escalation impacts.

Further to recent Optimisation activities including numerous meetings, presentations and ad hoc discussions, attached is a summary for Optimisation Option 4.3. A number of previous options have been reviewed but subsequently discounted by the Project Team and are not repeated here. This is because they did not achieve acceptable estimated savings or clinical outcomes.

In addition, a number of Structural Alternatives have also been proposed and estimated, but subsequently discounted by the Project Team. This was due to extent of redesign required that would have caused a substantial delay to project delivery.

Clarifications:

The attached savings estimates are net of estimated escalation and redesign impacts. The basis is recent Woods Harris programme advice 29.08.22 and delay indications included therein – Hospital Go Live date of March 2029. This is a delay to Go Live of 9 months and is based on amended structural design processes to mitigate further delay.

Allowances have been made for professional fees to update the design; note that these fees have not yet been confirmed and may change upon receipt of any final fee variation claims. The basis is to have used the original fee values and adjust for prolongation taking into account perceived amount of change.

The FF&E allowances have been discussed at high level with the FF&E Manager and HNZ.

A number of miscellaneous Building Services items have been included in the estimates and vary in value from between \$200K and \$1.2m each and as such are not itemised individually, but instead are grouped together. We understand that they have been discussed with Te Whatu Ora Southern Property Department and have broad acceptance.





Current Cost Position:



Estimated Cost Saving

Building Cost Saving: \$117,000,000

Time Related Costs

Savings Realisation Risk

As noted above, these estimates are high level since the optimization proposed is at a pre-concept level and estimates will be updated as design progresses with further design development.

Other specific risks that may alter estimated costs:

- Programme not being achieved
- Escalation rates applied being exceeded
- Further design of Bow Lane services support areas requiring additional structural requirements
- Replanning of areas in the altered areas of Inpatients Building causing knock-on effects to risers, etc.
- Reduced areas of plantrooms being insufficient
- Services savings items do not get final agreement
- Professional Fee claims exceed budget allowance

Recommended Scheme Savings Breakdown

Refer to the attached summary

Conclusion

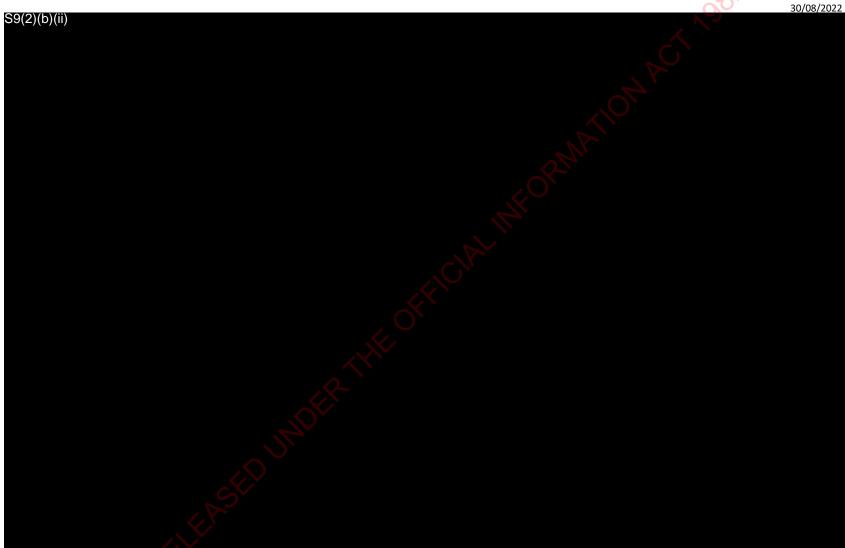
Currently Optimisation Option 4.3 is estimated to achieve a net saving of approximately \$90m. The Project Team continue to work to identify further savings opportunities. It should be noted that the attached are based on high level feasibility type estimates and will require continued development as the final selected options are subject to further design.

Should you require any further information, please do not hesitate to contact us,

Kind regards

RLB Rider Levett Bucknall

Inpatients Optimisation
Option 4.3



Estimate based on:

Optimisation_Option -4.3 dated 26.08.2022.pdf

Woods Harris Programme - IB - Design Optimisation - Arch Option-#4.3 - V01b (Structure accelerate) 220829



Attachment G Te Whatu Ora Southern 'Clinical and Operational Impact Statement' dated 2 September 2022

Separately bound document.

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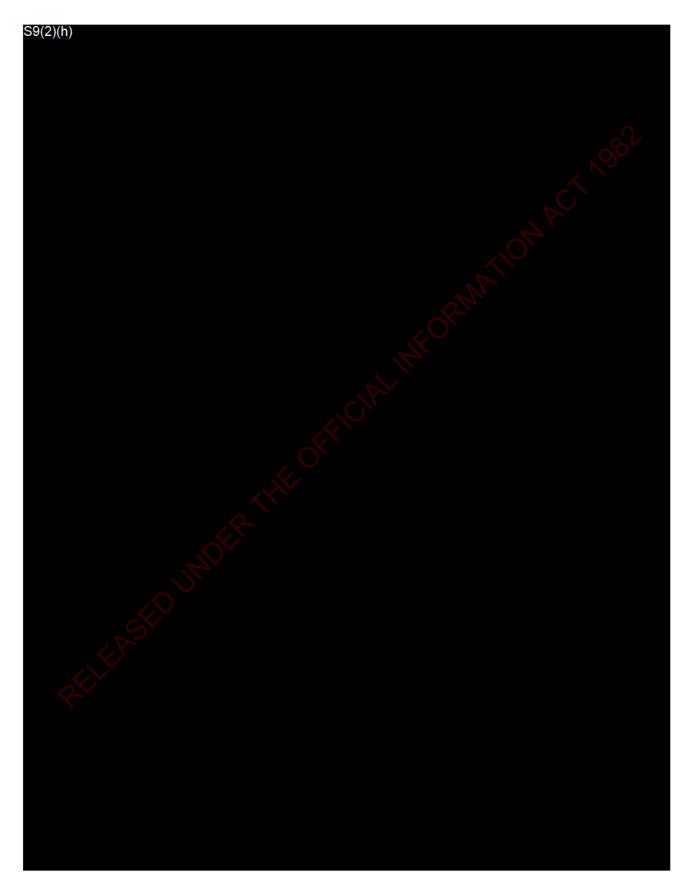
Attachment H Greenwood Roche / Boff Miskell Memo 'Inpatient Building – amended design – updated consenting risk assessment' dated 30 August 2022

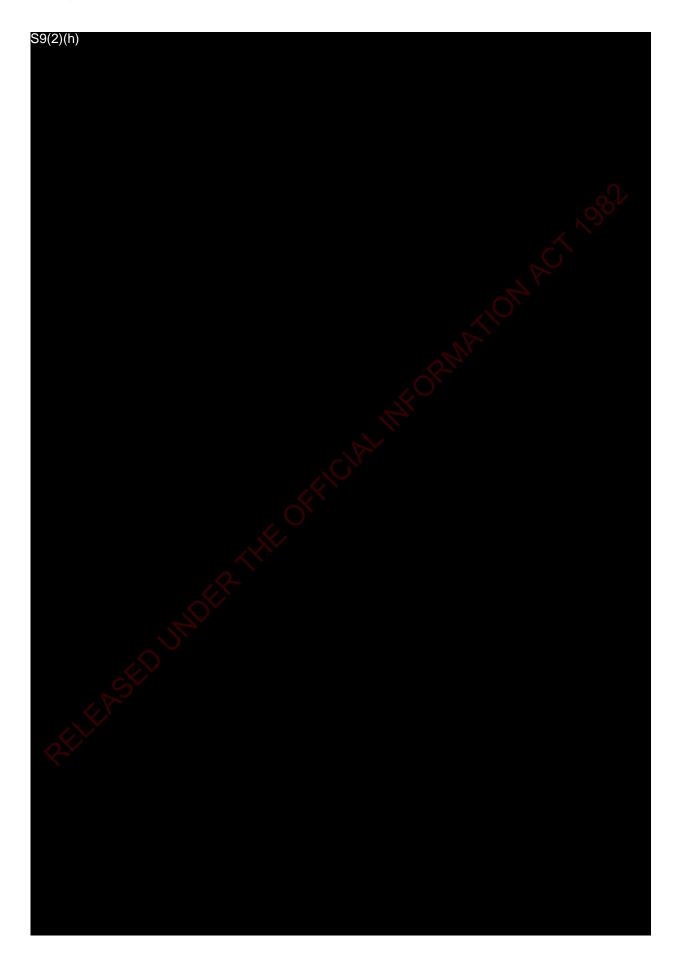
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GreenwoodRoche

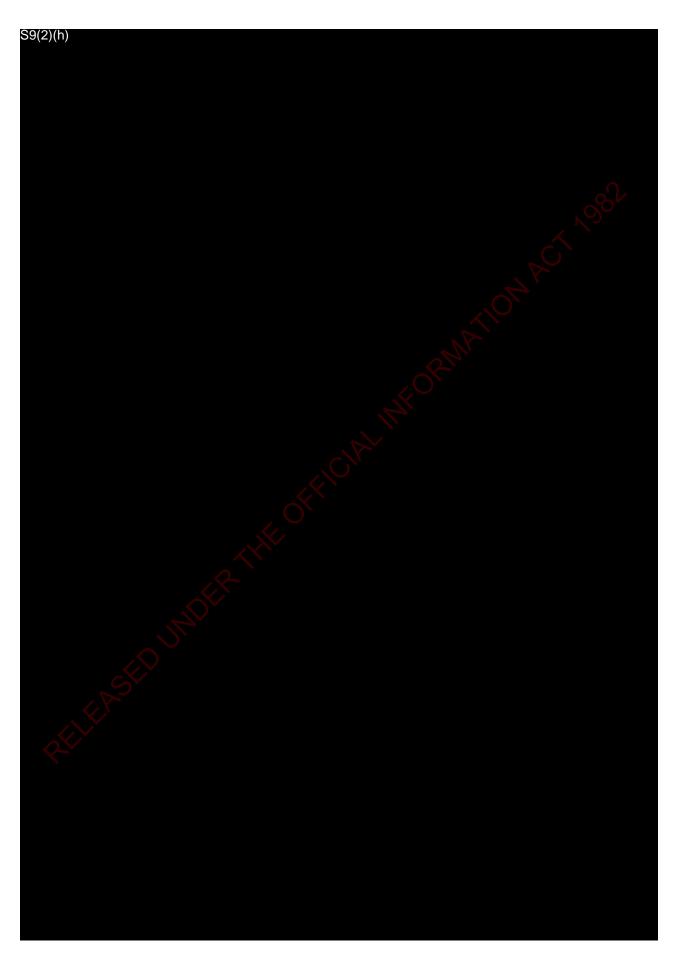
PROJECT LAWYERS







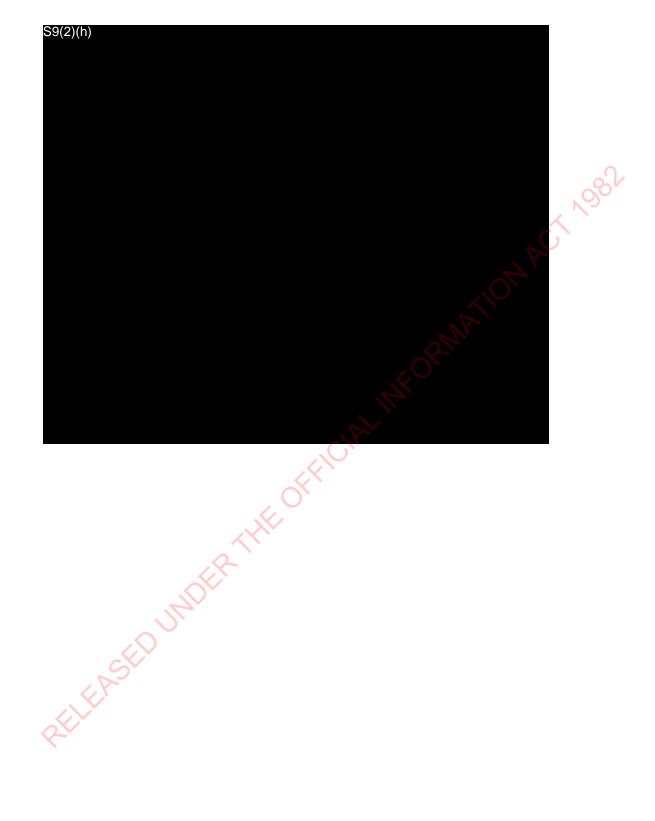












Attachment I Novo Group Memo 'NDH – Inpatient Optimsiation Transport Review' dated 29 August 2022

REV. ASED INVERTINE OF FICIAL INFORMATION ACT ASSOCIATION ACTION ACT



29 August 2022

Novo Group Limited

Level 1, 279 Montreal Street PO Box 365, Christchurch 8140 O - 03 365 5570

info@novogroup.co.nz

MEMO

TO:

Kris Thomas – RCP

FROM: Nick Fuller, Senior Transport Engineer

PROJECT REF: 670-001 – TM010A

NEW DUNEDIN HOSPITAL: INPATIENT OPTIMISATION TRANSPORT REVIEW

- 1. This memo sets out our high level review of transport arrangements associated with the New Dunedin Hospital Inpatient Optimisation, accepting that further review and assessment will be required as the project progresses. The review undertaken is of Option 4.3.
- As a brief overview, we consider that the layout is generally acceptable with outstanding matters to be resolved being of a minor nature that can be addressed in the next stages of design.

Access

3. The proposed access locations and their uses are illustrated in Figure 1.

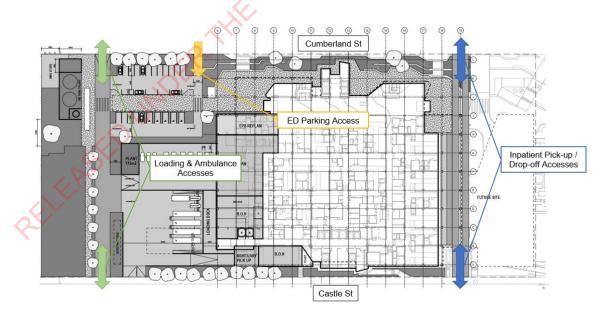


Figure 1: Site Accesses

4. The northern end of the site includes accesses to a pick-up / drop-off facility for Inpatients.

These accesses are located at least 30m from the St Andrew Street intersections with

Cumberland and Castle Streets and therefore comply with the District Plan separation requirements. Previous traffic modelling (undertaken for earlier iterations of the site layout) indicate that these accesses should operate safely and efficiently, particularly with the existing one-way road network.

- 5. Loading and Ambulance access is provided at the southern end of the site. These accesses will also accommodate egress from the Emergency Department car parks. Although it is anticipated changes will be required to better accommodate vehicle tracking at these accesses, there is ample space to accommodate this as the design progresses.
- 6. Dedicated access is proposed to an Emergency Department pick-up / drop-off facility and car park. This Cumberland Street access is anticipated to operate satisfactorily and there is sufficient queue space provided to avoid vehicles affecting the State highway network. Sharing of egress with Ambulances and loading vehicles (as identified above) is considered to be able to occur safely, noting that vehicles exiting the car park will need to give-way to traffic on the southern east-west link.
- 7. Pedestrian and cycle access will be largely as per previous iterations of the design, which was considered satisfactory. An accessible link (for the mobility impaired) to the St Andrew Street / Cumberland Street will be required in the next stage of the design, although there is ample space for this to be provided.
- 8. Although we are yet to see updated designs from Waka Kotahi for potential two-way arrangements of Cumberland Street and Castle Street, we consider that the proposed access arrangements are likely to operate acceptably under a two-way road network (should that eventuate).

Parking & Loading Areas

9. The parking and loading areas are illustrated in **Figure 2**.

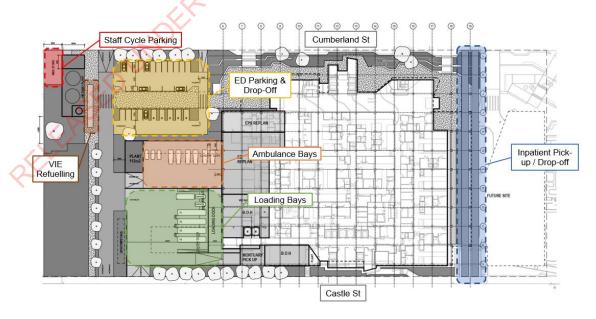


Figure 2: Parking & Loading Areas

- 10. Vehicle tracking has been undertaken of the loading dock which has been appropriately sized to accommodate truck manoeuvring. Sufficient space is also available to provide gates to make this a secure facility. The VIE refuelling location is as per previous iterations of the Inpatient Building design and this remains acceptable with the proposed layout.
- 11. Similarly, there is ample space within the Ambulance bay to accommodate parked and manoeuvring Ambulances. Again, there is also the potential for security gates to be installed without affecting through use of the east-west link by other vehicles.
- 12. The Emergency Department car parking layout complies with relevant standards and is therefore considered acceptable. It is noted this provides at least five mobility spaces, five pick-up / drop-off spaces plus 17 other (unallocated as yet) car parks.
- 13. The pick-up / drop-off arrangement at the northern end of the site has sufficient space to accommodate approximately 16 vehicles, in an 'airport style' arrangement. The dimensions of these spaces have been reviewed and they meet relevant design guidance.

Conclusion

14. The proposed site layout has been reviewed with regards to transport matters. It is considered that the layout is generally acceptable with outstanding matters being of a minor nature that can be resolved in the next stages of design.

Attachment J Beca Memo 'Design Reset Executive Summary Building Services and Fire Engineering' dated 31 August 2022

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1989.

Sensitivity: General

Memorandum

To: RCP Date: 31 August 2022

From: Richard Wager Our Ref: 5397839-

1601990802-10360

Copy: :

Subject: Design Reset Executive Summary Building Services and Fire Engineering

As part of the direction to undertake optimisation of the project with the goal of significant cost savings, four options have been identified. This review provides an initial assessment of the building services and fire engineering implications on the current design:

Option one retained all of the briefed services and functionality, with a lens towards engineering and travel efficiency.

Option two removed the pavilion building, cut the inpatient building back to grid 19, requiring some replanning of the podium floors, achieving an approximate 1450m2 saving in engineering plant area over option 1. Central plant (generators and central heat pumps) were located within a 6 storey logistics building to the south of the site.

Option three built on option two with a two floor reduction of the south tower, reduced quantum of collab workstations, two less theatres on Level 3 and the MHSOP and Pathology removed entirely from the project, achieving an approximate additional 1650 m² saving in engineering plant area over option 2 above. The alongside logistics building was reduced by 2 floors.

Option Four now develops option 3 by bringing the logistics building into the main building form. Limited further engineering area savings have been realised. The emergency generators and heat pumps have been relocated to the Bow Lane site. To retain the heat pumps on the inpatient building will limit the ability to locate pharmacy at the plant level (now on level 3) or require alternate plant space. The introduction of the main kitchen (tenant fitout) brings with it a need for fire rated risers, or ductwork through the building.

Structural Options

Our options assessments have been based on the current structural design. The various structural options investigated have been discounted due to their major impact on the project programme.

These changes are described in more detail in the body of our report and attached sketches. To be able to assess these changes from a services perspective, some key assumptions have been made (section 2) that require validation/ acceptance by Ministry and SDHB.

Alternate plant locations

In reaching this point, we have investigated a number of alternate central plant locations. Study has identified the only viable standby electricity generator location to be on the Bow Lane site. Location of the central HVAC heat pumps on the Bow Lane site is also looking most favourable, albeit there are still acoustic challenges being worked through. The more challenging rooftop locations at levels 10 and 6 is still under review as an alternative at this time. There is no recognised guidance that addresses the significant quantity of heated or cooled air discharged vertically from roof mounted heat pumps surrounding the helipad. We have therefore consulted with the helipad operator (HeliOtago) who have expressed H&S concerns around the unknown effects in abnormal situations (eg an engine failure).. Whilst further work could be done on this, it is likely some level of risk will remain for HealthNZ that in certain conditions the helipad may be unusable.



Memorandum

Opportunities to Reduce Plant Space

As part of the optimisation work, we have reviewed opportunities to further reduce the plant space required. All these options compromise aspects of the agreed approach to date, with some discounted because the compromise is believed to be too great. Many have been adopted in option 4 to fit within the reduced engineering plant area. These are generally a deletion of AHU heat recovery where required, deletion of AHU return air sections in favour of double stacking supply AHUs, changing more areas to VAV systems and combining areas served by single AHUs. Whilst achieving greater area savings, this is at the cost of additional high level and ceiling void maintenance access requirements.

Some combining of plant serving parts of multiple ward levels has been incorporated to reduce plant area, however this does reduce fire engineering resilience and increase controls complexity along with increasing cross contamination risks. Further study will be needed to have confidence that this can be avoided.

Pandemic Provisions

We have reviewed the impact of system changes made on the previously agreed pandemic stage 1 to 3 responses and believe we can retain most of the agreed functionality. As the design is developed, some areas may however require a level of simplification in zoning, which will be discussed with HealthNZ following further study.

Green Star

With regards the 5 star Green Star target for the Inpatients Building, initial assessment at this stage is the potential points available to the project have reduced but the project should still have sufficient points for the 5 star target.

The loss of some target credits means the target credits will all have to be achieved, increasing the compliance risk on a complex build. It will be important to work through the credits targeted in more detail with the relevant disciplines, to confirm the credits are fully available and the project remains on track for the target rating.

Vertical Transport Summary

The key implications of the options for the proposed alterations to block and stack are similar for all options. These are seen as follows (in the absence of revised traffic flow data at this time):

- The main bank of lifts on the West side increase to 2m/s to allow for additional traffic.
- Logistics lifts move with the building (G to L1 only), with double sided access supporting proposed flow paths
- The suggested deletion of two main red core logistics lifts on the east side has been discounted in favour of shelling one lift core of the current four for future fitout. This minimises consequences for mixed use, wait times, functionality, pandemic use and resilience that have been previously briefed
- The introduction of distributed collab spaces will require review of wait times once their locations are agreed

Updated traffic flows for more detailed re-assessment will be required.

Building & Property Engagement

A high level overview of the reductions in plant configuration and system design changes has been provided in our design reset report and reviewed by Southern Building and Property. Their commentary is also summarised in this table. Accepting the need for cost saving, they are broadly



Sensitivity: General

Memorandum

supportive of the changes proposed, noting impacts on energy use and increased maintenance within on floor areas and at high level in plant areas.

Programme

To minimise the impact of the optimisation on programme, the structural team have been asked to accelerate these critical path activities. Whilst splitting the design process comes with some risk, the Ministry is accepting of the risks and the design team will continue undertaking a more detailed programme review to understand its impact and consequences for other disciplines. To date we remain confident that a solution can be found with the assistance of design management support and oversight.

Fire Engineering

The options have had a high level fire engineering review and whilst some have increased the complexity of the engineering required, the team are confident that alternative solutions can be found to support option 4. Refer to the Beca Services impact report for further discussion.

Conclusion

Based on the feasibility work undertaken to date, the option 4.3 layouts enable the building to comply with the fundamental design requirements of the spaces. The changes made have impacted energy efficiency, resilience, flexibility and maintenance to some degree. Some preferences of the original technical brief have also been discounted. Work is required at the next design stage to validate the assumptions necessary during this reset period.



New Dunedin Hospital

Value Management: Option 4.2 and 4.3

Clinical and Operational Impact
Statement – Te Whatu Ora,
Southern

Prepared by: Te Whatu Ora Southern PMO and Clinical Transformation Group (CTG)

Reviewed by: Hamish Brown (Interim District Director), Bridget Dickson (Programme

Director), Sheila Barnett (CTG Chair) and Pete Hodgson (LAG Chair)

Date: 2 September 2022



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Chapter 12: Reputational Risk and impact on User Engagement	



Clinical and Operational Impact Statement – Executive Summary

This is an assessment of potential clinical and operational risks presented by Value Management (VM) Option 4.2. This was the option presented to clinical users in the week commencing 22 August 2022, preserving as much existing design and clinical capacity as possible within a reduced footprint, whilst achieving a net saving of \$100 million. Since then, further refinements to the design have been incorporated in Option 4.3.

In addition to expertise from those already involved in the project, Southern has carried out a week of user engagement to enhance feedback and communicate the situation in an open way to our teams.

Specific risks posed by the changes in Option 4.2 and Option 4.3 are discussed in chapter format.

There is danger in focusing on solving these 'obstacles' to achieve a solution when **the greatest risks are the VM process itself**. The nature of the VM work increases whole of life costs, shifts costs to other capital and operational Health New Zealand budgets, and introduces operational and programme uncertainty and risk.

1. Overarching risks related to process and timeline

It has taken four years of careful planning to achieve the current design. Undoing this in as many months carries significant reputational, operational and clinical risk.

This has been a rapid, high-level assessment. Without adequate time to dig deeper, there will be unknown impacts including unknown costs that we, the project, will become committed to resolving. Changes have been presented at departmental level. As such, whole-of-hospital effects have not been scrutinised and require further detailed analysis.

Impacts may compound each other. For example, shelling a logistics lift, combined with redistributing workspace, may increase demand on the clinical lifts.

2. Shifting costs

A full operational cost impact analysis for each proposed change could not be performed although the savings will commit Te Whatu Ora to other costs that will, across the life of the investment, greatly exceed the proposed savings

Short-term savings realised through redesign could unintentionally increase long-term, future operational costs. Where possible, we have costed this, detailed in the document. In most cases, this is unknown. Despite this, we are confident in our assertion that the whole of life OPEX costs well exceed the CAPEX saving.

Moving services (full or partial) out of scope of the NDH still requires a facility to be provided with capital expenditure, and unknown operational costs and impacts.



3. 'Deep dives' at regional and national level are required

Due to the tight time frame for providing feedback there has not been the opportunity to undertake "deep dives" into the clinical impacts of certain aspects of VM Option 4.2. Some of these require regional or national direction.

Examples include:

- a. The impact of space reduction allocated to Pathology services will require an indepth study of the requirements for delivery of a two+ site pathology service.
- b. The proposed changes to Mental Health Services for Older People (MHSOP)
 Unit will require a regional study into a new model of care approach for delivery
 of this service.
- c. National strategic direction for provision of PET-CT.
- d. Regional planned care provision.

Without this due diligence, Te Whatu Ora Southern are unable to provide confidence that all potential risks associated with Option 4.2 have been adequately identified.

4. Risk of not achieving savings and the true calculation to consider

Te Whatu Ora Southern clinical and operational team has not been provided with a detailed breakdown of the costs; in particular the costs incurred to achieve the net saving of \$100 million.

Further to this, the net saving considers the direct programme costs, but does not include the downstream impact of deleting, or reducing, the provision of certain services. Capital and operational costs will be incurred by providing services such as MHSOP, Pathology and PET scanning off site.

Over time these costs could, substantially if not completely, cancel out the savings that have been made through this VM process.

The reality of this result, and the inherent risks in the equation, may make Southern's earlier proposal to retain current design and stage fit out of facilities appealing (see appendix 1).

5. Equity and co-design

The recent Health New Zealand reforms aimed to improve equity of access to care, particularly for groups that have not been served well by the health system in the past, contributing to poorer health outcomes.

Mana whenua have been invited to share their initial views on the VM proposal under consideration, with a Co-design Hui held on 1 September. Southern would welcome mana whenua's opportunity to fully detail the impact of the VM from their perspective.



It should also be noted, that to our knowledge, Te Aka Whai Ora has not been briefed or consulted regarding the VM Option 4.2 or 4.3. We would strongly recommend this crucial step is initiated without delay to ensure that an equity lens is applied to any change, especially where capacity is reduced.

6. Te Whatu Ora Southern has engaged in good faith

Te Whatu Ora Southern has engaged in good faith, with assurance that no decisions have been made, and that there will be transparent flow of information through all governance and decision-making levels that details impacts beyond a simple capital project level.

There is an expectation that any rework would include progression of the Clinical Leadership Group's recommendations on additional positive pressure capability to three existing inpatient bedrooms and extension of dialysis supply water in the medical HDU.

7. Delivery of expected benefits

In determining clinical and operational impacts, Te Whatu Ora Southern has considered whether the NDH under Option 4.2 and Option 4.3 can still deliver expected benefits as outlined in the 2021 Detailed Business Case (DBC).

Where opportunities for improving design and/or function have arisen in Option 4.2 or Option 4.3 these are noted in each chapter.

DBC Benefits Framework:

- 1. Better health outcomes efficient care, improved quality, improved experience.
- 2. Improving efficiency better layout, reduced delay, doing more with a given resource.
- 3. Improved patient safety and experience avoiding harm, enhanced recovery.
- 4. Improved experience for staff engaged staff, improved retention.
- 5. A more resilient system avoiding the risks of 'do minimum'.



Proposed Changes linked to Benefits at Risk and overall Risk Assessment

Chapter	Proposed change	Risk rating	Benefits at risk
1	Deletion of 24-bed MHSOP Inpatient Unit	Red	1, 2, 3, 4
2	Reduction of 35 med/surg inpatient beds	Red	1, 2, 3, 5
3	Deletion of Logistics Building	Amber	2, 4, 5
	Change in logistics strategy	Amber)
	Removal of two logistics lifts (partially addressed in Option 4.3)	Red	
4	Deletion of pavilion building	Amber	1, 2, 4, 5
	Distribution of workspace and staff amenities within Inpatients Building with Ground Floor Area reduced by 10%	Amber	
	Reduction of supplied workspace by 1000m ² (cold shell)	Red	
5	Deletion of two theatres from scope	Amber	1, 5
6	Deletion of PET CT from scope:	Amber	1, 4, 5
7	Onsite pathology services reduced to acute clinical functions only (fit not yet tested).	Amber	2, 5
8	Impact on pandemic response	Amber	1, 5
9	Deletion of pharmacy aseptic production unit	Amber	2, 4
10	Reduced resilience and redundancy in backup systems	Amber	3, 5
11	Impact on functional relationships within NDH and Site Masterplan	Amber	1, 2
12	Reputational risk and impact on user engagement	Amber	3

Risk rating key:

Red: Highly likely to have a major impact on the expected benefits of the project with no significant mitigations identified

Amber: Likely to have a significant impact on the expected benefits of the project but may be able to be mitigated at least in part with further design and/or operational work

Green: Likely to impact on the expected benefits of the project but mitigations identified to manage this risk



Appendices

1. Te Whatu Ora - Southern, interim guidance on VM optimisation options

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Appendix 1: Te Whatu Ora Southern interim guidance on VM options

Memo

To: Helen Telford, Senior Responsible Owner, NDH Project

Tony Lloyd, Programme Director, Te Whatu Ora - Infrastructure and Investment

Group

From: Hamish Brown, Interim District Director, Te Whatu Ora – Southern

Bridget Dickson, Programme Director, Te Whatu Ora - Southern

Copy to: Sheila Barnett, Clinical Transformation Group (CTG) Chair, Te Whatu Ora –

Southern

Pete Hodgson, Local Advisory Group (LAG) Chair

Peter Bramley, Regional Director Te Whatu Ora - Te Waipounamu

Marcus Read, Design Director, RCP

Date: 5 August 2022

Subject: Te Whatu Ora – Southern Leadership Team Interim Guidance on Value

Management Options

Purpose

1. This memo provides interim guidance from Te Whatu Ora – Southern district leadership team following an initial briefing regarding the value management options under consideration by the New Dunedin Hospital (NDH) project.

Background

- 2. Te Whatu Ora Southern district leadership team were provided a briefing on 25 July 2022 to the value management (VM) optimisation process currently underway in the New Dunedin Hospital (NDH) project due to the extraordinary cost escalation pressures.
- 3. Southern leadership team have been previously briefed on the Southern 'offerings' tabled as part of the current VM process.
- 4. Option 1, option 2.1 and option 3.1 (dated 15 July 2022) were presented at a high level with particular focus on the proposed changes to scope compared to the Cabinet approved Detailed Business Case (DBC).
- 5. Other significant clinical and operational implications were highlighted, including the proposal to descope Mental Health Services of Older People down to a small acute footprint, reduce clinically facing workspace, reduce or delete the pathology laboratory, and stage PET scanner.
- 6. It was noted that the options are still a work in progress (WIP) so the full clinical and operational impacts could not be discerned.

7. Appropriateness of functional adjacencies, as defined in the functional design briefs, and impact on patient, staff, emergency response, logistics and tupapaku flows were not discussed as the schemes have not sufficiently settled. Any option that deviates from the current scheme requires careful consideration to ensure that the previously agreed adjacencies and flows remain intact to enable a fit for purpose hospital.

Southern Leadership Team Guidance

- 8. Southern leadership team notes the pressure on the Health Capital Envelope nationally, further exacerbated by current global condition
- 9. Recommended option is to build as scoped, together with the savings put forward by Southern. The NDH scope is based on detailed modelling, including benchmarks where available and meets the healthcare needs of the Southern Community while maximising operational efficiency. The agreed DBC scope contained high efficiency assumptions that informed the bed numbers.
- 10. It is Southern's strong opinion that any scope reduction of any form is ill-advised. It will increase ongoing operational costs, reduce clinical functionality, decrease the likelihood of us realising the patient flow and efficiency benefits of the NDH, and lead to higher costs in the medium- to long-term for Te Whatu Ora.
- 11. As one example, the reduction in bed numbers associated with option 3.1 (56 less beds than DBC) results in a medical-surgical bed number (192 beds) that is below the current Dunedin Hospital level (227 beds). For total inpatient beds using the OECD number of hospital beds per 1000 people, option 3.1 is 2.34 beds/1000 people using 2028 projected population of Southern compared to the New Zealand national figure in 2021 of 2.67 beds/1000 people.
- 12. With any scope reduction, there is risk that the NDH will not realise the benefits of the investment as described in the DBC, nor satisfy the investment objectives upon which the DBC is built.
- 13. Te Whatu Ora Southern has *considered alternative funding options* as a substitute to implementing the full extent of the proposed VM. Support services suited to a logistics type building would be worthwhile considering under third party contract arrangements. These have not been developed to any meaningful extent at this stage. They require a feasibility study to better understand the benefits, risks, and long-term financial impact.
- 14. Reputational damage and impact on trust established with users and the public requires careful consideration. Redesign with clinical users will be required, with risk of fatigue and frustration, risking the quality of the end product. The project is a flagship for health within New Zealand as the first Greenstar digital hospital. The local community, including mana whenua, are well informed and engaged with the project.
- 15. At this point, key staff have been respectful of the sensitive nature of these discussions. As time progresses, we note the risk increases that this sensitive information is more widely known.
- 16. As time progresses towards a solution, we are incurring significant redesign fees and cost escalation that, in turn, further pressure the budget requiring further savings.

Te Whatu Ora - Southern Recommendations

17. Te Whatu Ora – Southern recommends building NDH as scoped within the business case signed off by cabinet on 19 April 2021, together with the savings put forward by the Te Whatu Ora - Southern.



- 18. If further cost savings are required, **Te Whatu Ora Southern proposes:**
 - a. Further exploration and feasibility studies for the option which largely preserves scope aligned with the DBC.
 - b. A feasibility study into **third party** funding of the logistics building housing support functions such as the kitchen, pathology or distribution centre.
- 19. For all options presented to the Ministry, the degree of deviation from the DBC, feasibility of achieving savings, costs to achieve, delay to programme, and magnitude of the clinical and operational impacts **must** be made explicit.

Next Steps

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- 20. Te Whatu Ora Southern PMO and CTG members continue to consider and work through clinical and operational implications of the options with key staff in preparation for drafting the clinical impact statement once the schemes have been sufficiently developed. Of note:
 - a. Dedicated session with Mental Health Directorate senior leadership on 10 August to provide an initial briefing regarding the impact of reduced beds in NDH.
 - b. Identify the operational costs of third-party providers being delivered off site (pathology).
 - c. Further understand the impact on planned care with reduced theatres and inpatient beds.
 - d. Complete modelling to understand the inpatient beds/1000 population for Southern compared to New Zealand and OECD and WHO figures.
- 21. The impact of reducing clinical capacity on equity goals set by Te Whatu Ora and Te Aka Whai Ora for Southern needs careful consideration, noting the disproportionate impact on Māori and other underserved communities of reduced healthcare capacity.
- 22. Te Whatu Ora Southern leadership team request a further briefing once the schemes have settled, with detailed analysis of cost savings for each option versus cost to achieve and programme impacts.



Chapter 1: Deletion of 24-bed Mental Health Services for Older People Inpatient Unit

Summary of changes

The proposed deletion of the 24-bed Mental Health Services for Older People (MHSOP) inpatient unit on L06 will reduce the capacity in the Detailed Business Case by 21 MHSOP inpatient beds plus three medicine beds. This will reduce the New Dunedin Hospital (NDH) project overnight bed capacity from 410 beds approved in the Detailed Business Case to 386 beds. The proposal assumes maintaining an acute MHSOP footprint in one of the retained inpatient units with a consequence of reallocation of overnight bed capacity from the collocated service to MHSOP.

Key risks

- Significantly reduced access to acute MHSOP bed capacity within NDH will most likely contribute to reduced patient flow and potential bed block in Emergency Department and inpatient units.
- Compromised patient outcomes and patient and staff safety compromised without adequate access to acute MHSOP bed capacity in safe and purposely designed facilities with appropriately trained staff,
- A value management-driven decision to reduce inpatient bed capacity without a clear and evidence-informed MHSOP model of care to reference in Southern and Te Waipounamu.

Explanatory notes

"It is widely accepted that mental health services for older people should develop in tandem with geriatric medicine services given the inseparable relationship between physical and mental health" (1, p.20). This statement echoes Te Whare Tapa Whā health model where the four cornerstones of wellbeing need to be considered simultaneously when an individual is accessing healthcare.

The continuum of care for older people with complex co-morbidities presenting acutely to secondary care cannot be compartmentalised into distinct and defined services or departments where physical and mental health specialities are separated by any distance.

It is acknowledged that primary and community health services are pivotal in supporting older people. However, the last 1000 days of a person's life (3) is often peppered with compounding impacts of physical and mental co-morbidities, including frailty. Swift access to secondary services is paramount to ensuring quality of life and prevention of complications. Supportive primary care and community models are vital but do have limitations in acute and crisis management in the care of an individual patient. Therefore, access to acute inpatient beds in a secondary hospital are an essential part of the model of care for older people.

A recent review from Ireland recommends 8 MHSOP beds per 30 000 population >65 years (1). Using this recommendation, acute inpatient beds for MHSOP in NDH in 2028 projected as 20 beds with a Southern population of 75,800 and in 2038 as 24 beds with a Southern population of 92,600 (4). It should be noted that the district and regional model of care for MHSOP under Te Whatu Ora has not been defined, and therefore the spread of secondary inpatient MHSOP beds has not yet been identified. At this point, the Southern district population would indicate up to 24 beds by 2038. The split, if any, between Dunedin and Invercargill secondary hospitals would need to be driven by the model of care.

For patients at higher risk of harm to themselves or others, acutely distressed and/or agitated, accommodation in standard inpatient units poses significantly increased risk of harm and adverse outcomes and would not meet any modern expectations of a safe standard of care. To ensure the safety of patients and staff, mental health design principles are imperative (5).

The reduction of 24 inpatient beds in NDH compared to the agreed Detailed Business Case capacity will ultimately contribute to patient flow issues as acutely admitted older persons with specialist MHSOP cannot be accommodated in the reduced acute bed capacity and therefore are accommodated in general inpatient units or Emergency Department. We know this occurs within Southland Hospital which does not have dedicated MHSOP inpatient capacity and results in poor outcomes for patients with psychogeriatric issues. Replicating this model in NDH would result in a serious risk profile for the individual patient, whanau and the hospital.

The clinical expertise of MHSOP staff is relied upon to support other inpatient services with complex patients, for example patients with delirium, cognitive impairment and acquired brain injury. There is "consistent evidence that specialist old age psychiatry consultation and/or liaison services can improve the quality of hospital care, reduce length of stay, improve uptake of recommendations, improve identification of delirium, reduce carer stress and improve patient satisfaction with care" (2). If MHSOP were to relocate off site, the team would need to be expanded if it were to be providing consult liaison into NDH. The current model enables greater efficiency of scarce clinical resources by integrating inpatient and consult liaison functions within MHSOP.

Older people with mental illness are more likely to experience social and physical health issues (6). Internationally there is a trend of increasing demand on acute psychogeriatric use of services. There is growth in multiple areas including but not limited to addiction, dementia, disability and suicidal ideation.



Further information or investigation recommended

- Determining the number of acute inpatient MHSOP beds in NDH would require a
 working group to develop a detailed Te Waipounamu regional MHSOP model of care
 lead by Te Whatu Ora, in partnership with Te Aka Whai Ora. This is as an opportunity
 to provide contemporary MHSOP care but needs to be centred around patient need
 rather than a NDH cost saving exercise.
 - In addition, the working group would need to identify the risks to patient safety and outcomes if care cannot be accessed in a timely and appropriate manner in NDH with a reduction in inpatients beds from those endorsed in the Detailed Business Case (21 beds).
 - Initial key regional and national leads who have knowledge and expertise to contribute to this workstream have been identified.
 - No clear mandate or working group Chair has been identified.
 - No clear funding path or timeline for this workstream has been identified.
 - Southern has underdeveloped primary and community services. Investment will need to significantly increase in these services to compensate for a reduction in inpatient beds.
- Burwood Hospital in Christchurch has the older person's geriatric medicine inpatient unit alongside the MHSOP inpatient unit. Burwood Hospital is not the acute tertiary admitting hospital in Canterbury but has many elements of an acute hospital such as access to imaging and 24-hour medical cover.
- A potential mitigation to reduced MHSOP beds in NDH is to consider an alongside purpose-built facility on the Health Precinct. This would provide close at hand access to imaging and ability for clinicians to cross consult within walking distance. This alternative location for MHSOP inpatient beds would have significant capex implications plus additional operational implications of patient and staff transport. However, ground floor design aspirations with connection to the outside green spaces may be able to be achieved.
- If a smaller amount of MHSOP capacity was to be retained within reduced total
 inpatient bed numbers, these beds would need to be designed specifically for the
 needs of older mental health patients (i.e. have sufficient space to accommodate
 agitated, distressed and ambulatory patients).



Summary impact statement

Any change to the NDH Detailed Business Case capacity for acute inpatient beds for mental health services of older people cannot be supported until a point in time when there is a blueprint for the future and evidence-informed model of care across the district and region. Te Waipounamu region of Te Whatu Ora does not have a detailed and comprehensive model of care for mental health services of older people, nor does it have a clear strategic investment pathway. There are obvious differences between the two large districts of Canterbury and Southern in terms of provision of community-based specialist and NGO service provision, with Canterbury offering a much more comprehensive range of supports according to psychogeriatricians familiar with the two centres. Supportive and enabling primary care and community health services are essential – acknowledging there is work to be done in this space too - but access to acute secondary services for patients with complex comorbid presentations and crisis management will ultimately always be required.

It is critical that the four dimensions of health - taha tinana (physical health), taha wairua (spiritual health), taha whānau (family health) and taha hinengaro (mental health) - for older people can be delivered in unison and partnership between mental health services of older people and geriatric medicine to enable quality of life for them and their whānau. The development of an alongside inpatient unit for mental health services of older people in the health precinct is possible but would come with substantial capital costs and additional operational costs.

References

- 1. Health Service Executive (2019), National Clinical Programme for Older People, Specialist Geriatric Services Model of Care, Part 2: Mental Health Service Provision, Ireland https://www.hse.ie/eng/about/who/cspd/ncps/older-people/moc/specialist-mental-health-services-for-older-people-model-of-care.pdf
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- 3. Last 1000 days, https://www.last1000days.com/
- 4. Statistics New Zealand, https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048
- 5. McMurray KN. (2022) Behavioral Health Design Guide. Behavioral Health Facility Consulting, LLC
- 6. Australasian Health Facility Guidelines. Older peoples Acute Mental Health Inpatient Unit. February 2019
- 7. Mundt AP et. al. (2021). Minimum and optimal numbers of psychiatric beds: expert consensus using a Delphi process, *Molecular Psychiatry*, 27: 1873-1879.



Chapter 2: Reduction of 35 Adult Medical/surgical Inpatient Beds

Summary of changes

Reduction of inpatient adult general medical/surgical beds on opening by 35 by:

- Shelling a 32-bed ward, and:
- Permanent loss of 3 beds from the associated deletion of the Mental Health Services for Older People (MHSOP) ward.

Physical number of med/surg I		Current resourced number of med/surg beds	Projecte (Sapere) (High eff assume	ficiency		NDH DBC	VM Option 4
2017	2022	2022	2028	2035	2038	2028	2028
227	234	224	212	239	252	235	200

Key risks:

- Fundamental and significant change of scope from DBC
- Critical loss of bed capacity leading to a sustained and high risk of patient harm
- significant impacts on planned care, and operational failure
- Failure to realise all five expected major Benefits of the DBC
- Failure to achieve all five Investment Objectives of the DBC
- Clinical and public backlash

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Reputational risk for the project

Explanatory notes:

1. Southern provides fewer beds per head of population than the NZ average

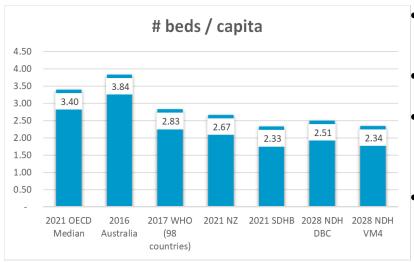


Fig 1. Number of beds per 1000 head of population.

- NZ sits below the OECD and WHO averages (all inpatient beds).
- Southern sits below the NZ average.
- With all NDH beds retained, the supply of inpatient beds in Southern approaches the NZ average.
- With VM option 4, as proposed, Southern remains well below the national NZ benchmark.

2. Dunedin Hospital currently operates with high occupancy and bed block

Dunedin Surgical	Hospital Medio	cal /
Row	Average of	
Labels	Occupancy	7,0
2013		96.60%
2014		97.17%
2015		98.02%
2016		98.87%
2017		99.72%
2018		100.56%
2019	5	101.41%
2020	,	102.26%
2021		103.11%

NICE recommend a maximum occupancy of 90%. (Guideline 94, Bed Occupancy, 2018).

- Bed occupancy above 85-90% leads to
- o Increased 7 and 30- day mortality.
- Increased hospital acquired infection.
- Increased length of stay.
- Increased readmission rates.
- Delays in admission for ED patients.
- Bed occupancy above 85% leads to:
- Regular bed shortages
- Periodic bed crises

Fig 2. Dunedin Hospital Medical/Surgical bed occupancy.

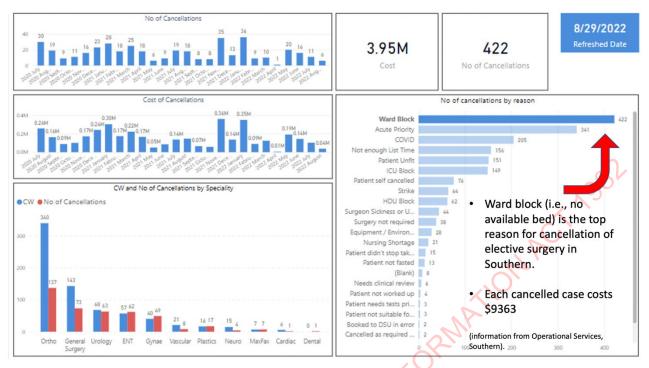


Fig 3. Reasons for cancellation of elective surgery in Southern 2020 – 2022

3. The situation will get worse, not better: demographic change (ageing) will drive higher case weight events and length of stay for Southern.

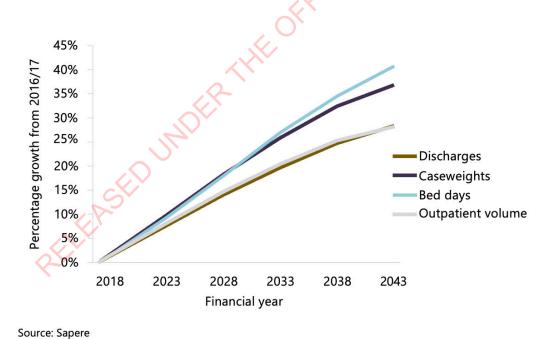


Fig 4. Percentage increase in services for Southern, driven by demographic change.

"The increase in discharges remains substantial at 28 per cent by 2042/43 but increases in caseweights and bed days are greater. These reflect the current age distribution of the more complex, higher caseweight inpatient events, the length of stay, and the impact that the ageing population will have upon the need for services if current models of care continue.

As outlined in the IBC, the clear message is that the average complexity of patients will increase across the hospital and there will be substantial pressure upon bed capacity under existing models of care."

NDH Detailed Business Case March 2021

4. High efficiency assumptions are already built into DBC modelling

	Low efficiency assumption	High efficiency assumption
	Efficiency assumptions are relative t	o forecast growth and are not
	absolute reductions.	2011
	The projection of bed demand—wit	h the high efficiency
	assumption—was signed off by the	SPG as part of the initial DBC
	(2018) and ratified in 2019 in a serie	s of meetings with Destravis,
	Jacobs, MOH, SDHB and Sapere.	
Medicine	15% lower intervention rate	30% lower intervention rate
(excluding cardiology, renal,	20% lower ALOS; or	20% lower ALOS
oncology and elective gastro)	30% lower intervention rate with no ALOS reduction	

Planned bed numbers for the NDH DBC were crafted on the assumption that there
would be significant changes to the way that Southern delivers its services by shaping
demand to the hospital, internal efficiency and good outflow back to the community.
Therefore, this high efficiency is already built into the modelling, and a further reduction
in beds cannot be mitigated by unachievable models of care.



Potential mitigations

- Some efficiencies of flow delivered by new models of care transit lounge and 23-hour ward. However, these are already contributing to the efficiency assumptions.
- It could be argued that shelling is 'reversible'. However, the danger in persisting with shelling is twofold:
 - 1. The fit out is not a certainty and risks the same clinical fallout as described, and
 - 2. The proposal to reduce beds is so clearly clinically unacceptable that public and staff faith in the project may be compromised.
- The change in ratio to provide more two-bed rooms has preserved the number of beds on the remaining wards. This is felt to be operationally acceptable and remains in line with the clinical recommendation to provide a majority of single rooms.

Summary impact statement

- The proposal to remove 35 of the most critical beds to acute flows and planned care has received a swift and severe response from clinical and operational teams.
- Bed numbers were already predicated on achieving significant efficiencies in new models of care. Even if achieved, the DBC itself clearly states that med/surg bed numbers will need to increase due to demographic change.
- The likely result of loss of these beds is chronic occupancy of over 100%, resulting in known patient harm and severe disruption to planned care.

Chapter 3: Deletion of Logistics Building and change in Logistics Strategy, Back of House and Food Services

Summary of changes

- Deletion of logistics building on Bow Lane site.
- Incorporation of main logistics functions to main Inpatient Building, adjacent to the Emergency Department, accessed via shared roadway with ambulance and public vehicle traffic.
- Within the dedicated logistics lift bank there is a reduction from four lifts to two (proposal 4.2), with a later proposal (4.3) reducing from four lifts to three and retaining the fourth shaft for future fit-out. In a pandemic response one of these would be repurposed as the primary pandemic patient lift.
- Internal back of house area split between the ground level and first floor, with connection via two single-level lifts to enable a dedicated clean/food flow separated from dirty/waste flow.
- Majority of logistics movements proceed to the first floor for staging prior to distribution; introduces additional handling and potential bottleneck.
- Further reduction of one truck bay to four total.
- Updated facility pandemic response occupies two of four truck dock parks within the loading dock for temporary outdoor support facilities and acquires the ground level goods access route to the Inpatient Building.
- Co-location of kitchen and staff cafe on the first floor with a reduction in Gross Floor Area (GFA) for food services of approximately 200m². There is no dedicated food truck dock.

Key risks

Risks to DBC logistics benefit:

			intections
1.6.1 Reduction in lift delays	Rolling average of instances	Year on year improvement/	Increased number of
1,000	for 2021/22 and 2022/23	reduced number of lift delays	logistics movements
			completed on time due to
			reduced lift delays (dedicated
			logistics lifts in operation)
	1.6.1 Reduction in lift delays	, , , , , , , , , , , , , , , , , , , ,	,

- Reduction of two logistics lifts (to one clean, one dirty) would present unacceptable
 risk, impacting staff resourcing requirements, service response times and resilience
 during outages and pandemic operations.
- The proposal to instead shell one of the three clean logistics lifts may be operationally acceptable but activity will need remodelled.
- Reduction in truck dock bays from 5 to 4 is not in line with the modelling for daily peak demands and raises the risk of queueing and congestion, which is further compounded by the constrained ground floor staging capacity.

- Lack of a dedicated food truck dock, and of appropriate staging for incoming food deliveries and outgoing meals, introduces risk to safe food handling practices, and inefficient logistics operations. It is also an explicit requirement in the Food Services' Functional Design Brief.
- Co-location of dock with the pandemic inpatient building entry airlock and outdoor temporary facilities risks the delivery of effective pandemic operations and introduces a risk to public safety.
- Co-location of the back of house areas with the mortuary pick-up garage and crossing
 of tūpāpaku/deceased mortuary flows with logistics flows, including food, on the ground
 floor
- Lack of available staging space on the ground floor creates inefficient logistics
 operations, impacting staff resourcing requirements and service response times. As
 logistics is a key enabler to an efficient hospital, it will also pose a direct risk to our
 ability to deliver model of care changes and other service efficiencies upon which
 the NDH's high-efficiency modelling was predicated.
- Lack of direct connection to the main logistics lift core introduces operational inefficiencies
- Noise, waste odour, and vehicle exhaust pollution from dock impacting surrounding clinical units – note ICU on level 4.

Explanatory notes

The proposed scheme introduces inefficiencies by two predominant means:

- Co-location of incompatible flows, namely tūpāpaku/deceased flows including the location of the mortuary garage; and the pandemic entry and temporary outdoor facilities setup.
- 2) Dividing back of house functions over two floors necessitating additional handling and staging of goods and waste.

Potential mitigations and opportunities

- Should appropriate assessment and design address the identified planning issues and operational risks, relocating the back of house services from the Bow Lane site has potential to deliver a degree of operational benefit through proximity to the ground floor and main lift core.
- Co-location of the kitchen and staff cafe offers opportunities for operational efficiencies through a reduced requirement to transport food and goods between two sites, and reduced service duplication.



Further information or investigation recommended

- Lift modelling to be updated to inform the operational implications of the proposed lift quantities and configurations.
- Test options to increase allocation of ground floor GFA to back of house functions.
- Impact of off-site pathology service to be understood and included in lift and dock modelling.
- Cultural assessment of lift-sharing to be reviewed.
- Reduction in GFA for food services to be tested and internal kitchen flows replanned.
- Allocation of sufficient staff amenities for food service staff requires further assessment.
- Testing design to ensure the facility remains capable of supporting the efficient operation of future automation, including Automated Guided Vehicles, for efficient logistics movements in the future.
- Investigate implementation of waste chutes to reduce loading on logistics lifts to
 mitigate the loss of a dedicated logistics lift car in the main logistics core. (Chutes were
 recommended as part of the NDH's Logistics Management Strategy).

Summary impact statement

ZELEASEL

The currently proposed scheme for the Back of House and logistics functions are not yet supported due to incompatibility of some flows, vulnerabilities to lift outages, operational inefficiencies and risks under pandemic operations.

Should these constraints be sufficiently addressed in design and planning, the proposal to relocate the back of house functions from the Bow Lane site to the Inpatient Building is considered workable.

The proposed scheme for Food Services is considered workable (excepting supply routes which have been discussed above), though internal flows and layout will need to be remodelled in the reduced footprint to ensure an effective and efficient food service delivery model can be achieved.

Chapter 4: Pavilion Deletion, Collaborative Workspace Reduction by 10%, further shelling of one third

Summary of changes

- Collaborative workspace Gross Floor Area (GFA) reduction of 10% (3472m² to 3153m²)
- Shelling of one third of the remainder (approx. 1000m²)
- Effective reduction of 38% in collaborative workspace
- Collaborative workspace no longer centralised but distributed within Inpatient Building
- Relocation of staff amenities including staff cafe and end of trip facilities.

Location	Mode	Area
Level 1	Fixed – Permanent	228m²
Level 2	Shell – Built within theatre shell space	276m²
Level 4	Fixed – Permanent 62m² meeting room	62m²
	Shell – Built within ICU future pod space	545m²
	Fixed – Permanent	635m²
Level 5	Fixed – Permanent	129m²
Level 6	Shell – Built within what could be a future ward if all of Level 6 is displaced in the future.	465m²
	Fixed – Permanent	143m²
Level 7	Fixed – Permanent	208m²
Level 8	Fixed – Permanent	208m²
Level 9	Fixed – Permanent	254m²
		3153m ²

Key Risks

- 1. Reduction by 38% in supplied collaborative workspace would result in major deficiencies in workspace provision and would be unworkable.
- 2. 10% reduction in built collaborative workspace may not support peak occupancy periods.
- 3. No contingency for workspace that will be decanted when shelled clinical space is brought online.
- 4. The change from centralised to distributed collaborative workspace will require a corresponding change in model of care. Ad hoc distribution of workspace across areas may not match demand meaning space is not used efficiently.
- 5. Relocation of staff amenities.



Explanatory notes

- 1. Reduction by 38% in supplied collaborative workspace would result in major deficiencies in workspace provision and would be unworkable.
 - Reduction of 10% in GFA plus a further 1000m² of GFA not fitted out on opening, is a total reduction of 38% in collaborative workspace, for which no provision has been made elsewhere.
 - This equates to a loss of approx. 491 workspaces.
 - This scenario would result in a chaotic, dysfunctional, and unworkable workspace as the workspace within the clinical units had been kept to a minimum and transferred in the briefing stage to be in the collaborative workspace area.
- 2. Reduction of 10% in collaborative workspace will result in deficiencies during peak occupancy.



Fig 1: Modelling of workspace requirements for clinical staff - peak occupancy in 2028. Excludes corporate staff.

At peak times, 1680 staff required a workspace, 1719 provided (buffer of 39). Includes all workspaces within clinical units themselves.

10% reduction in collaborative workspace means a shortfall of 133 workspaces. This may be exacerbated by the distributed nature of the workspace.

- 3. Collaborative workspace earmarked as future clinical expansion space will require a suitable solution when displaced.
 - Workspace located in clinical shell equates to 40% of the total Collaborative Workspace. Much of it has a key relationship to its alongside clinical unit.
- 4. Change from centralised to distributed workspace.
 - Planning and design have been based on centralised, activity-based workspace. An
 ad hoc change to distributed workspace will require a revision to the model of care
 that was already under significant pressure from some quarters.

- Benefits of centralised, activity based working model will be lost:
 - Diverse working private spaces, informal meeting spaces, meeting rooms etc.
 - Optimising chance encounters and corridor interactions
 - Create "Neighbourhoods" and intentional colocations of similar services.
- Smaller distributed collaborative workspaces have been incorporated into the design where there is space, rather than based on need. It is likely this will create inefficiencies when matching team size to the best workspace location. It may also impact on being able to physically distance during a pandemic.

5. Relocation of staff amenities

- End of trip facilities would be better positioned at edge of building.
- Resident Medical Officer (RMO) room to be positioned alongside workspace plus with ready access to red lifts (note – the provision of this room is a requirement of the Multi-Employer Collective Agreement).
- Staff will see benefits to having amenities located within the Inpatient Building, especially the staff café, despite the pressure on space as a result.

Potential mitigations to be explored and further investigation recommended

- Detailed investigation of layout and design of workspace including number of workstations
- Mapping of staff numbers and flows by area / floor
- Provision of extra collaborative workspace within the Master Site Plan or in adjacent buildings.
- Investigate option for end of trip and a portion of collaborative workspace to be located in an alongside building, such as the Dairy Building.

Summary Impact Statement

- Collaborative Workspace is integral to clinical functionality.
- Reduction of 38% in supplied collaborative workspace (10% built + 1000m² shelled) constitutes a severe risk and would be unworkable.
- The reduction in built collaborative workspace by 10% may result in workspace shortages during times of peak staff occupancy and risks dysfunction.
- There is a lack of strategies to mitigate the proposed changes.

Chapter 5: Deletion of two Operating Theatres from DBC scope

Summary of changes

- Reduction on Main Operating Theatres (MOT) from 15 fitted + 3 shelled theatres (total 18) to 14 fitted + 2 shelled theatres (total 16).
- Proposed opening capacity (across MOT and Cardiac Intervention Suite floors) of 15 operating theatres.

Key risks

- Reduction of two operating theatres is a change to DBC scope.
- Reducing theatre capacity directly risks DBC Benefit 1.1 Increased Elective Surgery Rates – as available capacity must be prioritized for urgent, acute surgery.
- Risk to Investment Objective 1 by reduced resilience of system to future needs, exacerbated by limited regional resource.
- On opening, provides only **three more** general operating theatres than current hospital. The current hospital is at capacity.
- Full capacity (including 3 shells), reached 2043, without change in practice.
- Activating shells requires an additional solution for displaced clinical workspace.

	ent worki shell requ		OP		working d exceeded	A CONTRACTOR OF THE CONTRACTOR
	2023	2028	2033	2035	2038	2043
Day Surgery	3.4	3.6	3.9	4.0	4.	4.4
Acute	2.3	2.4	2.6	2.7	2.7	2.8
Elective	6.0	5.8	7.8	8.2	8.8	10.0
Cardiothoracic	0.3	0.4	0.4	0.4	0.4	0.4
Obstetrics*	0.7 (1.0)	0.7 (1.0)	0.8 (1.0)	0.8 (1.0)	0.8 (1.0)	0.9 (1.0)
	13.0	14.2	15.7	16.3	17.0	18.6
Rounded up	2023	2028	2033	2035	2038	2043
Day Surgery	4	4	4	4	5	5
Acute	3	3	3	3	3	3
Elective	6	7	8	9	9	11
Cardiothoracic	1	1	1	1	1	1
Obstetrics	1	1	1	1	1	1
	15	16	17	18	19	21

 Continued reliance on outplacing or outsourcing to limited private services (in FY21/22 Southern DHB spent \$12m to outsource circa 10% of its production).

2021/22 Service Provider Breakdown	Actual		Pla	ın
	cwds	% Delivered	cwds	% Delivered
Inhouse	13,542	86%	15,959	91%
Outsourced/Outplaced	2,275	14%	1,571	9%
Total	15,817	100%	17,530	100%



Explanatory notes

- Dunedin Hospital provides all tertiary and subspecialty surgical services to Southland and Otago.
- There are 12 theatres in the current hospital (+ 1 theatre volume outplaced).
- Current utilisation is 80%. Despite additional weekend operating, there is a chronic shortfall of 28 hours of acute operating time per week, leading to regular cancellation of elective surgery to manage acute volumes.
- Current delivery of elective surgery is below the national average.
- Additional operating capacity has been a critical driver of the early delivery of NDH's Outpatient Building.

Potential mitigations

- Extend theatre day (to average 10 hours elective, 12 hours acutes) to extend build horizon out to beyond 2043 with all theatres running (appendix 1).
- Maintain and increase outplaced and outsourced activity, acknowledging limited regional supply and increased operational costs. There is some limited expansion of theatre capacity in the private sector.
- Requires staging plan for fitting out shells soon after opening. Plan for additional physical facility for displaced clinical workspace currently occupying shell.

Further information or investigation recommended

 None at this stage. Optimising use of private and regional capacity has already been explored by Southern operational team.

Potential opportunities

 Releases some of the theatre floor for redesign, enhancing functionality of the interventional radiology theatres and sterile stores.

Summary impact statement

- The loss of two theatres from the DBC scope is felt to be operationally manageable in the medium term but reduces long term capacity and therefore resilience.
- Full capacity will be reached in 2043, including shells, unless there is significant change to the length of the operating day. Early use of the shells should be planned for and will require an additional physical solution for the workspace they currently occupy.
- There will be a continued reliance on outplacing/outsourcing to private providers.

Appendices

Appendix 1: Summary of theatre modelling

Appendix 2: Current State in Southern – Surgical Capacity

Appendix 1: Summary of theatre modelling (based on Destravis 2019):

- Raw SDHB datasets with a standard length of theatre working day.
- Population growth as per NDH modelling, with 3% additional growth for general surgery and orthopaedics. Obstetrics (*) theatre available 24/7 for obstetrics alone.
- Peer reviewed by Director of Perioperative Services, Auckland City Hospital.
- Standard utilisation rate and case lengths correlate with Dunedin's.
- Unmet need not included.

	rent worki st shell requ				working da exceeded	
	2023	2028	2033	2035	2038	2043
Day Surgery	3.4	3.6	3.9	4.0	4.	4.4
Acute	2.3	2.4	2.6	2.7	2.7	2.8
Elective	6.0	5.8	7.8	8.2	8.8	10.0
Cardiothoracic	0.3	0.4	0.4	0.4	0.1	0.4
Obstetrics*	0.7 (1.0)	0.7 (1.0)	0.8 (1.0)	0.8 (1.0)	0.8 (1.0)	0.9 (1.0)
	13.0	14.2	15.7	16.3	17.0	18.6
				16		
Rounded up	2023	2028	2033	2035	2038	2043
Day Surgery	4	4	4	4	5	5
Acute	3	3	3	3	3	3
Elective	6	7	8	9	9	11
Cardiothoracic	1	1	1	1	1	1
Obstetrics	1	1	1	1	1	1
	15	16	17	18	19	21

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S	2023	2028	2033	2035	2038	2043	
Day Surgery	2.7	2.9	3.1	3.2	3.3	3.5	
Acute	1.9	2.0	2.2	2.2	2 3	2.4	
Elective	4.8	5.4	6.2	6.5	7 1	8.0	
Cardiothoracic	0.3	0.3	0.3	0.3	0.3	0.3	
Obstetrics	0.6 (1.0)	0.6 (1.0)	0.6 (1.0)	0.7 (1.0)	0.7 (1.0)	0.7 (1.0)	
	10.7	11.6	12.8	13.2	14.0	15.2	
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Rounded up	2023	2028	2033	2035	2038	2043	
Day Surgery	3	3	4	4	4	4	
Acute	2	2	3	3	3	3	
Elective	5	6	7	7	8	9	
Cardiothoracic	1	1	1	1	1	1	
Obstetrics	1	1	1	1	1	1	
	12	13	16	16	17	18	

Appendix 2: Current State in Southern – Surgical Capacity

Southern is unable to provide elective planned care to patients within 4 months of the commitment to do so (ESPI 5), at a rate that is higher than the national average.

ESPI 5 - Patients given a commitment to treatment but not treated within 4 months.

15,778 18,899 26.4% 32.2% Red Red tive Services 1,958 2,134 40.5% 44.6% Red Red Surgery 188 201 166.7% 41.4% 40.1% 46.4% edics 80 798 18.7% 60.2%	21,000 36.7% Red 2,230 47.4% Red 215 46.2% 442 47.9%	20,993 36.4% Red 2,208 46.9% Red 200 41.3% 458 50.4%	22,213 37.4% Red 2,293 47.5% Red 217 43.3% 479 51.1%	22,865 37.9% Red 2,401 50.2% Red 232 47.3% 463 49.4%	22,920 37.8% Red 2,395 52.0% Red 236 49.1%	25,965 40.5% Red 2,455 53.0% Red 232 49.2%	28,337 43.3% Red 2,604 54.8% Red 255 51.5%	27,267 40.5% Red 2,503 52.5% Red 234 45.1%	28,536 41.3% Red 2,479 52.8% Red 240 47.2%
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Surgery 888 201 41.4% 41.4% 44.4% 46.4% 46.4% 46.4% 46.4% 46.8% 798	215 46.2% 442 47.9%	200 41.3% 458 50.4%	217 43.3% 479	232 47.3% 463	236 49.1%	232 49. 2 %	255 51.5%	234 45.1%	240
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Chapter 6: Deletion of PET CT from scope

Summary of changes

- Deletion of the Positron Emission Tomography (PET- CT), plus associated spaces, from scope of the New Dunedin Hospital (NDH).
- Reduction of Nuclear Medicine Department to 547m² (c.f. 727m² scheduled) leaving it with one treatment modality SPECT- CT.
- Repositioning of Nuclear Medicine position on floor plate.

Key risks

- The lack of future proofing for increasing demand for PET scanning may be shortsighted.
- The reliance on the private sector to provide public services carries risk.
- Non-delivery of PET scan is a change from DBC scope.
- Reputational risk lack of comprehensive public and sector consultation.

Explanatory notes

- 1. Future proofing for increasing demand for PET scanning will be required.
- PET scanning provision varies between countries but on average in the OECD there are 2.78 PET scanners per million population (1).
- This equates to provision of one PET-CT to the Southern region.

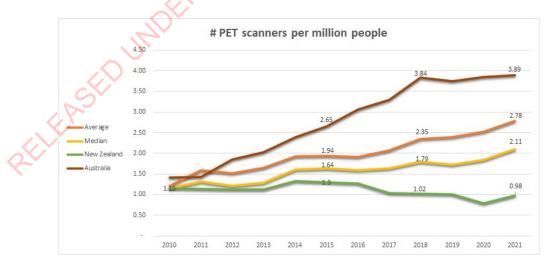


Figure 1: Number of PET scanners per million population (OECD).

• PET scanning is in its infancy, its use is growing dramatically overseas (1), and will become a routine radiological procedure during the lifetime of the Inpatient Building.

PET scanning is integral to the provision of oncology services. The Southern Regional Cancer Network has the second highest number of new cancer registrations nationally (2). As shown below, the number of PET scans ordered in Southern is increasing significantly and is likely to continue to do so.



Figure 1: PET scans ordered by Te Whatu Ora – Southern between 2018 and 2022 (extrapolated)

- In 2020 the State of Cancer in New Zealand report (3) noted that "there are inconsistencies between DHBs in terms of routine funding for PET scanning".
- Te Whatu Ora Southern patients currently travel to Christchurch, the sole PET scanner in the South Island. This significant travel requirement means that access is not equitable, even within the South Island.
- Provision of PET scanning within a comprehensive radiology service would be favourable from a staff retention and training perspective.
- 2. The reliance on the private sector to provide public services carries risk.
- Vulnerability in future provision of PET-CT in Southern.
- Absence of control over costs: Current pricing for PET-CT is between \$2500 3800

 (4). Te Whatu Ora is projected to pay between \$1-2 million per year in the short term for private PET scans for Southern patients + travel costs. With increasing clinical utilisation, and reduction of inequities of access, this will rise.
- Not providing comprehensive radiology services impacts on training and retention of staff. Staff looking to progress their career are moving to private services with PET facilities. All nuclear medicine MIT require a PET- CT component to their training, at additional cost to the public sector.

- 3. Non-delivery of PET scan is a change from DBC scope.
- Reduction of area in nuclear medicine reduces resilience of system to future needs (Investment Objective 1).
- Lack of readiness for a PET scanner at NDH if a future national strategy supports provision of PET scanning within tertiary public hospitals.

Potential mitigations

- Identification of soft expansion space within NDH nuclear medicine for future PET scanning facility.
- Continued reliance on private sector Pacific Radiology plan to open a private PET-CT two blocks from the NDH site. This facility is planned to be operational in 2023 and will be the second PET-CT in the South Island (5).
- PET-CT could be planned for in future staging with Southern Blood and Cancer service. This would require duplication of sub-specialist services (hot lab and staff).
 PET is also used for other non-cancer related investigations, therefore the impacts of providing this service to a mixed population in an oncology centre should be considered.

Further information or investigation recommended

- The key outcome is equity of access to PET-CT for Southern patients, anticipating rising national demand.
- Te Whatu Ora to review the progress of a National public PET service (6), ensuring equity of access for Southern patients, and how the NDH, potentially the first public site, could support this. We note previous work has been done in this area (7).
- Nuclear medicine requires extensive shielding and management of 'hot' patient flows.
 The relocation of nuclear medicine to the central courtyard should be reviewed by a Medical Physicist to ensure the proposed movement is appropriate.

Summary impact statement

- Medium term 'gap' mitigated by private PET-CT planned for Dunedin.
- Potential risks are associated with the reliance of PET scanning being provided by the private sector.
- Te Whatu Ora Southern strongly supports identification of soft expansion space alongside nuclear medicine to provide a PET scanning capability in the future.



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Chapter 7: Onsite Pathology Service Reduced to Acute Clinical Functions only

Summary of changes

Reduction of pathology laboratory in the Inpatients' Building from ~1,300m² to 180m². The intent of the proposal for a reduced footprint is to provide sufficient area to receive samples in the Lamson tube and only process samples to support acute clinical functions. All other pathology laboratory sample processing would be off site and need to be transported to another location.

Key risks

- A tertiary hospital cannot run without a pathology department and 180m² is simply a specimen reception and packaging area. There is no clear plan for how, where and who will provide the additional space needed. Neither is there clarity on who will pay although ultimately it is Te Whatu Ora who will bear the cost.
- Current Inpatients' Building pathology laboratory area has previously undergone peer review confirming the ~1300m² size deemed necessary to appropriately service an acute, tertiary hospital. Current pathology services provider advised that provision of acute clinical functions would require a minimum of 500m².
- Potential impact on timeliness of processing and analysis of critical samples if sufficient area in NDH is not provided.
- Operational inefficiencies of increased sample transport and duplication of lines with multiple sites contributing to greater costs to health system. Current provider has indicated a 15% operational cost uplift with duplication of lines.
- Impact on training of pathologists with reduced footprint in NDH and split laboratory services across multiple sites.
- Impact on resilience with proposed reduced pathology services in Importance Level 4 (IL4) building.

Explanatory notes

Southern Community Laboratories Ltd (SCL) CEO, Peter Gootjes, has provided an initial response (appendix 1) to the proposal to reduce the pathology laboratory in NDH. He outlined clinical and operational risks from his organisations point of view.

1. Current pathology services provider advised that provision of acute clinical functions would require a minimum of 500m².

The area required for the provision of pathology services in the NDH is approximately 1300m². This figure has been peer reviewed (appendix 2). In discussion with the current provider of pathology services it is believed that 500m² of this space would need to be

provided within the Inpatient Building. This space would be required to perform "time critical sample analysis" within the Inpatient Building and to process samples for transport to an off-site central laboratory for analysis. It is recognised that this figure needs to be validated and, for the time being, represents a "best estimate". The interim view held by the current provider is that the 200m² scoped in option 4.2 significantly underestimates the space required for these processes.

It is imperative that suitable space is provided to perform these critical functions within the Inpatient Building. Failure to do so will create a dysfunctional pathology service with potential disastrous clinical consequences.

2. Potential impact on timeliness of processing and analysis of critical samples if sufficient area in NDH is not provided.

Timeliness of laboratory results are of major importance in delivering optimal healthcare in the acute setting. To accomplish this a short turnaround time for critical value tests is imperative. Any impediment that lengthens turnaround time for critical values is of significant clinical concern. Concern exists that if insufficient space is provided to perform critical value analysis within the Inpatient Building, then samples would need to be transported to an off-site facility which would adversely affecting turnaround times. The consequences of this would be that patient safety would be compromised.

3. Operational inefficiencies of increased sample transport and duplication of lines with multiple sites contributing to greater costs to health system.

Splitting the laboratory into two plus labs has the likely effect of introducing operational inefficiencies in terms of doubling the number of sample processing lines. This, together with transportation costs, will result in increased operational costs that, over time, would undo the savings that would be made by reducing the original 1,300m² footprint of the laboratory in the NDH. Currently the two lab locations operated by SCL have separate lines operating in each site, with no duplication of lines. This is somewhat workable as they are located one city block apart (Dunedin Hospital and Plunket House, George Street).

Peter Gootjes (SCL CEO) estimated the operational cost uplift could be 15%. The following table provides an indication of the 15% cost uplift based on 2022-2023 contract.

	Journ	ern Community Laboratories 2022-23
s contract		
rkings 22/23		
51,475,935		contract yr5 base
1,544,278	3.00%	annual funding incr % (PBF funding for cost pressure)
53,020,213		
0		initial savings investment yr5
1,626,353		service provider committed savings yr5
51,393,860		
899,393	1.75%	quality payment
<mark>50,494,467</mark>		
4,207,872	1/12	new monthly total
4,839,053		incl gst
	1,544,278 53,020,213 0 1,626,353 51,393,860 899,393 50,494,467 4,207,872	51,475,935 1,544,278 53,020,213 0 1,626,353 51,393,860 899,393 50,494,467 4,207,872 1/12

Add in 15%:

\$50,494,467

+ 15%

= <mark>\$58,068,637</mark>

4. Impact on training of pathologists with reduced footprint in NDH and split laboratory services across multiple sites.

Pathology is an important service within a tertiary teaching hospital. Many clinical services heavily rely on pathology services and a close working relationship with pathologists is beneficial. Increasingly, combined MDT meetings involving pathology as a core component are the standard of care for patient management. Pathology training is also likely to be compromised if the laboratory is split over multiple sites.

SCL General Manager – Southern / Nelson / Marlborough, Leanne Giles, noted in her response "if sample transport is resolved the entire laboratory could be off-site (closely located), providing a robust, efficient and comprehensive (best in class) laboratory service to support the clinicians and patients within the NDH and the wider Southern region". One new technology being explored is drone transport for urgent samples.

The key factor in an off-site health precinct development is the capital funding of an additional project if most of the pathology laboratory is removed from NDH.

Further information or investigation recommended

- Te Whatu Ora to provide guidance on the future regional laboratory services model and determine if an off-site pathology model to be built/redeveloped via another capital investment is viable or realistic.
- Te Whatu Ora to provide benchmark guidance to the minimum size within which an acute clinical function pathology laboratory can function.

Summary impact statement

- Previous peer review has supported the current provision of 1,300m² in an acute facility. For the NDH, this maintains a similar approach to current provision.
- Current pathology services provider advised that provision of acute clinical functions would require a <u>minimum</u> of 500m². This has not yet been validated.
- To provide an acute service only, there will be increased operational inefficiencies and therefore costs.

Appendices

- 1. Letter dated 26/08/2022 from Peter Gootjes, CEO, Southern Community Laboratories Ltd
- 2. NDH pathology lab peer review, path lab e-mail correspondence from Dianne McQueen dated 07/09/2020.

Appendix 1: Letter from Peter Gootjes

26/08/2022

Bridget Dickson Programme Director New Dunedin Hospital

By Email:

bridget.dickson@southerndhb.govt.nz

Dear Bridget

Laboratory in the New Dunedin Hospital (NDH)



Plunket House
472 George Street, PO Box 6064
Dunedin, New Zealand
Telephone 03-477 6981, Fax 03-477 9160
Freephone 0800 101 444

I am writing to share our views on the new development in this saga of where the laboratory should be in the NDH, and how much space is allocated in the current plans. My understanding is that Leanne Giles saw a presentation from you and has responded by email. This response is to be read in conjunction with Leanne's response. She is away this week on annual leave.

- Sorry that I was not available last week for your presentation.
 Trevor English and I were both in Auckland for several days at Executive Group and Board meetings. I didn't get a chance to discuss this in detail with Leanne
- 2. What I understand is in the new proposal
 My understanding is that the 1400m2 (it was a bit less than this but I will use this number as I do
 not have the actual number in front of me) is no longer available and instead we are being
 offered 200m2 (maybe a little more but again I do not have the actual number). This is because
 of cost over-runs and the need to trim up the building size/cost. In addition we could get space
 in the Current Dunedin Hospital (CDH) ward block, once this is vacant. This space could be
 anything up to the 4000m2 required for the integrated laboratory for the region.
- 3. History of this saga In the first plans we were offered 400-500m2, then 1100m2, then the 1400m2. Now it has shrunk back to 200m2. Clearly a laboratory does not have much importance placed on it during the design phase of this build. We find this rather strange in a regional tertiary level teaching hospital that we are being offered half the space that we have in the Blenheim Hospital laboratory which serves 30,000 people! We wonder if any clinical staff have been involved in these decisions.
- 4. What is really required optimally Optimally we would have 3500-4000m2 of space for an integrated hospital/community laboratory for the region. Our new laboratory at Wellington Hospital has 4000m2 of space. The SDHB has contracted us to provide this integrated service since 2006 which is based on putting the community and hospital referred samples into a single laboratory and avoid duplication. It currently runs over two integrated sites, Plunket House has all the Anatomical Pathology (histology and cytology), while the Clinical Services building has the rest of the laboratory services (biochemistry, haematology, microbiology, immunology, molecular). We have an efficient model and there is no duplication.

- What could be done in the 200m2 on offer now?
 Not much is the simple answer. 200m2 is not enough to run any sort of useful service, even for hospital patients only.
- 6. What is the minimum useful space in the NDH ie minimum requirement, and what can be done with this?

If the space was increased to 500m2 we could run a small core lab providing biochemistry and haematology/coagulation testing for the hospital patients. In addition there would be room for specimen reception, a cryostat for frozen sections, a couple of offices, a small meeting room and maybe a point-of-care urgent microbiology centre. Everything else would need to be moved to the main laboratory based over the Plunket House and CDH sites.

7. Where the remaining laboratory can be sited

We would continue with Anatomical Pathology in the Plunket House site. This site is about to be upgraded as none of the options has ever had enough space for this to be in the NDH space. The remainder of the Biochemistry, Haematology, Immunology, Microbiology, Molecular laboratories will be somewhere else – possibly in the CDH. This relies on assumptions around movement of samples via couriers, and/or through an air-tube such as a Lamson Tube.

8. Who pays?

So far we have not had any serious discussions around who pays for these new facilities. We assume that:

- a. Any space in the NDH will be paid for out of the budget for this project. That includes Shell and hard fit-out
- b. Any new space in CDH will be fitted out appropriately for us.
- c. The operational cost of running services over three lab sites with the inherent duplication of services need to be priced into our laboratory services agreement.

9. Clinical risk:

It is possible to mitigate most of the clinical risk associated with having services at a distance from the NDH. However we have not had time to consider the details of this and we would need time to work through these details

10. Operational risk:

The operational risk relates to duplication and inefficiency. This is inherently a more costly model and we cannot quantify this at this stage.

I hope that covers off what you have asked us to comment on. We could make a 500m2 space work but at a cost. A 200m2 space is not viable. I would comment that the biggest issue you may have to deal with is explaining to people how a nearly 2 Billion dollar hospital can be built without a proper sized laboratory included. This to most clinical people would be like building a hospital without operating theatres or without an emergency department. Laboratories and other diagnostic services are integral to modern hospitals — not something that is optional.

Yours sincerely

PETER THE OFFICIAL INFORMATION ACT 1982

BELLEASED UNDER THE OFFICIAL INFORMATION ACT 1982



Appendix 2: NDH pathology lab peer review

From: Dianne McQueen < Dianne. McQueen@pathlab.co.nz>

Sent on: Monday, September 7, 2020 4:01:27 AM

To: Onno Le Roy <Onno.LeRoy@health.govt.nz>

Subject: FW: Scan data from TgaPrint02

Attachments: 07092020155825-0001.pdf (19.1 KB)

Good Afternoon

Based on our laboratory and throughput I believe the attached is a fair and assessment of critical size required.

If you have any questions of what I have written -I am happy to explain Kind regards | Ngā mihi

Dianne McQueen

CEO | p +64 7 578 7073 extn 6609 | m +64 27 488 3692 | PO Box 130 | Tauranga | 3144

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Laboratory services – Dunedin Hospital

3rd July 2020

Dunedin Acute Service laboratory Space Allocation

Description	Staff No	Space/sqm	
Core lab operations			
Automated Biochem and Haem	32	395	120 120 10
Special Haem	2	35	1 20
Fridge spec	Ì	48	
Fridge reagent		21	× 120
Freezer		14	
Biochem store		18	
Haematology store		16	h
Urine aliquot		10	10
Films		21	21
DI Water		8	8
Biohazard bins		10	10 0
Urgent microbiology	1	10	100
Frozen sections		10	10
Rapid molecular	1	10	(10
,		1	
Specimen reception			
Lamson tube	1	14	350
Sorting and reception	1	31	would you need all on-5.
Data entry operators	18	92	- would you have
Specimen flow and holding		50	30
Trouble shooter	$\bigcup_{i=1}^{n} O_{i}^{i}$	6	6
Courier pickup		8	8
- Control prompt			
Staff spaces			
Haematologists	2	24	20
Chemical Paths	2	24	20
Microbiologists	2	24	off site
HOD Scientists	3	36	30
HOD specimen reception	1	12	10
Quality	1	12	0
Tea room		133	100
Toilets, showers and lockers		100	- off ste-
. Shedy Showers and rockers		100	, ,
Building			
Circulation		200	200
Building walls columns etc		200	,
bonomy wans continue etc		· ·	
Totals	68	1392	991
Totals		1332	



Chapter 8: Pandemic Planning Response

Summary of changes

- Rework of the ground floor to incorporate Back of House (dock) to the southern location on the Cadbury site. Reshaping of the Emergency Department and pandemic entry.
- Expansion of ground floor to the south of the Inpatient Building.
- Implications for the logistics flows of upper floors, particularly into Pharmacy and 23hr ward.
- Proposed reconfiguration of air handling units (AHUs) and return air.

The <u>DBC</u> (section 3.7.2, p.27) stipulates:

A new hospital also offers greater resilience to the Southern DHB (sic) health system. This means that the Southern DHB health system is better able to respond to future growth in demand forecast and to any shocks to the system, such as additional burden from pandemic. This will be achieved through the design of standardised, flexible spaces that can adapt to surges and different clinical uses, with the building being adaptable to the separation of flows and modern flexible ventilation systems.

The Clinical Leadership Group produced a comprehensive Pandemic Learnings Paper in 2021. ESG endorsed in late 2021, within budget and design constraints. The result of this exercise is detailed in the pandemic plan (see appendix 1).

Any changes must be consistent with this approach. At this stage, the detail is not there to respond in depth.

Key risks

- Redesign, particularly of ground floor, will have an adverse, knock-on effect on pandemic entry, safe separation of infectious patients, triage points and staff facilities.
 - The opportunity for on-grade temporary facilities spaces to support the pandemic entry may be compromised.
 - Logistics flows in pandemic state may be compromised.
 - Consolidation of AHUs may compromise stage 2 and 3 pandemic planning.
 - Other decisions to reduce resilience or emergency stores will affect postdisaster functionality.
 - Unknown impacts of other VM decisions, e.g., reduced lift capacity.
 - Reduction of single patient rooms, although not specialist isolation rooms, does reduce the separation of patients.

Explanatory notes

- Pandemic entry ground floor:
 - Movement of the resus pod and some support spaces has compromised patient flows into ED and lengthened the journey for ambulance drop offs. The opportunity for a triage space has been lost with the moving of support spaces (meeting room). This may be able to be reintroduced in another location but will not be as convenient.
 - There is a Health and Safety risk for staff and patients mingling around a working loading dock with truck movements in and out of this area.
 - There is no clear route for Ambulance drop off.

Pandemic Ward L09:

- Rework will need to be cognisant of the staff facilities that were provided within the east end of the ward and ensure they are still accessible.
- The move to increasing the number of twin rooms reduces the capacity of the pandemic ward to care for patients in separate rooms but does not disrupt its overall functional intent. One of the main drivers for single rooms for the NDH was to reduce cross-infection.
- Cleaning station L03 (previously located on L04):
 - If needed, will compromise the flows to the pharmacy from the BOH lifts.
 - Also compromises the flow from 23hr ward as this is the route for patient transfer to IPU's (or other service such as radiology).
- Air Handling Units and extract:
 - Combining isolation rooms on to common fans will have an increased consequence in the event of a fan failure. This increases the vulnerability in both pandemic state and in business as usual.
 - Expelling air at level 3 or 4 will require consideration for the risk of entraining air back into the building. Areas with courtyards are of particular concern.
 - Consolidation of AHU's may compromise stage 2 and 3 pandemic responses.
 - Air flows as described in KDIM033C must be maintained.

Further information or investigation recommended

 Reassessment of design once further progressed to ensure pandemic resilience, as endorsed by ESG.



Summary impact statement

- The proposed changes risk disrupting the pandemic response, particularly related to pandemic entry, triage points, logistics flows and lift capacity. However, these may be able to be mitigated with an appropriate design response and careful consideration during any rework.
- Capacity
 Capacity
 Capacity
 Representation and the capacity and the capacity
 Representation and the capacity a Any consolidation of AHUs must still support stage 2 and stage 3 surge capacity (see

Appendices

1. Summary of Pandemic Response 2021



Appendix 1: Summary of Pandemic Response 2021

Modifications to existing design gave NDH the flexibility to manage isolated cases, right through to whole facility. Physical spaces were aligned with full height fire walls and air handling units to provide streaming and cohorting of patient flows.

Stage	Clinical Areas	Facility response
Stage 1 – cases	Throughout hospital, majority	Individual isolation rooms:
limited to	in Inpatient Building. 39 N-class (negative pressure)	
isolation rooms	panoni zananigi	8 S-class (standard isolation room)
	ED – two resus bays, one	"Hospital within a hospital".
Stage 2 –	acute pod (10 beds) and	Subsection of hospital, linked by a
'Red zones'	services provision (water,	dedicated lift and with dedicated
Case numbers	drainage, power) to outside	entrance/exit.
exceed isolation	ground level.	Provides highest form of protective
rooms, or there is	Radiology – ED CT and XR	negative pressure ventilation and
an early requirement to	facilities. ICU – one pod of 10 beds.	separation of patients. Also provides some ventilation protection
cohort	Theatres – two theatres with	for staff working in these areas.
Conort	specialist ventilation.	Provides anterooms, wash hand basins,
	Pandemic ward – 32 beds.	PPE stations etc.
		Includes staff facilities.
	ED – further pod of 10 beds.	Expansion areas for cohorting infectious
Stage 3 –	Theatres – further 4 theatres,	patients when red zone exceeded.
'Pink zones'	plus half of recovery area.	Separates the care zones and ventilation
Case numbers	ICU – further one pod of 10	of infectious from non-infectious cohorts
exceed red zone	beds.	but does not provide additional protective
	Additional 20 bed	ventilation within the pink zone except in
	rehab/mental health pod on	specified areas (see below).
	level 6. Additional 32 bed ward on	
	level 9 (beside pandemic	
	ward).	
Stage 3	NICU – extension of two N-	For specific patient populations where
'Enhanced pink	class rooms to form a 4-bed	there is no dedicated red zone due to
zones'	pod.	facility design layout.
	Paediatric ward – 6 bed	Ventilation has been enhanced to
(Level 5 Maternity	western pod.	minimize cross-infection between patients
and Children's	Birthing - self-contained	within the pink zone.
Floor)	primary birthing unit contains	
	three birthing and three	
Stage 4	postnatal rooms. Whole hospital 'red'.	Can consider separate use of inpatient
Whole hospital	vvilole hospital fed.	and ambulatory buildings for red/green
'red'		use.
Areas which will	Cardiac Intervention Suite	Will need to provide these services for
require an	MRI	both red and green streams by either:
operational	Nuclear Medicine	a) moving 'red' patients into these areas
response	Endoscopy	safely and/or
	Helicopter transfers to red	b) moving a service to perform some of
	zone	these investigations or interventions in
		red/pink zones.



Chapter 9: Removal of Aseptic Production Unit in Pharmacy

Summary of changes

- Removal of Aseptic Production Unit (APU) from scope, leaving it in its current location in Southern Blood and Cancer Service (SBCS) Building.
- Relocate pharmacy to level 3 and reduce the area to 800m² (c.f. 943m² designed at the end of PD).

The distance between the current APU and the NDH pharmacy is two city blocks requiring the crossing of one state highway.

Key risks

- Pressure on Staffing
 - Increased staff required to operate over two sites
 - Historically difficult area to recruit specialised staff to and difficult to train staff in a specialised area thus constant need to move staff between areas.
 - Aseptic products have short turnaround times based on stability requirements (minutes to hours) so pharmacy staff should be located within or adjacent to the APU.
- Inefficiency introduced into Logistics Flows
 - Duplication of inwards and outwards goods at both sites
 - Potential for wrong delivery site, introducing risk of treatment delay to patients as well as the need for subsequent reassignment across sites
- Viability of Clinical Trials
 - Separation of services
 - Risk of short shelf life for compounded products
 - Not meeting the clinical trials requirements of sponsors which may jeopardise the ability to be involved in clinical trials.
- Unclear that the existing production unit facility is fit for purpose for a further 20 years until Southern Blood and Cancer building redevelopment.
- Areas ordering bespoke time critical aseptic products have not been consulted in this high-level review of risks
- Increased response time if cytotoxic products are spilled or an accident occurs in the APU.

Explanatory notes

Dunedin is a tertiary level hospital and requires aseptic products that need compounding onsite on an acute or planned basis. These short turnaround products include neonatal total parenteral nutrition (TPN), intravitreal injections (such as treatments for macular degeneration – Avastin®, or urgent time critical antibiotics for penetrating eye injury), chemotherapy and pharmaceuticals used for clinical trials. The APU needs to be nimble enough to meet the needs of the acute (often time pressured) requests (for both chemotherapy and sterile products).

Product	Turnaround time*	Comment
Neonatal TPN		Dispensed daily to the ward 3-4pm
Intravitreal	1 hour	Dispensed to theatre. Longer turn around after hours (24hour shelf life)
Avastin		Standing order – stock made daily
Chemotherapy	1 hour	If dose needs changed quickly – patients are typically in the inpatient ward not SBC.
		Intrathecal required to be collected by Authorised Medical Staff.
		Paediatric chemotherapy required to be collected by paediatric oncology nurse
Out of town medicine for delivery	30 minutes from receipt to dispatch	Often out of town medicines arrive and need same day delivery around the region. The current connecting courier service only provides for 30-minute turnaround time within pharmacy. These are complex medicines not available for patients to get via community networks.
Clinical Trial	UNDEL	Product shelf life once compounded can be minutes to hours. Transportation between the compounding site (APU) and the clinical area needs to ensure product can arrive with enough time remaining for the infusion to be completed.

^{*}Turnaround time is from time prescription received to product being dispensed from pharmacy.

Based on discussions with our Pharmacy Manager and his Australasian colleagues, the following risks of dislocating the APU from the main pharmacy have been raised:

- Likely to double staffing requirements for APU (currently 1.2 Pharmacist FTE and 2.0 pharmacy technician FTE).
- Experience in Dunedin suggests it takes at least 6 months full time training to get a
 pharmacy technician upskilled. Similarly, upskilling pharmacists requires at least 3
 months (not to be able to compound but undertake the pharmacist checking
 processes). All staff working in a production unit need to be annually validated upon
 completion of this training. A production unit cannot be staffed by staff who are not
 trained.

- If safe staffing levels are not achieved:
 - o increased risk of errors if staff work beyond safe capacity and
 - increased risk of service failure due to the inability to staff the unit on a day-today basis and recruit and retain appropriately trained staff.
- Less incidental training of staff in this highly specialised area
- Less team cohesion
- Service duplication (double goods receipt and outwards goods area)
- Some infusions of intrathecal and paediatric chemotherapy need to be collected by authorised personnel (Oncology SMO or Registrars and Oncology nurses respectively) from the APU and delivered to the ward or child day unit. An offsite APU will lead to inefficient use of clinical staff time.
- A disjointed clinical trials unit would run the risk of not meeting the clinical trials
 requirements of the sponsor and could jeopardise the ability to be involved in clinical
 trials. Dedicated and specially trained pharmacy staff are only able to prepare
 pharmaceuticals for clinical trials, this includes those made within the APU. Short
 expiry dates on clinical trial products would cause challenges once compounded. It is
 likely Clinical Trials will expand and the new and novel therapies are likely to have
 short expiry dates.
- New logistics flows will need to be established and manged to ensure products get to the right place at the right time as any delays could result in delayed patient care.

Further information or investigation recommended

- The current APU needs a full mechanical and plant review to determine its longevity and whether it is more financially viable to build a new APU or continue to operate the current APU until the SBCS building is no longer fit for purpose. The current unit was commissioned in 1991.
- Any construction within the existing APU would be extremely complex and result in the
 unit being decommissioned for that period of time (or a fully enclosed aseptic
 compounding unit being installed at over \$200K).
- Pharmacy licencing would need to be investigated as this dual site model will potentially require two pharmacy licences.
- If the APU remains in its current location an operational procedure regarding cytotoxic spill will need to be created. Given the separation from pharmacy it will need to be investigated whether SBC oncology staff could be upskilled to attend in an emergency.
- The NDH pandemic planning on the interstitial plant floor will need to be reviewed to enable logistics flows to continue between the red lift core and pharmacy on the western façade.



Summary impact statement

- Te Whatu Ora Southern could support the removal of the APU from NDH scope when a specialist building services review of the current facility is completed and deemed appropriate to use for the next 20 years.
- · A split site model is possible but will lead to staff and flow inefficiencies with increased



Chapter 10: Reduced Resilience and Redundancy in backup systems

Summary of changes

Part of the design response to VM option 4.2 was to review whether any savings could be achieved from the NDH's building services component. Wherever possible, Te Whatu Ora Southern has reviewed and considered proposed effects on building services from operational and future proofing perspectives.

Key risks

- Reducing potable water storage capacity from 48 to 24 hours introduces operational and clinical risk in the event of a major seismic (or other relevant) event.
- Vulnerability if broader South Island is faced with water supply issues, coupled with Dunedin's roading infrastructure constraining our ability to address supply requirements.
- We expect that the reduction in floor space for infrastructure assets will have a
 commensurate, direct effect on the reduction of the service level provided. The effect
 will be increased risk of both more frequent and increased outage durations to services
 and higher overall asset life costs being incurred.
- Risk of cross contamination under Business as Usual (BAU) functioning due to proposed changes in air handling unit configuration.

Explanatory notes

Potable water storage

- The DBC states improved seismic resilience as a critical benefit of the NDH. It specifically describes the NDH to function for at least 48 hours following a major seismic event.
- It is noted that the South Island has experienced severe weather and disasters in the last 10 years. Reducing the potable water storage below that described in the DBC makes NDH vulnerable to water supply issues. In addition, NDH's location between two state highways has a knock-on effect whereby Dunedin's roading infrastructure will constrain our ability to address supply requirements in a timely manner.
- This proposal is not commensurate with the generator capacity that is sized to provide a minimum of 48-hour supply.

Reduction in plant floor space

- Reduction in floor space can also result in the combining of areas serviced from an asset. In turn, this will mean less flexibility, greater disruption and costs for future changes to areas as their requirements change with time.
- As is well-evidenced by the current Dunedin Hospital, as the NDH ages, all assets located within it will require increased maintenance and eventual replacement. If the

redundancy or the space surrounding the asset is lost, they will have to be replaced in the same location meaning the function they provide will not be available for a much longer duration as the old asset must first be removed before new can be installed.

Reduction in air handling unit numbers and sharing of return air

- Proposed combining air handling unit (AHU) systems to gain efficiency of scale.
- This development would require careful work through to understand compatible and incompatible departmental relationships where combined AHUs could be considered functionally safe.
- Air Handling units should be configured so that risk of cross contamination is minimised, especially when in pandemic mode.

Increased reliance on boilers

- There will be an overall increased energy cost over the life of the building.
- Further reliance on Boilers and a non-renewable fuel which will increase in cost over the life of the building may also be a consequence.
- Reliance on non-renewable fuels will also be misaligned with the Government's stated Carbon Zero reporting targets and our desire to deliver Five Star, Green Star buildings.

Further information or investigation recommended

- Full risk assessment to be undertaken.
- Confirmation of the Code requirements for an IL4 building for potable water storage.
- The proposal to reduce the resilience by 50% would need to be tested with a full risk assessment by Te Whatu Ora Southern's emergency planning team with input from district leadership.
- Plant floor space levels were established during the functional brief stages of planning and as changes are presented will need to be re-evaluated for their increased risk and the acceptance of it.

Summary impact statement

Te Whatu Ora Southern are unable to make an informed decision on the reduction of water storage below that designated in the DBC until a risk assessment to be completed. Reduction in plant floor space, air handling unit numbers and increased reliance on boilers also requires a detailed risk assessment.

Chapter 11: Impacts on Functional Relationships

Summary of changes

The changes proposed by VM Option 4.3 option will impact on some of the functional relationships, including but not limited to:

- Integrated Operations Centre (IOC)* relocated as a soft fit out on L06
- Clinical Engineering Technology and Equipment store (CETES) relocated as a soft fit out on L06
- Public (blue) bridge link between Inpatients and Outpatients deleted
- Heat pumps relocated to Bow Lane
- Back of House (BoH) dock movement and remodelling has removed service carparks
- Mortuary pick up and BoH have been collocated
- Kitchen relocation to L01 the same level as mortuary.

The Spiritual Centre remains on L01 and is reorientated to accommodate surrounding planning changes; its connection to staff/patient circulation is modestly reduced.

* IOC includes the following areas: operations centre, telephony, security, orderlies, and information services

Key risks

- Location of heat-pumps on the Bow Lane site severely inhibits future development opportunities to the east as detailed in Te Whakaari – the former Southern DHB's Health and Education Precinct Site Masterplan.
- Colocation of mortuary garage and back of house services is not considered compatible.
 - Maintenance of culturally appropriate flows, with separation for tūpāpaku flows and relevant logistics flows, introduces significant operational inefficiencies.
 - A high risk of operational breach of proposed flows due to inherent inefficiencies.
- Significant reduction in car parking.
 - Doesn't meet the requirements of the DBC, including provision of service vehicle carparking to support the Facilities and Property service requirement (four carparks in the FDB). These carparks are viewed as necessary as a mitigation for the previous removal of Building and Property workshops from NDH's scope.

Explanatory notes

Integrated Operations Centre (IOC) 'the heart of the hospital'

The initial location of the IOC was on L02 where adjacency to staff circulation routes, key clinical areas and neighbouring collaborative workspace was optimal.

- The proposed location maintains good links to public and staff zones. Especially important for the Duty Manager, Security and Orderlies.
- It is critical for the IOC to retain co-location with a portion of collaborative workspace to enable collaboration with relevant staffing groups (such as the RMO Unit staff), and to support the standing-up of an Emergency Operations Centre (EOC) as and when required.

Spiritual Centre

Retains its location on L01 with connection the public front of house circulation and a (somewhat deemphasised) connection to the staff/patient circulation.

- Connection to the courtyard (light-well) is retained, however, the positioning of the Spiritual Centre and its connection to the courtyard is compromised due to partial in-filling of the courtyard on L01 to L03 yielding a less-private orientation.
- The introduction of the Staff Cafeteria, amenity areas and workspace to L01 introduction of busyness and noise in the vicinity of the Spiritual Centre which detracts from the space's function and offering.
- The required orientation minimises available natural light into the Spiritual Centre due to the building overhang above.

CETES

 No concerns with proposed new position. Offers good connection with blue and red lift cores and proximity to the inpatient wards. Full spatial brief met.

Food service

 New L01 location poses logistical challenges with food deliveries to the wards passing by the mortuary. Tūpāpaku flows will need to be reviewed by mana whenua.

CSSD

- The new CSSD floorplate may offer opportunities for a better layout, however the floorplate is slightly smaller which may compromise the ability to provide for a worstcase equipment scenario.
- The reduction in theatre numbers may reduce the daily throughput but if resilience is added to accommodate any future theatres this may be negated as there is no clear expansion space.



Separation of CIS and theatre floors

• The separation of these two floors introduces potential for inefficiencies where staff and logistics have a longer journey when moving between the two. The significance of this is to be determined as fast and efficient lifts may be a mitigating factor.

Deletion of public bridge between Outpatients and Inpatients

- The bridge link was intended to serve two purposes to emphasise the connectedness between the two buildings as part of one coherent interactive facility, and to provide a safe, weatherproof accessway for the public between the buildings. Its removal may impact on movements across the red bridge and red core.
- We support future proofing the design to allow for the bridge to be built in the future.

Co-design with mana whenua

Te Whatu Ora Southern values the relationship with mana whenua and supports
ongoing dialogue to ensure the impacts of any changes are understood and negotiated
with our co-design partners.

Further information or investigation recommended

- Further options for location of the Spiritual Centre should be explored, considering:
 - Access and privacy/sensitivity
 - Connection to nature and natural light
 - Expansion into neighbouring space (courtyard, meeting room or similar) for larger events
- Tūpāpaku flows need to be reviewed to ensure they can be managed in a culturally appropriate manner (collocation of food and mortuary on L01)

Summary impact statement

Integrated Operations Centre (IOC) and Clinical Engineering (and equipment store) located on L06 as a relatively soft fit-out to enable a future expansion plan for inpatient beds creates a complex move with many steps when, operationally, these beds would be required for clinical use. Both IOC and Clinical Engineering (with its associated equipment store) are permanent and critical elements of the NDH. Location of heat-pumps on the Bow Lane site severely inhibits future development opportunities to the east as part of the Health and Education Precinct Site Masterplan. Colocation of mortuary garage and back of house services is not considered compatible, especially the crossing of tūpāpaku and food logistic flows. Significant reduction in car parking as detailed in the DBC. Further options for location of the Spiritual Centre should be explored, considering access and privacy/sensitivity, connection to nature and natural light, and expansion into neighbouring space (courtyard, meeting room or similar) for larger events.



Chapter 12: Reputational Risk and impact on User Engagement

Design of the New Design Hospital (NDH) is advanced, and users have been involved in consultation on the design for some years. Clinical users have a detailed understanding of the design and the data and modelling on which it is based. The proposed design, size and scope of the hospital have been well publicised (1, 2). The Detailed Business Case (3) has been proactively released to the public. Significant changes to the design, and particularly any reductions in size and / or scope, will therefore have a negative impact on the reputation of the project and the NDH among both the public and Te Whatu Ora Southern staff.

Key risks

- Public loss of faith that the people of Southern will get a well-functioning, adequately sized hospital
- Public perception that the burden of providing health services is being pushed onto primary and community providers without adequate planning or resourcing
- Public perception of unfairness and inequitable distribution of access to health services
- Staff loss of confidence in and/or fatigue with the design engagement process, leading to poorer design outcomes and potential downstream operational inefficiencies in the NDH
- Staff approaching the media to air concerns and grievances about the process and possible outcome
- Staff losing confidence in the project and the PMO, leading to unwillingness to engage with transition planning and a consequently poorer transition process and outcome in the new facility
- Overstretched workforce being asked to repeat work they have not been resourced to do.

Explanatory notes

Community risks:

The risk to the reputation of the project, Te Whatu Ora and Infrastructure and Investment Group amongst the Southern population across Otago and Southland is significant. The need for a new hospital has been well interrogated, and public interest in the New Dunedin Hospital is high. The Te Whatu Ora Southern district covers a large geographical area with many small rural communities, and residents often travel long distances to access health facilities and services. Therefore, NDH is seen as a district health facility supporting the care of patients across Southern.

Social media sentiment indicates there is already scepticism that the new hospital will be large enough to meet the needs of Southern's growing population. Compounding this is a lack of clarity or confidence about how services in the community will be provided. The

perception that the service from tertiary hospital for the region is being reduced may support the view that access to high quality health services for this district is not being prioritised, therefore increasing inequalities, and added pressure on primary care and community providers.

The size and scope of the New Dunedin Hospital is premised on efficiency assumptions with more services being delivered in community settings. Any reduction in size or services offered within the New Dunedin Hospital therefore implies that there will be the ability and funding to deliver these elsewhere. In a context where health services are perceived as stretched, underfunded and understaffed, these assumptions may increase the risk that the project is seen by the public to be contracting at the cost of increasing pressure on primary and community services, without making corresponding resources available.

In July the local newspaper (2), the Otago Daily Times, reported that Minister of Health Andrew Little had ruled out a reduction in the hospital's size or scope. He said the government had always known there was going to be a cost risk in the project, but the important thing was to have a hospital that met the needs of the population. Any loss of beds or services will be seen as counter to the minster's assurances that scope or capacity reductions were not being contemplated.

Staff risks:

The risk of clinical user disengagement in the design process is well acknowledged. There have already been several points in the project where earlier design phases and steps have been repeated. Clinical staff, always busy and under pressure, have been increasingly stretched by the impact of Covid-19 over the past two and a half years. They have stretched themselves further actively engaging with the design team, on the understanding that this would result in the best possible facility for the staff and community of Southern. Even prior to the value management exercise, user disengagement was amongst Southern's top five project risks and has been actively managed by Te Whatu Ora Southern PMO and Clinical Leadership Group (now Clinical Transformation Group - CTG).

As a result of the VM exercise the PMO, along with CTG Exec and the Design Team, have held a series of meetings with key clinical staff from the most affected areas. While these were useful discussions, the impact of learning of the VM exercise at this point in the planning has been evident. There is a sense that information has been withheld from clinical users. Users expressed frustration with the process, particularly the need to unpick and redo design work that has already absorbed a lot of their time. It is worth noting that some users have engaged in research, simulation exercises, writing papers and visiting sites, often in their own time, to inform issues of clinical relevance to the design. Users have said they are concerned that decisions are being made against clinical advice and data and this will lead to poorer clinical and operational outcomes.

Staff have also expressed anxiety around excluding services or facilities from the scope of the project and assuming that alternative funding will be found to provide these elsewhere. The health workforce is well aware of the pressure on health dollars and the historical difficulty in achieving budgets for health projects, however well-supported or needed. Therefore, staff feel there is significant risk that sufficient funding will not eventuate to offer these services in suitable facilities, and the community will suffer as a consequence.

There is a risk that staff will feel they can gain leverage by taking concerns to the media, which will fuel public perception that the facility will not meet the needs of the Southern community.

The VM exercise coincides with the time that Te Whatu Ora Southern needs to start planning for the transition to the new Outpatients Building. Although this building will be largely unaffected by VM, if staff disengage or lose confidence in the project or the PMO they may also withdraw commitment from transition planning. A successful move to the new hospital requires all staff and services to change the way they work and learn new processes. If staff perceive the NDH project as having reduced value following VM it will be harder to motivate change, and likely have negative impacts on the planning, transition and outcomes for the NDH.

Key partner risks:

At the start of the VM exercise in November 2021, for a short period, the \$17 million NDH contribution to the Interprofessional Learning Centre (ILC) was proposed as a savings opportunity. The opportunity soon became unavailable and the background to this is detailed in a memo from Pete Hodgson, August 2022 (appendix 2). Te Whatu Ora Southern has repeatedly reiterated that we consider the NDH capital contribution to the Professional Development Unit in the ILC in scope of the NDH project and fundamental to the opening and operation of NDH from a staff training and credentialling perspective. Consequently, the PDU component of the ILC is not being considered in this VM exercise. The importance of highlighting this is to ensure we have a consistent message externally, to preserve the ongoing local working relationships with our key partners in the ILC development, namely University of Otago and Otago Polytechnic (soon to transition to Te Pūkenga).

Potential mitigations

- Communications plan to be agreed to 'front foot' comms with public and staff
- Ownership of decisions at appropriate levels
- Clear and transparent path for feedback, decisions and escalation
- PMO to manage ongoing relationships with users.

Summary impact statement

Any change in the size or scope of the New Dunedin Hospital, and any demand for significant redesign with accompanying consultant costs and demands on clinical staff's time, will have a widespread negative effect on the reputation and expectations of the New Dunedin Hospital project and facility. It will be perceived as a 'broken promise' if less is delivered than was approved in the Detailed Business Case. The knock-on effects are likely to result in poorer outcomes for the design and clinical services for the people of Te Whatu Ora Southern district.

References

- 1. New Dunedin Hospital Website The New Dunedin Hospital | New Dunedin Hospital
- 2. Otago Daily Times (15/7/22) Minister rules out hospital size reduction | Otago Daily Times Online News (odt.co.nz)
- 3. Detailed business case 2 new dunedin hospital final detailed business case 0.pdf (health.govt.nz)

Appendices

- 1. Otago Daily Times article (15/7/22) Minister rules our hospital size reduction
- 2. Hodgson P (August 2022), Interprofessional Learning Centre Memo

Appendix 1: Otago Daily Times 15 July 2022

Minister rules out hospital size reduction

By Mike Houlahan

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News > Dunedin > Health



in Hospital buildings, supplied by the

Health Minister Andrew Little has ordered a re-examination of the budget for the \$1.47 billion new Dunedin Hospital, but has ruled out any reduction in the size of the new facility now being built in the central city.

"None of this is being contemplated," Mr Little said when asked if he would look to reduce the size or scale of the new hospital, or change the services intended to be provided within it, as part of that budget review.

"Every infrastructure project is facing potentially major cost escalation because of supply-chain issues, the war in Ukraine and global inflation pressures," Mr Little said.

"In the health sector, I've asked all project leaders to look at appropriate steps to mitigate the risk of cost escalation."

The Government has already upped the hospital project budget to \$1.47 billion, partly in recognition of the ever-escalating cost of building supplies, and put aside contingency funds in this year's Budget.

In June, Mr Little told the Otago Daily Times the Government had always known that there was going to be a "cost risk" about the hospital budget, but that the important thing was to have a hospital that met the needs of Dunedin and the Otago and Southland population.

Last month he told the newspaper that cost escalations were a fact of life, and that Health New Zealand would need to manage costs on the project.

Ever since the announcement that a new hospital would be built in Dunedin there have been battles about the size of the facility and what services would be provided within it.

Once proposed as being 93,000sq m, it was scaled down to 89,000sq m, before the final concept design for the hospital settled on 91,000sq m — a figure still considerably larger than the 70,000sq m existing Dunedin Hospital but well down on what some had envisaged might be a 125,000sq m hospital in the project's early days.

proposed new hospital back from the planned two buildings to a single structure as a cost-saving measure, which was repelled but at the cost of some square metreage from the plans.

That attempt to trim the project's budget was inspired by cost issues due to more difficult than anticipated ground conditions.

News that the project budget was once more under scrutiny sparked concern that the size of the hospital might once again be threat, but Mr Little's comments seem to have ruled that out.

He said he was still awaiting advice on the new Dunedin hospital project.

"I expect suggestions will be forthcoming in the next two to three months."

Hospital planners are in the middle of applying for fast-tracked resource consent to build the first of the two big buildings intended to form the heart of a health precinct. Approval has already been granted for foundations and earthworks.

The budget review may well affect what materials will be used to construct the building. especially the exteriors

mike.houlahan@odt.co.nz





An attempt was made in 2020 to scale the

59



Appendix 2: Interprofessional Learning Centre [ILC]; brief history to date. August 2022

- 1. This memo records a potted history of the ILC to date with a deliberate focus on funding. Unfortunately it records and hinges on an official error or omission within the Ministry of Health.
- 2.The New Dunedin Hospital [NDH] has been scoped to include a professional development unit [PDU] from the outset. The ILC was conceived of about 5 years ago in discussions between the Ministry of Health, Southern DHB, University of Otago [UoO] and Otago Polytechnic [OP] The PDU became an integral part of the ILC, and has been explicitly excluded from the inpatient building since then. For the record, the PDU provides the required amenities (including simulation spaces) and staff to run the mandatory training and credentialing activities for registered and non-registered employees of Southern. It therefore needs to be opened ahead of the inpatients building.
- 3. The strategic case for the ILC is strong. Interprofessional learning is considered to be a superior way of teaching senior undergraduate health sciences. Internationally, pedagogy research characterises and quantifies such gains. Some interprofessional learning already takes place in NZ. In essence students spend more time learning with peers from other professional groups. Various simulation and real patient experiences are taught to students in interprofessional teams, producing a more rounded, empathetic and better integrated graduate. The impact of 'fiefdoms' or 'professional tribes' in NZ's health system might be expected to diminish over time.
- 3. Thus the long term value to the health system nationally is both identifiable and quantifiable. It comes at no additional cost to the health system nationally given that a PDU must be built somewhere. Additionally there is value to the local health system in having the professional development unit of the NDH housed in the ILC rather than in the new hospital. One advantage is simply the formal and informal interaction afforded by the physical interaction of clinicians and senior undergrads. A second is that Dunedin's two simulation centres will become one substantive centre and its assets will be sweated harder, to the advantage of all parties. The decision of the OP to relocate health sciences into the ILC has driven that second advantage.
- 4. Dunedin has an unusual concentration of health science education, which is often underestimated, including locally. It has a wider range of health science disciplines than any other centre, and most clinical schools are among the largest, or are the only, in NZ. Of the UoO's four divisions, the budget of the health sciences division, alone, equals or exceeds the budget of the University of Canterbury or the University of Waikato. Thus, interprofessional education gains for the NZ health system are larger and more readily



secured in Dunedin than anywhere else in NZ. There are benefits to Dunedin too; the city's reputation for quality health sciences education is maintained.

- 5. Various funding options have been explored over time. The preferred option was settled about two years ago. Each party would pay their own way, proportionate to the space each would occupy. [The early design work to date has been split evenly into thirds.] The MoH had earlier set aside \$17m, being the estimated cost of the PDU, and reflected that in a Cabinet minute.
- 6. About a year ago it was becoming increasingly clear that the NDH was suffering extraordinary cost pressures. The issue of 'more money or less hospital' was firmly on the table. Coincidentally, at about that time the UoO had to adjust its capital works program considerably because the building code adjustments pursuant to the Kaikoura earthquake had started to take effect. The Wellington School of Medicine needed strengthening, which was unbudgeted, and a cascade of other capital program delays meant that the UoO thought it ended with some 'spare' capital. It also had space constrictions on the Dunedin campus, especially for Advanced Medical Learning [AML], and it had some spare project management capacity.
- 7. In essence that meant that the UoO could, if parties agreed, take over the construction of the ILC, add additional space at its cost for AML, and pick up the MoH share of the ILC. That would allow a saving to be made for the NDH. The details were not ever finalised, though it was recognised that using the UoO as an alternative funding source would cost the health system more over time as the UoO would face a marginally higher cost of capital than the Crown.
- 8. Towards the end of 2021, probably November, I conveyed the idea to the MoH. There was an urgent effort underway to identify some quick savings and ideas were being sought. It was quickly incorporated in a paper to Ministers that was being drafted up at the time.
- 9. Regrettably the UoO's 'spare' capital soon evaporated. The UoO was facing the same cost pressures as the NDH and the Tertiary Education Commission withheld a number of borrowing consents across the sector. The UoO therefore withdrew its offer to help on February 24 2022. I conveyed that to the MoH, in writing, as I knew that an adjustment to the paper to Ministers was needed. Here is the email trail from Feb 25 2022:

Hi John

It would now seem unlikely that the University of Otago [UoO] will be able to assist the MoH meet its costs of \$17m toward the II C.

You will be aware that in recent times the UoO had indicated that, because of changes in its own capital program occasioned by the Kaikoura earthquake and its aftermath, it might well be in a position to fund the MoH portion of the ILC and also undertake to build it. That would have prospectively released \$17m toward funding the emerging shortfall in the NDH budget.

However the UoO yesterday advised that, because of the exigencies of Covid, TEC has deferred consideration of the UoO's borrowing consent until June. Several UoO projects are affected, including the \$17m in question. The UoO's own contribution to the ILC is however not affected. Te Pukenga/Otago Polytech also remains committed to contributing ~\$20m.

Of course the option still exists to have a private developer build and lease. However that would cost more, take longer and would be resisted by OP because Te Pukenga enjoys access to relatively cheap capital.

Accordingly it is our intention to revert to Cabinet's original decision to invest \$17m towards the PDU facility within the ILC.

Best wishes Pete Chair, SDHB Hon Pete Hodgson



Thanks for the advice Pete.

We will make sure we incorporate that in to advice to Minsters.

Regards

John

John Hazeldine
Acting Deputy Director-General - Infrastructure
john.hazeldine@health.govt.nz
DDI: 04 496 2396

http://www.health.govt.nz

See More from Pete Hodgson

10. Regrettably ,it seems it was not incorporated into written advice to Ministers either in February 2022 or since. Accordingly the record shows Ministers approving a saving that did not, and does not, exist. This persistent error is costly because it repeatedly damages the trust and goodwill on which the ILC has been conceived. Perhaps a little pointedly, I reflect that had the UoO never made the offer to help late last year, we would not be in this position.

Pete Hodgson

Te Whatu Ora Southern response to New Dunedin Hospital Value Management Option 4.4

Date: 16 September 2022

Purpose

- 1. To provide a clinical and operational response from Te Whatu Ora Southern following the release of New Dunedin Hospital (NDH) value management option 4.4. This refined option arose as a consequence of the Executive Steering Group (ESG) recommendations and direction at their 9 September 2022 meeting.
- 2. In contrast to ESG being tasked with providing a response to Ministers that contemplates the narrower view of the NDH build, Te Whatu Ora must also consider the longer-term view that includes whole of life costs.

Option 4.4 has evolved in response to Southern's Clinical and Operational Impact Statement

- 3. In response to the resolution at the ESG meeting on 9 September, the design team produced value management option 4.4. Many of these changes were in response to issues outlined in Southern's Clinical and Operational Impact Statement prepared to accompany discussion about option 4.3.
- 4. The key changes in option 4.4. from option 4.3 presented at ESG are:
 - a) Reinstatement of 32 bed inpatient ward on L08, which is necessary to ensure appropriate patient capacity and flow in the NDH
 - b) Allowance for acute inpatient bed pod for Mental Health Services for Older People (MHSOP) on south tower of L06, with the precise number of beds to be confirmed once the service's desired model of care is agreed. Option 4.4. does not include a solution for the balance of the capacity requirements of this service.
 - c) Retail, staff amenities and workspace location in the redeveloped Dairy Building on the south end of the Cadbury site.
 - d) Soft expansion space for future PET CT scanner positioned alongside Nuclear Medicine.
 - e) Refinement to locations and key adjacencies of some departments based on user advice in the Te Whatu Ora Southern Clinical and Operational Impact Statement (e.g. Integrated Operations Centre moved in to the podium rather than tower).

The risk profile has changed, but still requires active mitigation

5. Southern would like to acknowledge ESG's response to the identified "red" risks in the Clinical and Operational Impact Statement, dated 2 September 2022 (appendix 1). In particular, the reduction of inpatient bed numbers and deletion from scope of an inpatient unit for MHSOP and the PET CT scanner.

Te Whatu Ora

- 6. The reinstatement of the two logistics lift shafts between option 4.2 and option 4.3 has likely reduced the identified risk of logistics inefficiencies to amber. However, we understand that one of these lift shafts will be shelled. Updated lift modelling calculations and a clinical and operational interrogation of the outcome will be required before an update to this risk category from red to amber can be confirmed.
- 7. The remaining red risk category is the ~1,000m² shelled workspace.
 - a) We acknowledge the work the design team have undertaken to incorporate as much workspace as possible in option 4.4 and we will await the detailed gross floor area (GFA) comparisons to fully understand the included area in option 4.4 compared to the current scheme (as at 75% Developed Design).
 - b) Southern continue to advocate strongly for all scheduled workspace to be built in or alongside the Inpatients' Building to enable the efficient functioning of the hospital. This is supported by detailed modelling of workspace requirements.
- 8. In review of option 4.4 the risks outlined in the chapters of the Clinical and Operational Impact Statement (appendix 1) have been turned "green" in chapters 2 and 6, chapters 1 and 3 in part (now both amber), and risks outlined in chapters 4,5,7, 8, 9, 10, 11 and 12 remain.
- 9. A new risk to be considered in option 4.4 is the redevelopment of the Dairy Building with the retail, staff amenities and workspace. The costs and risks to bring this historic building up to an IL3 standard need to be fully explored and understood.

 \$\text{S9(2)(g)(i)}\$



Te Whatu Ora Health New Zealand



 $^{^{1}}$ ESG memo dated 7 September 2022: Value Management and Recommendation, attachment F, RLB Memo 'NDH Inpatient Building Optimisation Estimates' dated 30 August 2022



Summary



Recommendations

- 15. It is recommended you:
 - a) note Southern's views concerning option 4.4.
 - b) **endorse** the "alternative approach" proposed by Southern to develop a hybrid option incorporating staging and a design lite scheme based on the current design, resulting in less clinical and operational risk and a reduced future OPEX liability. This is anticipated to generate comparable savings to option 4.4 once all the unknown risk is quantified.

Hamish Brown
Interim District Director
Te Whatu Ora Southern

Bridget DicksonProgramme Director
Te Whatu Ora Southern

Sheila Barnett
Clinical Transformation Group
Chair
Te Whatu Ora Southern

S. Barnet

Appendix 1: Te Whatu Ora Southern Clinical and Operational Impact Statement

Attached



RELEASEDUND

From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Monday, 10 October 2022 11:27 am

To: Monique Fouwler; John Hazeldine; Jo Strachan-Hope; Robyn Shearer; Warner Peel

[TSY]; Aaron Matthews; Caitlin Andrews [TSY]; Jess Hewat [TSY]

Cc: HIU (Health Infrastructure Unit)

Subject: RE: NDH cost escalation comments from Ministers - further comments to come on

Monday

Follow Up Flag: Follow up **Flag Status:** Flagged

Categories: New Dunedin Hospital (NDH), Sarah working on

Hi all,

Updated comments from Ministers' below – they align with my previous email. Ministers' have four main concerns with recommended ESG proposal – can you please ensure these concerns and comments are presented to ESG and Te Whatu Ora Board. Can I please ask that the updated paper coming to Ministers reflects the comments below/ gives them assurances – and gives Ministers options that align with the below.

- Further delays Ministers are concerned that the proposal will require substantial re-design. This has both cost and time delays associated with it. When Ministers were looking for some scaling, they did not have in mind that this would require re-design at the level proposed. It is important we are clear on the difference between gross and net savings in the recommended proposal.
- Ministers are very clear that they cannot have a situation where there is a loss of beds. Ministers are also
 very concerned as to how Pathology services will now be delivered, and that this might lead to further cost
 escalations down the track as there is a need to duplicate services.
- Ministers can see some value in the other proposal that is being promoted that would see \$35 million of savings from not cold shelling or staging projects, plus looking at the Bow Lane Building being owned by Ngai Tahu. Ministers note that this deserves a serious look.
- Ministers are concerned about the ILC and are very clear that this original commitment to this project must be honoured. Ministers consider that the \$17m contribution should be reinstated and the team in Dunedin should be asked to recommence work with other stakeholders. Ministers would be comfortable with reducing their ask of cost reductions by \$17m to make this happen.

Many thanks,

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile s 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

Please note information about meetings related to the Ministers' portfolios will be proactively released (this does not include personal or constituency matters). For each meeting in scope, the summary would list: date, time (start and finish), brief description, location, who the meeting was with, and the portfolio. If you attend a meeting with the Minister on behalf of an organisation, the name of the organisation will be released. If you are a senior staff member at an organisation, or meet with the Minister in your personal capacity, your name may also be

released. The location of the meeting will be released, unless it is a private residence. The proactive release will be consistent with the provisions in the Official Information Act, including privacy considerations. Under the Privacy Act 1993 you have the right to ask for a copy of any personal information we hold about you, and to ask for it to be corrected if you think it is wrong. If you'd like to ask for a copy of your information, or to have it corrected, or are concerned about the release of your information in the meeting disclosure, please contact the sender. You can read more about the proactive release policy at https://www.dia.govt.nz/Proactive-Releases#MS

Authorised by Hon Andrew Little MP, Parliament Buildings, Wellington 6160, New Zealand

From: Rose Boele van Hensbroek **Sent:** Friday, 7 October 2022 10:35 AM

To: 'Monique Fouwler' <Monique.Fouwler@health.govt.nz>; John Hazeldine <john.hazeldine@health.govt.nz>; 'Jo Strachan-Hope' <Jo.Strachan-Hope@health.govt.nz>; 'Warner Peel [TSY]' <Warner.Peel@treasury.govt.nz>; 'Aaron Matthews' <Aaron.Matthews@health.govt.nz>; Caitlin Andrews [TSY] <Caitlin.Andrews@treasury.govt.nz>

Cc: 'HIU (Health Infrastructure Unit)' <hiu@health.govt.nz>

Subject: NDH cost escalation comments from Ministers - further comments to come on Monday

Hi team,

MOF is coming back to me on Monday with further comments on NDH cost escalation and the ILC – however, in the meantime I have summarised below what Ministers have said to date – both Ministers are on the same page

- Ministers are very concerned with cutting bed numbers and the reduction in the pathology
- Ministers see value in further consideration of the hybrid approach presented
- Ministers are very aware that doing more design to try and achieve savings has its own costs that need to be considered and factored in

We will need to think about the best process for coming back to Ministers on this project Out of scope given they were invited to be a part of the broader centralised cost escalation process. My initial thinking is that this should be apart of the November cost escalation paper you are putting up to Ministers re project prioritisation etc. Note that Ministers will need very clear options.

I will come back to you on Monday with updated info.

Thanks heaps!

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile's 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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Authorised by Hon Andrew Little MP, Parliament Buildings, Wellington 6160, New Zealand

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From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Tuesday, 29 November 2022 4:02 pm **To:** HIU (Health Infrastructure Unit)

Cc: Graham Smith; Susan Corbitt; Monique Fouwler

Subject: RE: NDH Bulletpoints

Categories: Comms and engagement, New Dunedin Hospital (NDH), Sarah working on

Amazing thanks heaps!

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile's 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

Office of Hon Andrew Little MP, Minister of Health, Lead Coordination Minister for the Government's Response to The Royal Commission's Report into the Terrorist Attack on the Christchurch Mosques, Minister for Treaty of Waitangi Negotiations, Minister Responsible for the NZSIS, Minister Responsible for the GCSB, Minister Responsible for Pike River Re-entry Reception +64 4 817 8707 | Ministerial Email a.little@ministers.govt.nz | Web beehive.govt.nz | Postal Freepost Parliament, Private Bag 18 041, Parliament Buildings, Wellington 6160, New Zealand

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From: Sarah Wales [mailto:Sarah.Wales@health.govt.nz] On Behalf Of HIU (Health Infrastructure Unit)

Sent: Tuesday, 29 November 2022 9:35 AM

To: Rose Boele van Hensbroek < Rose. Boele van Hensbroek @parliament.govt.nz >

Cc: Graham Smith <Graham.Smith@health.govt.nz>; HIU (Health Infrastructure Unit) <hiu@health.govt.nz>; Susan

Corbitt <Susan.Corbitt@health.govt.nz>; Monique Fouwler <Monique.Fouwler@health.govt.nz>

Subject: NDH Bulletpoints

Hi Rose,

Hope this is what you need.

- The Outpatient Building main contractor contract with Southbase Construction was signed on 23/11/22 and Southbase are establishing their work site.
- The Outpatient Building piling is 100% complete.
- The enabling works contractor has moved onto the Inpatient Building and is establishing their work site.

- Te Whatu Ora are working with the Ministry to finalise the advice on the value management options which
 is being prepared for Ministers.
- New project governance arrangements as agreed by Ministers is in the first stages of implementation.

Thanks Sarah

Sarah Wales (she/her)

Principal Advisor

Infrastructure and Investment Group

waea pūkoro: § 9(2)(a) | īmēra: sarah.wales@health.govt.nz 83 Molesworth Street, Wellington | PO Box 5013, Wellington, 6140



Te Whatu Ora - Health New Zealand

TeWhatuOra.govt.nz

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From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Monday, 5 December 2022 12:00 pm

To: Monique Fouwler; HIU (Health Infrastructure Unit); Jo Strachan-Hope; John

Hazeldine; Caitlin Andrews [TSY]; Warner Peel [TSY]

Subject: RE: NDH cost escalation briefing

Attachments: NDH cost escalation paper - inclusion of update on governance arrangements

Categories: Dan working on, New Dunedin Hospital (NDH), Cost escalation

Hi all,

Can I please get a draft of this report for review by 12pm Wednesday? i can than provide comments in the afternoon for a final report coming across Thursday COP.

Can you please ensure the NDH governance arrangements are included? Ministers are of the view that they should be reviewing and signing off any changes to the NDH governance group members. Can we please make sure this is reflected in the paper.

Many thanks,

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobiles 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

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From: Rose Boele van Hensbroek

Sent: Wednesday, 9 November 2022 12:47 PM

To: Monique Fouwler < Monique.Fouwler@health.govt.nz>; 'HIU (Health Infrastructure Unit)' < hiu@health.govt.nz>; Jo Strachan-Hope@health.govt.nz>; John Hazeldine < john.hazeldine@health.govt.nz>; Caitlin Andrews [TSY] < Caitlin.Andrews@treasury.govt.nz>; Warner Peel [TSY] < Warner.Peel@treasury.govt.nz> **Subject:** NDH cost escalation briefing

Hi team,

Just thought I would close the loop on some of the NDH cost escalation discussions I have had with a number of you this morning.

I am happy for the briefing to come next week if that is what is needed to get Officials across agencies comfortable. My expectation for the briefing includes:

- Clearly responding to MOF and Minister Little's concerns with cutting scope, and further analysis on the hybrid option that they signalled they were interested in
- Clear description of the options based on the above and any further analysis risks and costs. Suggest noting who supports what option e.g. Te Whatu Ora Board.
- Financial implications the costs of the options (as robust as possible), implications for funding this from the HCE (e.g. the trade-offs with approved projects) versus other funding streams.
- Please ensure to incorporate the ILC \$17m back into the cost escalation funding required.
- I would remind MOF that he choose this project to be considered as part of the broader cost escalation process but agreed to consider this separately given time pressures etc.
- Communications plan

Can I please get this paper 12pm Thursday next week ☺

Thanks,

Ngā mihi

Rose Boele van Hensbroek

Private Secretary (Treasury)

DDI +64 4 817 8277 | Mobile S 9(2)(a) | Email rose.boelevanhensbroek@parliament.govt.nz

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From: Rose Boele van Hensbroek <Rose.BoelevanHensbroek@parliament.govt.nz>

Sent: Monday, 28 November 2022 11:13 am

To: Monique Fouwler; HIU (Health Infrastructure Unit); John Hazeldine; Jo Strachan-

Hope

Subject: NDH cost escalation paper - inclusion of update on governance arrangements

Hi team,

Ministers would like an update on progressing the establishment of the NDH governance to come in the NDH cost escalation paper. Can you please make sure to include this? my suggestion is that it covers:

- The governance arrangements Ministers have recently endorsed e.g. independent chair managing the build, ICT and system transformation and how this aligns with the Gateway review recommendations
- What has progressed since then? Terms of references sent to the independent chair?
- What the next steps are etc

Thanks,

Ngā mihi

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Private Secretary (Treasury)

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Document 8: Excerpts from the Te Whatu Ora weekly reports to the Minister of Health

Te Whatu Ora weekly report 12 September 2022

New Dunedin Hospital

Out of Scope

The value management options are being presented to the Executive Steering Group on Friday 9 September. Once endorsed these will be taken to the Capital and Infrastructure Committee before being presented to Joint Ministers in October.

19 September 2022

New Dunedin Hospital

Further to the update in the 12 September Weekly Report, the value management options were presented to the Executive Steering Group on Friday 9 September. You were advised that the advice would be taken to the Capital and Infrastructure Committee before being presented to Joint Ministers in October.

Since then you have requested this advice be received by 29 September. Out of Scope

7 November 2022

Te Whatu Ora Board

The Te Whatu Ora Board have made decisions on the New Dunedin Hospital Value Management, Out of Scope . Advice will be provided to you in due course.