MINISTRY OF TRANSPORT
TE MANATŪ WAKA

OC250073

3 March 2025

[redacted]

I refer to your email dated 4 February 2025, requesting the following under the Official Information Act 1982 (the Act):

> *"I would like a copy of the following document and any correspondence between Minister Jerry Brownlee and Cabinet about the report.*
>
> - *Clifford Bay Investigation 2013*
> - *Also any plans or maps of the proposed ferry terminal if these are not in the report.*
>
> *Also were there any plans produced? There was mention of a 1,8km breakwater as part of the port development - so there must have been some design done."*

The following documents fall within the scope of your request and are enclosed:

- Clifford Bay Investigation Report 2013 (the 2013 Investigation Report)
- Excerpts from Clifford Bay Update of Port Schemes, 2012 (the Port Scheme Report) – this includes cover pages, parts of Appendix 2 relating to "Scenario 4", and Appendix 3.

The excerpted parts of the Port Scheme Report provide the maps and plans for "Scenario 4", which was the design being considered in the 2013 Investigation Report and generic road and rail access drawings. The rest of the Port Scheme Report covers scenarios that were not used in the 2013 Report and material for "Scenario 4" that is not maps or plans – therefore we have deemed this does not fall within the scope of your request.

I am refusing your request for any correspondence between Minister Gerry Brownlee and Cabinet about the report under the following section of the Act:

18(g) that the information requested is not held by the Ministry or Minister of the Crown, and it has no grounds to believe that the information is held by another department.

I note that since the completion of the 2013 Investigation Report the 413-hectare Clifford Bay site has been sold by KiwiRail. The sale occurred in 2014, following the decision of the government of the time not to shift the South Island ferry terminal from Picton to Clifford Bay due to financial considerations. The 2013 Investigation Report concluded that Picton should remain as the southern terminal for the inter-island ferries. That thinking has remained consistent throughout the years since the study was completed.

You have the right to seek an investigation and review of this response by the Ombudsman, in accordance with section 28(3) of the Act. The relevant details can be found on the Ombudsman's website **www.ombudsman.parliament.nz**

The Ministry publishes our Official Information Act responses and the information contained in our reply to you may be published on the Ministry's website. Before publishing we will remove any personal or identifiable information.

Nāku noa, nā

M Willberg

Marian Willberg
Manager Maritime and Freight

Commercial in Confidence and Not Government Policy

CLIFFORD BAY

INVESTIGATION | 2013

New Zealand Government

Table of contents

List of abbreviations

AEE	Assessment of Environmental Effects
BCR	Benefit Cost Ratio
CBA	Cost Benefit Analysis
CPI	Consumer Price Index
CVs	Commercial Vehicles
CY	Calender Year
EEM	Economic Evaluation Manual
EOI	Expression of Interest
FY22	Financial Year. For example FY22 means the financial year ended 30 June 2022.
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GNS	Institute of Geological & Nuclear Science Ltd
GPS	Government Policy Statement
HCV	Heavy Commercial Vehicle
JPM	Joint Procurement Model
IIL	Interislander – Division of KiwiRail
MBIE	Ministry of Business, Innovation & Employment
MOU	Memorandum of Understanding
NFDS	National Freight Demand Study
NLTP	National Land Transport Programme
NPV	Net Present Value
NZTA	NZ Transport Agency
OTS	Office of Treaty Settlements

Abbreviations Continued	
O&M	Operations & Maintenance
PPP	Public – Private Partnership
RFP	Request for Proposals
RMA	Resource Management Act
RUC	Road User Charges
Ropax Vessels	Roll on / Roll off ferry vessel (freight & passengers, non-rail enabled)
RORO Vessels	Roll on / Roll off ferry vessel (freight only, non-rail enabled)
SOE	State Owned Enterprise
SOI	Statement of Intent
SSL	Strait Shipping Limited
VOT	Value of Travel-time
VOC	Vehicle Operating Cost
WEBs	Wider Economic Benefits

Executive summary

Project description

1. Clifford Bay is a Marlborough ferry terminal concept that could replace Picton as the southern end of the Cook Strait crossing - saving operators, major freight users and passengers time and money.

2. On a road and rail trip from Auckland to Christchurch total time savings are estimated at 75 and 130 minutes respectively.

3. The terminal design concept has been driven by ferry operators Interislander and Strait Shipping. It provides a two-operator, competitively neutral facility designed to serve anticipated freight volumes for at least 50 years.

4. Clifford Bay is expected to cost $434 million ($2014). This is based on concept engineering and costings undertaken in 2012. If it proceeds, a number of integrated workstreams would be required to deliver the project by 2022.

Objective of investigation

5. This report assesses the viability of Clifford Bay as a privately funded transport infrastructure development. The benefits Clifford Bay creates for ferry operators and key users have been examined. This process has then determined what they would be prepared to pay to use the facility. This has been analysed against the costs of construction and operation to determine whether private investors would be motivated to build and operate the facility.

Investigation result

6. As a result of the financial and economic investigations undertaken this year, the decision on whether Clifford Bay should proceed to a further stage is finely balanced. This is discussed later in this summary.

Strategic context

7. An efficient, safe and reliable transport network is important for the movement of freight and passengers between regions of economic activity. International experience shows that improving the efficiency of freight movements and improving network connectivity improves trade performance, GDP and wellbeing.

8. The Cook Strait ferry services are part of the national network and provide a critical link for road and rail access between New Zealand's two main islands. When viewed as a "sea bridge" integral to this national network, the time savings Clifford Bay delivers are orders of magnitude larger than any other enhancements currently under investigation for State Highway 1 or main trunk rail.

Current state of Picton facilities

9. The Picton ferry terminal is operated by Port Marlborough New Zealand Limited. There are currently two ferry operators at Picton - Interislander and Strait Shipping Limited. These operators transport road freight, rail freight and passengers across Cook Strait, using a combined fleet of five vessels.

10. The efficiency of the Picton ferry terminal is restricted by a number of factors. Some of the Picton ferry facilities are approaching the end of their useful life and require upgrade. Others require investment to enable more efficient ways of handling rail freight. Three of the five ships presently serving Cook Strait are subject to wave height regulation which limits speed between the entrance to Tory Channel and berthing. With the Arahura and Aratere replacement expected in 7 and 12 years respectively, this speed restriction will apply to all vessels. Together, this future cost requirement and increasing speed restriction forms part of the rationale for investigating Clifford Bay.

11. This investigation has found that Picton is not expected to fundamentally fail or move into constraint due to asset age/condition or growth in freight volume during the period of analysis (30 years). It has also been identified that the level of investment required at Picton to extend life and adapt facilities is around $80 million, approximately half the number estimated in 2012. However, ferry operations will always cost more and take longer with Picton as the southern end of the Cook Strait link than the alternative of Clifford Bay.

12. This means that in deciding to build Clifford Bay, it should be considered an investment in effectiveness and efficiency to substantially reduce the time and cost involved in moving freight and passengers across Cook Strait. It is not an investment that is necessary to meet medium term demand expectations or relieve a significant network constraint.

Fleet considerations

13. There is currently significant surplus vessel capacity on Cook Strait. There is little doubt that if the service was run by a single ferry operator, less than five ships would be deployed to manage the current freight and passenger task. This means that on average, there are low levels of capacity utilisation and that the current fleet has substantial headroom to absorb future growth in freight demand.

14. The potential benefit of Clifford Bay, in deferring the requirement for additional vessels, has not been a factor in the benefit analysis. It is expected that fleet rotation will occur when individual ships reach the end of their economic life in either Picton or Clifford Bay scenarios. Clifford Bay is not expected to materially change the timing of capital expenditure on vessels, and Picton is not expected to have to cope with any additional ferry vessels in the next 30 years.

15. Obviously, at the point of rotation due to end of vessel life, new vessels will be selected to fit as well as possible into the operating environment. Clifford Bay may make improvements in overall fleet efficiency possible. Where this improvement opportunity can be identified and quantified with confidence, it has been included in the benefit analysis.

Analytical framework – financial and economic cases

16. An analytical framework has been developed to prepare the financial and economic cases for Clifford Bay. The primary focus of the financial case has been on assessing the available private revenue generated by its operation as a port given the expected demand.

17. A long-range forecast of demand was developed for freight and passenger movements across Cook Strait.

18. The savings for ferry operators and freight users, such as reduced fuel and travel time were then examined.

19. These savings were then discussed with the two ferry operators to see how much of the savings, taking account of risk, they were willing to pay in increased port fees. This gave an estimate of the revenue the operator of Clifford Bay could expect. In this report, the operator/developer is referred to as Port-Co.

20. The financial case assesses the private revenue that is available from operators and users and the construction and operational costs Port-Co must meet. It looks at whether Port-Co has sufficient private revenue to generate an adequate commercial return for the private sector to completely fund the project.

21. The economic case complements the financial case, and takes a broader view of the potential benefits of the project from the perspective of society and the economy as a whole.

Commercial viability assessment – key findings

Demand

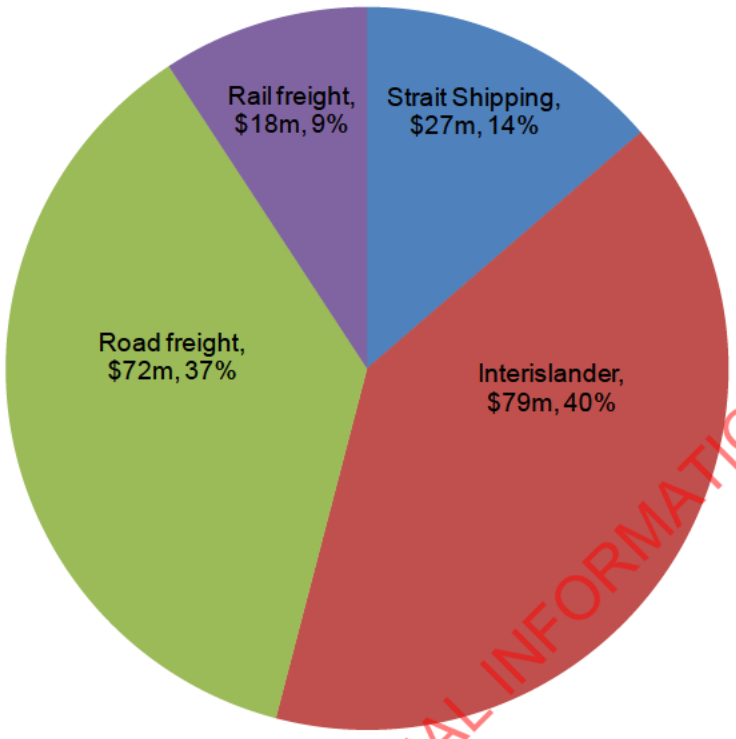
22. The Cook Strait freight market is part of the broader inter-island freight market which comprises coastal shipping (between regional ports such as Tauranga and Lyttelton) as well as road and rail freight carried on the inter-island ferries. This market is forecast to grow by 61% by 2040. All modes are expected to grow at a similar compound annual growth rate of just under 2% per annum over the long term. The Cook Strait freight market drives around around 70% of ferry operator revenue.

23. This investigation has identified that the Cook Strait passenger market has declined significantly in recent years and future growth is predicted to remain at very low levels. This is the result of increased competition from air travel and changes in travel patterns of international visitors to New Zealand. The benefits of Clifford Bay for the passenger market vary depending on the origin or destination of travel in the South Island. The Cook Strait passenger market drives around around 30% of ferry operator revenue.

Available revenue

24. The investigation has found that in present value terms, there is $197 million of revenue available from the following sources over the first 25 years of operation to support development of Clifford Bay. This is shown in the following pie chart, and flows through into the test of revenue adequacy summarised in Table 1.

Figure 1: Clifford Bay revenue breakdown by source, present value first 25 years



Revenue adequacy

25. The following table summarises the viability assessment assuming a private funding model. It indicates the assessment a private investor consortium would make as they evaluated Clifford Bay.

Table 1: Private assessment of Clifford Bay viability

Aspect	Comment	Present value 2014
Revenue	Present value of all post tax revenue, build phase plus first 25 years.	$196.7m
Cost	Present value of all post tax costs, build phase plus first 25 years.	$314.2m
Return	Net present value of project, build phase plus first 25 years	($117.5m)
Breakeven	How much of the Clifford Bay construction could be privately delivered given the amount of private revenue available and its full costs of operation?	56%

Commercial viability assessment - conclusion

26. The financial analysis shows that Clifford Bay cannot be viably delivered using only private funding. That is because it generates insufficient private revenue to provide a normal financial return to private investors.

The potential role of government

27. We conclude the project is only able to move to consenting and procurement if the government is prepared to play a material direct investment role in project development and delivery.

28. We estimate the government will need to invest approximately $34 million in consenting and procurement, and then approximately $176 million in FY2018-20 or $26 million per annum in FY 2022-47 as an annual payment, for the project to proceed. Note these numbers are expressed in 2014 dollars.

29. From the 2012 market sounding exercise, we believe investment interest exists for Clifford Bay if it can be structured to deliver adequate and relatively stable returns over a maximum 25-year term. Market feedback identified that investment appetite existed if key risks could be clearly communicated and appropriately managed, and if clarity was provided on the role of government. This included a market view that the government was the appropriate entity to sponsor the approvals process and gain access rights to land.

30. A method of project development, delivery and operation that minimises government participation as far as is practical has been identified. This will need to be further developed and refined if the project proceeds.

31. If the government decides to proceed, there are two broad direct investment alternatives, (i) up-front investment or (ii) annual availability payment. Both have the same financial cost. In both alternatives the government would have rights to cash flows after the concession period of (nominally) 25 years. The up-front investment or payment is preferred because it limits the government role in day-to-day port operations.

32. The procurement process should be designed to clearly identify the risk pricing applied by the private sector to volume risk. This will allow efficient risk/reward trade-offs that can be considered by the government. This is likely to have a considerable bearing on the cost and availability of private funding and therefore any government investment requirement. It is anticipated that it will be necessary for the government to take some market freight volume risk in order to minimise its direct investment requirement.

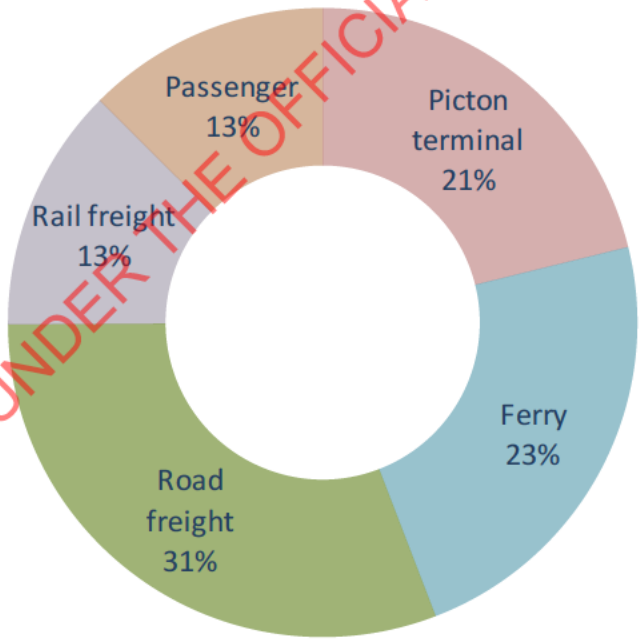
33. The indicative contractual framework involves Port-Co constructing, maintaining and operating Clifford Bay. Port-Co would derive revenue from port fee agreements with ferry operators and users of the facility. The private investor would earn its return by having rights to all Port-Co financial returns during the concession period (25 years).

34. Financial returns on any government contribution would be deferred until after the concession period. It would receive the benefit of all financial returns from Clifford Bay from that point forward. Economic returns to the wider economy would accrue from commencement of operations at Clifford Bay in around 2022.

Economic case

35. The analysis indicates that the Clifford Bay project produces an economic surplus with a net present value of $108 million and a benefit cost ratio of 1.3. The BCR determined in 2012 Preliminary Business Case was 1.9. The variance in BCRs is primarily due to the significantly reduced estimates of capital cost requirement at Picton and ferry operator cost savings.

Figure 2: Cost benefit analysis - benefit distribution by beneficiary



36. Total benefits amount to $485.8m (present value, $2014).The largest component of project benefits are road freight impacts comprising time, vehicle operating costs and externality benefits, which jointly represent 30% of project benefits. The next largest contributors to project benefits include reduced ferry operating costs (at 23%) and Picton terminal related benefits (at 21%). Other significant benefit categories include rail freight benefits and passenger benefits.

37. Supporting the findings of the conventional cost benefit analysis are Wider Economic Benefits (WEBs) of $37 million (present value). These are additional to the $485.8 million of conventional benefits and are derived from agglomeration benefits (productivity improvements through the bringing together of economic activity) of $18 million and competition benefits (distribution of marginal cost changes through the economy) of $18.4 million.

Public policy case for government participation

38. Across the transport network government plays a direct role in the investment of road and rail networks. For the Clifford Bay project to proceed, the government will need to play a direct role.

39. Government investment would unlock private sector investment and therefore enable net economic benefits to be realised. Private participation in Clifford Bay brings specialist expertise in project development and operations, transfers a range of risks to the private sector and brings in alternative funding sources. While the latter reduces the level of direct funding into the project required by government, it does not change the economic returns delivered by the project (as represented by the benefit cost ratio of 1.3). The benefits and costs of the project remain the same from an economic perspective regardless of funding mix.

40. The interisland Cook Strait link is a core component of the strategic road and rail transport network. The opportunity to improve this link is considered to have high strategic importance and fit (based on the NZ Transport Agency's National Land Transport Programme Assessment Framework) because:

    - it has the potential to make a nationally significant contribution to economic growth and productivity for national strategic State highways, through reduced travel time and costs
    - it will improve journey time reliability as a result of time savings
    - it will enable more efficient freight supply chains
    - it will improve the security and resilience of the road and rail network

41. Based on the NZ Transport Agency's investment profile, a project to develop a ferry terminal at Clifford Bay would indicatively rank 3rd out of 11 in the NZTA NLTP Assessment Framework profile.

Overall government business case summary

42. The overall government business case comprises three main perspectives; financial, economic and strategic. In addition there are other factors that may be considered by decision-makers. This investigation has not determined the relative weighting of these factors.

Table 2: Overall government business case summary

Dimension	Quantification	Key assumptions and commentary
Financial Case	NPV ($103m) Nominal cost of $231m between now and 2020. Confidence – Medium	Consenting and procurement costs of $34m ($2014) over a 3-4 year period from 2014. Up-front investment $176m over a 2-3 period from 2018, or 25 years of availability payment in years 2022-2047 of $26m ($2014) Government shares in freight volume risk and counterparty credit risk, and has access to all net cashflows from year 26 onwards Overall the financial case gives a net present cost to the government of $103m. Sensitive to the actual level of revenue secured by operators and users, and total capital cost as discovered by the procurement process. Exposed to significant execution risk in the development phase.
Economic Case	BCR 1.3 NPV $108m Additional WEBs $37m (PV) Confidence – Medium	Most sensitivity to discount rate, capital cost. Moderately sensitive to freight volume and passenger growth. Major benefits are road freight impacts (31%), reduced ferry operating costs (23%) and Picton terminal related benefits (21%). WEBs are derived half from agglomeration benefits and half from competition effects.
Strategic/Policy Case	Strategic Fit High Effectiveness High Efficiency Low	As assessed using NZTA NLTP Assessment Framework
Relative Merit	Inconclusive	Rank 3rd out of 11 in the NZTA NLTP Assessment Framework profile. BCR lower than many alternative transport projects.
Overall case: **$231m direct investment requirement 2014-2020** **Project BCR 1.3, Efficiency: Low** **Strategic/Policy Fit: High** **Risk Profile: Medium to High** **Counterfactual: Picton is acceptable/functional**		

Next steps

43. If the government elects to proceed to the next stage (called project development) it will be the sponsor of a programme that will run from 2014 until 2018. Deliverables for this programme will include appropriate land access and property rights, resource consents and other required project approvals, and a sound commercial structure and procurement process. This programme has been costed at $34.3 million, with $23.2 million for consenting and procurement and $11.1 million to secure access rights and land ownership.

Stakeholder management

44. Stakeholder engagement in Marlborough has been carefully managed to provide appropriate feedback on the commercial viability phase during 2013. A process for conveying the decision has been set out in the Stakeholder and Communications chapter.

Key risks

45. There are risks to both the development and operational phases of this project. A fuller discussion of risks is in the the body of the report.

46. The key development risks are:

- cost or risk creep in government role
- ferry operator commitment at the appropriate level
- Picton transition where ferry operators face commercially unacceptable conditions from Port Marlborough

47. The key operational risks are:

- public wealth transfer to operators, and/or unintended alteration to the competitive position of operators resulting from the government investment
- Picton bypass if a third operator commences business at Picton
- reduction in freight and passenger volumes impacting revenue and therefore viability. This could be through broader economic factors or due to modal shifts to air travel (passengers) and coastal shipping (freight).

48. If the project proceeds, these risks will need to be explored in more detail early in the development phase.

49. A high level review of construction and operational performance aspects (including seismicity) has been undertaken. Overall, no fatal flaws have been identified which would materially impact on the Clifford Bay site being an appropriate location for the South Island ferry terminal.

Summary and recommendation

Decision options

50. Two general courses of action are available to the government at this point – place the opportunity back into long-term hold or proceed to the development phase.

51. To place the project on short or medium-term hold with regular interim review would be highly problematic from a regional perspective. This is because the main negative effect of the investigation and consideration of Clifford Bay has been uncertainty and the impact of that on confidence and investment in Northern Marlborough. Moving the possibility of Clifford Bay out by 10 or even 20 years as a holding pattern of regular review does little to dissipate this kind of local concern.

52. In addition, the key drivers and market dynamics impacting the government business case are unlikely to change in a fundamental manner in the short and medium term. Therefore there is expected to be little value in maintaining an active watching brief if the project does not proceed at this time.

Develop Clifford Bay

53. Direct government investment would be required for the project to proceed because private revenue is insufficient to provide private investors a normal financial return on the expected costs of construction and operation. The project is therefore not commercially viable as a fully privately funded development. The direct investment that government would have to make in order for the project to proceed has been assessed to assist decision making.

54. The BCR of 1.3 (8% discount rate) is adequate, with additional wider economic benefits of $37 million (NPV), also expected.

55. Against the Strategic Fit and Effectiveness attributes used to give effect to the Government Policy Statement on Land Transport, the investigation team and NZTA rate Clifford Bay as high in both areas. This is because:

    a. it has potential to deliver a nationally significant contribution to economic growth and productivity through significant cost and time improvement to the strategic road and rail networks
    b. it improves journey time reliability and the efficiency of national freight supply chains
    c. it will enable more efficient freight supply chains
    d. it adds security and resilience to the transport network

56. The development phase of the project is impacted by a number of risks and will be challenging. In particular, negotiation of binding port fee agreements that are competitively neutral and adequately reflective of the benefits received by operators and users represents substantial process risk.

57. In addition, if port fees are negotiated to binding stage at around the current levels indicated by operators and the government invests to fill the gap, a wealth transfer from the crown to commercial beneficiaries in the order of pre-tax present value $100 million could be expected. The amount of this wealth transfer depends on how much of the operator and user benefit of Clifford Bay is paid by them as port fees.

Stay at Picton and redevelop it

58. The investigation has found that Picton is not likely to move into capacity constraint in the next 30 years. However, it based on operator future requirements it will need an $80 million investment over the next seven years and it will always take longer and cost more to move freight and passengers across Cook Strait via Picton.

59. Therefore staying at Picton and redeveloping it over time is viable and requires significantly less capital than the development of Clifford Bay. It represents an established, workable, solution; albeit one that has significant operating cost and travel time disadvantages.

Summary of pros and cons

Table 3: Factors for and against Clifford Bay

Factors for Clifford Bay	Factors against Clifford Bay
Picton requires approximately $80m of capital expenditure in the next seven years.	Picton will function adequately for at least the next 30 years and is not expected to move into capacity constraint in that time.
	Clifford Bay is expected to cost $434m (2014) to build.
Clifford Bay saves significant travel time and operating cost for ferry operators, freight users and passengers travelling southbound.	Clifford Bay provides minor time savings for Westbound vehicles, and creates disbenefit through increased operating cost for freight operators and passengers travelling west or staying in the Sounds.
The economic case for Clifford Bay is positive but modest, with a BCR of 1.3 and WEBs of $37m. Strategic fit and effectiveness ratings are high for the Cook Strait link and the improvements that Clifford Bay can deliver. These reflect significant improvements to nationally strategic land transport networks through reduced travel time and costs, improved journey time reliability, more efficient freight supply chains and improved resilience of the road and rail network.	Clifford Bay is not commercially viable as a privately funded development. Direct government investment of (nominal) $231m is required between now and 2022, with an overall NPV of ($103m).
	Freight volume risk (i.e. year on year variances from forecast in Cook Straight freight volume growth) will add volatility to the expected government cost.
	It is likely that there will be significant public wealth transfer to private commercial participants, and there is a risk that a distortion to the competitive environment will occur if the government invests.
	Risks in the development phase are significant and biased toward the negative. The cost of mitigation can be expected to fall on the government.
	Clifford Bay efficiency rating is low reflecting a BCR at the lower end of the pool of available alternative transport investments.
In the longer term, effective increase in vessel capacity utilisation made possible by Clifford Bay may defer the need for additional vessels. Once the Aaratere and Arahura are retired, all vessels using Picton will be subject to conditions that are likely to limit speed in Tory Channel.	The five vessel ferry fleet configuration (assuming ongoing end-of-life replacement) is not expected to reach capacity in the next 30 years. Freight volume or passenger growth may be lower than expected. Freight volume may shift modally to coastal shipping.
Stimulus for southern Marlborough from Clifford Bay construction and operation.	Negative impact on northern Marlborough.

Finely balanced decision

60. Based on the assessment of pros and cons the decision is finely balanced. A wealth of technical and commercial analysis has been undertaken, however ultimately the decision requires judgement.

Conclusion

61. Clifford Bay is not commercially viable as a fully privately funded project. This is because it generates insufficient private revenue to provide a normal financial return to private investors.

62. Picton will continue to function for $80 million as the southern end of the Cook Strait crossing for the foreseeable future. The $80 million is not a government investment . The Clifford Bay decision is therefore not constraint-driven.

63. Clifford Bay would only proceed with an expected government contribution of $231 million between 2014 and 2020. Including net revenue the government could expect after year 25 of Clifford Bay operation, this is equivalent to a net present cost in 2014 dollars of $103 million.

64. The economic case for the government is positive but modest, reflecting that Clifford Bay saves operators and users time and money. The project has an expected BCR of 1.3, or an expected net present value of $108 million in 2014 dollars.

65. A number of significant risks exist in the development and operating phase. These are manageable, however they are downside risks, and management and mitigation cost can be expected to fall on the government.

66. The government investment role is likely to create a public wealth transfer to commercial participants operating or using Clifford Bay, and could also deliver an unintended competitive advantage to one participant over the other.

67. The conclusion of the investigation is that the modest economic benefits do not justify a government investment when set against the risks.

Recommendation

68. On balance, based on the previous technical assessments, the conclusions of the commercial viability assessment and the engagement with operators, and the overall government business case, the investigation recommends that the project not proceed.

69. A decision not to proceed should be communicated in a manner that provides stability and planning confidence for Marlborough.

SECTION 1 | SETTING THE CONTEXT

Project background and objective of current investigation

Current environment and infrastructure at Picton

Strategic context

Project background and objective of current investigation

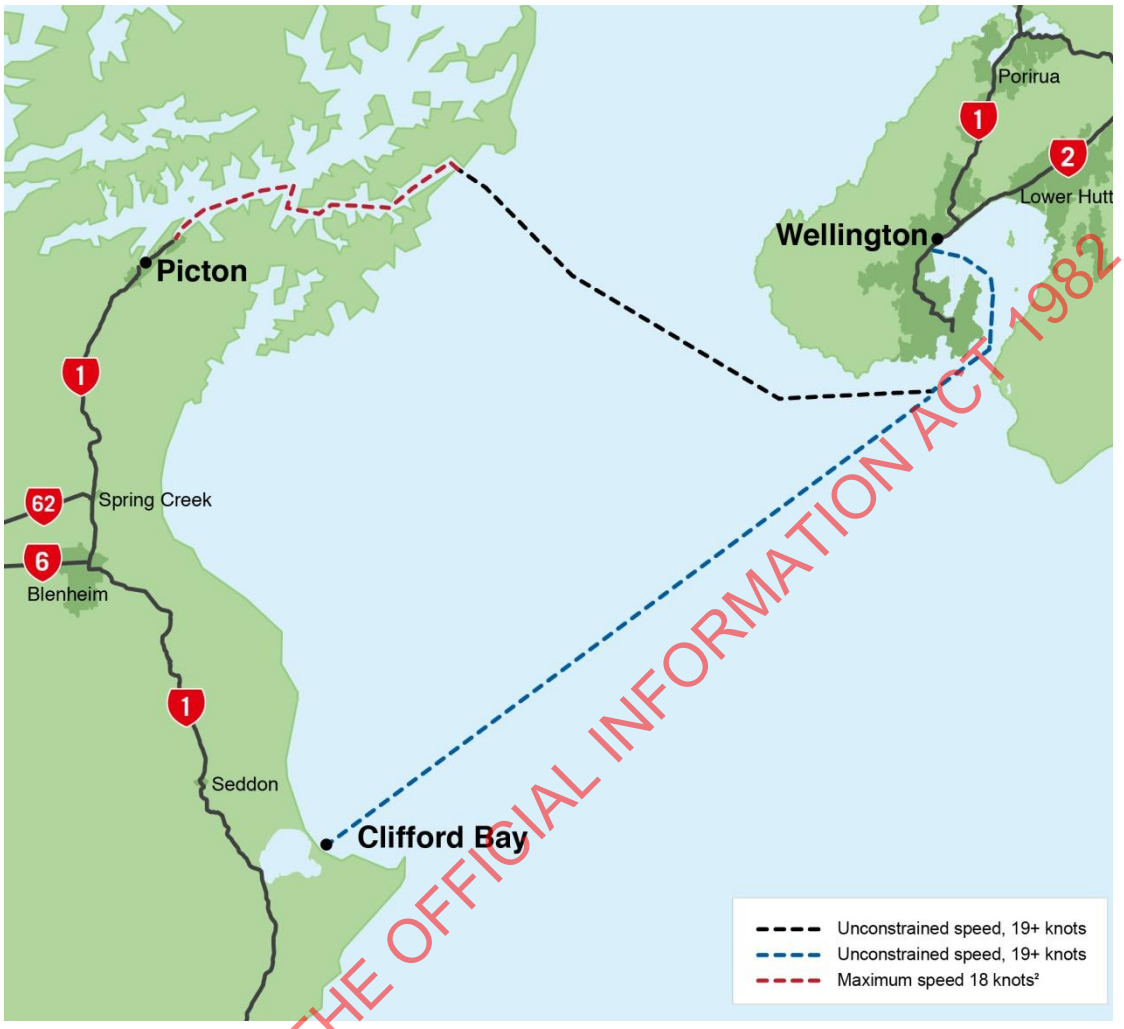
Introduction and summary

- A ferry terminal at Clifford Bay has been looked into several times since the 1920s.
- An initial assessment of the economic and financial feasibility of the project was completed by the Ministry of Transport in 2011, followed by a preliminary business case presented to the Minister of Transport in 2012.
- The consideration of the commercial viability assessment (and other relevant information) by Cabinet will determine whether the project proceeds through to a development phase.

1. The idea of using Clifford Bay as a base for ferry operations has been looked at on several occasions since the 1920s. KiwiRail (and its predecessor organisations) has investigated Clifford Bay as a base for its own road and rail ferry operations. Picton has been the South Island base for ferry operations since 1962.

2. Clifford Bay sits approximately 55km south of the current ferry terminal in Picton. Clifford Bay offers several advantages over the Picton location, including sailing time savings of 30 minutes as well as land-side road and rail time savings in the order of 45 and 100 minutes respectively to Christchurch. Figure 3 identifies the two locations and ferry routes.

Figure 3: Picton and Clifford Bay ferry routes [1]



Description of Clifford Bay proposal

3. The project involves:
    - the construction of a breakwater 1.8km into Clifford Bay with a single-pier dual-berth facility for the two ferry operators
    - associated shore-side facilities for the marshalling of passengers, vehicles and rail wagons
    - the upgrade of Marfells Beach Road to State Highway 1
    - a rail link to the main trunk line

4. The functional requirements of the preferred scenario (single-pier, dual berth) were developed in consultation with the current ferry operators. The design also includes the construction of a second pier (at a future date) if required.

1 Ministry of Transport 2013

2 Marlborough District Council - Navigation (Vessel Speed) Bylaw 2009

5. Clifford Bay Limited (a subsidiary of KiwiRail Holdings Ltd) owns most of the core land area required for the terminal and breakwater and the road/rail marshalling areas.

6. The time savings for southbound road and rail traffic made possible by Clifford Bay are shown in the following table.

Table 4: Time savings at Clifford Bay

Time savings at Clifford Bay	Minutes
Ferry time saving (minutes)	30
Road time saving (minutes)	45
Rail time saving (minutes)	100
Total road and ferry time saving (minutes)	75
Total rail and ferry time saving (minutes)	130

Summary of previous work

7. An initial assessment of the economic and financial feasibility of the project was completed by the Ministry of Transport in 2011. That assessment[3] provided an overview of the work completed by KiwiRail and its predecessors.

8. In 2012 the Ministry of Transport developed a preliminary business case[4] that considered the strategic, financial, commercial, economic and management cases for the project.

9. The preliminary business case indicated that the capital cost of the Clifford Bay "single pier, dual user" option was $422 million ($2012) including a contingency sum of 25% with an economic benefit cost ratio of 1.9. As part of this work, a move to Clifford Bay was assessed as reducing the travel time between Wellington and Christchurch by 80 minutes (sea plus road) and 110 minutes (sea plus rail).

3 EGI Min (11) 18/10

4 Detailed Business Case for the Potential Development of a Ferry Terminal at Clifford Bay – June 2012

10. The preliminary business case also considered the counterfactual of remaining at Picton. The estimated upgrade cost requirement for the Picton facilities was estimated at $161 million in 2012. This was to ensure that they were fit-for-purpose and could accommodate new vessels as the existing ferries were rotated out of service.

11. In October 2012, Cabinet considered the proposal to develop a ferry terminal at Clifford Bay[5] and agreed that the Minister of Transport report back to Cabinet recommending a pathway forward on the basis of more detailed investigation.

Objective of the current investigation

12. The objective of the current investigation is to assess the commercial viability of Clifford Bay as a fully privately funded project. This is done by examining the benefits Clifford Bay would create for ferry operators and other users and thereby determine what they would be prepared to pay use the facility.

13. This will allow an assessment to be made:

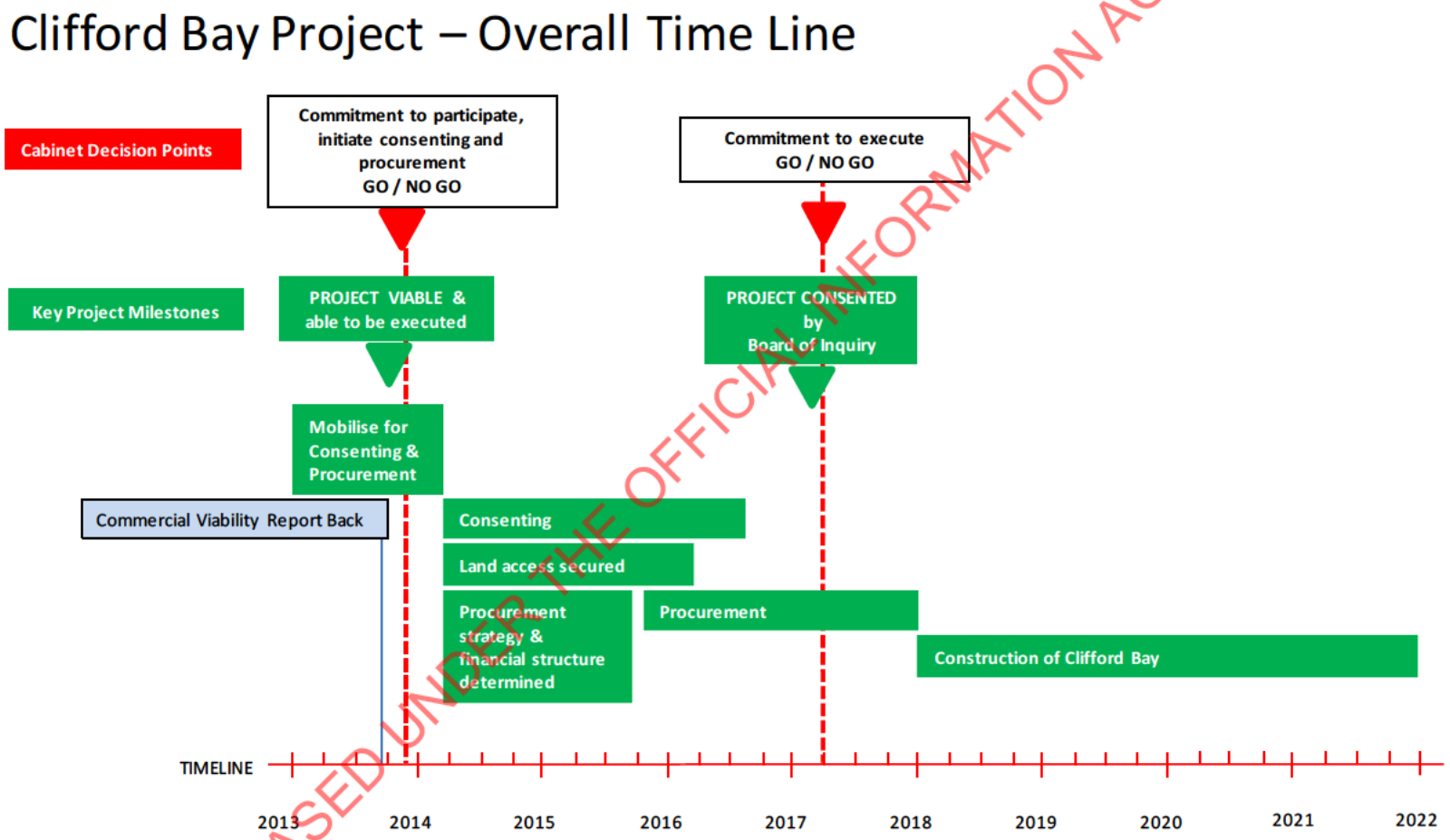
    a) on the viability of Clifford Bay as a fully privately funded project

    b) on the requirement and nature of any government role in the project if it is to proceed, set against an economic assessment of its benefits to New Zealand

14. The investigation then outlines the steps required to secure land access, project approvals and to undertake procurement, if the government wishes to proceed. The indicative staging (Figure 4 below) reflects the future decision points should a decision to proceed be made.

5 CAB Min (12) 38/7

Figure 4: High level staging time-line



Current environment and infrastructure at Picton

Introduction and summary

- The Picton port is operated by Port Marlborough New Zealand Limited. Port Marlborough is fully owned by Marlborough District Council Holdings Ltd which is wholly owned by Marlborough District Council.
- There are currently two ferry operators at Picton - Interislander and Strait Shipping Limited.
- The Picton ferry facilities are at various ages, some approaching the end of their useful life and requiring upgrade.
- The land-side development of the ferry facilities, over time, has been driven by more immediate operational needs rather than a long-term strategic view.

1. Cook Strait ferries have been operating from Picton for over 50 years. The current operators are the Interislander, operating since 1962, with three vessels (two rail enabled) and Strait Shipping Limited, operating since 1992, with two vessels (neither rail enabled).

2. Interislander operates as a stand-alone operating division of KiwiRail Holdings Limited, a state-owned enterprise. Strait Shipping Limited is a private company that delivers road freight across Cook Strait and also operates a passenger service through the Bluebridge brand. It is part of a privately owned road freight group that includes Freightlines and Otorohanga Transport.

Inter-island freight

3. Freight flows between the North and South islands are served by the Cook Strait ferries and coastal shipping. Approximately 83% of inter-island freight is carried by Cook Strait ferry operators, and 17% by coastal shipping[6].

6 Representing non-bulk, non-transhipped containerised freight

The Cook Strait freight and passenger market

4. The Cook Strait ferry freight and passenger market comprises a number of discrete segments that include:

    - foot and car passengers
    - passenger vehicles
    - commercial vehicles
    - rail freight (Interislander only)

5. Each market segment has its own seasonal cycle, as well as peak time sailings each day.

6. The Cook Strait freight market is contested between Strait Shipping and the Interislander. There is significant surplus cargo capacity across Cook Strait measured on an annual basis, however customers often have peak-time deadlines and for particular sailings in any one day, there can be capacity constraints. Price and timegates are used as the primary levers to contest market share of the commercial vehicle market and to manage vessel capacity ultilisation.

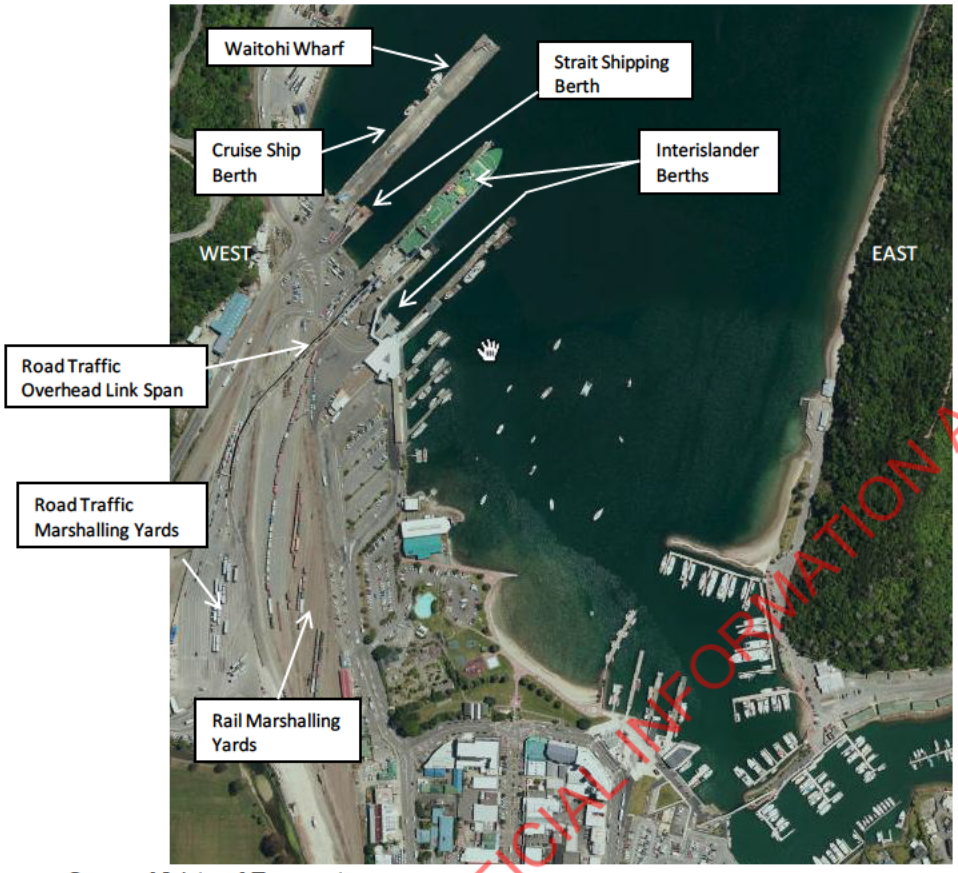
Picton infrastructure

Ferry facilities

7. The Picton ferry terminal and associated link spans are owned by Port Marlborough. The port company does not provide any shore-side labour to service the ferry operations.

8. The Picton ferry terminal facilities are shown in Figure 5 on the next page.

Figure 5: Picton ferry terminal facilities



Source: Ministry of Transport

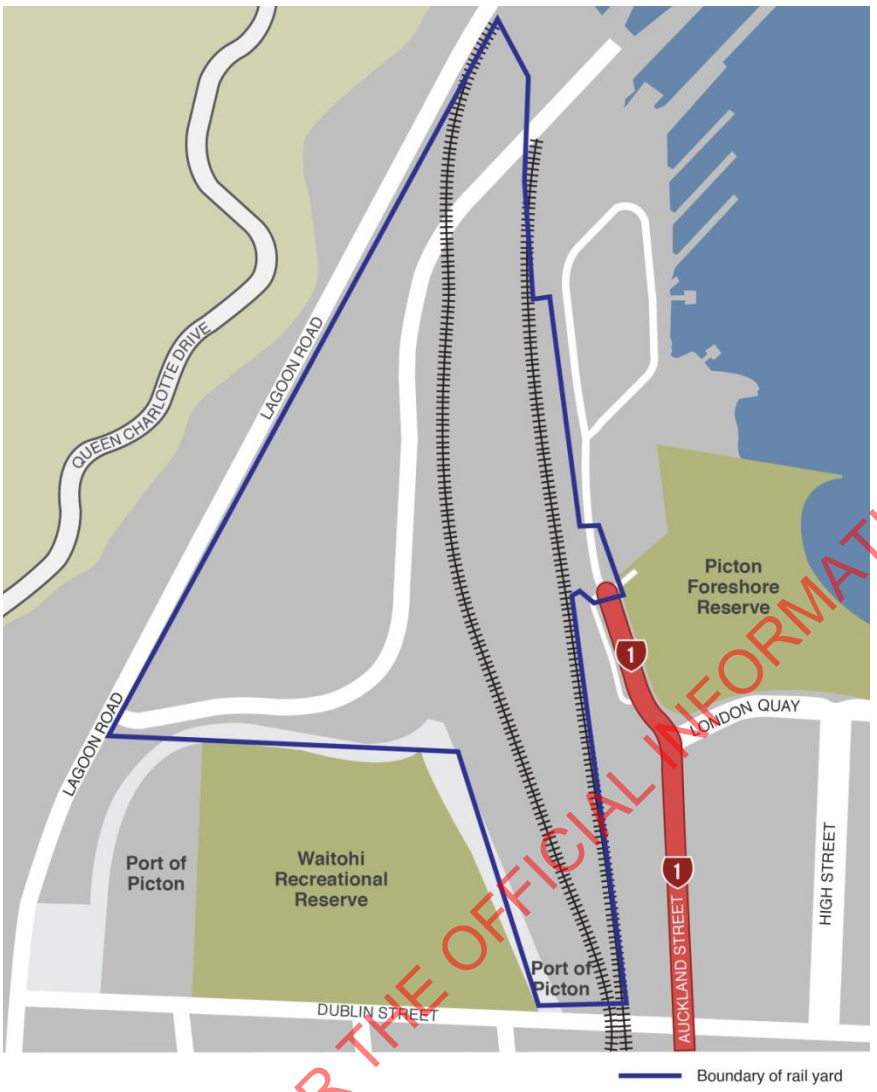
9. The Picton shore-side ferry facilities are approaching the end of their useful life. The need to accommodate future vessels, and the transition by Interislander to a road bridging model, will require the replacement of link spans and alteration to the underlying berth configurations. The Waitohi Wharf, used by Strait Shipping on the east side, is approximately 100 years old.

10. The Interislander berths are vessel-specific. When the Kaitaki is berthed, the adjacent road/rail berth cannot be used due to the Kaitaki's length and width.

Rail facilities

11. The rail and road facility at Picton (owned by KiwiRail) occupies almost 10 hectares immediately adjacent to the ferry terminal.

Figure 6: KiwiRail rail yard land at Picton



12. The land-side development of the ferry facilities, over time, has been driven by more immediate operational needs rather than the longer term strategic requirements. Each road-only ferry berth (Interislander and Strait Shipping) has unique passenger and vehicle access ways that have been designed around the two-level road-rail link spans. Both ferry operators have areas to manage pre-load logistics within the immediate port area.

13. Port Marlborough has undertaken discussions with the ferry operators concerning the redevelopment of the Picton facilities. These discussions have been placed on hold pending a decision on Clifford Bay.

14. The rail route south of Picton presents a significant operational constraint with two locomotives (or shorter trains) at times required to enable the climb out of Picton, and again over the Dashwood Pass (north of Clifford Bay).

Port Marlborough – operational constraints

15. The Picton port operational procedures do not permit more than one vessel to berth at the Picton terminal facilities at any one time. There is also a single-user status through the Tory Channel entrance.[7]

16. The introduction of fast ferries into the Cook Strait service led to the introduction of speed restrictions (maximum of 18 knots) for the ferries operating within the Marlborough Sounds. This speed restriction is outlined in Marlborough District Council's Navigation (Vessel Speed) Bylaw 2009 which came into force on 1 July 2010. The speed restrictions were introduced to reduce the wave and wake energy (and consequent effect) produced by high speed craft of a registered length exceeding 30m. Speed restrictions are based on water displacement and wave height created by vessels. Regional government, through statutory function of the Harbourmasters, have responsibilities for navigation and safety within the designated waters of their regions.

17. Arahura and Aratere, operated by the Interislander have vessel-specific "grandfathered" exemptions from the speed restrictions, provided the specified wave and wake energy criteria contained in the specific bylaw are not exceeded. These exemptions enable the two Interislander vessels to complete three return trips per day. The vessels operated by Strait Shipping cannot travel in excess of 18 knots, and are currently completing two return trips per day.

18. The "grandfathered" exemptions will not apply to the ships that replace Arahura and Aratere in approximately 7 and 12 years respectively.

7 Tory Channel Entrance Controlled Navigation Zone

Strategic context

Introduction and summary

- Cook Strait ferry services are part of the national transport network and provide a critical link for road and rail access between New Zealand's two main islands.
- An efficient, safe and reliable national transport network is important for the movement of high volumes of high value freight, and passengers between regions of economic activity.
- International experience shows that improving the efficiency of freight movements and improving network connectivity improves trade performance, GDP and wellbeing.
- Road, rail, air and coastal shipping provide national connectivity, with the choice of mode driven by customer need and preference.
- Improved ferry services across Cook Strait are unlikely to drive a material change in modal choice between road, rail and coastal shipping.

1. This chapter describes the strategic transport network and the significance of the Cook Strait ferry services in that network. The chapter also demonstrates the economic impact of improving connectivity of the network and the competition between modes across Cook Strait.

Strategic national transport network

2. A high performing transport system is important to New Zealand's economic and social success. The core of our transport system is the national network that connects New Zealand by providing reliable, cost effective, safe and timely movement of people and freight. The network provides access between our major cities and on to markets, both domestically and internationally.

3. The network is an integrated system made up of our major sea ports, airports, air and coastal shipping services, main highways and railway lines. State Highway 1 and the Main Trunk Line are where high volumes (and values) of inter-regional services converge to become nationally significant.

4. The Cook Strait ferry services are part of the national transport network as they provide a critical link for road and rail access between New Zealand's two main islands. They are effectively a sea-bridge linking the two islands. The function of the Cook Strait ferry services, like the rest of the country's transport network, is to facilitate the efficient movement of people and freight around the country.

Function of the strategic network

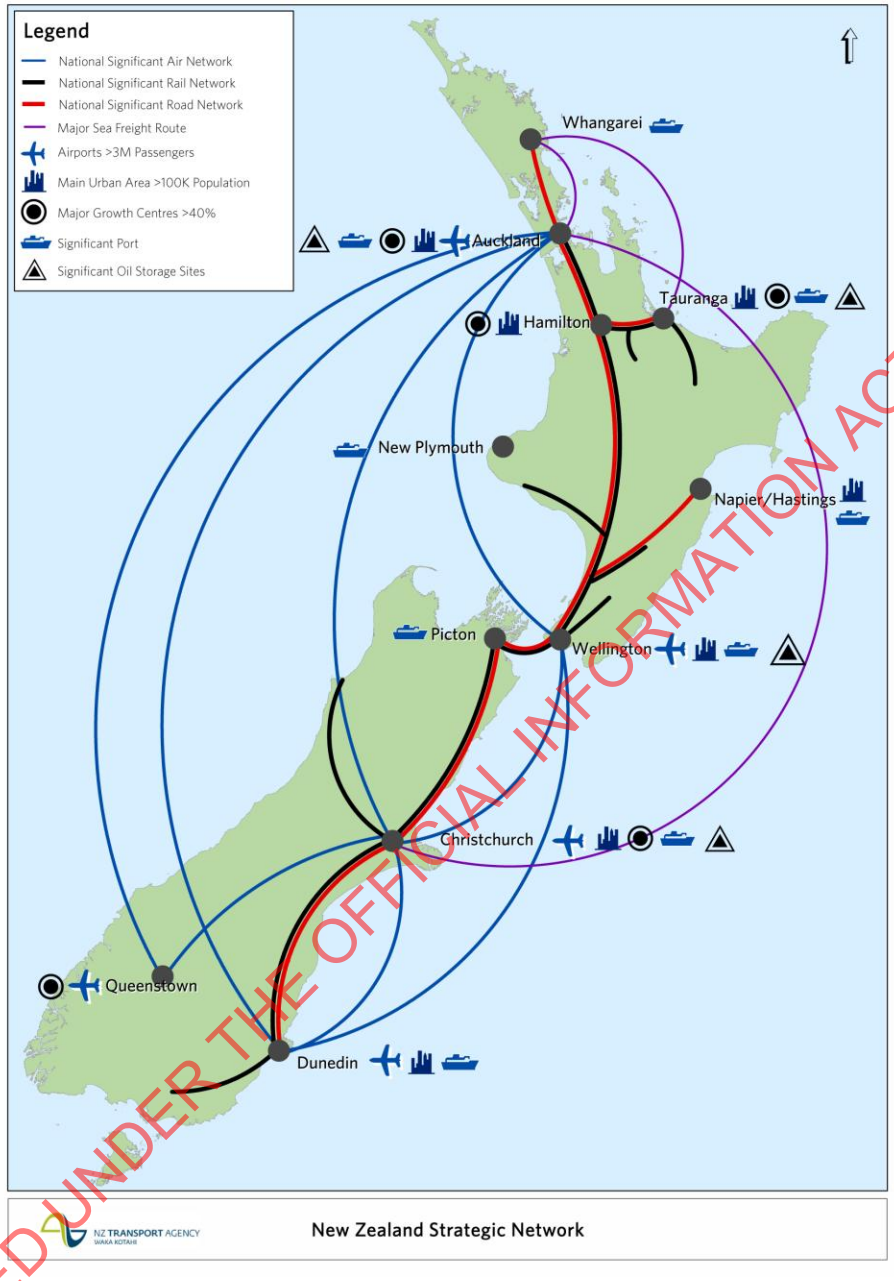
5. The timeliness, safety and reliability of the national network is particularly important for the movement of our exports to international gateways. While the majority of New Zealand's exports are transported directly to the nearest sea port, high value and time sensitive exports and input goods can move longer distances domestically.

6. The national network is also important for the efficient movement and distribution of imported and domestic consumer goods. Much of what is imported into New Zealand comes into Auckland and for onward distribution to our major population centres. Improving the efficiency of these movements has the effect of reducing the costs of the goods New Zealanders buy.

7. New Zealand's economy also relies on international tourism which contributes around $9 billion in foreign exchange earnings annually. The national network allows for the movement of these tourists across New Zealand. Goods and other freight associated with the tourism industry are distributed throughout the country particularly to areas with significant international tourist activity such as Auckland, Rotorua, Christchurch, Queenstown and Dunedin.[8]

8 http://www.med.govt.nz/sectors-industries/tourism/tourism-research-data/international-visitor-survey

Figure 7: Strategic national transport network



Source: NZ Transport Agency 2012

Investments in transport infrastructure and economic growth

8. Improving the performance of New Zealand's transport infrastructure is a critical economic opportunity and challenge. Reducing the cost of moving freight within New Zealand will make our exports more competitive and improve the profitability of our exporters. Freight cost savings are important because they lower the marginal cost of exporting. Any fall in the marginal cost of exporting can raise both the number of firms exporting and the extent of their exports[9]. Lower freight costs can also lower the price of imported inputs and consumer goods.

9. Any such savings are particularly important for small to medium sized exporters. The Ministry of Transport's work on Understanding Transport Costs and Charges shows that for these companies, domestic transport costs, especially for road transport, are considerable. For example, the cost of freighting cargo between Auckland and Christchurch is higher than the ocean freight charges to overseas markets such as Asia, the United States, and the United Kingdom.

Impact of improving efficiency of freight movements

10. The Roads of National Significance (RoNs) and the KiwiRail Turnaround Plan are key initiatives to improve the national network. The RoNs will improve connectivity between regions and improve travel times. The objective of the Turnaround Plan is to enable KiwiRail to become a sustainable freight business.

11. The Cook Strait ferry services are a key link within the State highway and main trunk networks. The ferry services tend to carry higher-value inter-island freight – non-bulk exports and goods for domestic consumption. Time sensitive freight generally moves by road and rail, rather than coastal shipping.

12. In terms of factors that enable trade, New Zealand is well placed when it comes to market access, border administration and business environment. The performance of our transport and communications infrastructure, however, is seen as holding back commerce.[10] Improvements in transport infrastructure, both for domestic and international-bound movements, will therefore help address the area where New Zealand underperforms the most in competitiveness. Research by the World Economic Forum suggests that a

9 Crozet and Koenig 2010 in Any port in a storm? The impact of new port infrastructure on New Zealand exporter behaviour, Reserve Bank of New Zealand Discussion Paper 2011/01 pg 2.

10 World Economic Forum, Enabling Trade Index 2012. NZ is ranked 5th overall, but 25th overall for infrastructure. http://www3.weforum.org/docs/GETR/2012/GlobalEnablingTrade_Report.pdf

1% increase in a country's rating on the Enabling Trade Index would facilitate a 1.7% increase in exports and a 2.3% increase in imports.[11]

13. Improvements in national connectivity can also trigger complementary improvements in private sector infrastructure, such as the location of freight distribution centres and hubs. The Core Cities Project found that developing a stronger network between New Zealand's major cities could provide the country with three potential benefits:

    a) an increase in scale

    b) improved efficiency

    c) a reduction in the economic distance between city-regions[12]

14. International research has also suggested that improving access on key inter-regional and national corridors can produce both significant economic savings, as well as boost overall economic activity. Given the increasing value of time for both the people travelling and for freight, travel time savings and improved travel time reliability has become an increasingly important way of reducing transport costs, raising productivity and improving economic performance. The Eddington Transport Study, undertaken for the United Kingdom Treasury in 2006, suggested that a 5% reduction in travel time for business and freight travel on the roads could on its own generate around 0.02% in GDP benefits for the United Kingdom. [13]

15. Conversely, transport systems with increasing transport constraints can have a negative impact on productivity and economic growth[12]. This can effectively move our major cities, areas of production and markets further away from each other.

International examples of economic impacts from improved connectivity

16. Improving national connectivity can also have wider economic benefits. An example is the Oresund Bridge, which links Denmark and Sweden. This road-rail bridge superseded the roll on/roll off ferry services previously connecting the southern part of the Danish island of Zealand and Sweden. Since completion, traffic volumes have grown as trade and commerce has increased between the better connected areas of the two countries. There has also been a trend in people from both countries relocating, while still travelling across the bridge on a regular basis for work and social reasons.[14]

11 The Question of Bigger Ships Securing New Zealand's International Supply Chain, NZ Shipper's Council, August 2010, p.15

12 NZ Core Cities Research Summary, Ministry of Business, Innovation and Employment Local Government New Zealand 2012, p. 8

13 The Eddington Transport Study, HM Treasury, 2006

14 Knudsen, M.A & Rich, J, Ex post socio-economic assessment of the Oresund Bridge, Transport Policy, 2013, pp.53-65

17. Swedish-based manufacturer IKEA, for example, increased their use of rail from 18% to 40%, due in part to the regularity of connectivity and improved scheduling that the bridge provides.[15]

18. Comparisons with other overseas inter-regional projects that have brought cities and areas of production closer together, provide some insights into the potential benefits of improving the Cook Strait ferry services. The M62 motorway improved East to West access across the north of England, and the Severn Bridge (M4/48) that provided improved connectivity between Southern Wales and Southern England.[16]

19. Both these projects provided significant benefits in travel time, travel time reliability, avoidance of difficult terrain and better access to markets. The Severn Bridge appears to have stimulated economic growth and employment in Southern Wales.

National freight growth and responsive transport system

20. The volume of freight moved in New Zealand is forecast to grow significantly as our population and economy grows. The National Freight Demand Study (2008) estimated a growth in the national freight task of 75% between 2007 and 2031. The inter-island freight task (excluding coastal movements of bulk petroleum and cement) was estimated to grow at a slightly slower, though still significant, rate of 62% over the same period.[17]

21. This growth will mean an increase in volumes (including on a per trip basis as productivity increases) and an increase in freight-related travel on key strategic routes. The government's investment in nationally strategic State highway and rail corridors is designed to address this increased demand and deliver increased performance from the national strategic network.

Response to increased demand

22. The future freight transport system will need to respond to the continuing demand for increasing speed and reliability. New Zealand's freight supply chains are largely driven by 'just-in-time' movements. Warehousing of freight is kept to a minimum and freight is dispatched just before it is needed.

23. There will be continued growth in the movement of high value and time sensitive products (such as chilled meat, seafood, wine and other perishable goods). As a result there is an increasing need from industry for greater reliability and timeliness for freight services between the islands.[18]

15 Copenhagen Economics 2004 Economy Wide Benefits – Dynamic and Strategic effects of a Fehmarn Belt Fixed Link – pg 29

16 OECD, Impact of Transport Infrastructure Development on Regional Development.

17 At the time of writing the 2013 update to the NFDS had not been published.

18 National Freight Demand Study, p.162.

24. Clifford Bay provides a response to this trend by improving connectivity of the national network – in effect moving Christchurch, Dunedin, Invercargill and Queenstown around 75 minutes closer to Auckland, Wellington, Palmerston North and the rest of the North Island.

Competition for freight movements

25. The value proposition of a ferry terminal at Clifford Bay needs to be looked at within the overall function of the national network and the role of the different modes. The choice of mode to move goods to/from the South Island reflects the needs of the customer with decisions primarily based on time and cost.

Road transport

26. Nationally, road transport accounts for 70% of freight moved in New Zealand on a tonne-kilometre basis. Rail and coastal shipping move 15% of freight by tonne-kilometre each respectively.[19]

27. Over longer distances road freight is generally the most expensive surface transport mode (on both a cost per kilometre travelled and tonne carried basis). The speed, reliability and flexibility of road transport is a key reason why it can attain a premium over other modes and why it makes up half (51%) of the non-bulk contestable freight task (by tonnes) moved between the islands.

Rail transport

28. Rail freight is generally cheaper than road over long distances (or with heavy volumes of freight over shorter distances). Rail can handle large volumes and deliver goods to key inter-regional locations such as Hamilton, Palmerston North, Wellington, Christchurch and Dunedin. Rail currently provides 33% (tonnes) of the non-bulk contestable freight task inter-island.

Coastal shipping

29. Coastal shipping tends to be lower cost than rail, with the trade-off being longer delivery time and reduced service frequency. Coastal shipping is less flexible as it offers less frequent services and only operates port-to-port, meaning an additional leg of travel is required to take the goods inland. The cost of this additional travel can be offset by the savings on the sea-going side of the journey.

30. For contestable containerised freight (i.e. non-bulk and non-transhipped coastal movements), less time critical goods are moved between the North Island and Christchurch on regular scheduled domestic and international services. Coastal shipping (including international ships on the coast) also

19 National Freight Demand Study, p.120.

moves significant numbers of empty containers to support the export trade in the South Island.[20]

31. Coastal shipping carries 17% (tonnes) of the non-bulk contestable freight task inter-island. Additional volumes are carried on the coast by international shipping lines, transhipping loaded and empty containers between ports.

32. Bulk commodities such as petroleum and cement are carried on dedicated coastal shipping services.

Air transport

33. Air freight volumes are significant by value but are small in weight (tonnes) terms. Air freight is the most expensive mode but offers superior service for high value, time critical goods needing to be moved significant distances.

Table 5: Modal transport options - Auckland-Christchurch

Modal attributes (in general)	Air	Road	Rail	Coastal+
Travel Time (Auckland-Christchurch)	80 minutes	16 hours*	30 hours**	48 Hours***
Cost (TEU Auckland-Dunedin)[21]	N/A	$3,877	$2,373	$1,400
Volume (mass and/or space per trip – equivalent Container size TEU)	<1	2	200	600/650
Flexibility (Number of delivery/pickup points Auckland-Christchurch with minimal re-handling)	Low	High	Moderate	Low
Service frequency	30 services a day (approx)	As arranged	2 trains daily	Every second day

* Assuming rest stops and a driver swap half way
+ Not including coastal shipping services provided by international vessels.
** From closeout time
*** Currently not a daily service

20 Coastal Shipping and Modal Freight Choice, Rockpoint Corporate Finance, 2009, p.36

21 Freight Transport Efficiency: a comparative study of coastal shipping, rail and road modes, 2012, p50.

Competition for passenger journeys

34. The movement of people between the North and South Island is provided by two modes – air and sea (Cook Strait). The ferry passenger market has declined significantly in recent years. Increased competition from air travel has been identified as the primary reason. The Demand chapter provides more detail regarding passenger journeys.

Potential impact on modal choice

35. The likely trigger point in a change of mode will be a change in the relationship between time and cost. Higher cost for road and rail may attract freight over to rail and coastal shipping respectively.

36. The option of making better use of coastal shipping Auckland-Christchurch or for roll-on/roll-off ferry services to take vehicles from Wellington to Lyttelton, is a transport option for the market currently. Pacifica Shipping offered a Lyttleton-Wellington roll on/roll off ferry service in the 1990s carrying both containers and trucks. The service discontinued however, as freight owners preferred to move non-time critical goods by coast direct to/from Auckland and for time critical freight to be moved by road and rail.

37. The perceived value of each mode, moving people and goods between the North and the South Islands, is expected to remain largely the same if Clifford Bay is built. This is because Clifford Bay is an incremental improvement that does not fundamentally alter the relative merit and nature of the competing modes.

SECTION 2 | COMMERCIAL VIABILITY ASSESSMENT

Structure of the analysis

Demand

Private benefit assessment

Port-Co viability assessment

Structure of the analysis

1. The investigation into Clifford Bay commercial viability involves a chain of interconnected analyses.

2. Firstly, a long range forecast of demand for freight and passenger journeys has been made. This is used to estimate the volume throughput for road and rail freight, and for the ferry operators who transport freight and passengers across Cook Strait. This is marked 1 on Figure 8 on the next page.

3. The cost structures of freight users and ferry operators have been examined in both a "Develop Clifford Bay" scenario and in a "Redevelop Picton" scenario. The difference between the two is the net benefit for that operator or user of Clifford Bay. This net benefit is referred to as the private benefit of Clifford Bay for that operator or user.

4. Private benefits for the two operators, Interislander and Strait Shipping Limited, have been assessed using a detailed financial model for each scenario with a 25 year operating horizon. These detailed results have been used to inform separate port fee negotiations with each operator. These results have then been captured in non-binding statements of intent signed by each operator, indicating the port fee it is prepared to pay. This is the private revenue indicatively available from that operator to support Port-Co establishment and operation. This is marked 2 on Figure 8 on the next page.

5. Port-Co is a conceptual ferry port developer/owner/operator business used to assess Clifford Bay commercial viability. This section of the analysis is the financial case for Clifford Bay. This is marked 3 on Figure 8 ono the next page. The financial case assesses whether Port-Co generates an adequate commercial return for private sector debt and equity given the private revenue that is available from operators and users and the construction and operational costs it must meet. The analysis finds that it does not. The analysis then highlights the role the government would have to play if Clifford Bay is to proceed.

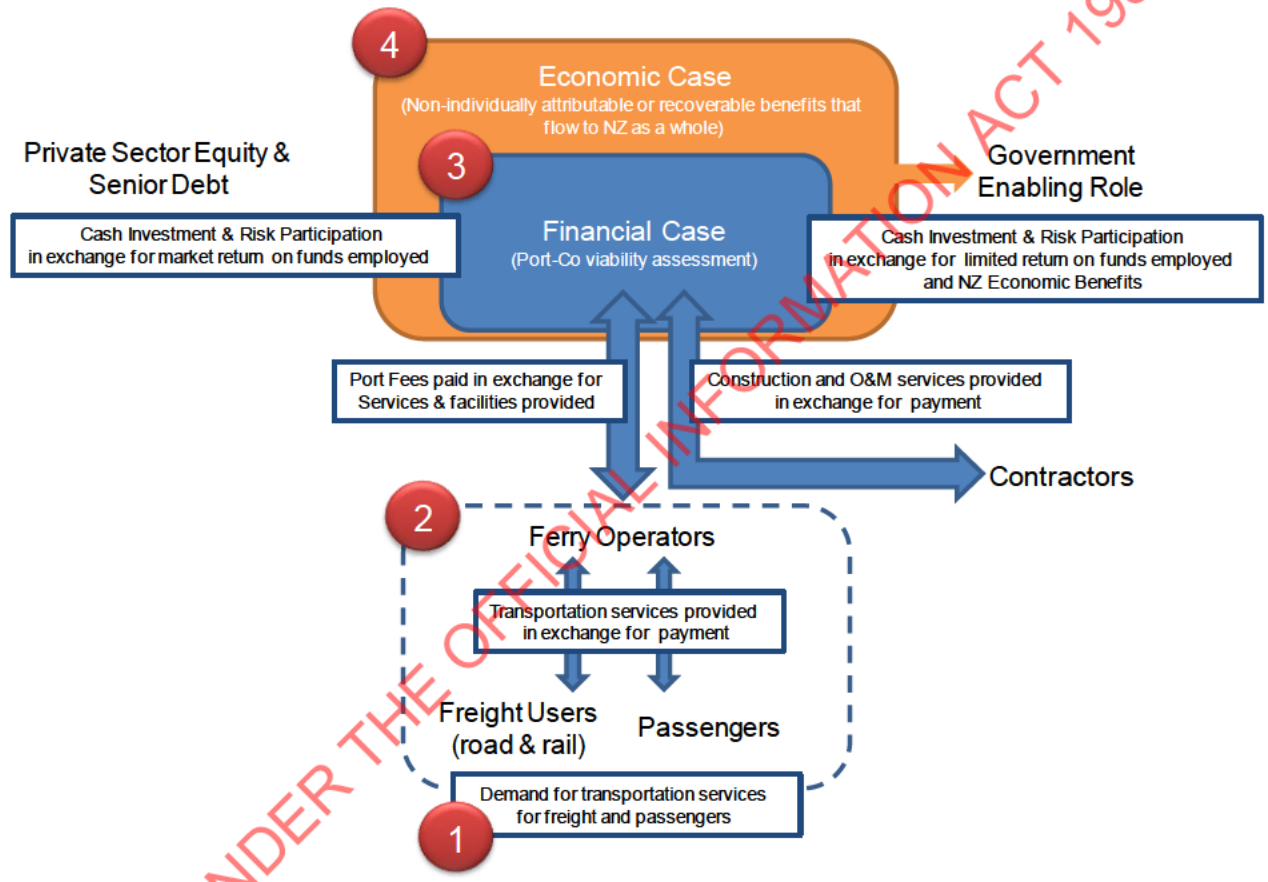
6. The economic case complements the financial case, and takes a broader view of the potential benefits of the project from the perspective of society and the economy as a whole. This is marked 4 on Figure 8 on the next page. The principal objective of the economic case is to assess the level of benefits that the project is expected to deliver to the national economy as a whole, over and above those delivered at a project level.

7. The Clifford Bay business case for the government comprises the net cost of the direct investment it takes in Port-Co as assessed in the financial case, offset by the net economic benefit to New Zealand as assessed in the economic case.

8. This business case also includes an analysis of the public policy rationale for the government considering direct investment in Clifford Bay, along with a high level assessment of the relative merit of that investment with other transport projects.

9. The structure of the analysis is reflected in the following figure.

Figure 8: Structure of the commercial viability analysis



Source: Ministry of Transport 2013

Freight and passenger demand

Introduction and summary

- The Cook Strait freight market is a sub-market of the broader inter-island freight market which comprises coastal shipping as well as road and rail.
- The Cook Strait freight task is forecast to grow by 61% by 2040.
- Coastal shipping and rail are forecast to continue to grow at a faster rate than road over the short term, with all modes growing at a similar compound annual growth rate of just under 2% over the long term.
- It is estimated that 75% of road freight using the ferry has an origin or destination point of Christchurch or further south. The 25% of the road freight travelling to/from Blenheim and points west would incur additional travel costs due to the longer road distances between Clifford Bay and these points, when compared with the status quo of Picton.
- The Cook Strait passenger market has declined significantly in recent years, with future growth predicted to remain at very low levels.
- It is estimated that less than 50% of ferry passengers have an origin or destination point south of Clifford Bay and it is only these passengers that will accrue the full travel time and distance benefit of a move to Clifford Bay.

1. The purpose of this chapter is to define the current and projected level of demand for ferry services across Cook Strait.

2. The Cook Strait ferry market comprises the two principal and distinct sectors of freight and passengers. Each sector is profiled and quantified in the following sections.

Freight

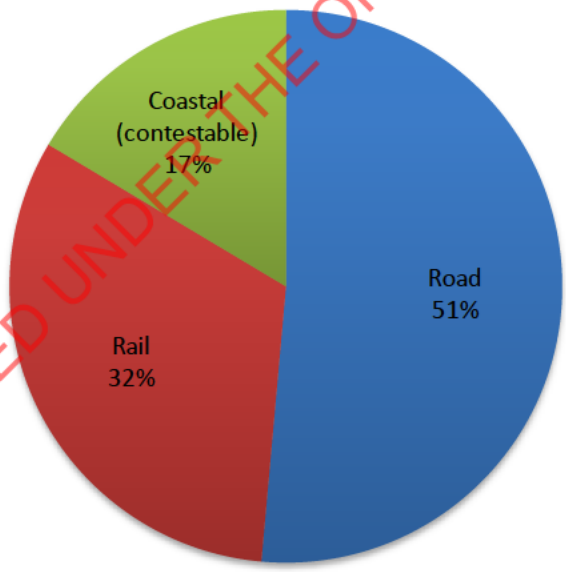
Overview

3. For the purposes of the Clifford Bay investigation, the relevant freight market is defined as the sum of the road and rail freight carried on the inter-island ferry services, together with the contestable coastal shipping market between the two islands. This latter market is defined as domestic cargo moving as containerised freight between the North and South Islands. It excludes export and import transhipments (which tend to be marginally priced movements on international shipping lines) and excludes bulk cargoes such as petroleum and cement (which move on dedicated coastal vessels).

4. The size of the road and rail market is most accurately measured by actual figures reported by Interislander and Strait Shipping. Road and rail comprise 51% and 32% of the total contestable inter-island freight market respectively.

5. Coastal shipping volume can now be accurately tracked using the Ministry's Freight Information Gathering System. As noted above, contestable coastal shipping is represented by domestic (non-transhipped) containerised cargoes moving between the islands. These volumes represented 17% of the inter-island contestable freight market in 2012.

Figure 9: Contestable inter-island mode split (tonnes)



Source: MOT analysis from data sourced from Interislander, Strait Shipping and FIGS

Cook Strait freight market

6. The Cook Strait freight market comprises commercial vehicles (CVs) and rail freight which are carried by the Interislander and Strait Shipping between Wellington and Picton.

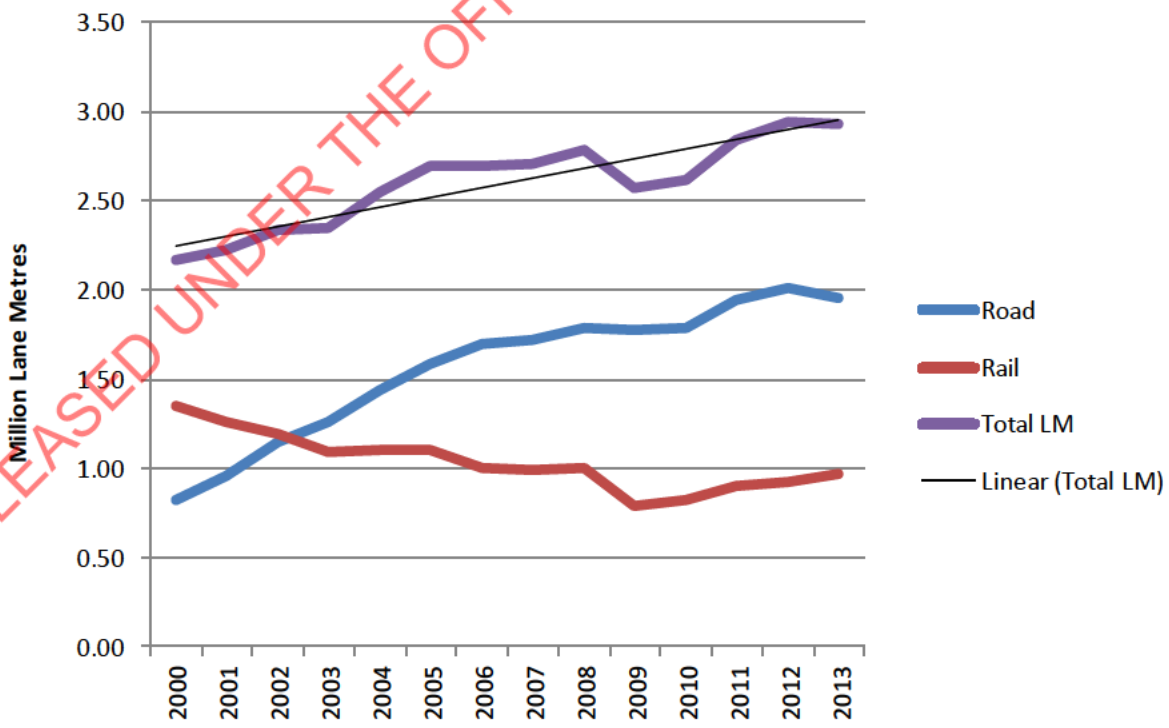
7. As the unit of revenue for this market is lane-metres, being the linear space taken up on a ferry by a truck or rail wagon, reference to the Cook Strait market is undertaken in lane-metre terms.

Table 6: Freight market (lane-metres, 000s)

	2008	2009	2010	2011	2012	2013
Commercial vehicles (CV) / Road	1,785	1,779	1,784	1,944	2,010	**1,956**
CV change		(0.4%)	0.3%	9.0%	3.4%	(2.7%)
Rail	997	794	828	898	925	**969**
Rail change		(20.3%)	4.2%	8.5%	3.1%	4.7%
Total	2,782	2,573	2,612	2,842	2,935	**2,925**
Total change		(7.5%)	1.5%	8.8%	3.3%	0.0%

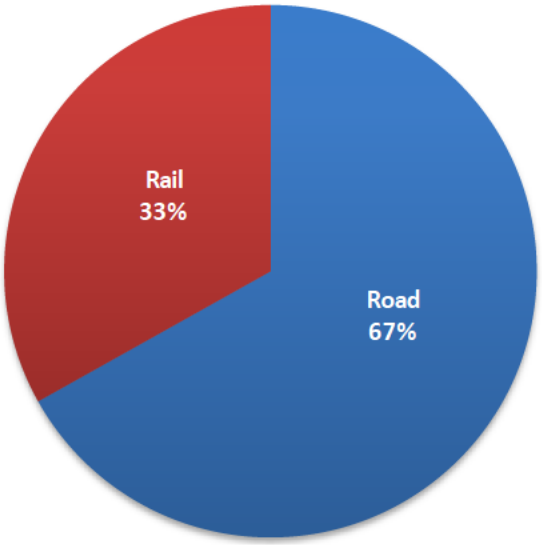
Source: Interislander and Strait Shipping ( ) = decrease

Figure 10: Cook Strait lane-metres (LM)



Source: Interislander and Strait Shipping Limited

Figure 11: Cook Strait mode share FY13 (lane-metres)



Source: Strait Shipping Ltd and Interislander

Forecast growth rates

8. To determine the most appropriate freight task growth rates for the purposes of this investigation, a series of alternative growth scenarios for inter-island freight have been assessed. A key reference point for assessing growth scenarios has been the 2008 National Freight Demand Study (NFDS).[22]

9. The range of growth scenarios assessed is as follows:

    - 2012 Preliminary Business Case on Clifford Bay
    - NFDS national freight task growth
    - NFDS inter-island freight task growth
    - National GDP growth[23]
    - South Island population growth (medium scenario)[24]

10. The inter-island freight task differs from the national task. Where 75% of the national freight task comprises bulk commodities such as aggregates, cement, limestone, fertiliser, forestry, bulk milk and export dairy products,

22 At the time of writing, the 2013 update to the NFDS has not been completed. This is due for completion in November 2013. Interim results will be used where possible to assess the accuracy of the assumptions used.

23 Bascand, G (2012, December). Planning for the future: Structural change in New Zealand's population, labour force, and productivity. Paper presented at Affording Our Future Conference, Wellington, New Zealand.

24 As inter-island freight is predominantly driven by demand from the South Island, i.e. predominantly southbound freight, South Island population growth will be one driver of future demand growth. Source of population forecasts: Statistics NZ

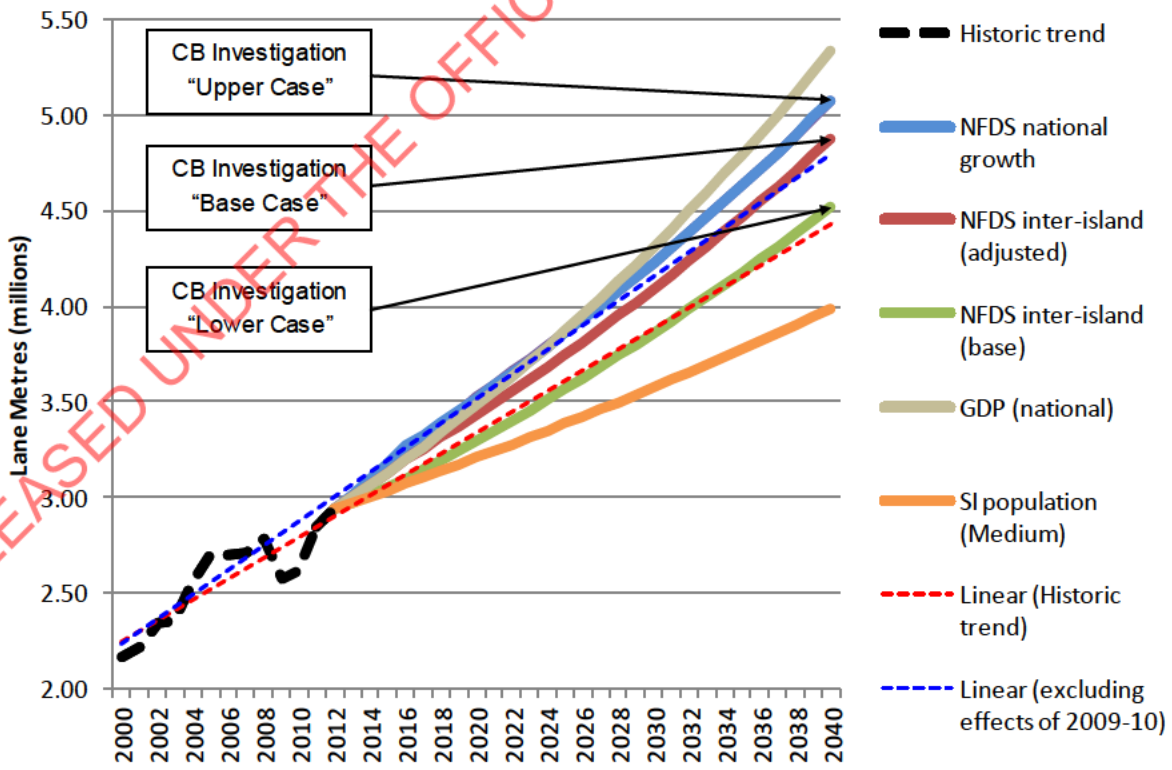
75% of the inter-island freight task comprises the retail and courier sectors, horticulture, livestock and meat.

11. Due to these differences in commodity mix, growth projections for the inter-island task differ to the national view – the latter influenced by predicted strong growth in the construction, dairy and forestry sectors.

12. The NFDS inter-island growth rate has been determined by isolating the inter-island regional movements of individual commodities in each of the forecast years – 2016 and 2031. Two alternative NFDS inter-island scenarios have been tested. The 'base' forecast predicted in the NFDS assumes a lower level of retail goods moving inter-island in future due to an increase in direct imports to Christchurch. An alternative 'adjusted' forecast assumes growth in inter-island retail goods movements remain at the same rate as growth in these commodity movements at a national level i.e. no change to the level of direct imports into Christchurch.

13. Applying these different growth rate scenarios to the base 2013 Cook Strait market figure of 2.9 million lane-metres, (refer to Table 7) presents a range of potential growth outcomes as illustrated in Figure 12 below.

Figure 12: Forecast Cook Strait freight growth scenarios compared with historic trend (lane-metres)



14. Extrapolating the historic trend in Cook Strait volumes predicts a future growth trend in line with the NFDS inter-island 'base' scenario. However, when the anomaly of 2009-10, caused by the GFC and Canterbury

earthquakes, is removed, the historic trend line aligns closer to the NFDS inter-island 'adjusted' scenario.

15. For the purposes of this investigation, a growth scenario in which the demand for retail goods into the South Island matches the national demand for these goods (i.e. NFDS inter-island adjusted) is considered to be a realistic scenario. Selection of this scenario is validated by the alignment of the historic trend (adjusted for the effects of the GFC and Canterbury earthquakes) with this growth rate.

16. Growth rates based on the NFDS national task and the NFDS base inter-island assumptions present upper and lower parametres respectively for sensitivity testing.

17. Growth rates assumed in the 2012 preliminary business case were aligned to the NFDS national growth rates and fall at the upper end of the sensitivity parametres.

18. The growth rate scenarios assumed for the purposes of this investigation represent the following rates of growth in the freight task on Cook Strait between 2013 and 2040.
    - High 66%
    - Medium (base) 61%
    - Low 51%

19. These compare with a growth rate used in the 2012 preliminary business case of 74% over the same period.

Forecast by mode

20. As evidenced by volume data provided by Interislander (which has been verified against FIGS for 2012) rail has experienced strong growth across Cook Strait since the advent of the Turnaround Plan. Between 2010 and 2012, this growth has been at comparable levels to CV in lane-metre terms. In contrast, 2013 has seen a contraction in CV volumes while rail has continued its strong recent growth.

21. Due to a lack of accurate historic data on the contestable coastal shipping market, it is not possible to determine historic growth rates in this mode. However, anecdotal evidence suggests there has been comparable, if not stronger, growth in coastal shipping as has occurred in the inter-island road and rail sectors.

22. In the short term it is anticipated that the modes will maintain similar growth rates. Rail should regain market share lost in recent years to road. Coastal volumes should continue to grow, driven by surplus capacity in international shipping markets allowing international lines to marginally price coastal cargo movements. The trend toward larger container ships and an increase in port

hubbing will also support this growth. This will see rail and coastal shipping growing at a faster rate than road.

23. However, there is no compelling evidence to suggest that one mode will experience more rapid growth in the inter-island market than another in the longer term. For the purposes of the analysis, it is assumed that all modes will grow at the same rate post 2017.

24. Applying the base case growth rate provides compound annual growth rates by mode as follows.

Table 7: Compound annual growth rate by mode

Mode	2013-16	2017+
Road (or CV) freight	1.70%	1.78%
Rail freight	2.45%	1.78%
Coastal shipping	2.75%	1.78%

25. Applying alternative growth rates as sensitivity tests indicates that the outputs of the economic and financial analyses are only moderately sensitive to reasonably large changes to the assumed growth rates or modal shares and do not have a material impact on the outcomes of the analysis.

Capacity impacts

26. Information provided by the two ferry operators indicates that some capacity constraints exist at specific times of the year and at certain 'timegates' – primarily around the Christmas and Easter holiday period when passenger demand is at its highest. In general however, for the majority of the year, there is overcapacity of vessel space on Cook Strait. While Clifford Bay will have a bearing on vessel retonnaging decisions (i.e. the types of vessels employed in future), it is vessel age and changes to operating models e.g. Interislander's move to roadbridging rather than rail enabled vessels[25], that will drive retonnaging requirements over the next 30 years, rather than capacity.

27. Similarly Picton port and its land-side facilities and transport links are not seen as a constraint on freight capacity in the foreseeable future. While investment is required in the near term at Picton, this is required to improve the current facilities, to handle new vessels as old vessels are replaced, and cater for Interislander's move to a roadbridging operation.

25 Roadbridging is the term used by KiwiRail to refer to the transfer of containerised rail cargo onto road based trailers which are then conveyed on the ferries instead of conveying rail wagons on the ferries. This change in operating model will allow KiwiRail to purchase or lease cheaper RORO vessels in future rather than the more expensive rail capable vessels, such as the Arahura and Aratere.

28. There is therefore no difference assumed in freight demand between the 'stay at Picton' base scenario and Clifford Bay, other than the potential for induced demand in response to the shorter transit times between Christchurch and the North Island.

Upper versus lower South Island road movements

29. Travel time benefits to the road freight sector from a ferry terminal at Clifford Bay will be dependent on the origin and destination of the road journey. Freight originating from or travelling to Marlborough, Tasman or the West Coast will not receive the same level of benefit from Clifford Bay as freight originating from or travelling to Canterbury and other areas south. This is due to a slight increase in road distance between Clifford Bay and the upper South Island regions than under the status quo of Picton. Consequently freight travelling to/from these regions needs to be identified separately within the financial and economic cases with a different benefit equation applied.

30. Region-by-region analysis of the 2008 NFDS indicates an average southbound:westbound split of 70:30. Early indicative numbers from the 2013 update to the NFDS indicates this split may be 80:20[26].

31. These scenarios compare with 77% and 23% for southbound:westbound movements respectively used in the 2012 preliminary business case, sourced from a survey undertaken by NZTA for the Ministry of Transport of the Interislander's and Strait Shipping's CV customers. The preliminary business case notes the uncertainty in these numbers and also quotes the NZTA Freight Strategy (2012) with a range of 67% to 77% of road freight traffic attributed to lower South Island movements.

32. Given the uncertainty over these numbers and the impact that freight direction in relation to Clifford Bay has on the benefits to the freight sector, a base of 75:25 has been assumed with alternative ratios of 80:20 and 70:30 tested for sensitivity analysis purposes. As with freight growth rates these sensitivities do not have a material impact on the outcomes of the analysis.

Passenger

Overview

33. The movement of people between the North and South Islands is provided by two modes – air and sea (Cook Strait).

34. The Cook Strait ferry passenger market comprises two segments:

    a) foot and car passengers

    b) passenger vehicles

26 At the time of writing the 2013 update to the NFDS has not been finalized, with indicative numbers only available from the results of early analysis.

Historic and current level of market demand

35. The Cook Strait passenger market has declined significantly in recent years as a result of increased competition from air travel and changes in the travel patterns of international visitors to New Zealand.

36. International visitors comprise approximately 25% of ferry customers. Figures provided by the Ministry of Business, Innovation and Employment (MBIE) confirm that overseas visitor inter-island ferry usage has been declining since 2006. Partially this reflects a decline in the number of overseas visitors who, historically, have been high ferry-users, and an increase in the number of visitors who do not tend to travel on an inter-island ferry. Another relevant factor appears to be a change in the nature of the travellers who come to New Zealand. International visitors are tending to be more spatially-confined in their travel patterns with shorter lengths of stay, in other words they are not travelling as widely throughout New Zealand as visitors have in the past.

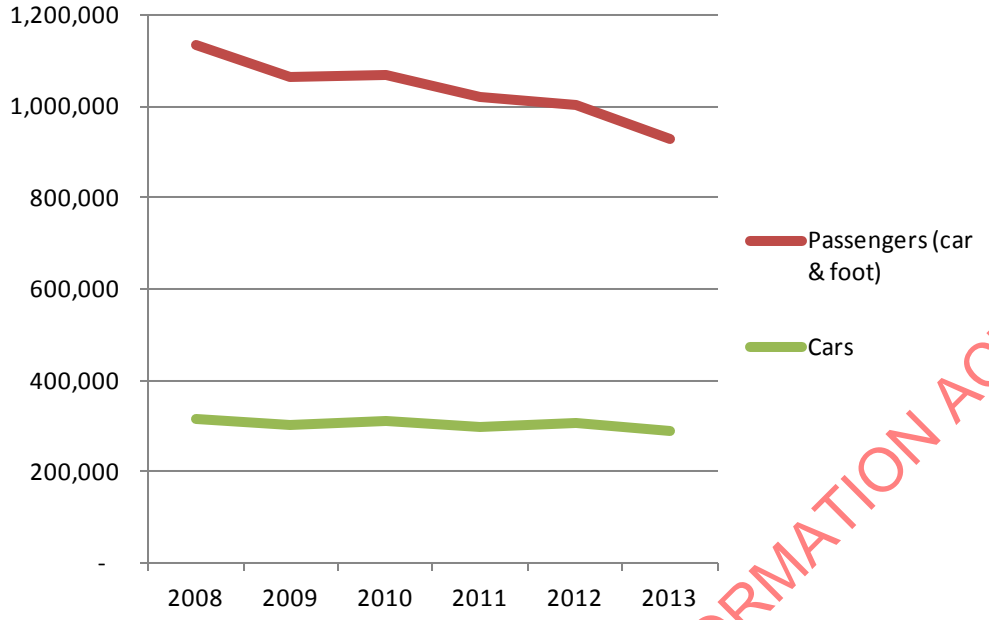
37. From data provided by the two ferry operators, the following summarises the trend in passenger demand including figures for the latest financial year.

Table 8: Historical passenger market trend

'000s	2008	2009	2010	2011	2012	2013
Passenger	1,132	1,062	1,070	1,019	1,002	957
Passenger change		(6%)	1%	(5%)	(2%)	(5%)
Car	317	303	310	298	307	295
Car change		(4%)	2%	(4%)	(3%)	(4%)

Source: Interislander and Strait Shipping ( ) = decrease

Figure 13: Passenger market historic volumes



Source: Interislander and Strait Shipping

Forecast market demand

38. Figures supplied by the Interislander provide their anticipated view of the forecast demand for passenger services. This investigation considers these forecast figures to be appropriate within the context of the historic trend, ongoing market pressure from airlines and changes in overseas visitor travel patterns.

Table 9: Forecast annual growth rates – passenger market

	2014	2015	2016	2017	2018-2022	2023+
Passengers	(0.5%)	(0.2%)	0.2%	0.3%	0.3%	0.5%
Cars	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%

( ) = decrease

39. Appropriate sensitivities using alternative growth scenarios have been applied in both the economic and financial cases to assess the impact of alternative growth scenarios on the outputs of these assessments. Application of these alternative growth scenarios concludes that the outputs of the economic and financial cases are not materially sensitive to changes in the forecast annual growth rates assumed for the passenger market.

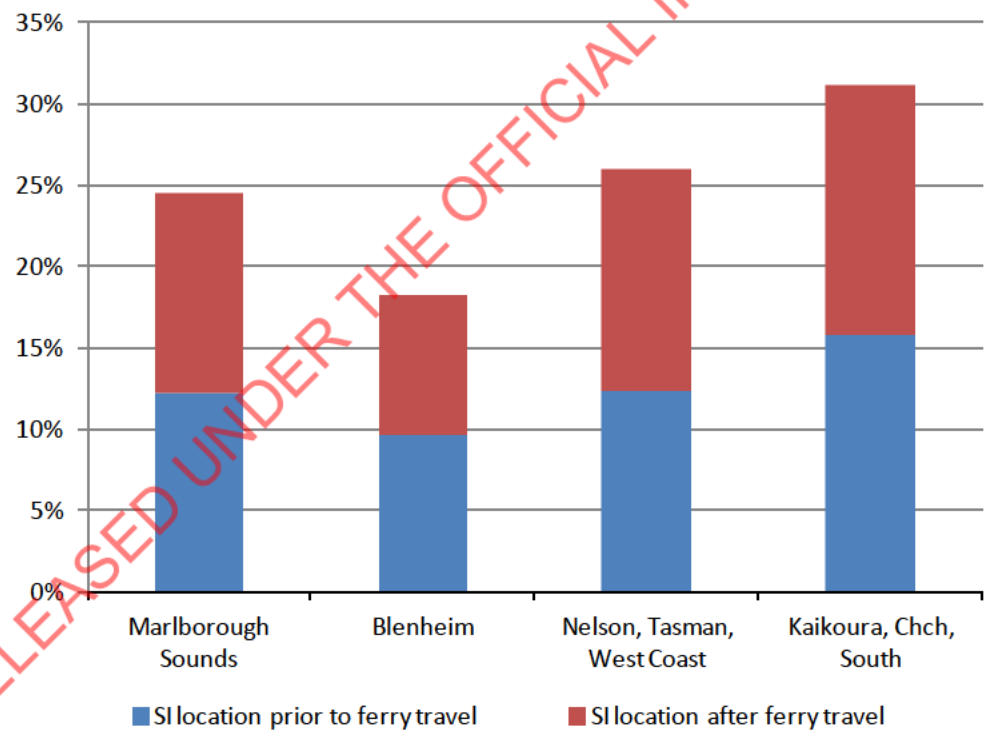
Passenger market origin/destination

40. The location of Clifford Bay results in a different benefit equation for passengers depending on their origin or destination in the South Island. Those travelling to points south of Clifford Bay benefit from both the shorter ferry journey and shorter road journey. However those travelling to Blenheim, the Marlborough Sounds and points west face a longer road journey. It is important therefore to understand the South Island travel patterns of Cook Strait passengers to accurately measure the impacts on these different categories of passengers.

41. Travel patterns have been sourced from survey data collected from the Interislander in which participants are asked where they spent the night prior to travel and the night of travel[27]. In assessing the impact of Clifford Bay on passengers we are interested in the South Island locations prior to travel for northbound passengers and the South Island locations on the night of travel for southbound passengers.

42. The results of this analysis are provided in the figure below.

Figure 14: South Island locations on night prior to or after travel



Source: Interislander

27 n= 69,940. Results are from three survey periods, CY2010-12. Survey issued to each customer that supplies an email address when booking, i.e. includes those that booked online but not those that booked via a travel agent. For this reason, limitations of data include:
no visibility over whether a respondent represents a family of 5 versus a single traveler,
international travelers are likely to be under-represented in survey results as they are more likely to book using a travel agent than online.

43. The above profile translates into a ratio of South Island origin/destination points as shown in Table 11 below. It is acknowledged however that some passengers who nominate Blenheim or the Marlborough Sounds as their location prior to or after travel may be in transit to/from other locations. Therefore the above proportions have been adjusted to reflect this on the following assumption basis:

    a) 50% of passengers nominating Blenheim prior to or after travel are in transit to points south

    b) 20% of passengers nominating the Marlborough Sounds prior to or after travel are in transit, with 10% in transit to points south and 10% in transit to points west

Table 10: South Island origin/destination of Cook Strait travel

Origin/destination of Cook Strait travel	Unadjusted	Adjusted for in-transit travelers
South of Clifford Bay	31%	43%
Blenheim & West	44%	37%
Marlborough Sounds	25%	20%
Total	**100%**	**100%**

44. For the purposes of the analysis it is assumed that there is no difference in the proportions of foot versus car passengers travelling westbound or southbound. However due to much of the accommodation and activities in the Marlborough Sounds being accessed by water transport, for those passengers with a final origin or destination in the Sounds, it is assumed that a higher proportion of foot passengers would make up this segment of the market than those travelling by car.

45. The profile of the adjusted direction of travel by market segment is shown in the following table.

Table 11: Direction of travel – car versus foot passengers

Direction	Foot	Car
South of Clifford Bay	35.8%	47.3%
Blenheim and West	31.6%	41.7%
Marlborough Sounds	32.6%	11.0%
Total	**100%**	**100%**

Private benefit assessment

Introduction and summary

- As previously outlined, forecast freight demand has been applied and the cost structures of freight users and ferry operators have been examined in both a "Develop Clifford Bay" and in a "Redevelop Picton" scenario. The difference between the two is the net benefit for that operator or user of Clifford Bay. This net benefit is referred to as the "private benefit" of Clifford Bay for that operator or user.
- We estimate $53.7 million of private benefits are available in FY22 as a result of a move to a new ferry terminal at Clifford Bay. After risk adjustment in ferry and rail operator negotiations to agree non-binding port fee indications, this translates into $39.3 million of available Port-Co private revenue in FY22.
- The risk adjusted indicative port fees are the appropriate values to use in assessing the commercial viability of Clifford Bay.
- As outlined in the Port-Co viability assessment, this is insufficient to deliver Clifford Bay through private sector funding, and the government will need to play a direct investment role for the project to proceed.

1. This chapter starts by explaining how the building blocks of the commercial viability assessment fit together, and how private benefits have been assessed. It outlines the private benefit assessment result for each major category of operator/user, and then describes the resulting indicative private revenue commitments that have been derived through negotiation.

Table 12: Summary of private revenue

User Group	Private Benefits FY22 (nominal)	Risk Adjustment % (or comment)	Available Port-Co Revenue FY22 (nominal)
Ferry Operators	$33.2m	60%	$20.1m
Rail	$4.9m	74%	$3.6m
Commercial Vehicles	$15.6m	100% (full recovery assumed)	$15.6m
Private Passengers	None assumed	Benefit position for passengers difficult to determine due to diverse origin/destination patterns	Nil
Total	**$53.7m**	**73%**	**$39.3m**

Approach to determine private benefits

2. The Ministry of Transport has taken a detailed approach to estimate the private benefits for each user group which would result from a move to a new ferry terminal at Clifford Bay. The approach has included holding a series of meetings with individual users, user groups and industry consultants, and the development of detailed financial and cost models.

Workshops and meetings

3. Since early 2013 the Ministry of Transport has had a series of workshops and meetings with:
    - Ferry operators - InterIslander and Strait Shipping Ltd
    - Rail operator – KiwiRail Network and Gravel Road Consulting Ltd (Gravel Road)
    - Commercial freight operators – Road Transport Forum New Zealand and a selection of larger commercial freight businesses
    - Private passengers – The New Zealand Automobile Association

Financial and cost models

4. The Ministry of Transport has developed financial models with the ferry operators to estimate the private benefits available to them from shifting to Clifford Bay, and the port fees they could afford to pay to a new ferry terminal operator (Port-Co).

5. Gravel Road developed a detailed cost model with KiwiRail Network to estimate the net cost savings available to rail if the ferry terminal is shifted to Clifford Bay.
6. The Ministry of Transport has also performed financial analysis to determine the net cost savings available to commercial freight operators if the ferry terminal is shifted to Clifford Bay.

Benefits to ferry operators

Approach

7. To determine the private benefits for the ferry operators and the port fees they could afford to pay, the Ministry of Transport developed separate and comprehensive financial models in conjunction with InterIslander and Strait Shipping.

8. Each ferry operator business was modelled separately using two main scenarios.
    - Redevelop Picton – under this scenario the Picton port facility is redeveloped and a new ferry terminal at Clifford Bay is not built.
    - Develop Clifford Bay – under this Scenario a new ferry terminal is built at Clifford Bay and the Picton port facility is not redeveloped.

9. The difference between the two scenarios represents the estimated net private benefits available for each ferry operator from moving to Clifford Bay, or the port fee they could afford to pay at Clifford Bay.

10. In developing the financial models for the ferry operators, a detailed approach was taken.

11. The financial models include the following key features:

    - Historical financial information
    - 25 years of projected financial information (FY14 to FY38)
    - Ratio analysis
    - Market analysis – volumes and growth by market segment, and modal and market shares
    - Revenue breakdown and yield analysis by market segment
    - Operating cost and key cost driver analysis
    - Summary financial statements
    - Fixed asset schedules

12. The focus of the financial modelling (and estimate of net benefits) has been to the EBITDA[28] level in the Statement of Financial Performance. Much less focus and rigour has been placed on other areas of the financial models (such as the Statement of Financial Position and Statement of Cashflows) due to there being much less focus on capital items. This is mainly due to the assumption that new ships are leased and not owned.

28 Earnings before Interest, Tax and Depreciation.

Results

13. A summary of the net private benefits available to ferry operators in FY22 (the first year of operations following the redevelopment of Picton or the construction of Clifford Bay) is summarised as follows.

Table 13: Summary of net private benefits available to ferry operators in FY22

FY22 (nominal)	Redevelop Picton (1)	Develop Clifford Bay (2)	Net Private Benefits (2) – (1)
Revenues:			
Passengers & Cars	87.8	87.8	-
Commercial Vehicle Freight	156.3	156.3	-
Rail Freight	47.7	47.7	-
Other	10.1	10.1	-
	301.9	301.9	-
Operating Costs:			
Fuel	82.0	75.6	(6.4)
Labour	83.4	77.8	(5.6)
Bareboat (lease)	31.4	25.9	(5.5)
Maintenance	14.2	13.6	(0.6)
Dry Dock	9.0	9.0	-
Port Fees	26.3	11.5	(14.7)
Other	35.9	35.5	(0.4)
	282.1	248.9	(33.2)
Net Benefits for Ferry Operators			33.2
Risk Adjustment			60%
Available Port-Co Revenue			20.1

14. The table shows an estimated $33.2 million of private benefits are available to ferry operators with the largest component relating to avoided Picton port fees ($14.7 million). The other large components relate to savings in fuel, labour and bareboat (lease) costs.

15. Following risk adjustment and negotiation, the ferry operators are prepared to make available $20.1 million (or 60%) of the net benefits as port fees. The difference between the total estimated net benefits ($33.2 million) and available Port-co revenue ($20.1 million) can be partially explained by the ferry operators using different macro assumptions and approaches to projecting some items, compared to the Ministry of Transport. For example, the ferry operators adopted different views for foreign exchange rate, CPI and fuel prices.

16. The financial models include a number of common assumptions.

- A port redevelopment (at Picton) / construction (at Clifford Bay) period up to FY21
- A redeveloped Picton port facility / new Clifford Bay ferry terminal operating period from FY22-38
- Cook Strait passenger and car market % growth per annum ranging from (0.4%) in FY14 to 0.5% from FY26 to FY38
- Interisland freight market % growth per annum ranging from 2.1% in FY14 to 1.8% from FY17 to FY38
- No change in market shares over the projection period
- Fuel price per litre increasing in line with oil price projections [29]
- NZ/EUR exchange rate of 0.61 (FY14) falling to 0.50 (FY38) [30]
- NZ/USD exchange rate of 0.79 (FY14) falling to 0.60 (FY38) [31]
- CPI of 2% (per annum) [28]
- Corporate tax rate of 28%

17. These assumptions are also common across both scenarios – Redevelop Picton and Develop Clifford Bay.

Key assumptions - Develop Clifford Bay

18. Key assumptions specific to the Develop Clifford Bay scenario include:

- no induced demand as a result of time savings, however this is taken into account in the economic case
- 11% fuel consumption saving per crossing (on a like for like ship basis)
- bareboat (lease), ship labour (onboard services) and maintenance savings resulting from a change in vessel
- Picton port fees being avoided from FY22
- vessel capacity is not reached over the projection period and does not drive retonnaging decisions

29 Per Ministry of Business, Innovation and Employment, Energy Outlook Modelling, July 2013

30 Per NZIER forecasts

31 Per NZIER forecasts

Redevelopment of Picton

19. A material component of the business case and decision making around Clifford Bay is the counterfactual of remaining at Picton. This would require ongoing investment in Port Marlborough facilities, and the land-side facilities of the two operators. This is especially true of Interislander, who need to invest significantly to transition to a road bridging model. In addition, currently three of the five ships serving Cook Strait are subject to wave height regulation which limits speed on the leg between the entrance to Tory Channel and berth. With Arahura and Aratere replacement in 7 and 12 years, this restriction will apply to all vessels. In combination, this future cost requirement at Port Marlborough and increasing speed restriction has formed part of the rationale for investigating Clifford Bay.

20. The investigation has found that Picton is not expected to fundamentally fail or experience constraint due to asset age/condition or growth in freight volume during the horizon of analysis. This means that while there is an element of risk mitigation inherent in the Clifford Bay proposal, it is mainly an investment in effectiveness and efficiency that substantially reduces the time and cost involved in moving freight and passengers across Cook Strait. When viewed as a sea bridge integral to the strategic road and rail network, the time savings it delivers are orders of magnitude larger than any other enhancements currently under investigation for State Highway 1 or main trunk rail.

21. The costs of remaining at Picton were previously estimated at $160.8 million over 15 years. This high level desktop estimate was made by URS Australia using unit rates applied by Beca in the concept engineering work on Clifford Bay. This work costed a full facility upgrade to levels of function and service utility equivalent to Clifford Bay wherever possible. While it sourced user requirements and input information from Port Marlborough, Interislander and Strait Shipping did not review this work for confidentiality reasons.

22. The investigation has engaged with operators to develop revised costs of $80.6 million over 15 years. The substantial reduction in costs stems from greater clarity around user requirements and the ability to extend the economic life of the existing Port Marlborough infrastructure at a cost that is significantly less than the cost of full renewal – basically an exercise in ongoing incremental asset management to deliver a solution that works but is unlikely to provide a long-term optimal solution. This level of re-investment is regarded as inside the funding capability of Port Marlborough and Interislander (who need to directly invest to implement road bridging). These costs are treated as fully avoided in the develop Clifford Bay option, and are therefore part of the benefit stream associated with Clifford Bay.

Table 14: Summary of costs to redevelop Picton

Picton Capital Cost Estimate (Real FY12)	URS Australia 2012	Commercial Viability Assessment 2013	Change
Shoreside Works[32]	40.4	27.7	(12.7)
Land-side Works[33]	34.6	11.7	(22.8)
Preliminaries, Design Development	26.0	15.3	(10.7)
Contingencies	59.8	25.8	(34.0)
Total	**160.8**	**80.6**	**(80.2)**

23. The table above indicates the majority of savings are made in land-side works, and in contingencies. The commercial viability assessment has built in contingencies of around 32% and has taken the same approach to estimating contingencies across both ferry operators.

Ferry operator statements of intent regarding port fees

24. The Ministry of Transport has negotiated non-binding Statements of Intent (SOI) with KiwiRail and Strait Shipping to assist the government to make a decision on next steps. This is an important element of the investigation as it substantially increases the confidence that fees at this level can be collected, and improves confidence in any future procurement process.

25. Even though they are of different form, most key characteristics of the SOIs are similar and are described below.

- The ferry operator and the Ministry of Transport have shared detailed commercial information and collaborated to determine the hypothetical ferry terminal fee the ferry operator would be prepared to pay to use the Clifford Bay ferry terminal.
- The hypothetical fee has been calculated on the basis that the ferry operator would gain access to infrastructure and services provided by the current concept design (single pier, dual berth facility).
- The hypothetical fee is based on assumptions in the models the Ministry of Transport and the ferry operators have developed.
- The hypothetical fee in the first full year of Clifford Bay operation (assumed to be in FY22) is recorded in the SOI.

32 Relates to all shore-side works such as on berths, wharfs and mooring systems

33 Relates to all land-side works such as on the terminal, marshalling areas, carparks and linkspans.

- The Ministry of Transport and the ferry operator acknowledge that assumptions about the future have been made, and as these assumptions change, so will the hypothetical fee.
- The ferry operators understand that if Clifford Bay gains the necessary approvals and proceeds to the procurement stage, then at the stage an expression of interest is issued to potential constructors, the ferry operators will be asked to commit more fully to Clifford Bay ferry terminal fees if they wish to use the facility once it is operational.
- The SOIs are completely non-binding and do not constrain the ferry operators or the Crown, in any way, from altering or abandoning their position in relation to Clifford Bay.

26. In addition, there are two areas where the SOIs differ materially, as follows.

- Form: The KiwiRail SOI is quasi-legal in its layout and structure, and refers to detailed lists of assumptions and risk perspectives held by KiwiRail at the current time. It also contemplates future process steps that will be relevant if the project progresses, and addresses the concept of competitive neutrality between KiwiRail and Strait Shipping. In contrast the Strait Shipping SOI is a simple letter exchange between the Managing Director of Strait Shipping and the Chief Executive Officer of The Ministry of Transport
- Philosophical Outlook: Both operators have been willing to nominate their Clifford Bay port fee appetite off the back of analysis of their benefit position. However while KiwiRail also records its support of Clifford Bay, Strait Shipping explicitly records that its SOI does not constitute support for Clifford Bay.

27. The SOIs record indicative 2022 port fees, which in aggregate are $23.7 million ($20.1 million of ferry operator fees and $3.6 million of rail fees), as shown in table 12.

Benefits to rail

Approach

28. Gravel Road developed a detailed cost model with KiwiRail Network to estimate the net cost savings (or private benefits) to rail if the ferry terminal was shifted to Clifford Bay.

29. The approach taken for rail differs to the approach taken for the ferry operators in that a largely avoided cost approach is used, that is the costs that will be avoided from not having to operate and maintain rail between Picton and Clifford Bay.

30. Cost savings for KiwiRail Network include:

    - fuel, maintenance and labour savings from running the rolling stock
    - maintenance reduction, and the avoidance of replacement costs from reducing the need for network infrastructure

31. There is also a potential cost of lost business where some services going to Picton will no longer be able to be delivered if the Picton to Blenheim section is shutdown.

32. In undertaking its assessment, Gravel Road considered a number of likely impacts.

    - Rail traffic flowing south will now avoid the Picton to Blenheim section of the track
    - Currently Blenheim generates enough rail traffic to warrant retaining the rail network to it
    - The Picton to Blenheim line can be closed and sold off
    - Northern originating rail traffic to Blenheim and Lake Grassmere will now originate from Clifford Bay
    - A new network section will be required from the Clifford Bay terminal to the existing main line at Hauwai

33. The calculation of change of direct costs is an assessment of the reduction of load from some parts of the network less the addition of load in other areas.

34. It is assumed rail private benefits are collected by Interislander on behalf of rail, and is regarded as being distinct from the Interislander port fee.

Results

35. The following table summarises the estimated private benefits to KiwiRail Network resulting from the ferry terminal being shifted to Clifford Bay.

Table 15: Summary of estimated private benefits to KiwiRail

FY22 $m (nominal)	Net Private Benefit
Direct Savings:	
Fuel savings	2.2
Loco maintenance	1.0
Wagon maintenance	0.4
Infrastructure maintenance	0.7
	4.2
Potential Avoided Costs:	
Loco engineer possible savings	0.3
Avoided Replacement Costs:	
Infrastructure assets	0.5
Lost Revenue:	
Picton revenue lost	(0.1)
Net Private Benefits	4.9
Risk Adjustment	74%
Available Port-Co Revenue	3.6

36. The table shows an estimated $4.9 million of private benefits are available to rail with the largest component being direct savings from fuel and maintenance.

37. Following risk adjustment and negotiation, rail is prepared to make available $3.6 million (or 74%) of the net benefits as Port-Co revenue. The difference between the total estimated net benefits ($4.9 million) and available Port-co revenue ($3.6 million) can be explained by rail using different macro assumptions and approaches to projecting some items, compared to the Ministry of Transport. For example, rail adopted different views on freight volume growth and fuel prices, and only included a subset of Gravel Road savings identified.

38. Gravel Road's analysis is based on KiwiRail Network FY11 wagon and locomotive data and costing information from the FY11 Whole of Network analysis.

39. The direct savings are those areas of costs that will have direct benefit from the stopping or reducing of an activity. Primarily this is fuel and various types of maintenance. The fuel savings amount in the table above has been estimated by linking historical costs to projected increases in fuel price and freight volume growth.

40. Potential avoided costs relate to the loco engineer staff hours. These hours can potentially be translated into savings but the operating requirement for loco engineers is dependent on schedules and timetables. Their employment already has a significant amount of non foot plate time. This saving is listed so that the quantum involved can be identified.

41. Avoided replacement costs relate to the assets on the Picton to Blenheim line that will potentially no longer be required. The avoided replacement cost in the table above is an amortised amount spread equally over 30 years.

42. Lost revenue relates to some services going to Picton that will no longer be able to be delivered if the Picton to Blenheim section is shutdown. The revenue is not enough to justify keeping the line open, however it will be revenue potentially lost to KiwiRail Network.

Key assumptions

43. To determine the cost savings Gravel Road made various assumptions relating to:

- rail section data:
  - rail profile for the length to Clifford Bay
  - gradients (important for fuel calculations)
- wagons:
  - type of wagon replacements
  - movements - return trips across the year and start and finish locations
  - maintenance costs including bogie replacement, wheel lathing and general maintenance
  - chassis replacements
  - kilometres (for estimating maintenance cost) and tonnage (for estimating fuel consumption in combination with gradients)
- locomotives:
  - type of locomotives for weight purposes and fuel consumption
  - maintenance costs including engine, bogie and wheel lathing maintenance and replacement
  - chassis replacements
- locomotive engineer trip timing

- network infrastructure including tunnels, rail track, bridges, culverts, level crossings, yards, sidings and loops, turnouts, signaling, sleepers, ballast and formation
- the connection point for Clifford Bay

Benefits to commercial vehicles

Approach

44. The Ministry of Transport held discussions with a selection of larger commercial freight businesses, the Road Transport Forum New Zealand and NZTA to determine the benefits available to commercial vehicle operators if the ferry terminal was moved to Clifford Bay.

45. The approach taken for commercial vehicles (like rail) differs to the approach taken for the ferry operators in that a largely avoided cost approach has been taken i.e. the commercial vehicle related costs that will be avoided from not having to operate between Picton and Clifford Bay.

46. Direct variable cost savings for commercial vehicle operators include:
    - fuel and oil
    - road User Charges
    - maintenance costs
    - labour

47. As outlined above, it is assumed commercial vehicle private benefits are collected directly by Port-Co, and only from the 75% of commercial vehicle traffic that operates north/south. This is because westbound commercial vehicle traffic receives no net benefit from Clifford Bay. It is assumed this is managed in practice by an approach that discerns between southbound and westbound traffic. It is assumed that in practice this discernment cannot practically be managed from the ship and recovered through ferry operators.

48. The results for commercial vehicle operators is outlined below.

Results

49. Road freight operator feedback and NZTA research indicates direct variable operating costs for a typical heavy commercial vehicle is approximately $2/km.

50. There are currently estimated to be 115,000 vehicle equivalent movements p.a. crossing Cook Strait on the ferry services. Approximately 75% of this volume operates North/South and therefore benefits from Clifford Bay. This subset of road freight volume avoids current direct variable costs of approximately $2/km on 55km per one-way trip in a Clifford Bay scenario. Adjusted for expected increases in road freight volume and the cost of fuel, RUC, maintenance and labour, the net benefits to commercial vehicle operators in 2022 resulting from the ferry terminal being shifted to Clifford Bay is estimated at $15.6 million.

51. We assume these benefits are fully recovered and available as Port-Co revenue and no risk adjustment is required. This is on the basis that commercial vehicle operators indicated they would be prepared to pass on their direct variable cost savings as an increased cost of Cook Strait transit if they were satisfied that rail freight (as a competing mode) was treated in the same manner.

Indifference point and bypass risk mitigation

52. Leaving some economic surplus with commercial vehicle operators is key to confidence around the ability to collect Clifford Bay revenue at forecast levels, as is only charging commercial vehicle traffic that benefits from Clifford Bay (i.e. north/south, not westbound). This approach substantially reduces the economic incentives for (and therefore the risk of) a third operator establishing at Picton and taking commercial vehicle volume away from Clifford Bay.

53. A levy based on avoided direct costs is expected to be inside the indifference point of commercial vehicle operators, as it represents only a portion of their overall benefit. On a full costing basis, a representative vehicle costs approximately $3/km. In addition, although difficult to monetise in the near term, commercial vehicle operators receive improved flexibility in managing freight windows, improved schedule reliability and geographic reach intra-day, and improved capital utilisation. No costs to collect the levy have been deducted from the levy itself. This will need to be estimated as part of next steps if Clifford Bay proceeds.

Key assumptions

54. To determine the cost savings a range of assumptions were made relating to:
    - the number of trucks travelling north and south
    - fuel prices and fuel consumption
    - variable costs of RUC, maintenance and labour
    - growth in freight volume over time

Reduced travel time for freight and passenger users

Freight users

55. In general, only clearly avoided and directly attributable variable operating cost or capital cost savings have been taken into account to determine the revenue available from freight users. This approach was taken for a number of reasons.

56. The freight logistics network is organised and coordinated around existing time-gates and schedule reliability is good enough for disruption costs to be acceptably low.

57. The introduction of a significant time saving into this existing time-gate structure creates no value unless that structure adapts to take advantage of the time saving. The nature, cost and benefit of that adaptation is uncertain. Road and rail freight users have therefore acknowledged the likely presence of value but without a clear view of how much value or how it can be accessed. They have therefore not been willing to volunteer payment for it. It is therefore a benefit that cannot be monetised at this stage.

58. The investigation is of the view that in the context of a 50 year operating horizon, the logistics network would adapt reasonably quickly (i.e. within a few years) to fully absorb and make productive use of the time benefits, with the more sophisticated and flexible firms being able to do that faster than others, and gain temporary advantage. The benefits are likely to occur in areas such as improved flexibility in scheduling, improved safety and fatigue management through reduced logged driver time, improved flexibility in managing freight windows and improved schedule reliability, geographic reach, and improved capital utilisation. We expect those benefits to flow to the end consumers of freight services reasonably quickly. In summary:

    - due to uncertainty about how the logistics network would initially adapt to capture and benefit from time savings, the ability to monetize these benefits is low
    - given the robust competition between and among road and rail freight modes, we expect that as the logistics network adapts to benefit from these savings, competition would quickly deliver these benefits to end users as superior service and greater inter-regional connectivity
    - we believe these benefits are real and of material value to NZ Inc through the described flow-on effects they have therefore been captured in the economic case using the NZTA EEM as the guiding methodology for quantification

Passenger users

59. Overall passenger numbers on the Cook Strait ferry service have been static to declining over the last decade, with foot passengers numbers in strong decline, offset by modest growth in passengers accompanying cars.

60. Competitive price air travel is an alternative mode that provides major time savings at a modest incremental price for passengers not requiring a car or the "sounds experience". The strong decline in foot passengers is attributed to this increase in competition from air passenger services to Picton, Blenheim and Christchurch.

61. Unlike freight, where the fundamentals of supply and demand drive a dominant north/south flow that benefits significantly from Clifford Bay, passengers as an overall group exhibit a far more diverse destination and benefit equation that is less well understood.

62. The location of Clifford Bay results in a different benefit equation for passengers depending on their origin or destination in the South Island. Those travelling to points south of Clifford Bay benefit from both the shorter ferry journey and shorter road journey. However those travelling to Blenheim, the Marlborough Sounds and points west face a longer road journey.

63. It is estimated that less than 50% of ferry passengers have an origin or destination point south of Clifford Bay and it is only these passengers that will accrue the full travel time and distance benefit of a move to Clifford Bay.

64. Given the factors above, it is assumed it would be difficult for ferry operators to increase their charges to passengers given not all passengers benefit from a move to Clifford Bay. It is also assumed passengers would have limited appetite to pay increased fares given competition from airlines.

65. On this basis, no private benefits are assumed for private passengers from a move to Clifford Bay.

Key uncertainties

66. Confidence levels on our estimates of net private benefits are impacted by the following key uncertainties.

    - The difficulties involved in determining optimal fleet configuration for ferry operators taking into account capacity contraints across certain time gates and uncertainties around availability of certain vessel types.
    - The difficulties involved in determining at what point vessels will reach capacity given demand growth and other dynamics.
    - The estimates of Picton capital redevelopment costs are preliminary and not supported by detailed engineering design and costings.

- The difficulties in estimating fuel savings due to the complex relationship between various alternative operating regimes and fuel consumption.
- Uncertainty around future exchange rates and oil price projections.

67. The sensitivity of the financial case to different levels of revenue from operators and major users is tested in the following chapter describing on Port-Co Viability assessment.

Reconciliation with previous work completed

68. A reconciliation of the private benefits as per the Business Case prepared in 2012 is outlined below.

Table 16: Reconciliation of private benefits 2012 and 2013

User group	Private Benefits FY22 (nominal)		
	Ministry of Transport commercial viability assessment 2013	Preliminary business case 2012	Difference
Ferry Operators	33.2	58.1	(24.8)
Rail	4.9	2.9	2.0
Commercial Vehicles	15.6	6.7	8.9
Private Passengers	0.0	0.8	(0.8)
Total	53.7	68.5	(14.8)

69. The 2012 work concluded a prima facie positive financial case existed using private revenue sources, however noted risks around the ability to monetise private benefits fully in a commercial context.

70. The main areas where benefit assessment has changed significantly are as follows.

- Costs to redevelop Picton were assumed at $160.8 million in 2012. Using the URS Australia report as a basis for analysing the investment requirement with both operators, we now believe this to be $80.6 million.
- Modest Cook Strait freight demand growth and substantial surplus capacity in the existing Cook Strait fleet means the requirement for incremental capacity (i.e. additional ships) does not occur in the 25 year horizon of analysis. This means capital expenditure decisions are driven more by end-of-life replacement as existing fleet components reach an age where they can no longer economically meet regular survey requirements. This means Clifford Bay tends not to defer the requirement for new tonnage, but instead creates an opportunity for second order optimisation when a ship needs to be replaced due to age.
- The KiwiRail decision to use road-bridging allows them to use cheaper second hand RoPax vessels. This means that within 15 years, all expensive rail-enabled vessels will have been retired and the replacement costs are well below what has been previously assumed. This reduces any remaining capital timing benefit significantly.
- The ability to fully monetise the theoretical benefits. Risk adjustment has been applied by the operators to benefit areas that are uncertain or risky. This was identified in 2012 as likely, and in many cases is reasonable. It does however raise the issue of significant public wealth transfer to commercial participants if the project proceeds.
- Assessment of commercial vehicle net benefits in 2012 assumed around half of the direct savings are realised, compared to 100% in this 2013 assessment.

Private beneficiary risk adjustment

71. The financial case outlined in the following chapters is assessed after adjusting private benefits downwards for the risk adjustment applied by those private beneficiaries. This is then regarded as the revenue available to Port-Co. The inclusion of this risk adjustment directly increases the funding gap discussed in the following section.

72. If the government considers investing to address the funding gap and sharing in market risk, it is appropriate to consider the risk that private beneficiaries could receive a significant economic surplus or risk reduction for which they are not paying fair value. It is also appropriate to consider the extent to which this risk might be managed and minimised in the development phase, if the project proceeds. There are a number of elements to this.

Differences in underlying benefit assessment (assumptions, approach, uncertainty)

73. The investigation estimates the FY22 ferry and rail benefits of Clifford Bay to Interislander/KiwiRail and Strait Shipping at $38.1 million, and regards the aggregate risk adjustment applied in the SOIs to be $14.4 million or 38%, leaving aggregate indicative ferry operator and rail port fees at $23.7 million or 62% of the benefit.

74. The operators themselves regard this same $23.7 million as representing 75% of the benefit because they assess the benefits at $31.5 million. This is due to differences in assessment approach, differences in treatment of uncertainty, and differences in future foreign exchange rate and oil price assumptions (see the following table).

Table 17: Benefit assessment and risk adjustment

Operator FY22 (nominal)	MoT assessed benefit	Operator assessed benefit	Indicative port fee or rail levy	MoT assessed risk adjustment	Operator assessed risk adjustment
Interislander	$24.9m	$21.3m	$15.0m	60%	70%
Strait Shipping	$8.3m	$6.6m	$5.1m	61%	77%
Rail	$4.9m	$3.6m	$3.6m	73%	100%
Total	$38.1m	$31.5m	$23.7m	62%	75%

75. This illustrates that if the project proceeds, the private beneficiaries will hold different views about the benefit of Clifford Bay for a variety of legitimate reasons, and that in prudently managing their business they may regard a certain port fee level as far nearer their indifference point than does the Crown. This differing context for assumption and decision making is not normally observable in a negotiation, but is in this case because of the highly detailed and comprehensive nature of the joint analysis that has been undertaken.

Competitive neutrality and process failure risk

76. Both Strait Shipping and KiwiRail are very highly focused on competitive neutrality as a concept. Competitive neutrality means that if Clifford Bay proceeds, the transition from Picton is not to alter the relative competitive position of Strait Shipping vs Interislander, or road freight vs rail freight. This means that to evolve and negotiate the indicative port fee of each business into a firmer and ultimately binding position, the Crown – if it chooses to proceed – can expect to have to demonstrate to both entities that the arrangements are competitively neutral. This will be complex due to the fact that both businesses have differing views about what drives benefit and advantage, and about future market assumptions and risk.

77. There is a risk that one party hedges against a risk they perceive that the other will receive a competitive advantage in the transition to Clifford Bay. They will do this by adjusting down their port fee appetite in a manner unrelated to their own benefit position. This has the potential to cascade into process failure through a series of escalating operator counter-responses. The primary mitigation to this is development of an appropriate probity function that can provide independent assurance to both businesses that the negotiated outcomes between the Crown and each operator does not confer a competitive advantage on one over the other. This is expected to involve assurance that the variable portion of the port fee regime is the same for each party on a unit rate basis, and that the fixed portion of the regime adequately reflects the benefits they each receive in moving from Picton.

78. As it currently stands, the indicative port fees from operators represent a broadly competitive neutral outcome, however a competitive distortion would occur if road and rail freight were charged at the levels assumed in the Port-Co viability assessment, to the detriment of road freight. This is likely to be resolvable if agreed road and rail freight levies are structured to allow them to follow actual New Zealand fuel price movements over time.

Table 18: Competitive neutrality

Operator/User	MoT Assessed % of Benefits Offered	Competitively Neutrality	Comment
Interislander	60%	Slight advantage	Interislander will need to increase the proportion of benefits they offer to avoid a slight competitive disadvantage accruing to Strait Shipping
Straight Shipping	61%	Slight disadvantage	This will likely be resolved if all parties adopt the same assumption set for foreign exchange and fuel, and Picton avoided capital cost recovery
Rail Freight	73%	Material advantage	Rail Freight will need to increase the proportion of benefits they offer to avoid a competitive disadvantage accruing to Road Freight
Road Freight	100%	Material disadvantage	This will likely be resolved if Rail fully adopt the independent assessment of their Clifford Bay benefit, and all parties adopt the same assumption set for foreign exchange and fuel

Risk profile over time

79. Risk adjustment in some cases is a response to future uncertainty. This means that it is reasonable to expect some risk adjustment to fall away as that uncertainty dissipates. This could result in port fee appetites that increase over time. Conversely, it is important to recognise that some risks impact heavily if they manifest and have not been priced at this stage. Ability to cleanly transition from existing Port Marlborough arrangements is a prime example.

Public wealth transfer

80. Currently the indicative port fee appetites of Strait Shipping and Interislander/KiwiRail represent 60% of the benefits Ministry of Transport assess that they will receive. If port fees are negotiated to a binding stage at around these current levels and the government invests to fill the gap, a wealth transfer from public to commercial beneficiaries in the order of pre-tax present value of $100 million could be expected. This would flow approximately 23% to Strait Shipping and 76% to KiwiRail with port fees and rail freight levy at their current settings.

Summary

81. The following points summarise the discussion on private beneficiary risk adjustment.
    - Risk adjustment has been applied by ferry operators and rail freight in communicating indicative fees.
    - Modelling Port-Co viability using this risk adjustment increases the gap that the government must fund if it wishes the project to proceed, but increases confidence levels that fees at this level can be collected.
    - Evolving indicative fees into binding arrangements will be challenging and will require demonstration of competitive neutrality.
    - All else being equal, the uncertainty that reduces the planning confidence of Strait Shipping and InterIslander/KiwiRail should reduce over time and there is a reasonable prospect this may enable fees at a higher level to be negotiated. Countering this, the risks around transition from the commercial arrangements with Port Marlborough may cause KiwiRail to withdraw completely.
    - In considering the overall balance of these risks and dynamics, the investigation is of the view that the government should use the current risk adjusted indicative fees for sizing and defining its direct investment role and business case if it wishes to proceed.
    - The risk that an economic surplus is delivered to private beneficiaries through direct government investment is minimised by transparently addressing and maintaining competitive neutraility in port fee negotiations, structuring road and rail freight levies to track actual key cost drivers over time, and focusing early in the development phase on large risks which drive large risk discounts.
    - Significant public wealth transfer is likely to occur despite use of these strategies to minimise it.

Port-Co commercial viability assessment (financial case)

Introduction and summary

- As outlined in the Structure of the Analysis section above, a conceptual port company called Port-Co is used to assess Clifford Bay commercial viability. Port-Co is the port developer/owner/operator business that is the focus of the financial case for Clifford Bay. The financial case assesses whether Port-Co generates adequate commercial return for private investors and finds that it does not. This then sets the scene for the discussion and definition of the role of government, if it wishes to proceed with the project.
- From concept engineering and costing work undertaken in 2012, Clifford Bay is expected to cost $434 million ($2014) to build.
- Market sounding indicates private sector funding is available for a 25 year term. The blend of debt and equity applied to the project is assumed to cost 8% (post tax real) and be exposed to low levels of risk and volatility for planning purposes.
- In the first year of operation, approximately $45.4[34] million of revenue is expected to be available to Port-Co, and this is expected to grow in real terms as a partial function of volume growth over time.
- In applying expected costs and revenues to a viability test with a horizon that starts at the commencement of the build phase and runs for 25 years of operation, private investors would earn an financial return of 3% on funds that cost them 8%, and therefore suffer an financial loss of $118 million. Therefore the level of revenue available does not provide a normal financial return for private investors, and Clifford Bay cannot be viably delivered using only private funding sources.
- It is expected that for the project to proceed, the government would need to invest $34 million in the development phase, and $176 million as a contribution to construction costs in 2018-2020 ($2014). This has an financial cost of $103 million in present value terms.

1. This chapter describes the financial case for Port-Co, the entity assumed as building, owning and operating Clifford Bay, and assumed as having access to the private revenue described in the previous chapter. A simplistic but indicative funding model is used to determine if private sector owners of Port-Co would earn an appropriate financial return given the overall characteristics of the project. This enables a conclusion to be reached on whether Port-Co is viable as a project delivered by private sector investment, supported by private revenue. This then sets the scene for the discussion on the government role, if the government wishes to proceed.

34 Includes $39.3m of revenue from users and $5.5m of terminal and facilities revenue.

Clifford Bay costs

2. The table below summarises the costs required to develop and operate Clifford Bay. Construction and operations and maintenance costs are taken from the Beca and Deloitte 2012 work on concept design and cost of operation, inflated to 2014 dollars at CPI. The costs associated with securing land access, project approval, and the procurement process have been estimated in this investigation stage using relevant expertise and experience from other large project developments.

3. Nominal amounts have been added for non-recurring major maintenance, and also for capital life extension, replacement or improvement. This step has been taken recognising the nature of the physical operating environment and the likely evolution of user requirements and technology improvement over the life of the facility. These amounts also provide a contingency against the core operating and maintenance allowances being too low.

Table 19: Clifford Bay costs

Cost category	Cost $2014	Comment	Present Value[35] 2014
Pre-construction costs	$34.3m	Costs to secure land, gain project approvals, and run procurement process	$28.6m
Construction capital	$434m	Beca/NZTA 2012 concept design and costing, incurred 2018-2021	$275m
Port core operations and maintenance	$4.5m p.a	Annual cost of breakwater maintenance, dredging etc, commencing 2022.	$36.2m
Terminal facilities and operations	$4.7m p.a	Annual cost of land-side facilitiy operation, commencing 2022.	$37.4m
Port periodic major maintenance	$3m periodically	Nominal allowance every 5 years for major unplanned maintenance or repairs. Starting 2026.	$3.7m
Capital renewal or improvement	$10m periodically	Nominal allowance every 10 years for renewal, life extension, or improvement. Starting 2032.	$4.9m
Tax		Annual tax credit on operating costs and depreciation (ignored in assessment of government position)	($34m)
Total (50 years)		Overall present value of all costs associated with developing, constructing and operating Clifford Bay	$351.8m
Total (first 25 years)		As above, first 25 years only.	$342.8m
Total (first 25 years excluding development phase)		Present value all costs of Clifford Bay first 25 years excluding the development phase expenditure.	$314.2m

35 Port-Co viability assessment uses a discounted cashflow model with a 50 year operating horizon, no terminal value, and an 8% post tax real discount rate.

4. It is important to note that no work has been undertaken as part of this investigation phase to further refine costs or confidence levels around costs. This is because the investigation has been about the availability and adequacy of revenue. Furthermore, estimated costs are theoretical values that will be replaced by the actual cost information discovered in the competitive procurement process if the project is taken to market.

Clifford Bay revenue

5. A summary of the present value of the private revenue available to support development and operation of Clifford Bay, broken down by payment counterparty, is shown below. For information, the revenue available in FY22 (assumed to be the first full year of operation) is also shown.

Table 20: Summary of private revenue

Counterparty / Other	FY22 Revenue	Comment	Present Value 2014
KiwiRail	$15.0m - IIL $4.3m - Rail	Interislander port fees reflecting ferry benefits, and cost savings to rail.	$103.0m - IIL $30.1m - Rail
Strait Shipping	$5.1m	Strait Shipping port fees reflecting ferry benefits.	$35.0m
Commercial Vehicles	$15.6m	Cost savings to North/South commercial vehicle traffic, collected direct by Port-Co	$124.3m
Terminal & Facilities	$5.5m	Revenue from terminal and facilities	$37.4m
Tax		Annual tax cost on revenue (ignored in assessment of government position)	($92.3m)
Total (50 years)		Overall present value of all Clifford Bay revenue	$237.4m
Total (25 years)		Overall present value of all Clifford Bay revenue (first 25 years only)	$196.7m

Private funding characteristics

6. From the 2012 market sounding exercise, we believe investment interests exists for relatively stable returns over a 25 year term, with the blend and cost of available debt and equity giving the project an overall cost of capital of 8% post tax real for planning purposes.

7. This means that in assessing the viability of Port-Co as a privately funded project, the net return available over the build phase plus 25 full years of operation is the key test. In undertaking this test, no material risk premium is factored into the cost of funding, reflecting the assumption that private investors are not materially exposed to volume risk.

Viability conclusion (privately funded)

8. The following summarises the viability assessment assuming a private funding model. It indicates the assessment a private investor consortium would make as they evaluated Clifford Bay.

Table 21: Private assessment of Clifford Bay viability

Aspect	Comment	Present Value 2014
Revenue	Present value of all post tax revenue, build phase plus first 25 years. (From Table 20)	$196.7m
Cost	Present value of all post tax costs, build phase plus first 25 years. (From Table 19)	$314.2m
Return	Net Present Value of project, build + first 25 Internal Rate of Return, build + first 25	($117.5m) IRR 3.0%
Breakeven	How much of the Clifford Bay construction could be privately delivered given the amount of private revenue available and its full costs of operation?	56%

9. This shows that Clifford Bay cannot be viably delivered using only private funding, and that a procurement process using this model would fail. That is because it generates insufficient private revenue to provide a normal financial return to private investors.

SECTION 3 | GOVERNMENT ROLE

Investment gap
Economic case
Public policy considerations and economic merit
Configuration of Government investment
Business case summary

Investment gap

Government investment requirement

1. On the basis of the findings of the Port-Co commercial viability assessment, we conclude the project is only able to move to consenting / procurement if the government is prepared to play a material direct investment role in project development and delivery.

2. We estimate the government will need to invest approximately $34m in the development phase, approximately $176 million in FY2018-20, or provide approximately $26 million per annum FY 2022-47 as an availability payment, for the project to proceed. Note these numbers are expressed in 2014 dollars.

3. The table below shows this same expenditure in nominal dollars, for the up-front investment option. This totals $231 million - $36 million in the development phase and $195 million in the construction phase.

Table 22: Nominal costs of government role in development phase and construction

Phase	2014	2015	2016	2017	2018	2019	2020
Development	$1.7m	$8.0m	$8.5m	$7.7m	$10.1m	-	-
Construction	-	-	-	-	$23.5m	$95.8m	$76.0m

4. In 2014 present value terms, the discounted present value of this enabling investment requirement is $103m, as shown in the following table.

Table 23: Present value of government role

Aspect	Comment	Present Value 2014
Preconstruction Cost	Value of all preconstruction costs.	$28.6m
Net Gap during Private Investment Horizon	Value of all revenue, first 25 years. LESS Value of all costs, build phase plus first 25 years.	$117.5m
Total Up-front Government Investment to Induce Private Investment	Value of preconstruction costs plus economic shortfall first 25 years.	$146.1m
Payback to Government	Value of project cashflows, years 26 to 50	($43.5m)
Overall Financial Investment	Costs of government role in direct investment (Investment Gap)	$103m

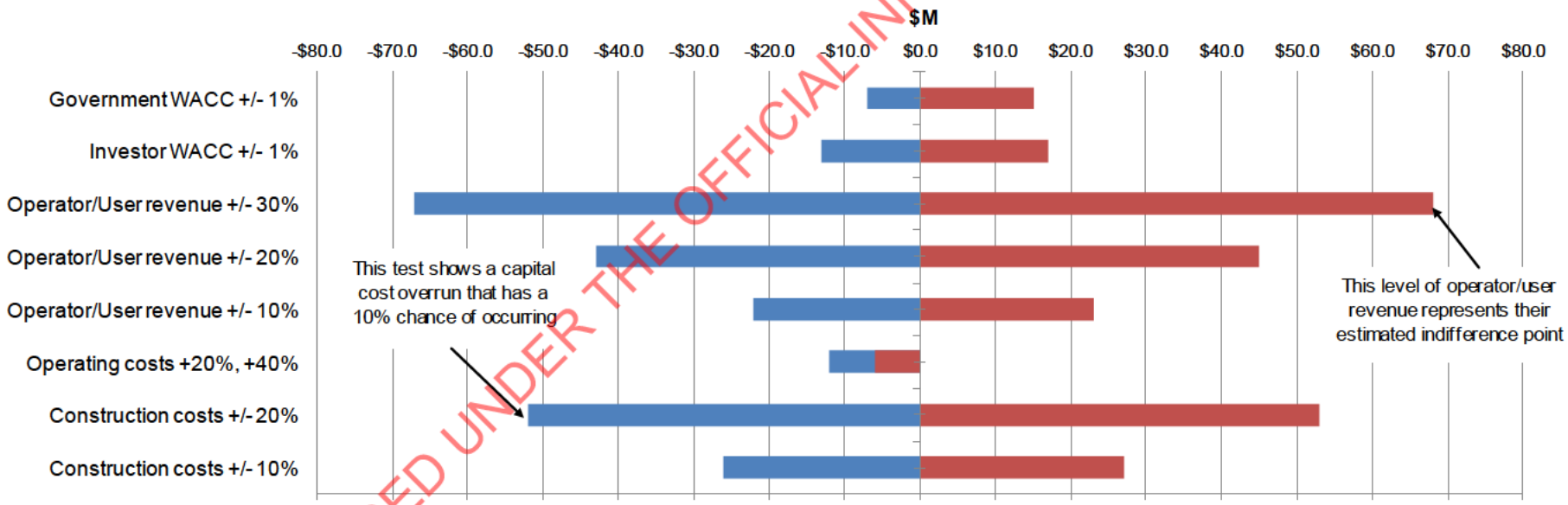
5. Based on the 2012 market sounding exercise, the government would also need to share in credit and freight volume risk.

6. The government investment depends on final scheme cost and the final annual ferry terminal fees that can be collected from operators and users, and therefore the expected cost of the role could change materially in the project development phase. However the level of actual investment would be well defined before the commencement of construction.

Sensitivity analysis

7. The net present cost of the government investment requirement is sensitive to large changes in construction costs, and the level of revenue expected from ferry operators and major freight users. Note that the P90 construction cost ($521 million ($2014)) is shown in the capital cost +20% test. Note also that the approximate effect of removing all risk adjustment from ferry operator and rail revenue estimates sits around the operator/user revenue +30% test.

Figure 15: Tornado Plot - change in government NPV from baseline estimate of ($103m)



Economic case

Introduction and summary

- Along-side the financial case, the economic case uses NZTA's National BCR methodology as outlined in their Economic Evaluation Manual to undertake a conventional Cost Benefit Analysis (CBA) from the perspective of the government. This identifies some benefits that are not in the financial case because they cannot be easily attributed to and collected from private entities, and flow more broadly to the economy as a whole.
- The analysis indicates that the Clifford Bay project produces an economic surplus with a net present value of $108 million and a benefit cost ratio of 1.3.
- The largest component of project benefits are road freight impacts comprising time, vehicle operating costs and externality benefits, which jointly represent 30% of project benefits. The next largest contributors to project benefits include reduced ferry operating costs (23%) and Picton terminal related benefits (21%). Other significant benefit categories include rail freight benefits and passenger benefits.
- Supporting the findings of the conventional cost benefit analysis are Wider Economic Benefits (WEBs) of $36.5 million (in present value terms). These are additional to conventional benefits of $485.8 million and are derived from agglomeration benefits (productivity improvements through the bringing together of economic activity) of $18 million and competition effects not assessed in the CBA (distribution of marginal cost changes through the economy) of $18.4 million.
- The summary of cost benefit analysis table and the WEBs table summarise the economic analysis findings.

1. The economic case (public benefit perspective) complements the financial case (private benefit perspective). The principal objective of the economic case is to assess the level of benefits that may be delivered by the project to the national economy as a whole. The economic case therefore takes a broader view of the potential benefits of the project – from the perspective of society and the wider economy.

2. The economic analysis aims to identify and compare economic and social benefits accruing to the economy as a whole, setting aside monetary transfers between stakeholders in the project. Where the financial analysis compares benefits and costs to the enterprises involved, the economic analysis compares the benefits and costs to the whole economy.

3. In addition, the economic case covers the costs and benefits of goods and services that are not sold in the market and therefore have no market price - in other words externalities and other indirect costs and benefits.

4. This chapter summarises the results of the Ministry of Transport's report "Clifford Bay Further Investigation: An Update of the Economic Case", 2013.

Cost benefit analysis

Table 24: Summary of cost benefit analysis

Item	2013 Update[36]	
	Present value (2014 $m)	%
Costs	*2014 - 2071*	
Pre-construction costs (including land acquisition)	28.6	8%
Capital costs	280.0	74%
Operating & maintenance costs	69.0	18%
Sub total – Costs	**377.5**	**100%**
Benefits	*2018 - 2071*	
Passenger market – value of time	52.1	11%
Passenger market – vehicle operating costs	6.7	1%
Road freight – value of time	58.8	12%
Road freight – vehicle operating costs	84.6	17%
Rail freight – value of time	11.8	2%
Rail freight – operating & maintenance costs	39.5	8%
Rail freight – infrastructure benefits	9.5	2%
Ferry – operating & maintenance costs	108.7	22%
Induced freight traffic benefits	0.9	0%
Road maintenance costs avoided	2.9	1%
Road safety impacts	3.6	1%
Greenhouse gas emissions avoided	4.2	1%
Picton operating costs avoided	33.9	7%
Picton infrastructure costs avoided	68.8	14%
Sub total – Benefits	**485.8**	**100%**
Net present value ($ m)	**108.3**	
Benefit cost ratio (ratio)	**1.29**	

36 Two evaluation approaches have been undertaken for the economic analysis: a) 30-year evaluation from construction commencement, including residual value, in accordance with NZTA EEM guidelines; and b) 58-year evaluation covering the pre-construction period, the construction period and the assumed 50-year economic life of the facility. Both methods result in the same NPV and BCR outcome. The 58-year evaluation period is presented for reporting purposes, unless otherwise stated.

Figure 16: Cost benefit analysis – benefit distribution

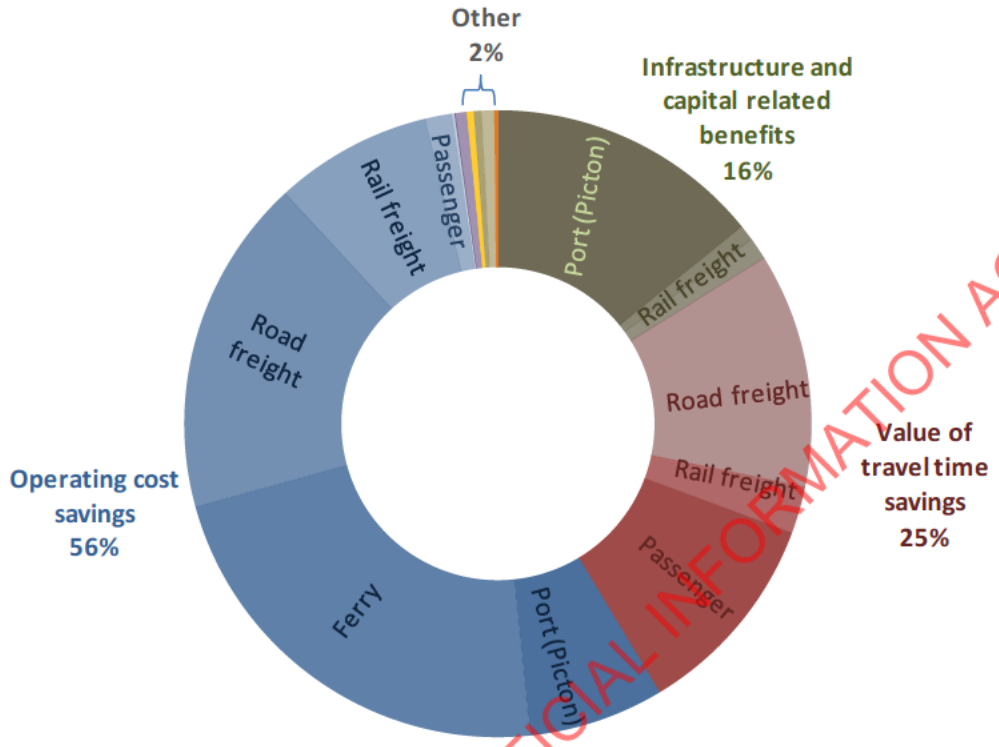
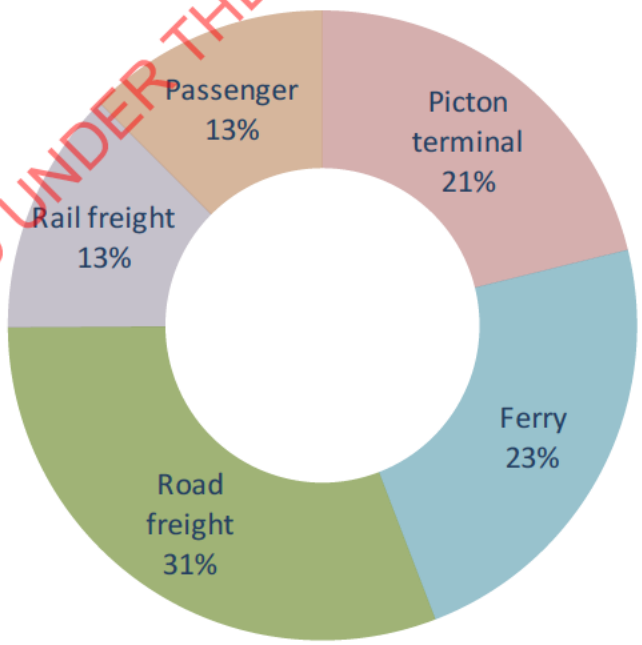


Figure 17: Cost benefit analysis – benefit distribution by beneficiary



Approach

5. The economic case assesses the incremental costs and benefits of the development of Clifford Bay as compared with the base case – being the "do minimum" scenario of staying at Picton.

6. In general, the approach recommended in the NZTA's EEM has been used to guide the economic evaluation. Where appropriate the methods recommended in the EEM to valuing individual elements of the conventional cost benefit analysis component of the economic evaluation have been used. However as the EEM has been developed primarily for the purposes of evaluating road and public transport infrastructure projects, a number of elements within the Clifford Bay investigation, such as maritime and rail freight, are not considered in the EEM. In these circumstances alternative methods, including direct estimation of costs, have been used. The approach taken to the valuation of individual elements is described in each section below.

7. As noted above, two evaluation approaches have been undertaken for the economic analysis.

    a) 30-year evaluation from construction commencement, including residual value, in accordance with NZTA EEM guidelines

    b) 58-year evaluation covering the pre-construction period, the construction period and the assumed 50-year economic life of the facility

8. Both methods result in the same NPV and BCR outcome. The 58-year evaluation period is presented for reporting purposes, unless otherwise stated.

9. Sensitivities have been applied to key variables to ascertain the level of influence each variable has on the outcome and to address the potential for inaccuracies within underlying assumptions.

10. Many of the 'direct' costs and benefits identified in the conventional cost benefit analysis are transformed into other 'indirect' effects as individuals respond to improvements in the transport system delivered by the project. Time and cost savings to firms may result in lower prices, higher wages or increased profits. An assessment of WEBs has therefore been undertaken as part of the economic case to quantify these second order effects on wider economic activity. Specific benefits assessed include agglomeration benefits (the benefits that firms obtain by being closer to each other), improvements to labour productivity and supply, and benefits from the flow on effect of marginal cost changes to the rest of the economy (the effects of imperfect competition which are not identified in the conventional CBA).

General assumptions

11. The general assumptions used in the economic evaluation are consistent with the financial case unless otherwise specified.

Table 25: General assumptions

Parameter	Approach	Comments
Cash flows	Annual	July to June year
Base year (Year 0)	2014	This means all Present Values (PVs) refer to FY2014.
Dollar values	2014	2012 dollars are updated to 2014 dollars using CPI and wage inflation forecasts obtained from the NZ Treasury. All estimates are tax and GST exclusive (unless otherwise indicated).
Project start year	2018	2019 and 2020 are used as alternate start years in sensitivity analysis.
Evaluation period	a) 30 years b) 58 years	In accordance with EEM, 30 years from project start year. To cover economic life of facility and for presentational purposes.
Residual value	Included in 30-year evaluation method	Two methods used: (i) Discounted net benefits for remaining years (default method) (ii) Discounted net financial benefits for remaining years
Discount rate	8% real	In accordance with NZ Treasury's recommendation. Sensitivity test were applied at 6% and 9%.

Demand assumptions

12. The assumptions in relation to current and projected demand for freight and passengers are as described in the freight and passenger demand chapter and are consistent with the financial case unless otherwise specified.

Costs

13. Capital costs for the Base Case and Clifford Bay scenarios are as described in the Port-Co viability assessment chapter.

14. Port operating costs are as described in the Port-Co viability assessment chapter. Port operating costs are considered to be higher at Clifford Bay due to, inter alia, breakwater maintenance, offshore dredging and disposal, and higher insurance costs.

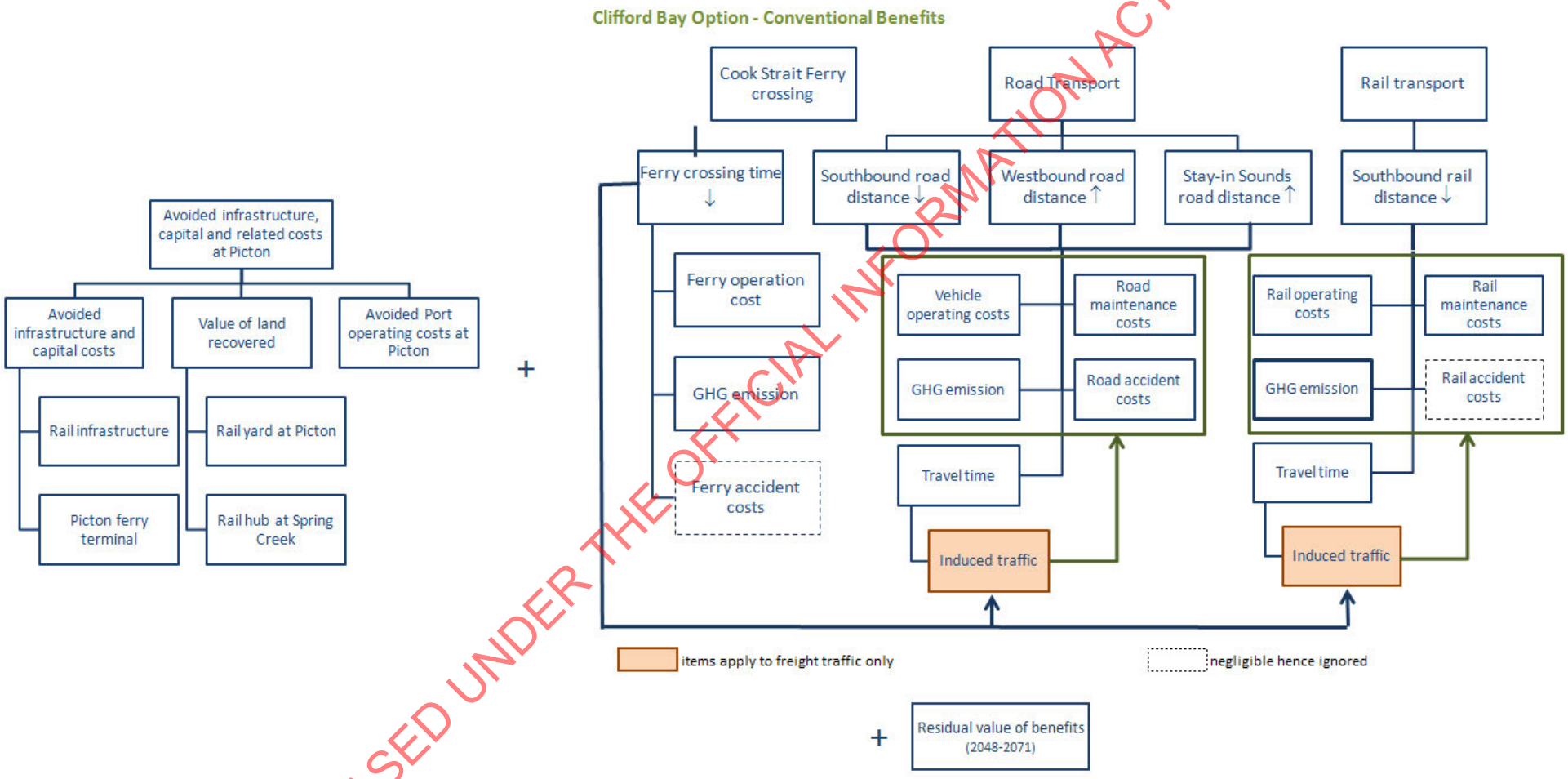
Benefits

15. Benefits assessed as part of the cost benefit analysis are illustrated in Figure 18.

16. The conventional benefits of the Clifford Bay scenario can be classified into seven broad categories.

    a) A reduction in travel time to freight and passenger users.
    b) A reduction in transport vehicles or vessels' operating costs.
    c) A reduction in safety and environmental costs due to a reduction in travel distance.
    d) A reduction in infrastructure costs.
    e) Induced demand from the freight sector resulting from travel time reduction.
    f) Residual value of the project – valued as the net benefit streams accruing to the project beyond the evaluation period.
    g) Other benefits (e.g. Picton infrastructure costs avoided, value of land recovered from Picton).

Figure 18: Schematic of benefits included in the conventional cost-benefit analysis



Sensitivities

17. Monte Carlo simulation[37] was used to estimate the range of the NPV and BCR results. The broad orders of magnitude of net-benefits for each option are relatively stable. With 90% confidence, the range of NPV is between $85 million and $132 million and the range of BCR is between 1.23 and 1.35.

Table 26: Confidence intervals of the conventional CBA results

Evaluation period: 2014 to 2071	NPV	BCR
Minimum	$63.3 m	1.17
5th percentile	$85.3 m	1.23
Mean	**$108.0 m**	**1.3**
95th percentile	$131.9 m	1.35
Maximum	$158.9 m	1.42

18. These figures are the result of Monte Carlo analysis considering the probability of occurrence. This table excludes changes in project start year, capital costs, discount rate and residual value method.

19. Testing alternative discount rates indicates the benefit cost ratio would improve to close to 1.6 under a discount rate of 6% and reduce to less than 1.2 under a discount rate of 9%.

20. Assessing the effects of variables not related to project valuation, i.e. (project start year, capital costs, discount rate and residual value) the sensitivity analysis found that:

    a. the NPVs and BCRs are moderately sensitive to freight growth assumptions with the BCR changing by <10% under both the high and low growth scenarios

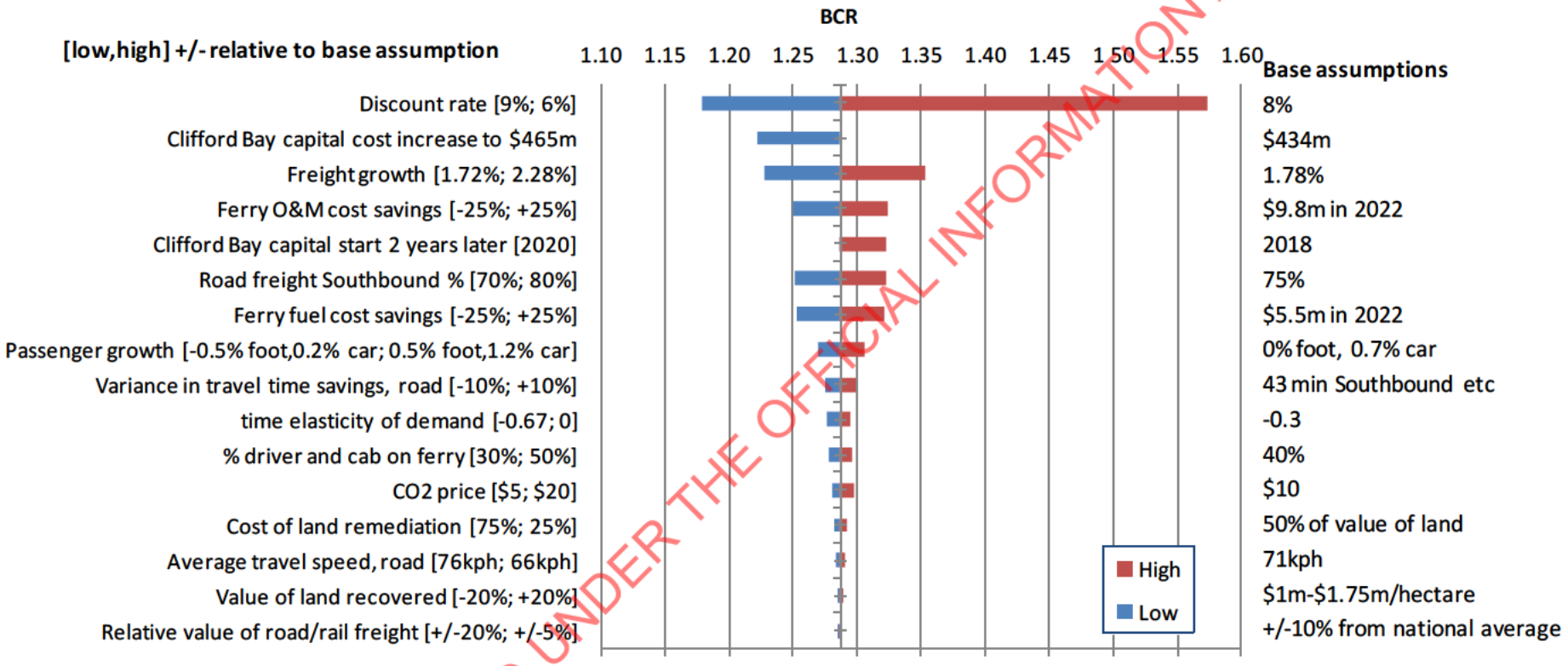
    b. the NPVs and BCRs are also only moderately sensitive to the proportion of road freight vehicles which travel north/south

    c. assumptions around passenger growth and variation in the value of travel time have a relatively small effect on the NPV and BCR

37 Monte Carlo analysis is a risk modelling technique that uses statistical sampling and probability distributions to simulate the effects of uncertain variables on model outcomes. This simulation was carried out using @Risk programme.

21. The effects on BCR from a range of sensitivity tests on key variables is shown in the tornado chart in the figure below. The nature of the tests and the base assumptions are shown on the left and righthand sides of the chart.

Figure 19: Tornado plot - BCR sensitivity from base value of 1.29



Wider economic benefits

Overview

22. WEBs, including agglomeration, accounting for imperfect competition effects, labour supply and employment redistribution benefits, are productivity gains that are additional to the conventional Cost Benefit Analysis.

23. Estimates of WEBs generated by the relocation of the ferry terminal to Clifford Bay are summarized in the Table below.[38]

Table 27 : Wider Economic Benefits

Benefit category	Annualised 2022 2014$	Present value 2022 – 2071 2014$
Agglomeration effect	$2.5m	$18.0m
Imperfect competition effects	$2.4m	$18.4m
Labour market effects	$0.0m	$0.0m
Total	**$4.9m**	**$36.5m**

Source: Steer Davies Gleave, 2013, Clifford Bay Economic Evaluation – Wider Economic Benefits

Conclusion

24. The analysis indicates that the Clifford Bay project produces an economic surplus with a net present value of $108 million and a benefit cost ratio of 1.3.

25. Analysis of a range of key variables indicates that the project is relatively stable against changes in these variables. With 90% confidence, the range of NPV is between $85 million and $132 million and the range of BCR is between 1.23 and 1.35.

26. Supporting the findings of the conventional cost benefit analysis are WEBs of $36.5 million (in present value terms). These are additional to the conventional benefits, and are derived from agglomeration benefits (productivity improvements through the bringing together of economic activity) of $18 million and competition effects not assessed in the CBA (distribution of marginal cost changes through the economy) of $18.4 million.

35The funding of Clifford Bay may include arrangements for charges aimed at clawing back savings in operating cost savings for road and rail freight and the ferry operators. Such a claw-back arrangement would reduce the benefits to freight users and ferry operators. While in terms of the conventional CBA this would be a neutral impact on the NPV of the project (lower user benefits would be offset by lower port/ferry operating costs net of the associated revenues), it would have a negative impact on Wider Economic Benefits. However, since such funding arrangements have not been agreed upon, the current WEBs assessment assume that, in consistency with the conventional CBA, there is no claw-back of transport operating costs.

27. The results are materially different from the results concluded in the Preliminary Business Case (PBC) undertaken in 2012 which found the project delivered a BCR of 1.9. A number of differences exist between the PBC economic case and the approach taken in this report. These include differences in assumptions used, data sources and methodology, and inclusion of the estimation of WEBs that could be generated by the project. Reconciliation between the current economic case and the PBC, summarising the key differences in approaches, assumptions and parameter values, is provided in Table 28 below.

28. Differences also exist between the economic case and the financial case (Port-Co viability). These differences are due to the nature of the benefits assessed. The financial case only considered the directly attributable monitised benefits, while the economic case considered benefits to the economy as a whole. Many of these benefits cannot be directly attributed or monitised for the benefits of individual users. A reconcilitation between the two bodies of work is provided in Table 29 below.

Table 28: Summary of conventional CBA results, including comparision with preliminary business case 2012

Item	Beneficiary	2013 update		*Comparison with PBC 2012*			
		PV 2014 $m	%	*2013 update*		*PBC 2012*	
				PV 2014 $m	*%*	*PV 2012 $m*	*%*
Costs		*2014 – 2071*		*2014 – 2071*		*2016 – 2049*	
Pre-construction costs (including land acquisition)		28.6	8%	*28.6*	*8%*		
Capital costs (including capital renewal)		280.0	74%	*279.0*	*74%*	*267.5*	*90%*
Residual costs of capital renewal		-	-	*1.0*	*0.3%*		
Operating & maintenance costs		69.0	18%	*60.9*	*16%*	*28.4*	*10%*
Residual costs (2048-2071)		-		*8.1*	*2%*	-	-
Sub total		**377.5**	**100%**	***377.5***	***100%***	***296.0***	***100%***
Benefits		*2022 – 2071*		*2022 – 2071*		*2020 – 2049*	
Infrastructure & capital related benefits	Picton terminal	68.8	14.2%	*68.8*	*14.2%*	*101.7*	*18.4%*
	Rail freight	9.5	1.9%	*9.5*	*1.9%*	*n/a*	
Value of travel time savings	Road freight	58.8	12.1%	*49.3*	*10.2%*	*59.8*	*10.8%*
	Rail freight	11.8	2.4%	*9.9*	*2.0%*	*44.3*	*8.0%*
	Passenger	52.1	10.7%	*45.0*	*9.3%*	*42.4*	*7.7%*
Avoided transport operating costs	Picton terminal	33.9	7.0%	*29.6*	*6.1%*	*n/a*	
	Ferry	108.7	22.4%	*95.0*	*19.5%*	*154.9*	*28.0%*
	Road freight	84.6	17.4%	*71.0*	*14.6%*	*73.8*	*13.3%*

	Rail freight	39.5	8.1%	*33.1*	*6.8%*	*15.2*	*2.7%*
	Passenger	6.7	1.4%	*5.8*	*1.2%*	*13.3*	*2.4%*
Induced traffic benefits	Road freight	0.7	0.1%	*0.6*	*0.1%*	*9.9*	*1.8%*
	Rail freight	0.2	0.04%	*0.2*	*0.03%*		
Externalities avoided - road maintenance	Road freight	2.9	0.6%	*2.4*	*0.5%*	*n/a*	
Externalities avoided - road safety	Road freight	1.7	0.4%	*1.5*	*0.3%*	*18.1*	*3.3%*
	Passenger	1.9	0.4%	*1.7*	*0.3%*		
Externalities avoided - GHG emissions	Ferry	3.2	0.7%	*2.7*	*0.6%*	*9.7*	*1.7%*
	Road freight	0.7	0.1%	*0.6*	*0.1%*		
	Rail freight	0.2	0.03%	*0.1*	*0.03%*		
	Passenger	0.1	0.01%	*0.1*	*0.01%*		
Residual value (2048 – 2071)		-		*59.3*	*12.2%*	*9.8*	*1.8%*
Sub total		**485.8**	**100%**	***485.8***	***100%***	***552.9***	***100%***
Net Present Value		**108.3**		***108.3***			
National Benefit Cost Ratio		**1.29**		***1.29***		***1.9***	

1. To enable comparison with PBC 2012, residual values are shown separately in these columns.
2. PBC (2012) did not separate the port operating costs and reported only the net reduction. The corresponding net increase in port operating costs in the 2013 update is $28.1 million.

Table 29: Reconciliation between the economic case and the financial case developed in the 2013 investigation

Line item	Economic Case PV $2014	Financial Case PV $2014	Difference	Comment
Analytical approach	8% discount rate 2014 real dollars Whole economy view, ignores tax and transfers horizon 2014 - 2071	8% discount rate 2014 real dollars Port-Co view, values all cashflows in/out horizon 2014 - 2071		The Clifford Bay asset would have an economic life of at least 50 years. Both the financial and economic cases use a 50 year horizon to reflect this.
Pre-construction costs	$28.6m	$28.6m	nil	
Construction costs & capital renewal	$280m	$280m	nil	
Clifford Bay Port Operating costs	$69m	$77.3m	$8.3m	Financial case uses 1% real growth on operating costs reflecting growth in volume over time, PV$8m.
Sub-total: Costs	**$378m**	**$386m**	**$8m**	
Benefits to or revenue derived from ferry operators	$108.7m operating cost benefits $68.8m avoided infrastructure cost benefits $33.9m avoided Picton terminal operating costs	$175.3m	($36.1m)	Financial case uses 1% real growth on terminal and facilities revenue reflecting growth in volume over time, PV$19m. Financial case has operator risk adjustment on avoided Picton capex recovery and ferry operating cost saving, PV($59m) Financial case has a higher Picton terminal cost savings, PV$4m

Benefits to or revenue derived from freight operators	$85.3m road freight $49.2m rail freight	$124.3m road freight $30.1m rail freight	$19.9m	Financial case assumes road freight cost savings grow as a partial function of government forward view of foreign exchange and US oil price, PV$40m. Financial case has no one-off profits from release of surplus rail land, PV($4m) Financial case has risk adjustment on avoided Rail costs, PV($15m). Financial case does not include induced traffic benefits (PV $1m)
Vehicle operating cost savings to private passenger vehicles	$6.7m	$0	($6.7m)	Financial case assumes no additional yield available from passengers
Value of travel time savings	$58.8m road freight $11.8m rail freight $52.1m passengers	$0	($122.7m)	Economic case uses NZTA methodology to value travel time savings The value of travel time saving in the financial case has been risk adjusted to zero due to uncertainty about ability of Port-Co to monetise it.
Externalities	$10.6m	$0	($10.6m)	Financial case has no externalities assumption.
Sub-total: Benefits	**$486m**	**$329.7m**	**($156.3m)**	
Tax cost on revenue	0	($92.3m)	(92.3m)	Economic case does not model tax
Tax credit on expenses	0	$34.1m	$34.1m	Economic case does not model tax
Overall NPV	**$108.3m**	**($114.4m)**	**($222.7m)**	

29. The total variance in NPV between the cases is $223 million. There are four main areas where the two cases differ materially.

- Value of travel time savings. This accounts for PV$123 million of the variance. The financial case does not assign value to travel time savings. This is discussed in the previous chapter on Private Benefit Assessment.
- Benefits to ferry operators. The benefits to ferry operators are around PV$36 million higher in the economic case due to risk adjustment applied by ferry operators, whereas the economic case uses the Ministry of Transport benefit estimate without adjustment. This is discussed in the previous chapter on Private Benefit Assessment.
- Tax. This accounts for PV$58 million of the variance. The government's economic case does not model tax, in accordance with usual practice. The financial case is testing viability in a private funding scenario, and therefore models tax. The net tax paid in the financial case flows to the government, making this an academic variance.
- Benefits to road freight. The benefit to road freight operators is around PV$39 million higher in the financial case. This is due to the financial case using the government forward view of US/NZD exchange rate and US oil price to inflate the cost recovery from road freight over time. This results in a reasonably significant increase in the real price of the assumed Port-Co road freight levy in the financial case.

Public policy considerations

Introduction and summary

Across the transport network government plays a direct role in the investment of road and rail networks. For the Clifford Bay project to proceed, the government will need to play a direct role.

Government investment would unlock private sector investment and therefore realise national economic benefits.

The Cook Strait link is a core component of the road and rail transport network. The opportunity to improve this link is considered to have high strategic fit (based on the NZ Transport Agency's NLTP Assessment Framework) because:

- it has the potential for a nationally significant contribution to economic growth and productivity for national strategic State highways, through reduced travel time and costs
- it will improve journey time reliability as a result of time savings
- it will remove constraints that currently exist at Picton
- it will enable more efficient freight supply chains
- it will improve the security and resilience of the road and rail network

Rationale for government participation

1. In announcing the decision to further investigate the viability of moving the ferry terminal to Clifford Bay, Minister Brownlee stated in November 2012 that "the government is looking at the road and rail link between the North and South Islands from a national transport perspective and is interested in the long-term advantages that could be realised from having the ferry terminal at Clifford Bay rather than Picton." This statement provides the context for the discussion in this chapter.

The role of government in transport

2. Across the transport network the government plays a direct role, by investing in new, improved, road and rail networks, public transport infrastructure and services, along with maintaining existing networks. The government does this, either fully or partially, when the private sector is unwilling or unable to invest in transport outcomes. Government also plays an indirect role in facilitating investment in other sectors by supporting integrated planning decisions, providing a stable regulatory environment and regulating market power e.g. information disclosure regime for airports.

3. Government seeks to accommodate social, economic and environmental goals and aspirations of New Zealand society. Land transport prospoals are assessed against the objectives of the Land Transport Management Act for investments to be "effective, efficient and safe land transport system in the public interest."

4. The government's planning and investment approach aims to improve the network so it provides the best return on investment for transport system users and also provides a wider return for New Zealand as a whole. The relationship between government investment, and the transport and wider public good outcomes this investment realises, is a key investment consideration.

Primary benefits from the Crown playing a direct role in a Clifford Bay project

Realise national economic benefits

5. The development of a ferry terminal at Clifford Bay would enable national economic benefits to be realised - as reflected in the benefit cost ratio. In particular, the significant travel time savings would improve the efficiency of freight movements and improve national network connectivity. As discussed in the strategic chapter, travel time savings, efficient freight movements and improved network connectivity have been shown to improve trade performance, GDP and wellbeing.

6. A decision by the government to invest in the development of a ferry terminal at Clifford Bay would also promote the government's transport aims of having an efficient, effective and safe land transport system in the public interest.

7. The significant travel time savings for road and rail freight will enable, overtime, changes to the way passengers and freight are moved between and within the two islands. For example, a commercial vehicle operator would reach Christchurch about 1.5 hours earlier than if using Picton. The savings being three hours for a round trip. The benefits of this time saving would likely be spread throughout the national supply chain.

Realise strategic benefits and contribute to Business Growth Agenda

8. The development of a ferry terminal at Clifford Bay and the reduction of travel and travel time within New Zealand's national supply chain would contribute to the Business Growth Agenda vision of "By 2030 New Zealand's infrastructure is resilient and coordinated and contributes to economic growth and increased quality of life[39].

39 Business Growth Agenda progress report Nov 2012, p17.

9. As most of the freight moved on the ferries is time sensitive, improvements in travel time and reliability will have significant benefits. This would include greater flexibility in close out times for freight being loaded at the point of origin. The time savings could also open new domestic markets for time critical goods such as shelf-limited dairy products and bread.

Enable private sector investment

10. Government investment could support the achievement of the wider public benefits, through improved national connectivity, that a commercial operator would not directly benefit from. The government investment would therefore enable private sector participation, and private capital, in the next stage. Private participation in Clifford Bay brings specialist expertise in project development and operations, transfers a range of risks to the private sector and brings in alternative funding sources. While the latter reduces the level of direct funding into the project required by government, it does not change the economic returns delivered by the project (as represented by the benefit cost ratio of 1.3). The benefits and costs of the project remain the same from an economic perspective regardless of funding mix.

Secondary benefits from the Crown playing a direct role in a Clifford Bay project

Contribute to achievement of Turnaround Plan

11. Development of a ferry terminal at Clifford Bay would deliver strategic benefits to KiwiRail, primarily in the form of time savings. These have not been monetised in the financial case for reasons set out in the economic and financial case chapters. However, the significant time savings would enable KiwiRail overtime to improve the performance and efficiency of its freight connection between Auckland and Christchurch.

12. Moving to Clifford Bay would generate cost savings for the KiwiRail network by avoiding costs from not having to operate and maintain rail between Picton and Clifford Bay. The cost savings include fuel, maintenance and labour savings from running the rolling stock and reduction in maintenance and avoidance of replacement costs from reducing the need for network infrastructure. A proportion of these savings would be offset by port fees.

Contribute to resilience

13. Resilience is one of the six guiding principles of the National Infrastructure Plan 2011. The plan defines resilience as a position in which "*national infrastructure networks are able to deal with significant disruption and changing circumstances".*

14. A ferry terminal at Clifford Bay would add to New Zealand's transport system resilience by providing a workable alternative should an event arise that compromises port function in the top of the South island.

15. As discussed in preceding chapters the movement of passengers and goods across the Cook Strait will need to adapt to changing conditions in the future. These relate to forecast increase in the Cook Strait freight task of 61% by 2040 and the increasing speed restrictions that would be placed on any new vessels serving Cook Strait. If the ferry terminal is moved to Clifford Bay, the road and rail transport system would become more resilient in the longer term to an increasing freight task.

Regional impacts and benefits

16. As discussed in the economic case chapter, moving the ferry terminal to Clifford Bay would see positive and negative agglomeration impacts. 'Westbound' South Island regions would see negative agglomeration impacts due to the longer travel distances and increased resultant costs.

17. In comparison, the rest of the South Island and the North Island show improved effective densities and consequently realise agglomeration benefits. The net agglomeration benefit to New Zealand is estimated at $18 million in present value terms.

Perception of travel time savings and accessibility

18. Aside from an economic analysis of the value of time savings, better connectivity will change the way people see travel between the islands. There is a clear perception element to any project that generates significant time savings. Saving around 75 minutes by road from Wellington to Christchurch is likely to change travel patterns and business decisions.

19. For example, a commercial vehicle operator based in Auckland could depart Auckland about 1.5 hours later than he/she would have done for a Picton ferry journey. This additional time could be used to ensure the vehicle was loaded to full capacity or to undertake other business transactions. Also, a family living in Wellington could go whale watching at Kaikoura for a day trip if the ferry terminal was moved to Clifford Bay.

20. People travelling to Nelson, Blenheim or the West Coast would still be advantaged if the terminal was moved to Clifford Bay as the total time savings for this journey would be 21 minutes. However the land-side journey would be slightly longer - 14 minutes.

Implications of Crown investment in Clifford Bay

Potential impact on competition between the two ferry operators

21. Cabinet agreed in 2012 (CAB Min (12) 38/7) that any potential procurement strategy to progress Clifford Bay would be based on a number of commercial principles, including maintaining existing levels of competition between ferry operators. The two ferry operators have committed to indicative port fees that reflect the savings to their business. By taking this approach there is unlikely to be a significant change in the level of competition between the two operators.

Perceived impact of government role

22. If the government invested in the development of Clifford Bay there could be claims that it is subsidising rail and therefore should be subsidising coastal shipping or other modes moving passengers and freight across Cook Strait.

23. A decision by the government to make an up-front investment or annual availability payment, for a finite time period, does not fit with the traditional definition of 'subsidy' (a grant or gift of money from government to a private company, organisation or charity to help it to function' (English dictionary, UK). Any government investment would not be provided direct to the ferry operators. Such an investment would be provided to Port-Co to contribute directly to construction costs or supplement the revenue from the ferry operators.

24. However, the ferry operators would benefit from government investing in Clifford Bay, to the extent they did not pay the full benefits through their annual port fees.

Potential calls for government investment in ports and airports

25. Public investment in Clifford Bay could also bring a perception risk that central government was assuming a greater role in the ports sector. This could create expectations for increased public investment in the ports sector at some future point. This perception arises because outside of the transport sector the proposed Clifford Bay ferry terminal is likely to be viewed as an investment in port infrastructure rather than a land transport investment.

26. However, within the transport sector it is clear that Clifford Bay is essentially a component of the land transport system. As set out in the Strategic chapter it would be a means by which the State highway network and main truck rail line can continue between the North and South Islands. Any public investment in Clifford Bay would be consistent with central government's role as provider of the State highway network and rail network.

Indicative relativity of Clifford Bay to land transport investments

27. As outlined in the previous chapters, if the government wishes Clifford Bay to progress to the next stage it will need to play a direct role. Considerations for government when making an investment decision is whether a particular project is affordable set against the amount of money available for investment, and whether any particular project has merit. These issues will be relevant in considering the outcomes of this investigation.

28. A detailed analysis of relative merit has not been undertaken for this investigation as the focus has been on determining commercial viability. This section provides some information to assist in this consideration.

29. In assessing Clifford Bay as an important component of the land transport system, the NZTA's NLTP Assessment Framework for land transport investment decisions has been used to indicate relative merit. The framework seeks to test transport proposals against the objectives of the Land Transport Management Act 2003 for investments to be "effective, efficient and safe land transport system in the public interest".

30. Three criteria determine the prioritisation of land transport projects.

    - Strategic fit – link to GPS impacts and how an identified problem, issue or opportunity aligns with the NZTA's strategic investment direction.
    - Effectiveness – contribution that the proposed solution makes to delivering the potential identified in the strategic fit assessments.
    - Economic efficiency – how well the proposed solution maximises the value of what is produced from the resources used.

31. The assessment outlined below provides an indication of relativity. For the purpose of this assessment, the equivalent GPS impacts a ferry terminal at Clifford Bay would need to achieve are economic growth and productivity.

Table 30: Indicative assessment of Clifford Bay ferry terminal

Criteria	Indicative assessment summary	Indicative profile
Strategic fit	Cook Strait crossing is a nationally strategic transport route connecting the national strategic State Highway 1. Improves national connectivitiy for economic growth and productivity. Carries 3 million tonnes of road and rail freight and around 1 million ferry passenger boardings each year. Significant benefit that would arise from moving the ferry terminal to Clifford Bay would be improved freight supply chains through reduced travel times, improved reliability and vehicle utilisation.	High
Effectiveness	Would deliver an enduring contribution to the national land transport network. Would allow for modal integration between road/rail and ferries, allowing the ferries to operate at their full potential in taking people and goods across the Cook Strait efficiently. Would support the KiwiRail Turnaround Plan through more timely and reliable movement of freight between Auckland and Christchurch.	High
Economic efficiency	Benefit cost ratio of 1.3. $37 million wider economic benefits also delivered.	Low
Assessment profile		**High/High/Low**

32. Based on this profile, the table below demonstrates that using the NZTA assessment framework, a project to develop a ferry terminal at Clifford Bay would indicatively rank in the top third of projects.

Table 31: Potential ranking of a project to develop a ferry terminal at Clifford Bay within NZTA NLTP Assessment Framework

Assessment profile (strategic fit, effectiveness, economic efficiency)	Priority
HHH	1
HHM, HMH, MHH	2
HHL (Clifford Bay), HMM	3
HLH, MHM, MMH	4
LHH, HML	5
HLM, MHL, MMM	6
MLH, LHM, LMH	7
HLL, MML, MLM, LHL	8
LMM, LLH	9
MLL, LML, LLM	10
LLL	11

Configuration of government investment

Introduction and summary

- Previous chapters have outlined that Clifford Bay performs adequately under economic assessment on a whole of economy basis but does not reward private investors enough to be viable as a private sector commercial proposition. This means that although over half the infrastructure could theoretically be provided by the private sector, without government participation a procurement process would fail.
- At this point the government has two options. The first is to terminate the project. The second is to move it forward in clear view of the requirement for a) ongoing sponsorship, risk exposure and expenditure in the development phase, b) direct investment in project delivery, and c) some sharing of the key risks that impact on the cost and availability of private sector funding.
- A viable method of project development, delivery and operation that minimises government commercial participation as far as is practical has been identified. If the project proceeds to the next stage this method will need to be developed and refined. It represents the "enabling" government role in project delivery and operation that is expected to attract the highest degree of risk adjusted investment appetite by the private sector.
- Market feedback identified that investment appetite existed if key risks could be clearly communicated and appropriately managed, and clarity provided on the role of government. This includes government sponsorship of the approvals process and the process to secure the necessary ownership and access rights to land.
- Assuming the government wishes to proceed, there are two enabling investment alternatives – up front investment or annual availability payment. In both alternatives the government would have rights to cashflows after the concession period of (nominally) 25 years. The most pivotal risk participation consideration concerns freight volume risk and KiwiRail credit risk. The procurement process should be designed to reveal how the private sector prices volume risk so efficient risk/reward trade-offs can be considered by the government. This is likely to have a considerable bearing on private sector cost of funding and therefore the amount the government would need to invest. Government support for KiwiRail port fee obligations is a likely requirement.

1. The Clifford Bay Investigation has been undertaken in the knowledge that the government wishes to minimise its commercial involvement in the project if it proceeds, and has found that Clifford Bay cannot be executed as a fully private sector funded project. If the government wishes to proceed with the project, this chapter is provided to inform decision makers of the kind of role the government would need to play.

Market feedback

2. In 2012 a preliminary market sounding exercise was undertaken to gauge market appetite for investment in, and ownership and operation of Clifford Bay. This included feedback on the risk and configuration considerations that impact on this appetite.

3. The key themes and findings of this exercise are outlined below.

    - There is market appetite for a 25 year investment and operations management proposition at Clifford Bay.
    - The procurement process and its key expectations, milestones and risk transfer expectations should be communicated well and early in the process.
    - A government role as project sponsor and commercial partner is generally seen as being beneficial and desirable by potential investors. The government should be clear about its role early in the process.
    - The proposition is seen by the market as a long term infrastructure investment opportunity where risk must be well understood and minimised where possible.
    - The required rate of return, and therefore overall cost of funding, will be a function of risk transfer, with aversion to significant levels of volume risk transfer.
    - Crown credit support is likely to be required to underpin KiwiRail's long term port fee obligations.

Project approvals and land access

4. If the project proceeds to the next stage it is recommended that the government should fund and manage the approvals process and the securing of land access for Clifford Bay. There are two primary reasons for this.
    a. If uncertainty around land access, and approval process duration and consent conditions was passed to a preferred consortium, risk pricing of the accountability for delivery to certain specification and in certain timeframes would be prohibitive.
    b. The government maximises its ability to credibly address the market and maximise the benefits of competition and innovation (and therefore maximise value for money) if there is a clear and approved route to delivery and operation visible to the parties competing for the opportunity.

Implications and options – direct investment and risk participation

5. The implications of the private benefit assessment and market feedback are that the government will need to invest directly in Clifford Bay and accept/manage some risk if it wishes to enable delivery of the project.

6. There are a number of ways in which this enabling investment role could be configured. It is not possible to be highly definitive because it would depend on the design and the outcome from the procurement process. This outcome would be a function of competition, innovation, cost of funding, and risk tolerance/pricing. All these factors would be dynamic and influential on each other and would have a bearing on the government role, as would the government's own preferences/tolerances. It is preferable that these forces are not arbitrarily constrained early in the project development lifecycle into what may become an infeasible or sub-optimal combination.

7. There are however, two broad alternatives that would enable successful procurement. These are an up-front investment of approximately $176 million occurring over a two-three year period from 2018, or an annual availability payment of approximately $26 million commencing at first operation and running for 25 years, (both $2014). These options both have a $2014 present value of ($103) million.

8. Both these alternatives have a similar set of risk sharing considerations. Because volume risk goes directly to market share and profitability for each of the ferry operators, and to financing risk and availability for the private sector, the extent of government participation in volume risk is likely to be key.

9. Detailed optimisation of commercial structure and tax efficiency has not been undertaken and therefore the following structural approaches should be regarded as illustrative of the substance only, rather than being precise or optimal.

Option 1: Up-front capital investment

10. This role involves the government putting the project to market with revenue arrangements substantially determined for ferry operators and major freight users. Bidders would be invited to nominate the amount of up-front capital cost that the government would need to meet during the construction phase for them to deliver and operate Clifford Bay to agreed functional specifications for 25 years.

11. The successful contractor would operate Clifford Bay for (nominally) 25 years, and during that time would receive all post tax net cash flows generated by Port-Co. After 25 years, full ownership of Clifford Bay would revert to the government, along with rights to all net cash flows for the remainder of the facility's life.

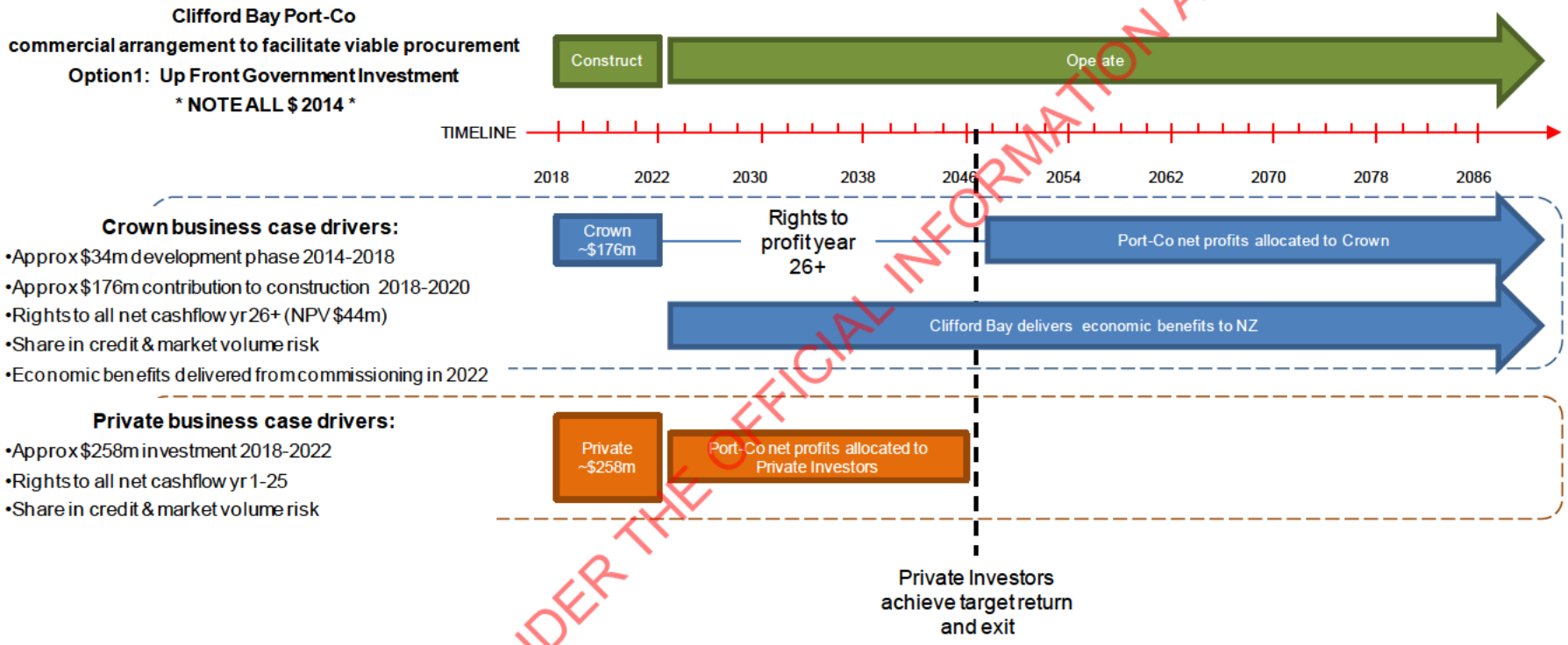
12. The government would be free to sell its subordinated right to future cash flows after a prescribed hold period following commissioning. To ensure those rights were protected, conditions around asset health and remnant life at various points in the concession period would be required. These could be structured so that the governments obligations in respect of freight volume risk fell away if these conditions were not met.

13. Using the 2012 Clifford Bay construction and operating cost estimates, the government up-front capital investment requirement is expected to be approximately $176 million ($2014), spread across the first two or three years of construction.

14. The revenue available from operators and users is sufficient to secure approximately $258 million ($2014) or 56% of capital infrastructure investment requirement at Clifford Bay.

15. The diagrammatic representation of the up-front capital investment approach is shown below.

Figure 21: Conceptual Port-Co commercial model – Up-front capital investment approach



Option 2: Annual availability payment

16. This role involves the government putting the project to market with revenue arrangements substantially determined for ferry operators and major freight users. Bidders would be invited to nominate the amount of fixed annual availability payment the government would need to make on top of operator/user revenue during the first 25 years of the operating term for them to deliver the full capital infrastructure requirement and then operate Clifford Bay to agreed functional specifications for 25 years.

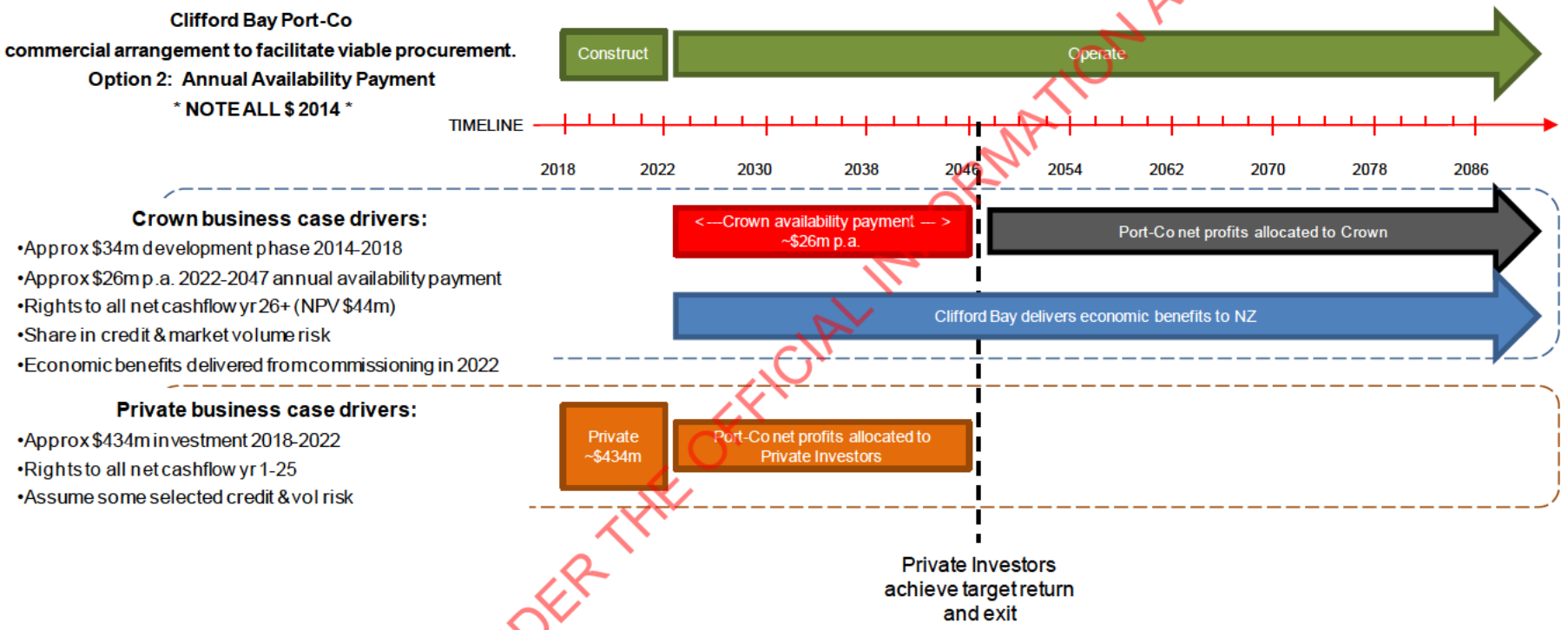
17. The successful contractor would operate Clifford Bay for (nominally) 25 years, and during that time would receive all post tax net cash flows generated by Port-Co. After 25 years, full ownership of Clifford Bay would revert to the government, along with rights to all net cash flows for the remainder of the facility's life. The government would be free to sell its rights to future cash flows after an agreed hold period following commissioning.

18. This is a more active role that creates the possibility of setting performance criteria against which the availability payment will be made, and an ability to have greater influence on decisions that impact on the value of the facility in the second half of its lifecycle when the government would be the owner. The annual availability payment is also well suited to use as a mechanism to partly or fully insulate the contractor from the impact of variability in freight volume, if the government assesses this as a positive and efficient commercial trade-off.

19. The government annual availability payment is expected to be $26 million per annum ($2014) and run for the first 25 years of operation from 2022. In future dollars this equates to approximately $31 million per annum in 2022, and would increase at around CPI thereafter.

20. The diagrammatic representation of the availability payment approach is shown below.

Figure 22: Conceptual Port-Co commercial model – Annual availability payment approach



Freight volume risk

21. The risk allocation options and considerations for these two government roles are similar, and are expected to have a significant impact on project cost and possibly commercial feasibility. There are a number of differing perspectives and drivers at play, so it is likely that the risks will be priced differently by the different participants, including the government. This means that there is considerable scope for exploration of the most "efficient" risk allocation outcome, and conversely that inappropriate/arbitrary risk allocation could unnecessarily increase overall project cost or jeopardise feasibility. The most significant areas of consideration are discussed in the table below.

22. Note there are several ways to treat and allocate the primary risk consideration - freight volume risk. Of the approaches to this risk listed below, Option B is expected to have the most positive compound effect on the required rate of return of the contractor, and the ability to secure the highest overall port fee revenue from ferry operators, thereby reducing the requirement for direct government investment.

Table 32: Risk allocation considerations and options

Risk	Allocation	Comment
Option A: Operator Freight Volume Bi-lateral management of operator level freight risk.	Shared between Port-Co and operators/users. Government insulated in years 1-25.	In this option Port-Co has a limited ability to influence and fully understand the drivers behind freight volume risk, and therefore will have a modest appetite for this. Port-Co exposure to this risk will drive up investor cost of capital, so as the enabling investor (all else equal) the government has an incentive for operators to take most of this exposure and pay a substantially fixed fee. Conversely, operators will attempt to insulate against market contraction and loss of market share by passing this to Port-Co by paying a substantially variable fee. Overall, this option is likely to increase capital cost and reduce available operator revenue.
Option B: Market Freight Volume – Contract For Differences (CFD[40]) Manage overall	Allocated to government.	In this option government takes overall market freight volume risk. This is likely to lower the cost of the investor funding and reduce risk adjustment applied by operators in port fee negotiations - both of these factors which could be expected to materially lower the government enabling up-front investment requirement. This would involve a contract for differences (or collar) with

40 It is common in many markets to swap a floating or volatile input for a fixed input by agreeing a contract for differences between two parties. Difference payments are made between the parties so that the party "hedging" its exposure to the volatile input receives more predictable revenue and therefore requires a lower rate of return. The party taking on the risk is exposed to both the upside and downside of the input, and usually has an ability to manage its risk position by influencing supply and demand or by pooling the risk with other counter balancing forces in its portfolio. The accounting, cashflow volatility, and administrative overhead cost implications of this approach would need to be properly examined.

Cook Strait market volume risk.		the contractor so that it was partially or fully insulated from changes away from expectation in overall aggregate freight volumes transiting Cook Strait. Depending on where the agreed base growth assumptions were set, this could be either an expected net cost or benefit to the government. This option could be tested in procurement and port fee negotiation to allow the government to determine trade-offs between up-front investment quantum and freight volume risk ownership.
Option C: Market Freight Volume – Earn-out extension As for Option B, but use earn-out period adjustment[41] to manage overall Cook Strait market volume risk.	Shared between Port-Co and government	In this option the investor and the government share overall market freight volume risk. Like Option B, this may directly lower the cost of the contractor funding and reduce risk adjustment applied by operators in port fee negotiations. This would involve an agreement to extend or reduce the concession period if freight volume was below or above expectation, until an agreed return had been achieved by the contractor. This is a shared risk approach as a) although the contractor earns its target revenue it may take longer to achieve it, and it experiences revenue volatility along the way, and b) the government sees no year-on-year financial impact of freight volume risk, but faces uncertainty as to the commencement of its economic return.
Construction time and cost	Construction time, cost and quality risk – allocated to the contractor. Operator exposure to contractor credit risk.	Operators will require compensation measures if the port facility is not available by a nominated date because it will introduce additional cost and risk into their transition from Picton. Port-Co can therefore expect exposure to liquidated damages (LD's) for late commissioning to the required standard. It is typical that this kind of construction time cost and quality risk be allocated to the contractor and the private investment consortium behind it. The key drivers of this risk would be under the control of the contractor. Operators will have contractor credit and capability risk exposure, especially during construction, even if backstopped by the government.
Facility operating cost, performance, availability, reliability etc	Allocated to Port-Co. Government insulated in years 1-25.	Service level agreements and financial incentives for good/poor performance expected as part of port fee agreements with ferry operators.

41 It is not uncommon in infrastructure transactions to have two classes of equity provider bringing different commercial competencies and risk appetites to a project where one party has rights to front-end cashflow until they earn a prescribed return, whereupon the arrangement "flips" to providing subsequent cashflow to the subordinated equity provider.

Hand-back condition	Shared between Port-Co and government.	Ensure facility condition audit(s) occur throughout the concession period and that the government has adequate commercial leverage to ensure Port-Co are incentivised to make-good before hand-back at end year of 25. This could be structured so that the government's obligations in respect of freight volume risk fell away if asset health and remnant life conditions were not met.
Counterparty credit risk	Shared between investor consortium and government.	Given that KiwiRail has not demonstrated sustainable levels of financial performance in recent history, it is realistic to assume Clifford Bay will only be financable if the KiwiRail port fee obligation receives direct credit support from the shareholder. Assuming KiwiRail credit support is provided, it is expected that less emphasis will be placed on Strait Shipping credit risk as minority player.

Government business case summary

- The government's financial case shows an NPV of ($103 million), requiring an expected $231 million of direct investment between now and 2020 .
- The governments economic case shows a BCR of 1.3.
- Using the multi-attribute assessment approach used to give effect to the Government Policy Statement on Land Transport, the project is rated as high strategic fit, high effectiveness, and low efficiency.

1. The overall government business case comprises three main perspectives; financial, economic and strategic. In addition, there may be other factors considered by decision-makers. This investigation has not determined the relative weighting of these factors. The table below summarises the government business case components.

Table 33: Government business case summary

Dimension	Quantification	Key Assumptions and Commentary
Financial Case	NPV ($103m) Nominal cost of $231m between now and 2020.	Consenting and procurement costs of $34m ($2014) over a 3-4 period from 2014 Up-front investment $176m over a 2-3 period from 2018, or 25 years of availability payment in years 2022-2047 of $26m ($2014) Government shares in freight volume risk and counterparty credit risk, and has access to all net cashflows year 26+ Confidence – Medium Sensitive to the actual level of revenue secured by operators and users, and total capital cost as discovered by the procurement process. Exposed to significant execution risk in the development phase.
Economic Case	BCR 1.3 NPV $108 m WEBs $37m (additional)	Assumption set consistent with financial case where appropriate, using prescribed economic methodology where required. Confidence – Medium Most sensitive to discount rate and capital cost. Moderately sensitive to freight volume growth. Major benefits are road freight impacts (30%), reduced ferry operating costs (at 23%) and Picton terminal related benefits (at 21%). Wider Economic Benefits (WEBs) of valued at PV$37m, half agglomeration benefits, half competition effects.
Strategic/Policy Case	Strategic Fit High Effectiveness High Efficiency Low	As assessed using NZTA Investment Framework
Relative Merit	Indicative Inconclusive	Rank 3rd out of 11 in the NZTA Investment Framework profile Economic merit (BCR) lower than many alternative transport projects.
Overall Case		**$231m direct investment requirement 2014-2020** **Project BCR 1.3, Efficiency - Low** **Strategic/Policy Fit - High** **Risk Profile – Medium to High** **Counterfactual – Acceptable/functional**

SECTION 4 | NEXT STEPS ISSUES AND RISKS

Procurement
Land access
Resource consent
Project management and governance
Development phase programme summary
Risks
Stakeholder management and communications

Procurement

Introduction and summary

- This section outlines the general approach that would be taken to the procurement component of that programme, if the government proceeds with Clifford Bay.
- The procurement process for Clifford Bay would use a joint procurement model involving private sector investment alongside government investment to secure effective and efficient delivery, operation and management of the facility over a 25 year concession period.
- The indicative contractual framework involves Port-Co constructing, maintaining and operating Clifford Bay. Port-Co would derive revenue from port fee agreements with ferry operators and users of the facility, and the contractor would earn its return by having rights to all Port-Co economic return during the concession period.
- A number of risk sharing considerations exist for the government. Government participation in overall Cook Strait freight market volume risk has the highest potential to maximize port fee revenue and lower private sector required rate of return. This would improve feasibility of the procurement model and reduce the government direct investment requirement, possibly substantially.
- The government has two broad options on how to configure its enabling investment – either through an up-front contribution or an annual payment for the duration of the concession period. Returns on the government contribution would be deferred until after the concession period
- The procurement process would involve three main stages: Expression of Interest (EOI), Request for Proposals (RFP), Contract negotiation and financial close. The government would deliver the required project approvals and land access to the successful contractor.
- A lead time of several months would be required for the development of key process and contractual documentation, then an elapsed time of around 20 months from issue of EOI.

1. This chapter outlines a procurement process that could be used for Clifford Bay if the government wishes to enable the project through direct investment as outlined in the previous chapter. It is provided so decision makers understand the likely approach, duration and cost of procurement if a decision is taken to proceed with the project.

Procurement scope and outcomes

Clifford Bay procurement process objectives

2. A procurement process that involves partnership between government and private sector entities is envisaged for the following reasons.

    - Enough private revenue is available to secure private sector delivery of the majority of the infrastructure and operations requirement.
    - The potential for significant savings through innovative and efficient approaches to whole-of-life asset management and costing.
    - The ability to appropriately incentivise performance and allocate risk.
    - The ability to minimise the role of government.

3. This procurement approach is not a PPP as defined by the Treasury National Infrastructure Unit, or as used in Transmission Gully by NZTA. This is because over half of the infrastructure delivery and operation would be funded by private revenue sources that pay Port-Co directly. It is however a joint procurement model that uses many of the same principles, and seeks to minimise government involvement through introduction of the private sector, in order to deliver the core objectives of the project.

Scope of Clifford Bay joint procurement model

4. It is envisaged that the scope of Clifford Bay joint procurement model would include the design, construction, finance, maintenance and operation of the Clifford Bay ferry terminal and port facility.

5. The government would generally require the contractor to deliver the:

    - design and construction of a ferry terminal and port facility
    - operation and maintenance of these for a proposed concession period of 25 years
    - finance sufficient to enable the provision of the above

Designation and resource consents

6. It is assumed that all required designations and major resource consents would be obtained for facility construction and operation by the government.

7. The contractor would be free to seek to amend any of these conditions in support of their scheme design; however this would be carried out at its risk and cost. The government would assist where possible in facilitating any necessary amendment process.

Environmental considerations

8. Prior to, during and following construction, it is assumed a programme of environmental monitoring would be required to understand environmental effects and demonstrate compliance with the consent conditions for the project.

9. It is likely that ecological monitoring would be required prior to works commencement, possibly incorporating several seasons.

Land acquisition

10. The core project land that is required for Clifford Bay currently includes Crown land and land owned by Clifford Bay Limited – a wholly owned subsidiary of KiwiRail.

11. It is expected that by RFP stage, the government would have secured the right to acquire all core project land, and that negotiations will continue throughout the approvals process to secure ownership, rights-of-way, accesses or easements for network service connections and integration with State Highway 1 and main trunk rail. The benefit of this bundle of direct ownership and access rights would be made available to the contractor.

Commercial principles

Port company role

12. Before the contractor was appointed, during the period where the government continued to act as project sponsor, Port-Co would need to be incorporated at an appropriate time and owned 100% by the government. In this pre-construction phase Port-Co would need to procure project land, determine detailed functional specifications and undertake design development, agree the draft form of the Port Fee with operators, run the procurement process, and have vested in it the decision rights and obligations that flow from the approvals process. During this phase, Port-Co could be configured purely as a holding entity, with project management capability and resourcing support provided, via management agreement, by another entity or agency with the appropriate capability.

13. Although the detailed commercial structure requires further investigation and development, if Clifford Bay proceeds through use of a joint procurement approach, the government and the contractor may assemble as co-owners of Port-Co from contract award, or may agree clear Port-Co “step-out, step-in”

rights and obligations. Either approach would have the same objective of allowing and requiring the contractor to play its intended role for the 25 year concession period, and allowing and requiring the government to play its direct investment and risk participation role, and have ownership vested in it after the concession period.

Whole of life approach

14. The contractor would be expected to take on the specified risks and rewards of:

    - designing and constructing the Clifford Bay ferry terminal and port facility, and its integration with State Highway 1 and main trunk rail line
    - financing Clifford Bay for the concession period
    - maintaining Clifford Bay during the consession period and handing it back in a specified condition
    - operating the Clifford Bay ferry terminal and port facility in line with service obligations agreed in contracts with KiwiRail, Strait Shipping, and other key users/customers

    Taking into account the agreed investment and risk sharing undertakings agreed with the government.

Concession period

15. The concession period for maintenance and operation would nominally be 25 years following the successful commissioning of Clifford Bay. At the end of this period, the Clifford Bay facility would need to be handed back to the government, debt free, in a specified condition at a pre-determined peppercorn price.

16. Conditions around asset health and remnant life at various points in the concession period would be required. These could be structured so that the government's obligations in respect of freight volume risk fell away if these conditions were not met.

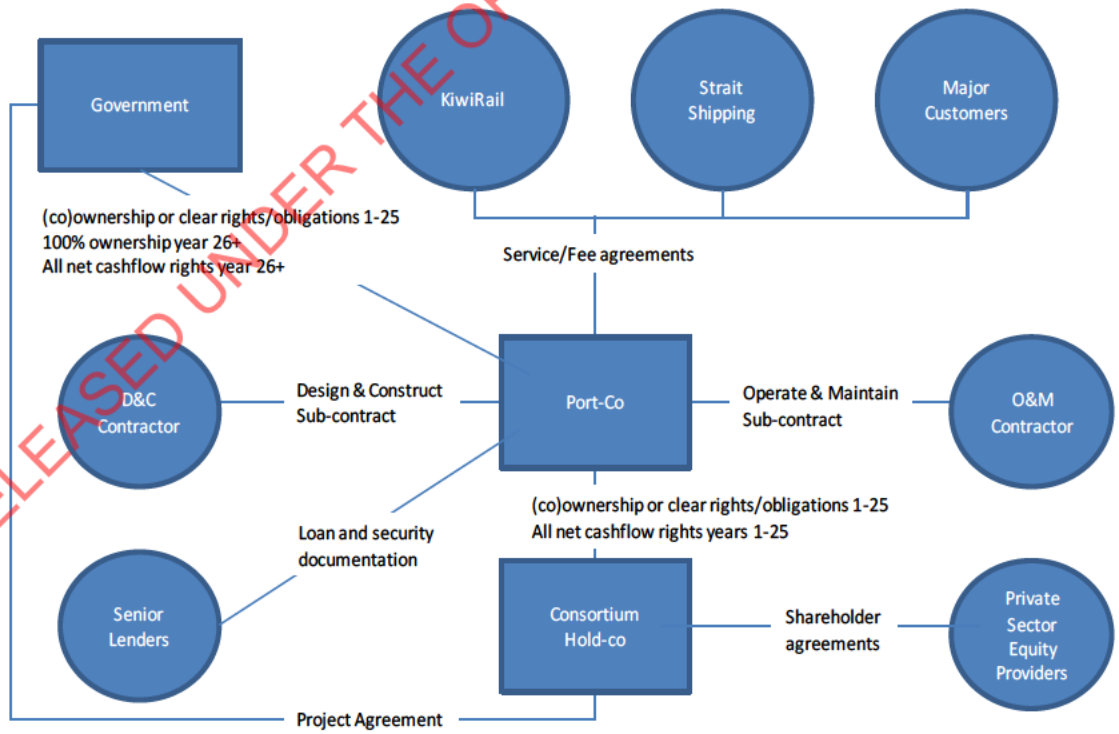
Indicative contractual framework

17. An indicative contractual framework for Clifford Bay is presented in the following figure. Note this is illustrative only and requires further investigation and development.

    - Port-Co would be the legal entity that held core project land, non-core land access rights, and project approvals going into the procurement phase. Port-Co would go on to build, own and operate Clifford Bay.
    - The government would enter into a project agreement with the contractor Hold-Co, a single entity owned by the private sector equity providers.

- The government and the contractor Hold-Co would either be joint shareholders in Port-Co, or the government and contractor would have clear rights and obligations in respect of Port-Co control and ownership that reflected their respective roles.
- The contractor would be responsible for delivering to the government all of the requirements under the project agreement to design, build, finance and maintain Clifford Bay, through the entity Port-Co. This would be in return for the government's enabling contribution and all the net economic returns from Port-Co during the concession period.
- Port-Co would contract directly with each ferry operator, and potentially with major users/customers, for the delivery of the core Clifford Bay services, to prescribed service levels and standards, in return for a specified port fee payment.
- At the conclusion of the concession period, the asset would be handed back in a defined condition and have a defined remaining useful life, and Port-Co ownership would vest 100% in the government for a peppercorn price. Any residual senior debt would be retired by the contractor Hold-Co upon their exit.
- The government would assume responsibility for management and operation of Port-Co, and would assume the benefit of all the net economic returns from Port-Co from that point forward.

Figure 22: Indicative contractual framework



Financing

18. The contractor would be responsible for obtaining all financing required by Port-Co to deliver Clifford Bay, taking into account the government's investment and risk sharing contribution.

Overview of procurement process

Procurement process

19. It is expected that there would be 3 main stages in the procurement process:

    - Expression of Interest (EOI)
    - Request for Proposals (RFP)
    - Contract negotiation and financial close

20. The following summarises the key procurement issues and the approach that would be taken to each stage.

Expression of interest (EOI) stage

21. The principal objective of the EOI Stage of procurement would be to select three short-listed respondents who could subsequently be invited to submit detailed, binding and fully funded proposals for the Clifford Bay project.

22. Respondents would be required to demonstrate their capability to deliver the outcomes through the following attributes.

    - Adopting a whole of life approach to the design, construction, operation and maintenance of Clifford Bay
    - Introducing design/construction and operational innovations
    - Incorporating ongoing efficiencies in the operation of the Clifford Bay and its integration with strategic transportation networks
    - Appropriate recognition of the public value of Clifford Bay and the preference to minimise the government role

23. EOIs would be primarily evaluated on the approach and capability of the key sub-contractors including designers, construction contractors, operator/asset manager and past experience in delivering outcomes consistent with those required.

24. Respondents would need to demonstrate their financial capability to successfully deliver Clifford Bay, their past experience in securing similar financing arrangements, and be able to identify their proposed commercial structure that would enable Clifford Bay to be delivered.

25. Respondents would need to indicate in their EOI the extent of their acceptance of the high level principles of the proposed risk allocation and payment mechanism/performance regime provided.

Request for proposal (RFP) stage

26. Following conclusion of the EOI Stage, a RFP would be issued to the three short-listed respondents.

27. The RFP would set out the detailed outcome requirements for Clifford Bay, including the associated performance regime and payment mechanism. The RFP would provide detailed requirements on how proposals were to be presented. Details of the evaluation criteria would be included.

28. To ensure that short-listed respondents had the opportunity to clarify the requirements of the RFP and to allow for communication in relation to innovation, an interactive approach would be adopted (through both virtual dataroom and direct engagement), and multiple opportunities would exist to discuss the development of their concepts and designs, construction, operational, and commercial approach, and to seek clarification and feedback so as to better understand the requirements of the government.

29. The government would evaluate proposals in accordance with the evaluation criteria set out in the RFP, which would be based on the outcomes being sought.

30. Following detailed evaluation of submitted proposals, a preferred bidder would be selected to enter into final negotiations as a precursor to the execution of the project agreements and other relevant contract documentation.

31. The level of design to be provided in proposals would need to be sufficient to provide confidence in the ability to deliver the required outcomes and to enable evaluation of the design elements of the proposal.

Port fee agreements with operators

32. Well before the procurement process engaged with the market, port fee negotiations would have been progressed to the point where planning confidence existed around form of agreement and likely revenue available to Port-Co. This would also include development of direct levy mechanisms that would apply to road and rail freight. This would be a challenging element of the procurement process and carries significant process risk.

33. As part of the RFP package, the government would disclose substantially complete draft port fee agreements with KiwiRail and Strait Shipping, and direct levy arrangements with road and rail freight. These would have user requirements and performance obligations consistent with the design, risk allocation and key outcome requirements of the RFP. The draft port fee agreements would enable respondents to determine the expected overall revenue available to them for the concession period of 25 years.

Negotiation stage and financial close

34. The contract negotiation, and the contract and financial close processes would commence following the confirmation of the preferred bidder, and following their acceptance of the terms of the negotiation process.

35. A separate and specific negotiation and financial close strategy would be developed at that point, together with the terms of negotiation. This would need to integrate direct negotiation and contractual close between Port-Co and each of KiwiRail and Strait Shipping in order to contemporaneously secure revenue arrangements and desired risk allocation outcomes.

36. The preferred bidder would be expected to commence their detailed design for the project once the terms of negotiation had been agreed.

Probity

37. The complexity of the network of relationships between parties to the respondent contractor is a particular feature of procurement in New Zealand. The small size of the New Zealand market means that potentially there will be more probity risks to manage than other jurisdictions.

38. In addition, there is likely to be sensitivity created by the government, as facilitator and sponsor, running a process that seeks risk allocation and port fee outcomes with two major customers and competitors where one is an SOE and other a private sector player. This duopoly dynamic is likely to be challenging in the final negotiation of port fees, and the ability to assure both parties that they are on a competitively neutral footing will be very important.

39. The government would appoint a Probity Auditor to ensure that fairness and impartiality are observed in relation to the conduct of the procurement process and the development of port fee agreements. A probity plan would provide the framework for the establishment of the tasks, procedures and treatment options for managing probity related aspects of the procurement process.

Procurement process resources

40. A comprehensive governance structure would be established for the Clifford Bay project, which if it progressed to the next stage, would involve integrated activity in several areas – securing project approvals and land access, developing an optimum commercial structure, progressing and negotiating operator user requirements and draft port agreements, and management of the procurement process to contractual and financial close.

41. This draft structure is outlined in the following chapter on project management and governance, and the budget for it is included in the development phase cost estimate.

Overall procurement timetable

42. The indicative cumulative timing of the procurement process is summarised in the following table. Note also that the primary driver of this timetable is the time required by the market to assemble the resources and responses required by the procurement process.

Table 34: Indicative procurement timeline

Description	Cumulative Timing (months)
Develop process and contractual documentation	0
EOI invitation issued	6
Respondent briefing and Clifford Bay visit	6
Interactive sessions	6
Closing date for receipt of EOI enquiries	7
EOI responses close	8
Visits to reference projects	9
Interview respondents	10
Announce short-listed respondents	11
RFP issued	12
Interactive sessions	12-17
Date for receipt of respondent proposals	17
Target date for naming preferred Bidder	21
Target date for contract close/financial close	26

Land access

Introduction and summary

- Most of the key land required for the ferry terminal and infrastructure is owned by a KiwiRail subsidiary. This land would need to be transferred by a sale and purchase agreement to Port-Co.
- The Department of Conservation has a small but important section of land within the Grassmere Beach Conservation area which will be required.
- If a decision is made to proceed to the next stage, work to secure land access would need to commence as soon as a decision is taken and in advance of the lodging of resource consents.
- An approach to securing the necessary property rights is provided and the costs are included in the development phase cost estimate.

1. The purpose of this chapter is to provide a framework for advancing access and rights to land for a new ferry terminal at Clifford Bay if a decision is made to proceed.

2. The investigations to date have not identified any potential "show stoppers".

Figure 23: Clilfford Bay land ownership

Project footprint

3. The ownership of land identified as relevant to the project at this stage (before detailed design) is set out in Figure 23.

4. Much of the land-based core terminal area is held by Clifford Bay Limited, a wholly owned subsidiary of KiwiRail Limited, as a result of its predecessor's proposal to proceed with a ferry terminal at Clifford Bay in the late 1990s. An agreement for sale and purchase, or option to purchase, entered into now with Clifford Bay Limited, would secure all of the land-based core terminal area with the exception of that part of the footprint within the Grassmere Beach Conservation Area and any possible marginal strips.

5. The conservation area could be obtained from the Department of Conservation by way of exchange for other land in the vicinity currently owned by Clifford Bay Limited, which the Department has previously accepted to be of high natural conservation value. A second key step for the project would therefore be to re-engage with the Department regarding such a land exchange.

6. Land Information New Zealand has the power to grant property rights in respect of the coastal reclamation under the Marine and Coastal Area (Takutai Moana) Act 2011. This would be a third area warranting discussions at an early stage of the project.

7. In respect of access corridors in and out of the core site, it is recommended that acquisition of land only occur where ownership is required. Other methods of obtaining rights over land by one of the "lesser" interests include easements, encumbrances, leases and licences.

Securing necessary property rights

8. A range of property agreements is recommended to secure all the land access needed for the project area and associated infrastructure and services. Some of the land will not require outright purchase to secure access rights by Port-Co. The table below summarises the advice provided on optimal choice of property rights for the project.

Table 35: Gaining required property rights

Project component	Optimal choice of property right	Time to secure from 1/03/14	Cost
Reclamation	Freehold interest pursuant to the Marine and Coastal Area (Takutai Moana) Act 2011 – choice of property right is dictated by statute.	2 years	$40k - fees
Project components within the marine and coastal area other than the reclamation (including the breakwater)	Not applicable – regarded as personal property and are not capable of protection by a formal interest in land.	2.5 years	$20k - fees
Land-based core terminal area other than within any conservation area	Acquisition (or an option to acquire) – confers the greatest bundle of rights and provides the greatest security of tenure, flexibility for raising finance, and ability to grant lesser interests to third parties associated with the project such as shuttle operators.	1.5 years	$2.9m
Core terminal area within Grassmere Beach Conservation Area and any other project component within any marginal strip or other conservation area	Concession under the Conservation Act 1987 and/or land exchange under sections 16A or 24E of that Act – choice of property right is dictated by statute.	1.5 years	$80k - fees
New utility corridor including rail, water supply, overhead power lines and other linear project components and footprint of the upgraded Marfells Beach Road	Acquisition – this is the industry standard form of property right for this asset class.	3 years	$6.2m
Proposed quarry	Access arrangement under the Crown Minerals Act 1991 – choice of property right is dictated by statute.	1 year	$100k
Short-term access for investigations during the design phase, and/or work-sites and lay-down areas during the construction phase.	Licence rights – able to be secured quickly and cost effectively without the landowner becoming bogged down in more complex issues associated with permanent property rights.	1.5 years	$224k

Source: Chapman Tripp and Wilson Hurst

9. Two iwi can be considered to have jurisdiction in Clifford Bay: Ngai Tahu and Rangitane o Wairau. There is potential for the Department of Conservation land at Clifford Bay (Grassmere Beach Conservation Area) to be vested in both iwi. As the land in question is directly in the path of development, this issue would need to be explored with both the Department and the Office of Treaty Settlements (OTS).

10. An initial meeting with the OTS has confirmed the project footprint and initiated an exchange of information relating to the Te Tau Ihu claims (for the top of the South Island eight iwi). OTS will advise if there are any requests for vesting of the Grassmere Beach Conservation Area land before any government decisions are taken. The Te Tau Ihu Claims Settlement Bill is expected to be referred back to Parliament in 2013 for its Second Reading, with legislation enacted by the end of this year. This means that the iwi claims will be settled and funds and land will transfer to the iwi entities.

11. During the resource consenting process carried out by TranzRail, agreements were reached with Ngai Tahu and Rangitane o Wairau regarding their interests in the Clifford Bay area. These agreements should inform future discussions should the project proceed to further stages.

Strategic risk management

12. Gaining access to the land for the project and consenting and geotechnical investigations should be one of the earliest activities undertaken if a decision is made to proceed. In order to manage risk for the consenting process and to avoid holdout by individual landowners, a strategy should be prepared to ensure that land access is secured through a of range of instruments. Negotiations should commence as soon as possible (if a decision is made to proceed) between the government and KiwiRail to finalise a sale and purchase agreement for the land in Clifford Bay Limited to Port-Co.

13. At the same time, discussions should begin with the Department of Conservation about the Grassmere Beach Conservation Area and any potential marginal strips. The purpose of these discussions is to secure a land swap with higher value conservation land that was identified during the TranzRail consent. Communication should continue with the OTS which will keep the project team informed of any requests regarding this land.

14. A shortlist of Land Information New Zealand accredited property specialists should be prepared so the priorities for the other land access tasks can be programmed.

15. These land negotiations should be agreed before resource consents are lodged rather than proceeding in parallel to reduce risk of opposition and landowner holdout.

Role of the owner/government

16. Selection of the appropriate vehicle for the project should take into account any possible need to access the government's rights of compulsory acquisition. Recourse to the government's compulsory acquisition powers is unlikely to be required for the project because:

    a) much of the core project footprint is held by Clifford Bay Limited and agreement should be reached in respect of this land

    b) the government's compulsory acquisition powers cannot be invoked in respect of Crown land (Grassmere Beach Conservation Area) or the common marine and coastal area

    c) the Supreme Court has recently held (in Seaton v Minister for Land Information) that the government cannot act as proxy to compulsorily, acquire land for utility operators or other entities needing to acquire land as a consequence of a government project (such as roads and railway lines to the project or utility connections for the project)

17. However, it may still be important for the project that sufficient government control is retained for the project to qualify as a government work under the Public Works Act 1981. This is because section 52 of the Public Works Act allows Crown land or common marine and coastal area required for any government work to be set apart for that work by the Minister of Lands by Gazette notice.

18. In the case of conservation areas, such as the Grassmere Beach Conservation Area, and the common marine and coastal area, the prior consent of the Minister of Conservation would be required. This may provide a useful alternative to the options and processes addressed above if control and management of the project remained vested in the government. It is recommended that the possibility of utilising this avenue of securing property rights is explored further with the relevant Ministers at an early stage.

Other entities

19. To the extent possible, providers of works associated with the project should be encouraged to pursue the property rights necessary for those works. These entities are likely to include:

    - Marlborough Lines Limited in respect of electricity distribution lines servicing the project
    - the NZTA and/or Marlborough District Council in respect of roads to the project
    - KiwiRail in respect of the construction of a railway line and any marshalling yards to connect to or be part of the project
    - quarry owners or operators (if it is intended to utilise resources from an existing quarry)

20. Following the Seaton decision discussed above, it would be important for the developer when undertaking the main project to work particularly closely with those of the above entities that separately have recourse to the power of compulsory acquisition under section 16 of the Public Works Act or section 186 of the Resource Management Act. Those entities will have the ability to utilise their own compulsory acquisition powers if necessary to enable them to provide their associated works in support of the advancement of the project as a whole.

21. The compulsory acquisition process allows the acquisition of only the rights that are necessary and requires the acquiring entity to have used all reasonable endeavours to negotiate acquisition of the rights before engaging in any compulsory acquisition process. As a result the options and process addressed above for supporting infrastructure remain relevant irrespective of any compulsory acquisition fall back options. However, increasingly landowners are aware of the spectre of compulsory acquisition. This incentivises landowners to reach agreement on property rights, reducing hold-out risk, and enabling a firm response to requests for unrealistic "premiums" to secure access rights.

Methods of retaining flexibility

22. Retaining some flexibility in the design, construction and operation of the project will allow the opportunity to achieve the best efficiencies in land access. The best method of retaining flexibility in the acquisition process is to utilise option agreements where the land access is secured whilst investigations, resource consents and any other approvals are completed. An option agreement can be drafted to include:

    - access rights for investigative work (including for design and resource consenting purposes) and an option to take up permanent property rights within a single agreement, together with other features likely to be sought by landowners (for example - agreed mitigation for anticipated effects of constructions and/or operations of the project)
    - a wide and therefore flexible description of the project components that can be located on the land
    - flexibility to give notice to acquire the land or the relevant lesser right over the land at any time during a defined option period as desired to match project timeframes
    - a wider envelope or corridor within which the final land area required can be determined and notified at the discretion of the developer
    - the possibility of surveying the final land area required post-construction, to ensure only the exact area (including any buffer) required is taken up
    - an option fee for the grant of the option and a figure or formula for the amount to be paid if the option is exercised (for example – based on the area finally taken)

- prohibition on objecting to the project and to require the landowner to give affected party approvals for the purposes of the consenting process

Consultation and landowner engagement

23. Consultation and landowner engagement will be important to determine the effects of the project on individual landowners and how these can be best be avoided, remedied or mitigated, together with property specific issues relevant to valuations. Effective landowner engagement will provide a forum for landowners, reduce opposition and the hold-out risk.

24. This is consistent with the recommended approach for stakeholder engagement described in the resource consenting chapter.

Engaging property professionals

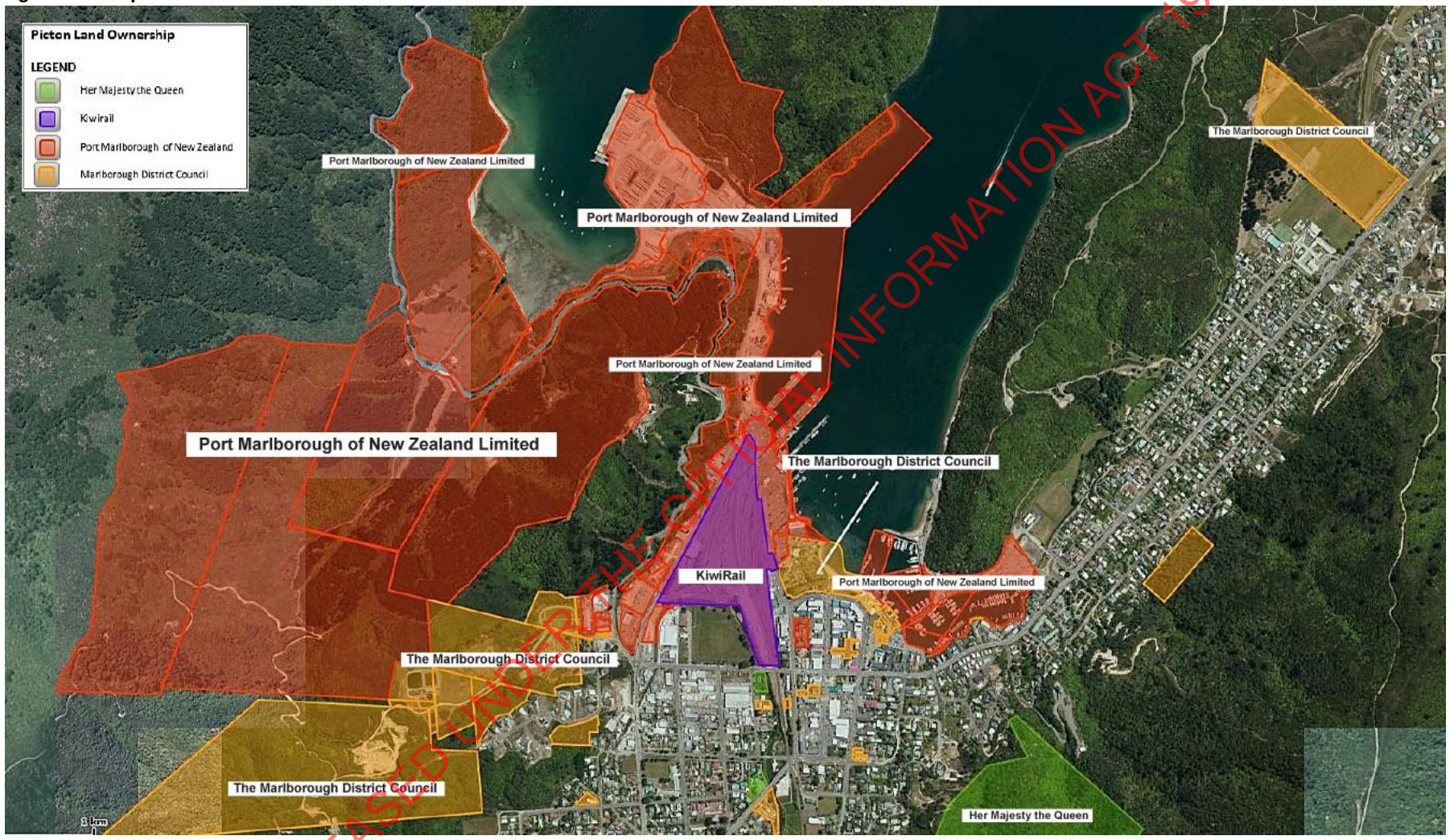
25. If the project is to progress then property professionals should be engaged at an early stage to ensure a strategic and focused acquisition process. This will include:

    - a Land Information New Zealand accredited supplier to advise the position of relevant marginal strips, the status and administering entity for affected Crown land, and the status and boundary of the marine and coastal area
    - a surveying firm to produce project layouts to inform landowners and to attach to option agreements
    - a valuation firm to recommend compensation elements to be offered to landowners
    - planning consultants to progress subdivision consents where necessary for any acquisition

26. If Clifford Bay is to be developed as the ferry terminal then land presently occupied by marshalling yards for rail and vehicles at Picton would no longer be required. Because of its size (approximately 10 hectares) and location within Picton, the land would need to be released in a planned and controlled manner and could assist with council and private business aspirations to redevelop the town. See Figure 24 for an overview of surplus land at Picton.

27. The present town of Picton is on the site of the Te Atiawa settlement of Waitohi, established by migrants from Taranaki in the late 1820s. In March 1850 the Picton site was bought from Te Atiawa who moved to nearby Waikawa Bay which remains a centre for their activities. Te Atiawa is regarded by the Marlborough District Council as the sole iwi with interests in Picton.

Figure 24: Surplus land at Picton



Resource consenting

Introduction and summary

- The scale and location of the project means it will be a significant resource consenting task.
- TranzRail consents obtained in the mid-late 1990s have fully lapsed but the Port zoning by Marlborough District Council remains.
- The Board of Inquiry process is recommended for consenting a project of this scale.
- The timeframe is two and a half years at the very shortest and potentially up to three and a half years. Enabling legislation would be an option that provides for a more certain duration in timeframe.
- The costs of this approach are included in the development phase cost estimate.

1. This chapter outlines a framework for advancing approval of a new ferry terminal at Clifford Bay under the Resource Management Act 1991 (RMA).

2. Obtaining the necessary RMA approvals will be a complex exercise as the project has a high degree of strategic significance, nationally, regionally and locally.

Previous consents

3. While resource consents have previously been granted to authorise the project (and designations have been confirmed for associated infrastructure), the resource consents obtained during the 1990s have since lapsed and cannot be relied upon. In addition, the RMA planning and documentation requirements relating to the project area have significantly changed since it was last considered.

4. TranzRail was the applicant for resource consents in the 1990s, but its successor KiwiRail would not be the appropriate applicant for the project now. The government's options for funding the construction and operation of the project, together with the need for the project to accommodate more than one ferry operator, are both relevant to the choice of applicant and procurement objectives and process.

5. The scale of construction, in the coastal marine area, and in a relatively remote part of New Zealand, would demand a high degree of effects management to satisfy RMA and other statutory requirements. This would involve not only a need for high quality technical analysis and design (to avoid, remedy or mitigate adverse effects), but also a process which effectively engages with stakeholders in that analysis and design.

Co-ordinated approach required

6. Aspects of the project, such as quarries to provide armour rock for the breakwater, are critical. It is recommended these are consented either prior to, or as part of, the project, rather than being left to be sourced from commercial providers, as would be common for other large construction projects.

7. There is a high level of local community interest in the project, including by the Marlborough District Council, and to a lesser extent other councils located in the upper South Island. The Marlborough District Council has a number of roles with respect to port activities, the RMA, and community leadership, all of which would need to be managed to allow the project consenting process to proceed efficiently and effectively.

8. Active engagement in RMA processes from well-resourced political, environmental, community and other interest groups should be expected. This is due to the very high profile of the project, how it sits with relevant environmental, economic and other issues, the scale of its construction impacts, its effects on regional development, and its consequences for transportation regionally and nationally. Those challenges are likely regardless of the quality of pre-RMA consultation or the general level of wider national support for the project.

9. Because of these significant consenting challenges, a considered, transparent and co-ordinated approach to consenting the project is recommended. This particularly includes:

    - project leadership, management capability and resources
    - consultation and engagement, including with affected communities
    - project design, effects analysis and effects management
    - the hearing of applications

Planning environment

10. The project applicant, should maintain regular contact with planning staff of Marlborough District Council to ensure that information on whether the port zone or quarrying rules are intended to be altered as part of the Wairau Awatere Resource Management Plan (RMP) review. It is also to avoid complications arising from the timing of the RMP review for the securing of RMA approvals for the project.

11. In addition to the current input to the informal pre-notification process underway, the project applicant should be prepared, if necessary, to make a submission on the RMP (in the event of any relevant RMP review process). Formal public notification is anticipated at the earliest in the last quarter of 2013 (and more likely in 2014). A submission could be needed both to defend the retention of the port zone and (potentially) to make any prudent adjustments to it to ensure it will be suitable in its size, shape, and general provision for the project.

12. Resource consents should be sought for all aspects of the construction and operation of the project (neither designations nor plan changes are warranted, having regard to the current RMP). Specifically, in addition to the port itself, the application(s) would likely need to encompass quarrying of rock for use in the reclamation and the breakwater, the reclamation itself, and various discharges.

13. Well in advance of lodgement of the application(s), protocols (such as by Memoranda of Understanding) should be reached with:

    - network utilities which will be responsible for infrastructure connecting to the project (e.g. road, rail, electricity), so that any RMA applications they would have to make are properly coordinated
    - Marlborough District Council as to protocols to be followed in community engagement and consultation, and social and economic impact assessments, and the choice of consenting track (Environmental Protection Authority Board of Inquiry (BOI) being the recommended option)
    - the Department of Conservation regarding processes for engagement during technical assessments pertaining to coastal, biodiversity and conservation estate statutory responsibilities
    - Tangata whenua, as to processes for engagement in the undertaking of cultural impact assessment

14. RMA steps can either be undertaken by the NZTA or the Ministry of Transport (at least prior to any legal entity being established for the construction and/or operation of the project). NZTA or the Ministry could be named as the consent applicant if the government seeks to retain overall responsibility and control of the project (or if that legal entity not be formed before the application is lodged). Otherwise, the applicant(s) could include any such entity. Should it be desirable to do so, the responsibilities for holding and/or complying with consents could be transferred to the responsible entity in due course (in those circumstances, consents should be sought on a basis that facilitates such transfer occurring).

15. Fresh resource consent applications, supported by fresh technical and other expert assessments and a comprehensive Assessment of Environmental Effects (AEE), will need to be prepared. Some of TranzRail's technical reports will likely be of some value, but only as background reference materials for the relevant experts who are appointed for the project. New assessments would also be required to support new aspects of the project (e.g. proposed quarries which are different from those proposed by TranzRail).

16. Before technical work in support of the application is commenced, a full planning assessment should be undertaken so as to confirm the resource consents required, and an optimal design approach to the consent application (covering, for instance, approaches to the use of management plans for effects management versus other options).

17. Some of the important technical and other expert assessments needed for the AEE will take significant time to complete, due to the need to undertake baseline assessment, modelling and data collection. These include:

    - social and economic impact assessments, which will need to be repeated given the period of time since they were last assessed. These assessments should be integrated with public and stakeholder consultation from an early stage
    - coastal processes, impacts within the marine environment, erosion, benthic and related ecology studies, fishing and marine farming, navigation
    - traffic and noise modelling and assessment

Assessment of effects

18. An AEE will be prepared in support of the applications for resource consents for the project. The likely contents of the AEE will be:

    - Introduction
    - Background to the project
    - The approvals sought for the project
    - RMA statutory considerations (this will include consideration of statutory documents as required under the RMA, and the main statutory considerations or legal tests of relevance to the project)
    - Other relevant approvals required (ie. non-RMA statutory approvals)
    - Description of the environment
    - Operation of the project
    - Construction of the project
    - Consultation and engagement (with stakeholders and the community)
    - Assessment methodology
    - Summaries of methodology and findings of technical work undertaken in support of the project (possibly including the effects of the quarry), this may include:
        - Economic effects
        - Social effects
        - Traffic and transport
        - Coastal processes
        - Oceanography
        - Coastal water quality
        - Sediment and plume effects
        - Ecology (terrestrial, coastal and marine)
        - Climate change
        - Geology and seismicity
        - Groundwater
        - Stormwater and hydrology
        - Archaeology
        - Tangata Whenua and cultural heritage
    - Environmental management and monitoring
    - Proposed conditions of consents

- Statutory assessment (i.e. providing an overall assessment of the project against the statutory considerations set out earlier in the AEE)

Consenting path and timeline

19. The Environmental Protection Authority Board of Inquiry consenting track is considered to be the most suitable choice for the project (in preference to Environment Court "direct referral" and traditional "two step" consenting (Council, Environment Court) because the project would meet the criteria for national significance and it has a defined timeframe for processing.

20. The project timeline is estimated to take three and a half to four years from the planning assessment stage until the BOI releases its decision on the project. Scope exists for a more aggressive programme to deliver within two and a half years. The BOI consenting road map with milestones is shown at the end of this chapter.

21. Critical to achieving the two and a half year timeline will be satisfactory completion of baseline surveys and environmental evaluations. The shortened programme raises risks for the application process that are not able to be fully assessed until confirmation is obtained from specialists as to minimum acceptable times for completing surveys and environmental evaluations.

22. The lower risk timeline includes an initial 24-month period to enable baseline surveys and technical assessment and analysis to be undertaken and a further four to six months for the AEE and consent applications to be completed. Within the three and a half to four year timeline, these steps have the greatest capacity for timesaving.

23. The two and a half year programme would rely on all environmental specialists being able to be satisfied that 13 months was professionally acceptable for the purposes of refreshing previous environmental survey data and evaluations. The shorter programme also relies on the AEE and consent applications being completed within three to four months. A programme such as this needs to be incentivised to ensure delivery to timeframes and an appropriate procurement model considered for this.

24. A consenting approach mid-way between the more aggressive and the lower risk timeline is reflected in the Development Phase Programme chapter.

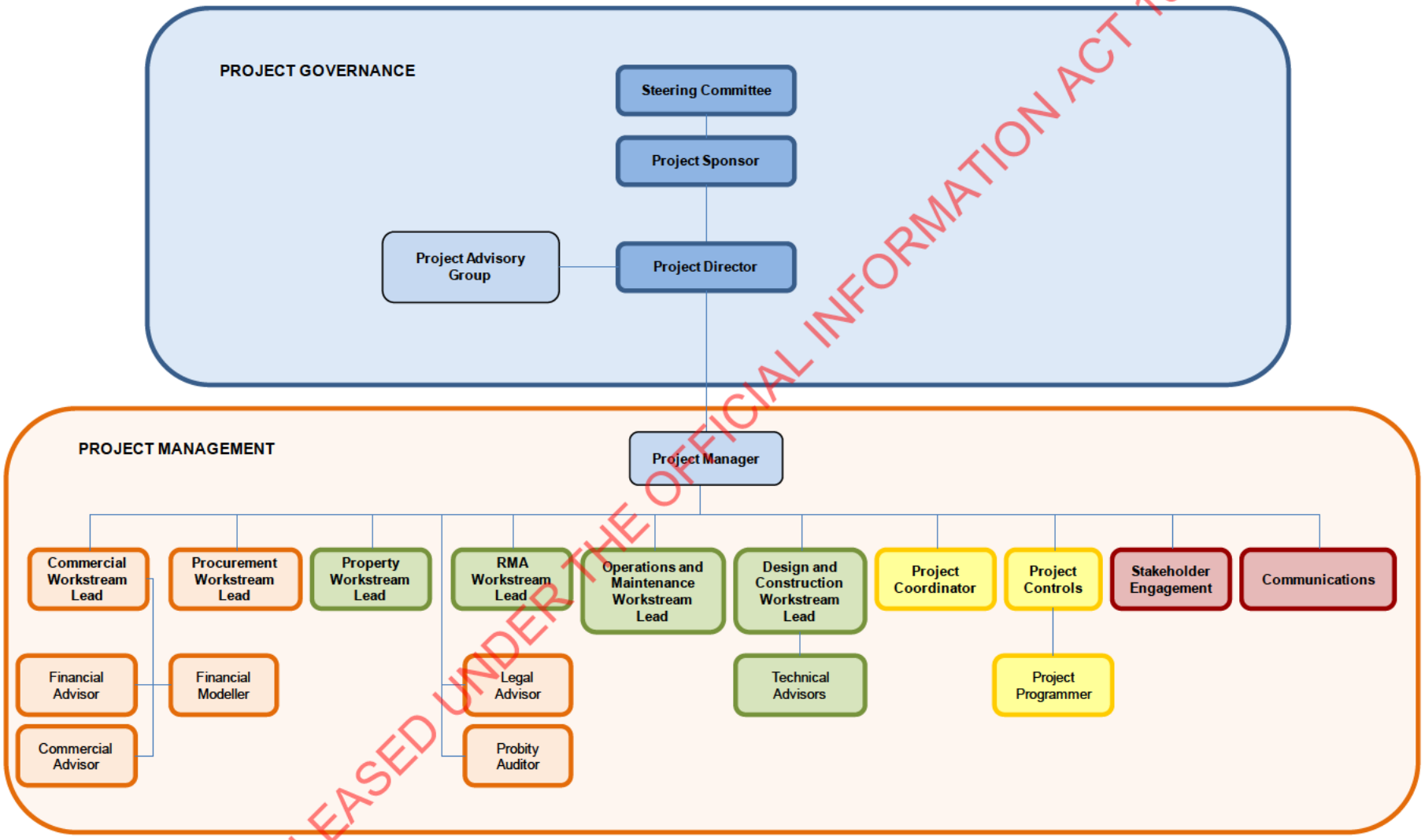
Project management and governance

Introduction and summary

- If the Clifford Bay project proceeds to the next stage, a project team will need to be formed to address the key workstreams outlined in the chapters on procurement, land access, resource consenting, and stakeholder enegagment. A strong governance function would be required to oversee and support this team.
- Governance arrangements would be driven by the Steering Committee, Project Sponsor and the Project Director. Management arrangements and activities would be driven by the Project Manager and the various workstream leads.
- The cost of this approach is included in the development phase cost estimate.

1. An indicative project organisation structure for the development phase is shown on the following page.

Figure 25: Indicative project organisation structure for the development phase



Project governance

Steering Committee

2. The Steering Committee would report directly to the Minister(s) and would be responsible for directing the development of the project and dealing with key issues.

Project Sponsor

3. The Project Sponsor would be responsible for:

    - ultimate authority and responsibility for the project
    - approving changes to scope, schedule, budget and quality
    - escalating and championing recommendations to the Steering Committee
    - providing policy guidance to the Project Director
    - endorsing the Project Management Plan to confirm that project scope and deliverables are correct
    - reviewing progress and providing advice on resolution of issues
    - supporting the Project Director
    - resolving issues beyond the Project Director's authority

Project Director

4. The Project Director would report to the Project Sponsor. Responsibilities include:

    - the successful delivery of the project scope as defined within the Project Management Plan or as varied
    - providing overall project management direction including management of project variations and overall project planning
    - providing budgetary and financial control for the project
    - providing quality assurance
    - reviewing and actively managing project risks
    - conducting project meetings, compiling and distributing minutes and other project communication documents
    - stakeholder management and communications oversight

Project Advisory Group

5. The role of the Advisory Group would be to advise the Project Director on international best practice in regard to the development of the project, particularly with respect to critical risks.

Project team

6. While the organisational structure shows functional reporting lines, these individual functions would work as a fully integrated team with clearly identifiable leadership for technical areas.

Project Manager

7. The Project Manager would report to the Project Director. Responsibilities include:

    - conducting resource allocation and managing the project team
    - to negotiate commission and manage, with the assistance of workstream leads the necessary team of advisors
    - to manage the project risk management process and Risk Management Plan, commission the support required and implement the process
    - to support the Project Director in overall project management, as required
    - to keep communications and stakeholder engagement informed of activities and any potential or emerging communications risks
    - to keep Project Controller informed of activities to ensure that they are recorded in the integrated programme

Commercial Workstream Lead

8. This role would report to the Project Manager. Responsibilities include:

    - leading further negotiations with ferry operators
    - leading provision of commercial advice to the project team
    - leading client commercial and financial advice related to project delivery, including development of contract, to financial close
    - keeping Communications and Stakeholder Engagement Lead informed of activities and any potential or emerging communications risks

Procurement Workstream Lead

9. The Procurement Workstream Lead would support the Project Director and Project Manager. Responsibilities include:

    - advising the Project Director on procurement strategies to deliver project requirements
    - assisting the Project Director in all facets of the procurement process to reach satisfactory financial close
    - keeping the Project Director informed of any identified potential or emerging risks
    - keeping communications and stakeholder engagement informed of activities and any potential or emerging communications risks

Property and Land Access Workstream Lead

10. The Property Workstream Lead would support the Project Manager. Responsibilities include:

- securing of required property and property rights required for the project in a timescale consistent with the programme for letting the project contract
- arranging land entry agreements for investigations or other site visits
- keeping the Project Manager and communications and stakeholder engagement informed of all property related risks and issues

RMA Workstream Lead

11. The RMA Workstream Lead would report to the Project Manager. Responsibilities include:

    - leading resource consents work
    - leading client planning and some environmental compliance advice
    - keeping Communications and Stakeholder Engagement informed of activities and any potential or emerging communications risks.

Operations & Maintenance Workstream Lead

12. The Operations & Maintenance Workstream Lead would report to the Project Manager. Responsibilities include:

    - leading client maintenance and operations advice
    - maintaining awareness of ferry operator user requirements
    - supporting the Project Manager in overall project management, as required
    - keeping Communications and Stakeholder Engagement Lead informed of activities and any potential or emerging communications risks
    - keeping Project Controller informed of activities to ensure that they are recorded in the integrated programme

Design & Construct Workstream Lead

13. The Design and Construct Workstream Lead would report to the Project Manager. Responsibilities include:

    - leading client engineering and some environmental advice
    - to negotiate, commission and manage, with the assistance of Project Controller, the Technical Advisor work packages
    - to jointly manage the project risk management process and Risk Management Plan
    - to support the Project Manager in overall project management, as required
    - keeping Communications and Stakeholder Engagement Lead informed of activities and any potential or emerging communications risks
    - keeping Project Controller informed of activities to ensure that they are recorded in the integrated programme

Project Controls

14. This role would support the Project Manager. Responsibilities include:

- developing and maintain project budgets including financial control
- provide regular financial updates (actual, baseline and forecast) to the Project Manager
- managing the project risk management process and Risk Management Plan, commission the support required and implement the process
- developing and ensure compliance with internal control procedures
- supporting the Project Manager in overall project management, as required
- administering all contracts let by project Team
- keeping the Project Manager informed of any identified potential or emerging risks
- keeping Communications and Stakeholder Engagement Lead informed of activities and any potential or emerging communications risks
- to develop and maintain a programme able to provide the programme outputs required for programme management and reporting purposes
- reporting to the Project Manager on programme risks and on mitigation activity progress and effects

Communications & Stakeholder engagement lead

15. This role would be split into two; a communications role and a stakeholder engagement role. Responsibilities include:

- analysing the feedback obtained from consultation and recommend any alterations that need to be investigated for inclusion in the project design to the Project Manager
- keeping Project Manager informed of any identified potential or emerging risks
- managing all Official Information Act requests and other external reports and responses
- maintaining a communications log detailing all queries received, responses given and any items being processed
- setting up and managing all external stakeholder liaison activities, including engagement with local communities
- actively engaging with team members to understand and advise on treatment of any potential communications risks

Budget

16. An indicative budget for the necessary project management and governance structure has been included in the development phase cost estimate.

Development phase programme summary

Programme and budget

1. The preceding four chapters cover procurement, land access, resource consenting, and project management/governance. In aggregate, these activities are all an integrated part of the pre-construction programme necessary to guide Clifford Bay successfully to a commitment decision in around 2018. They provide a description of the general approach to secure project land and land use rights, the consents/approvals necessary for the project, and the structural and procurement approach that would take the project to market and successful operation.

2. The government role and procurement chapters have outlined the investigation's view that for the project to successfully engage with private sector funding and capability, the government has a key sponsorship role in these areas if it wishes to proceed.

3. The high level strategy and planning work undertaken in each area has been extended into a summary integrated project programme and budget for the next phase of the project. It is suggested that this next phase be described as the "project development" phase.

4. The key resourcing decisions for the government if it wishes to proceed to the project development stage follow:

    - Establishment of a fit-for-purpose project team in early 2014 to develop detailed planning in each of these areas. This team would logically be domiciled in an organisation with core competencies in large civil project development.
    - Establishment of appropriate terms of reference, delegated authority and governance oversignt of that team.
    - An appropriation of $23.2 million allocated to the project over FY14-18 for project development.
    - A contingency allowance of $11.1 million earmarked over FY14-18 to secure land ownership and access rights for the project (to be fully appropriated and adjusted if necessary in 2014 once detailed valuation and acquisition planning had been completed strategies development).

5. The high level programme and phased budget are shown below.

Figure 26: Clifford Bay project development phase programme (integrating key consenting and procurement activities)

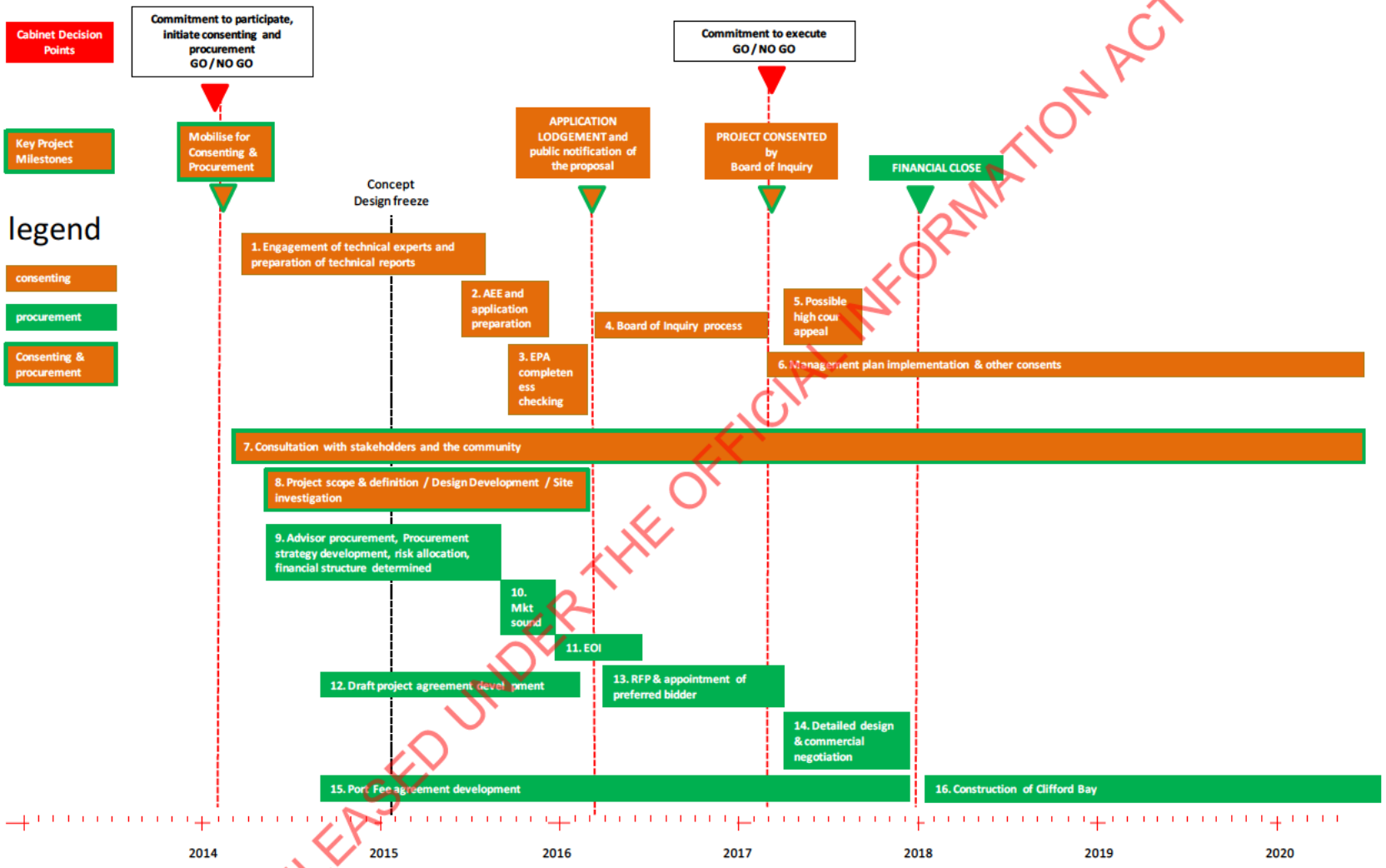


Table 36: Clifford Bay project development phase budget (integrating key consenting, procurement, and land securing activities)

Preconstruction Cost Estimate	Total		FY14	FY15	FY16	FY17	FY18
1. Engagement of technical experts and preparation of technical reports	**3,404**		801	2,403	200	-	-
2. AEE and application preparation	**2,114**		-	352	1,761	-	-
3. EPA completeness checking	**667**		-	-	667	-	-
4. Board of Inquiry process	**1,776**	consent	-	-	592	1,184	-
5. Possible high court appeal	not budgeted		-	-	-	-	-
6. Management plan implementation & other consents	incl in construction		-	-	-	-	-
7. Consultation with stakeholders and the community	**1,785**		155	466	466	466	233
8. Project scope & definition / Design development / Site investigation	**2,000**	joint	182	1,091	727	-	-
9. Advisory procurement, Procurement strategy development, determination of risk allocation approach and financial structure	**2,353**		294	1,765	294	-	-
10. Market sounding	in team costs		-	-	-	-	-
11. Preparation and running EOI process	**396**		-	-	396	-	-
12. Draft main project agreement development	**700**	procure	-	412	288	-	-
13. Preparation for and running of RFP process, and appointment of preferred bidder	**4,828**		-	-	1,207	3,621	-
14. Detailed design & commercial negotiation with preferred bidder	**2,448**		-	-	-	918	1,530
15. Port Fee agreement development with Ferry Operators	**700**		-	200	500	-	-
Total preconstruction excluding land	**23,169**		**1,432**	**6,688**	**7,099**	**6,188**	**1,762**
secure land access	**11,106**		278	1,111	1,111	1,111	7,497
Total preconstruction including land	**34,275**		**1,710**	**7,798**	**8,210**	**7,298**	**9,259**

Note that line item numbering allows cross-referencing to the programme view on the previous page.

Risks

Introduction and summary

- This section examines key risks in two areas: Risks to commercial viability and risks to construction and operation.
- A number of generic land access and consenting risks exist in the development phase, and these have generic and typical mitigation strategies. Of those risks specific to Clifford Bay, the most important to fully define and appropriately mitigate as early as possible in the development phase relate to Picton transition, operator commitment, and procurement (in the context of the government role and the maximum government appetite for direct investment and ownership of freight volume risk).
- Assuming a decision is taken to enter the development phase, the project should not move into procurement until ferry operator commitment is firm and Picton transition risk defined and mitigated.
- The project should not be committed past the development phase if the procurement process fails to deliver a result inside the government's appetite for direct investment and risk.
- This means the primary value at risk for the government if it decides to proceed to the development stage is the development phase budget.
- Overall, no fatal flaws have been identified in the high level review of construction and operational aspects which would materially impact on the Clifford bay site being an appropriate location for the South Island ferry terminal.

Key risks to construction and operation

1. Although the primary focus of the investigation has been on commercial viability, the investigation has undertaken a high level review of keys risks and issues relating to the construction and operation of Clifford Bay. A series of specific risks and issues have been examined that could impact on the ability to predict the cost of the facility to reasonable confidence levels and for it to perform to expectation and agreed service levels given the design vessel and climatic conditions. The objective of this review has not been to test for commercial or engineering optimisation but to check for fatal flaws in the ability to build or operate it.

2. In most cases this has involved a review of existing intellectual property overlaid with the implication of more recent information, events and development in user functional requirements. This high level review is in Appendix 1.

3. The main risk examined around construction is availability of construction material for the breakwater. All four quarries examined as part of this preliminary construction risk assessment are expected to be able to provide rock of required durability and quantity up to 1700kg (subject to consentability). However the larger rock (1.7-5 tonnes) appears more difficult to source.

4. Alternative armouring solutions have been identified that would remove the need for the 1.7 to 5 tonne rock at a small incremental cost (1% of expected project cost), at a higher confidence level, and able to be accommodated within the contingency allowance of the project. This is based on high level assessment and requires more detailed design should this option be required.

5. Further investigation and analysis of ship manoeurvring and stability needs to be undertaken to support the proposed port and terminal development, and in particular to reflect current assumptions and base data. This work is unlikely to result in changes to the project to such an extent that it will significantly affect the vessel operations, port development and project feasibility. This will need to be undertaken to support further planning and resource consenting phases.

6. While the seismic hazard to the proposed Clifford Bay site is not expected to change as a result of recent events it is recommended that as the project progresses ongoing dialogue be maintained with GNS and an update of the previous seismic study be completed if deemed necessary to inform the design phase.

Key risks to commercial viability

7. The following table looks at those risks that impact the potential viability of Port-Co. It looks at the way they can be allocated and managed, and the way they therefore impact on the commercial objectives of the participants. The risks separate into clusters that impact on the pre-conditions for project commitment in the development phase, the construction phase, and the operating phase.

Table 37: Risks and their mitigation strategies

Development phase key risks	Description	Mitigation
Land access	Land required for Clifford Bay construction and operation cannot be secured on acceptable commercial terms.	Secure core land requirements before entering resource consent hearing process. KiwiRail owns most of the required core project land and has agreed transaction protocols. Department of Conservation landswap template from late 90s exists. Terminate development phase if project land cannot be secured on acceptable terms.
Project approvals	Project approvals required for Clifford Bay construction and operation cannot be secured on acceptable commercial terms.	Secure cooperation agreements using effects-based mitigation early in the process with adjacent landowners and commercial operators. Establish high quality internal team and secure tier 1 advisors early. Adopt a consenting strategy that maximises focus on required outcomes and provides maximum freedoms on mitigation method and approach. Use a planning process with strong track record of predictability and performance to statutory timeframes to improve confidence levels. Terminate development phase if project approvals cannot be secured on acceptable terms.
Procurement	There is a lack of value for money/risk competitive tension and/or capability offered by the market.	Communicate procurement process and government role clearly from the outset. Provide selected government risk backstops around counterparty and freight volume risk. Establish high quality internal team and secure tier 1 advisors early. Facilitate involvement in the consenting/approvals process to minimise exposure to rework and delay once final approvals are granted. Terminate development phase if procurement outcome incompatible with government appetite for investment and risk.
Cost or risk creep in government role	Government direct investment requirement and/or risk participation is higher than expected.	Clearly establish maximum appetite levels for key elements of the government role early in the development phase. Ensure these are actively monitored and used as trigger points for re-evaluation. Rigorously model the expected value and distribution of freight volume risk; Ensure baseline freight volume growth assumption is biased conservatively. Use the procurement process to discover risk pricing options and allocate risks efficiently. Create a clear distinction between construction and operation risks, and freight volume risk. Allocate the former to constructors and operators. Do not commit to construction phase unless contract is awarded at

		an overall value inside government appetite. Terminate development phase if procurement outcome incompatible with government appetite for investment and risk.
Ferry operator committment	Ferry operators are not fully committed to Clifford Bay, undermining government planning confidence.	Ensure port fee agreements are locked down subject only to project specific conditions precedent before issuing EOI. Pay particular attention to maintenance of competitive neutrality and seek to move operators as near their indifference point as possible to minimise distortions to the competitive environment and public wealth transfer to them. Ensure risks are managed between operator and contractor so no unplanned residual risk spills over to the government.
Picton transition	Monopoly position results in ferry operators facing commercially unacceptable conditions in the transition from Picton.	In the design of the development phase programme recognise that this risk could impact fundamentally on the ability of the existing ferry operators to participate in Clifford Bay. Ensure Port Marlborough position with KiwiRail and Strait Shipping does not breach competition regulatory or legal requirements. Ensure key transition issues with existing operators and Port Marlborough are resolved before issuing an EOI. This will limit sunk costs and reputational damage to the Crown in the event of process failure. Be prepared to consider tripartite commercial discussions facilitated by the Crown if operators and Port Marlborough cannot resolve. Ensure adequate contingency plans exist around late Clifford Bay commissioning.
Construction phase key risks	**Description**	**Mitigation**
Time, cost & quality outcomes	Key time, cost and quality objectives not met during construction.	Contractor's risk. Establish clear accountability and risk transfer to the contractor in project agreement, and through ongoing best practice project controls and management. Foster a culture of innovation, learning and adaptation, and rapport so good ideas and improvements get implemented for mutual benefit. Ensure a clean risk handshake between operator and contractor exists so no unplanned residual risk spills over to the government. Have tight legally binding definition and control around preconditions and payment of government contribution to construction or operation.
Health and safety	Serious harm or fatality during Health and safety construction.	Require evidence of best practice H&S management in procurement, and weight contract award decisions accordingly. Audit compliance with H&S policy.

Environmental	Environmental harm or non-compliance during construction.	Require evidence of best practice environmental management in procurement, and weight contract award decisions accordingly. Audit compliance with environmental policy. Adapt systems and controls based on findings and learnings on the job.
Counterparty	One or more elements of contractor consortium fail during construction.	Secure adequate securities and remedies that can be drawn upon allow job completion at no cost to the government. Ensure a clean risk handshake between operator and contractor exists so no unplanned residual risk spills over to the government. Appropriately weight financial substance and stability in contract award decision.
Stakeholder management & reputation	Poor stakeholder management during construction sours relationships in the immediate location of the construction effort, impacting on rights of access and access flexibility.	Properly resource stakeholder management and run best-practice engagement and communications process. Run regular construction update meetings with adjacent operators and landowners to ensure local issues are identified and managed on the ground and early.
Operating Phase Key Risks	**Description**	**Mitigation**
Counterparty	A ferry operator fails.	Government backstop of KiwiRail port fee obligation. Otherwise ensure a clean risk handshake between operator and contractor exists so no unplanned residual risk spills over to the government.
Facility performance	Facility fails to deliver to agreed service levels.	Port-Co's risk. Ensure adequate commercial incentivisation of Port-Co exists around performance to agreed service levels. Ensure a clean risk handshake between operator and contractor exists so no unplanned residual risk spills over to the government. Ensure a workable and flexible new service/investment agreement template exists so Port-Co, operators and users have a practical way of implementing operating and capital improvements over the facility lifecycle.

Picton bypass	A third ferry operator commences business at Picton and removes volume from Clifford Bay.	Develop shadow business case for single vessel cut-price operation into Picton and assess its commercial viability to provide greater understanding of this risk. Ensure KiwiRail and Strait Shipping are committed to Clifford Bay before issuing an EOI. Ensure Clifford Bay pricing does not push users past their indifference point. Do not increase charges to westbound freight in the transition to Clifford Bay, as they receive no benefit. Do not increase charges to passengers in the transition to Clifford Bay as around half stay in Marlborough or travel to Nelson region. Provide a Crown backstop around overall freight volume risk.
Freight & passenger demand	Freight and passenger volume less than expected, reducing Port-Co revenue. This could be a function of broader economic factors or modal shifts to coastal shipping (freight) of air travel (passengers).	If government provide a risk backstop around overall freight volume risk as recommended, outside prescribed boundaries this would be a government risk. This approach would reduce risk pricing and means the contractor is not heavily exposed to volume or bypass risk. Risk appetite of the private sector should be explicitly tested at procurement phase to determine whether this is an efficient trade-off. Base-case freight volume modeling in commercial negotiation should be conservative to reduce the cost of this risk to the government

8. A number of generic land access and consenting risks exist in the development phase, and these have generic and typical mitigation strategies. Those risks specific to Clifford Bay, the most important to fully define and appropriately mitigate as early as possible in the development phase relate to Picton transition, operator commitment, and procurement (in the context of the government role and the maximum government appetite for direct investment and ownership of freight volume risk).

9. Assuming a decision is taken to enter the development phase, the project should not move into procurement until ferry operator commitment is firm and Picton transition risk defined and mitigated.

10. The project should not be committed past the development phase if the procurement process fails to deliver a result inside the government's appetite for direct investment and risk.

11. This means the primary value at risk in the medium term for the government is the development phase budget.

Stakeholder management and communications

Introduction and summary

- Engagement has been limited to key parties in Marlborough including the Marlborough District Council, Port Marlborough and Chamber of Commerce.
- Feedback on the report's conclusions is recommended prior to the government making its decision, at least to the ferry operators to ensure ongoing goodwill.
- A programme for informing key parties has been prepared for when the government is ready to release information on its decision.

1. All parties involved in the Clifford Bay proposal are called stakeholders in this report and include the ferry operators and their customers, Marlborough organisations and communities, the government sector involved in this commercial assessment, the media and public.

2. In addition to core engagement with the four primary commercial parties comprising the two ferry operators and their road and rail freight customers, only key parties in Marlborough have been kept informed of progress during the commercial viability phase. These Marlborough representative organisations include the Mayor and Chief Executive Officer of Marlborough District Council, Marlborough Chamber of Commerce, Destination Marlborough and Port Marlborough. The nature of engagement has been high level, with introductions to key project team staff and outlining what the commercial work phase involved. Meetings have also been held with key neighbouring landowners Peter Yealands and Dominion Salt at Lake Grassmere.

3. There have been repeated calls for economic impact and social impact work to be carried out prior to the conclusion of the commercial assessment, the stakeholder engagement has been useful in identifying key issues and effective in reducing the level of media attention on the project to date.

4. The report of the commercial assessment is eagerly awaited by the Marlborough community and a report back is recommended to the key stakeholders including ferry operators and, when appropriate, to the media and public. This should not prejudice any future decision making by the government, but is focused on updating key stakeholders at the conclusion of this phase of work. It would need to be a high-level summary of the overall conclusions and should emphasise that government decisions could take some months.

5. Not communicating high-level conclusions would lead to further concerns that Marlborough representative groups and their communities are being ignored and have no role in what is being decided about the ferry terminal location in their province. This is likely to result in ongoing media coverage in the local papers as local politicians and business leaders try to manage community and member expectations. If this communication is not considered acceptable prior to a government decision, then a separate strategy should be considered for communicating the high-level conclusions regarding the private benefits work to the two ferry operators, given the need for ongoing goodwill and collaboration. The risk of information leaks should be minimised by both ferry operators' concerns about keeping their business information confidential.

6. Within the Marlborough District Council territory eight iwi have Tangata Whenua status. Seven of these belong to the grouping of eight top of the South Island iwi, Te Tau Ihu (the prow of Maui's canoe). Te Tau Ihu will have its combined settlement legislation referred back to Parliament for the Second Reading shortly with the intention of the legislation being enacted by December 2013. The project team has met with Office of Treaty Settlements staff familiar with the issues and will keep them informed of progress.

7. For Clifford Bay, the two iwi regarded as having jurisdiction in this area are Ngai Tahu (through its Kaikoura arm Te Runanga o Kaikoura) and Rangitane o Wairau, based in Blenheim. Ngai Tahu's northern boundary on the east coast of the South Island is the White Bluffs (Vernon Bluffs) north of Clifford Bay. This is a disputed boundary with Rangitane o Wairau.

8. Local authority elections are scheduled for October 2013 and it is likely that candidates will be asked about their views on Clifford Bay.

9. Key stakeholder organisations in Marlborough associated with the unitary authority Marlborough District Council, particularly Port Marlborough, are generally negative to Clifford Bay. This view is entwined with the council's position as a major landowner in Picton and Blenheim as well as the sole owner of Port Marlborough. The Chamber of Commerce and Destination Marlborough both have wider perspectives and are more positive about the opportunities that could arise from Clifford Bay if there is assistance provided to support Picton through a new future and local organisations to redevelop their strategies.

Communications

10. The purpose of the communications is to convey the conclusions of the Clifford Bay commercial assessment. Decisions made by the government would be part of a future work stream and this is addressed in the section entitled Next Steps.

11. The audience for these communications is diverse, including key Marlborough stakeholders Marlborough District Council, Port Marlborough, Picton businesses and community, other Marlborough communities, ferry operators, commercial freight operators, the government sector, media and public.

Key messages

- The Clifford Bay project team has completed its evaluation of the commercial viability on the option of shifting the South Island ferry terminal from Picton to Clifford Bay.
- The report has been provided to the Minister of Transport, the Hon Gerry Brownlee.
- A key area of the report was to establish what the private benefits are to the two ferry operators of a move to Clifford Bay.
- The government is presently considering the report.
- We are aware that people in Marlborough want a decision on Clifford Bay.

Table 38: Delivery of decision

Channels	Content	Responsibility	Audience	Timing
Briefings	Presentation supported by video, media release	Minister supported by Ministry/project team	Interislander, Strait Shipping, Marlborough District Council, Port Marlborough, commercial freight operators	Just prior to media briefing
Media briefing	Presentation supported by video, media release, posters	Minister supported by Ministry/project team	Marlborough Express, Blenheim Sun, Radio NZ, Shipping Gazette, TV One, TV3	Once briefings are completed
Website	Media release, Backgrounder, FAQs, Presentation, video, posters	Ministry of Transport	Public, other media, available to Marlborough District Council and other organisations for public information	Once stakeholder and media briefings are completed
Ministerial speeches	Key talking points developed for relevant ministers and Marlborough MP	Prepared by project team for Minister of Transport, Prime Minister/Minister of Tourism, Minister of Finance, Minister for Economic Development, Minister for State Owned Enterprises, Minister for Building and Construction, Minister for Small Business	Marlborough meetings/audiences, infrastructure or finance gatherings	From date of public announcements

Key documents

12. There are several key documents prepared about Clifford Bay over the past three years that stakeholders in Marlborough have expressed interest in accessing.

13. They are: the Covec report, the Business Case 2012, the Engineering report 2012, Cabinet Papers from 2011 and 2012, and this report. In late January 2013, the Minister of Transport confirmed that there would be no release of reports until a decision had been made following the conclusions of the Clifford Bay Investigation report back.

14. Decisions are required on whether any of these documents referred to above could be released or whether a summary or version without commercially confidential information of some of them could be made available.

Regional economic impacts

15. The regional economic impact of relocating the inter-island ferry terminal from Picton to Clifford Bay has been a key concern expressed by the Marlborough community, its elected representatives and the majority of Picton-based businesses.

Covec report

16. During the 2012 Clifford Bay Business Case phase a report was prepared by Auckland-based consultancy Covec. This independent assessment was of the potential economic impacts of the new terminal on the Marlborough region and of the distribution of those impacts within the region. It analysed port construction impacts, impacts on changes in spending by the ports, ferry operators, KiwiRail and Sounds Air and the impacts of changes on visitation. It does not explore a reinvigorated Picton as a gateway to the Sounds.

17. There have been many requests for the release of the Covec report from Marlborough organisations including the Marlborough District Mayor Alistair Sowman. In late January 2013, the Minister of Transport clarified that there would be no release of reports until a decision had been made to terminate or proceed.

18. The Covec report looks at the worst case conclusions from a shift of the ferry terminal to Clifford Bay and could be considered unhelpful. Its major findings are that the Marlborough economy would contract by $12.7 million, 211 jobs would be lost in Northern Marlborough with 69 gained in Southern Marlborough with the total loss of 142 jobs. Whilst there would be significant shifts in spending resulting from the transfer with Northern Marlborough incurring a loss in regional GDP, employment and household income, Southern Marlborough would gain in each of these categories but not by an equivalent amount.

19. The non-release of the Covec report has been reluctantly accepted by the Marlborough community but there is a continuing concern that regional economic impacts and social impacts will not be part of the commercial evaluation process. The key message communicated to Marlborough stakeholders during engagement this year is that the assessment of these impacts is for a subsequent stage, if the project is to proceed.

20. Social and regional economic impact reports would be expected to be part of any resource consent application if Clifford Bay is to proceed. They would each be researched and prepared by independent experts who would be available to be questioned in an Environment Court / Environmental

Protection Authority process. To complete this work in advance of a strategy to cover the entire resource consent application would be imprudent.

Future opportunities for Marlborough communities

21. How Marlborough would respond as a region, and separate smaller centres such as Picton, Seddon and Ward, to a shift of the ferry terminal is a further workstream. As it is Marlborough's vision for the future it would need to be led by Marlborough representatives with some professional assistance. Stakeholder meetings during late March consistently brought up the subject of the region needing "help" or "compensation" to manage local impacts if the shift occurred. The timeframe stakeholders referred to was in the years before the relocation so the region could adjust, rebrand and refocus its activities.

Next steps

22. A government decision on whether Clifford Bay will proceed may take some time to finalise. Two options for decisions and actions for each of them are set out below, but it is acknowledged that there may be further options.

Decision A – Clifford Bay proceeds to approval/further design

23. Actions:

- Stakeholder plan to identify key parties and issues and recommend messages and method of interaction.
- Development of key messages.
- Plan for delivering key messages through recommended channels to all identified audiences including the industry and media as in the Delivery of decision table above, including development of collateral to support the decision.
- Specific work on opportunities for Marlborough communities, which would include planning for the Southern Marlborough towns of Ward and Seddon as well as how Picton works towards a new future.
- Identification of shop front and Clifford Bay information centre in Marlborough.

Decision B – Clifford Bay does not proceed at this time

24. Actions:

- Development of key messages.
- Plan for communicating decision to key stakeholders through recommended channels to all identified audiences as in the delivery of decision table above including development of collateral to support the decision.

SECTION 5 | APPENDICES

Appendix 1: Construction and operation – key risks and issues

Introduction and summary

- A high level review of key risks and issues relating to the construction and operation of Clifford Bay has been undertaken. The objective of this review has been to check for fatal flaws in the ability to build or operate the terminal. Existing intellectual property, along with more recent information has been reviewed.
- The main risk examined is availability of construction material for the breakwater. All four quarries examined as part of this review are expected to be able to provide rock of required durability and quantity but larger rock appears more difficult to source. An alternative solution for breakwater material has been identified. If the project proceeds, more detailed design would be required.
- Further investigation and analysis of ship manoeuvrability and stability would be required if the project proceeds to the next stage. Based on the high level review, this analysis is unlikely to result in changes that make the location unfeasible.
- The seismic hazard assessment of the proposed Clifford Bay site is not expected to change as a result of recent seismic activity in Marlborough. If the project proceeds to the next stage, an update of the previous seismic study is likely to be required.
- Operational risks such as storm events and tsunami have also been reviewed. No fatal flaws have been identified that would make the location unfeasible. However, additional data collection and analysis are recommended if the project proceeds to the next stage.

1. This chapter outlines the results of 2013 review studies that have been commissioned from Beca[42] and URS Ltd[43] to examine the continued relevance and ability to rely on previous work done on construction and operation. In particular, emphasis has been placed on identifying and improving understanding of key risks, and work that would need to be refreshed or extended in any subsequent stages.

42 Beca is an engineering and related consultancy service group in the Asia Pacific region, and has provided engineering support to Clifford Bay over the last 20 years, including concept designs in 2000 and 2012.

43 URS is an integrated engineering, environmental, construction and technical services organisation operating across the Asia Pacific region, and was involved in Port infrastructure assessment work on Clifford Bay in 2012.

2. The chapter is broken into three main components.

    - Risks in construction, which mainly discusses risks around rock supply.
    - Risks in ship manoeurvring, which discusses previous studies on how ships travel into the port and berth, including their stability at berth.
    - Performance risk of the facility in operation, which discusses exposure to seismic events, tsunami and storm, and the practicality of the assumed operational dredging.

Risks in construction

3. Beca was commissioned by the Ministry to review (and where appropriate update) previous work relevant to the construction and operational performance of Clifford Bay. Development of a ferry terminal at Clifford Bay has been the focus of various engineering and environmental studies.

4. In 2012, Beca, in conjunction with NZTA, Bond CM and Traffic Design Group provided an updated concept design and out-turn cost of Clifford Bay for the Ministry of Transport. The purpose of the update was to develop the functional requirements by extending the basis of design for a single user format prepared in 2000 to a multi-user facility. The update catered for the current ferry sizes for both rail and RoRo, quarry source, rail freight requirements, and passenger and commercial vehicle usage patterns.

5. The base scenario was a single pier, two berth layout to provide a multiple user port with supporting infrastructure designed to allow flexible operation between users. The table below summarises the capital cost for the base case as it was estimated in 2012 in the Beca work. Indexed to $2014 so as to be consistent with the other analysis, the total P50 cost is estimated at $434 million.

Table 39: 2012 Clifford Bay concept-level costing

Description	**Capital cost ($2012)**
Project base estimate	$338m
Project expected estimate, P50	$422m
90th Percentile project estimate, P90	$507m
Line item summary	**($2012)**
Preliminary & general	$46m
Breakwater	$75m
Reclamation	$51m
Dredging	$9m
Berths	$18m
Linkspans and ramps	$28m
Foot passenger terminal	$6m
Onshore facilities	$22m
Services	$5m
Rail facility & marshalling yards	$21m
SH1 to port facilities (by NZTA)	$15m
Principal managed costs	$41m
Total project cost	**$338m**
Assessment of risk & uncertainty (25%)	**$84m**
Total estimated out-turn cost	**$422m**
Total estimated out-turn cost restated in $2014	**$434m**

6. The 2012 report highlighted a number of risks related to construction that would need to be addressed in the future. The 2013 investigation approach has been to explore these risks, predominantly to test for fatal flaws in construction feasibility rather than refine design or cost estimation. The key areas of risk are examined below.

Sourcing of rock to armour the reclamation

7. The reclamation associated with Clifford Bay would require a large quantity of accessible rock material of the appropriate size/grading, durability and density, to provide protection from the sea environment. The high level design carried out in 2000 was based on using the Stirling Brook area as a suitable rock source. Project costs at that time were based on extracting and transporting material from there.

8. Since 2000 the owners of the Stirling Brook property have secured a QEII covenant[44] for the site. This means an alternative source will need to be found for the Clifford Bay project. A considerable risk margin was therefore allocated to the rock sourcing item during the work carried out in 2012.

9. The current investigation has carried out a qualitative suitability assessment of 25 quarry sites in the area. The top four scoring quarries were then considered in more detail.

10. To assess the risks associated with rock supply and the cost risk of obtaining rock from each of these sources, concept level quarry development plans have been prepared or obtained (where these already exist). Key risks in obtaining rock for the project follow.

    - The rock source – is there a sufficient volume of rock of sufficient quality and size grading?
    - Transportation – how far must the rock be transported and does this require new road construction, easements or land purchase? Are there restrictions on truck movements? Is rail viable?
    - Consenting – does the quarry have current consents and are they likely to be extended? For rock sources not already developed, are environmental factors likely to be surmountable?

11. The table below shows the relative probabilities (at a high level based on information currently available) of the top four sources able to produce the larger size material.

44 A QEII National Trust Covenant can be placed on a parcel of privately owned land that will legally protect it in its current natural landscape form in perpetuity. The site can then not be developed for other purposes.

Table 40: Rock source availability by quarry

		Rock weight	3000 to 5000kg	600 to 1700kg
Quarry	**Distance from Clifford Bay**	**Status**	**Probability of supplying suitable rock**	**Probability of supplying suitable rock**
Pukaka	58km	Consented	15%	65%
Barrack Rd	63km	Consented	65%	75%
Flaxbourne	5km	Consented	10%	50%
Blind River	28km	No consent	100%	100%

12. To put rock supply risk into context, the table below shows the various types and quantities of quarry rock required for the reclamation and breakwater.

Table 41: Rock source availability summary

Armour & underlayers					
Type	**Weight range**	**Breakwater**	**Reclamation**	**Total**	**Comment**
Heavy armour	3 to 5 tonne	105,000 m3	0 m3	105,000 m3	Material sourcing is a significant risk issue
Armour & underlayers	800 to 1700kg	10,500 m3	0 m3	10,500 m3	Material sourcing less of a risk issue
	600 to 1400kg	60,300 m3	13,700 m3	74,000 m3	
	500 to 1000kg	0 m3	32,400 m3	32,400 m3	Material sourcing not a risk
	300 to 700kg	0 m3	9,500 m3	9,500 m3	
	160 to 340 kg	0 m3	3,200 m3	3,200 m3	
	10 to 40kg	0 m3	26,000 m3	26,000 m3	
General fill	All in rock & rubble	465,000 m3	596,000 m3	1,061,000 m3	

13. There is a high degree of probability that all of the 600 to 1700kg rock required for the project would be able to be sourced from the three consented quarries. However, there is still significant doubt as to whether or not the heavy armour can be produced in sufficient quantity from the consented quarries. The most problematic size rock is the 3–5 tonne weight range. The risk of supply of this rock weight led to a further investigation into the feasibility of manufactured alternatives as part of this 2013 investigation.

14. Accropodes (manufactured concrete armour units) were found to be suitable alternative armour units for the seaward side of the breakwater. The cost and effort to form and place these can be derived with a relatively high level of confidence. The base cost of this option is likely to be higher given the cost of concrete compared with quarried rock. The reclamation armouring design would also need to be modified to incorporate their use.

15. Revised physical works cost estimates (including risk) have been developed based on the work carried out during this study, and this has found that the higher costs of this approach are offset by increased confidence in expected cost. This means that feasible mitigation to rock supply risk exists with a relatively high level of confidence, without requiring an increase to base cost assumptions. The project is therefore expected to be reasonably commercially resilient to an uncertain supply of heavy armour rock.

Risks in ship manoeuvring

16. This chapter describes assessments of the ship entering the port (called ship motions from deep water to berth), manoeuvring near the berth area (analogous to parking a car – called ship manoeuvring), and then stability at berth.

17. URS Ltd were commissioned to undertake a high level "peer review" of existing information[45] relating to the vessel operations at the proposed Clifford Bay port and ferry terminal development. The focus of the review was the adequacy of existing information including its robustness, methods, assumptions and conclusions.

45 The following is the list of primary information selected and reviewed as part of the URS scope of work.
Lawson and Treloar Pty "Clifford Bay, NZ Port and Terminal Development" Report J2229/R2076 December 2003. – Prepared for OMC
OMC: Clifford Bay stage 2: "Ship Motions from Deep Water to Berth." (Jan 2004)
Seatech Consultants "Clifford Bay Ship Manoeuvring Study 2003" – Prepared for Tranzrail NZ
OMC: " Clifford Bay Stage 4 "Ship Motions at Berth " (Report 2) – dated 13 July 2011
OMC: "Clifford Bay Mooring Analysis Part B: MoorMaster Units" – prepared for Beca 21 December 2010
Beca Report "Clifford Bay Port and Terminal Development Report No. 20 – Project Description for Clifford Bay 2000". Dated September 2000. Prepared for Trans Rail NZ Ltd.
Beca Drawings "Clifford Bay Port Development (Scenarios 1 – 4)" Dated Jan – March 2012

18. A strategic decision has been taken by Interislander to adopt a road bridging model. This means their future vessels will not be rail enabled. In addition, operators are likely to consider vessels that are generally larger than those currently in use as fleet replacement decisions are made. This may have a significant effect on vessel operations in the approaches to and within the port, the extent of the proposed port infrastructure and the associated project development costs.

19. The conclusions reached in previous studies were vessel specific, and the Aratere (before it was lengthened) was the design vessel for most of these. In addition, some of the environmental information used in the previous investigations and analysis is becoming dated. Vessel assumptions and environmental information need to be updated to reflect current assessment techniques as well as infrastructure technology developments. Overall, although much of this previous work is still relevant, the conclusions provided are not as robust and comprehensive as would be expected had assumptions about design vessel, recorded climatic and marine information, and user requirements been updated to the current understanding.

20. In addition, many of the previous reports were commissioned with a focus on particular and often singular objectives. Further work should adopt an integrated project approach to provide a more comprehensive evaluation and assessment of the coincident climatic and sea conditions that can be expected at the facility.

21. URS Ltd considered that further investigation, analysis and reporting would need to be undertaken to support the proposed port and terminal development. This work is unlikely to result in changes to the project to such an extent that it will significantly affect the vessel operations, port development and project feasibility. However, further investigation would need to be undertaken to support further planning and resource consenting phases.

22. This work is likely to result in more robust engineering design solutions to the vessel port related infrastructure such as, the breakwater location and extent, size of the vessel turning basin, ferry terminal pier, fendering and mooring systems as well as access for road vehicles to the ferries. This work may also include advice on times when adverse weather may affect vessel operations at the port.

Vessel fleet configuration

23. A summary of the most relevant vessel parameters are provided in the following table, which also includes an indication of the kind of vessel which may seek to use Clifford Bay in the future.

Table 42: Vessel parameters

Vessel	Year built	Length (m)	Beam (m)	Draft (m)	Propulsion & vessel manoeuvring	Service speed (knots)	Freight capacity	Passenger capacity
Strait Shipping								
Straitsman	2005	124.9	23.4	5.3m	2 main props, 2 bow thrusters and stabilisers	18.8	1,248 lane metre	400
Santa Regina	1985	137.0	22.5	6.0m	2 main props, 2 bow thrusters and high flap rudders	18.0	1,300 lane metre	370
Interislander								
Aratere (Extended in 2011 from 150m)	*1998*	*183.5*	*20.3*	*5.9m*	*2 main propellers (FP), 2 bow thrusters, 2X high lift rudders and folding fin stabilisers*	*19.5*	*28 rail wagons, 30 trucks or 230 cars*	*670*
Arahura	*1983*	*148*	*20.5*	*5.6m*	*2 main props (CP), 2 bow thrusters, stabilisers (CP)*	*20.0*	*60 rail wagons, 125 road vehicles, 12 trucks*	*550*
Kaitaki	*1995*	*181.6*	*23.4*		*2 main props, 2 bow thrusters, 2 high flap rudders*	*20.5*	*1,780 lane metre or 600 cars on 3 decks*	*1650*
Indicative future vessel								
Norman Voyager	*2008*	*186*	*25.6*	*6.6m*	*assumes 2 main props, 2 bow thrusters, 2 high flap rudders*	*24.2*	*2,285 lane metre*	*850*

24. Note the indicative future vessel length is similar to the maximum in the existing fleet but the additional draft at 0.7m, the increased beam at 25.6m and possibly additional wind effects on the larger exposed vessel superstructure will be additional factors to consider for vessel operations within the proposed port.

Ship motions from deep water to berth

25. The Aratere (before it was lengthened from 150m to 183.5m) was the design vessel selected for the Ship Motion Analysis report undertaken by Oceanic Marine Contractors in 2004. The primary recommendations of that work relate to channel depth associated with the nominated design vessel performance under particular combinations of adverse weather conditions. The vessel ship motions were considered at 14 separate locations for various predicted wind and sea states as the vessel approaches the port, manoeuvres within the port, berths and departs the port.

26. This report concludes that for the 5 hours in 1 year weather condition events, very little dredging is required to provide the channel under keel clearance for the nominated design vessel. However for the 1 hour in 5 year weather condition events, significant dredging of up to 1.7m depth is required to satisfy the vessel under keel requirements.

27. The design vessel adopted for this study was only 150m long, and the indicative future vessel has a maximum draft of 6.6m - approximately 0.7m greater than the draft considered in this report. These changes need to be considered as part of future ship motion analysis work as this is likely to provide the design basis for some of the port infrastructure. Consequently the conclusions of the earlier work on ship motions from deep water to berth are of limited value and as a minimum need to be updated using a range of nominated existing and future ferry design vessels representative of those expected to use the port. This relates to under keel clearance requirements in particular.

28. The findings of any further more comprehensive and up-to-date wave studies and climate information should also be incorporated into further ship motion analysis work.

Ship manoeuvring

29. Previous work on ship manoeuvring was reviewed. This work had the following as its prime objectives.

    a) To determine the manoeuvring area required for the design ship to reduce speed, turn and berth in high winds.

    b) Determine the manoeuvring area required for the design ship to leave the berth, gain safe steerage and clear the breakwater in high winds.

    c) Estimate the limiting wind speeds for safe berthing and departure.

30. The nominated design ship for this study was again the Aratere with an overall length of 150m, compared with the present length of this vessel of 183m. This limits the value of the conclusions of the previous work.

31. The wind speeds modelled ranged from 35–39 knots mean wind speed. Tidal currents were not modelled. 33 vessel runs were undertaken, 13 of which were outward bound and 20 inward. The vessel was turned for all inward runs within a proposed vessel manoeuvring basin located just to the north of the berth.

32. The report concludes that the proposed harbour layout would be feasible as regards ship manoeuvring subject to the provision of a dredged manoeuvring basin, assuming the results of the ship motion studies were also satisfactory. The extent of the dredged basin just north of the main ferry vessel berthing area was not expected to require significant dredging works to be undertaken.

33. The report presented maximum limiting wind speeds (knots) for berthing and departure, and stated that tidal and wind driven currents were not simulated as they were thought to only have a slight effect on ship handling, however it did advise additional work when the port layout had been confirmed with these currents added.

34. The URS Ltd review noted with concern that as part of the ship manoeuvring study the wave and swell conditions which are often associated with adverse wind events do not appear to be taken into account in combination with the high winds affecting the exposed surfaces of the vessel above the water line. URS Ltd recommended that further investigation into wind and swell generated wave climate in conjunction with high winds be undertaken if the project progresses.

35. URS Ltd advised that the future ferry vessel fleet could require a larger vessel turning basin located just to the north of the proposed ferry berthing area than that which was previously proposed for the 150m long Aratere. They recommended that a deeper draft similar to the indicative future vessel be utilised to determine the increase in under vessel clearance requirement. This may require the presently proposed vessel berthing area to be located further to the north in deeper water, the breakwater extended to the north and possibly also moved to the west, or additional dredging works to be undertaken, or a combination of these.

Vessel motion at berth

36. Previous work on vessel motion at berth was reviewed. This report considered the 150m long Aratere and the Kaitaki in its design parametres.

37. Appropriate combinations of wind generated waves, swell waves and long period waves (70s–100s) were considered to affect the vessel at the berth. Various return periods were considered for adverse weather events including: 12hrs/yr, 5 hrs/yr,1hr/yr, 1hr/5yrs.

38. The report concludes that:

    a) Traditional fender and mooring line arrangements will not safely moor either design vessel.

    b) Appropriate combinations of MoorMaster mooring units are able to successfully moor the vessel at the berth providing the linkspan is capable of preventing vessel surge. In addition the interaction of the MoorMaster mooring units with the linkspan relating to sway at the stern of the vessel needs to be further investigated.

    c) Downtime of 1 hour per 5 years can be expected with the vehicle link span.

39. The vessel motion at the berth needs to be reviewed with consideration to the full range of ferry vessels that are anticipated to use the port, and the interaction between the mooring systems and the stern link span arrangement also needs to be carefully considered.

Risks in operation

- The following operational risks were highlighted in the 2012 Beca report and have been investigated as part of this current phase.
- Seismic risk.
- Tsunami risk.
- Risk of a significant storm event (both in operation and during construction).
- Sediment build up and dredging requirements.
- Wave action in the port in operation.

40. Historical studies and reports relating to the above risks were prepared to support the previous resource consent process and design in 2000. This material was reviewed with key recommendations summarised. In addition, new information developed since that time was collated and interpreted.

41. In summary, no fatal flaws have been identified in the course of the current study which would materially impact on the Clifford Bay site being considered as an appropriate location for the new facility either during construction or operation.

Seismic risk

Previous studies

42. The proposed Clifford Bay facility is located in an area of high seismic hazard and on a site with generally competent rock subsoil material covered by approximately 2m of sandy muds. Several earthquakes with magnitudes between 5.3 and 7.3 have occurred within 200km of the site in the last 150 years. Also, more than a dozen known active faults, closer than 100km from site are considered possible sources of strong shaking at the site.

43. A report prepared in 1996 by Beca Carter Hollings and Ferner documented the results of a seismic hazard analysis carried out for the proposed site in conjunction with the Institute of Geological & Nuclear Sciences Ltd (GNS).

New information

Earth quakes

44. In 2010 an updated seismic model was released by GNS that supersedes previous models. This should be used as the basis of seismic design of the new port facility. It is anticipated that a site specific seismic study should also be carried out as a parallel check of design requirements.

45. It is considered that previous recommendations in regard to the maximum level of shaking due to a local event associated with the London Hill fault are still appropriate. No new faults in the vicinity of the proposed port have been discovered.

46. Localised uplift of the Lake Grassmere area is expected due to on-going activity on local faults and at the Hikurangi subduction zone due to collision of the tectonic plates. The likelihood and quantum of such movement is not expected to be large (if at all) over the expected life of the facility. However, the likelihood of this risk needs to be better understood to inform design.

Liquefaction

47. Since 2000, the Christchurch earthquakes have provided a clear reminder of the impact of liquefaction on infrastructure. As outlined in the chapter discussing previous studies, the Clifford Bay area is underlain by sediments which could liquefy in a seismic event.

48. Foundation conditions for infrastructure will therefore need to be designed to appropriately mitigate this risk. Geotechnical testing to inform the detailed design phase should be scoped to assess the liquefaction risk associated with the currently proposed port layout (both offshore and on shore components).

The 2013 Cook Strait earthquakes

49. In the course of completing this current study, the Cook Strait region has been subject to significant seismic activity during July and August 2013 with two magnitude 6.5-6.6 earthquakes at an epicentre around 15-20km from the proposed port site. Those quakes were accompanied by numerous aftershocks and have been of national interest.

50. This has subsequently raised questions about the seismic hazard to the proposed site and appropriateness of previous design assumptions.

51. In the course of preparing this report various discussions have been held with GNS (both pre and post-earthquake) to gain the most-up-to-date understanding of the seismic hazard and future work to be carried out to inform the design stage.

52. The key points from these discussions are as follows.

- The recent M 6.5 event generated ground motions approaching 10% of 1 in 50 in year ground motions, which is significantly less than has previously been recommended for design purposes, that is M 7.3 event on the London Hill fault with an epicentre 1km from the site.
- The seismic hazard to the port is not likely to change due to recent events. The regions seismic hazard model has been built based on numerous events over a sustained period (the July activity is well within the boundaries of the hazard model).
- The recent events are not considered unusual. It is anticipated that similar sized events are expected to occur in the region once every ten years or so.
- Fault activity within the Cook Strait area is complex and it appears that the recent activity may be on a previously unknown fault or an offshore extension of an existing, but poorly understood fault. It may even be due to events on more than one fault. Work is progressing to inform the underlying faults associated with the recent events.
- Additional seismometres are being installed throughout the region to assist in the above process.

Recommendations

53. While the seismic hazards to the proposed Clifford Bay site is not expected to change as a result of the recent events, it is recommended that ongoing dialogue be maintained with GNS and an update of the previous seismic study be completed if deemed necessary to inform the design phase.

Tsunami hazard

Previous studies

54. A study on tsunami hazard to the port was carried out by Beca Carter Hollings and Ferner in 1996. The study was based on a benchmark study prepared by Barnett et al (1991) for the Museum of New Zealand site in Wellington Harbour. That numerical analysis was based on design waves caused by faulting in a local earthquake and on an estimate by Gilmour (1989) of a 100 year design tsunami for Cook Strait. The 1996 study considered water fluctuations from both remotely and locally generated tsunami.

Interpretation

- Previous studies concluded the following in regard to tsunami. A water level rise of 3.1m due to long-period remotely-generated tsunami should be designed for. The proposed terminal building floor level has been assumed to be 3.75m above chart datum which is clear of the water level noted above.
- Important services should be waterproofed or located on the breakwater wall at an elevation above 3.5m.
- Fire fighting equipment should be keep clear from the tsunami zone of influence.

New information

55. GNS have been collecting and analysing evidence of historic and pre-historic tsunami at Big Lagoon at the mouth of the Wairau valley (approximately 20km from the proposed Clifford Bay port site) over the past 10 or so years.

56. Later this year a coastal tsunami hazard model will be available which will provide information on the likely size and return period of tsunami around the New Zealand coast line, including the Clifford Bay area, which will supersede previous estimates.

Conclusions and recommendations

57. The key conclusions and recommendations out of the 1996 study and information available since that time are as follows.

    - An evacuation plan should be developed for the contingency of inundation by remotely generated tsunami.
    - Numeric models of possible tsunami events should be developed based on the research undertaken to assess the impact at the port site and inundation extent to both inform the design and emergency procedures.
    - Based on previous studies it would appear that while tsunami hazard and risk needs to be considered and addressed in design it is unlikely to represent an overly restrictive constraint on the viability of the proposed facility.

Sediment build up and dredging in operation

Previous studies

58. The following studies have been carried out on the sediment transport associated with the proposed port and terminal development at Clifford Bay, and have been reviewed in this investigation phase.

    - NIWA (Green Black and Carter (1996))
    - Kirk and Single Report 1996
    - Coastal Consultant Ltd (1998)

Conclusions and recommendations

59. The key conclusions of these studies have been checked against the assumed dredging and foreshore management requirements in the Clifford Bay concept design.

60. Previous estimates of likely dredging requirements appear to be at the right order. Studies for resource consents will need to be more rigorous than those carried out for the 1998 application. A hydrodynamic model of the wave and tidal current regime will likely be required as well as a coupled sediment transport model to better understand the sediment capture and potential adverse effects.

Storm related risk during construction and in operation

Previous studies

Beca carried out hydraulic studies in 1996 (this assessment made use of wave and current information recorded at the site and built on the work carried out on a number of other studies in 1995) and in 2000 when expected hydraulic conditions were integrated into the development of a construction methodology aimed at minimising cost and rework due to adverse marine conditions Maximum expected storm conditions

61. The design wave conditions (based on significant wave heights for the site) are summarised below.

Table 43: Design wave conditions

Deep water direction	Return period (Years)											
	0.2		1		5		50		100		200	
	T (s)	Hs (m)	T (s)	Hs (m)	T (s)	Hs (m)	T (s)	Hs (m)	T (s)	Hs (m)	T (s)	Hs (m)
NW	3.6	1.1	3.8	1.2	4.0	1.6	4.2	1.9	4.4	2.1	4.4	2.2
N	5.1	1.8	5.2	2..0	5.3	2.0	5.8	2.8	5.9	2.8	6.0	3.0
NE	5.5	1.6	6.4	2.2	7.5	3.2	8.2	4.2	8.3	4.5	8.5	4.8
E	-	-	-	-	8.3	2.7	9.7	3.8	9.8	4.4	9.8	4.8
SE	9	1.9	9	2.3	9.3	2.2	10.3	3.2	10.5	3.4	10.7	3.8
S	-	-	-	-	10.7	1.9	12.1	2.9	12.4	3.3	12.7	3.7

T = Wave period in seconds (i.e. the time between successive wave crests)
H^s = Significant wave height in metres (i.e. the wave which represents the average of the highest 33% of the waves)

In operation

62. The current concept design uses 5.5m as the significant wave height. Using this design wave the main breakwater height was set at 6m above chart datum increasing to 9m above chart datum in the vicinity of the operational area to minimise splash and overtopping locally. At detailed design stage a physical model should be developed to assess the extent of overtopping and overflows to be accommodated by the physical drainage system.

During construction

63. The information in above would be used by an experienced marine contractor (along with the background raw data collected at the time) to develop and implement a construction plan which would include staging and allowance for rework during construction as a result of a storm event with a return period of up to 5 years.

Conclusions and recommendations

64. The primary conclusions are as follows.

- If Clifford Bay proceeds to the next phase, collection of wave data should recommence.
- Modelling should be undertaken during detailed design to provide better information on wave size.
- It is expected that an experienced marine contractor will be able to utilise collected wave data, studies and modelling in order to develop an appropriate strategy to mitigate and allow for rework in a storm event. Contract documentation should be used to provide incentives to contractors to proactively manage these risks.
- The breakwater has been located and orientated to provide protection from storm events that are possible over the life of the facility. The level of the breakwater has been set such that overtopping occurs in infrequent events and infrastructure will be designed to accommodate this

Report

Clifford Bay - Update of Port Schemes, 2012

Prepared for Ministry of Transport (Client)

By Beca Infrastructure Ltd (Beca), Traffic Design Group (TDG), Bond CM (BCM) & the New Zealand Transport Agency (NZTA)

12th April 2012

Commercial in Confidence

Issue 1

Revision History

Revision N°	Prepared By	Description	Date
A	(Peter Twomey, Dave Chester, Mark Sneddon, Stephen Priestley) Beca, Ryan Dunn (TDG), Morgan Pheloung (BCM), Andrew Adams (NZTA)	First Draft for Review and Comment	22 February 2012
B	As above	Final Draft to NZTA	2 March 2012
C	As Above	Revised Final Draft (SC#4) for review and comment	5 April 2012
1	As Above	Issue 1 to include new SC#4, remove SC#2 and General Update	12 April 2012

Document Acceptance

Action	Name	Signed	Date
Prepared by	As above		12 April
Reviewed by	Peter Twomey		12 April
Approved by	Stephen Priestley		12 April
on behalf of	Beca Infrastructure Ltd		

Appendix 2

Scenario 1, 3 and 4 Ferry Terminal Drawings

Drawing Plotted: 11 Apr 2012 1:48 p.m.

CLIFFORD BAY

PORT DEVELOPMENT

SCENARIO 4

Project No **3121941**

Prepared for

Ministry of Transport
TE MANATŪ WAKA

By

Beca

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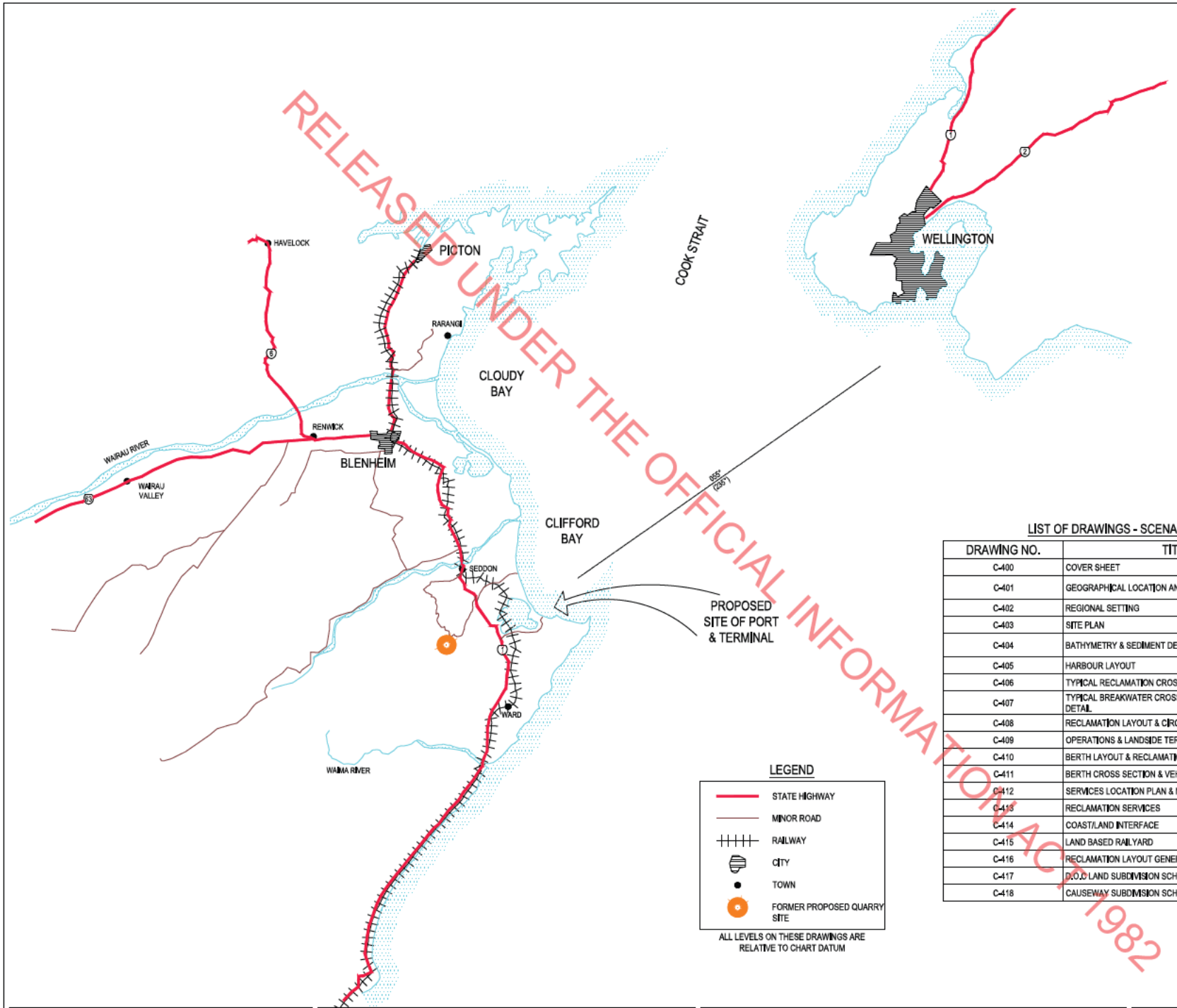
Beca

Drawing No. 3121941-C-400 | Rev. A

Document No. 3121941-C-400.DWG



LIST OF DRAWINGS - SCENARIO 1

DRAWING NO.	TITLE
C-400	COVER SHEET
C-401	GEOGRAPHICAL LOCATION AND DRAWING LIST
C-402	REGIONAL SETTING
C-403	SITE PLAN
C-404	BATHYMETRY & SEDIMENT DEPTHS
C-405	HARBOUR LAYOUT
C-406	TYPICAL RECLAMATION CROSS SECTIONS
C-407	TYPICAL BREAKWATER CROSS SECTION & ROUNDHEAD DETAIL
C-408	RECLAMATION LAYOUT & CIRCULATION
C-409	OPERATIONS & LANDSIDE TERMINAL LAYOUT
C-410	BERTH LAYOUT & RECLAMATION TERMINAL LAYOUT
C-411	BERTH CROSS SECTION & VEHICLE BRIDGE
C-412	SERVICES LOCATION PLAN & NAVIGATION LAYOUT
C-413	RECLAMATION SERVICES
C-414	COAST/LAND INTERFACE
C-415	LAND BASED RAILYARD
C-416	RECLAMATION LAYOUT GENERAL ARRANGEMENT
C-417	D.O.C LAND SUBDIVISION SCHEME PLAN
C-418	CAUSEWAY SUBDIVISION SCHEME PLAN

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Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: GEOGRAPHICAL LOCATION AND DRAWING LIST

Discipline: CIVIL

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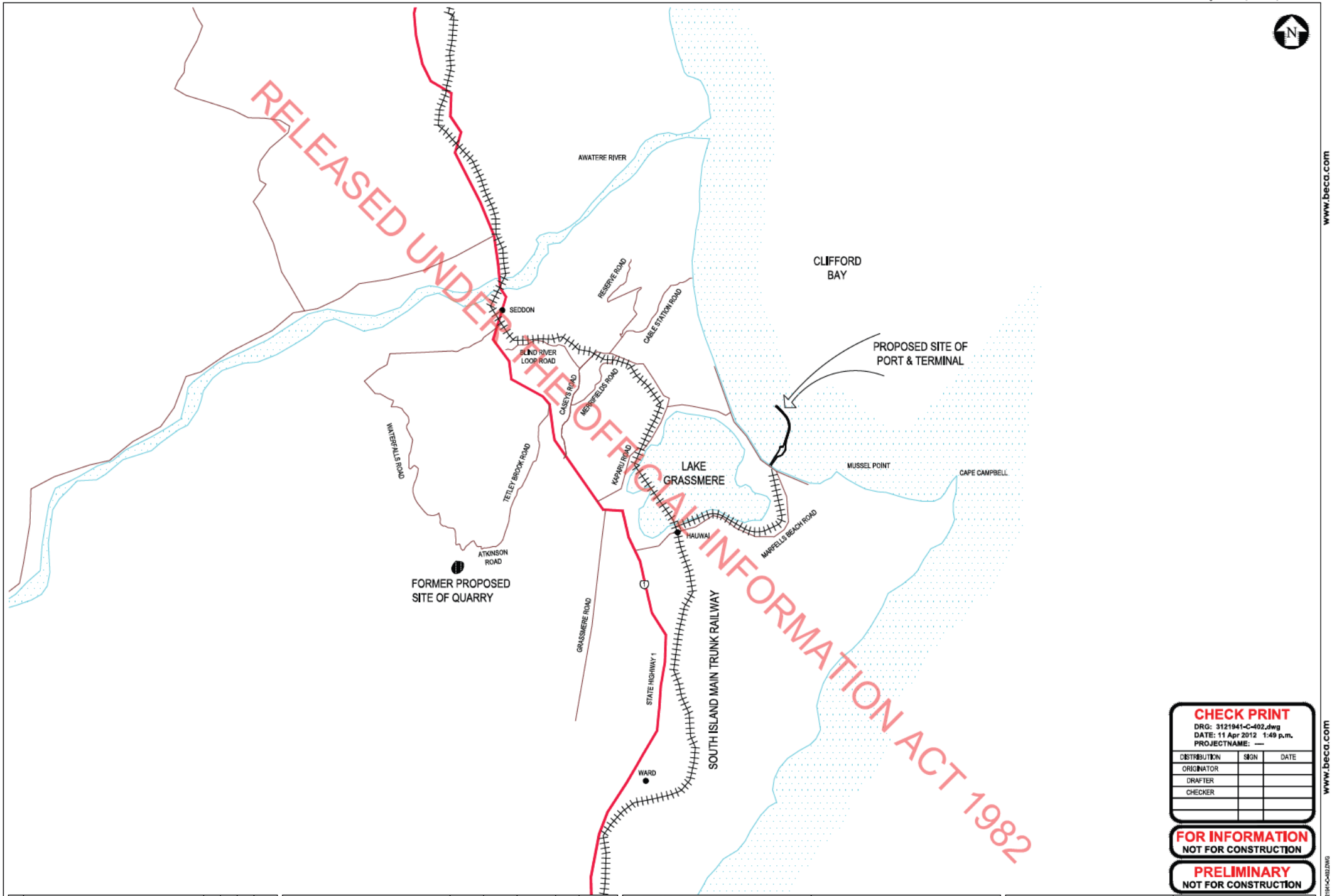

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Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: REGIONAL SETTING

Discipline: CIVIL

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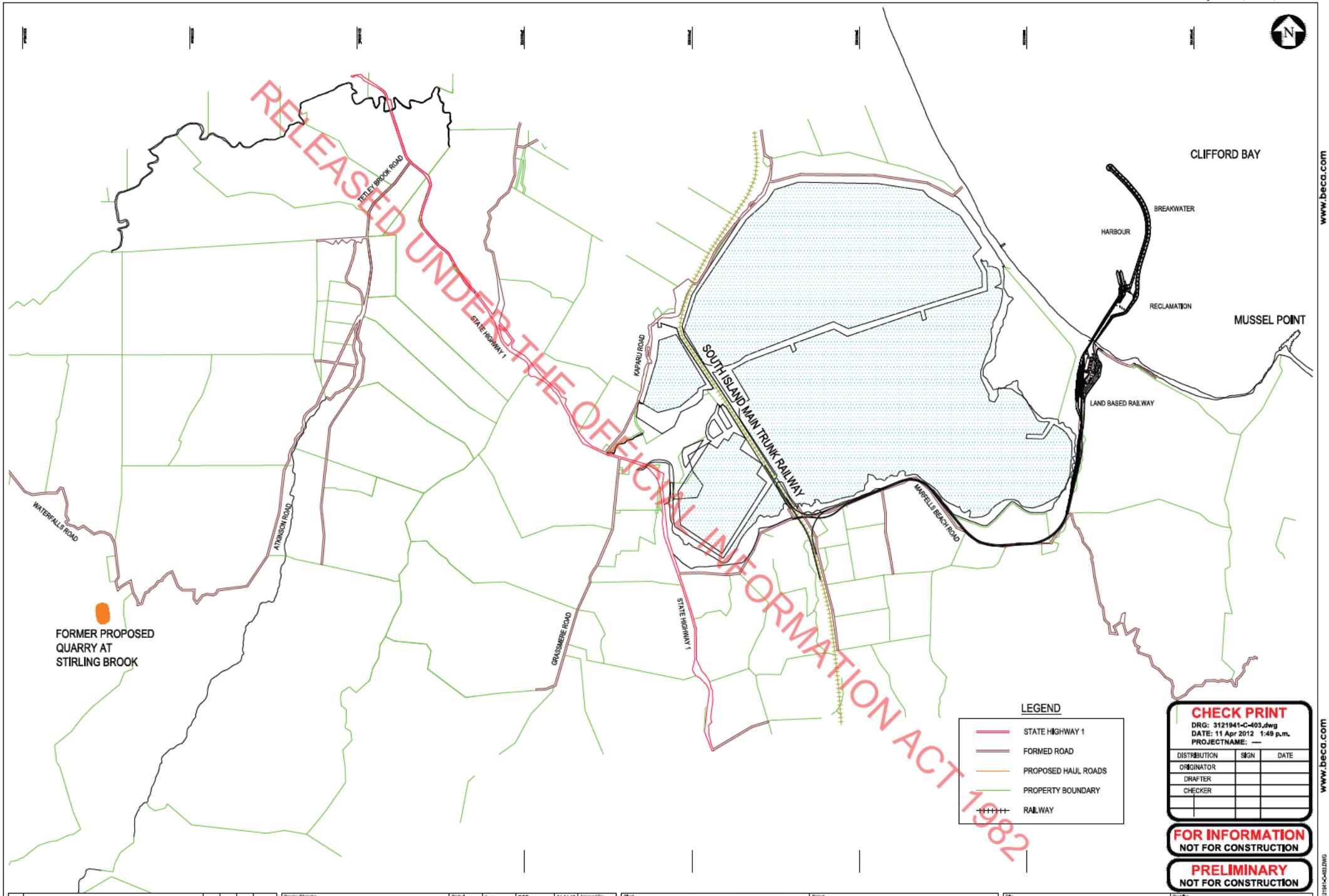

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Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: SITE PLAN

Discipline: CIVIL
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Rev.: A

Document No.: 3121941-C-403.DWG

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APPROXIMATE LOCATION OF BORROW AREA FOR RECLAMATION FILL

TIDE LEVELS (RELATIVE TO CHART DATUM)

CONDITION	ABBREVIATION	LEVEL (m)
HIGHEST ASTRONOMICAL TIDE	HAT	1.9
MEAN HIGH WATER SPRING	MHWS	1.7
MEAN HIGH WATER NEAP	MHWN	1.6
MEAN SEA LEVEL	MSL	1.1
MEAN LOW WATER NEAP	MLWN	0.5
MEAN LOW WATER SPRING	MLWS	0.4
LOWEST ASTRONOMICAL TIDE	LAT	0.2
CHART DATUM	-	0.0

LEGEND

-9	SEABED SURFACE CONTOURS RELATIVE TO CHART DATUM
⊕ 100	PROBE LOCATION WITH DEPTH TO SILTSTONE BELOW SEABED SURFACE IN mm
● 100	TEST/SAMPLE LOCATION WITH DEPTH TO SILTSTONE BELOW SEABED SURFACE IN mm

100 50 0 50 100 150 200m

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Original Scale (A1) 1:5000 | Reduced Scale (A3) 1:10000

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Dwg Verifier			
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Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: BATHYMETRY AND SEDIMENT DEPTHS

Discipline: CIVIL

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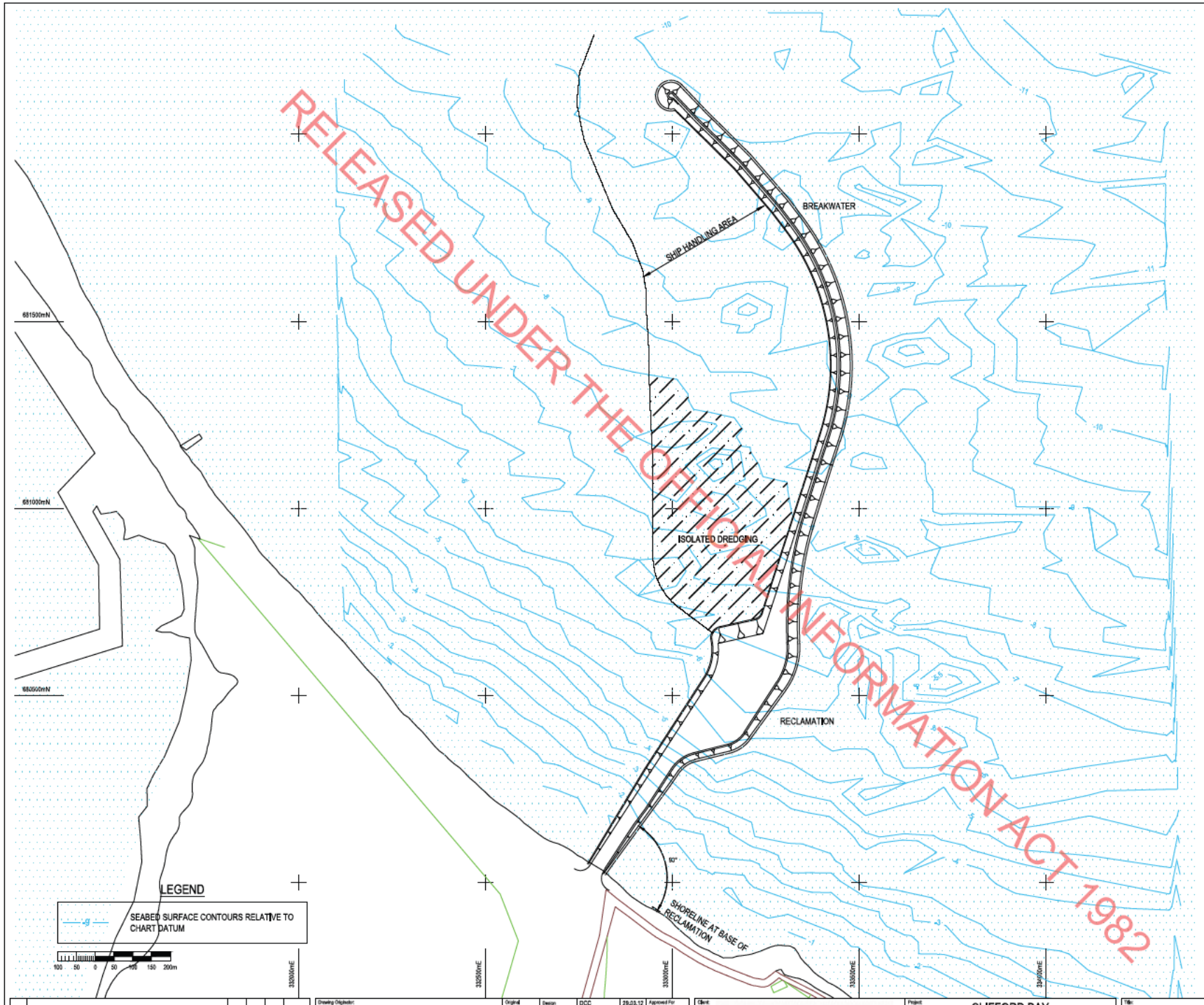
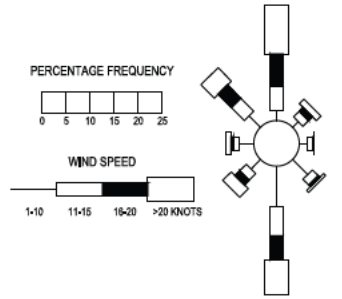
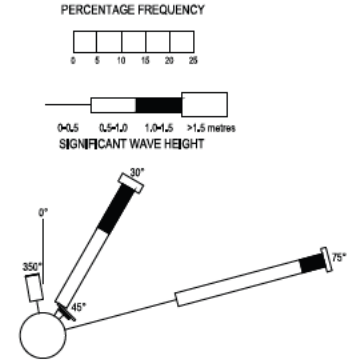




MARFELLS BEACH - WIND DIRECTION

BASED ON CAPE CAMPBELL WINDS



WAVE DIRECTION

LEGEND

SEABED SURFACE CONTOURS RELATIVE TO CHART DATUM

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Drawing Originator: Beca

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Reduced Scale (A3) 1:10000

Design	DCC	28.03.12	Approved For Construction*
Drawn	DCC	28.03.12	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: HARBOUR LAYOUT

Discipline: CIVIL

Drawing No.: 3121941-C-405

Rev.: A

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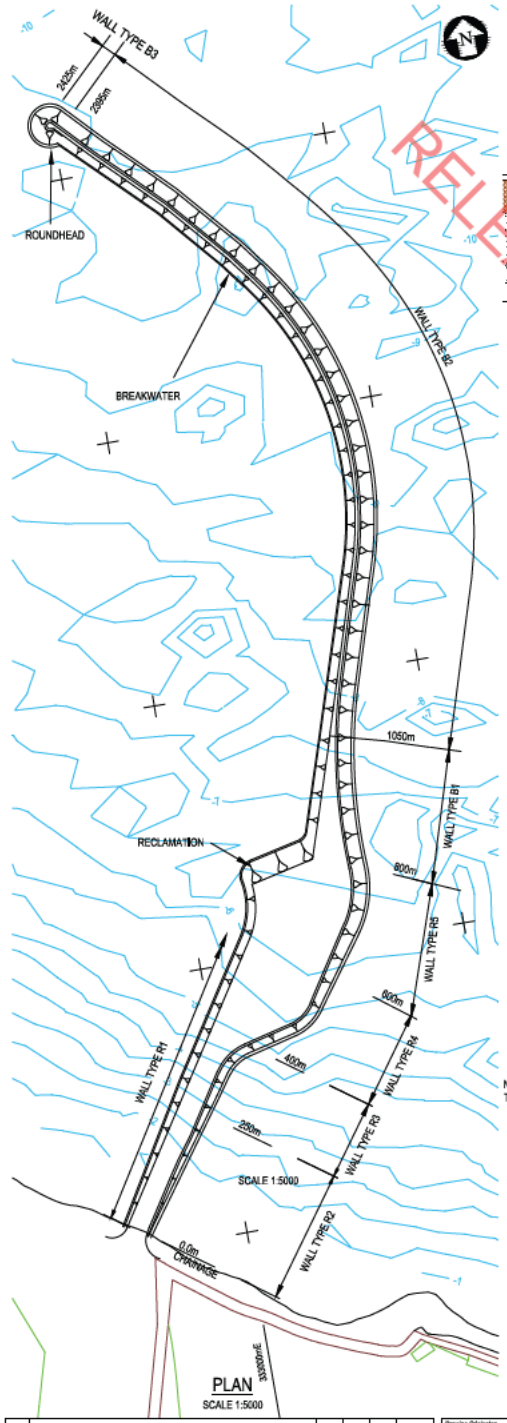
Document No.: 3121941-C-405.DWG



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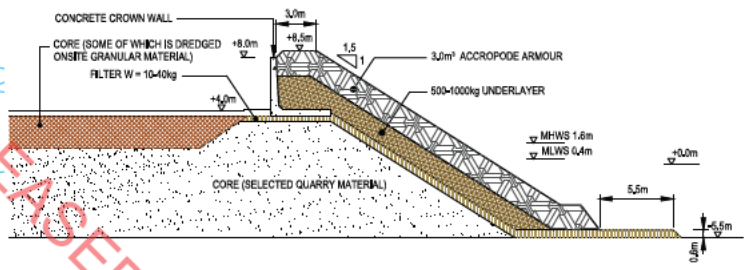
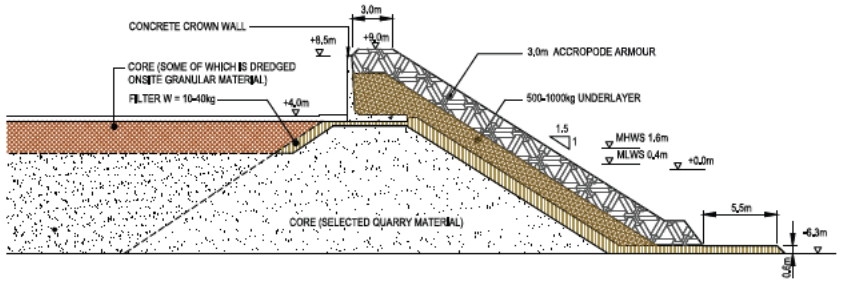
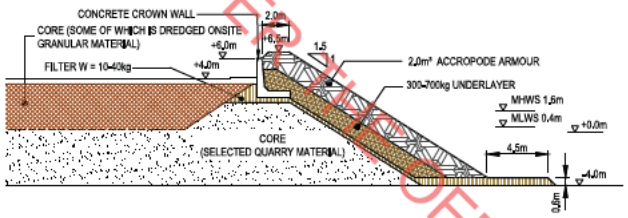


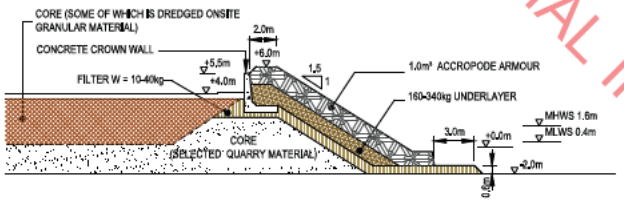
WALL TYPE R4 - CHAINAGE 400-600
SCALE 1:200



WALL TYPE R5 - CHAINAGE 600-800
SCALE 1:200

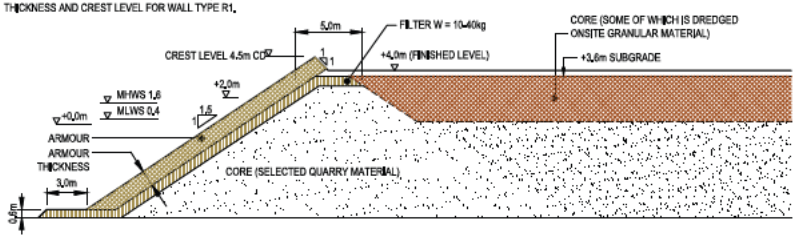


WALL TYPE R3 - CHAINAGE 250-400
SCALE 1:200



WALL TYPE R2 - CHAINAGE 0-250
SCALE 1:200

NOTE: REFER TABLE B FOR ARMOUR WEIGHT, THICKNESS AND CREST LEVEL FOR WALL TYPE R1.



WALL TYPE R1 - WEST SIDE
SCALE 1:200

TABLE A - ACCROPODE SIZE

LOCATION	ACCROPODE ARMOUR			UNDERLAYER	
CHAINAGE (m)	VOLUME (m^3)	WEIGHT (tonnes)	LAYER THICKNESS (m)	WEIGHT (kg)	THICKNESS (m)
0-250	1,0	2,4	1,30	160-340	1,05
250-400	2,0	4,8	1,60	300-700	1,30
400-800	3,0	7,2	1,85	500-1000	1,50
800-2395	4,0	9,6	2,05	600-1400	1,60
ROUNDHEAD	5,0	12,0	2,20	800-1700	1,75

TABLE B - HARBOUR ROCK ARMOUR SIZE (WALL TYPE R1)

LOCATION	ROCK ARMOUR WEIGHT (W_{50}) (kg)	ARMOUR THICKNESS (m)	CREST LEVEL ABOVE CHART DATUM (m)
0-400	900	1,75	4,5
400-800	700	1,60	4,5
800-BERTH	400	1,20	4,5

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PROJECTNAME: ----

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No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

Original Scale (A1) AS SHOWN	Design	DCC	04.04.12	Approved For Construction*
Reduced Scale (A3) HALF SHOWN	Drawn	DCC	04.04.12	
	Dsg Verifier			
	Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

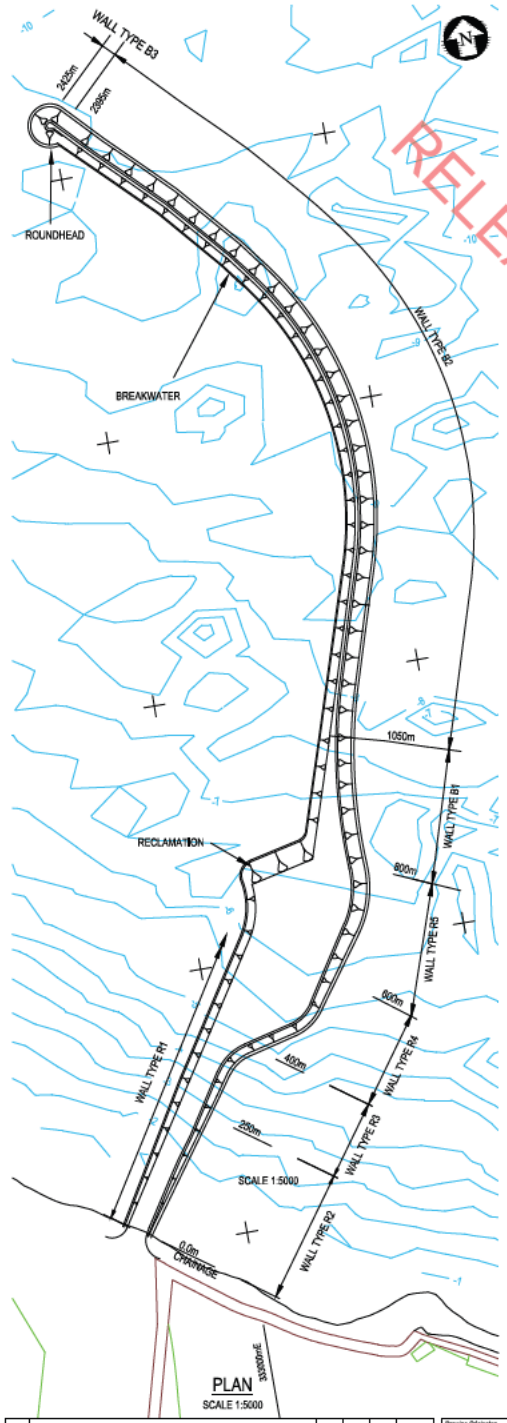
Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: TYPICAL RECLAMATION CROSS SECTION

Discipline: CIVIL

Drawing No.: 3121941-C-406

Rev.: A



PLAN
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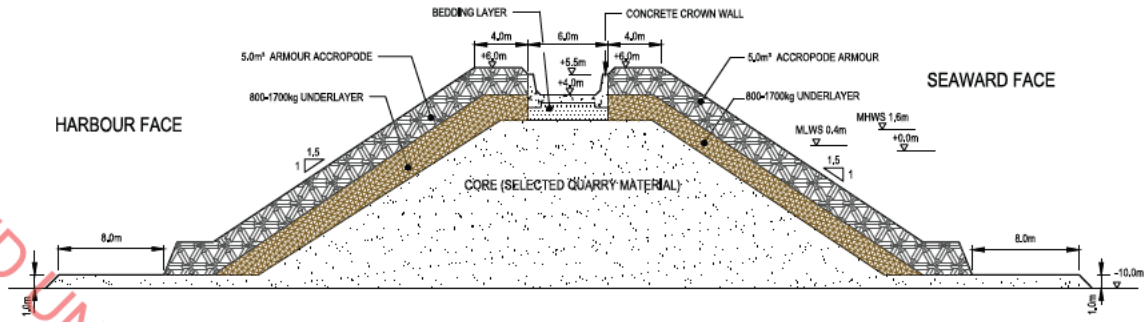
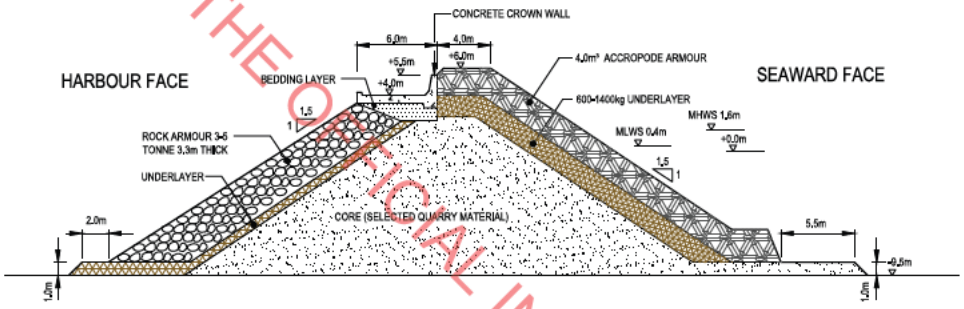
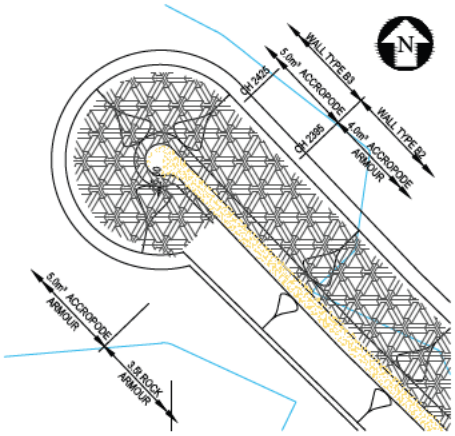


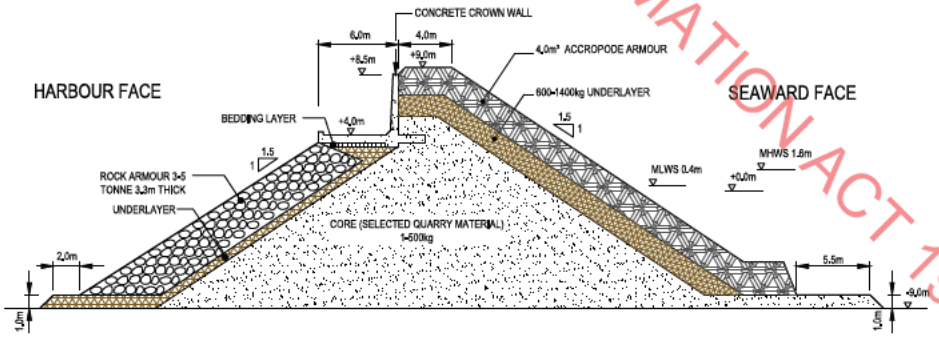
WALL TYPE B3 - CHAINAGE 2395m-END
SCALE 1:200



WALL TYPE B2 - CHAINAGE 1050-2395m
SCALE 1:200



ROUNDHEAD DETAIL
SCALE 1:1000



WALL TYPE B1 - CHAINAGE 800-1050m
SCALE 1:200

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Drawing Originator: Beca

Original Scale (A1) AS SHOWN	Design	DCC	04.04.12
Reduced Scale (A3) HALF SHOWN	Drawn	DCC	04.04.12
	Dsg Verifier		
	Dwg Check		

Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: TYPICAL BREAKWATER CROSS SECTION AND ROUNDHEAD DETAIL

Discipline: CIVIL

Drawing No.: 3121941-C-407

Rev.: A

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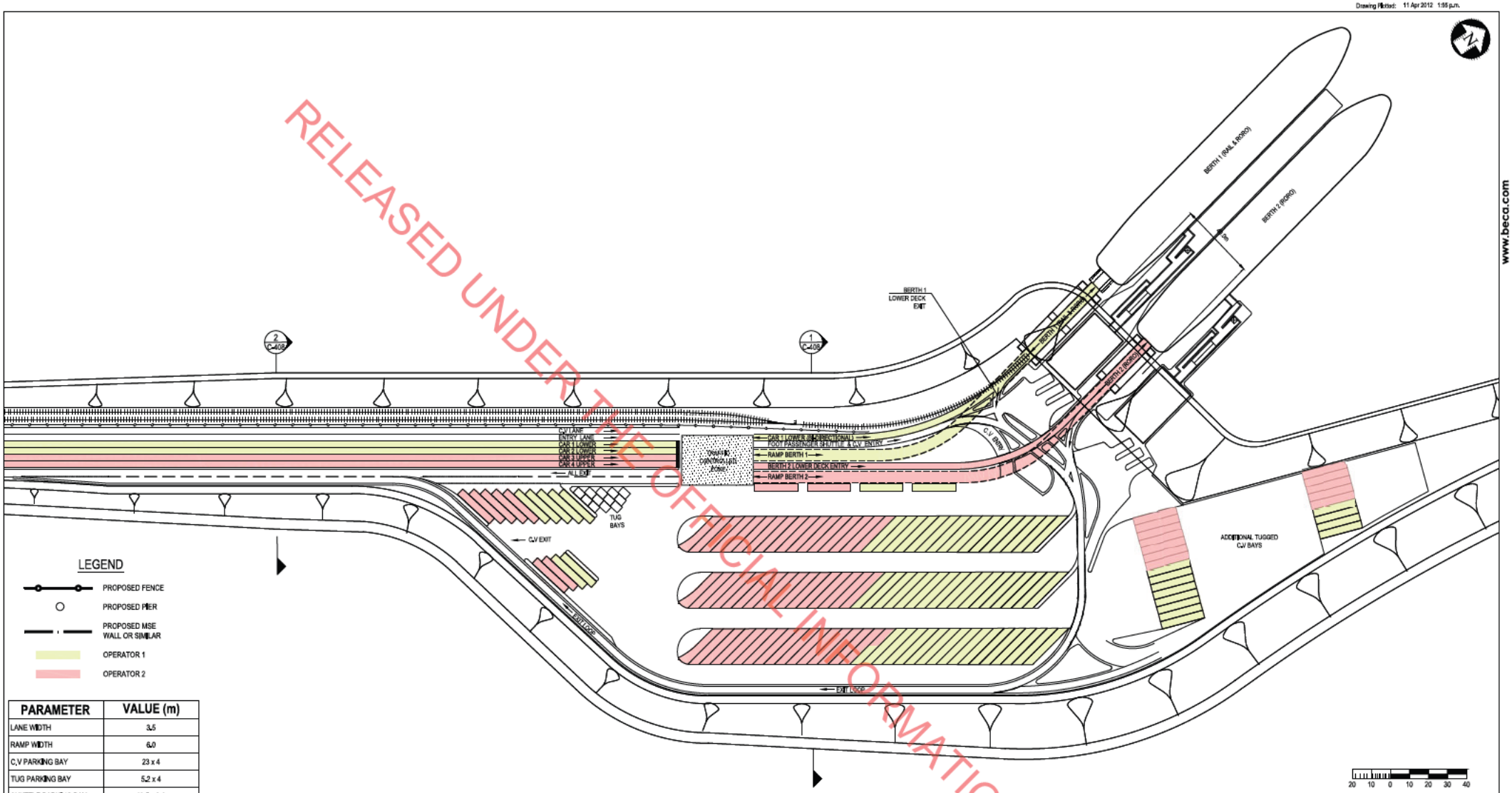
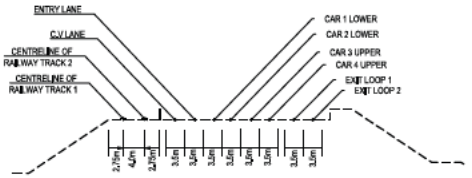


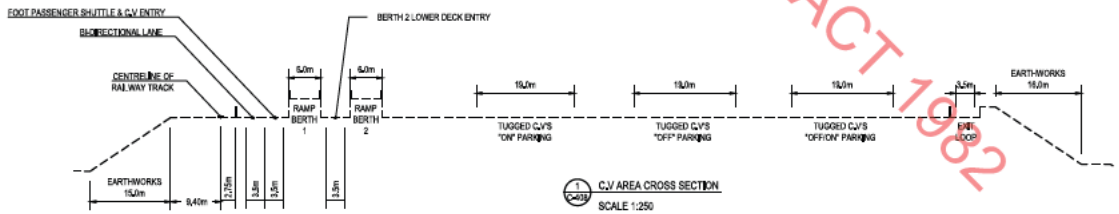
LEGEND

- PROPOSED FENCE
- PROPOSED PIER
- PROPOSED MSE WALL OR SIMILAR
- OPERATOR 1
- OPERATOR 2

PARAMETER	VALUE (m)
LANE WIDTH	3.5
RAMP WIDTH	6.0
C,V PARKING BAY	23 x 4
TUG PARKING BAY	5.2 x 4
SHUTTLE PARKING BAY	13.5 x 3.5
VERTICAL CLEARANCE	5.0



2 C-408 TYPICAL CROSS SECTION
SCALE 1:250



1 C-408 C,V AREA CROSS SECTION
SCALE 1:250

20 10 0 10 20 30 40

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DATE: 11 Apr 2012 1:55 p.m.
PROJECTNAME: —

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No.	Revision	By	Chk	Appd	Date
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Drawing Originator: Beca

Original Scale (A1) 1:500 | Reduced Scale (A3) 1:1000

Design	DCC	28.03.12	Approved For Construction*
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Dsg Verifier			
Dwg Check			Date

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Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: RECLAMATION LAYOUT AND CIRCULATION AND CIRCULATION

Discipline: CIVIL

Drawing No.: 3121941-C-408 | Rev.: A

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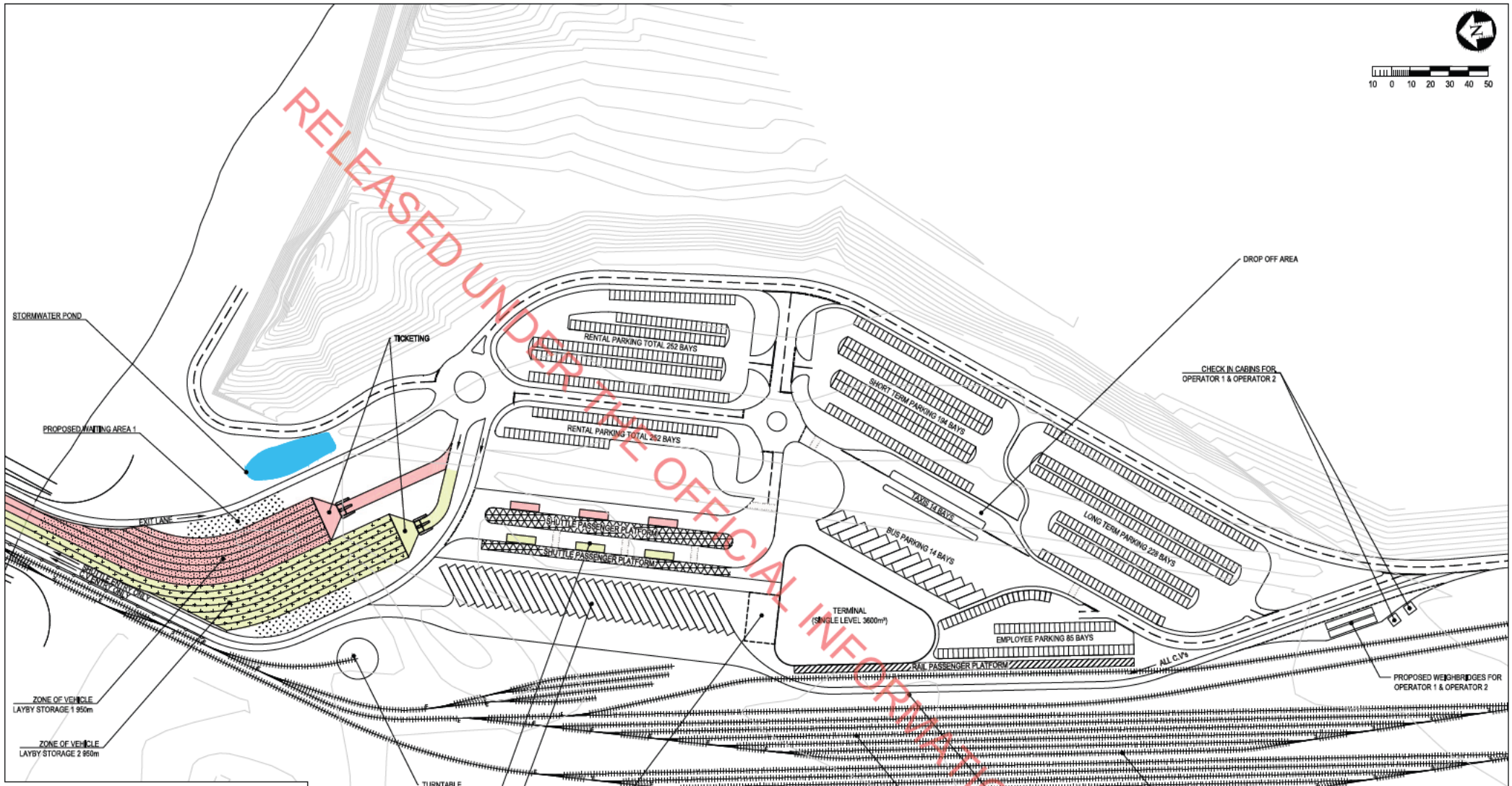

VEHICLE PARKING	
SHORE AND RECLAMATION AREAS COMBINED	
C.V'S (TUGGED)	141
C.V'S (SELF DRIVE)	30
TUGS	12
RENTAL PARKING	252
EMPLOYEE PARKING	85
TAXI PARKING	14
BUS PARKING	14
CUSTOMER SHORT TERM PARKING	194
CUSTOMER LONG TERM PARKING	228

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No.	Revision	By	Chk	Appd	Date
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Drawing Originator: Beca

Original Scale (A1) 1:1000 | Reduced Scale (A3) 1:2000

Design	DCC	23.03.12	Approved For Construction*
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Dsg Verifier			
Dwg Check			Date

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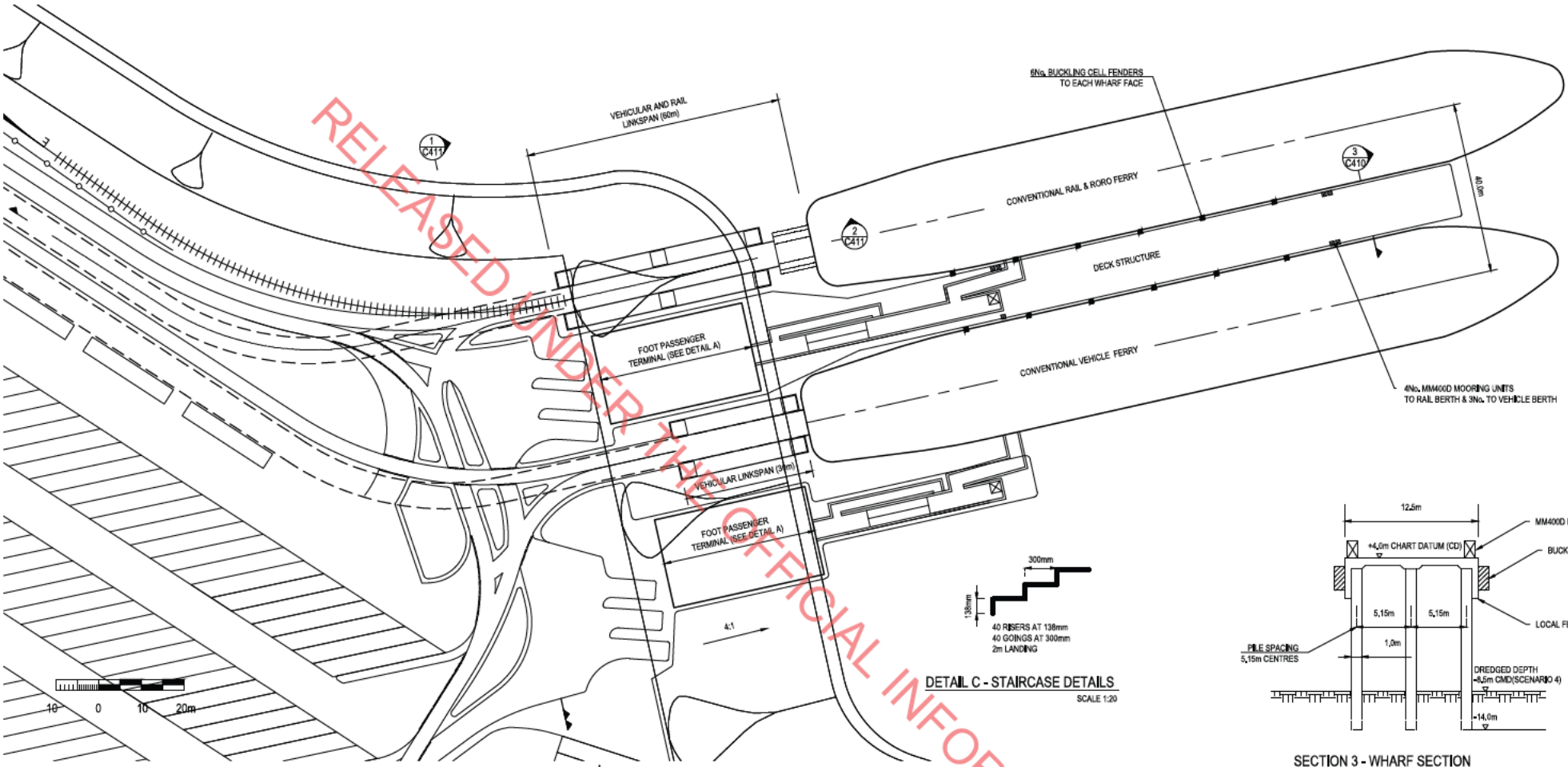
Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: OPERATIONS AND LANDSIDE TERMINAL LAYOUT

Discipline: CIVIL

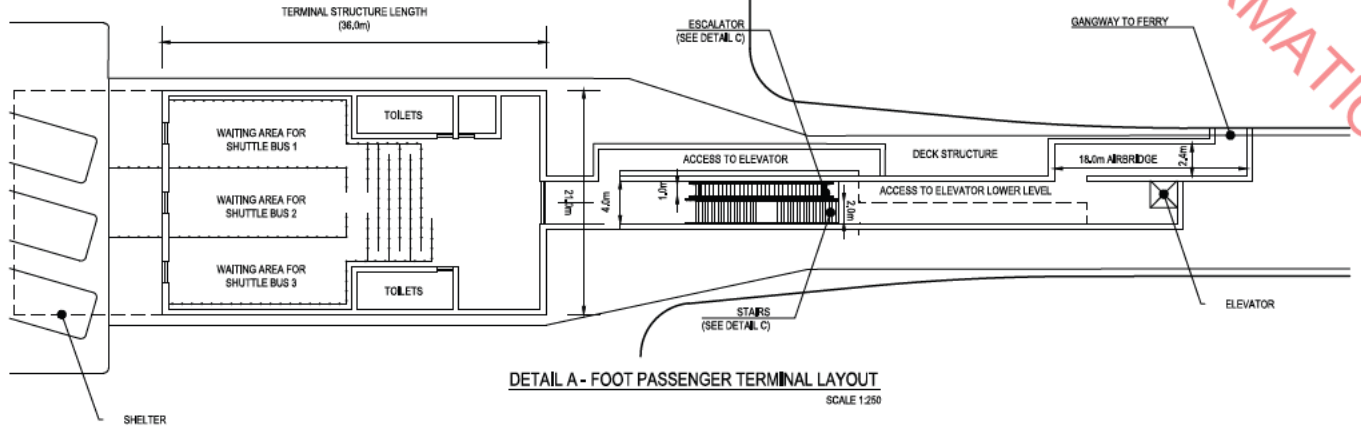
Drawing No.: 3121941-C-409 | Rev.: A



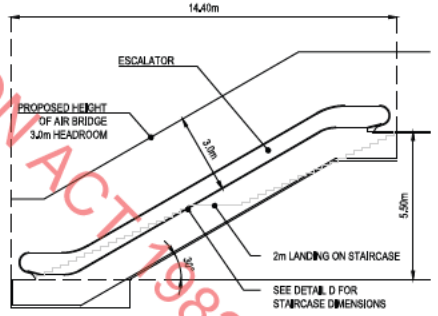
40 RISERS AT 138mm
40 GOINGS AT 300mm
2m LANDING

DETAIL C - STAIRCASE DETAILS
SCALE 1:20

SECTION 3 - WHARF SECTION
SCALE 1:200



DETAIL A - FOOT PASSENGER TERMINAL LAYOUT
SCALE 1:250



DETAIL B - ESCALATOR & STAIRCASE ELEVATION
SCALE 1:100

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DRG: 3121941-C-410.dwg
DATE: 11 Apr 2012 1:55 p.m.
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A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

Original Scale (A1) 1:1000	Design	DCC	04.04.12	Approved For Construction*
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Reduced Scale (A3) 1:2000	Dsg Verifier			Date
	Dwg Check			

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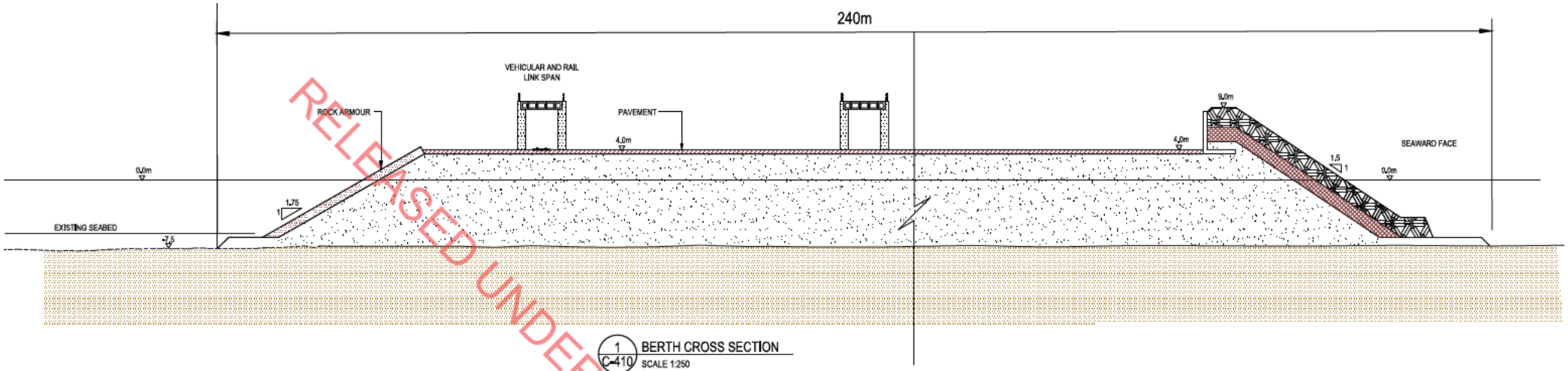
Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: BERTH AND RECLAMATION TERMINAL LAYOUT

Discipline: CIVIL

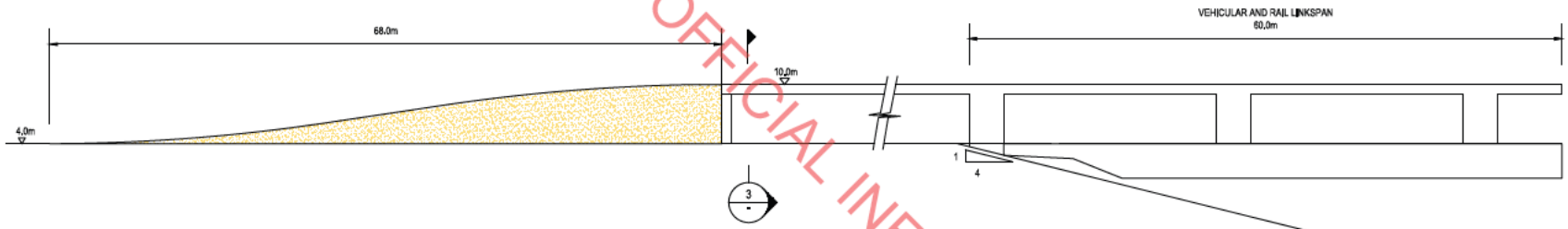
Drawing No.: 3121941-C-410 Rev.: A

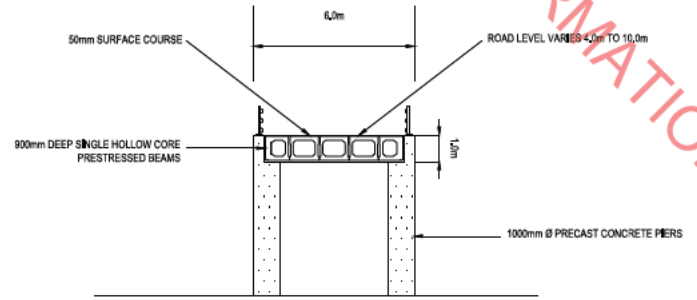


1 / C-410 BERTH CROSS SECTION
SCALE 1:250

FOR USE WITH 1:250 DETAILS

2 / C-410 ELEVATION OF VEHICLE BRIDGE
SCALE 1:250





3 / - VEHICLE BRIDGE
TYPICAL CROSS SECTION
SCALE 1:100

FOR USE WITH 1:50 DETAILS

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DATE: 11 Apr 2012 1:56 p.m.
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A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

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Reduced Scale (A3) HALF SHOWN

Design	DCC	04.04.12	Approved For Construction*
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Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: BERTH CROSS SECTION AND VEHICLE BRIDGE

Discipline: CIVIL

Drawing No.: 3121941-C-411

Rev.: A

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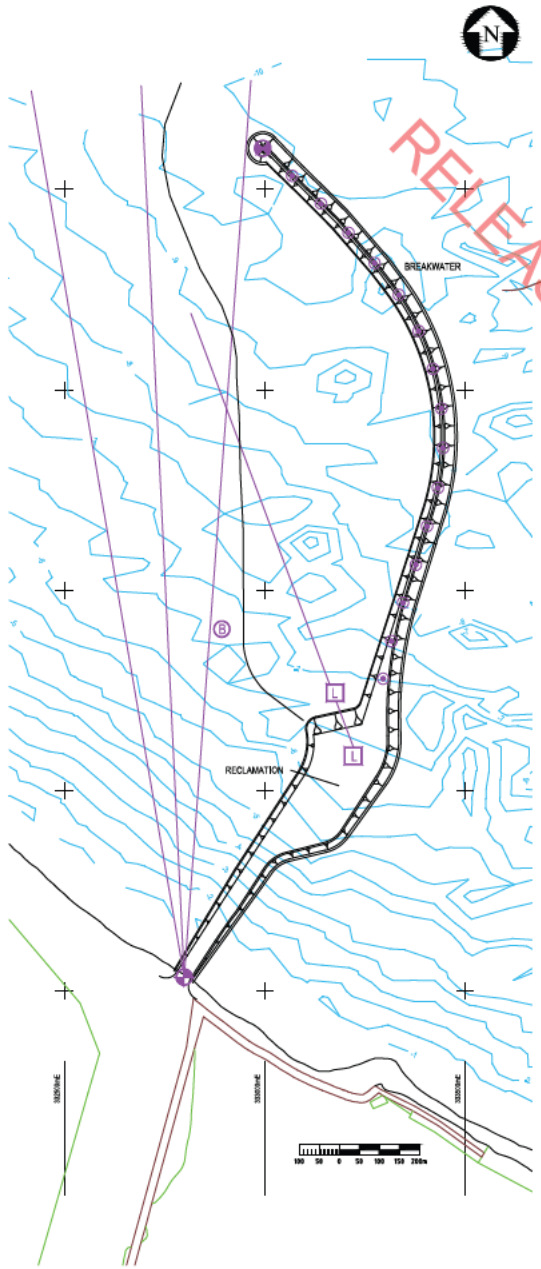
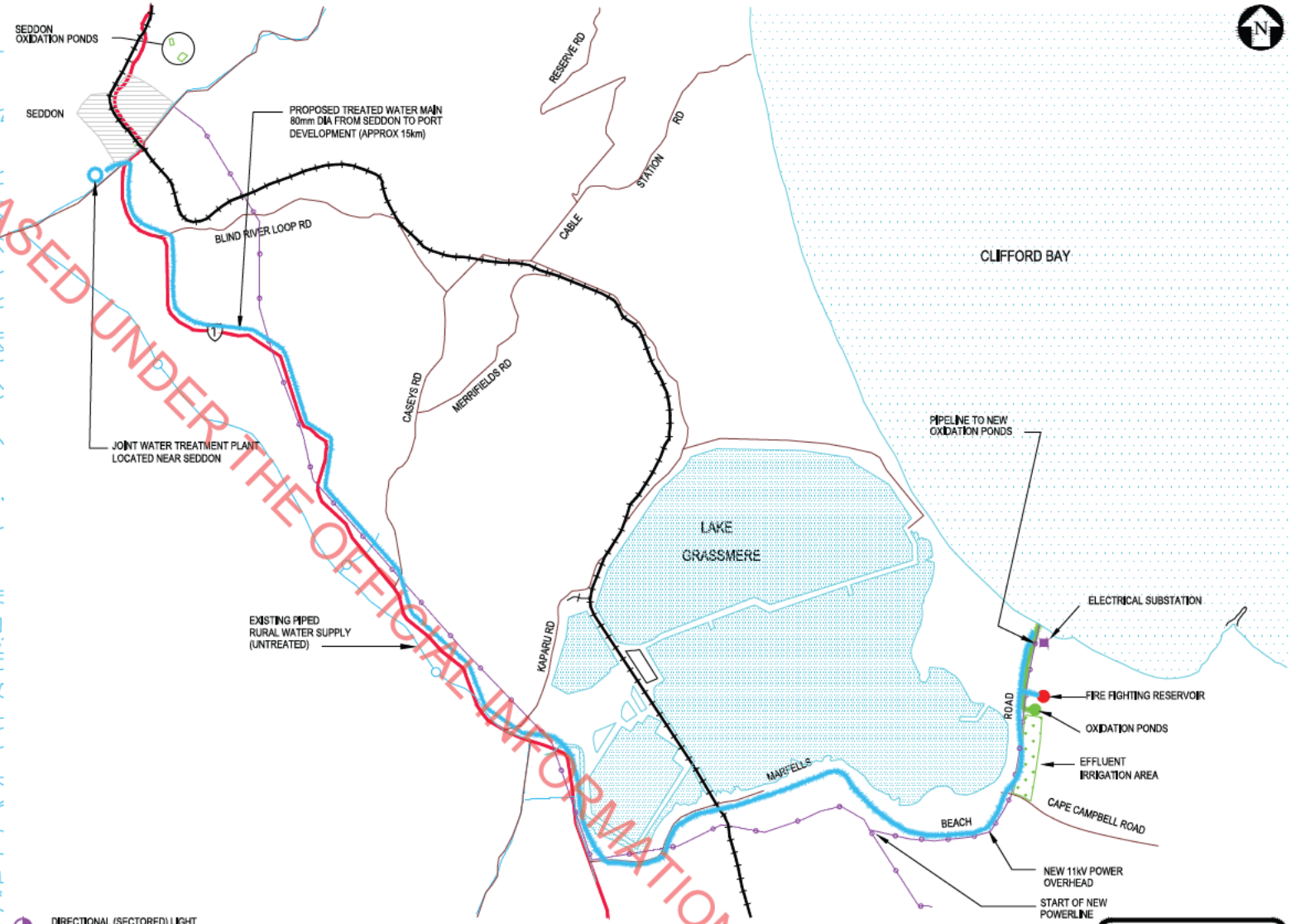


NAVIGATION LAYOUT
SCALE 1:7500



PLAN
SCALE 1:5000

DIRECTIONAL (SECTORED) LIGHT (MAINS SUPPLY)

LEADING LIGHT BEACONS (MAINS SUPPLY)

TURNING BASIN MARKER BUOY

BREAKWATER MARKER LIGHT (BATTERY/SOLAR SUPPLY)

BREAKWATER LIGHTS (MAINS SUPPLY)

LEGEND

- STATE HIGHWAY
- MINOR ROAD
- RAILWAY
- EXISTING POWER
- NEW POWER
- EXISTING WATER SUPPLY
- NEW WATER SUPPLY
- NEW SEWER PIPELINE

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DRG: 3121941-C-412.dwg
DATE: 11 Apr 2012 1:58 p.m.
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No.	Revision	By	Chk	Appd	Date
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Drawing Originator: Beca

Original Scale (A1) AS SHOWN; Reduced Scale (A3) HALF SHOWN

Design	DCC	04.04.12
Drawn	DCC	04.04.12
Dsg Verifier		
Dwg Check		

Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: SERVICES LOCATION PLAN AND NAVIGATION LAYOUT

Discipline: CIVIL

Drawing No.: 3121941-C-412

Rev.: A

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Drawing Plotted: 11 Apr 2012 1:58 p.m.

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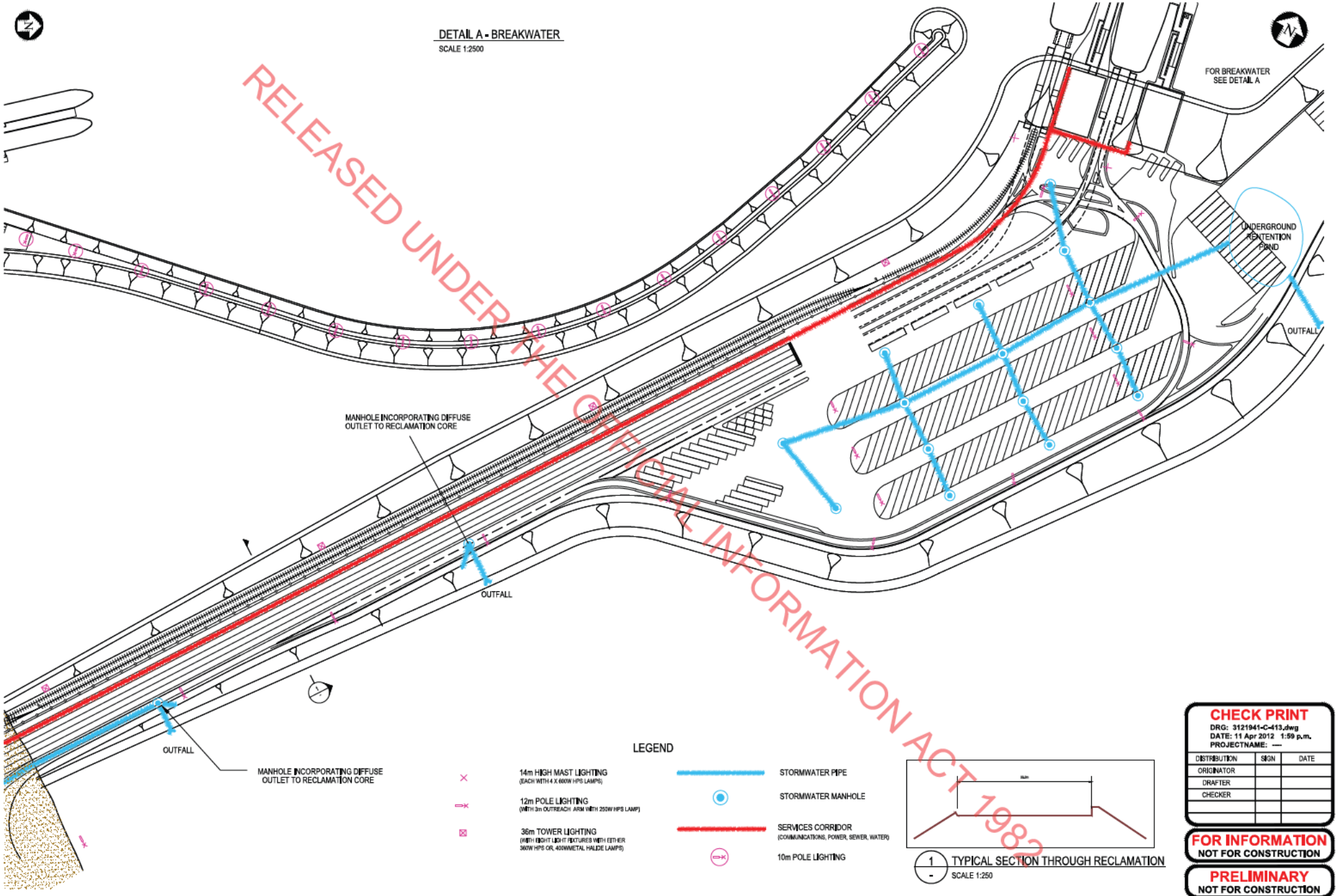
DETAIL A - BREAKWATER

SCALE 1:2500



LEGEND

- 14m HIGH MAST LIGHTING (EACH WITH 4 X 600W HPS LAMPS)
- 12m POLE LIGHTING (WITH 3m OUTREACH ARM WITH 250W HPS LAMP)
- 36m TOWER LIGHTING (WITH EIGHT LIGHT FIXTURES WITH EITHER 360W HPS OR, 400WMETAL HALIDE LAMPS)
- STORMWATER PIPE
- STORMWATER MANHOLE
- SERVICES CORRIDOR (COMMUNICATIONS, POWER, SEWER, WATER)
- 10m POLE LIGHTING

1 / - TYPICAL SECTION THROUGH RECLAMATION

SCALE 1:250

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DRG: 3121941-C-413.dwg
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No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	DCC			05.04.12

Drawing Originator: Beca

Original Scale (A1) 1:1000 | Reduced Scale (A3) 1:2000

Design	DCC	05.04.12	Approved For Construction*
Drawn	DCC	05.04.12	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

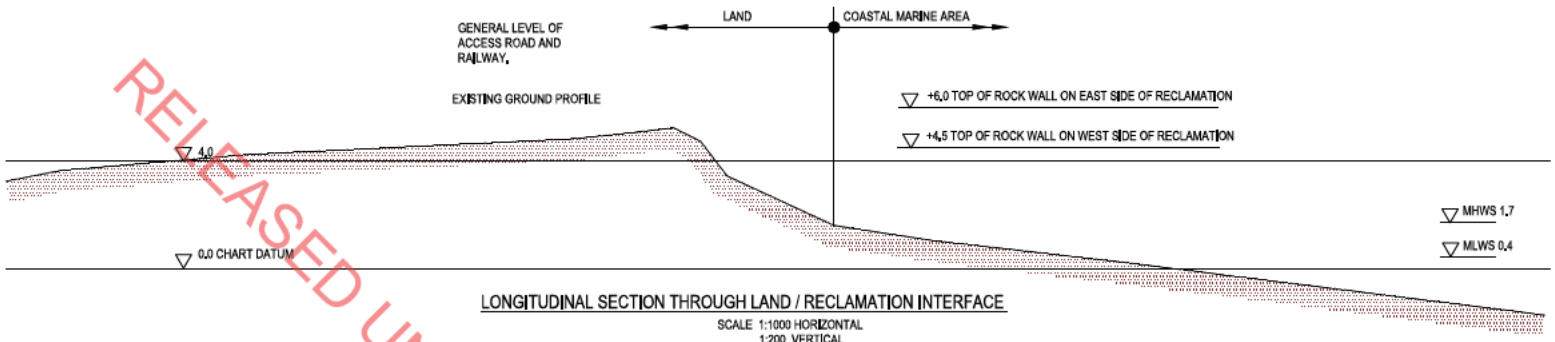
Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: RECLAMATION SERVICES

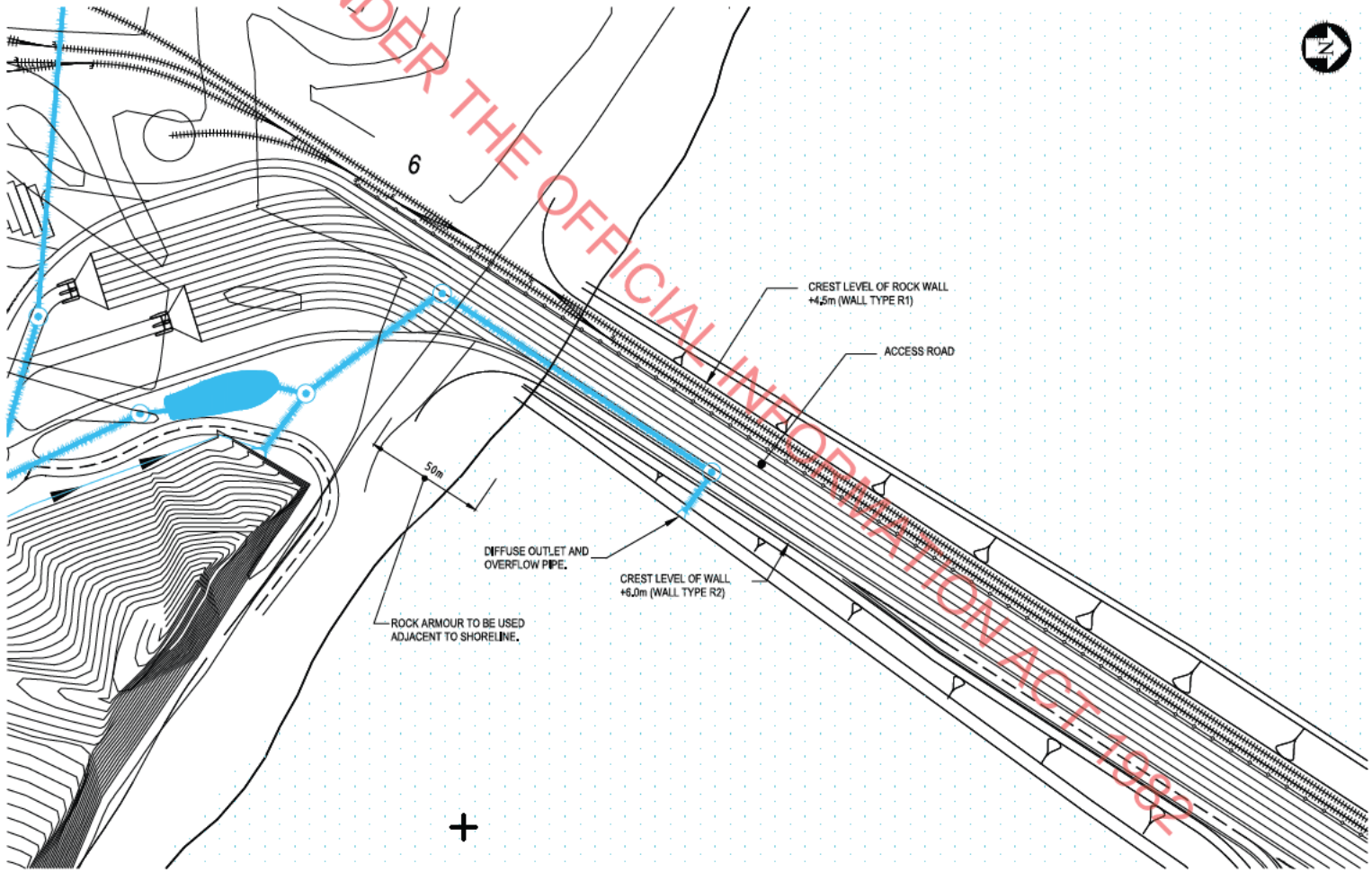
Discipline: CIVIL

Drawing No.: 3121941-C-413 | Rev.: A



LONGITUDINAL SECTION THROUGH LAND / RECLAMATION INTERFACE

SCALE 1:1000 HORIZONTAL
1:200 VERTICAL



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DATE: 11 Apr 2012 2:02 p.m.
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Drawing Originator: Beca

Original Scale (A1) 1:1000	Design	DCC	05.04.12
	Drawn	DCC	05.04.12
Reduced Scale (A3) 1:2000	Dsg Verifier		
	Dwg Check		

Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: COAST/LAND INTERFACE

Discipline: CIVIL

Drawing No.: 3121941-C-414 Rev.: A

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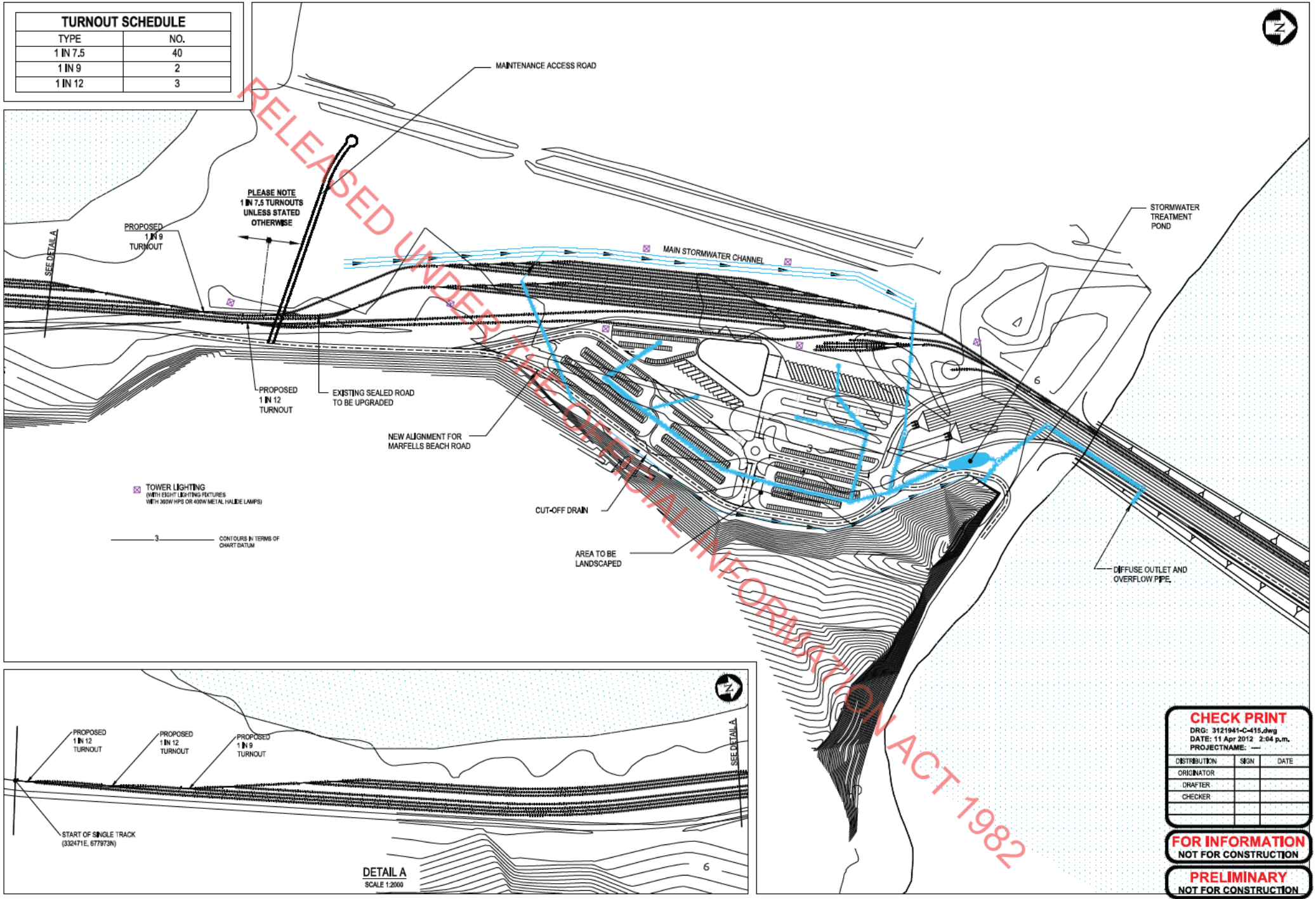
TURNOUT SCHEDULE	
TYPE	NO.
1 IN 7.5	40
1 IN 9	2
1 IN 12	3



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DATE: 11 Apr 2012 2:04 p.m.
PROJECTNAME: ----

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Original Scale (A1) 1:2000 | Reduced Scale (A3) 1:4000

Design	DCC	05.04.12	Approved For Construction*
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Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: LAND BASED RAILYARD

Discipline: CIVIL

Drawing No.: 3121941-C-415 | Rev.: A

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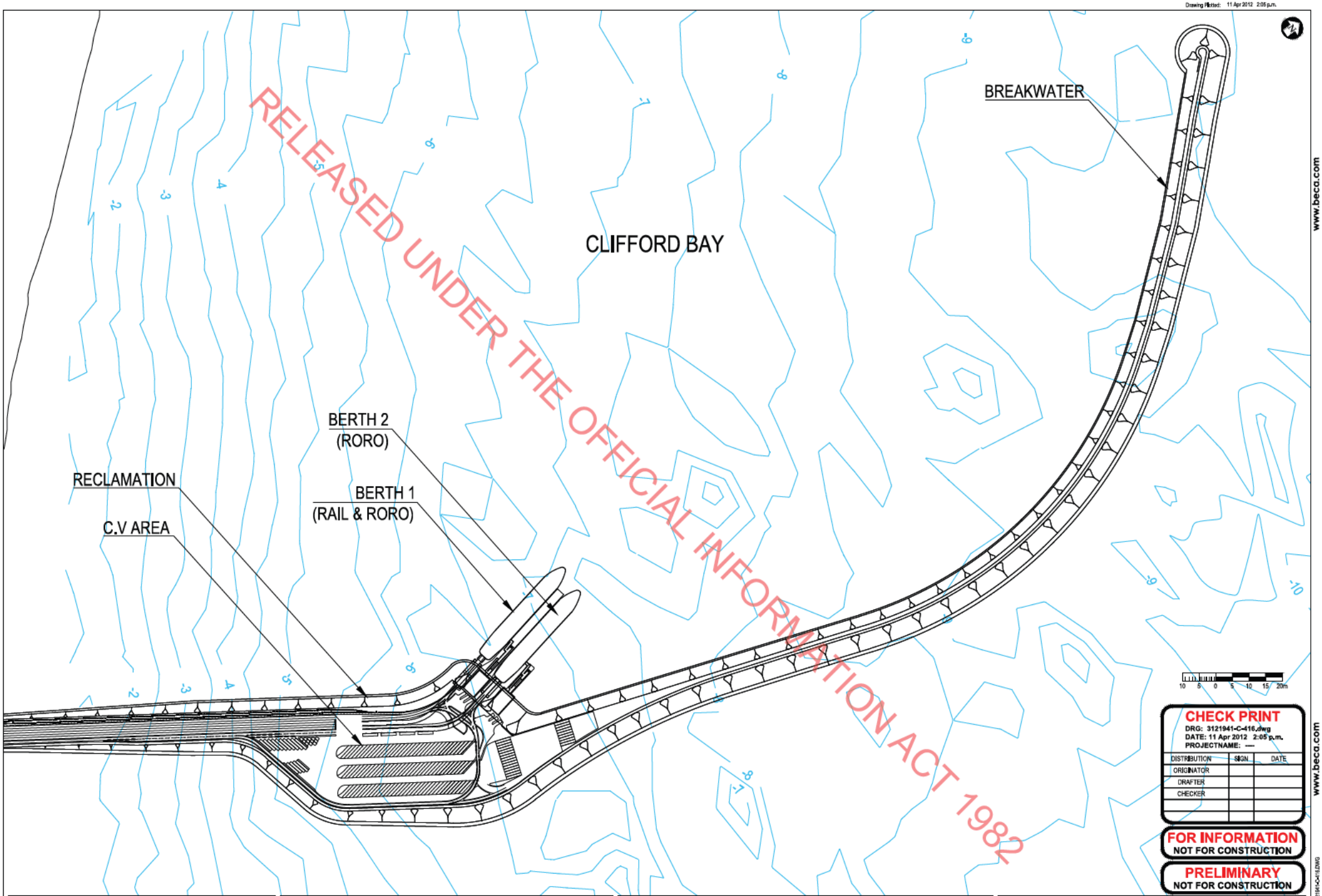

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DRG: 3121941-C-416.dwg
DATE: 11 Apr 2012 2:05 p.m.
PROJECTNAME: ----

DISTRIBUTION	SIGN	DATE
ORIGINATOR		
DRAFTER		
CHECKER		

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No.	Revision	By	Chk	Apvd	Date
A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

Original Scale (A1) 1:2500
Reduced Scale (A3) 1:5000

Design	DCC	04.04.12	Approved For Construction*
Drawn	DCC	04.04.12	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

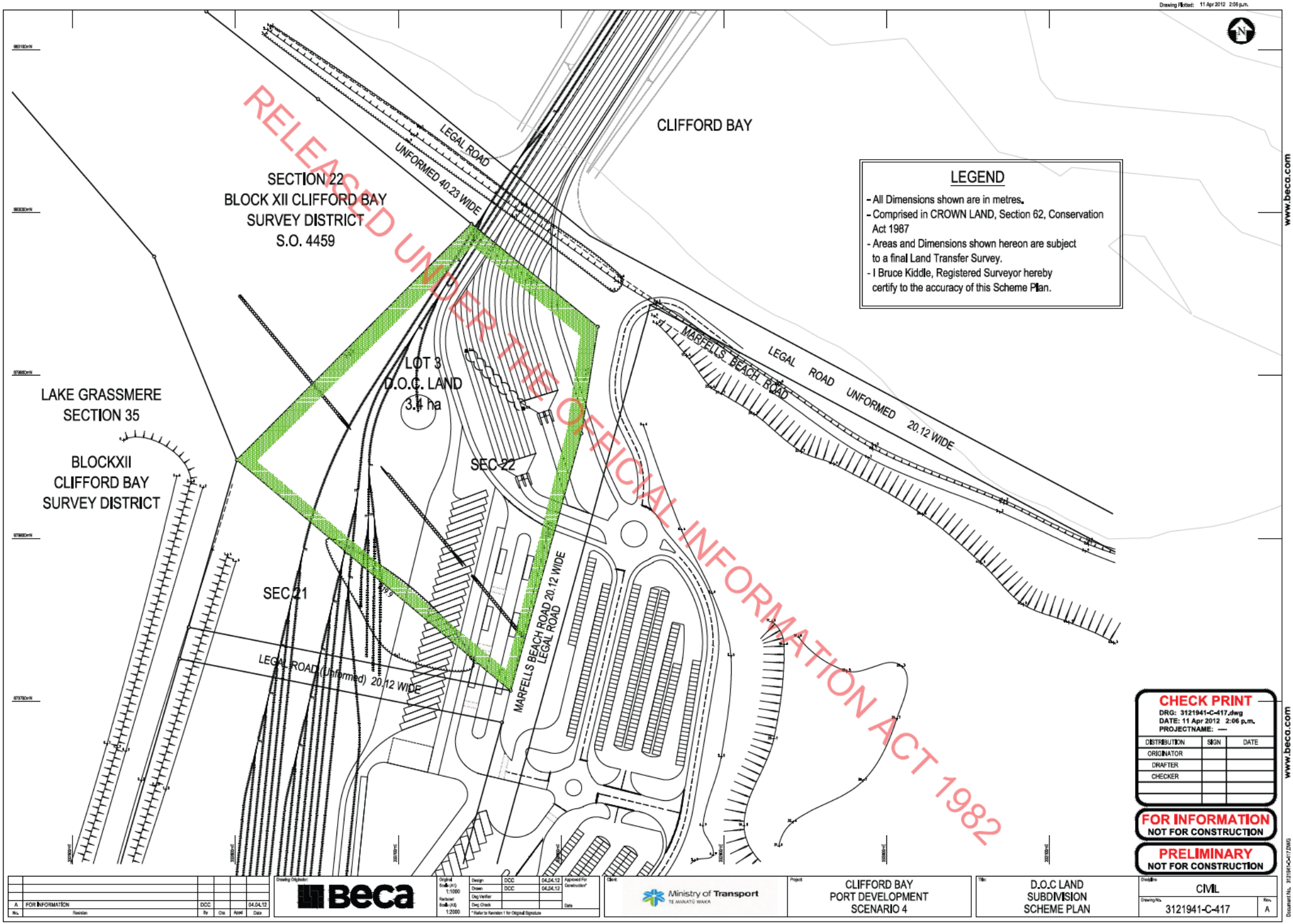
Title: RECLAMATION LAYOUT GENERAL ARRANGEMENT

Discipline: CIVIL

Drawing No.: 3121941-C-416

Rev.: A

Drawing Plotted: 11 Apr 2012 2:06 p.m.



LEGEND

- All Dimensions shown are in metres.
- Comprised in CROWN LAND, Section 62, Conservation Act 1987
- Areas and Dimensions shown hereon are subject to a final Land Transfer Survey.
- I Bruce Kiddle, Registered Surveyor hereby certify to the accuracy of this Scheme Plan.

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DRG: 3121941-C-417.dwg
DATE: 11 Apr 2012 2:06 p.m.
PROJECTNAME: —

DISTRIBUTION	SIGN	DATE
ORIGINATOR		
DRAFTER		
CHECKER		

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NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

Original Scale (A1) 1:1000 | Reduced Scale (A3) 1:2000

Design	DCC	04.04.12	Approved For Construction*
Drawn	DCC	04.04.12	
Dwg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: D.O.C LAND SUBDIVISION SCHEME PLAN

Discipline: CIVIL

Drawing No.: 3121941-C-417 Rev.: A

DO NOT SCALE

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Document No.: 3121941-DOA17.DWG

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Drawing Plotted: 11 Apr 2012 2:06 p.m.

LEGEND

- All Dimensions shown are in metres.
- Comprised in part Certificate of Title 5B/270
- Areas and Dimensions shown hereon are subject to a final Land Transfer Survey.
- I Bruce Kiddle, Registered Surveyor hereby certify to the accuracy of this Scheme Plan.

LAKE GRASSMERE
SECTION 35
S.O. 4431
BLOCK XII
CLIFFORD BAY SURVEY DISTRICT
C.T. 5B/270
OWNER DOMINION SALT LTD

SECTION 23

SECTION 24

SEC 1

LEGAL ROAD 20.12 WIDE

SOUTH ISLAND MAIN TRUNK RAILWAY

SEC 2

SEC 3

MARFELLS BEACH ROAD
LEGAL ROAD 20.12 WIDE

WELD ROAD
LEGAL ROAD 20.12 WIDE

CROWN LAND

MARFELLS BEACH ROAD

CLIFFORDS ROAD LEGAL ROAD

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DRG: 3121941-C-418.dwg
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No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	DCC			04.04.12

Drawing Originator: Beca

Original Scale (A1) 1:5000
Reduced Scale (A3) 1:10000

Design	DCC	04.04.12	Approved For Construction*
Drawn	DCC	04.04.12	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Ministry of Transport TE MANATŪ WAKA

Project: CLIFFORD BAY PORT DEVELOPMENT SCENARIO 4

Title: CAUSEWAY SUBDIVISION SCHEME PLAN

Discipline: CIVIL

Drawing No.: 3121941-C-418

Rev.: A

DO NOT SCALE

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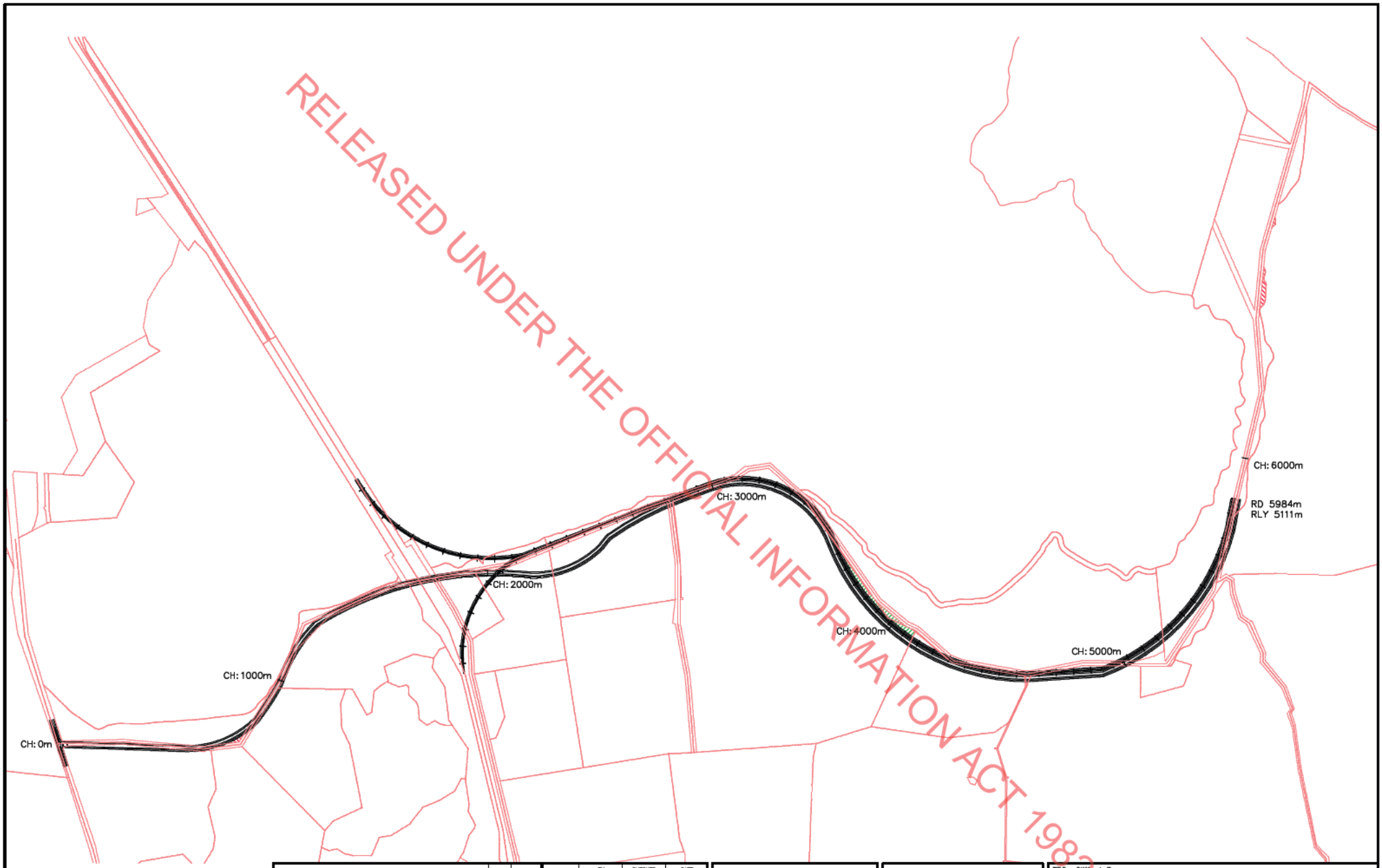
Document No.: 3121941-C-418.DWG

Appendix 3

Road & Rail Access Drawings



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NZ TRANSPORT AGENCY
WAKA KOTAHI

Marlborough Roads

OPUS
Blenheim Office
PO Box 563
Blenheim, New Zealand
Tel: +64 3 579 2600
Fax: +64 3 579 2601

TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Infrastructure Alignment

STATUS	FILE				
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
NTS		5/2848/1	7/54/4	1	

GRAPHIC SCALES

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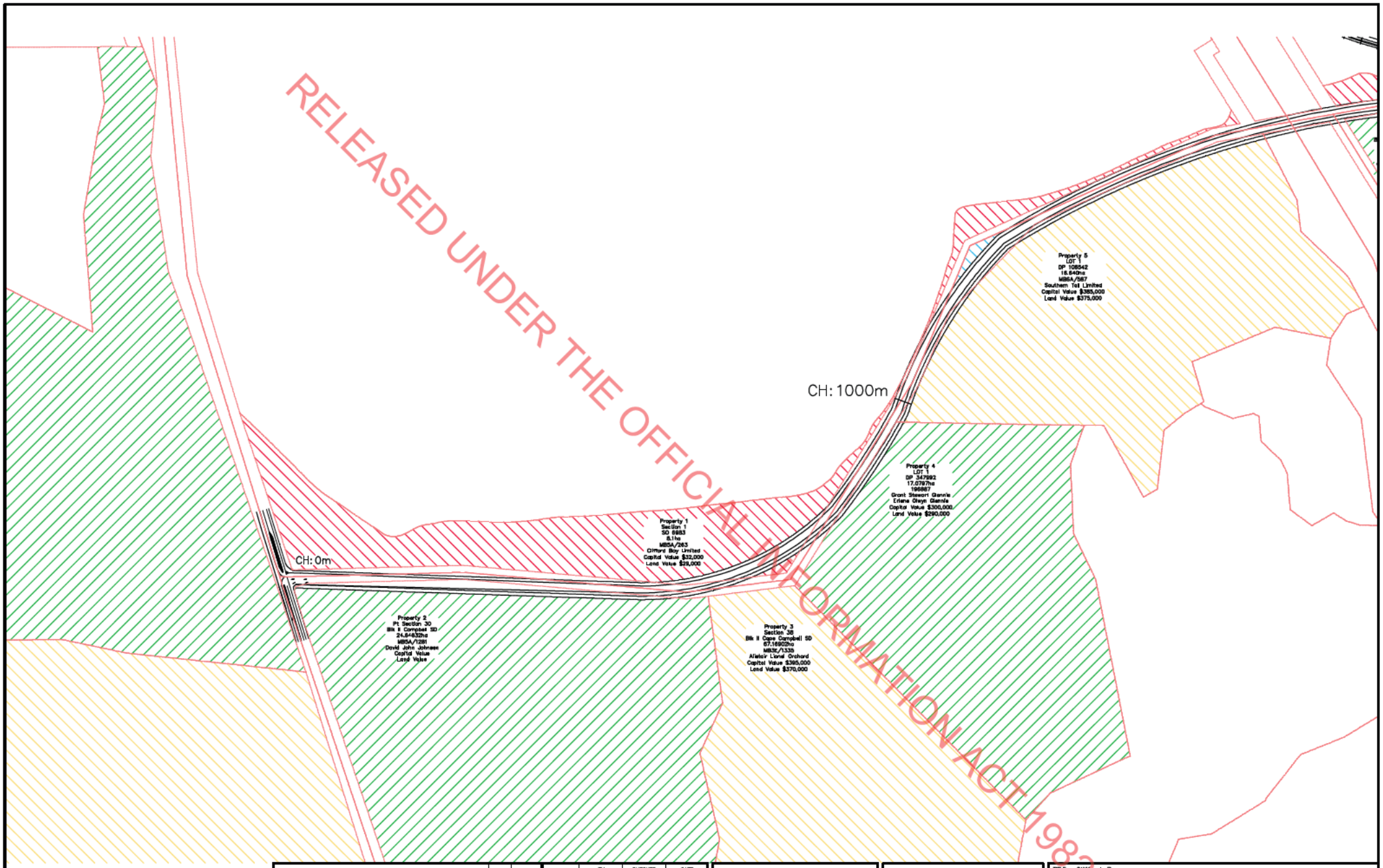

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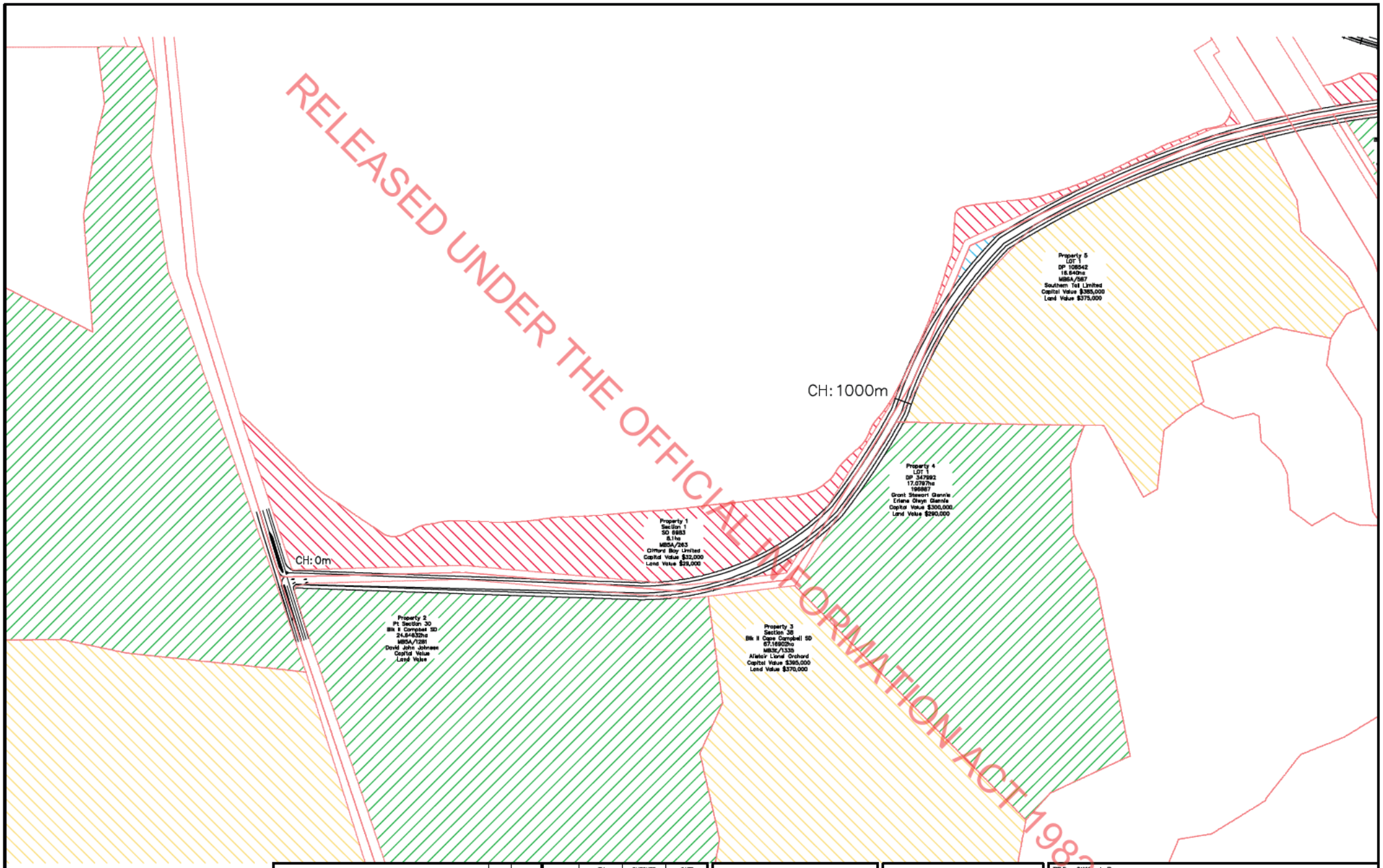
TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH0–1000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
1:5000		5/2848/1	7/54/4	1	

GRAPHIC SCALES

ORIGINAL SHEET SIZE A3 [420x297]



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Blenheim, New Zealand
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Fax: +64 3 579 2601

TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH0–1000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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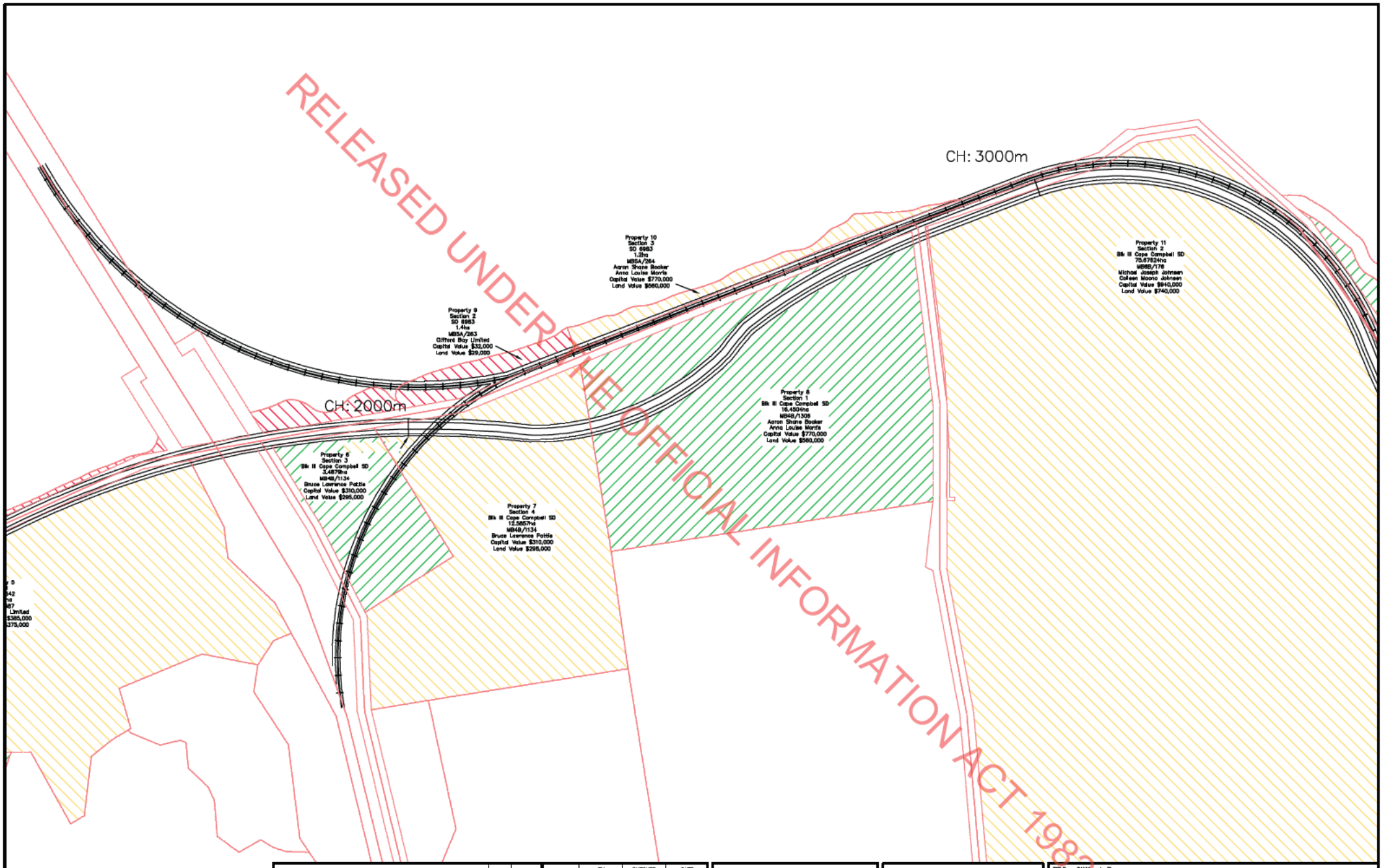
GRAPHIC SCALES

ORIGINAL SHEET SIZE A3 [420x297]



AMENDMENT	APP'D	DATE

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TITLE: Clifford Bay
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Site Plan – CONCEPT
Land Ownership CH2000–3000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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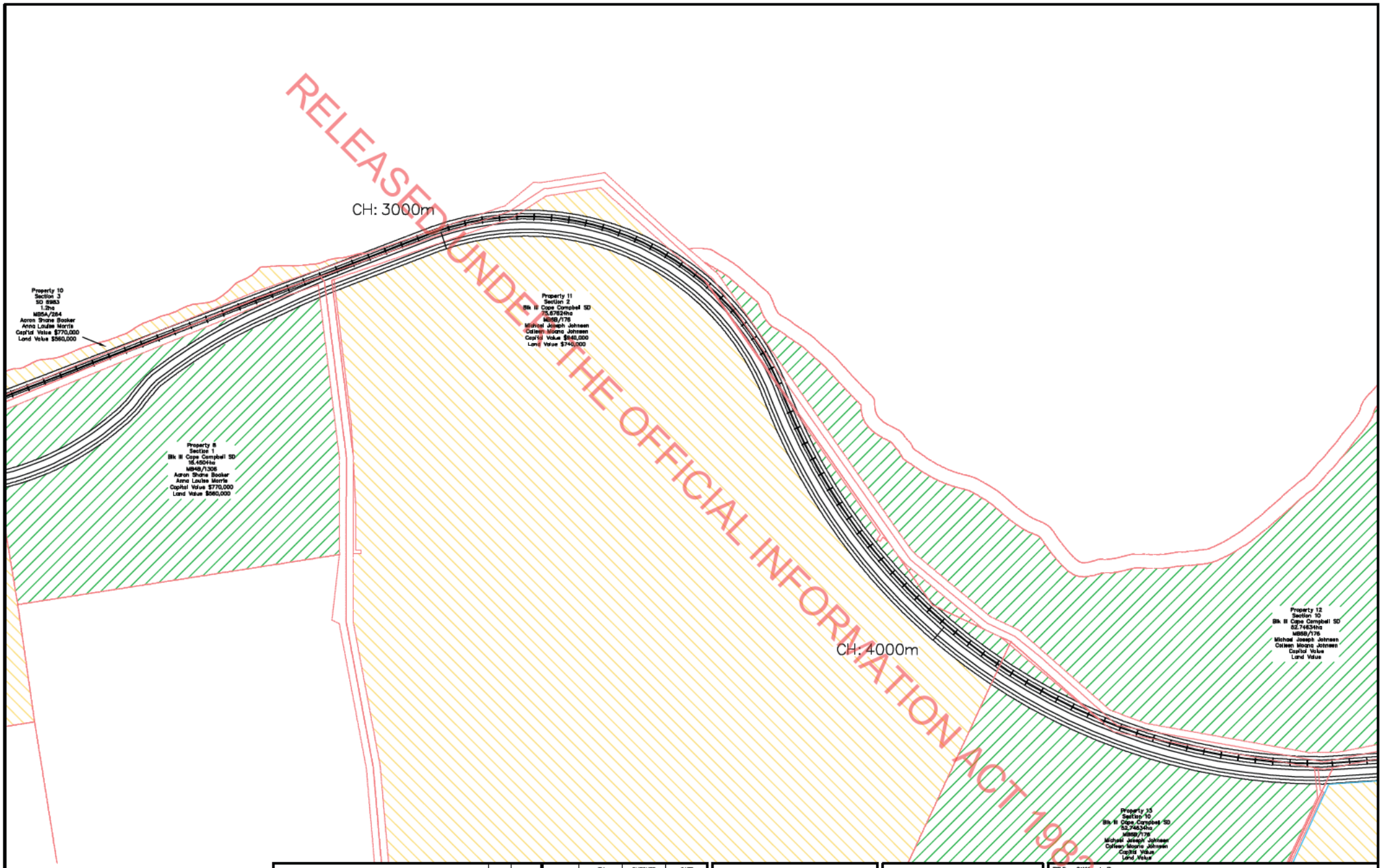
GRAPHIC SCALES

ORIGINAL SHEET SIZE A3 [420x297]



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TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH3000–4000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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GRAPHIC SCALES

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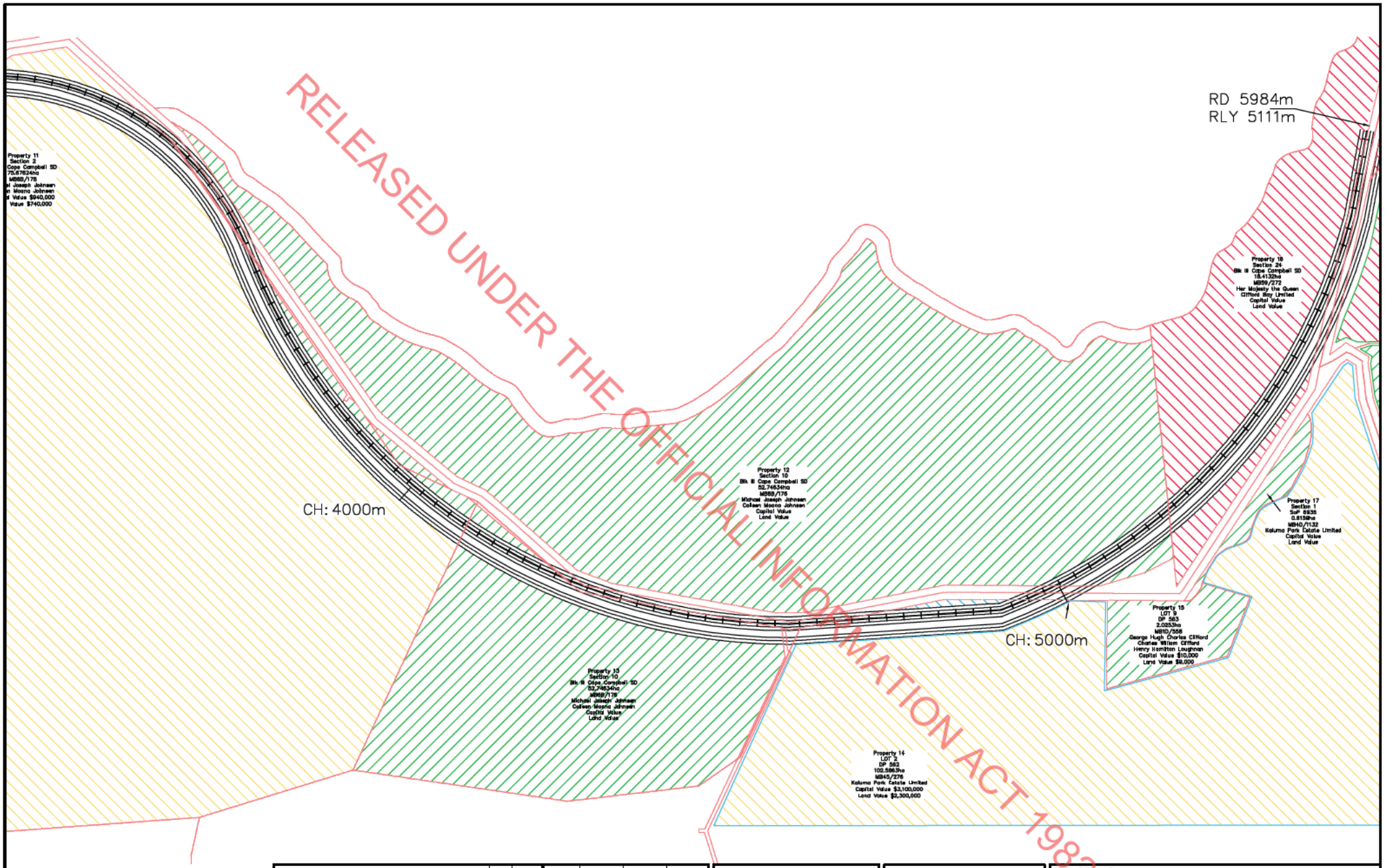

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TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH4000–5000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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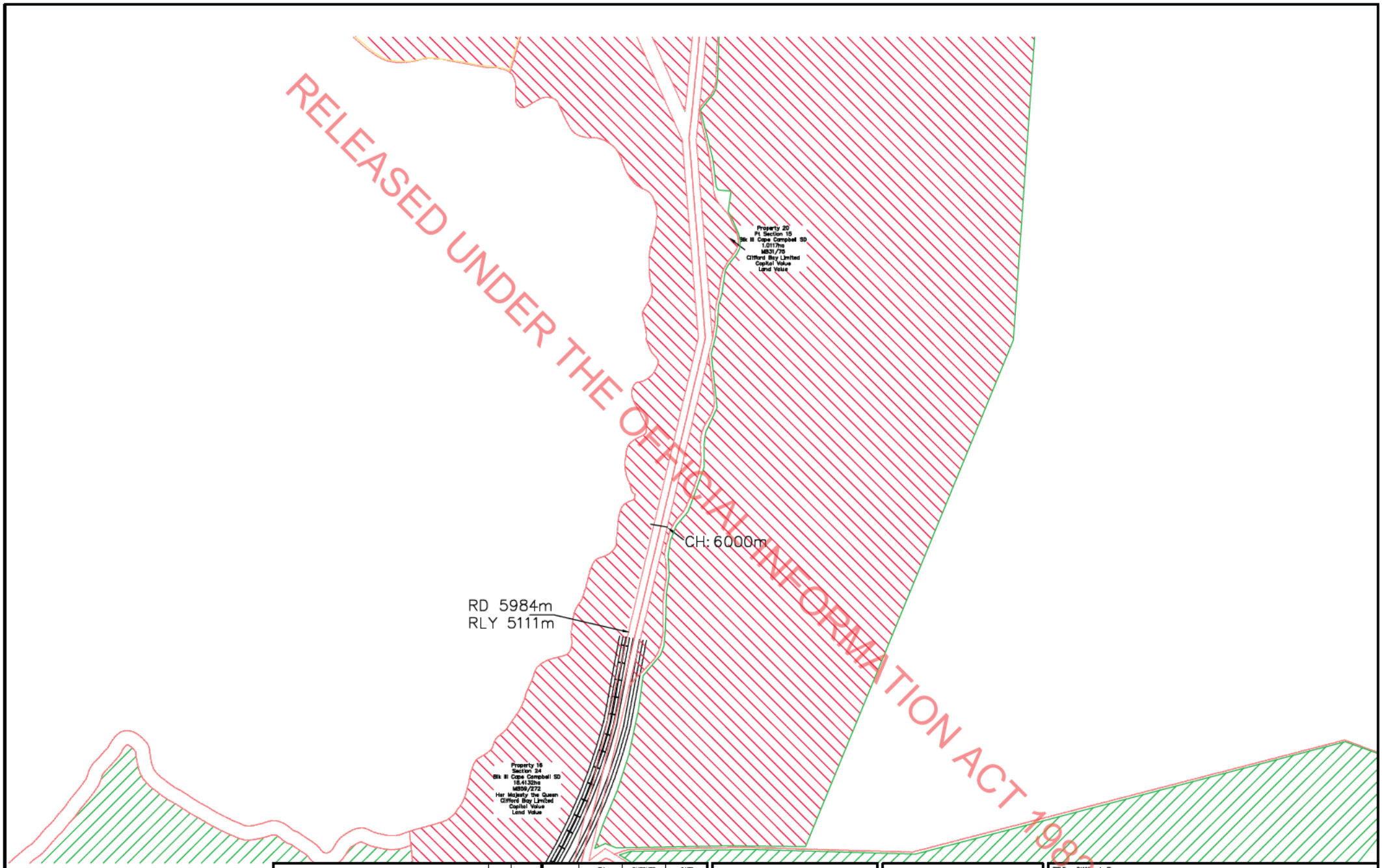

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TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH6000–END

STATUS	FILE			
CONCEPT				
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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GRAPHIC SCALES

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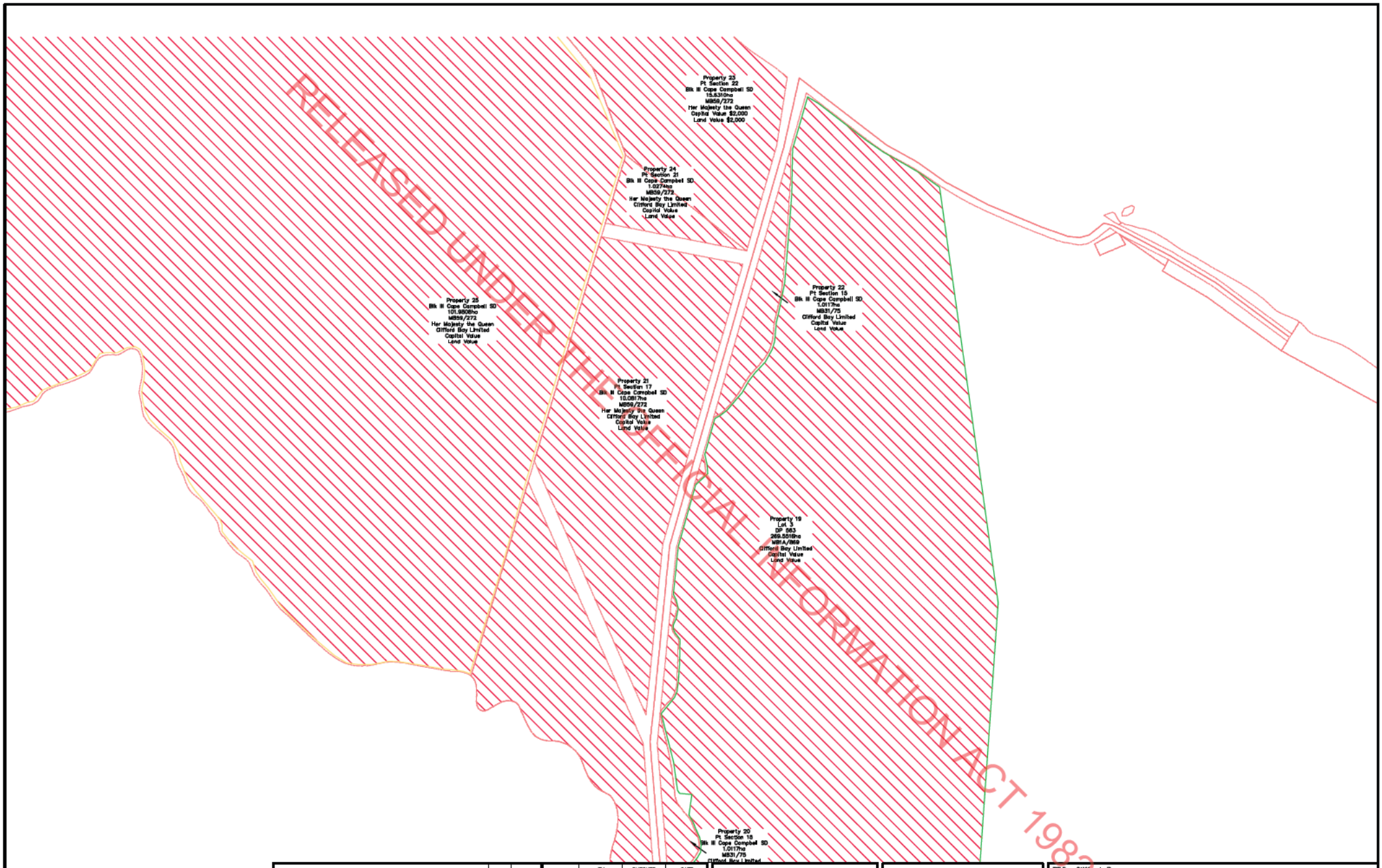

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TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership – Terminal

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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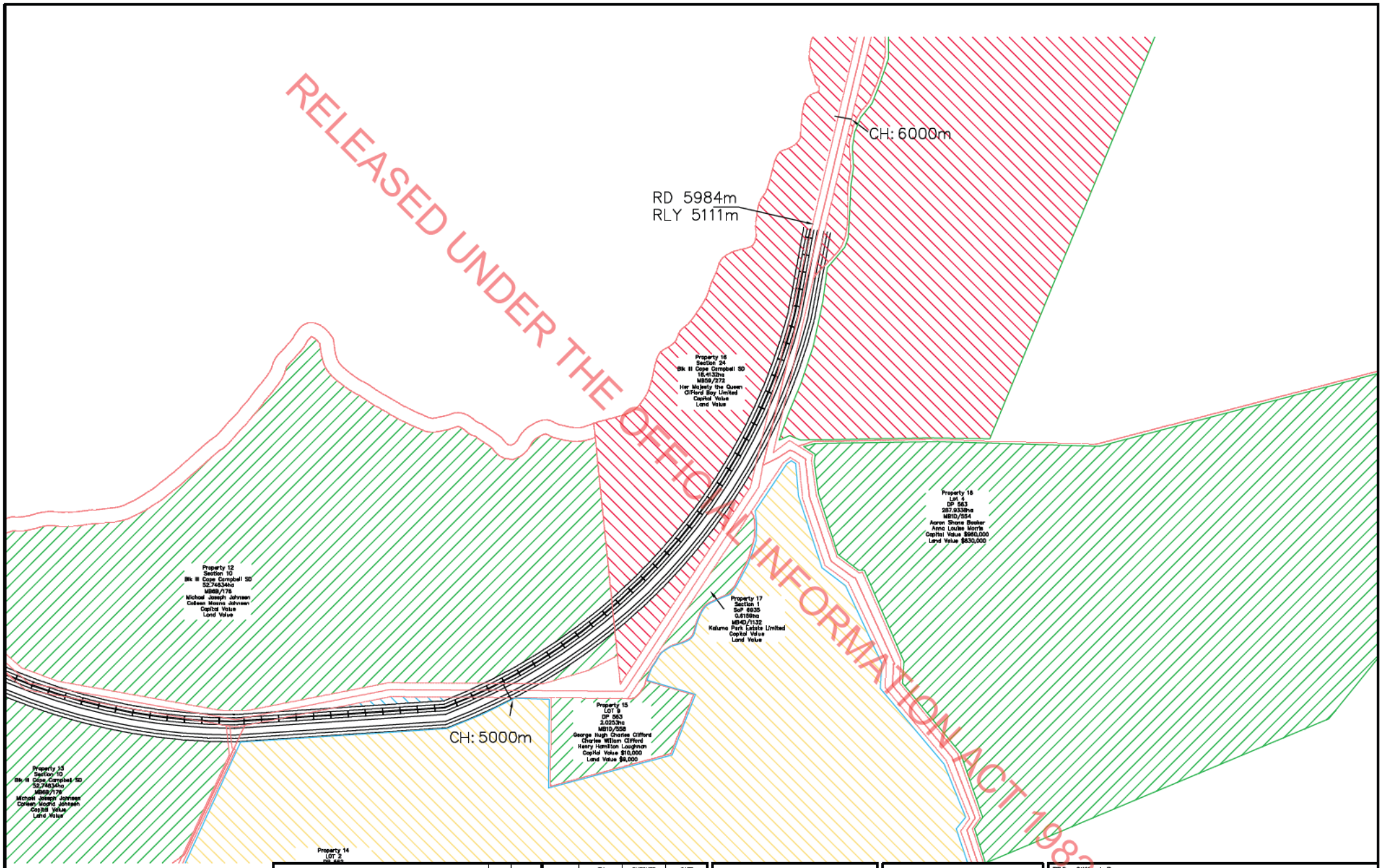
GRAPHIC SCALES

ORIGINAL SHEET SIZE A3 [420x297]



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TITLE: Clifford Bay
Marfells Beach Road Upgrade

Site Plan – CONCEPT
Land Ownership CH5000–6000

STATUS		FILE			
CONCEPT					
SCALE	PLOT DATE	FEATURE IDENTIFIER	CODE	SHEET	REVISION
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GRAPHIC SCALES

ORIGINAL SHEET SIZE A3 [420x297]