Kai Iwi Lakes Security Review

Kaipara District Council

September 2020

This report presents the findings of a security review requested by the Kaipara District Council (KDC) for Kai Iwi Lakes, Taharoa Domain, located 35kms north of Dargaville. An onsite assessment was conducted on 2nd September 2020 by Craig Bidois and Greg Bolton from Security Consultants, FearFree Ltd.

The review which included comprehensive discussions with the KDC Parks and Recreation Manager, Kai Iwi Lakes Campground Coordinator and Parks Officer, concluded that there are relatively basic actions that can be taken to considerably improve staff safety and overall security. The area of highest risk relates to staff working alone, at night, with unreliable communications.

It has been observed that due to COVID related international travel restrictions, New Zealanders are now visiting our parks and recreational areas in far greater numbers. Given Kai Iwi lakes proximity to Auckland, considerably higher numbers of visitors than usual are likely, which will increase the risk of conflict and safety-security related incidents.

Health and Safety in employment has received considerable attention by government agencies. This comes after some high-profile incidents and the introduction of the new Health & Safety at Work Act 2015. It is advised that Health & Safety and Security should share an equal focus, as they both have the potential to impact on people's safety. There is a general duty under the Act to eliminate all risks to health and safety, and if risks cannot be eliminated, they must be minimised as far as is reasonably practical.

FearFree would like to commend KDC for taking a pro-active approach with improving the safety-security of Kai Iwi Lakes which will not only benefit their staff, but also the general public.

The review details risks and provides practical, achievable advice at organisational and site-specific level.

MAIN FINDINGS:

The following provides a summary of main findings with advice to lower the associated risks. In-depth details are provided within the main body of the document with current risk levels depicted in the right-hand column

Staffing: Advised minimum staff levels

High Risk of assault, conflict and safety-security related incidents stemming from an influx of visitors

In line with lone worker best practices particularly at night and considering the risks of unreliable communications, we advise KDC prepare to increase staffing levels during the peak period (December to April, or as the situation dictates) as follows;

- A minimum of two Parks Officers (Warranted) on duty during the day.
- During evening and nights, a minimum of two staff based at Pine Beach campground with at least one staff being Warranted for enforcement purposes.

Communications

High Risk of staff unable to call for assistance if assaulted, threatened, or another emergency due to unreliable cell phone coverage in parts of Taharoa Domain. The current handheld radios only have basic line-of-site capabilities and are unreliable in bad weather or if obstructed by topography, trees and distance.

- Advised to upgrade handheld radios to a VHF or similar system

Duress alert system

High Risk of staff unable to alert others if they need immediate help.

Due to limited cell network coverage, personal duress pendants are not suitable for staff use within the Taharoa Domain. The currently used GPS-Iridium based device with SOS function is deemed adequate and regularly tested although the following is required to improve the duress alert system;

- Formalise guidelines on operational use, limitations, testing and response procedures
- Ensure all staff either full or part time are provided a device with appropriate training including understanding their limitations and ensuring they keep the device with them at all times.
- Consider upgrading the current GPS device to enable greater communication options including messaging capabilities

Pine Beach campground reception office:

Medium Risk of violence, aggressiveness, robbery and theft impacting reception staff.

- Although the counter is an adequate height, we recommend the Perspex screen is fixed to the counter to prevent it being used as a weapon or pushed onto staff with consideration of extending the screen along the counter.
- Install a gate or door preventing anyone walking around the side of the counter to the staff area and office.
- Create a safe haven for staff by installing dead locks on both internal/external office doors.
- Install frosting to the reception window, office windows and external office door to prevent cash handling being observed
- Bolt safe to floor, review cash handling procedures, minimal cash should be kept on premises

CCTV system

Medium Risk of not being able to detect incidents adequately and insufficiently recorded

- Upgrade CCTV as the current system has noticeable limitations.

Incident Reporting - Emergency Response procedures

Medium Risk of incidents going unreported, uncoordinated/delayed responses to emergency situations

- Revise incident/information reporting system, implement incident risk assessment procedures including assaults, trespassing, disorderly/threatening behaviour
- Identify staff responsibilities, develop guidelines relating to incident/emergency response

Staff Training

Medium Risk of incidents not being reported on time and accurately. Staff being harmed due to lack of situation awareness, skills and training to respond to incidents/emergencies

- Continue with staff training related to conflict de-escalation, incident reporting, working alone, communications, lockdown, duress alarm procedures, and robbery training for cash handlers.

Access Control

Medium Risk of unauthorised entry, willful damage and theft - delays in emergency response during peak season due to gates being opened/locked manually with unreliable communication with key holders

- Installation of automated gate at the main entrance (Intersection of Kai Iwi lakes and Domain roads)

REPORTING PROCESS:

FearFree advocates the use of a risk-based security framework. Potential risks and gaps in physical security systems and procedures are identified, with recommendations formulated to mitigate the risks.

Reports provide information to assist making cost effective, and practical risk-based decisions to improve staff and public safety.

In order to identify potential risks, FearFree consultants create a template for site visits detailing a range of procedural and physical security aspects to be assessed.

Staff are interviewed with systems and processes seen in action. Recommendations are made on what steps should be taken to mitigate risks when identified.

To highlight where the most serious risks have been identified, a table outlining, findings, advised mitigation and risks has been created so that organisations can prioritise where to focus time and funding.

SITE ASSESSMENT OBSERVATIONS AND RECCOMMENDATIONS

General

Kai Iwi Lakes consists of three lakes within the 640-hectare Taharoa Domain, located 35kms north of Dargaville and is administered by the Kaipara District Council. There are two camping ground areas, Pine Beach with a capacity of 480 campers and Promenade Point with a capacity of 120 campers.

During peak holiday season (Mid December through to Easter) there can be an estimated 1000 visitors a day in addition to up to 600 campers within the Domain, partaking in a variety of recreational activities.

Indications are that numbers of campers and day visitors will increase substantially due to the COVID related international travel restrictions with New Zealanders now visiting parks and recreational areas in far greater numbers than normal. Given Kai Iwi lakes relative proximity to Auckland, considerably higher numbers of visitors than usual are likely, which will increase the risk of conflict and safety-security related incidents.

Safety-Security related incidents

Reported incidents occurring within the Domain over the recent past include;

- Alcohol fuelled disorderly/abusive behaviour
- Drunken teen threatening persons with a knife
- Wilful damage to camp infrastructure and grassed areas by vehicles performing ‘donuts’ and ‘burnouts’
- Several car break-ins involving unattended vehicles parked next to the toilet block on Kai-iwi Lakes road

Staffing

Findings	From our observations and discussions with KDC staff, Kai Iwi Lakes low and high season staffing arrangements have until now been adequate in relation to maintaining a reasonable level of safety and security. National trends indicate numbers of campers and day visitors to Kai Iwi Lakes will increase substantially due to the COVID related international travel restrictions with New Zealanders now visiting parks and recreational areas in far greater numbers than normal. Given Kai Iwi lakes relative proximity to Auckland, considerably higher numbers of visitors than usual are likely, which will increase the risk of conflict and safety-security related incidents Early indications have already been observed with a substantial increase in camper van visits to Kai Iwi Lakes compared to the same period in previous years which averaged about 5 a week compared to 5 a night currently.	**HIGH**
Advice	In line with lone worker best practices particularly at night and considering the risks of unreliable communications, we advise KDC prepare to increase staffing levels during the peak period (December to April, or as the situation dictates) as follows; • A minimum of two Parks Officers (Warranted) on duty during the day. • During evening and nights, a minimum of two staff based at Pine Beach campground with at least one staff being Warranted for enforcement purposes. • The peak season staffing arrangement at Prominade Point camping ground appears sufficient.	
Risk	Staff assaulted while working alone and at night.	

Pine Beach campground reception office

As an organisation's interface with the public, front counter/reception areas must have safeguards to protect assets and people from risk.

The reception office is well situated just inside the entrance to the Pine Beach camping ground area and consists of two rooms, a reception area and office connected by an internal door. There are 2 CCTV cameras attached to the exterior walls covering the front entrance area and side/rear of the building and another 2 cameras positioned inside the reception area.

The building is fitted with an internal sensor activated audio alarm system. Entry into the reception area consists of a ranch slider fitted with a standard lock.

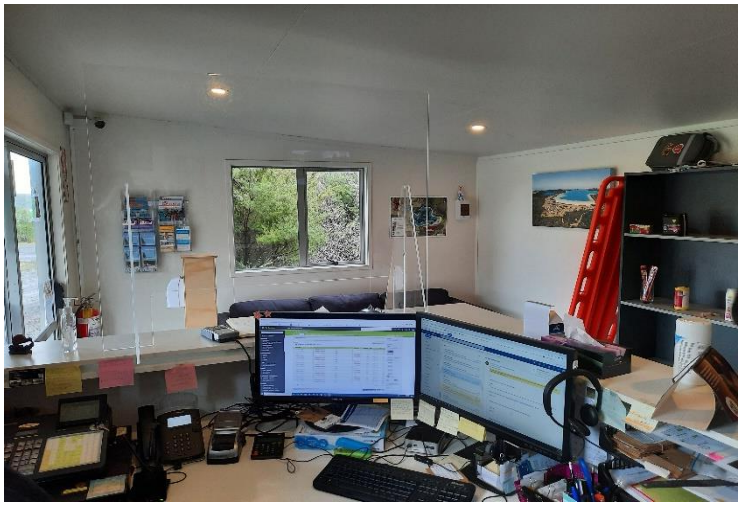
The reception counter is 'L' shaped, 1100mm high although has no door/gate preventing unauthorised persons from walking around the counter to where a staff member usually sits.

A cash register and computer are positioned on the desk with the staff member facing towards the entrance door with a good line of site towards the entry door and campground entrance.

An internal door with no lock connecting the reception area with the office is located to the rear of the counter area. A staff-only office entry door is located off the side of the building and fitted with a standard manual key entry lock.

A small floor safe is located under a desk in the office although is currently not bolted to the floor.

Reception area



Staff desk space facing reception area

Internal office door

Rear office door

Office floor safe

Findings	The buildings external security has adequate external lighting and both entry doors are in clear sight. The reception area counter is well positioned allowing staff to observe people and vehicles entering the camp area and people approaching/entering the reception area. Although the counter is an adequate height, we recommend it is fixed to the counter to prevent it being used as a weapon or pushed onto staff with consideration of extending it along the counter. Currently there is no gate or door preventing anyone walking around the side of the counter to the staff area and office.	**MEDIUM**

	The internal door to the office area is ideally located behind the reception area allowing an escape route although currently has no lock. The office would serve as an ideal safe haven for staff to retreat to incase of an aggressive/violent person. The window located next to the reception desk and windows along with glass entry door allows a person outside to observe cash handling. The CCTV system monitor is located on the wall in the reception providing a good visual deterrent while able to be observed by staff. The cameras have reasonable coverage although video digital footage can only be saved up to 7 days and the cameras can only be monitored from within the office and not remotely.	
Advice	Fix Perspex screen to counter to prevent it being pushed onto staff or used as a weapon. Install a gate or door between the end of the counter and internal wall to slow down an attacker allowing time for staff to retreat to the office. Install dead locks to the internal and external office doors creating a safe haven for staff allowing time to retreat to and call for help. Apply frosting to the reception and office windows to prevent someone observing cash handling as large amounts of cash can be received per day during peak season. Bolt safe to floor.	
Risk	Inadequate internal physical security exposes staff to assault, aggressiveness/threatening behaviour, robbery and theft.	

Communications

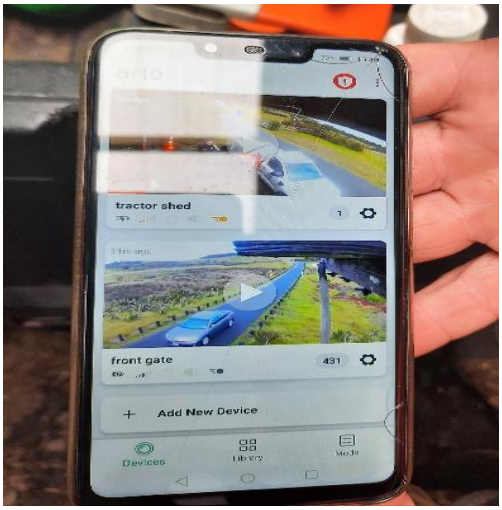
Findings	There is unreliable or no cell phone coverage in areas of Taharoa Domain although Vodafone has better coverage than other providers. The current handheld radios only have basic line-of-site capabilities and are unreliable in bad weather or if obstructed by topography, trees and distance.	**HIGH**
Advice	Upgrade handheld radios to a VHF or similar system to improve reliability. All staff working in the Domain should be equipped with an upgraded radio.	
Risk	Staff assaulted, unable to call for help in an emergency or unable effectively communicate between each other in the Domain and/or KDC Operations in Dargaville.	

Personal duress alert system

Findings	Due to limited cell network coverage, personal duress pendants are not suitable for staff use within the Taharoa Domain. The currently used GPS-Iridium based device with SOS function is deemed adequate and regularly successfully tested according to staff. The Parks Officers vehicle is fitted with a fleet management system duress alarm.	**HIGH**
Advice	Formalise guidelines on operational use, SOS/emergency activation and response, regular testing and limitations (GPS based systems do not work inside buildings or under thick tree foliage) Staff advised to keep the device with them at all times. Consider upgrading current devices to include more advanced communication capabilities including messaging.	
Risk	Risk of staff unable to call for help in an emergency.	

CCTV

Camp Office reception CCTV monitor



Arlo CCTV system (2 cameras only)

Findings	There are currently 14 CCTV cameras operating in the Domain although they are not connected by a common system. 2 cameras are positioned inside the Pine Beach camp office reception area, 2 cover the exterior areas of the building including the entry area into the camping ground. 1 solar powered camera covers the area in front of the Parks Officers utility shed with another solar powered camera covering the main entry into the Domain although only the Parks Officer can monitor the camera remotely on his smart phone with live imagery prone to freezing. Another 4 cameras cover the Promenade Point camping ground office including the building exterior and immediate surrounds. The final 4 cameras cover the exterior surrounds of the education building on the western shore of Lake Waikare although cameras are not set up to be monitored remotely. The hard drive for the CCTV is located under the reception office desk.	
Advice	Upgrade CCTV as the current system has noticeable limitations. CCTV should cover all areas of risk and entry/exit points. The quality should be confirmed to ensure that people are recognisable in all light conditions that will be present. An updated system should provide the ability for key staff and KDC Operations to monitor cameras remotely with motion activation capability. Footage should be kept for 30 days rather than the current 7-day capacity in case of enquires and investigations. This may also include COVID related investigations where a person/s movement and activity require verification. Due to reported incidents of vehicles being broken into with valuables been taken, advised to install 2 extra cameras covering the toilet block area on Kai Iwi Lakes road to detect/deter car break-ins, willful damage and disorderly related incidents. CCTV signage should also be in place.	**MEDIUM**
Risk	Risk of not being able to detect incidents adequately and not sufficiently recorded.	

Incident Reporting - Emergency Response procedures - Training

Findings	The current incident reporting system comprises of staff filling out forms manually and keeping physical copies in folders than are prone to being misplaced or damaged. As a result of extensive consultation, it is apparent the Kai Iwi Lakes Campground Coordinator and Parks Officer are very experienced with excellent local knowledge and people skills. During an incident or emergency, staff employed on a temporary bases over peak periods may not have the necessary level of skills and experience to respond effectively.	**MEDIUM**
Advice	Update reporting guidelines to ensure incidents and important information are recorded accurately in a secure KDC data base using appropriate templates. Update best practice guidelines and reporting structures to ensure staff are aware of their individual responsibilities. We advise soft/hard copies are maintained for staff reference and include; • Important/emergency contact numbers (phone tree) • Incident/emergency response and reporting • Trespass protocol • Communications (Radio use) • Duress alarm activation and response- testing procedures • Robbery safety – cash handling • Active shooter – hostile act - lockdown • CCTV (recording/reviewing footage) • Access Control (front gate protocol) Review risk assessment procedures for all incidents particularly involving violence, willful damage, trespass, disorderly/threatening behaviour. Management to evaluate if measures are required to lower the risk to staff, public and assets. Provide a standard orientation for new full time/part time staff including site visits and best practice guidelines. Continue with regular training including conflict de-escalation, incident reporting, emergency response, working alone, communications, lockdown, duress alarm procedures, and robbery especially for cash handlers.	
Risk	Incidents not being reported on time and accurately. Staff being harmed due to lack of situation awareness, skills and training to respond to incidents/emergencies.	

Pine Beach camping ground staff accommodation

Findings	The Pine Beach camping ground staff accommodation is a prefab building consisting of a small living area with kitchenette and bedroom is located adjacent to the reception office. The building is primarily used to accommodate extra staff who are on duty during nighttime through the peak season. The building does not contain a television or other assets that maybe attractive to would be thieves and has a single-entry door with standard door lock.	**LOW**
Advice	We have no significant safety and security related concerns for this building although occupants should be reminded to keep the door locked if away, even for short periods. Windows should only be left open if fitted with security catches to prevent unlawful entry.	
Risk	Unlawful entry.	

Parks Officer Utility Shed

Findings	Parks Officer utility/maintenance shed located close to Pine Beach on the main entry road into the Domain. The shed is comprised of an open garage housing a tractor and an enclosed garage housing a range of equipment and off-road vehicle. The keys for the tractor and off-road vehicle are not kept on site and the entry door and garage door are fitted with standard locks. The area in front of the shed is covered by 2 CCTV cameras which are monitored by the Parks Officer via an App on his smart phone.	**LOW**
Advice	Install dead locks on the entry and garage door to deter unlawful entry and theft.	
Risk	Unlawful entry and theft.	

Access Control – Main Entrance

Findings	Domain Road, off Kai Iwi Lakes Road, is the main entry into Taharoa Domain and leads to the Pine Beach Camping ground located approximately 2kms from the main road. The entrance has two metal gates that are manually closed together and padlocked from 21:30hrs until 07:00hrs during peak season although is left open during the off season. The entrance is covered by a single CCTV camera with signs advising of CCTV, no dogs and no hunting-shooting present. Parks Officer informed that local people expect to have access to the Domain 24/7 in the off season and when the gates have been locked during the off season, the gate padlock was cut, and the gates opened shortly after. On occasions vehicles has entered the domain and wilfully damaged grassed areas by performing 'donuts' including an incident involving a vehicle damaging campground equipment. During peak season, staff on duty overnight have to travel 2kms from the Pine Beach campground to unlock the gates in the event of an emergency or similar. Poor cell phone coverage can make this process more challenging.	**MEDIUM**
Advice	As is the practice at other large parks and domains, particularly if infrastructure and camping facilities are present, we advise an automated gate system is installed at the main entrance. An automated gate with CCTV can be opened and closed remotely, activated by road pad sensors (for exiting vehicles) or by keypad/key card.	

	An automated gate with compatible CCTV system would reduce unauthorized entry, willful damage and theft incidents while ensuring vehicles can enter and exit during emergencies. Besides KDC staff and regular contractors, keypad codes or key cards could be provided to police, fire and ambulance services in the event of an emergency.	
Risk	Unauthorized entry, willful damage and theft. Delays in emergency response during peak season due to gates being opened/locked manually with unreliable communication with key holders.	

Promenade Point campground reception office

Findings	The Promenade camping ground reception office is located close to the entrance with Kai Iwi Lakes road and consists of a small reception area and bedroom with cooking facilities. The office is only used during peak camping season with exterior area covered by 4 CCTV cameras although are not routinely monitored. During peak season, the camping ground is staffed by a couple who stay in a camper vehicle close to the office which appears to be an ideal arrangement.	**LOW**
Advice	The current safety and security arrangement for the Promenade camping ground office and surrounds seems adequate.	
Risk	Theft, willful damage, unauthorized entry.	

Kai Iwi Lake Road toilet block

Findings	The Kai Iwi Lakes road toilet block is located near the entrance of the Promenade campground and is within the Domain confines. The parking area is used by day trippers who park their vehicles and walk or ride along tracks within the Domain including a loop track around lake Taharoa. There have been two reported incidents where multiple vehicles were broken into while parked next to the toilet block with valuables taken.	**MEDIUM**
Advice	As part of an upgraded CCTV system, we advise to install cameras covering the toilet block area on Kai Iwi Lakes road to detect/deter car break-ins, willful damage and disorderly related incidents. Install prominent signs advising of CCTVs and signs warning not to leave valuables due to thieves operating in the area.	
Risk	Theft, willful damage, disorderly behaviour.	

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KAIPARA DISTRICT COUNCIL

37 Hokianga Rd, Dargaville

Ref BDEC012.1 | EXPERT REPORT- MOULD | 21/09/20

Forensic
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Litigation

EXPERT REPORT- MOULD

Subject Property

37 Hokianga Rd, Dargaville

Report Prepared By

BIODEC DECONTAMINATION
32 Dunlops Rd, Rangiora, 7400

Consultants

Carl Sheehan
Jason Pickering

Commissioned by

The instructing party
on behalf of
Kaipara District Council

Document date

21/09/20

Report No.

Ref BDEC012.1

Signed:

Dated: 21/09/20

IAQA Corporate Member

TABLE OF CONTENTS

1. PREAMBLE

1.1. INTRODUCTION

1. This report was prepared by BIODEC DECONTAMINATION ('BIODEC'). Carl Sheehan is the BIODEC consultant who undertook the inspection and carried out the investigation documented herein.
2. BIODEC was retained by The instructing party on behalf of Kaipara District Council to provide an expert opinion on matters raised in respect of a property known as 37 Hokianga Rd, Dargaville, ('the **Property**').
3. The instructing party acts on behalf of Kaipara District Council (the **Owner**), in relation to the matters contained in this report.

1.2. BACKGROUND

4. I am aware that the following is the background to the issue:
   a) The building suffered from long-term water intrusion due to defects in the roof;
   b) The defects whilst being documented to some degree have not as yet been rectified or scoped in detail rectification; and
   c) Significant mould issues have been detected throughout the building.

1.3. INSTRUCTIONS

5. In relation to this report, BIODEC was instructed to:
   a) Investigate and report on the current organic load within the property as a result of the ongoing scope of works.
   b) Undertake diagnostic investigation of organic load to determine whether further remediation is now required.
   c) Document the issues by photographs.
   d) *In addition, provide a supplementary report which includes a detailed scope of work for repair* (this report namely the BDEC012.5 includes the supplementary material pertaining to this detailed scope of work).

1.4. CARL SHEEHAN'S QUALIFICATIONS

6. Carl is a licensed builder with over 25 years' experience in the construction industry. He has project managed the construction of residential and commercial building work.
7. Carl has worked with Biodec Decontamination, assessing and rectifying mould-related issues in buildings for more than 10 years.
8. He is an IICRC certified technician in the areas of water damage restoration and mould remediation.

1.5. JASON PICKERING'S QUALIFICATIONS

9. Jason Pickering is a licensed builder with over 25 years' experience in the construction industry.

10. Jason founded Biodec Decontamination and has been assessing and rectifying mould - related issues and buildings for more than 17 years.
11. He is IICRC certified in the areas of water damage restoration, and mould remediation.
12. He holds a certification in mould assessing with MICRO.
13. Jason has completed the "Mould Assessment" course at the College of Environmental Studies in Australia.

2. INSPECTION PARAMETERS

2.1. DESCRIPTION OF THE PROPERTY

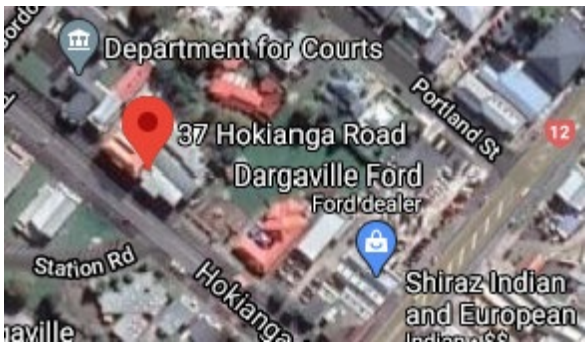


Figure 1: Aerial view of the subject property

15. The construction of the Property generally consists of precast concrete panels with a timber frame structure and plasterboard linings.

2.2. INSPECTION METHODOLOGY

16. During the inspection, I (Carl), undertook a visual assessment of window frames, bench tops, and the general organic load.
17. I documented notes of my observations and investigations whilst on site.
18. I took photographs for reference using my Samsung phone camera.

2.3. DATE OF INSPECTION

19. I last inspected the property on 14th September 2020.

2.4. WEATHER CONDITIONS AT THE TIME OF INSPECTION

20. It was fine at the time of my inspection, with no significant weather events in the preceding 24 hours.

2.5. CONDITION OF THE PROPERTY AT THE TIME OF INSPECTION

21. At the time of my inspection, the property was not occupied.

2.6. PRESENT DURING INSPECTION

22. Investigation and testing were carried out independently of my instructing party or site contact.

2.7. RESEARCH AND TESTING METHODS

Protimeter MMS2 moisture meter

23. I used a Protimeter MMS2 moisture meter on the surfaces of various building elements to detect the presence of dampness.

24. Using a moisture meter allows for non-destructive testing and mapping of a suspect area to determine the areas with a difference in moisture content. This is a relatively quick process and enables the inspector to evaluate and identify differences in relative moisture content between different locations in a room by comparative dry readings, and to pin point probable moisture sources and problem areas, without intrusive testing.

25. The Protimeter provides the following information on an LCD display:
    a) Pin probe wood moisture equivalent measurement;
    b) Non-invasive pin less surface scan moisture measurement;
    c) Non-contact infrared surface temperature measurement; and
    d) Relative humidity and ambient temperature measurement.

Pin mode

26. Using the pins, I was able to measure moisture contact in timber materials to a depth of approximately 10mm. The moisture content displays as a percentage between 7.6% and 99%.

27. When taking moisture readings, I compared the moisture level taken in an area of suspected dampness against a 'relative dry' moisture reading in the same type of material elsewhere in that space.

28. The comparison between the 'relative dry' reading or baseline datum, against the damp reading assisted me to form an opinion as to the point of origin for water penetration.

Scan mode

29. The Protimeter moisture meter has the ability to detect moisture through paint, wall coatings, wood and tiles and has a signal penetration of approximately 19mm depending on the material being tested. The moisture content displays as a numerical value between 60 and 999.

30. When taking moisture readings, I followed the same procedure of comparing recorded levels against a 'relative dry' reading as described in paragraph 22 above, which assisted me to form an opinion as to the point of origin for water penetration.

Surface temperature mode

31. The MMS2 uses infrared to take the surface temperature of materials and can measure in the range of -20° to +80° Celsius with an accuracy of +/-2° Celsius.

Hygrometer mode

32. The Protimeter can measure ambient temperature and relative humidity, which assists in determining if elevated moisture content is a result of active water penetration or condensation.

Calibration accuracy

33. Prior to commencement of inspection, I confirmed the accuracy of the instrument by checking its calibration.
34. The calibration of the Protimeter is checked by holding the electro-needles across exposed wires of the calcheck device.
35. The correctly calibrated MMS2 will register a (%MC) value in the range of 18.0+/-1%.
36. The Protimeter registered within 0.1% of the calcheck device.
37. For the purposes of my inspections, I used the mm/m function to give a grade reading.

Zefon Bio-Pump Plus

38. I used a Bio-Pump Plus to take a measured amount of air over a measured period to give a total volume. The air is pulled through the cassette and particulate is captured on a gel slide held within.
39. The Cassette/s were then sent to Symbiotic Microbiology Laboratories for microscopy analysis.
40. The Bio-Pump is calibrated and checked prior to each project to ensure the pull rate is 15L/min.

Surface Sampling Bio-Tapes

41. I undertook surface sampling using bio tapes which were then sent to Symbiotic Microbiology Laboratories for microscopy analysis.

3. REPORT PARAMETERS

3.1. REPORT METHODOLOGY

42. This report is set out in five (5) sections, as follows.

Section 1. Preamble

43. Section 1 is the preamble to this report and includes the background to the issue, my instructions and any assumptions that have been made.

Section 2. Inspection Parameters

44. Section 2 outlines the test instruments and methodology that I employed during the inspections, and any weather or site conditions that I considered to be relevant.

Section 3. Report Parameters

45. Section 3 sets out the general format of the report, including relevant Codes, Standards and Guides and any limitations placed on the report.

Section 4. Investigation

46. Section 4 documents the following in response to the instructions received from the instructing party, being:

> *to investigate the probability of new mould growth as described by the owner resulting from a moisture ingress...*

47. In forming my opinion, I have considered the following:

a) My observations and investigation of the Property during my site inspection.

b) Any results from the laboratory relating to my sampling.

Section 5. Annexures

48. Section 5 contains the annexures to this report.

3.2. CODES, STANDARDS AND GUIDES

49. The following Codes, Standards, and Guides, are representative of industry practices and indicative of what should be expected:

a) ANSI/IICRC S520 standard for mould remediation - Institute of Inspection, Cleaning, and Restoration Certification;

the 'ANSI/IICRC S520' standard for mould remediation is the industry accepted standard for the removal, remediation, and rectification of Mould issues in the built environment and its contents.

b) MICRO certified mould inspection manual – Mold Inspection, Consulting, and Remediation Organization;

The 'mold inspection, consulting, and remediation organisation' manual for certified mould inspectors is a nationally (American) recognised certification manual.

c) D4840-99: Standard guide for sample Chain-of-Custody procedures - American Society for Testing and Materials;

the 'ASTM (American Society for Testing and Materials) D4840-99 standard guide for sample chain of custody procedures', is a nationally (American) recognised procedure for the production of, filling, and posting of chain of custody forms for use in the handling of samples.

d) D7338-14: Standard guide for assessment of fungal growth in buildings- American Society for Testing and Materials;

the 'ASTM (American Society for Testing and Materials) D7338-14 standard guide for assessment of fungal growth in buildings' is a nationally (American) recognised procedure which outlines the methodology and requirements for assessing fungal growth in the built environment.

e) D7910-14: Standard practice for collection of fungal materials from surfaces by tape lift - American Society for Testing and Materials;

f) *the 'ASTM (American Society for Testing and Materials) D7910-14 standard practice for collection of fungal materials from service by tape lift' outlines the procedures required for a successful surface sampling of Mould, and its relevance.*

g) Worldwide Exposure Standards for Mold & Bacteria - Assessment Guidelines for Air, Water, Dust Ductwork, Carpet & Insulation 10th edition – Robert C Brandys, Gail M Brandys;

the 'Worldwide Exposure Standards for Mold & Bacteria' contains standards from around the world and offer assessment guidelines for air, water, dust ductwork, carpet, and installation. Whilst Australia does not have a national standard, the research and guidelines depicted in this publication do reflect the industry standard and offer guidance which is applicable for assessing mould and bacteria.

h) Post-Remediation Testing and Verification for Mold and Bacteria – Risk-Based Levels of Cleanness Assurance – 5th edition - Robert C Brandys, Gail M Brandys;

the 'Post-Remediation Testing and Verification for Mold and Bacteria' contains guidance for hygienists who are conducting a host remedial validation of mould remediation and assessing its effectiveness.

i) Recognition, Evaluation, and Control of Indoor Air Mold – American Industrial Hygiene Association;

the publication, 'Recognition, Evaluation, and Control of Indoor Air Mold' published by the American industrial hygiene Association, offers guidance on recognising and evaluating indoor air quality in relation to fungal particulate. Whilst in and of itself is not a standard, it does offer sound, scientific based guidance for hygienists who are assessing, monitoring, and controlling indoor air quality of our building with known fungal issues.

j) WHO Guidelines for Indoor Air Quality – Dampness and Mould 2010 - World Health Organisation;

the '' WHO guidelines for indoor air quality -dampness and mould 2010', whilst in and of itself is not a standard, does offer research-based guidelines and advice for legislators in the global community to produce said standards and legislation. (Note: as noted on the forward, the use of this document for its intended purpose expired in 2017 unless reviewed and/or replaced. To date no review has occurred, however the research, sentiment, and guidance this document offers still has validity and is reflected either in sentiment or by quotation in many of the aforementioned standards, guidelines, and publications).

3.3. REPORT LIMITATIONS

50. This report has the following limitations:

a) Except in areas where destructive investigation has been performed the inspection is a visual non-destructive inspection only, which may be limited in use.

b) The inspection report does not include inspection and assessment of items or matters outside the scope of the requested inspection and report, which mainly relates to observable waterproofing issues on the day of my inspection.

c) The inspection report does not include inspection and assessment of items or matters that do not fall within the consultant's direct expertise.

d) This inspection includes readily accessible areas of the property. The inspection did not include areas which were inaccessible, not readily accessible, areas not requested to be inspected, obstructed at the time of inspection, or covered by overlaying finishes. Obstructions are defined as any condition or physical limitation which inhibits or prevents inspection and may include, but are not limited to:

i. Fixed ceilings, paintings, wall linings, floor coverings, fixtures and fittings, floor tiles, render, paint, furniture, clothes, stored articles, thermal insulation, sarking, pipe/ductwork, vegetation, pavements, or earth.

51. Obstructions that prevented and may have concealed possible defects include:

a) Furniture;

b) Paintings;

c) Stored goods around some walls and stored goods in bedrooms;

d) Stored goods under stairs;

e) Walls abutting showers/bath not fully accessible;
f) Curtains and blinds around windows and doors;
g) Carpets and mats on floors;
h) Recent paint finishes;
i) Paintings on walls;
j) Books/bookshelves;
k) Excessive stored goods against walls;
l) Stored goods in the garage;
m) Zinc roofing on roof.

4. INVESTIGATION

4.1. OBSERVATIONS:

52. Whilst on-site I observed that;
    a) the conference room had some visible damage caused by water ingress;
    b) some wallpaper was damaged in the conference room;
    c) minor visible damage and mould growth was observed on plasterboard linings and ceiling tiles in the conference room;
    d) the entry foyer had water entering the building envelope;
    e) plasterboard, ceiling tiles had visible water damage in the foyer;
    f) the doors leading from the foyer to the gymnasium were wet, swollen and delaminating;
    g) water damage was observed to the carpet, wall/ceiling junctions and ceiling/junctions in the foyer;
    h) the conference room kitchen had visible pooling water on the ground as well is a top of the extraction unit;
    i) moisture was visibly tracking from above the extractor and running to the floor;
    j) water damage appeared to be visible around the power switchboard cupboard;
    k) mould growth was observed on laminated services;
    l) the rear entry/exit had severe water damage to the ceiling tiles, and some visible damage to the carpet;
    m) the gymnasium had existing damage to the ceiling which was repaired but still showing signs of water ingress and new damage;
    n) water was observed leaking around doorjamb in the gymnasium; and
    o) the stage, hallway and toilets had multiple areas of moisture damage to the walls and ceilings.

4.2. INITIAL HYPOTHESIS

53. The general indoor air is likely to be affected adversely by the long-term moisture ingress.
54. There are likely to be primary, secondary, and tertiary colonisers present.
55. Due to the large area and separation of different zones within the building envelope, it is likely that some areas should be zoned as unsuitable for use with the building and its current situation. However other areas may be suitable for use until rectification has occurred.
56. Some parts of the building may have structural deterioration to timber members.
57. Extensive remediation may be required.

4.3. SAMPLING PLAN

58. To test the above hypotheses, I conducted the following sample plan:
    a) air testing of the entry foyer;

b) the gymnasium;
c) the stage storeroom;
d) stage, hall, and toilets;
e) the rear foyer/entrance;
f) the conference room kitchen;
g) the advice bureau office; and
h) the conference room.

59. A further sample was conducted of the outdoor air to use as a reference comparison and to provide control numbers. This is in accordance with the guidelines and practices outlined in section 3.2.

60. Special consideration was given to the possibility of the presence of known toxic black moulds such as *Stachybotrys* and *Chaetomium*. Air sampling is considered to be a primary means of testing air quality and used for the purposes of presence/absence of certain genera of Mould.

4.4. LAB RESULTS

61. The results of the air sampling are as per the table below.

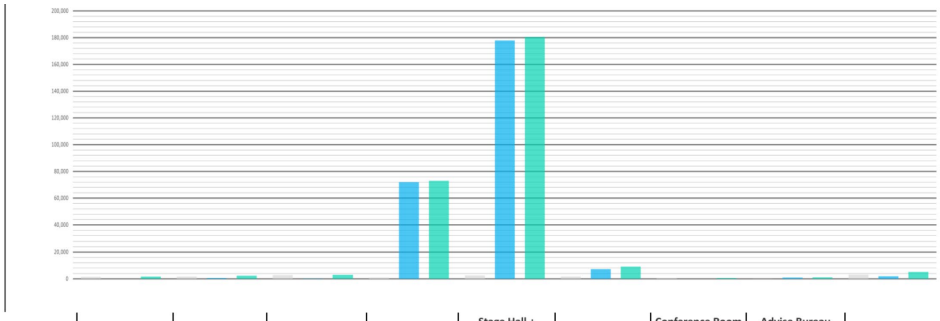
BIO-PARTICULATE TABLE		Outdoor	Entry Foyer	Gymnasium	Stage Storeroom
PHYLLOPLANE (LEAF-SURFACE) TAXA[1]	Ascospores	480	960	1,440	640
	Basidiospores	853	747	1,333	320
	Arthrinium spp.	-	-	-	-
	Cladosporium spp.	107	53	-	-
	Epicoccum spp	-	-	-	-
	Ganoderma spp.	53	-	-	-
	Pestalotiopsis spp.	-	-	-	-
	Pithomyces spp.	-	-	-	-
	Polythrincium spp.	-	-	-	-
	Spegazzinia spp.	-	-	-	-
	Stemphylium spp.	-	-	-	-
	Torula spp.	-	-	-	-
OTHER TAXA[2]	Alternaria spp.	-	-	-	-
	Botrytis spp.	-	-	-	-
	Bipolaris/Dreschlera/Helminthosporum	-	-	-	-
	Cercospora spp.	-	-	-	-
	Curvularia spp.	-	-	-	-
	Fusarium spp.	-	-	-	-
	Nigrospora spp.	-	-	-	-
	Rusts/Smuts/Periconia	160	-	-	-
	Tetraploa spp.	-	-	-	-
WATER DAMAGE TAXA[1]	Penicillium/Aspergillus-like spp.[3]	-	587	213	72,000
	Acremonium spp.	-	-	-	-
	Chaetomium spp.	-	-	-	-
	Stachybotrys spp.	-	-	-	-
	Trichoderma spp.	-	-	-	-
	Ulocladium spp.	-	-	-	-
GENERAL PARTICULATE[1]	Hyphal Particulate	-	-	-	-
	Fruiting Bodies	-	-	-	-
	Unknowns	-	-	107	-
	Dirt & Debris	L	M	M	M
	Myxomycetes	-	-	-	-
	Pollen	-	-	-	-
	Mites	-	-	-	-
	Total Count m³	1,653	2,347	3,093	72,960

62.

Stage Hall + Toilets	Rear Foyer	Conference Room Kitchen	Advise Bureau Office	Conference Room
-	320	160	53	320
1,280	587	427	53	800
-	-	-	-	-
1,280	853	-	-	2,027
-	-	-	-	-
-	-	-	-	53
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	53	-	-	-
-	-	-	-	-
177,920	7,253	-	960	1,920
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	53	-
M	M	VL	M	M
-	-	-	-	-
-	53	-	-	-
-	-	-	-	-
180,480	9,067	587	1,120	5,120

63.

64. *The general condition is highlighted in the graph below.*

65. 

	Outdoor	Entry Foyer	Gymnasium	Stage Storeroom	Stage Hall + Toilets	Rear Foyer	Conference Room Kitchen	Advise Bureau Office	Conference Room
Phylloplane[1] Mould Spores per m³	1,493	1,760	2,773	960	2,560	1,760	587	107	3,200
Other Taxa[1] Mould Spores per m³	160	0	0	0	0	53	0	0	0
Pen/Asp-Like spp.[2] Mould Spores per m³	0	587	213	72,000	177,920	7,253	0	960	1,920
Water Damage[1] Mould Spores per m³ - Excluding Pen/Asp-Like spp.	0	0	0	0	0	0	0	0	0
Total Mould Spores per m³	1,653	2,347	2,987	72,960	180,480	9,067	587	1,067	5,120

= In the context of this assessment, concentrations that exceeded the tolerances of the 'natural' outdoor reference sample.

66. As can be seen by the above table, there is amplification of primary colonisers, namely *Penicillium,* and *Aspergillus* in seven of the eight areas sampled when compared to the background levels of the outdoor control sample. Penicillium and Aspergillus are common indicators of water damaged buildings.

67. In addition, five of the eight areas tested had significant amplification of *Cladosporium* which is considered to be a secondary coloniser and indicative of repeated water ingress.

68. These species are not considered to be highly toxic however in excessive numbers can prove to be an allergenic to some occupants.

69. The stage hall and toilets have a total spore count (TSC) of in excess of 180,000 per cubic metre. This is made up primarily of *Penicillium* and *Aspergillus* like species with *Phylloplane* (secondary colonisers) also well in excess of outdoors.

70. The stage storeroom was also extremely high at 72,960 TSC. This is made up primarily of *Penicillium* and *Aspergillus* like species.

71. The kitchen in the conference room showed no amplification of any mould type.

72. The advice bureau office while having an amplification of Penicillium and Aspergillus type fungi, is not excessive to the point of posing an immediate danger to health of any occupant.

73. *Stachybotrys* was not detected in any of the air samples. However, it must be noted that plasterboard that has ongoing water ingress is very susceptible to the colonising of hydrophilic type fungi including *Stachybotrys*. Due to the size and shape of the spores produced by this type of fungi, they do not tend to travel far and disburse in the same manner as other types of Mould spores. As such we cannot rule out the potential for this type of Mould being present within the building in areas further away than its normal dispersion.

4.5. SUMMARY

74. It is my conclusion that the water damage to the building is affecting the air quality in an adverse manner, and the extent of this effect may require the building to be at least partially closed until rectification has been completed.

75. The areas requiring little to no remediation are the advice bureau office and the conference room kitchen. As to the former, it appears that there is some minor remediation work to be completed however this is not extensive and does not need to prove costly.

76. The stage hall and toilets should not be used until remediation has been completed.

77. The stage storeroom should not be accessed until remediation has been completed.

78. The entry foyer and the gymnasium could potentially be managed and monitored until remediation has been completed and used in some form. Management may include purposeful and conscientious ventilation prior to and during use. Containing areas adjacent to the entry foyer and gymnasium, and the removal of visibly offending areas should also be included in this management.

79. The rear foyer and conference room should if possible be contained and not used until remediation has been completed. If this is not possible a management plan similar to the item above could be employed with a more aggressive removal of contaminated substrate and a specific cleaning regime using HEPA vacuum cleaning machines and scrubbers.

4.6. RECOMMENDATIONS

80. The ANZ/IICRC S520 standard for mould remediation outlines the appropriate response for mould contaminated buildings. They are called the five principles of Mould remediation:

    a) assure the health and safety of workers and occupants;
    b) document appropriate actions;
    c) contain the mould at its source;
    d) control the bio aerosols during removal;
    e) rectify sources of moisture and ensure the substrate is dried appropriately.

81. It is my opinion that whilst some actions can be taken now to reduce the growth rate and size of Mould reservoirs, the fifth principle of mould remediation must not be overlooked in this instance.

82. To ensure the above is appropriately addressed, issues relating to the roof will need to be identified and rectified.

83. For my inspection and observations, it appeared that the primary fault relating to the roof was the inadequate or poorly drained box gutter and/or inadequate overflows at the rain heads to prevent overflowing up under the lap.

84. We recommend that a roofing specialist be engaged to survey the roof and provide specific recommendations. If you would like us to assist in this way please feel free to make a request.

85. If KDC are intending to continue using portions of the building, I recommend zoning and containing certain areas as discussed in the summary 4.5.

86. This is to contain the worst of the areas until such time as a full remediation can be executed in a planned fashion.

87. The following mud map outlines three separate zones:

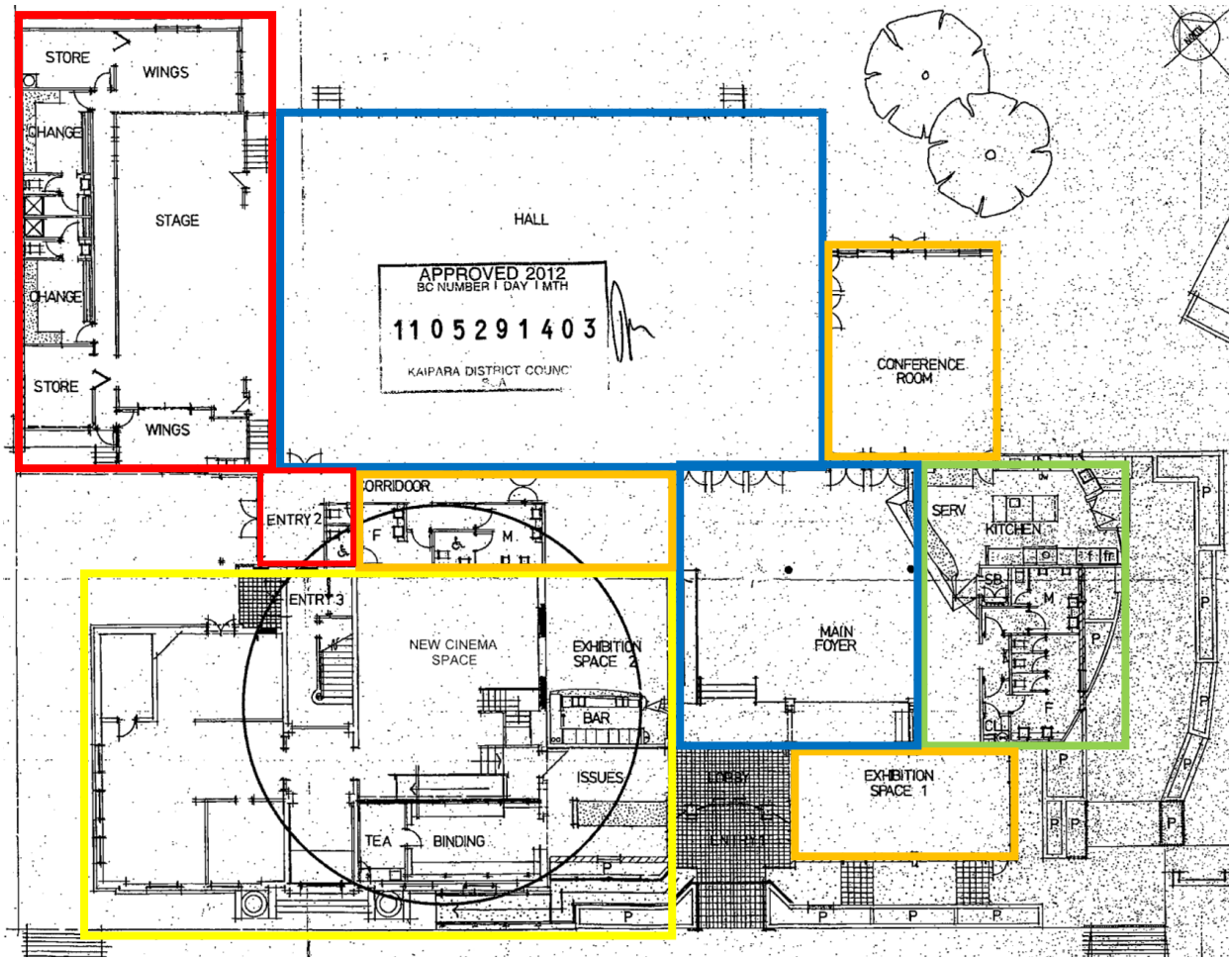
a) areas that need no apparent remediation (GREEN);

b) areas that can be used with some management until rectification can occur *(BLUE);*

c) areas that will need extensive management but could still be used until rectification can occur *(ORANGE);*

d) areas that should not be accessed until rectification can occur (RED); and

e) areas that were not able to be accessed during my inspection (Yellow).

88. 

89. It must be understood that the zoning and partial remediation is a short-term solution to assist in allowing parts of the building to continue being used. However, a full remediation should be scheduled at the nearest opportunity.

90. Full remediation scope of works must in include a removal of all mouldy organic matter, which includes porous wall boards and ceiling tiles, as well as all soft furnishings such as carpets and drapes.

91. Once the execution of the full scope of works had planned and scheduled, it is my recommendation that the first phase be to remove items listed in the proceeding paragraph.

92. Concurrently, the remediation works to the roof should be undertaken.

93. Once water ingress has been rectified, a thorough removal of any mouldy substrate can occur. Each instance or instances in close proximity to each other of mouldy substrate should be removed under negative air containment using H14 or HEPA negative pressure units. The containment should be airtight to reduce the dispersion of fungal particulate.

94. Mouldy substrate should be placed into sturdy plastic bags and tied at the top with a gooseneck.

95. Disposal can be undertaken as per normal household refuse; however, this should be checked with local authorities.

96. A thorough HEPA vacuum of all remaining surfaces and 48 hours of thorough air scrubbing must be completed once removal has occurred.

97. Ensure that all substrate and building materials within the exterior building envelope are dried to within two points of dry standard; usually a wood moisture equivalent of 18%.

98. Following the above steps, a post-remedial validation should be conducted including air sampling and a thorough visual inspection. Biodec can provide these services upon request.

99. Remediation projects of this size should be conducted by a professional company experienced in the field of Mould remediation with certified staff holding an IICRC AMRT class certification.

5. SCOPE OF WORKS

5.1. BACKGROUND

100. On the 15th and 16th of September I (Carl Sheehan) re-attended site to perform a detailed inspection and provide a full scope of works for the remediation of Mould at the subject property.

101. I have broken down the scope of works into the areas as listed below.

5.2. CONFERENCE ROOM

5.2.1.General observations include:

102. Visible water damage to paneling.
103. Visible water damage to doors.
104. Visible mould growth behind wallpaper, primarily along the lower edges.
105. Contamination on customwood skirtings.
106. Moisture and mould to the carpet.
107. Mould on the furniture and joinery.
108. Mould on the blinds.
109. Mould on external joinery.
110. Water damage and staining to ceiling tiles.

Photos

Figure 1 - Mould and elevated moisture levels on skirting boards, lower wall linings and carpet

Figure 2 - Mould on the underside of furniture

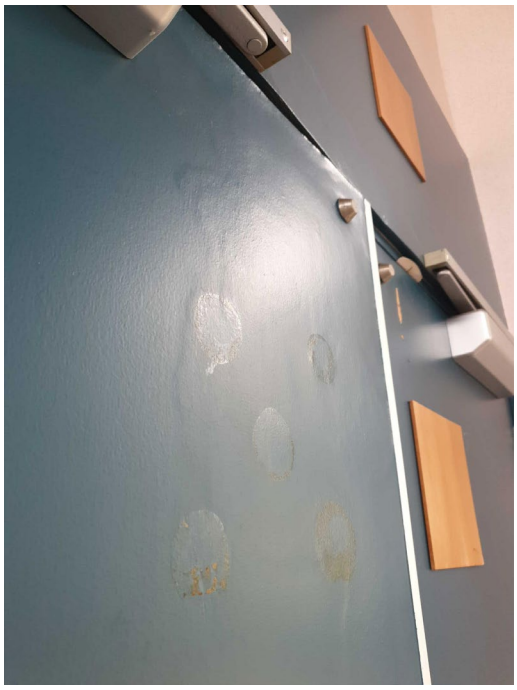


Figure 3 - Water damage to doors

Figure 4 - Water damage and mould to the backside of vinyl paper and plasterboard

Figure 5 - Superficial mould to the window sills

Figure 6 - Superficial growth to the hard surfaces of contents

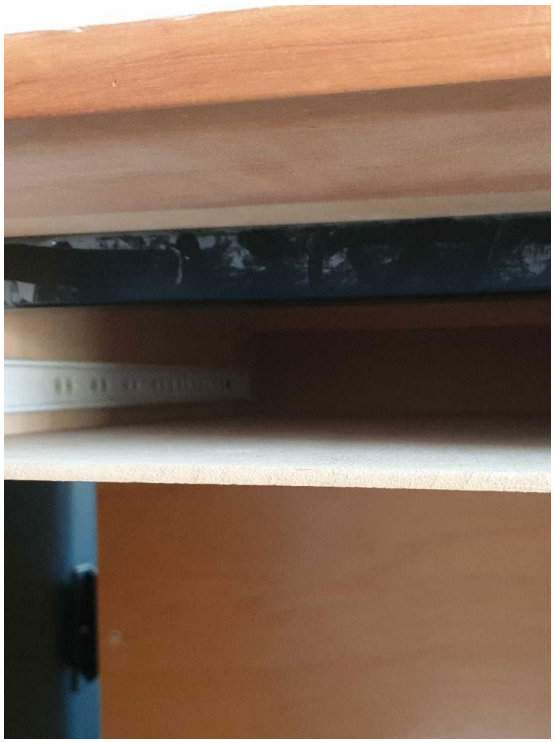


Figure 7 - Mould growth on the unprotected semi-porous services of contents

Figure 8 - Spots of visible mould on the carpet

111.

5.2.2.Scope of works

111. Set up containment to isolate this room from all other parts of the building and placed under negative pressure with a high volume NPU.
112. Uplift and dispose of all floor coverings.
113. Scrape the floor clean.
114. Remove and dispose of all skirting boards, to be replaced with non-reconstituted building product, i.e. pine skirting boards.
115. Remove vinyl wallpaper to a 1 m datum line, to be replaced with a permeable wall covering.
116. Remove water damaged or mould affected wall lining to a height deemed suitable for such removal (approximately 400 mm).
117. Remove any mould or water affected ceiling tiles and replace.
118. Remove any mould or water affected aesthetic wall panels.
119. Have internal heat pump units professionally cleaned by an HVAC specialist.
120. HEPA vacuum all remaining surfaces and cavities.
121. Wipe down all contents and assess for salvageability, some soft furnishings will need to be disposed of and replaced.
122. Dispose of blinds and drapes.

5.3. GYMNASIUM

5.3.1.General observations include:

123. internal walls are double laid with Plywood over plasterboard.
124. Moisture levels along the lower wall is consistently indicating elevated moisture content.
125. No visible mould was detected however it is typical to have mould growth between the 2 layers of plasterboard.
126. Some delamination and swelling has occurred to some of the lower wall linings.
127. Mould growth is evident on and around external joinery.
128. Visible growth of Mould was detected on drapes.
129. The fire hose cupboard has visible growth and deterioration.
130. The ceiling has visible growth.
131. There is evidence of water damage to isolated parts of the ceiling.
132. Some wall linings near the apex have water damage and mould.

Figure 9 - Mould was discovered in the firehose cupboard

Figure 10 - The joinery has significance fungal deterioration and mould growth

Figure 11 - Some of the soft furnishings were found to be significantly damaged by mould

Figure 12 - The underside of the stage showed signs of water staining and topical fungal growth

Figure 13 - The heavy curtains had significant spotty growth

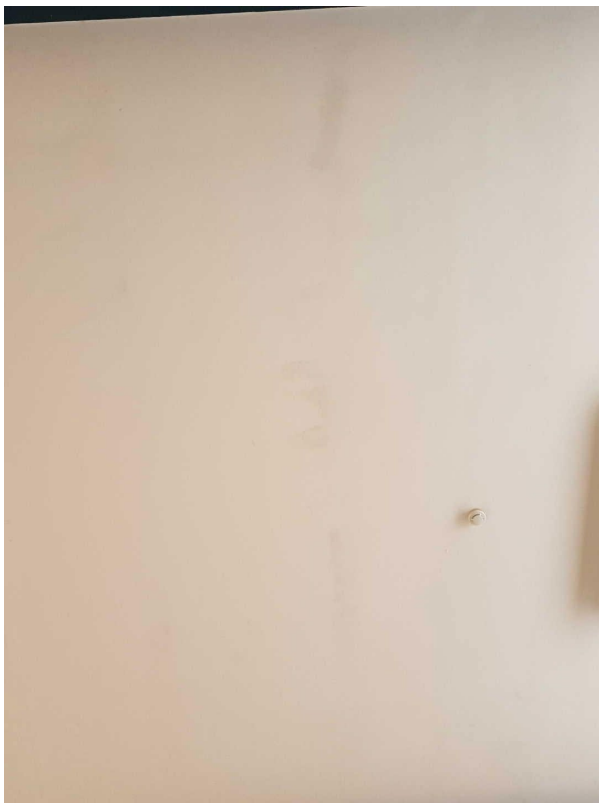


Figure 14 - Parts of the ceiling showed water damage and mould growth

Figure 15 - Much of the lower wall presented high moisture readings

Figure 16 - Double lining appears to be standard with Plywood then Fireline being the 2nd layer

133.

5.3.2.Scope of works

133. Set up containment to isolate the gymnasium from all other parts of the building and placed under negative pressure with a high volume NPU.
134. Dispose of blinds and drapes.
135. Wipe and HEPA vacuum all external joinery.
136. Isolate the fire hydrant if necessary and remove all lower walls and framing that is contaminated with mould.
137. HEPA vacuum and wipe the floor clean.
138. Remove water damaged or Visibly suspect mould affected wall lining. (Fire regulations need to be ascertained)
139. Apply a thermal antimicrobial as a fog to all remaining internal areas including the ceiling.
140. HEPA vacuum and wipe all walls.
141. Remove any mould or water affected aesthetic wall panels.
142. HEPA vacuum all remaining surfaces and cavities.
143. Wipe down and HEPA vacuum all contents and assess for salvageability, some soft furnishings will need to be disposed of and replaced.
144. *Long-term remediation will include: removing all skirtings, lower wall linings and Hessian lining…cleaning of all the cavities and reinstating. All windows will require significant work and easing.*

5.4. ENTRY FOYER

5.4.1.General observations include:

146. Moisture and mould damage to the plasterboard ceiling.
147. Moisture and mould damage to some of the acoustic ceiling tiles.
148. Moisture and mould damage to the plasterboard wall linings.
149. Moisture and mould damage to the customwood skirtings.
150. Moisture and mould damage to doors.
151. Moisture and mould damage to wall panels.
152. Moisture and mould damage to some of the chairs.

Figure 17 - Water damage to some of the ceiling plasterboard

Figure 18 - Water damage to some of the ceiling tiles

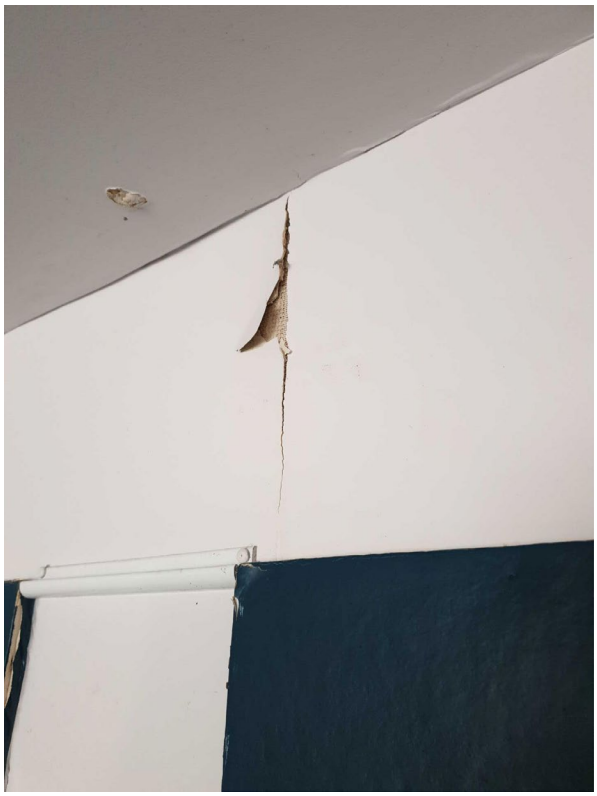


Figure 19 - Water damage to some of the wall plasterboard

Figure 20 - Water damage to the doors resulting in swelling

Figure 21 - Visible mould growth on some of the chairs

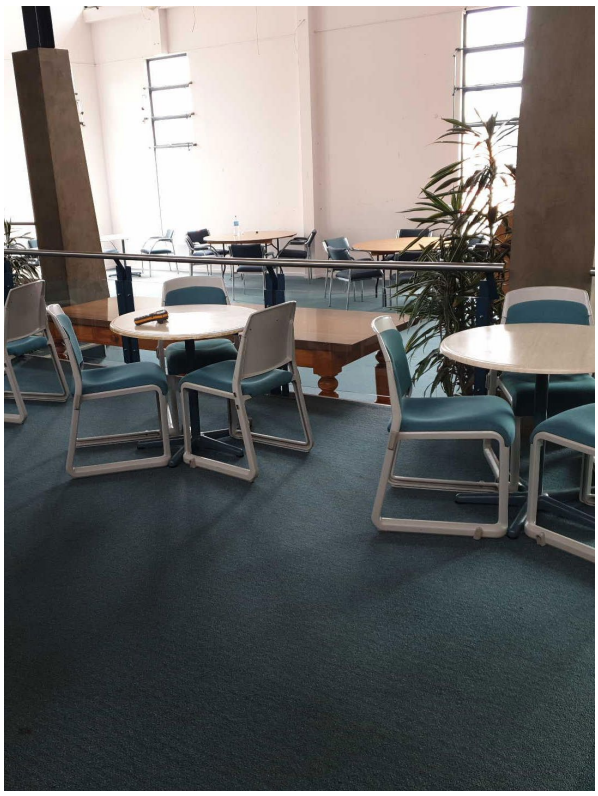


Figure 22 - All chairs and furniture will require individual assessment for suitability to salvage

153.

5.4.2.Scope of works

153. In the short term, remedial action must include:

a) cutting out loose lining paper and paper tape, treating the surface and reinstating plaster.

b) Remove saturated aesthetic wall panels above the doors.

c) Remove secondary layer of plasterboard lining if required.

d) Remove and dispose of all skirting and replace with pine.

e) Visually inspect all chairs and tables, HEPA vacuum and wipe if salvageable.

f) Thoroughly HEPA vacuum all ceiling, walls, and floor areas.

g) Thoroughly HEPA vacuum joinery and pelmets and wipe with an antimicrobial treatment.

154. Long-term remediation will have to include:

a) Removal and replacement of plasterboard ceiling. Address framing as required for contamination and durability.

b) Remove and replace all damaged ceiling tiles.

c) Remove and replace all floor coverings.

d) Remove and replace the plasterboard lining on the internal wall leading to the gymnasium. Address framing as required for contamination and durability.

5.5. STAGE HALLWAY AND TOILETS

5.5.1. General observations include:

155. There was water damage to the ceiling in the hallway and men's bathroom.

156. There was water damage to the wall linings and the hallway, men's toilet, and potentially other areas.

157. There was a very strong musty odour.

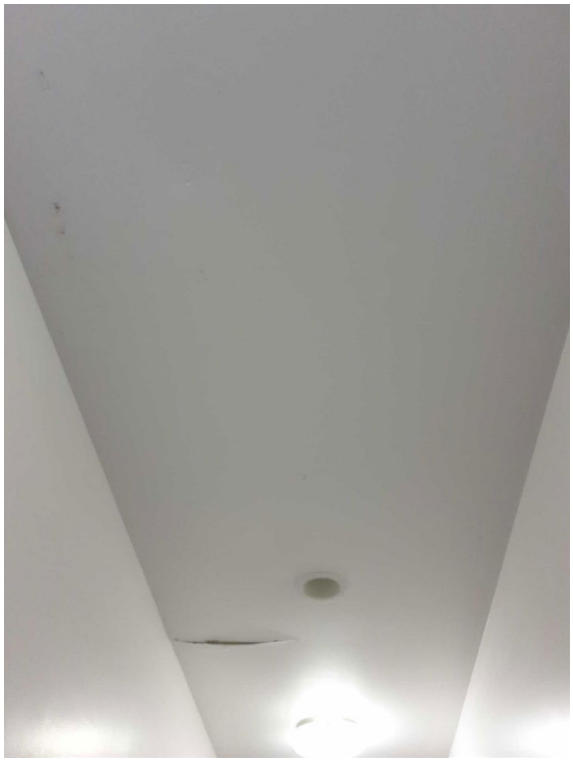


Figure 23 - Water damage to ceiling

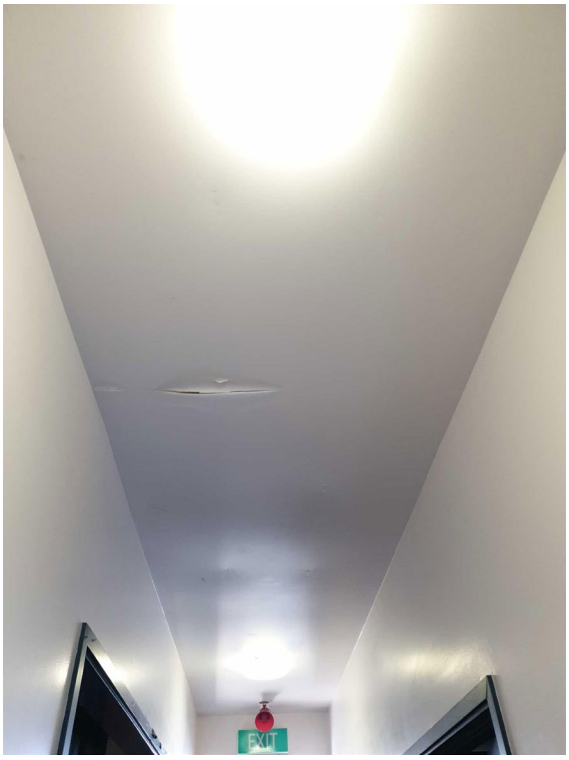


Figure 24 - Water damage to ceiling

Figure 25 - Water damage to ceiling

Figure 26 - Water damage to ceiling and wall

158.

5.5.2.Scope of works

158. This area will be isolated immediately.

159. Initial remediation must include:

a) Removal and disposal of the carpet.

b) Remove and dispose of all skirting boards.

c) Remove and dispose of the ceiling in the men's bathroom and hallway.

d) Inspect, and if salvageable, clean the framing and treat with a fungicidal agent.

160. Long-term remediation must include:

a) removal of all wall linings and hallway and intertenancy external wall in men's toilet.

b) Assess and if suitable, clean all the framing before reinstatement of linings.

5.6. STAGE STOREROOM

5.6.1.General observations include:

161. This room must be isolated immediately.

162. All items that were inspected in the storeroom had visible heavy contamination.

163. Wall linings, ceiling linings, doors all have active growth.

164.

5.6.2.Scope of works

164. The immediate scope of works must include:
   a) Isolate the room and set up negative air containment.
   b) Dispose of all items excluding the plastic cross and timber flag holder.
   c) Remove all wall linings and ceiling linings and doors that have active visible growth.
165. Long-term scope of works must include:
   a) Removal of any remaining ceiling and wall linings.
   b) Assessment and clean/treatment of all framing.

5.7. REAR FOYER

5.7.1. General observations include:

166. This area should be isolated immediately.
167. There is visible mould on the carpet.
168. There is visible mould on some of the ceiling tiles.
169. There is visible mould and water damage on lower walls and skirting boards.
170. There is mould in the ceiling cavity.
171. The high moisture readings throughout.

Figure 27 - Heavy growth on some of the ceiling tiles

Figure 28 - Heavy growth on some of the ceiling tiles

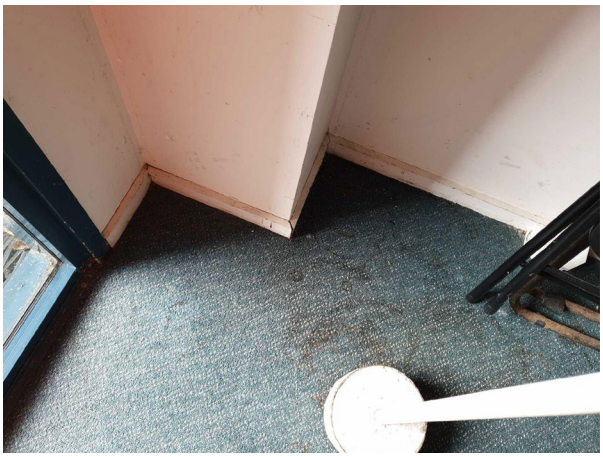


Figure 29 - Visible growth on the carpet

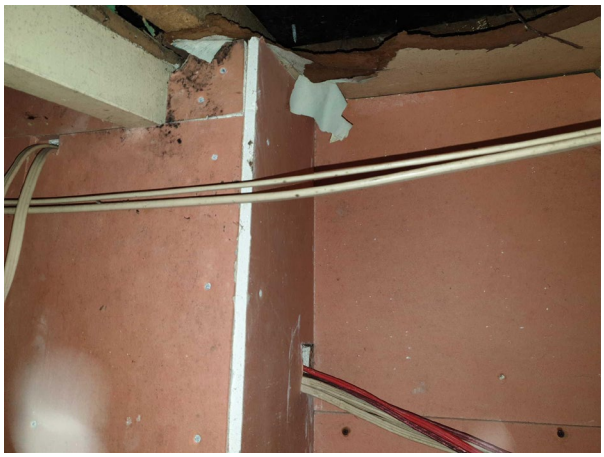


Figure 30 - There is visible growth on the Fireline in the ceiling cavity

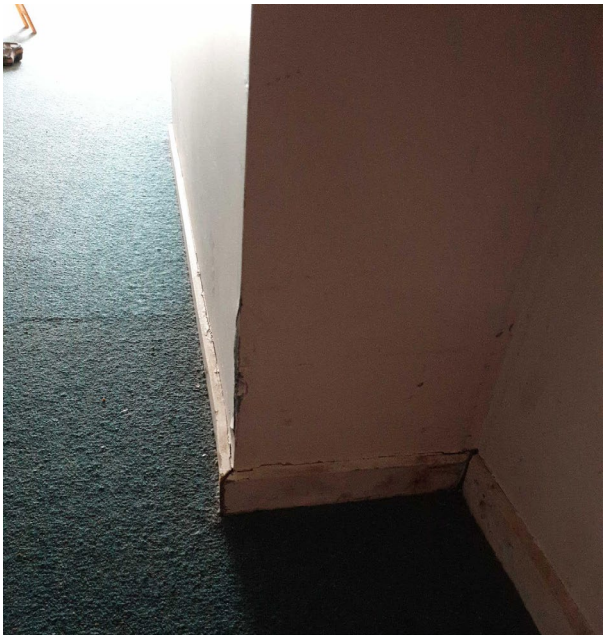


Figure 31 - There is visible growth on the lower walls and skirting boards

Figure 32 - A sustained relative humidity of more than 60% can promote ubiquitous mould proliferation

172.

5.7.2.Scope of works

172. The initial scope of works for this area must include:
    a) Isolating the area completely to avoid fungal migration.
    b) Removal and disposal of all water damaged and mould affected ceiling tiles.
    c) Removal and disposal of insulation in the ceiling.
    d) HEPA vacuum all ceiling framing and assess timber structure for durability.
    e) Removal linings adjacent to the toilet right through to the external doors.
    f) Remove wall linings adjacent to the gymnasium, however this forms part of the fire cell so fire regulations will need to be addressed.

173. Long-term remediation will need to include:

    a) Full removal of linings of all internal and ceilings.
    b) Full cleaning of all structural elements.
    c) Antifungal treatments of all structural timber elements (*BORATE*).

5.8. SUBFLOOR AND BASEMENT

5.8.1.General observations include:

174. The subfloor generally was in good condition.
175. There was some efflorescence present.
176. Under the external Entrance there was some condensation forming.
177. The entrance to the basement area had some equipment that had been stored which was presenting extensive mould growth.
178. The underside of the floorboards in some areas had light superficial growth.
179. There was a leak detected from one of the sewer line risers.

Figure 33 - Efflorescence is present indicating dampness from a subterranean source is evaporating into the subfloor space

Figure 34 - The sewerage riser is leaking and should be attended to urgently

Figure 35 - The bottom side of the floor boards and some isolated areas showing signs of visible mould growth

Figure 36 - Building rubble and debris is growing visible mould from the damp surroundings

Figure 37 - Some of the contents have significant mould growth

Figure 38 - More contents with visible mould growth

180.

5.8.2.Scope of works

180. As an immediate scope of works I recommend the following:

a) Remove and dispose of all contents that are exhibiting mould growth or could prompt mould growth if left in a damp environment.

b) HEPA vacuum hard surfaces within the immediate vicinity of the entrance.

c) Clean and treat mould on the underside of floorboards.

181. As a long-term scope of works, I recommend the following:

a) Install mechanical ventilation to extract wet air from the subfloor area to the outdoors.

b) Install a moderate amount of DPC to prevent evaporation from the wetter areas of the soil in the subfloor.

5.9. GARAGE STORAGE AREA

5.9.1.General observations include:

182. The carpet has visible mould growth.

183. The skirting has water damage and visible mould growth.

184. There is mould damage to the lower walls.

185. Many of the contents exhibit visible mould growth.

Figure 39 - Many of the contents exhibited superficial mould growth, some of which can be cleaned

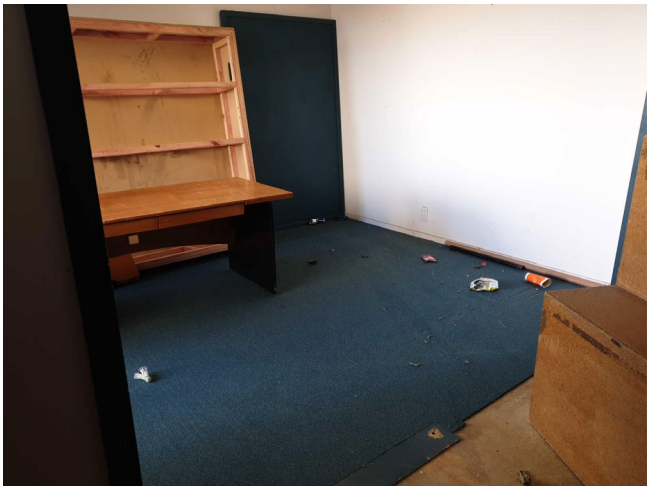


Figure 40 - There is contaminated carpet in part of the storage area

Figure 41 - Visible water damage and mould growth to the top and bottom of some of the carpet storage

Figure 42 - The growth has affected skirting boards, lower wall boards and the floor in some areas

Figure 43 - Some staging that is kept in the storage is unsalvageable and will require disposal

Figure 44 - Some unfinished timbers such as the bottoms of draws on desks in the storage area are deemed to be unsalvageable

186.

5.9.2. Scope of works

186. In the short term, I recommend the following actions:

a) Remove all contents and assess for salvageability, clean those that are able and dispose of all others. (Some isolation has been undertaken)

b) Remove all carpet and dispose. (Completed)

c) Remove all skirting boards and dispose.

d) Remove all isolated areas where mould growth is present on the plasterboard or were mould growth is suspected within the cavity.

e) Clean and treat the cavity and assess the framing for durability.

f) Where applicable treat with borate-based wood preservative.

187. In the long term I recommend the following actions:

a) Remove all linings and areas where water penetration has occurred.

5.10. CAUSATION

5.10.1. Roof area

188. The roof has several defects which were noted during our inspection. Our observations are listed below:

a) There are no sill flashings on the windows above the gymnasium.

b) The upturn of the waterproof membrane does not terminate under a downturn at the window and water is able to penetrate through the back of the membrane.

c) The laps of the waterproof membrane are counter to the rake allowing water to pond and penetrate under the lap.

d) There is inadequate fall to the rain head.

e) There is deterioration to wooden members which were used previously to terminate the waterproof membrane.

f) There is organic debris collected in the gutter and rain head/s.

g) There are areas of improper or inadequate joining between horizontally and vertically laid Butynol.

5.10.2. Exterior cladding

189. The exterior cladding has a few defects that were observed during our inspection. Those observations are as follows:

a) Some of the joinery set into rendered walls do not have sill flashings or appropriate head flashings.

b) Some of the aluminium joinery was parting at the mitre joints.

c) There was hairline cracking in several areas in the exterior render.

d) The timber cladding has not been treated with wood preservative for an extended period and deteriorative fungi has grown.

e) Some portions of exterior cladding have deteriorated elastomeric paint in key areas such as gables and barges.

f) Some flashings on the barges are not sealed and water has penetrated through the joints and into the timber structure.

Figure 45 - there are no sill flashings along the top of the gymnasium

Figure 46 - the water proofing membrane does not turn up behind a wet or dry flashing

Figure 47 - there is inadequate fall

Figure 48 - the discharge from the upper roof does not disperse well

Figure 50 - the laps of the waterproofing membrane are counter to the rake and water is able to push into the joint.

Figure 51- organic debris is blocking some drains

Figure 52 - organic debris in the rain head

Figure 53 - some window joinery has signs of serious deterioration and cannot close.

Figure 54 - step cracking in the render

Figure 55 - no sill flashing

Figure 56 - the weatherboards require treatment with wood preservative

Figure 57 - the weatherboards require treatment with wood preservative

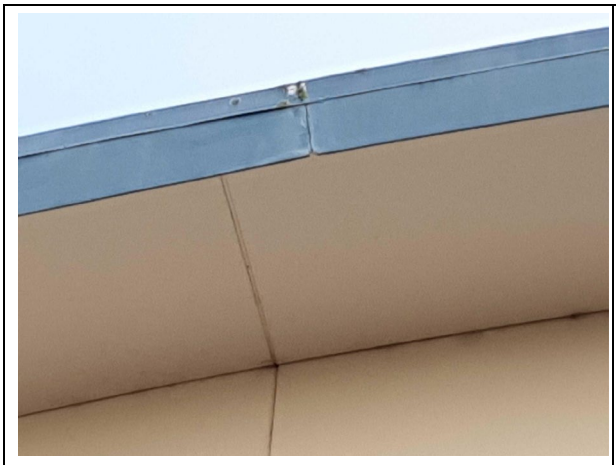


Figure 58 - unsealed connections in the barge to roof flashing

Figure 59 - cracking in the render

5.10.3. Recommendations

190. A project of this enormity requires detailed planning, budgeting, and assessment for compliance.

191. In the short term to prevent continuous weather penetration which will continue to deteriorate the building holistically, many of these minor issues can and should be addressed in a piecemeal approach. There are some temporary works that can and should be undertaken to the roof to avoid weather penetration in the short term whilst planning for an overhaul can take place such as flashing of sill to roof membrane above Gymnasium and better disbursement of water from downpipes along this area.

6. CONCLUSION

193. If there are any further questions, please do not hesitate to call.

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MASTER BUILDER
WRT-IICRC (WATER RESTORATION TECHNICIAN)
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ITI - ADVANCED STRUCTURAL DRYING TECHNICIAN

Taharoa Domain Security Report November 2020

Meeting: **Taharoa Domain Governance Committee**
Date of meeting: **10 November 2020**
Reporting officer: **Hamish Watson, Parks and Recreation Manager**

Purpose/Ngā whāinga

To update the committee on progress from the security and accommodation review

Executive summary/Whakarāpopototanga

Staff engaged Security Consultants Fearfree Ltd to undertake an independent security for the Taharoa Domain and Kai iwi Lakes Campground after previous discussions with the Governance Committee. They have provided a comprehensive report outlining risks and actions that can be taken to make the Taharoa Domain and kai iwi Lakes Campground a safer place for staff and visitors to visit.

Recommendation/Ngā tūtohunga

That the Taharoa Domain Governance Committee:

a) Notes the Taharoa Domain Security report update.

Context/Horopaki

Taharoa Domain is 640 Hectares consisting of 3 Lakes and 2 campgrounds, Pine Beach Campground has a capacity of 480 with Promenade Point Campground holding 120 campers. During peak season of Mid December through to Easter there can also be an estimated 1000 visitors per day on site in addition to the 600 campers all partaking in a variety of activities.

Council budgeted $350,000 in the 20-21 financial year of this Long-Term Plan (LTP) for Kai iwi Campground Facilities which allowed for safety improvements up to and including providing an accommodation building on site.

Staff have identified potential security improvements including security gates and following discussions with the Committee agreed to undertake an independent review which would direct investment. Staff subsequently engaged Security consultants, Fearfree Ltd to complete an independent review and provide recommendations

Discussion/Ngā kōrerorero

Health and Safety in employment has received considerable attention by government agencies. This comes after some high-profile incidents and the introduction of the new Health & Safety at Work Act 2015. It is advised that Health & Safety and Security should share an equal focus, as they both have the potential to impact on people's safety. There is a general duty under the Act to eliminate all risks to health and safety, and if risks cannot be eliminated, they must be minimised as far as is reasonably practical.

Following discussions with staff and an onsite assessment, the consultants have concluded that there are relatively basic actions that can be taken to considerably improve staff safety and overall security. (Attachment A)

Significantly, the consultant did not feel it was necessary to provide accommodation on site and noted that this can introduce other risks and potential for long hours for the staff who are onsite all the time.

Staff have started to implement some of the “easy wins” already and will continue to work through the actions using the budget available. Some key findings are highlighted below.

Review staffing levels;

Upgrade communication systems; (Handheld radios)

Duress alert system;

Upgrade CCTV system;

Automated gates at the main entrance and Promenade Campground.

Financial implications

This has been budgeted for in the 20-21 financial year of this LTP and is funded from financial contributions. By not including the accommodation unit and resolving security issues through other options may provide a significant cost savings.

Significance and engagement/Hirahira me ngā whakapāpā

The decisions or matters of this report do not trigger the significance criteria outlined in Council’s Significance and Engagement Policy, and the public will be informed via agenda on the website.

Next steps/E whaiake nei

Staff are to continue to implement actions as per the review document

Attachments/Ngā tapiritanga

	Title
A	Kai Iwi Lakes Security Review