

Sutton Beach Pavilion, Redcliffe

Structural Condition Audit Peer Review

for

Moreton Bay Regional Council

Project no. 7366

ADMINISTRATIVELY RELEASED BY MBRC 2-2-22

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1 RELIANCE ON DATA

In preparing this report, BE Collective has relied upon data, surveys, analysis, designs, plans and other information provided by the Client and/or other individuals and organisations. Except as otherwise stated in the report, BE Collective has not verified the accuracy or completeness of this data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. BE Collective will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to BE Collective. Any quantities provided are based on estimates provided or obtained during site investigations.

2 NO RELIANCE BY THIRD PARTIES

The report should not be regarded as suitable for use by any person or persons other than the Client. A party, other than the Client, may not rely on the report, and therefore BE Collective:

- Owes no duty (whether in contract or in tort or under statute or otherwise) with respect to or in connection with the report or any part thereof;
- Will have no liability for any loss or damage suffered or costs incurred by any party arising out of or in connection with the provision of the report or any part thereof, however the loss or damage is caused, including, but not limited to, as a result of negligence but not as a result of the fraud or dishonesty of BE Collective.

3 SAFETY IN DESIGN

The content of this report does not represent detailed design. Where detailed design works 'follows on' from this report, the designer must comply with Queensland Work Health and Safety Act 2011 and Work Health and Safety Regulation 2011.

Where relevant, in undertaking detailed design, a Designer's duties are to:

- Ensure that a structure or work element is designed to be without risks to the health and safety of workers, end users and people in the vicinity;
- Provide a written safety report that identifies the hazards relating to the design so far as the designers are reasonably aware, to the Client.
- Make said information available if requested by persons who will use or handle substances, plant or structures at the workplace site for the purposes for which these were designed

The Designer may need to:

- Prepare a written report at each defined stage of the commission to inform the Client of design related hazards that create health and safety risks to persons associated with construction and operation of the facility or work element.
- At contract documentation stage, append a detailed Work Health and Safety Design Review report to the specification for the purpose of informing the Contractor of the particular risks to health and safety identified by the designers of each element of the Works. It may be appropriate for said report should detail how construction and operating risks have been mitigated through design.

For further information refer to:

- https://www.worksafe.qld.gov.au/_data/assets/pdf_file/0008/58193/safe-design-structurescop-2013.pdf
- https://www.safeworkaustralia.gov.au/system/files/documents/1702/how_to_manage_whs_risks.pdf

Revision History

Rev	Date	Comment	Revision by:	Checked by:
A	01/05/20		Personal I	Personal Inf

Prepared by:

Reviewed by:

Approved by:

Personal Information

ADMINISTRATIVELY RELEASED BY MBRC 2-2-22

EXECUTIVE SUMMARY

Moreton Bay Regional Council (MBRC) appointed Built Environment Collective Pty Ltd (BEC) to provide a structural condition audit peer review of the Suttons Beach Pavilion, Redcliffe. The site was inspected by BEC's Personal Information in the presence of Personal Information from Sensus Building Group.

This report documents a peer review of the FSA Consulting Engineers Structural Condition Audit for Pavilion 1 and the link structure. The defects as noted in the FSA Consulting Engineering Structural Condition Audit have been reviewed and sighted, with associated implications of remedial works assessed.

BEC findings of note:

1. Defect D1 - Concrete spalling: Whilst it would be likely that the concrete slab is nearing the end of its design life the majority of the slab showed limited signs of spalling. BEC concurs that further non-destructive and destructive testing will be necessary to confirm remaining design life prior to major intervention;
2. Defect D2 - Cracking in rear wall: This defect was sighted, with additional cracking noted at the engaged pier to slab interface;
3. Defect D4 - Spalling concrete: It was noted that these elements were foam instead of concrete as identified by FSA and should be called up as defect D19. BEC recommends removal of these elements;
4. Defect D5 - Timber wall framing: Further termite investigation & treatment is recommended to ensure no further termite damage is present throughout the structural elements;
5. Defect D6 - Ceiling Failure: This area was unable to be investigated due to recent repairs. With reference to photos provided we concur that the defect was present;
6. Defect D11 - Western wall/Link structure water proofing: BEC agrees with the defects noted. The original wall is in poor condition and remediation is problematic due to access. The existing drainage pit surface level is above the top of the wall and is thus too high. The addition of a new wall is envisaged to be difficult, and costly, due to access and necessary earthworks. BEC proposes a further consideration of Option 1 (injected chemical barrier) as a lower cost solution to reduce water ingress, along with the proposed improvements to the site stormwater drainage along the western side of the site.

1 INTRODUCTION

Moreton Bay Regional Council (MBRC) appointed Built Environment Collective Pty Ltd (BEC) in March 2020 to provide a structural condition audit peer review of the Suttons Beach Pavilion, Redcliffe. The site was inspected on 25th March 2020 by BEC's Schedule 4/4/6 - Personal Information in the presence of Schedule 4/4/6 - Personal Information from Sensus Building Group.

This report documents a peer review of the FSA Consulting Engineers (FSACE) *Structural Condition Audit* as provided to BEC on 12th March 2020. The scope of review as instructed was of Pavilion 1 and the link structure only. Refer to Figure 1 below for facility building identification.

The Suttons Beach Pavilion is an historic building, with Pavilion 1 commissioned in 1937 by the Redcliffe Town Council. The building has had significant alterations and additions during its life.

Pavilion 2 is understood to have been built in 2000, after a major redevelopment of the site. It is understood that a plant room/services building was also added to upper level at the rear of the Pavilion 1 during the redevelopment in 2000. In 2007 further major redevelopment was undertaken, with additional structures added to either side of the original entrance to Pavilion 1, including new level 1 verandas, increased enclosed ground floor area, and major renovations to the interior.

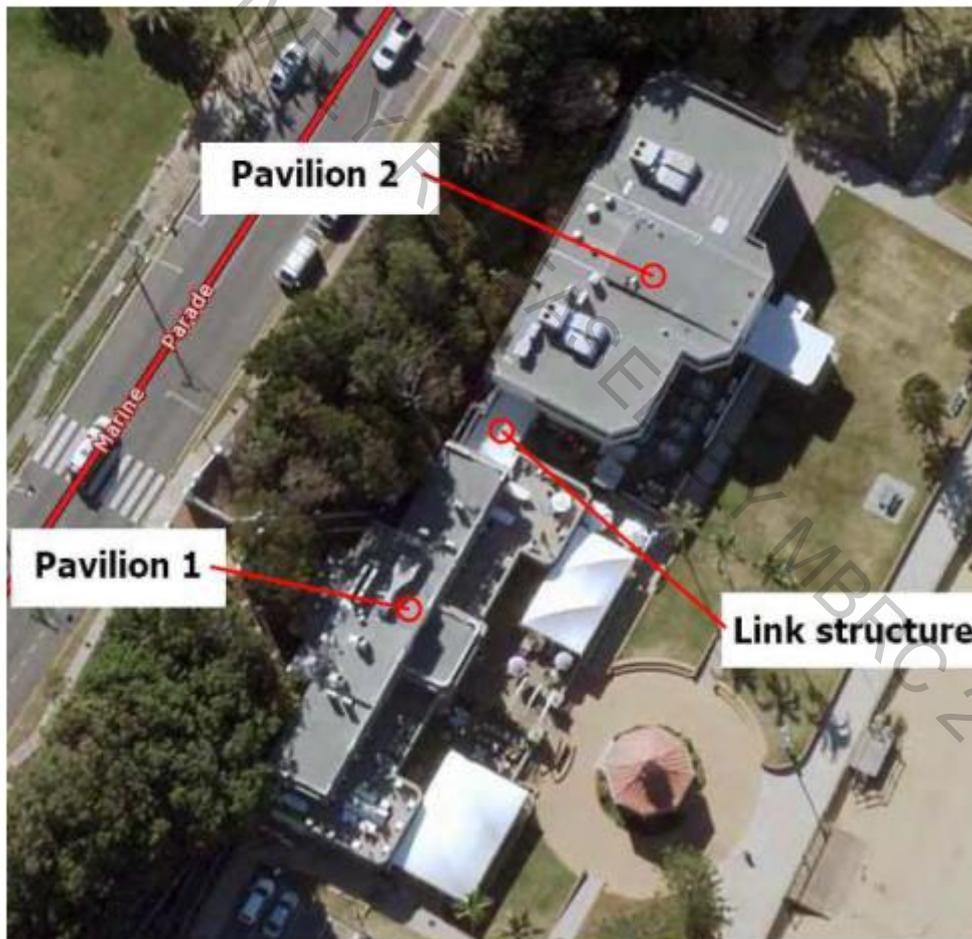


Figure 1: Facility Structure Identification (reproduced from FSACE report: FS1499RL-SER01 Rev 1)

2 SUMMARY OF INSPECTIONS & DEFECTS FROM FSACE

BEC was provided with the Structural Condition Audit (FS1499FL-SER01) produced by FSA Consulting Engineers (FSACE) dated 28th February 2020. It is noted that defects were categorised using identification codes D1 to D22 (refer Section 6 of the FSACE Report). A summary of the key defects identified by the FSACE report across numerous inspections is provided following:

- Section 4.1: 12 February 2020 – Pavilion 1 General Defects:
 - o Spalling on slab soffit;
 - o Exposed reinforcing bars;
 - o Wall cracking;
 - o Water damage to walls;
 - o Corrosion of steel handrails/frames;
 - o Foam awning degradation.
- Section 4.2: 05 February 2020 – Drainage Void Area (rear of Pavilion 1):
 - o Insufficient waterproofing to retaining wall;
 - o Corrosion of exposed bars;
 - o Timber deck support post compromised;
 - o Undermining of original concrete;
 - o Water ingress to internal room, box gutter over and retaining wall waterproofing failure.
- Section 4.3: 30 January 2020 – Pavilion 1 Southwest Corner (PWD):
 - o Severe concrete spalling;
 - o Severe corrosion of exposed reinforcing.
- Section 4.4: 08 November 2017 – Primary Maintenance works:
 - o Compromised structural integrity of roof members due to failed roof sheeting, leading to water ingress;
 - o Water damage to eastern wall framing;
 - o Water damage to western timber wall framing;
 - o Potential structural defects on first floor slab around original services lift/dumb waiter void;
 - o Potential structural defects around first floor slab construction joint in upper amenities.
- Section 4.5: July/August 2016 – Defects to Ground Floor Kitchen:
 - o Significant water ingress through western wall.

Other assessment and reporting (FSACE report Appendices F to I):

- 2012: Façade engineering assessment (Personal Information Consulting (Section 5.1, Appendix F)):
 - o Water penetration through façade cracks;
 - o Water penetration through eastern façade, wind frames and balconies;
 - o Corroded roof elements;
 - o Water penetration through level 1 slab under amenities;
 - o Deteriorated foam awnings.
- 2012 and 2017: Quantity Surveyors Reports, Proactive Quantity Surveyors (Section 5.2, Appendix G):
 - o Water leaks through western wall;
 - o Water leaks around stud framing/windows on eastern wall;
 - o Water leaks around roof penetrations;
 - o Foam awning defects.

- 2007 and 2017: Geotechnical Assessment Reports (Section 5.3, Appendix H):
 - o Morrison Geotechnic;
 - o Apod Soil Testing;
 - o No defects identified.

- 2018 Heritage Assessment, Converge Heritage + Community (Section 5.4, Appendix I):
 - o Identifies heritage rating/significance hierarchy of elements.

3 STRUCTURAL AUDIT PEER REVIEW SUMMARY

For the majority, BEC agrees with the defects identified and outlined in the reporting provided by FSACE. Refer to the BEC's full table of response in Appendix A of this report for a more detailed breakdown of each identified key defect. Refer to Appendix B for BEC sighted defect locations, along with Appendix C for BEC site investigation photos.

Table 1: Peer Review Summary below is a summary of the defect items where BEC has identified either a discrepancy or divergence of opinion.

Table 1: Peer Review Summary

Location	Defect Noted	Implications of remedial works	BEC Comment
G1 – G5: Ground Floor	Defect D1 C5 Spalling concrete to soffit of Level 1 slab, evidence of past repairs, evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	Concrete slab likely at end of design life. Further spalling expected unless remediated. Further non-destructive (half-cell potential) and destructive testing (concrete core and carbonation) will be necessary to map the full extent of corrosion and remaining life of slab prior to major intervention. A potential remediation option may be to strip back deleterious material and application of a new protective membrane.
G7: Ground Floor Grid E-F	Defect D2 C5 Cracking in rear wall infill (or previous repair) section.	Removal of all finishes, framing and fit out to allow access for repair.	BEC sighted. In agreeance with defect & proposed repair recommendation. Additional cracking was sighted about the top of the engaged pier at the slab interface (IMG_8534).
G9: Ground Floor Grid E	Defect D4 C6 Spalling concrete	Exclusion zone beneath affected area; remove spalling to mitigate the risk of spalling concrete dropping and resulting in injury; undertake concrete repair works.	BEC considers this element to be part of the foam awning. To be removed and/or replaced. (refer IMG_8555).
G9: Ground Floor Grid D-E	Defect D4 C6 Spalling concrete	Exclusion zone beneath affected area; remove spalling to mitigate the risk of spalling concrete dropping and resulting in injury; undertake concrete repair works.	BEC considers this element to be part of the foam awning. To be removed and/or replaced. (refer IMG_8555).
G10: Ground Floor Grid A-B	Defect D5 Water damage along full extent of western wall resulting in severe dry rot of	Complete removal of kitchen fit out and all framing members. Resolution of water ingress	BEC sighted. In agreeance with defect & proposed repair recommendation. BEC additionally recommends additional termite inspections/

	timber. Evidence of termite damage.	through western wall is problematic.	<i>monitoring throughout the building to ensure no further termite damage present.</i>
G11: Ground Floor Grid D-E	Defect D6 Ceiling failure due to weight of services cables.	Removal of existing ceiling sheeting & installation of new system to support required cables.	<i>Ceiling appears to be patched in this area and is not able to be sighted. BEC agrees with the defect based on photos provided in the report. Repairs may have already been conducted.</i>
G12: Ground Floor Grid D-E	Defect D7: Condensation on existing refrigeration lines that is likely resulting in water ingress to structural members and finishes.	Removal of existing ceiling to enable make-good works to refrigeration lines.	<i>Incorrect photo provided by FSACE. Sited refrigerant lines resulting in water ingress. (IMG_8523) in agreeance with defect.</i>
Level 1 rear of 'link structure' – drainage void (from rear boardwalk)	Defect D11 Location of block wall that does not appear to be waterproofed is resulting in water ingress to Ground Level.	Safe access to undertake repairs is not possible due to the narrow access between the original western wall and newer block wall. Repairs would require construction of a second retaining wall to the west.	<i>BEC agrees with the defect identified & notes the added impact of the leaking box gutter over.</i> <i>Corrosion of exposed original wall reinforcement sighted. Original wall is in poor condition and is problematic to remediate.</i>
Level 1 rear of 'link structure' – drainage void (from rear boardwalk)	Defect D11 Location of block wall that does not appear to be waterproofed. Corrosion of exposed reinforcement to the original wall.	Safe access to undertake repairs is not possible due to the narrow access between the original western wall and newer block wall. Repairs would require construction of a second retaining wall to the west.	<i>BEC concurs that the drainage pit surface level is too high to collect water, likely due to erosion and settlement.</i> <i>BEC also concurs with the identified access limitations preventing application of a new waterproofing layer/membrane.</i> <i>BEC considers there is a potential to revisit Option 1 (inject chemical barrier) as a lower cost solution to significantly reduce the water ingress. Whilst Option 2 (internal drainage/water proof barrier) would provide reduced water ingress, it would not protect the block wall from water ingress & further degradation. Option 3 (installation of the new wall) will be problematic and costly due to access constraints.</i> <i>The proposed improvements to the stormwater drainage about the western side of the site will aid in reducing surface stormwater flowing down the hill into the drainage void.</i>

APPENDIX A: COMPLETE DEFECT REVIEW TABLES

Table 2: Engineering Inspection 12 February 2020 – Pavilion 1 (FSACE Report Section 4.1)

Location	Defect Noted	Implications of remedial works	BEC Comment
G1: Ground Floor Grid F-G	Defect D1 C5 Spalling concrete to soffit of Level 1 slab; evidence of past repairs; evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	Concrete slab likely at the end of design life. Expected further spalling to occur unless major intervention. Further non-destructive (half-cell potential) and destructive testing (concrete core and carbonation) will be necessary to map the extent of corrosion.
G2: Ground Floor Grid D-E	Defect D1 C5 Spalling concrete to soffit of Level 1 slab; evidence of past repairs; evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	BEC sighted & agrees with defect (refer above).
G3: Ground Floor Grid D-E	Defect D1 C5 Spalling concrete to soffit of Level 1 slab; evidence of past repairs; evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	BEC sighted & agrees with defect (refer above).
G4: Ground Floor Grid B-C	Defect D1 C5 Spalling concrete to soffit of Level 1 slab; evidence of past repairs; evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	BEC sighted & agrees with defect (refer above).
G5: Ground Floor Grid B	Defect D1 C5 Spalling concrete to soffit of Level 1 slab; evidence of past repairs; evidence of corroded reinforcement in local patches.	Removal of all finishes, framing and services to enable access to slab for full inspection and repair.	BEC sighted & agrees with defect (refer above).
G6: Ground Floor Grid H	Defect D2 Exposed corroded reinforcement.	Access to area challenging due to new structures.	Corroded bars sighted. BEC agrees that access is problematic. It is likely necessary to remove roof/gutter over to facilitate future inspection.
G7: Ground Floor Grid E-F	Defect D2 C5 Cracking in rear wall infill (or previous repair) section.	Removal of all finishes, framing and fit out to allow access for repair.	BEC sighted & agrees with defect & repair recommendation. Additionally, cracking was identified about the top of the engaged pier and slab (IMG_8534).
G8: Ground Floor Grid B-C	Defect D3 Connection supplementary floor beam to wall appeared unfit for purpose. Minor	Removal of all finishes, framing and services to enable access to connection for design and installation of upgraded connection	BEC sighted. In agreement with defect & proposed repair recommendation.

	corrosion (S2) to unprotected steelwork.		
G9: Ground Floor Grid E	Defect D4 C6 Spalling concrete	Exclusion zone beneath affected area; remove spalling to mitigate the risk of spalling concrete dropping and resulting in injury; undertake concrete repair works.	<i>BEC considers this element to be part of the foam awning. To be removed and/or replaced. (refer IMG_8555).</i>
G9: Ground Floor Grid D-E	Defect D4 C6 Spalling concrete	Exclusion zone beneath affected area; remove spalling to mitigate the risk of spalling concrete dropping and resulting in injury; undertake concrete repair works.	<i>BEC considers this element to be part of the foam awning. To be removed and/or replaced. (refer IMG_8555).</i>
G10: Ground Floor Grid A-B	Defect D5 Water damage along full extent of western wall resulting in severe dry rot of timber. Evidence of termite damage.	Complete removal of kitchen fit out and all framing members. Resolution of water ingress through western wall is problematic.	<i>BEC sighted. In agreeance with defect & proposed repair recommendation.</i>
G10: Ground Floor Grid A-B	Defect D5 Water damage along full extent of western wall resulting in severe dry rot of timber. Evidence of termite damage.	Complete removal of kitchen fit out and all framing members. Resolution of water ingress through western wall is problematic.	<i>BEC sighted. In agreeance with defect & proposed repair recommendation. Additional termite inspections / monitoring recommended.</i>
G11: Ground Floor Grid D-E	Defect D6 Ceiling failure due to weight of services cables.	Removal of existing ceiling sheeting & installation of new system to support required cables.	<i>Unable to inspect. Ceiling appears to be patched in this area; repairs may have already been conducted.</i>
G12: Ground Floor Grid D-E	Defect D7 Noted condensation on existing refrigeration lines that is likely resulting in water ingress to structural members and finishes.	Removal of existing ceiling to enable make-good works to refrigeration lines.	<i>Note - Incorrect photo provided by FSACE. Sited refrigerant lines resulting in water ingress. (refer IMG_8523)</i>
F1: Level 1 Grid A	Defect D8 C5 cracking in reinforced concrete stair wall in southern access stairs.	Access available for repairs.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F2: Level 1 Grid A	Defect D8 C5 cracking in reinforced concrete stair wall in southern access stairs.	Access available for repairs.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F3: Level 1 Grid H	Defect D9 Failure of external lining water ingress into frame is likely.	Access up to external area of Level 1: strip linings and undertake repair works as required.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F4: Level 1 Grid B	Defect D10 Water damage to full extent (assumed) of upper level wall framing – image adjacent shows repaired framing installation. This is resulting in the bottom plate & lower portion of the studs suffering initial,	To undertake repairs to achieve a current best practice outcome, the full removal of all external cladding would be required. Repair works & framing repairs are also required (assumed as minimum to all bottom plate and a majority of studs). Install external wall membrane &	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>

	too severe dry rot of timber.	windows, and a new external cladding system. Additionally, it is further recommended that internal wall lining repairs are conducted as necessary.	
F5: Level 1 Grid D	Defect D10 Water damage to full extent (assumed) of upper level wall framing. This is resulting in the bottom plate & lower portion of the studs suffering initial, too severe dry rot of timber.	As above.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F6: Level 1 Grid D	Defect D10 Water damage to full extent (assumed) of upper level wall framing. This is resulting in the bottom plate & lower portion of the studs suffering initial, too severe dry rot of timber.	As above.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F7: Level 1 Grid E-F	Defect D10 Water damage to full extent (assumed) of upper level wall framing. This is resulting in the bottom plate & lower portion of the studs suffering initial, too severe dry rot of timber.	As above.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F8: Level 1 Grid H	Defect D10 Water damage to full extent (assumed) of upper level wall framing. This is resulting in the bottom plate & lower portion of studs suffering initial, too severe dry rot of timber. The studs, bottom plate, and tie down have failed.	As above.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F9: Level 1 Grid E	Defect D10 Water damage resulting in severe dry rot of timber; failed brick/timber interface.	As above.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F10: Level 1 Grid D	Defect D11 Severe corrosion S5 to handrail and bolted connection.	Remove existing fixings, including any corroded fixings prior to replacement. Access to Level 1 area.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
F10: Level 1 Grid D	Defect D11 Severe corrosion S5 to handrail and bolted connection.	Remove existing fixings, including any corroded fixings prior to replacement. Access to Level 1 area.	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
Awning Level 1	Defect D19 Foam awnings (fiberglass lined) are degraded. Delaminating may contribute to water ingress to structural frame.	Removal and/or repair all foam awnings.	<i>All rendered foam awnings appear to be degraded/delaminating. Recommend to remove and replace all.</i>

Table 3: Engineering Inspection 05 February 2020 – Drainage Void area (FSACE Report section 4.2)

Location	Defect Noted	Implications of remedial works	BEC Comment
Level 1 rear of 'link structure' – drainage void (from rear boardwalk)	Defect D11 Location of block wall that does not appear to be waterproofed resulting in water ingress to Ground Level.	Safe access to undertake repairs is not possible due to the narrow access between the original western wall and newer block wall. Repairs would require construction of a second retaining wall to the west.	<i>BEC agrees with the defect identified & notes the added impact of the leaking box gutter over.</i> <i>Corrosion of exposed original wall reinforcement sighted. Original wall in poor condition, and remediation is considered problematic.</i>
Level 1 rear of 'link structure' – drainage void (from rear boardwalk)	Defect D11 Location of block wall that does not appear to be waterproofed. Corrosion of exposed reinforcement to original wall.	Safe access to undertake repairs is not possible due to the narrow access between the original western wall and newer block wall. Repairs would require construction of a second retaining wall to the west.	<i>BEC agrees that the drainage pit surface level is too high to collect water, likely due to erosion and settlement.</i> <i>BEC also agrees with restrictions on access preventing application of a new waterproofing layer/membrane.</i> <i>BEC considers there is a potential to revisit Option 1 (inject chemical barrier) as a lower cost solution to significantly reduce the water ingress. Whilst Option 2 (internal drainage/water proof barrier) would provide reduced water ingress, it would not protect the block wall from water ingress & further degradation. Option 3 (installation of the new wall) will be problematic and costly due to access constraints.</i> <i>The proposed improvements to the stormwater drainage about the western side of the site will aid in reducing surface stormwater flowing down the hill into the drainage void.</i>
Rear of 'link structure' – drainage void	Defect D12 Failed structural support of electrical cable tray.	Access via under boardwalk.	<i>Sighted temporary strap/fix. Propose fixing the cable tray directly to the board walk structure</i>
Rear of 'link structure' – drainage void	Defect D14 Local support of bearer has been compromised.	Removal of boardwalk.	<i>New post required to support board walk beam.</i>
Rear of 'link structure' – drainage void	Defect D11 Corrosion of reinforcement in original structure.	Safe access is impossible to achieve due to the narrow gap between the original western wall and newer block wall	<i>It appears that a section of the old wall has retaining wall spalled/eroded, exposing reinforcing bars. Access may be achievable via under-side of boardwalk.</i>
Rear of 'link structure' – drainage void	Defect D13 Undermining of original concrete approximately 1.5m above drainage void floor level.	Removal of boardwalk and demolition of remaining pathway. It is likely that better stability or retaining works is necessary.	<i>Undermining sighted.</i> <i>Demolition of boardwalk required to facilitate remediation.</i>

Ground Level link structure - Internal rear wall	Defect D11 Water ingress is evident.	Repairs to internal wall linings will require waterproofing to both box gutter and external wall.	<i>Significant evidence of water ingress. Appears to be from both box gutter over, and the western wall. Box gutter over had ponding/standing water directly above area in question.</i>
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Table 4: Engineering Inspection 30 January 2020 – Pavilion 1 south west corner (PWD (FSACE Report section 4.3))

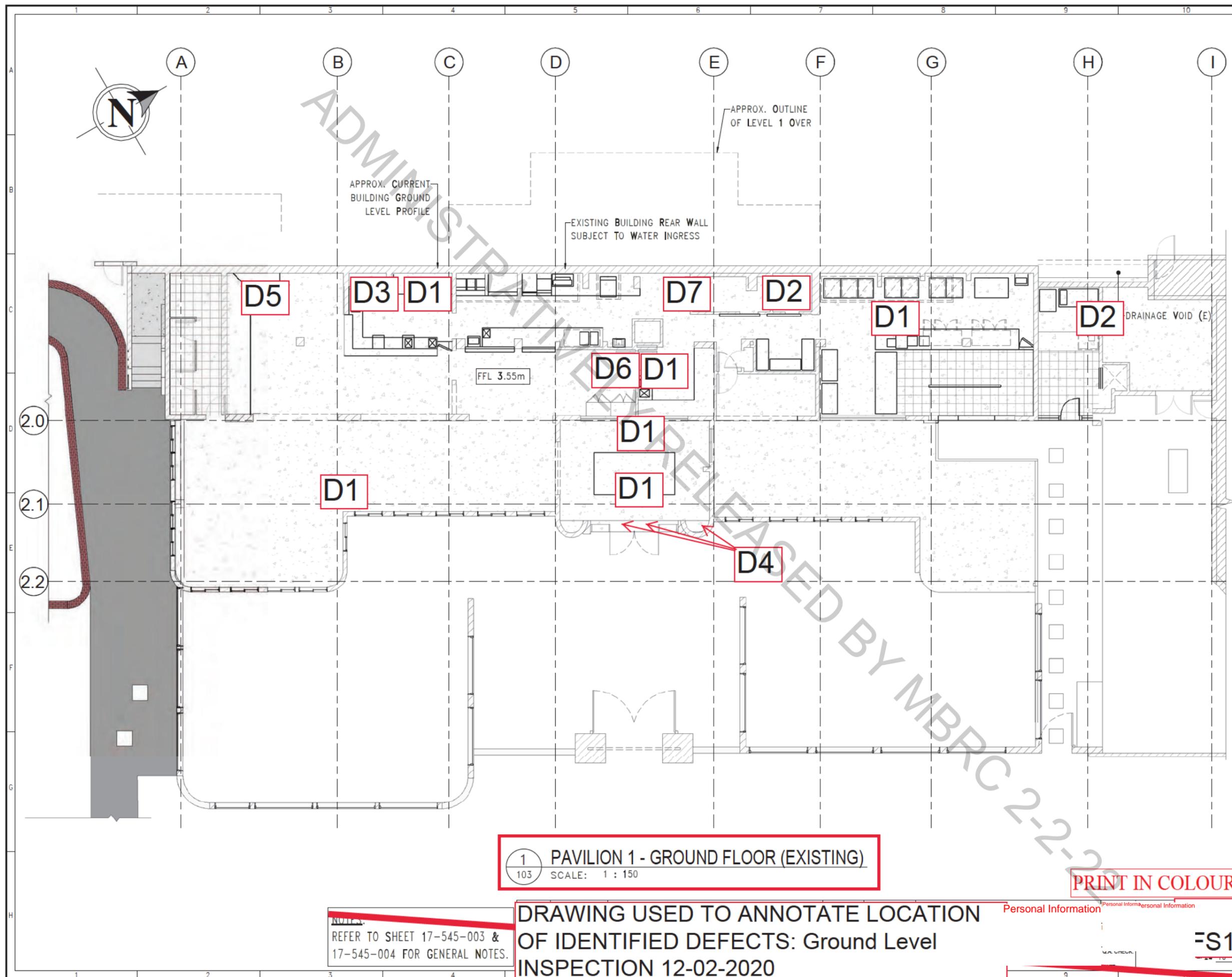
Location	Defect Noted	Implications of remedial works	BEC Comment
Ground Level Southern corner	Defect D15 C6 concrete spalling and corroded reinforcement of original beam.	Removal of internal fittings and fixtures; temporary propping.	<i>BEC sighted significant degradation of reinforced concrete beam. Temporary propping deemed adequate. Further permanent remediation required.</i>
Ground Level Southern corner	Defect D15 C6 concrete spalling and corroded reinforcement or Level 1 slab soffit.	Removal of internal fittings and fixtures; temporary propping.	<i>BEC sighted spalling and exposed corroding reinforcement. Temporary propping deemed adequate. Further permanent remediation required.</i>

Table 5: Additional Defects from Wider Consultant Team (FSACE Report Section 5)

Defect Noted	Defect ID (FSACE report Section 6)	BEC Comment
Water penetration through façade cracks	D8	<i>BEC sighted. In agreeance with defect identification & proposed repair recommendation.</i>
Water penetration through eastern façade, wind frames and balconies	D10	
Corroded roof elements	D16	
Water penetration through level 1 slab under amenities	D18	
Deteriorated foam awnings	D19	
Water leaks through western wall	D11	
Water leaks around roof penetrations	D16	

APPENDIX B: DEFECT LOCATION MARKUP

ADMINISTRATIVELY RELEASED BY MBRC 2-2-22



1 PAVILION 1 - GROUND FLOOR (EXISTING)
103 SCALE: 1 : 150

PRINT IN COLOUR

NOTES:
REFER TO SHEET 17-545-003 & 17-545-004 FOR GENERAL NOTES.

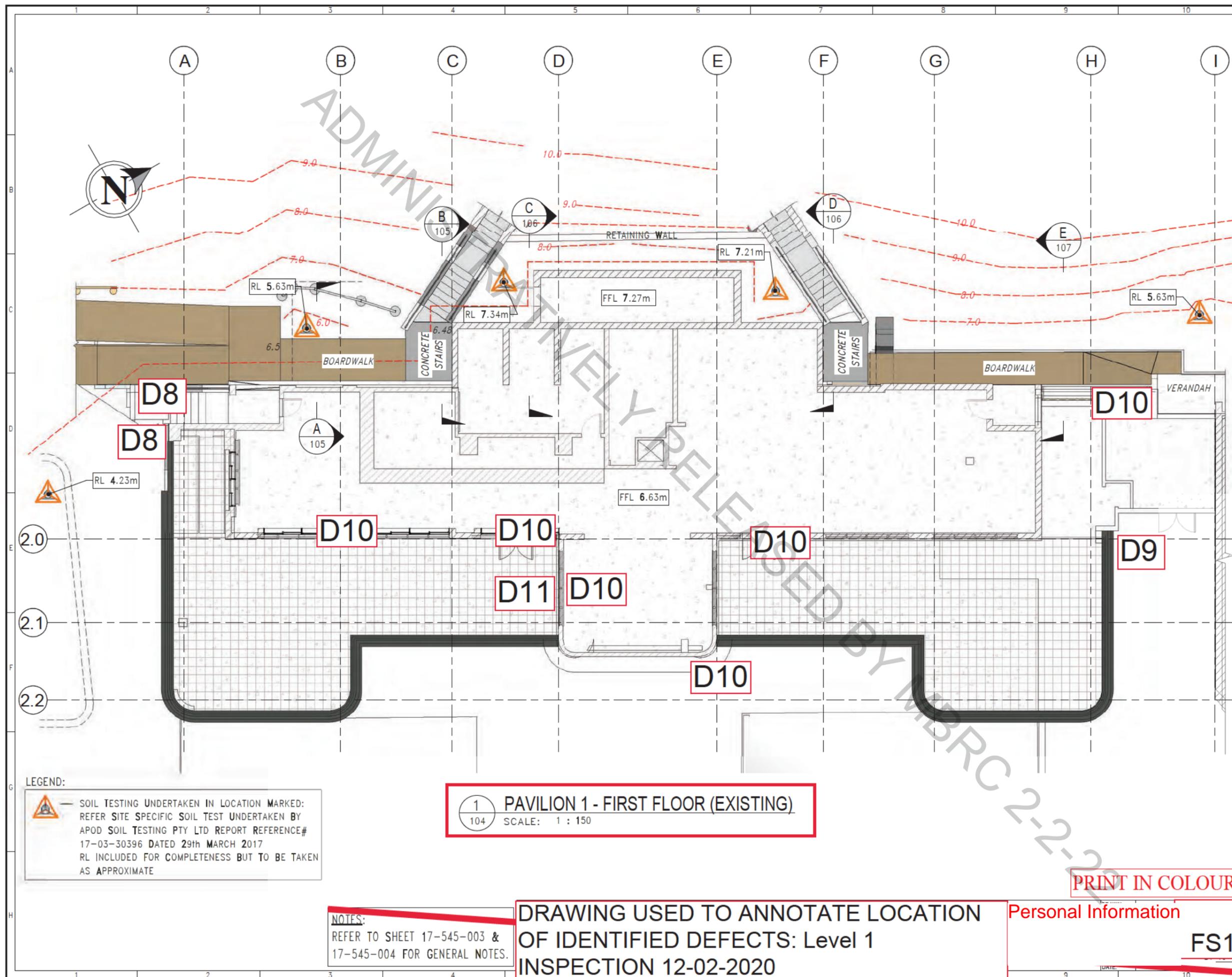
DRAWING USED TO ANNOTATE LOCATION OF IDENTIFIED DEFECTS: Ground Level INSPECTION 12-02-2020

Personal Information Personal Information Personal Information

APPENDIX A

FS1499FL-SER01

Original Plan Size A3



LEGEND:
 SOIL TESTING UNDERTAKEN IN LOCATION MARKED:
 REFER SITE SPECIFIC SOIL TEST UNDERTAKEN BY
 APOD SOIL TESTING PTY LTD REPORT REFERENCE#
 17-03-30396 DATED 29th MARCH 2017
 RL INCLUDED FOR COMPLETENESS BUT TO BE TAKEN
 AS APPROXIMATE

1 PAVILION 1 - FIRST FLOOR (EXISTING)
 104 SCALE: 1 : 150

NOTES:
 REFER TO SHEET 17-545-003 &
 17-545-004 FOR GENERAL NOTES.

DRAWING USED TO ANNOTATE LOCATION
 OF IDENTIFIED DEFECTS: Level 1
 INSPECTION 12-02-2020

PRINT IN COLOUR

Personal Information

APPENDIX A

FS1499FL-SER01

Original Plan Size A3

APPENDIX C: SITE INSPECTION PHOTOS

ADMINISTRATIVELY RELEASED BY MBRC 2-2-22

Category	Images
General	 <p data-bbox="783 898 979 927">Figure 1: IMG_8491</p> <p data-bbox="730 954 1034 987">General Southern Façade</p>  <p data-bbox="783 1659 979 1688">Figure 2: IMG_8492</p> <p data-bbox="703 1715 1062 1749">General South-eastern façade</p>



Figure 3: IMG_8587

-General shot of level 1 from location F20



Figure 4: IMG_8600

Level 1 Balcony – general tile cracking



Figure 5: IMG_8601

Level 1 Balcony – general tile cracking



Figure 6: IMG_8610

Roof foam awning general degradation

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Figure 7: IMG_8611

Roof foam awning general degradation



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Figure 8: IMG_8613

Level 1 balcony water ponding



Figure 9: IMG_8630

General roof condition



Figure 10: IMG_8633

General Roof



Figure 11: IMG_8634

General roof sheeting



Figure 12: IMG_8635

Visible corrosion/deformation of roof sheeting



Figure 13: IMG_8636

General roof



Figure 14: IMG_8645

General foam awning degradation



Figure 15: IMG_8646

General foam awning degradation

ADMINISTRATIVE RELEASE BY MBRC 2-2-22



Figure 16: IMG_8647

General foam awning degradation



22

Figure 17: IMG_8649

General foam awning degradation



Figure 18: IMG_8650

Soffit of level 1 balcony – minor water ingress/stains

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Figure 19: IMG_8653

General foam awning degradation



Figure 20: IMG_8654

General Eastern Façade



Figure 21: IMG_8655

General Eastern Façade



Figure 22: IMG_8656

General Eastern Façade



Figure 23: IMG_8657

General Eastern Facade

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G2

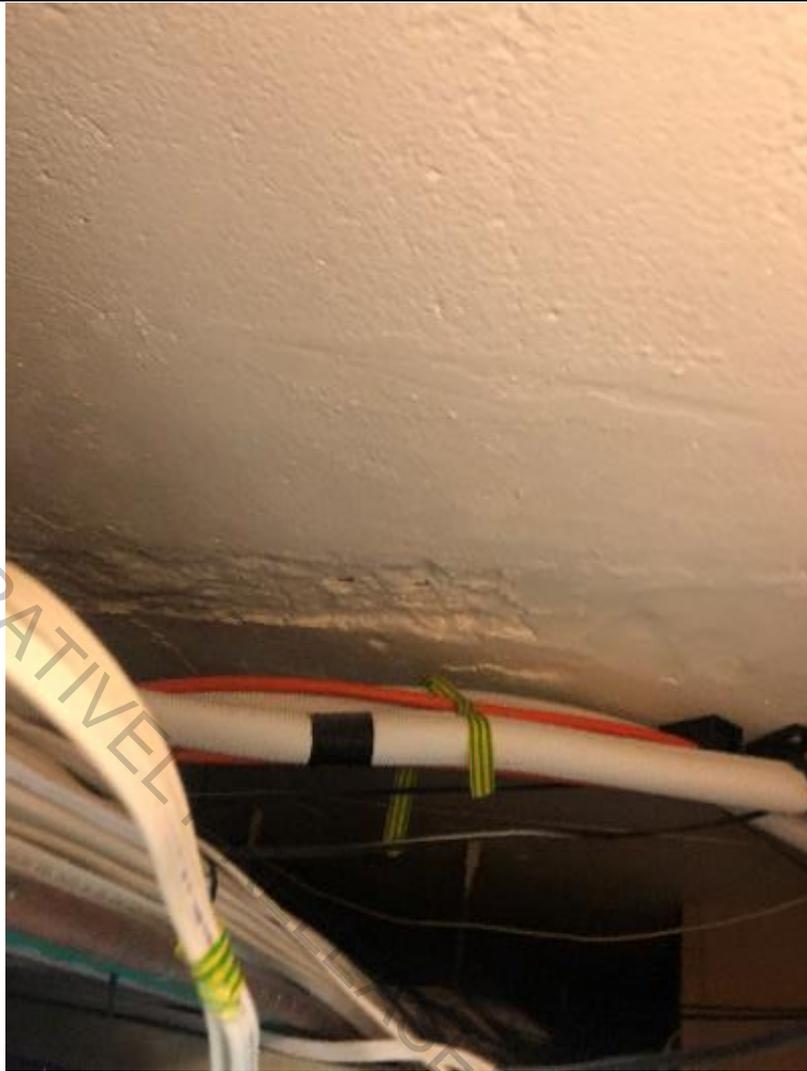


Figure 24: IMG_8538

G2 – underside construction joint – past repairs

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Figure 25: IMG_8541

G11 /G2 – Ceiling slab soffit



Figure 26: IMG_8542

G11 /G2 – Ceiling slab soffit

G3



Figure 27: IMG_8539

G3 – underside construction joint – past repairs

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G4

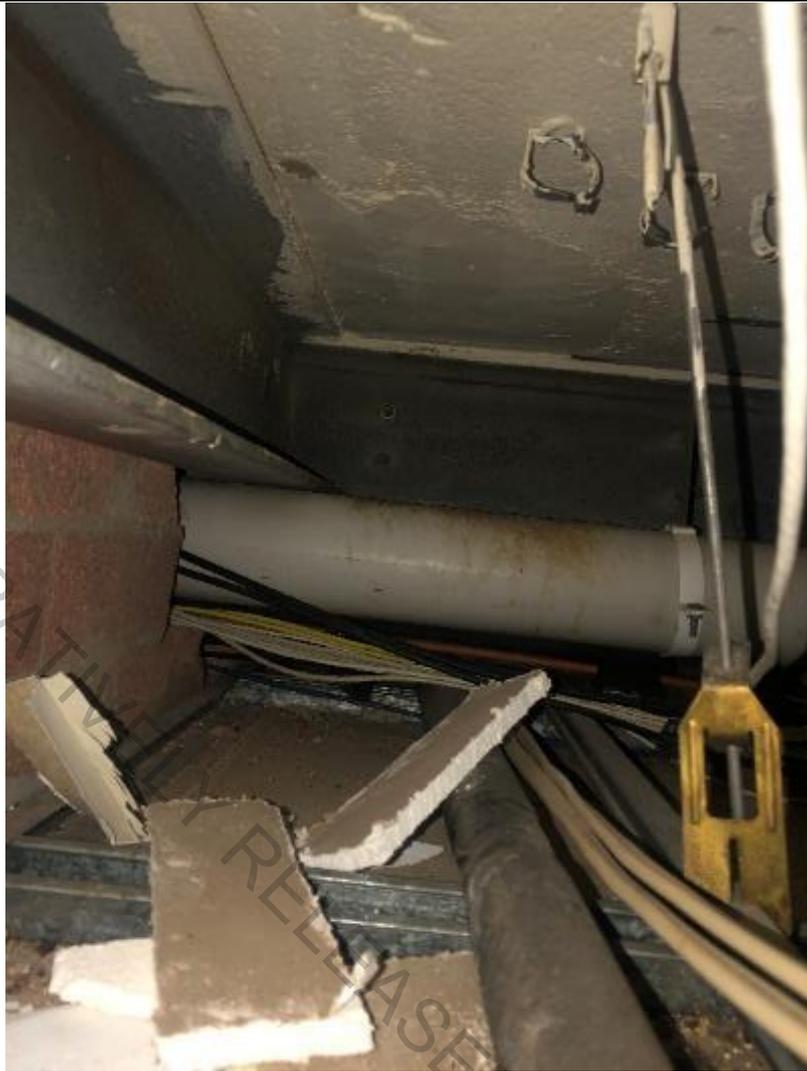


Figure 28: IMG_8526

G4 – Repaired slab soffit/spalling

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G5



Figure 29: IMG_8512

G5 – Block Column – no sighted defect

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Figure 30: IMG_8513

G5 – Block Column – no sighted defect

G6



Figure 31: IMG_8544

G6 – Box gutter over – leaking

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Figure 32: IMG_8545

G6 – Box gutter over – leaking



Figure 33: IMG_8546

G6 – Box gutter over – leaking



Figure 34: IMG_8547

G6 – Box gutter over – leaking

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Figure 35: IMG_8548

G6 – Box gutter over and western wall leaking

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G7



Figure 36: IMG_8532

G7 – Beam Corrosion at connection/ brick wall infill/cracking

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Figure 37: IMG_8534

G7 –brick wall column cracking



Figure 38: IMG_8535

G7 –slab soffit – no defects sighted

G8



Figure 39: IMG_8522

G8 – Ceiling water damage

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Figure 40: IMG_8523

G8 – Ceiling water damage – leaking service over

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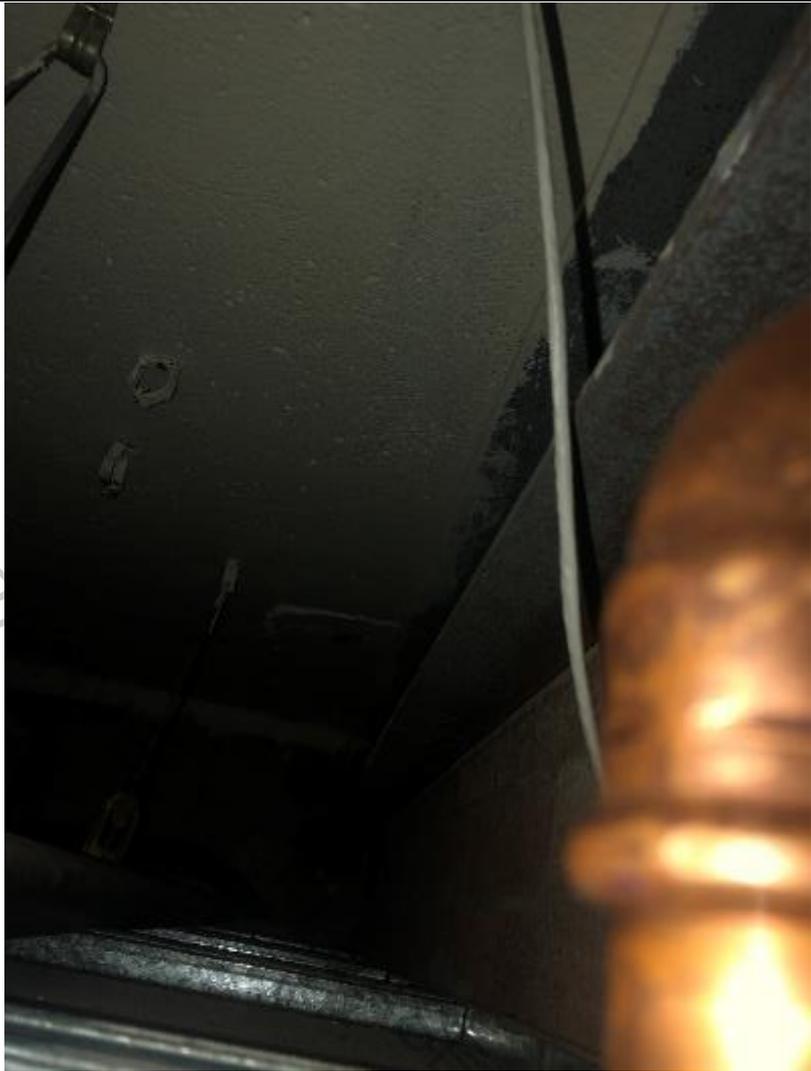


Figure 41: IMG_8524

G8 – Beam Corrosion

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Figure 42: IMG_8525

G8 – Beam Corrosion

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Figure 43: IMG_8529

G8 – Beam Corrosion at connection

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G9



Figure 44: IMG_8551

G9 – Water damage to awning

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Figure 45: IMG_8552

G9 – Water damage to awning

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Figure 46: IMG_8553

G9 – Water damage to awning

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Figure 47: IMG_8554

G9 – Water damage to awning



Figure 48: IMG_8555

G9 – Water damage to awning



Figure 49: IMG_8556

G9 – Water damage to awning



Figure 50: IMG_8557

G9 – Water damage to awning

G10

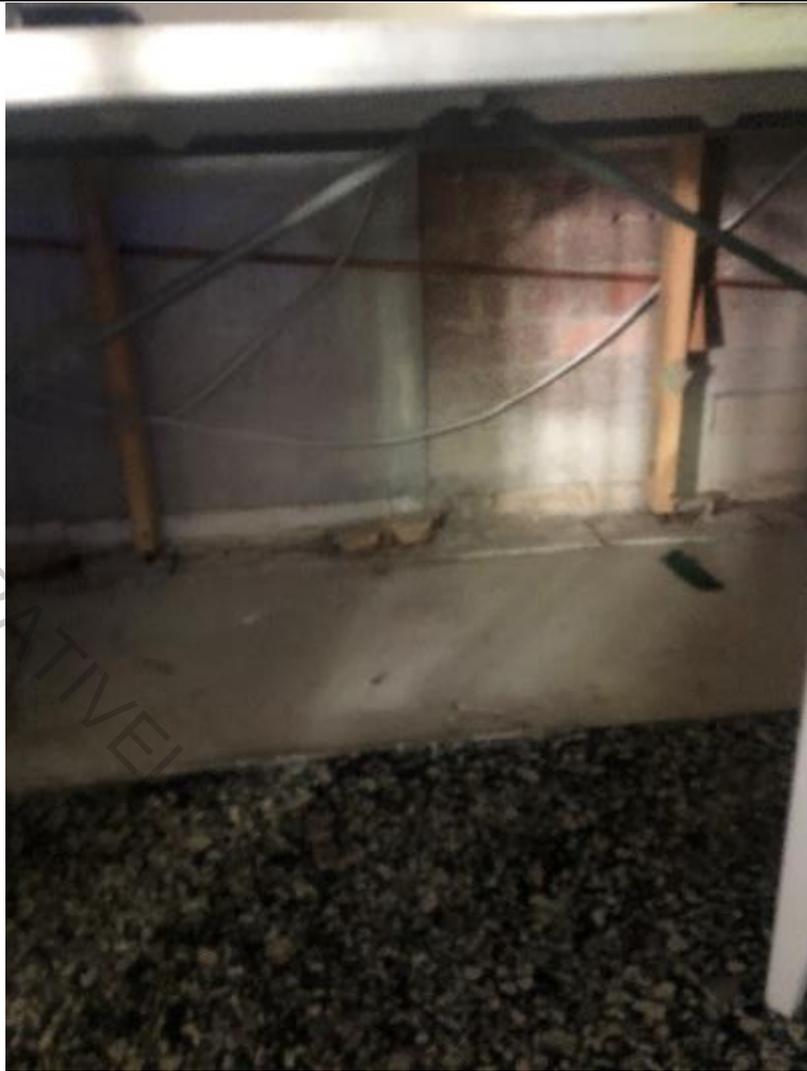


Figure 51: IMG_8514

G10 – Wall water damage

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Figure 52: IMG_8515

G10 – Wall water damage



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Figure 53: IMG_8517

G10 – Wall water damage



Figure 54: IMG_8518

G10 – Wall water damage

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G11



Figure 55: IMG_8541

G11 /G2 – Ceiling slab soffit



Figure 56: IMG_8542

G11 /G2 – Ceiling slab soffit

G20



Figure 57: IMG_8494

G20 - PWD Bathroom – RC beam over



Figure 58: IMG_8495

G20 - PWD Bathroom – RC beam over



Figure 59: IMG_8496

G20 - PWD Bathroom – RC beam over



Figure 60: IMG_8497

G20 - PWD Bathroom – RC beam over



Figure 61: IMG_8498

G20 - PWD Bathroom – RC beam over

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Figure 62: IMG_8499

G20 - PWD Bathroom

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Figure 63: IMG_8500

G20 - PWD Bathroom – RC beam over

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Figure 64: IMG_8501

G20 - PWD Bathroom – RC beam over



Figure 65: IMG_8502

G20 - PWD Bathroom – Wall adjacent



Figure 66: IMG_8503

G20 – Slab soffit over – corroded rebar



Figure 67: IMG_8506

G20 – PWD

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Figure 68: IMG_8507

G20 – PWD

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Figure 69: IMG_8508

G20 – PWD

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Figure 70: IMG_8509

G20 – PWD

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Figure 71: IMG_8511

G20 – PWD

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G21



Figure 72: IMG_8504

G21-wall outside PWD

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G30



Figure 73: IMG_8558

G30 – Additional external cladding water damage

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G31



Figure 74: IMG_8559

G31 – Stormwater discharge to ground – minor corrosion of water pipe fixings

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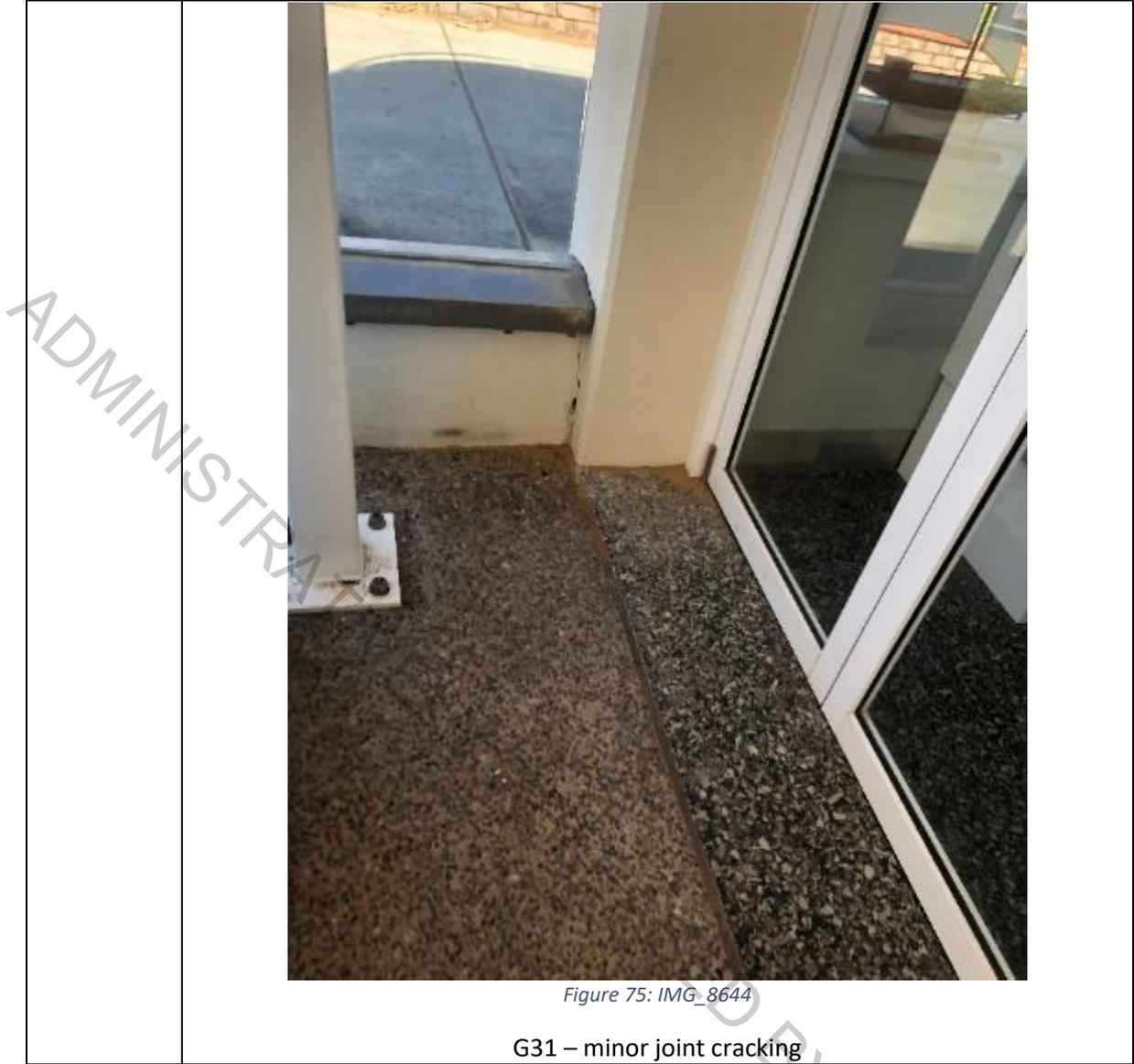


Figure 75: IMG_8644

G31 - minor joint cracking

F1



Figure 76: IMG_8560

F1 & F2 – Stair cracking

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F2



Figure 77: IMG_8560

F1 & F2 – Stair cracking

F4



Figure 78: IMG_8563

F4 – Water damage to frame

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Figure 79: IMG_8612

F4 – External wall water damage – Tiles recently sealed

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F5



Figure 80: IMG_8564

F5 – Water damage to frame



Figure 81: IMG_8565

F5 – Water damage to frame



Figure 82: IMG_8614

F5 – External wall water damage – Tiles damaged

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F6



Figure 83: IMG_8576

F6 – Water damage to frame

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F7



Figure 84: IMG_8577

F7 – Water damage to frame



Figure 85: IMG_8578

F7 – Water damage to frame



Figure 86: IMG_8579

F7 – Water damage to frame



Figure 87: IMG_8595

F7 – External side – water damage



Figure 88: IMG_8596

F7 – External side – water damage

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Figure 89: IMG_8597

F7 – External side – water damage

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Figure 90: IMG_8598

F7 – External side – water damage

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Figure 91: IMG_8605

F7 – External side – water damage

F9



Figure 92: IMG_8602

F9 – Distant wall water damaged – ponding on tiles



Figure 93: IMG_8604

F9 – Wall water damaged

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F10



Figure 94: IMG_8603

F10 – Roof balustrade fixings corroding

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Figure 95: IMG_8606

F10- Wall water damaged

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Figure 96: IMG_8607

F10- Wall water damaged



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Figure 97: IMG_8608

F10– Wall water damaged



Figure 98: IMG_8615

F10 – Roof Balustrade corroded fixings

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F20



Figure 99: IMG_8505

F20 - Steel frame awning – level 1 entrance

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Figure 100: IMG_8561

F20 – Steel Frame Awning Corroding

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Figure 101: IMG_8582

F20 – Box gutter – water ponding

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Figure 102: IMG_8588

F20 – General tie of balustrade to pavilion 2, minor corrosion spots on column

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Figure 103: IMG_8589

F20 – Box gutter – water ponding



Figure 104: IMG_8590

F20 – General pavilion 2, minor corrosion spots on wall and screen fixings



Figure 105: IMG_8591

F20 – Level 1 wall and lower roof



Figure 106: IMG_8592

F20 – Level 1 wall and lower roof



Figure 107: IMG_8593

F20 – Level 1 wall and lower roof

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F21



Figure 108: IMG_8583

F21 – Rear drainage channel

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Figure 109: IMG_8584

F21 – Rear drainage channel

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Figure 110: IMG_8585

F21 – Rear drainage channel



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Figure 111: IMG_8620

F21 – Added drainage sump/pump. No water proofing to block wall. Undermining old structure



Figure 112: IMG_8622

F21- Cable try and deck support temporary propped/strapped

F30



Figure 113: IMG_8637

F30 – under boardwalk – okay



Figure 114: IMG_8641

F30 – under boardwalk visible water proofing



Figure 115: IMG_8642

F30 – under boardwalk visible water proofing

F31



Figure 116: IMG_8580

F31 – Potential ceiling sag/water damage

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Figure 117: IMG_8581

F31 – Potential ceiling sag/water damage

F32



Figure 118: IMG_8617

F32 - Damaged exhaust duct with temporary propping

F33



Figure 119: IMG_8628

F33 – Stair handrails corroded

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Figure 120: IMG_8629

F33 – Stair handrails corroded

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F34



Figure 121: IMG_8631

F34 – Stair handrails corroded/cracking of stair tread

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Figure 122: IMG_8632

F34 – Stair handrails corroded/cracking of stair

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