Figure 4-1

4.0 Option 2a Minimal Upgrade including New Roof to Northern Stands + Minor Refurbishment to South Stand

Figure 4-2. North Stand new roof structure

Figure 4-3. South Stand refurbishment

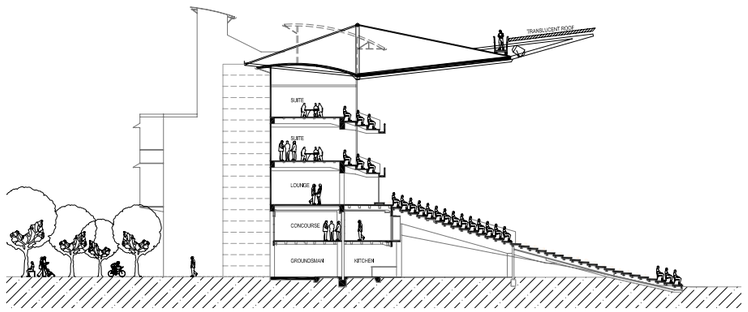


Figure 4-4. North Stand Section

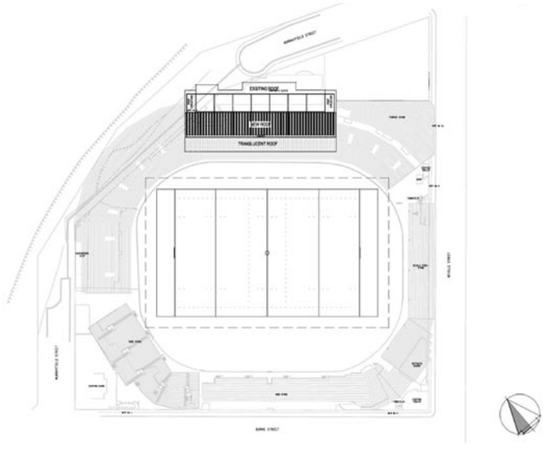


Figure 4-5. North Stand Roof Plan

Shadow Diagram – March 9am

Shadow Diagram – March 12noon

Shadow Diagram – March 3pm

Shadow Diagram – June 9am

Shadow Diagram – June 12noon

Shadow Diagram – June 3pm

Figure 4-6. Sun Path Study

4.1 Facility Design

4.1.1 Masterplan

The consultant team has been instructed to look at designing a roof over the existing North stand and extending over the seating in front of the stand to increase the number of premium covered seating between the 22 metre lines. The South Stand is also to be refurbished to provide better team, office and spectator facilities through fixtures, fittings and cosmetic treatments to the internal spaces and external envelope.

4.1.2 Layout and Orientation (Figure 4-5)

The roof is located above the premium seating and the corporate boxes in the North Stand on the centre line.

4.1.3 Stadium Uses

The uses for the stadium are not proposed to be different from existing. The only proposed change is the increased number of covered premium seating between the 22 metre lines beneath the new roof on the North Stand.

4.1.4 Facility Services

Facilities will remain as they are in the existing.

4.1.5 Design (Figure 4-2; 4-3; 4-4)

The design consists of a slimline roof over the seats in front of the North stand between the 22 metre lines. It is proposed that this should incorporate a hidden gutter, maintenance access and lights under the roof line, which will mean that the existing floodlights could be removed. Although materials have not been fully investigated at this stage it is envisaged that the finish will be of a profiled metal type material. The support structure is proposed to be independent from the existing stand so as to cause minimum disruption to the building fabric, although this is still to be finalised and at present vertical supports are envisaged to be requried to the back edge of the proposed roof (see Section 4.1.6).

A preliminary sun path study has been progressed (see Figure 4-6) to assess the impact of the new roof on the field of play. This will need further development during the next stage of the project.

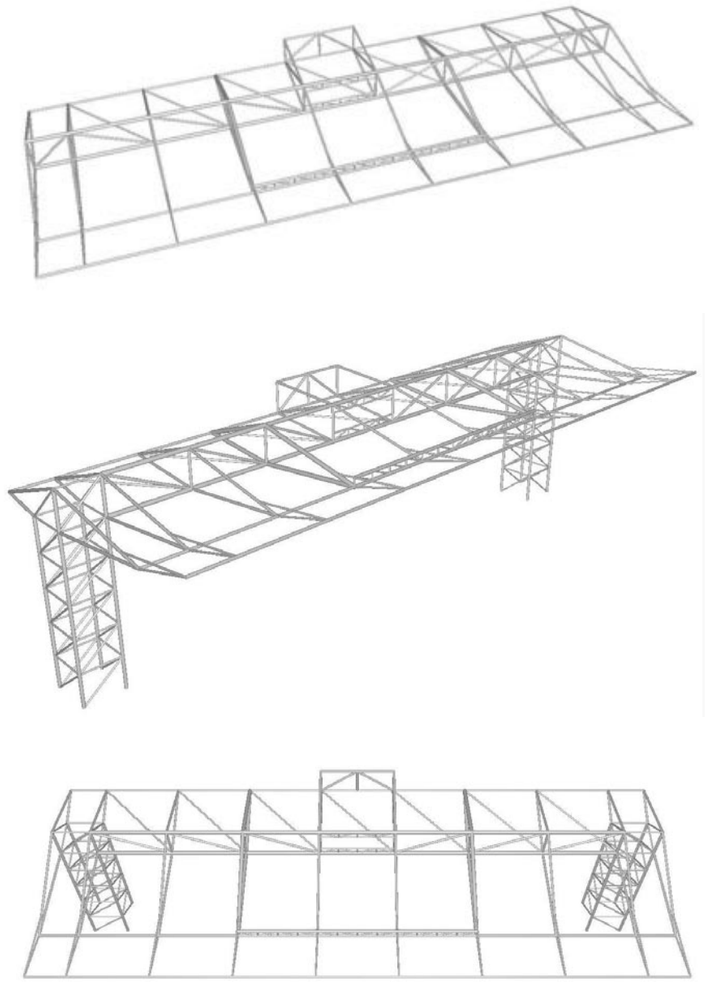


Figure 4-7. North Roof Structure

4.1.6 Structure (Figure 4-7)

The proposed roof is required to span the full length of the existing stand, except for its rear edge where vertical support from the existing stand is assumed at each grid. This assumption is still to be verified. There is a primary spine truss spanning 70m to buttress support towers positioned just beyond each end of the stand. The middle of this truss passes in front of the media box and thus needs special treatment to avoid visual obstruction.

The primary spine truss supports rib frames at 10m intervals, with the rear back-span of the rib-frames being supported by the existing stand. Mostly the rib frames are triangulated with sloping upper chords and a single compression lower chords that also support the roof fabric. These rib frames have been kept free of other truss diagonals etc to present a clean appearance, though steel sizes would come down if further triangulation was incorporated.

The outermost 5m of the rib frames are simple cantilever triangulated trusses, inclined upwards, as extensions of the main chords.

For the two central ribs, either side of the media box, the lower chords have been omitted in order to give un-obstructed media view of the field. The function of these lower chords (that is, propping the tips of the upper chords) is achieved by incorporating a shallow 3-bay vertical truss.

The support buttress towers will be steel framed vertical box trusses supported on piles.

In the event that vertical support from the existing stand along the rear edge is not viable then a second spine truss would be needed along this line, though this would be shallower and/or lighter than the primary spine truss as it carries less than half the load of the primary spine truss.

4.1.7 Benchmarking

Suncorp Stadium, Brisbane

Telstra Dome, Melbourne

Westpac Stadium, Wellington

Landsdowne Road, Dublin

Skilled Park, Gold Coast

Benchmark Comparisons

Space Type	Suncorp Stadium Brisbane	Telstra Dome Melbourne	Skilled Park Gold Coast	Lansdowne Road Stadium Dublin	Galpharm Stadium Huddersfield	Waikato Hamilton Park	Westpac Stadium Wellington	Option 2a - New Roof on North Stand and refurbishment of South Stand Dunedin
Sports / Events	Rugby Union, Rugby League, Soccer	AFL, Cricket (ODI), Rugby Union, Rugby League, Soccer, Concerts, Motor Cross	Rugby Union, Rugby League, Soccer, Concerts	Soccer, Rugby, Concerts	Soccer/ rugby	Rugby	Rugby Union, Cricket	Rugby Union
Construction Cost	$224,000,000	NZ $327,750,000	NZ $138,000,000	265,000,000 euro	28,000,000 GBP	TBC	NZ $ 121,000,000	TBC
Capacity	52,854	49,709 Rugby 52,209 AFL	25,465	50,746	26,000	27,500 including 20,000 seats (10,000 under cover)	34,500	29,246
Number of Tiers	3	3	1 with small corp suite tier on West side.	3	2 and 1	2 and 1	1	1
Building Area (sqm)	92,072	107,154	25,750	TBC	24,200		26,970	TBC TBC
Building Footprint (sqm)	42,450	48,350	15,500	TBC				
Site Area (hectares)	7.42	7.21	4.8					
Field Format	Rectangular	Variable (oval / rectangular)	Rectangular	Rectangular	Rectangular	Rectangular	Oval	Rectangular
Field Size	144m x 90m	170m x 140m	138 x 83m					
Retractable Roof	No	Yes	No	No	No	No	No	
Fixed Roof								Yes
Roof Coverage	88%	92 - 100%	80%	TBC	100%	40%	65%	60%
Spectator Group								
General Admission:	39,274	38,204	22,643	39,200			31,900	28,106
Club Seating:	4,948	4,554	980				2,600	6,700 covered prime seats included in GA figure
Code Seating:	4,964	8,249	n/a	10,000				
Corporate Seating:	2,800	991	1,360	850				1,140
Wheelchair Positions	260	244	178	230			172	as existing
Companion Seats	260	232	178				172	as existing
EAS	260	244	0	230				
Press	52	97	36	236				
Players / Officials / Team	36	99	44					
Total	52,854	52,914	25,465	50,746	26,000		34,500	29,246
Seating Standards								
General Admission	*500mm chair x 800mm tread (lower tier)* *500mm chair x 825mm tread (upper tier)*	*480mm chair x 800mm tread*	*500mm chair x 850mm tread*	*500mm chair x 800mm tread*			*480mm chair*	*as existing*
Club Seating	*560mm chair x 850mm tread*	*500mm chair x 800mm tread*	*550mm x 900mm tread*	*550mm chair x 850 tread*				*as existing*
Code Seating	*500mm chair x 800mm tread*							
Corporate	*560mm chair x 950mm tread*	*500mm chair x 900mm tread*	*550mm x 900mm tread*	*550mm chair x 850mm tread*			*550mm chair*	*as existing*
Written Press			*550mm x 900mm tread*				*500m chair*	*as existing*
Broadcast Commentators								
Roof Coverage	Roof Coverage: 82%	Roof Coverage: 98-100%	79%					
Corporate Facilities								
Suites	26 x 12-seat suites 18 x 14-seat suites 28 x 20-seat suites 1 x 80-sear hirers suite	34 x 12-seat suites 29 x 16-seat suites 4 x 20-seat suites	*18 x 12 seat suites* *6 x 18 seat suites* *3 x 18 or 1 x 54 seat seat hirers suite*	12 - 50 person suites	26 x suites 16 x executive suites			11 x 21 person suites 2 x 28 person suites 1 x 35 person suites 10 x 30 person suites 14 x 30 person suites
Total	73	67	67	35				38
Open Carrel Boxes	41 x 10-seat boxes 60 x 10-seat boxes	no boxes	*62 x 10 seat boxes* 18 x 8 seat boxes *20 x 12 seat boxes* *100*					
Total	101	0						
Hospitality / Dining	1 x 1,000 seat banquet hall 2 x 500 seat restaurants 2 x 250 seat restaurants 2 x 144 seat terraces 2 x 80 seat end goal clubs	6 x 500 seat facilities 2 x 1,000 seat facilities 1 x 1,500 seat facility	*1 x 500 seat Function Room*	1 x 400 seat restaurant 1 x 650 seat restaurant				
Total Dining Spaces	2,948	6,500	*500*	1,050	650	628	1,400	140
Bars / Lounges			*North West Member Bar - 400 standing* *Function Room 2(no fit-out) 750 standing*					
Toilets								
Standards Used	FSADC	FSADC	FSADC/BCA	FSADC	FSADC		FSADC	as existing
Club/ Corp.	60:40 male-to-female ratios	60:40 male-to-female ratios	60:40 male-to-female ratios		60:40 male to female ratio 70:30 male to female ratio		50:50 male-to-female ratios	
Male								
Urinals							1:25 ratio	
WC's							0-400 1 per 100p, 400+ 1 per 250p	
WHB's							1 per wc, 1 per 5 urinals	
Female								
WC's							0-200 1 per 50p, 200+ 1 per 100p	
WHB's							1 per 2 wc	
PWD								
General Public	70:30 male-to-female ratios	70:30 male-to-female ratios	70:30 male-to-female ratios				70:30 male-to-female ratios	
Male								
Female								
PWD							1 per 10 wheelchair spaces	
Guest Services								
First Aid	First Aid - *1 at 50 sqm + 2 at 20*	First Aid - *4 at 10 sqm*	First Aid - *2 at 15sqm*					
Custumer Service Counter	Customer Service - *4 at 20 sqm*	Customer Service - *8 at 15 sqm*	0				one counter 'serving' space per 10,000 spectators	as existing
Creche / Kids	Creche/Kids Play - *1 at 50 sqm*	Creche/Kids Play - *no*	Creche/Kids Play - *1 at 50 sqm*					
Mothering Stations	Mothering Stations - *2 at 6.25 sqm*	Mothering Stations - *no*	Mothering Stations - *3 at 6.25 sqm*					
TAB / Betting	Gaming Facilities - *2 at 30 sqm*	Gaming Facilities - *2 at 30 sqm*	0				1 TAB	
Merchandising	ATM machines - *2 at 5 sqm* Sports Store - *1 at 185 sqm* 5 sales counters	ATM machines - *4 at 5 sqm* Main Store	ATM machines - *2* Sports Store - *2 at 20 sqm* 2 sales counters			1 x 70 sqm		as existing
Food Stands							5 permanent merchandising	
	Sales Counters - *12 at 15 sqm*	Sales Counters						
Food Concessions	7.5 m / 1,000 spectators	5.0 m / 1,000 spectators	Sales Counters - *16*	8.0m / 1,000 spectators			12.5m/ 2500 spectators	as existing
Bars	7.5 m / 2,000 spectators	5.0 m / 2,000 spectators	5.0 m / 1,000 spectators	4.5m / 1,000 spectators (GA) 9m / 1,000 spectators (Members)			6.0m per 2500 spectators	as existing
Kitchen	Kitchen/Commissary: *2,040 sqm*	Kitchen/Commissary: *2,352 sqm*						
Main Kitchen / Commissary	2,040sqm	2,352sqm	Kitchen/Commissary: *2,040 sqm*					
Finishing Kitchens			550sqm					
Suite Kitchens						250 sqm		as existing
In-suite servery								
Team Facilities								
Home Lockers	1 at 400 sqm	1 at 477 sqm	1 at 350 sqm(incl. warm-up, wet areas)					
Visitor Locker	1 at 400 sqm	1 at 385 sqm	1 at 350 sqm(incl. warm-up, wet areas)					
Aux. Lockers	2 at 170 sqm	2 at 195 sqm	2 at 175 sqm					
Miscellaneous	Referee - *2 at 55 sqm*	Referee - *2 at 65 sqm*	Referee - 1 at 60 sqm					
Lockers	Star Dressing - *1 at 55 sqm* Ballboys - *1 at 55 sqm* Cheerleader - *1 at 55 sqm* Doping Control - *1 at 100 sqm*	Star Dressing - *1 at 60 sqm* Ballboys - *1 at 28 sqm* Band - *1 at 60 sqm* Doping Control - *1 at 60 sqm*	Star Dressing - 1 at 18 sqm Ballboys - 1 at 20 sqm Cheerleader - 1 at 150 sqm Band Room - 1 at 32sqm					
Ticket Office	Ticket Windows - 20 Administrative Offices - *150 sqm*	Ticket Windows - 50 Administrative Offices -	Doping Control - 1 at 25 sqm Ticket Windows - 20 Administrative Offices - 180 sqm			Ticket Windows - 10 Administrative Offices - 354 sqm		as existing as existing

4.2 Planning and Consultation

There are two mechanisms available to CST to facilitate the DCC's approval for the redevelopment of the existing Carisbrook Stadium, in respect of land use planning requirements. The options available are:

- Resource Consent
- Plan Change

It is recommended that CST utilise the Resource Consent process to authorise the development. This approach is more appropriate because it takes full account of the permitted baseline and existing use rights of development on the site, the existing District Plan provisions (which permit recreational activities), and recognises that in this instance the activities proposed have a more limited scope than for a new Stadium at the Awatea Street site.

The statutory process for a resource consent application is set out more fully in the appendices, as are the specific information requirements likely for a land use Resource Consent in respect of the redevelopment. To ease the process as far as it is possible, it is advisable to maintain dialogue with the Council to ensure clear understanding of the scope of the proposal and the objectives sought. It is recommended that the proposal proceed via the notified resource consent process, the timeframe for which is usually not less than 75 working days. It is also important to note that subsequent to the release of the Council's decision in respect of the application, there is also a period of an additional 15 working days for the lodgement of appeals to the Environment Court.

Resource Consent will also be required in respect of regional plan requirements. Potential consent requirements are set out in greater detail in the report attached in the appendices, however it appears likely that consents will be required under the Regional Plan: Air for Otago. It is also possible, based on the extent of the site to undergo redevelopment, that consent will be required under the Regional Plan: Waste for Otago also.

Consultation is required under the Resource Management Act to enable the identification and clarification of issues. It also provides an opportunity to resolve issues during the preparation of detailed design concepts and thereby incorporate such resolutions into the design for which consent is sought. Although consultation prior to lodging the application with the Council is not mandatory, best practice is to undertake consultation at an early stage.

Consultation undertaken on the application should be broken into two parts; informal consultation undertaken prior to the lodgement of the application with the Council, and the more formal consultation undertaken via the public notification (submission) process.

Other consultation considered appropriate prior to the lodgement of the resource consent application should include meetings with a number of parties who will have individual and specific concerns in the process, and a broader round of consultation with the general public.

It is recommended that targeted consultation meetings are held with Aurora Energy Limited, Transit New Zealand, Toll Holdings Limited, On-Track, Kai Tahu, and the Otago Regional Council. It may be appropriate for DCC Community and Recreation Planning and DCC Transportation Planning to also be met with during this round of consultation. Each of these organisations is likely to have discrete concerns that are of a technical nature, and which are of little relevance to a number of other parties. As such, it is appropriate that these parties have the opportunity to provide feedback on the proposal at an early stage.

It is recommended that the more general round of consultation that is undertaken includes the owners and/or occupiers of properties that surround the site, including those properties in Burns, Neville, and Murrayfield Streets.

It would also be beneficial for the parties to be able to take information on the proposed stadium away, and it is therefore recommended that an A4 brochure is prepared. This would enable individuals to give further consideration to the proposal, and provides them with a contact point should they wish to provide further feedback subsequent to the meeting.

The application, and any supporting documents, should reflect the feedback obtained during this consultation. Taking such an approach may reduce the number of submissions received during the more formal consultation process, which in turn reduces hearing time, deliberations required, and may alleviate some of the concerns of parties that are likely to take the matter to the Environment Court.

4.3 Programme

Programme Overview

The minor refurbishment of the South Stand and construction of a new roof over the North stand can be achieved by the Rugby World Cup in 2011.

A redevelopment of the existing Carisbrook Site will require careful consideration during the initial planning and staging of events at the stadium. This option has the ability to be sequenced outside the Air New Zealand Cup, Super 14 and test match fixtures. This upgrade will require a construction period of approximately 12 months. This construction period could be sequenced to allow the stadium to remain operational during this upgrade.

Master Programme

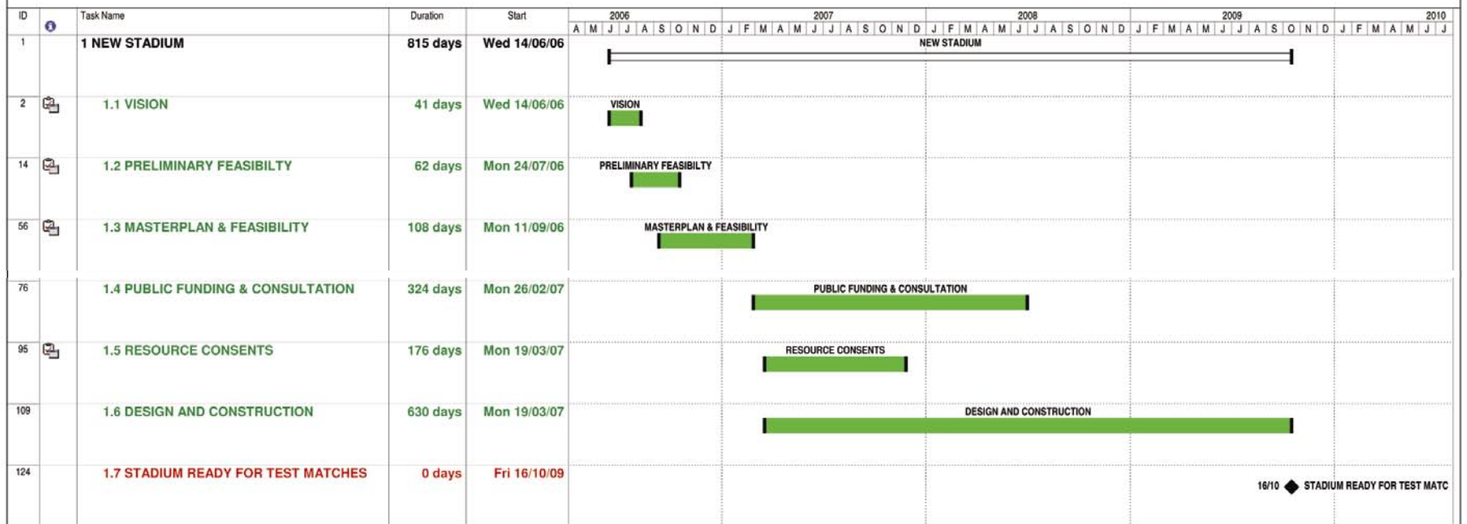
Included in the appendices is the detailed master programme for the proposed Minor Refurbishment to the Existing Carisbrook. For ease of reference the following Milestone dates have been extracted from this programme:

CLIENT: Carisbrook Stadium Trust
PROJECT: Carisbrook Stadium Development

MINOR REFURBISHMENT TO CARISBROOK - OPTION 2a

ARROW INTERNATIONAL Projects: Strategy and Delivery

ID	Task Name	Duration	Start
1	1 NEW STADIUM	815 days	Wed 14/06/06
2	1.1 VISION	41 days	Wed 14/06/06
14	1.2 PRELIMINARY FEASIBILTY	62 days	Mon 24/07/06
56	1.3 MASTERPLAN & FEASIBILITY	108 days	Mon 11/09/06
76	1.4 PUBLIC FUNDING & CONSULTATION	324 days	Mon 26/02/07
95	1.5 RESOURCE CONSENTS	176 days	Mon 19/03/07
109	1.6 DESIGN AND CONSTRUCTION	630 days	Mon 19/03/07
124	1.7 STADIUM READY FOR TEST MATCHES	0 days	Fri 16/10/09



Submit Masterplan Feasibility to Project Stakeholders	February 2007
ORC and DCC begin consultation process	February 2007
CST Decision to Proceed with Multiple Options	March 2007
Concept Design	March 2007- June 2007
Submit Resource Consents	June 2007
DCC Commitment to Project	July 2007
Continue Developed and Detailed Design	June 2007- November 2007
Resource Consent Resolution	November 2007
Construction Procurement	February 2008
ORC Commitment to Project	July 2008
Commence Construction on site	July 2008
Construction Practical Completion	September 2009
Stadium Trials Complete and Stadium Ready for Test Matches	October 2009

Understanding the Programme Risks and Assumptions

Funding Commitments

This option assumes that funding will be made available for the proposed upgrade. Further discussion with ORC and DCC will be required to determine the level of funding that will be made available for this option.

DCC commitment to the project

CST will need to progress the concept design to enable the Resource Consent to be submitted prior to DCC providing their commitment to the project in July 2007. Non-recourse working capital will need to be provided to enable the design to progress during the period between March and July 2007.

ORC commitment to the project

It is assumed ORC's commitment to this project will not be known until July 2008. This is a major risk to the project as this milestone falls on the programme critical path. Any movement on this date will affect the completion date for this project. ORC's commitment impacts on funding certainty for the project. Without this ORC commitment, CST is unable to commit working capital for placement of building works contracts. This places great risk on CST during the period of March 2007 through to July 2008 to obtain working capital to progress the developed design and procurement.

The Programme assumes CST will continue the design process through this March to July 2007 period, enabling the Resource Consent to proceed. Effectively this means the funding provided during this period will be non-recourse until such time as ORC commits to the project. Confirmation of the building contract(s) will therefore need to take place on confirmation of ORC's commitment.

Resource Consents

The detailed master programme assumes Resource Consent will be required for the construction of a new roof over the existing terraces and installation of additional premium seating in this location. Further discussion and debate with DCC may result in Resource Consent for this option not being required. It could be argued that the alterations or modifications will not alter the scale, intensity or character of the existing use in this location. It is unlikely a Resource Consent will be required for any internal modifications to the existing Neville Street stand. If a Resource Consent was not required this would have little impact on the overall Practical Completion date as the ORC commitment date is on the critical path of the programme. It is anticipated that if a Resource Consent was required for this option it would be a simple application. The dates indicated in this programme are based on statutory periods however, for a consent of this nature these are considered to be a worst case scenario.

Design Period

The design period indicated in the programme has significant float due to the delay between the completion of the construction procurement and the placement of the building contract(s). This float is caused due to the timing of ORC's commitment to the project, assumed as being no earlier than 1 July 2008

Construction Period

Based on the information available, the construction period for option 2a has been estimated to be 12 months. This period assumes CST place an enabling works package to complete necessary demolitions and site works to provide adequate access into and around the site. An off site pre-fabrication contract will also be placed to accelerate construction on site.

The assumed construction periods will be tested with local contractors when further detailed information is available.

Stadium Trials

Following Practical Completion a period of 6 weeks has been identified to perform stadium trials and identify any aspects of the stadium that may require minor modification to ensure a successful running of a full capacity event.

4.4 What are the Key Challenges?

Using a similar approach to that that used for options 1a and 1b, the following table summarises the key challenges for this option.

Key Challenge	Issues	Comments/ Mitgation	Risk Level (H, M, L)
1.Development Costs			
a. Land			NA
b. Ground Conditions	The ground conditions are adversely different to what was anticipated.	With the minor nature of this refurbishment option, the ground conditions will have little impact on the development costs of this option.	L
c. Construction	Construction costs escalate due to unforeseen circumstances.	The current cost plan for this option is based on a "healthy" m^2 rate for the refurbishment of the South Stand. The allowance associated with the demolition and construction of a new roof over the northern corporate suite stand has been based on structural design. During the next stage of the project, further investigation into the design for each of these stands will be required to provide greater cost certainty for this option	L
d. Roof			NA
2. Time			
a. Working Capital	CST cannot secure the working capital to progress the design in line with the proposed programme.	CST are to continue discussions and negotiations with the project funding partners to secure this working capital to avoid delays to the project	H
b. Planning	Not obtaining the required planning notification to progress the development.	This option assumes a Resource Consent may be required for the changes to seating capacity and installation of the roof over the corporate stand. Further discussion with DCC during the next stage of the project will confirm if a Resource Consent will be required. The current programme assumes a Resource Consent is required so this will have no impact on the project programme	L
c. ORC Consultation	The period which ORC require for their consultation process provides great uncertainty and risk of the viability of the project and financial risk to other funding partners.	CST to continue discussion with ORC to try and obtain earlier commitment to the project	H
d. Construction Period	Delays to the construction programme resulting in missing the RWC 2011 deadline.	The construction period for this option has been estimated as 12 months. Based on the scope of this refurbishment option it is extremely unlikely that delays to this project would affect the completion of this option before the RWC 2011.	L

Key Challenge	Issues	Comments/ Mitgation	Risk Level (H, M, L)
e. Plan Change			NA
f. Land			NA
3. Funding			
a. DCC	The level of funding required from DCC for this option is $15.5M.	If this funding is reduced then CST will be required to source the shortfall from alternative sources. CST to continue discussion and negotiations with DCC	L
b. ORC	The level of funding required from ORC for this option is $7.25M.	If this funding is reduced then CST will be required to source the shortfall from alternative sources. CST to continue discussion and negotiations with ORC	L
c. Other	The level of funding required by other sources is $5.9M.	Horwath HTL have assessed this level of funding in the financial feasibility report. This is considered by HHTL to be an optimistic funding scenario. Evidence from the Westapac stadium in Wellington has indicated that funding sources trend upwards once developments of this nature have commitment and support.	L

Key Challenge	Issues	Comments/ Mitgation	Risk Level (H, M, L)
4. Partners			
a. University			NA
b. NZRU	Obtaining commitment from NZRU to provide test match rugby for the stadium.	NZRU have expressed support for the CST options and consderation is presently being given as to how test matches might be rescheduled. This is subject to a commitment for the project proceeding which the funding and development partners must assist CST with. This upgrade should be seen as a short term fix. There is a significant risk that NZRU may withhold test ruby after this commitment date. There is also a potential risk that the Highlanders Super 14 franchise may be lost.	H
c. ORFU	Inability to agree terms and conditions for the agreement between CST and ORFU	Initial discussions are very positive. ORFU recognise that some form of agreement must be entered into and this will be progressed as soon as possible	L
d. Government	Inability to secure any funding commitment from central government	Nothing has been allowed within the funding scenarios for central government funding, based on the governments stance on improvements to stadia for the RWC 2011. Local government representatives and CST are to lobby local MP's and parliament	L
5. Operational			
a. Multi-use and Events	The number and type of events that are projected within the operational feasibility are not realised	The assumptions made within the operational feasibility assume the continuation of Super 14 rugby. There is a risk that the Super 14 franchise could be lost.	M
b. Community Support	Lack of support from the community for an upgrade of the existing Carisbrook stadium	Keep the community informed and updated on the issues associated with the project. This upgrade will not address all of the stadium shortcomings. It has minimal potential to attract high quality events and entertainment for the community.	H

Construction Risks

ID	Risk	Impact	Action
1	Site contamination - ground	Low	Investigations during next phase.
2	Site contamination – existing buildings	Moderate	Test for asbestos, PCBs etc.
3	Soil conditions – insufficient load bearing capacity	Low	Bore log investigations
4	Site flooding	Low	Investigations during next phase.
5	Dunedin construction market conditions	Low	Discussions with local main contractors to identify capacity. Possible early contractor involvement.
6	Availability of materials	Low	Mixed materials where appropriate to mitigate potential demand pressures. Investigate pre-ordering possibilities.
7	ETFE material availability, cost and performance criteria.	N/A	N/A.
8	Availability of labour. Skilled labour for specialist structure, roof & cladding	Low	Discussions with local contractors re design specifics.
9	Programme – compressed construction period	Low	Construction programme reviewed with local main contractors when appropriate.
10	Programme – inflationary pressures	Low	Avoid delay to project timescale. Allow sufficient Escalation Contingency
11	Escalation in costs	High	Allow sufficient Escalation Contingency. Monitor escalation during design period.
12	Programme delays (consent issues etc.)	Low	Manage consent process. Monitor programme.
13	Resource Consent / re-designation issues	Low	Manage consent process.
14	Pitch roof – services design issues	N/A	N/A
15	Pitch roof – option selection	N/A	N/A
16	Pitch roof – Contractor experience	N/A	N/A
17	Surrounding infrastructure upgrade requirements	Low	Review traffic management reports.
18	Realignment of State Highway 88. Costing, timing and effects on site planning.	N/A	N/A
19	Land costs	N/A	N/A
20	Existing land occupiers lease exit / relocation costs	N/A	N/A
21	Design development / scope creep	Moderate	Allow sufficient design development Contingency in budgets. Provide further design information ASAP.
22	Funding allocation and confirmation	Low	Identify sources. Obtain commitments.
23	Structural upgrade of existing stands	High	Investigate existing structural capacity. Design to avoid requirement to upgrade.
24	Services upgrade of existing stands.	Moderate	Investigate requirements ASAP. Undertake fire study.
25	Site accessibility – for construction	Low	Review sequencing of construction works. Review traffic management. Avoid requirement for out of hours work.
26	Requirement for staged construction	Low	Review any possible requirements ASAP (cost plan does not allow)
27	Under-grounding of power cables	N/A	N/A
28	Disruption to existing users & reduction in revenue	Low	Manage.

4.5 Development Costs

Introduction

The design and scope development are at a very preliminary stage for this option. A professional quantity surveyor, Davis Langdon, has been used to estimate the works. The refurbishment nature of the work does not lend itself to a benchmark comparison, so none has been undertaken.

Estimate

Element	Value
North Stand Roof and South Stand Refurbishment	$14,750,000
Deferred Maintenance	$7,000,000
Escalation Contingency	$2,000,000
Construction Contingency	$2,000,000
Consultants Fees	$3,000,000
Trust Costs	$600,000
Total excl. GST	$29,350,000

* all costs are exclusive of GST

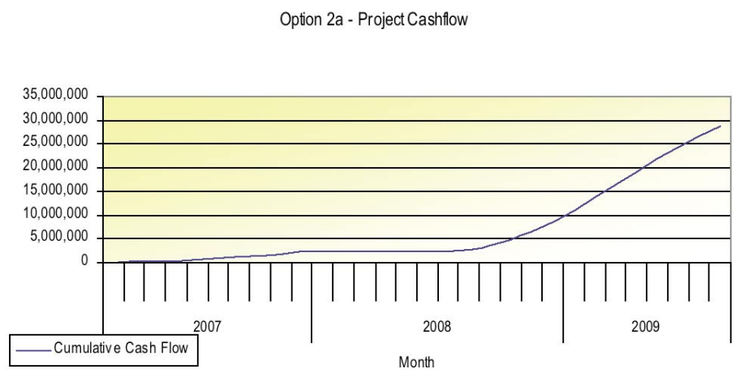
The original estimate has been increased in the above table to allow for the deferred maintenance at Carisbrook. ORFU have estimated these works at approximately $7.0M. These include for upgrade of the score board to a replay screen. In view of the refurbishment nature of this option, contingency levels have been set somewhat higher than for new works.

Summary

An estimate of $29,350,000 excluding GST is considered appropriate for this estimate.

4.6 Development Cashflow

The graph below indicates a cumulative cash flow for Option 2a. The graph assumes that DCC makes a positive commitment to put this option forward to public consultation.



Working Capital

A monthly project cashflow is included in the appendices. The cashflow has been developed using a normal construction industry S curve.

The period July 2007 to December 2007 allows for Resource Consent, concept design and developed design. This cashflow indicates expenditure from March 2007 through to July 2007 however, the design through this period could be put on hold until the DCC commitment to the project is known. This will have little overall effect on the project completion date

The working capital required between the period March 2007 to July 2008 will be approximately $2.5M.

The jump in expenditure in October 2008 demonstrates the start of construction onsite.

Funding of this working capital needs to be discussed between DCC, ORC and the Community Trust of Otago. There are various precedents with other stadia for how similar parties have split this risk capital.