Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	685026-AFC
Project Name	GOULBURN HOSPITAL
Project ID	SYD191088.P003
Received Date	Oct 29, 2019
Date Reported	Oct 29, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID SYD191088.P003
Date Sampled Oct 28, 2019
Report 685026-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-Oc43779	CO865427	DP10	PEDESTRIAN ENTRY NEAR BH64	10:50	16:29	2.0	2.0	0/100	< 0.01
19-Oc43780	CO865556	DP20	VEHICLE ENTRY NEAR BH80	10:56	16:26	2.0	2.0	0/100	< 0.01
19-Oc43781	CO865404	DP19	FENCE ADJ NORTH BH44	11:00	16:24	2.0	2.0	0/100	< 0.01
19-Oc43782	CO865625	DP06	FENCE ADJ BH43	11:10	16:22	2.0	2.0	0/100	< 0.01
19-Oc43783	CO865430	DP15	FENCE ADJ BH20	11:15	16:21	2.0	2.0	0/100	< 0.01
19-Oc43784	CO865478	DP18	FENCE ADJ BH12	11:19	16:19	2.0	2.0	0/100	< 0.01
19-Oc43785	CO865462	DP04	FENCE ADJ BH53	11:27	16:17	2.0	2.0	0/100	< 0.01
19-Oc43786	CO865572	DP11	FENCE ADJ BH75	11:30	16:16	2.0	2.0	0/100	< 0.01

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-Oc43787	CO865469	DP05	INTERIOR LUNCH ROOM	11:35	16:35	2.0	2.0	17.5/100	0.01
19-Oc43788	CO865227	DP12	WALKWAY ADJ NORTH LUNCHROOM	12:30	16:42	2.0	2.0	0/100	< 0.01
19-Oc43789	CO901467	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Oct 29, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Oct 29, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: SYD191088.P003

Order No.:
Report #: 685026
Phone: 02 9809 0666
Fax:

Received: Oct 29, 2019 10:26 AM
Due: Oct 29, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						x
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	CO865427	Oct 28, 2019	4:29PM	Air	S19-Oc43779	x
2	CO865556	Oct 28, 2019	4:26PM	Air	S19-Oc43780	x
3	CO865404	Oct 28, 2019	4:24PM	Air	S19-Oc43781	x
4	CO865625	Oct 28, 2019	4:22PM	Air	S19-Oc43782	x
5	CO865430	Oct 28, 2019	4:21PM	Air	S19-Oc43783	x
6	CO865478	Oct 28, 2019	4:19PM	Air	S19-Oc43784	x
7	CO865462	Oct 28, 2019	4:17PM	Air	S19-Oc43785	x
8	CO865572	Oct 28, 2019	4:16PM	Air	S19-Oc43786	x
9	CO865469	Oct 28, 2019	4:35PM	Air	S19-Oc43787	x

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: SYD191088.P003

Order No.:
Report #: 685026
Phone: 02 9809 0666
Fax:

Received: Oct 29, 2019 10:26 AM
Due: Oct 29, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	CO865227	Oct 28, 2019	4:42PM	Air	S19-Oc43788	X
11	CO901467	Oct 28, 2019		Air	S19-Oc43789	X
Test Counts						11

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : Tim Kulmar, Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

37 Kensington Street
East Perth, WA 6004
+61 8 9225 5810
ABN 65 133 060 787

Accreditation No. 20283
Site No. 24180
Accredited for compliance with ISO/IEC 17025 - Testing

Laboratory Report

Client:	Eurofins | Mgt
Client address:	6 Monterey Road, DANDENONG SOUTH VIC 3175
Job number:	19_1868
Revision No.	0
Lab ID:	19_1868_01
Client ID:	CO865469 (S19-Oc44406)
Date received:	30/10/19
Date analysed:	01/11/19
Date reported:	01/11/19
Analysis:	Fibre characterisation by scanning electron microscopy (SEM) with elemental analysis by energy dispersive spectroscopy (EDS)

Executive summary

The sample was determined to **not contain** asbestos mineral fibre.

Sample preparation

The sampling was not conducted by Microanalysis Australia staff. The sample was supplied to Microanalysis Australia as a loaded 25 mm diameter MCE membrane. The membrane had been cut prior to receipt and only half was received.

A representative wedge-shaped sub-sample was cut from the filter membrane of about 1/6th of the total membrane size. The sub-sample was placed on top of a double-sided carbon tab before being coated with approximately 10 nm of carbon. Non-conducting samples require coating prior to SEM analysis to prevent charging whilst being analysed by the electron beam.

Analysis

The SEM/EDS analysis was conducted in accordance with ISO14966-2002 (modified for non-gold coated MCE membranes) and VDI3492-2004.

The sample was analysed using a Carl Zeiss EVO50 scanning electron microscope (SEM) fitted with an Oxford INCA X-Max energy dispersive spectrometer (EDS).

EDS is a semi-quantitative technique (at best) on well prepared, optically flat samples. Factors such as sample unevenness may adversely bias elemental concentration interpretation. EDS has a spatial resolution of ~5 µm meaning spectra from particles less than this size may contain elemental concentrations biased by their surroundings.

All images were acquired using backscatter electrons. Image brightness is proportional to average atomic number – the brighter the pixel, the higher the atomic number of the element.

Summary

Following NOHSC:3003 "The Membrane Filter Method" (2005), a fibre is countable if its diameter is < 3 µm and its length is > 5 µm and has an aspect ratio of greater than 3 to 1. Following the DMP document "Management of Asbestos in Mining Operations" page 3, referencing Section 9.33.3 of Mines, Safety and Inspection Regulations 1995, a fibre is countable if its diameter is < 1 µm and its length is > 5 µm. For the purposes of this analysis the NOHSC document definition has been used.

A total of **100** images/fields were examined. Each field was approximately 70 µm by 55 µm - a total area of 3.85×10^{-3} mm^2.

In the **100** images/fields examined, a total of **less than 3** countable fibres were observed. **None of the observed countable fibres had an elemental composition indicative of asbestos mineral fibre.**

A selection of images/fields and associated elemental spectra are reported below. The fields are not representative of the 100 fields analysed. Asbestos mineral fibre or other inorganic mineral fibre has been preferentially shown.

Fibre #	Image/Field #	Diameter (µm)	Length (µm)	Aspect ratio	Major Elements	Minor Elements	Morphology	Assigned mineralogy
1	1/1	1.9	30.1	16 :1	O, C	-	Non-parallel sides	Organic
2	2/1	1.2	2.5	2 :1	O, Ti	-	Non-parallel sides	Rutile
3	3/1	0.5	2.6	5 :1	O, Si, Al	Fe, Mg, K	Non-parallel sides	Mica
4	4/1	1.2	5.5	5 :1	O, C	-	Non-parallel sides	Organic
5	5/1	0.8	3.1	4 :1	O, Ca, C	-	Non-parallel sides	Calcite

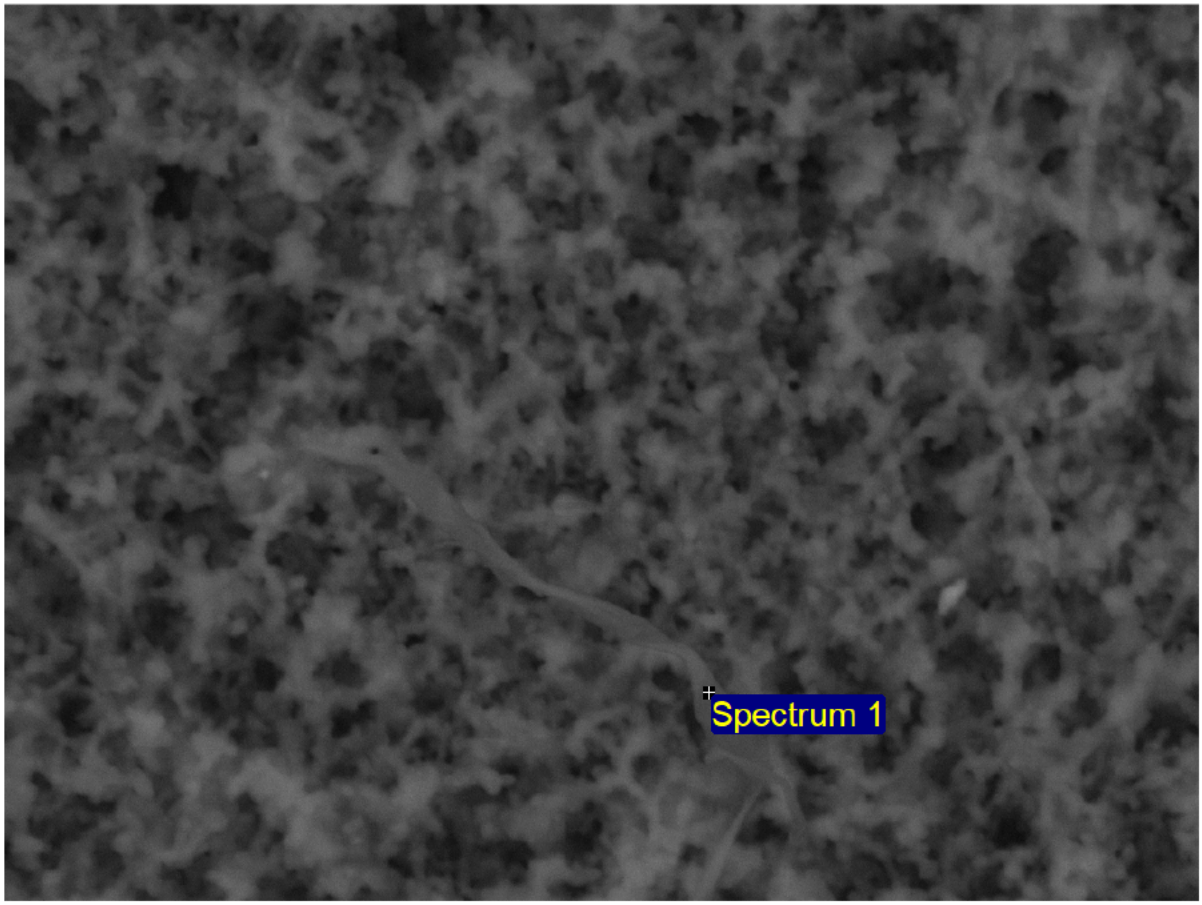
It should be noted that the higher resolution of the SEM may increase the number of fibres observed when compared with optical microscopy (as specified in the Membrane Filter Method). The results are representative only of the sample received.

Analyst: [redacted] B.Sc.(Multidisciplinary)

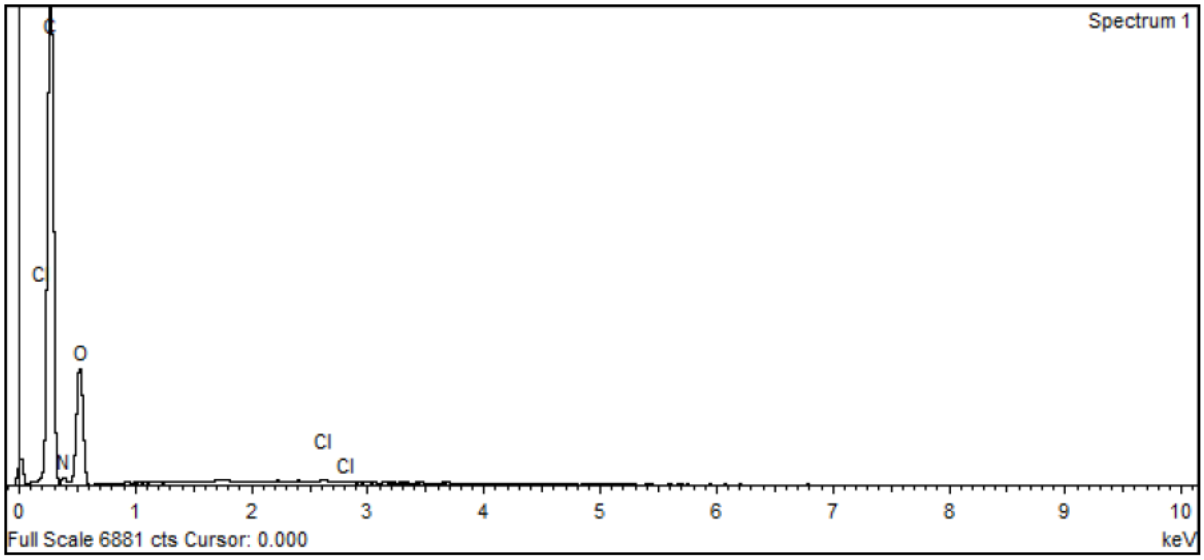
Reported: [redacted] B.Sc.(Multidisciplinary)

Authorised: [redacted], B.Sc.(Nanotechnology)

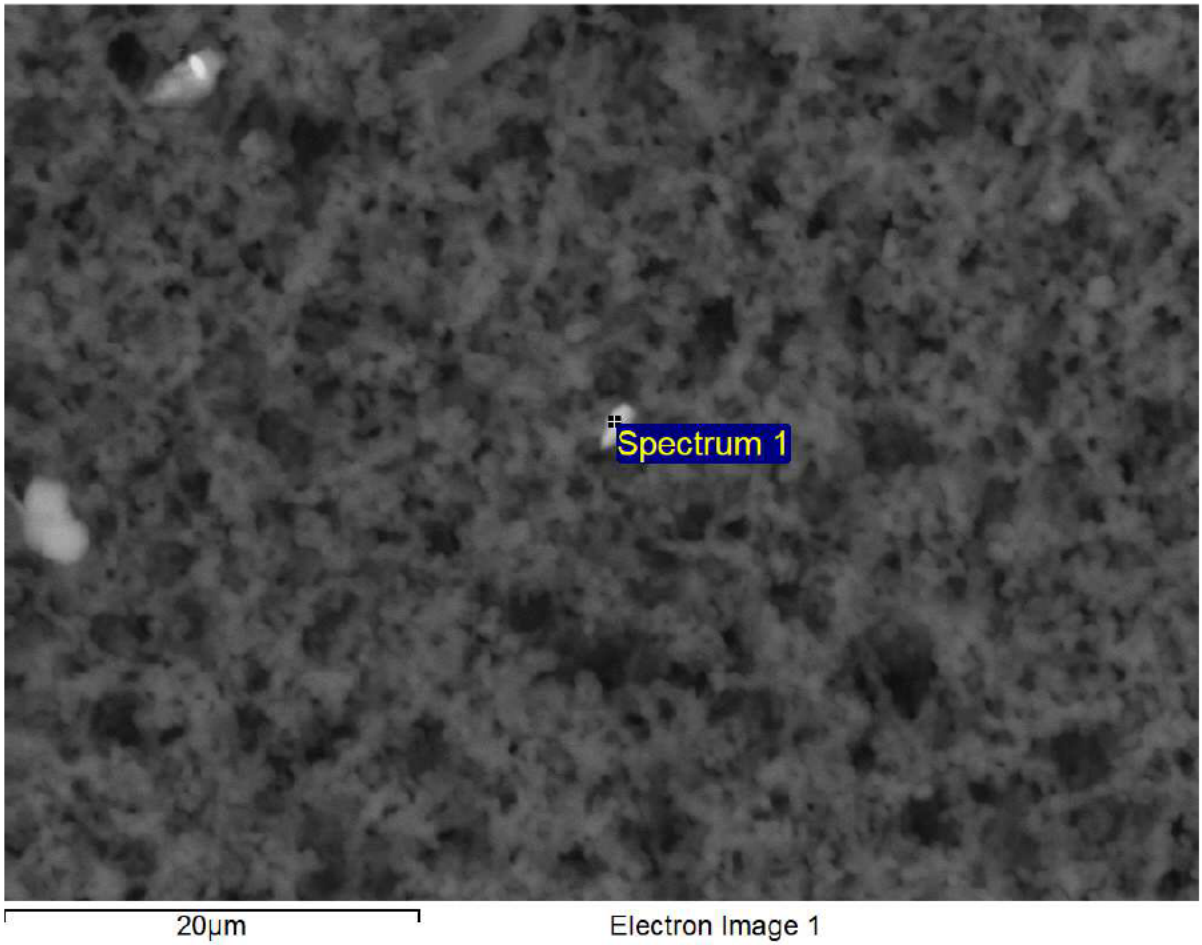
Sample: 19_1868_01 Type: Default ID: CO865469 (S19-Oc44406)	Project: 19_1868 Owner: lab Site: Site of Interest 1

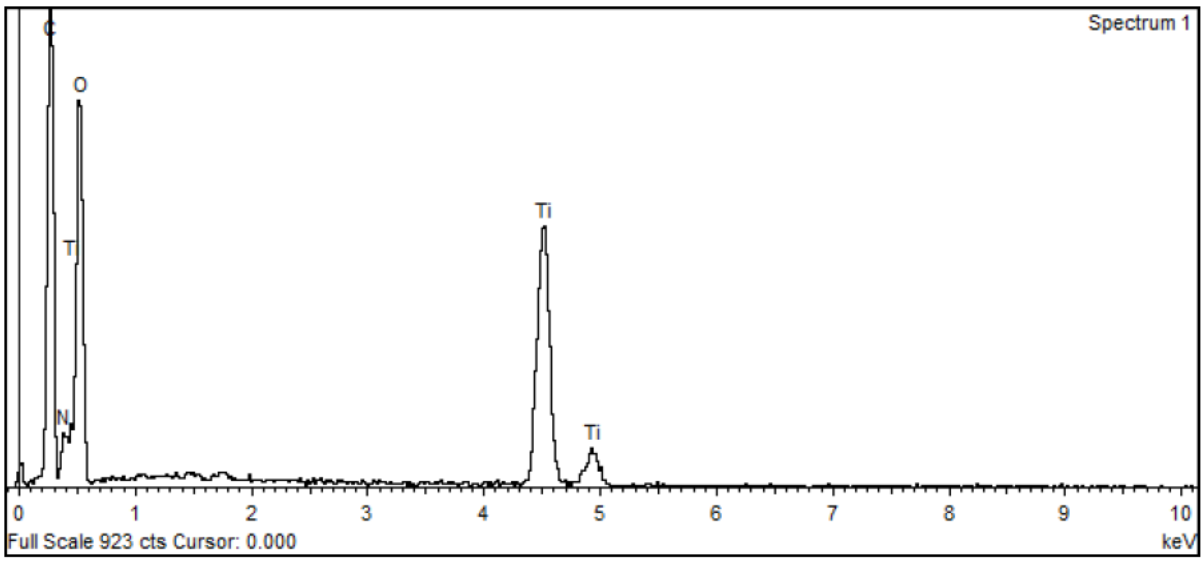


Electron Image 1

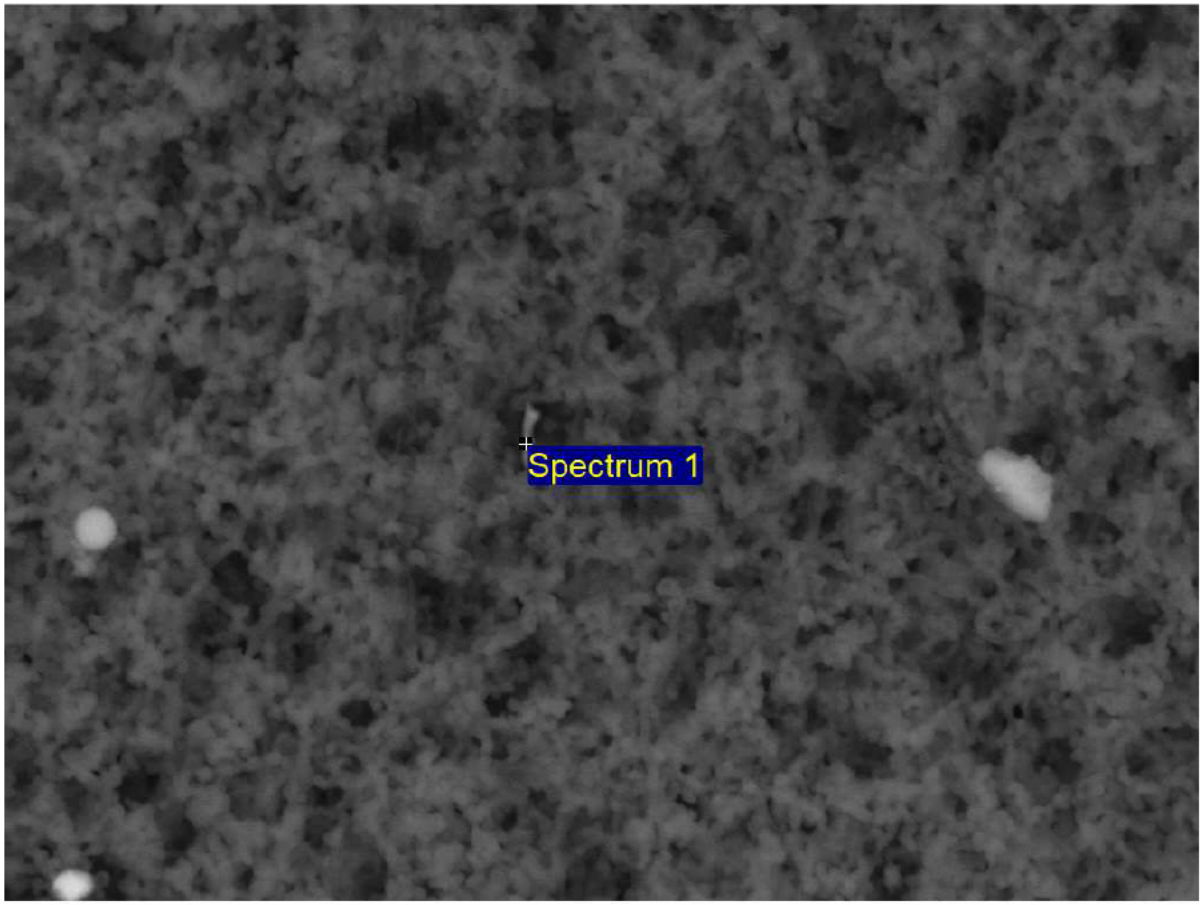


Sample: 19_1868_01 Type: Default ID: CO865469 (S19-Oc44406)	Project: 19_1868 Owner: lab Site: Site of Interest 2

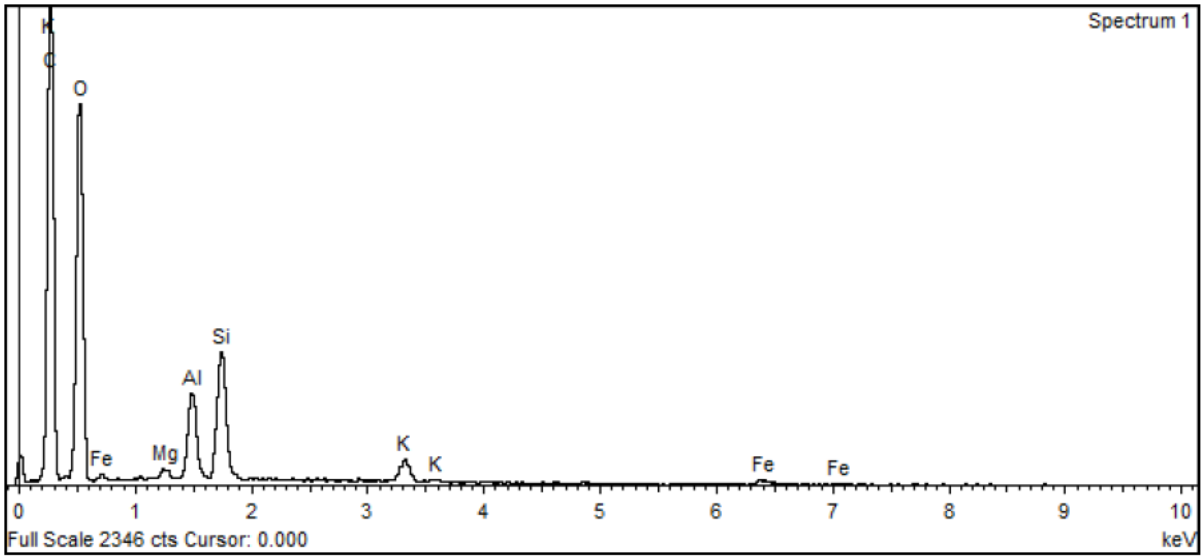




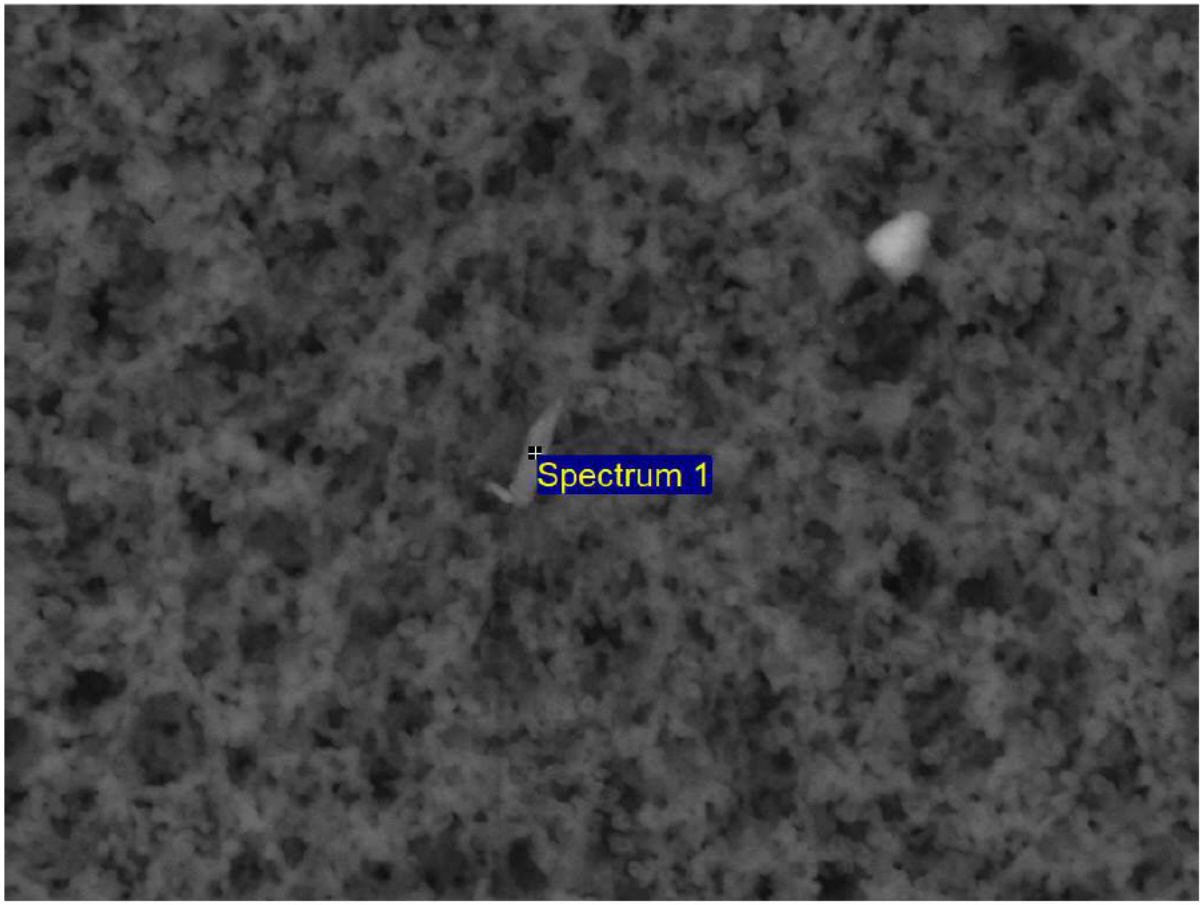
Sample: 19_1868_01 Type: Default ID: CO865469 (S19-Oc44406)	Project: 19_1868 Owner: lab Site: Site of Interest 3



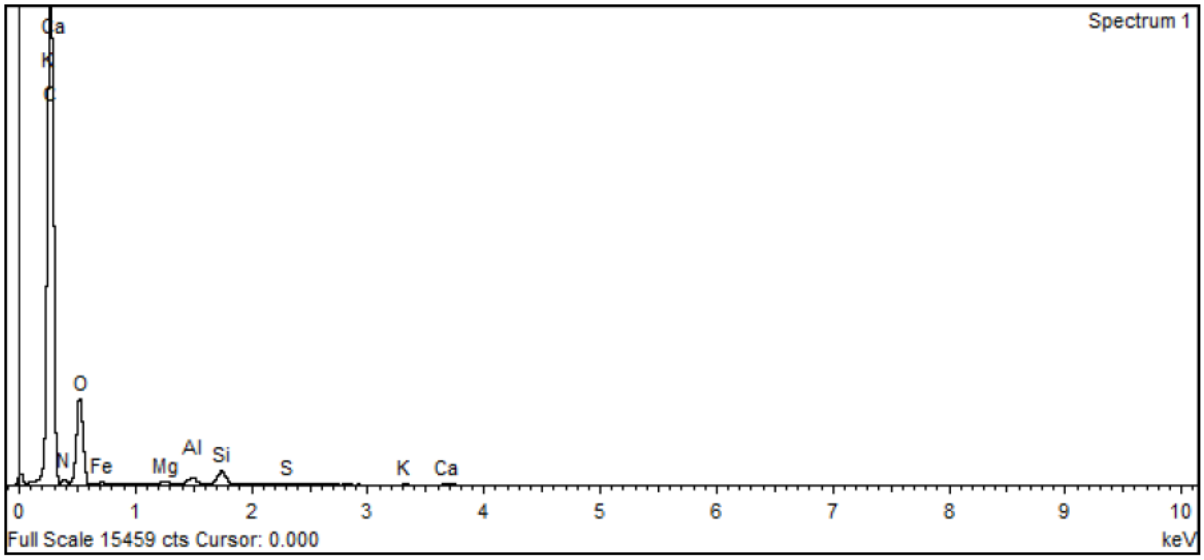
Electron Image 1



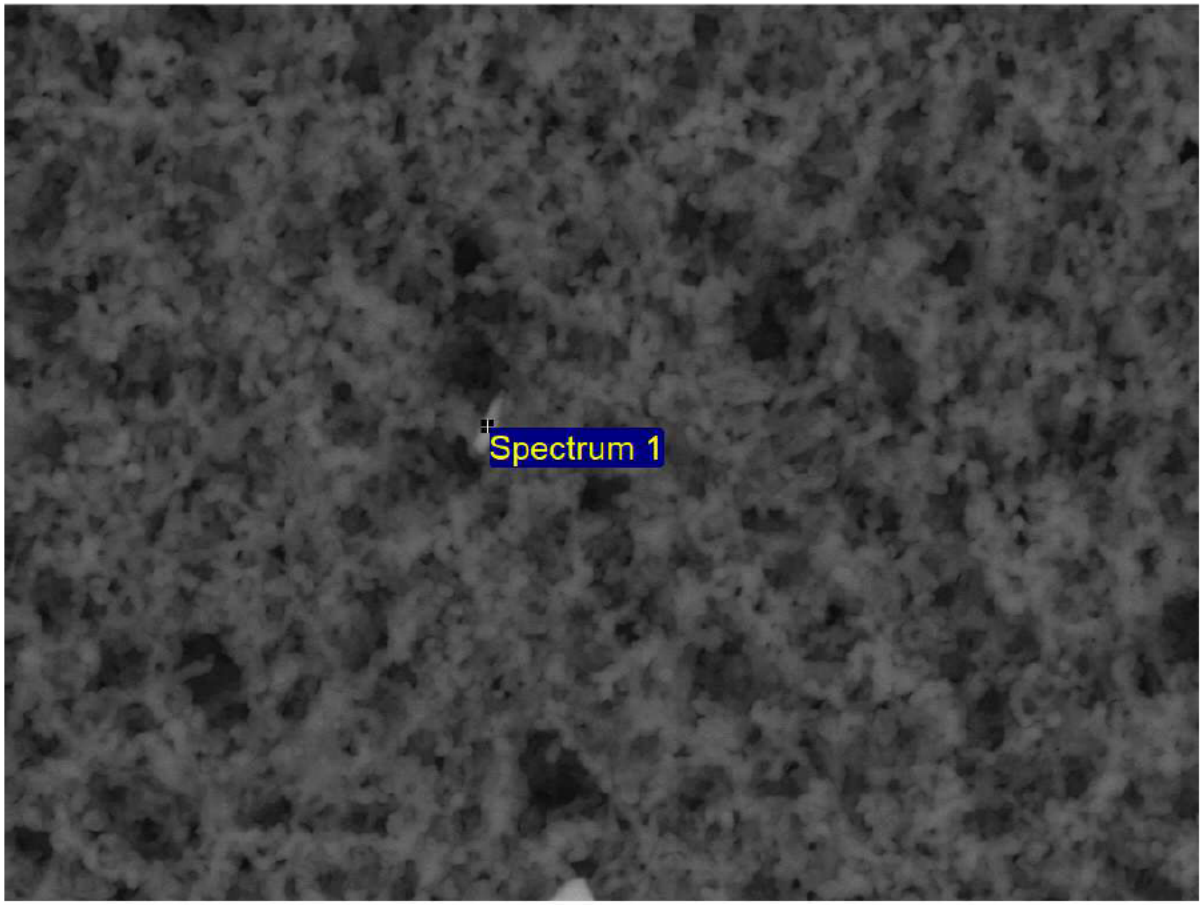
Sample: 19_1868_01 Type: Default ID: CO865469 (S19-Oc44406)	Project: 19_1868 Owner: lab Site: Site of Interest 4

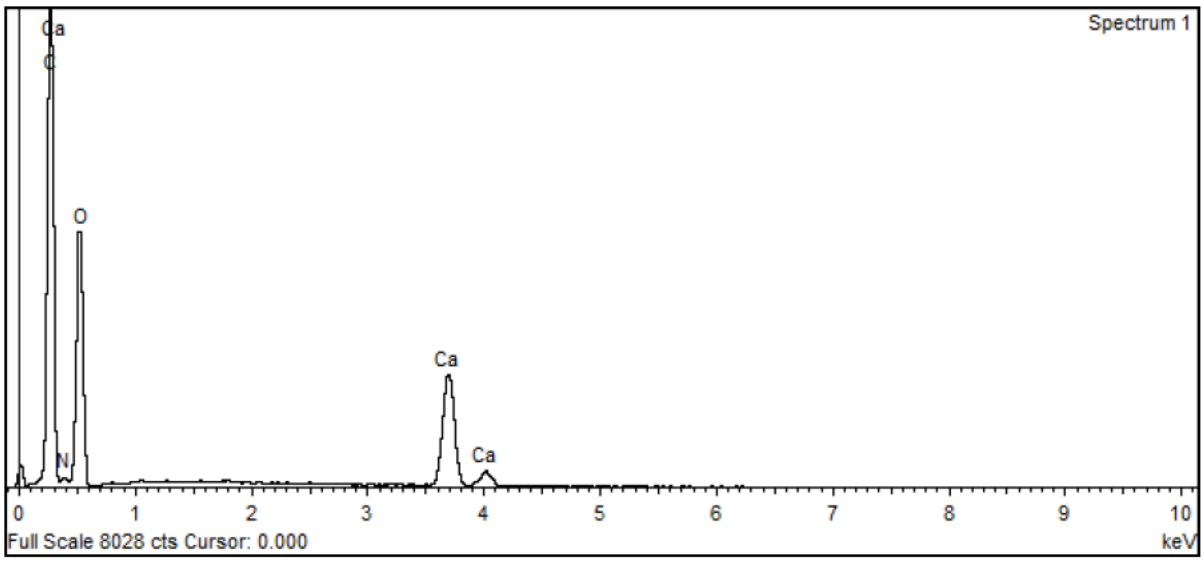


Electron Image 1



Sample: 19_1868_01 Type: Default ID: CO865469 (S19-Oc44406)	Project: 19_1868 Owner: lab Site: Site of Interest 5





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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	686151-V2-AFC
Project Name	GOULBURN
Project ID	94054
Received Date	Nov 04, 2019
Date Reported	Nov 05, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN
Project ID 94054
Date Sampled Nov 01, 2019
Report 686151-V2-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No04350	BH53-SW	DP10	BOUNDARY FENCE	8:05	10:10	4.0	4.0	0/100	< 0.01
19-No04351	BH53-NW	DP19	BOUNDARY FENCE	8:06	10:11	4.0	4.0	0/100	< 0.01
19-No04352	BH53-N	DP11	PICKET	8:07	10:12	4.0	4.0	0/100	< 0.01
19-No04353	BH53-E	DP18	PICKET	8:09	10:40	4.0	4.0	0/100	< 0.01
19-No04354	BH53-S	DP20	PICKET	8:10	10:45	4.0	4.0	0/100	< 0.01
19-No04355	BH53-CLR	DP12	PICKET	8:50	11:10	4.0	4.0	0/100	< 0.01
19-No04356	BH56-SE	DP04	TEMP FENCE OUTSIDE SITE OFFICE	9:10	11:18	4.0	4.0	0/100	< 0.01
19-No04357	BH56-W	DP15	PICKET	9:09	11:16	4.0	4.0	0/100	< 0.01

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Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No04358	BH56-E	DP05	PICKET	9:10	11:18	4.0	4.0	0/100	< 0.01
19-No04359	BH56-CLR	DP18	PICKET	10:50	12:55	4.0	4.0	0/100	< 0.01
19-No04360	BH44-S	DP10	PICKET	10:13	15:50	4.0	4.0	0/100	< 0.01
19-No04361	BH44-E	DP19	BOUNDARY FENCE	10:14	15:29	4.0	4.0	0/100	< 0.01
19-No04362	BH44-N	DP11	BOUNDARY FENCE	10:15	12:39	4.0	4.0	0/100	< 0.01
19-No04363	BH44-CLR	DP20	STAR PICKET	11:25	13:50	4.0	4.0	0/100	< 0.01
19-No04364	BH-65-W	DP12	STAR PICKET	11:30	15:30	4.0	4.0	0/100	< 0.01
19-No04365	BH-65-E	DP05	VEHICLE ENTRY	11:35	15:59	4.0	4.0	0/100	< 0.01
19-No04366	BH-65-N	DP04	STAR PICKET	11:41	14:26	4.0	4.0	0/100	< 0.01
19-No04367	BH-65-S	DP11	FENCE TEMP	13:10	15:40	4.0	4.0	0/100	< 0.01
19-No04368	BH-65-SW	DP15	FENCE TEMP	13:11	15:36	4.0	4.0	0/100	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 04, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 04, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN
Project ID: 94054

Order No.:
Report #: 686151
Phone: 02 9809 0666
Fax:

Received: Nov 4, 2019 3:22 PM
Due: Nov 4, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						x
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	BH53-SW	Nov 01, 2019	10:10AM	Air	S19-No04350	x
2	BH53-NW	Nov 01, 2019	10:11AM	Air	S19-No04351	x
3	BH53-N	Nov 01, 2019	10:12AM	Air	S19-No04352	x
4	BH53-E	Nov 01, 2019	10:40AM	Air	S19-No04353	x
5	BH53-S	Nov 01, 2019	10:45AM	Air	S19-No04354	x
6	BH53-CLR	Nov 01, 2019	11:10AM	Air	S19-No04355	x
7	BH56-SE	Nov 01, 2019	11:18AM	Air	S19-No04356	x
8	BH56-W	Nov 01, 2019	11:16AM	Air	S19-No04357	x
9	BH56-E	Nov 01, 2019	11:18AM	Air	S19-No04358	x

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN
Project ID: 94054

Order No.:
Report #: 686151
Phone: 02 9809 0666
Fax:

Received: Nov 4, 2019 3:22 PM
Due: Nov 4, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	BH56-CLR	Nov 01, 2019	12:55PM	Air	S19-No04359	X
11	BH44-S	Nov 01, 2019	3:50PM	Air	S19-No04360	X
12	BH44-E	Nov 01, 2019	3:29PM	Air	S19-No04361	X
13	BH44-N	Nov 01, 2019	12:39PM	Air	S19-No04362	X
14	BH44-CLR	Nov 01, 2019	1:50PM	Air	S19-No04363	X
15	BH-65-W	Nov 01, 2019	1:30PM	Air	S19-No04364	X
16	BH-65-E	Nov 01, 2019	3:59PM	Air	S19-No04365	X
17	BH-65-N	Nov 01, 2019	2:26PM	Air	S19-No04366	X
18	BH-65-S	Nov 01, 2019	3:40PM	Air	S19-No04367	X
19	BH-65-SW	Nov 01, 2019	3:36PM	Air	S19-No04368	X
Test Counts						19

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement [redacted], Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

This report has been amended (V2) to amend sample names.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

eurofins | Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	686304-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054
Received Date	Nov 05, 2019
Date Reported	Nov 05, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054
Date Sampled Oct 31, 2019
Report 686304-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No05635	INTERIOR EAST END LUNCHROOM	DP18	INTERIOR EAST END LUNCHROOM	11:06	14:00	4.0	4.0	18/100	0.01
19-No05636	INTERIOR WEST END LUNCHROOM	DP19	INTERIOR WEST END LUNCHROOM	11:07	14:01	4.0	4.0	22/100	0.01
19-No05637	FIELD BLANK	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 05, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 05, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054

Order No.:
Report #: 686304
Phone: 02 9809 0666
Fax:

Received: Nov 5, 2019 12:40 PM
Due: Nov 5, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	INTERIOR EAST END LUNCHROOM	Oct 31, 2019	2:00PM	Air	S19-No05635	X
2	INTERIOR WEST END LUNCHROOM	Oct 31, 2019	2:01PM	Air	S19-No05636	X
3	FIELD BLANK	Oct 31, 2019		Air	S19-No05637	X
Test Counts						3

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted] Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	686305-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054
Received Date	Nov 05, 2019
Date Reported	Nov 05, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054
Date Sampled Oct 31, 2019
Report 686305-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No05639	NE CORNER LUNCHROOM	DP11	NE CNR LUNCHROOM	9:38	14:02	2.0	2.0	1/100	< 0.01
19-No05640	NW CORNER LUNCHROOM	DP05	NW CNR LUNCHROOM	9:39	14:03	2.0	2.0	0/100	< 0.01
19-No05641	SE CORNER LUNCHROOM	DP04	SE CNR LUNCHROOM	9:40	14:04	2.0	2.0	2/100	< 0.01
19-No05642	SW CORNER LUNCHROOM	DP15	SW CNR LUNCHROOM	9:41	14:05	2.0	2.0	0/100	< 0.01
19-No05643	FIELD BLANK	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 05, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 05, 2019	Indefinite

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ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054

Order No.:
Report #: 686305
Phone: 02 9809 0666
Fax:

Received: Nov 5, 2019 12:40 PM
Due: Nov 5, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	NE CORNER LUNCHROOM	Oct 31, 2019	2:02PM	Air	S19-No05639	X
2	NW CORNER LUNCHROOM	Oct 31, 2019	2:03PM	Air	S19-No05640	X
3	SE CORNER LUNCHROOM	Oct 31, 2019	2:04PM	Air	S19-No05641	X
4	SW CORNER LUNCHROOM	Oct 31, 2019	2:05PM	Air	S19-No05642	X
5	FIELD BLANK	Oct 31, 2019		Air	S19-No05643	X
Test Counts						5

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted], Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	686443-AFC
Project Name	GOULBURN
Project ID	94054
Received Date	Nov 06, 2019
Date Reported	Nov 06, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN
Project ID 94054
Date Sampled Nov 05, 2019
Report 686443-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No06671	BH67-N	DP11	LONG WALL	7:02	13:48	2.0	2.0	0/100	< 0.01
19-No06672	BH67-SW	DP05	FENCE	6:55	13:49	2.0	2.0	0/100	< 0.01
19-No06673	BH67-SE	DP20	FENCE	7:03	13:50	2.0	2.0	0/100	< 0.01
19-No06674	BH67-W	DP04	TRUCK TURN	7:05	13:52	2.0	2.0	0/100	< 0.01
19-No06675	BH67-CLR	DP10	EXCAVATOR	11:40	14:05	4.0	4.0	0/100	< 0.01
19-No06676	FIELD BLANK	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 06, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 06, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN
Project ID: 94054

Order No.:
Report #: 686443
Phone: 02 9809 0666
Fax:

Received: Nov 6, 2019 10:01 AM
Due: Nov 6, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	BH67-N	Nov 05, 2019	1:48PM	Air	S19-No06671	X
2	BH67-SW	Nov 05, 2019	1:49PM	Air	S19-No06672	X
3	BH67-SE	Nov 05, 2019	1:50PM	Air	S19-No06673	X
4	BH67-W	Nov 05, 2019	1:52PM	Air	S19-No06674	X
5	BH67-CLR	Nov 05, 2019	2:05PM	Air	S19-No06675	X
6	FIELD BLANK	Nov 05, 2019		Air	S19-No06676	X
Test Counts						6

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : Tim Kulmar, Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

eurofins | Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	686445-AFC
Project Name	GOULBURN
Project ID	94054
Received Date	Nov 06, 2019
Date Reported	Nov 06, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN
Project ID 94054
Date Sampled Nov 04, 2019
Report 686445-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No06682	BH65-SE	DP20	GH02	7:19	16:01	2.0	2.0	4/100	< 0.01
19-No06683	BH65-NE	DP12	GH01	7:18	16:07	2.0	2.0	0/100	< 0.01
19-No06684	BH65/66-S	DP11	P66	7:21	16:02	2.0	2.0	4/100	< 0.01
19-No06685	BH66-S	DP18	GH03	7:22	16:03	2.0	2.0	0/100	< 0.01
19-No06686	BH67-SW	DP05	P50	7:14	16:04	2.0	2.0	2.5/100	< 0.01
19-No06687	BH67-N	DP19	2	7:16	16:06	2.0	2.0	1/100	< 0.01
19-No06688	BH65/66-CLR	DP04	GH06	8:14	12:40	4.0	4.0	0/100	< 0.01
19-No06689	BH56-E	DP15	GH07	11:51	16:05	4.0	4.0	0/100	< 0.01

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No06690	BH66-CLR	DP10	GHO5	14:00	16:15	4.0	4.0	4.5/100	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 06, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 06, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN
Project ID: 94054

Order No.:
Report #: 686445
Phone: 02 9809 0666
Fax:

Received: Nov 6, 2019 10:01 AM
Due: Nov 6, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						CANCELLED	Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH65-SE	Nov 04, 2019	4:01PM	Air	S19-No06682		X
2	BH65-NE	Nov 04, 2019	4:07PM	Air	S19-No06683		X
3	BH65/66-S	Nov 04, 2019	4:02PM	Air	S19-No06684		X
4	BH66-S	Nov 04, 2019	4:03PM	Air	S19-No06685		X
5	BH67-SW	Nov 04, 2019	4:04PM	Air	S19-No06686		X
6	BH67-N	Nov 04, 2019	4:06PM	Air	S19-No06687		X
7	BH65/66-CLR	Nov 04, 2019	12:40PM	Air	S19-No06688		X
8	BH56-E	Nov 04, 2019	4:05PM	Air	S19-No06689		X
9	BH66-CLR	Nov 04, 2019	4:15PM	Air	S19-No06690		X

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN
Project ID: 94054

Order No.:
Report #: 686445
Phone: 02 9809 0666
Fax:

Received: Nov 6, 2019 10:01 AM
Due: Nov 6, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						CANCELLED	Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
10	FIELD BLANK	Nov 04, 2019		Air	S19-No06691	X	
Test Counts						1	9

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted], Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	687268-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054
Received Date	Nov 11, 2019
Date Reported	Nov 11, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054
Date Sampled Nov 08, 2019
Report 687268-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No13064	BH71-EAST	DP05	BH71-EAST	9:26	14:45	2.0	2.0	0/100	< 0.01
19-No13065	BH71-NORTH	DP11	BH71-NORTH	9:26	14:43	2.0	2.0	0/100	< 0.01
19-No13066	BH71-SOUTH	DP04	BH71-SOUTH	9:22	14:40	2.0	2.0	0/100	< 0.01
19-No13067	BH71-WEST	DP20	BH71-WEST	9:24	14:41	2.0	2.0	0/100	< 0.01
19-No13068	FIELD BLANK	BLANK	BLANK	--	--	--	--	0/100	--
19-No13069	BH44-EAST	DP12	BH44-EAST	7:32	14:31	2.0	2.0	4.5/100	< 0.01
19-No13070	BH44-CLR	DP10	BH44-CLR	8:58	14:38	2.0	2.0	0/100	< 0.01
19-No13071	BH44-NORTH	DP18	BH44-NORTH	7:30	14:30	2.0	2.0	1/100	< 0.01

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No13072	BH44-SOUTH	DP15	BH44-SOUTH	7:34	14:33	2.0	2.0	4/100	< 0.01
19-No13073	BH44-WEST	DP19	BH44-WEST	7:36	14:35	2.0	2.0	0/100	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 11, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 11, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054

Order No.:
Report #: 687268
Phone: 02 9809 0666
Fax:

Received: Nov 11, 2019 9:00 AM
Due: Nov 11, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						x
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	BH71-EAST	Nov 08, 2019	2:45PM	Air	S19-No13064	x
2	BH71-NORTH	Nov 08, 2019	2:43PM	Air	S19-No13065	x
3	BH71-SOUTH	Nov 08, 2019	2:40PM	Air	S19-No13066	x
4	BH71-WEST	Nov 08, 2019	2:41PM	Air	S19-No13067	x
5	FIELD BLANK	Nov 08, 2019		Air	S19-No13068	x
6	BH44-EAST	Nov 08, 2019	2:31PM	Air	S19-No13069	x
7	BH44-CLR	Nov 08, 2019	2:38PM	Air	S19-No13070	x
8	BH44-NORTH	Nov 08, 2019	2:30PM	Air	S19-No13071	x
9	BH44-SOUTH	Nov 08, 2019	2:33PM	Air	S19-No13072	x

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054

Order No.:
Report #: 687268
Phone: 02 9809 0666
Fax:

Received: Nov 11, 2019 9:00 AM
Due: Nov 11, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	BH44-WEST	Nov 08, 2019	2:35PM	Air	S19-No13073	X
Test Counts						10

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted], Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

eurofins | Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	687579-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054
Received Date	Nov 12, 2019
Date Reported	Nov 12, 2019

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054
Date Sampled Nov 11, 2019
Report 687579-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No15964	CO865931	DP19	BH47 SOUTH	7:18	11:10	3.0	3.0	0/100	< 0.01
19-No15965	CO866103	DP12	BH47 WEST	7:20	11:12	3.0	3.0	0/100	< 0.01
19-No15966	CO866038	DP18	BH47 EAST	7:22	11:14	3.0	3.0	0/100	< 0.01
19-No15967	CO866075	DP15	BH47 NORTH	7:24	11:16	3.0	3.0	1/100	< 0.01
19-No15968	CO865929	DP20	BH71 SOUTH	8:23	11:18	3.0	3.0	0/100	< 0.01
19-No15969	CO865959	DP10	BH71 WEST	8:25	11:20	3.0	3.0	0/100	< 0.01
19-No15970	CO865897	DP11	BH71 BASE	8:41	11:23	3.0	3.0	0/100	< 0.01
19-No15971	CO865908	DP05	65/66 SOUTH	8:32	11:26	3.0	3.0	0/100	< 0.01

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
19-No15972	CO866044	DP04	65/66 EAST	8:34	11:29	3.0	3.0	0/100	< 0.01
19-No15973	CO866141	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Nov 12, 2019	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Nov 12, 2019	Indefinite

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054

Order No.:
Report #: 687579
Phone: 02 9809 0666
Fax:

Received: Nov 12, 2019 2:25 PM
Due: Nov 12, 2019
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						x
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	CO865931	Nov 11, 2019	11:10AM	Air	S19-No15964	x
2	CO866103	Nov 11, 2019	11:12AM	Air	S19-No15965	x
3	CO866038	Nov 11, 2019	11:14AM	Air	S19-No15966	x
4	CO866075	Nov 11, 2019	11:16AM	Air	S19-No15967	x
5	CO865929	Nov 11, 2019	11:18AM	Air	S19-No15968	x
6	CO865959	Nov 11, 2019	11:20AM	Air	S19-No15969	x
7	CO865897	Nov 11, 2019	11:23AM	Air	S19-No15970	x
8	CO865908	Nov 11, 2019	11:26AM	Air	S19-No15971	x
9	CO866044	Nov 11, 2019	11:29AM	Air	S19-No15972	x

eurofins | Environment Testing
ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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Dandenong South VIC 3175
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Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	CO866141	Nov 11, 2019		Air	S19-No15973	X
Test Counts						10

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted] Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised by:

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Figure 1: Goulburn Hospital HY Site - Air Monitoring Locations- 13/01/2020

Author: [redacted] – Safe Work & Environments

SAFE WORK & ENVIRONMENTS

Figure 1: Goulburn Hospital HY Site - Air Monitoring Locations- 10/01/2020

Author: [redacted] – Safe Work & Environments

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SAFE WORK & ENVIRONMENTS

BACKGROUND MONITORING FOR ASBESTOS FIBRES RESULTS

13 December 2019

Attention: [redacted]
Company: Douglas Partners Pty Ltd
Email: [redacted]

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

SWE Report Reference: C108603-AAM1.v1-121219
Site Address: Goulburn Hospital Redevelopment, Faithfull Street, Goulburn.
Sampling Date: 12 December 2019
Period of Sampling[1]: 06:28 – 16:33
Scope: Air monitoring during excavation works in unknown fill.
SWE Laboratory: Suite S1, 25 Dickson Chambers, Dickson Place, Dickson ACT 2602

Accreditation number: 17092 **Site number:** 23867

1. Introduction: Background monitoring for airborne asbestos fibres where undertaken by Safe Work and Environments Pty Ltd (SWE) is used to assess the concentration of background airborne asbestos fibres during site works.

2. Methods: Airborne asbestos fibre monitoring was carried out in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC:3003 (2005)] and SWE's In-House Method 2 – Air Volume Measurement. Analysis of collected filter membrane samples was performed in accordance with NOHSC:3003 (2005) and SWE's In-House Method 1 – Asbestos Air Fibre Mount and Count.

3. Results:

SWE REF.	LOCATION OF SAMPLE	FIBRES/ FIELDS	CONCENTRATION (FIBRES/mL)
C108603/S547/121219	Site boundary fence, north-west of containment cell.	1.0/100	<0.01
C108603/S515/121219	Site boundary fence, north-east of containment cell.	1.0/100	<0.01
C108603/S590/121219	Site boundary fence, adj. Community Health Centre BLD, north of excavation.	0.0/100	<0.01
C108603/S575/121219	Site boundary fence, adj. Faithfull St site vehicle entry, east of excavation.	0.0/100	<0.01
C108603/S421/121219	Site boundary fence, adj. water tanks, south of excavation.	0.0/100	<0.01
C108603/S393/121219	Star picket, adj. site office and truck transport route.	2.0/100	<0.01
C108603/S571/121219	ATF fence on south-east corner of containment cell.	0.0/100	<0.01
C108603/S588/121219	Star picket adj. decontamination area and south-west of containment cell	0.0/100	<0.01
C108603/S755/121219	Site boundary fence, west of truck transport route.	1.0/100	<0.01
C108603/S566/121219	Field Control (Blank).	0.0/100	N/A

[1] Period of Sampling defined by the on-time of the first air monitoring sample to the off-time of the last air monitoring sample.

Safe Work and Environments Pty Ltd 88127010995
Suite S1, 25 Dickson Chambers, Dickson Place, Dickson ACT 2602
Phone: 02 6247 0022
Email: **enquiries@swe.com.au**

SAFE WORK & ENVIRONMENTS

BACKGROUND MONITORING FOR ASBESTOS FIBRES RESULTS

13 December 2019

NATA WORLD RECOGNISED ACCREDITATION

4. Conclusion: All reportable air fibre levels reported on within this report are below the lowest detectable level of 0.01 fibres/mL of air.

[redacted]
Analyst

[redacted]
Approved Issuer of Report

[1] Period of Sampling defined by the on-time of the first air monitoring sample to the off-time of the last air monitoring sample.

Safe Work and Environments Pty Ltd 88127010995
Suite S1, 25 Dickson Chambers, Dickson Place, Dickson ACT 2602
Phone: 02 6247 0022
Email: **enquiries@swe.com.au**

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CONTROL MONITORING REPORT

12 December 2012

Attention:	Tim Taylor
Company:	Douglas Partners Pty Ltd
Email:	Tim.Taylor@douglaspartners.com.au

Site Reference:	Goulburn Hospital Redevelopment Faithful Street Goulburn
Site Address:	Goulburn Hospital Redevelopment Faithful Street Goulburn
Sampling Date:	12 December 2012
Period of sampling:	12:00 – 16:00
Scope:	Air monitoring during excavation works in fill known to contain asbestos
Laboratory:	Suite 5, 1 Dickson Chambers, Dickson Place, Dickson ACT 2602

Accreditation number: 17000 Site number: 18217

Introduction: Control monitoring for airborne asbestos fibres was undertaken by Safe Work and Environments Pty Ltd (SWE) is used to verify the effectiveness of control measures implemented to prevent fibre release as a result of asbestos removal related works.

Method: Airborne asbestos fibre monitoring was carried out in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC:3003 (2005)] and SWE's In-House Method 1 – Air Volume Measurement. Analysis of collected filter membrane samples was performed in accordance with NOHSC:3003 (2005) and SWE's In-House Method 2 – Asbestos Air Fibre Mount and Count.

Results:

Sample Reference	Sample Description	Flow Rate (L/min)	Concentration (f/mL)
CAM1	Western side of containment cell attached to boundary fence 10m from SE corner of site	5.0	<0.01
CAM2	Northern side of containment cell attached to northern boundary fence mid way along	5.0	<0.01
CAM3	South west corner of Community Health Services building attached to boundary fence	5.0	<0.01
CAM4	South of Community Health Services building attached to boundary fence adjacent to excavation area	5.0	Rejected
CAM5	South east corner of site attached to boundary fence on east side of excavation area	5.0	Rejected
CAM6	Attached to delineation fencing between site office and remediation area	5.0	<0.01
CAM7	Attached to delineation fencing and gate to asbestos work area adjacent to site office	5.0	<0.01
CAM8	Attached to delineation fencing at decontamination unit	5.0	<0.01
CAM9	Attached to delineation fencing adjacent to SE corner of Community Health Services building	5.0	<0.01
CAM10	Field Control (Blank)	0.0	NA

Period of Sampling defined by the onset time of the first air monitoring sample to the offset time of the last air monitoring sample

Safe Work and Environments Pty Ltd
Suite 5, 1 Dickson Chambers, Dickson Place, Dickson ACT 2602
Phone (02) 6257 4525
Email enquiries@swe.com.au

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Attached□Site Plan □ith Air Monitoring Locations

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Figure 1: Goulburn Hospital HY Site - Air Monitoring Locations- 17/12/2019

Author: [redacted] – Safe Work & Environments

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Safe □ or□and □n□iron□ents Pty Ltd (SWE) □as engaged by Do□glas Partners to □nderta□e an Asbestos Clearance Inspection follo□ing the re□o□al of in□sit□ soil containing non□friable asbestos ce□ent sheeting fro□ part of old contain□ent pit 3. The □or□s □ere cond□cted to facilitate rede□elop□ent □or□s of Go□lb□rn Hospital. Licenced Asbestos Assessor Da□id Langston (LAA001429) carried o□t an inspection of the re□o□al area follo□ing co□pletion of the re□o□al □or□s at 4:00 p□ on the 1□ □an□ary 2020 □

The scope of □or□in□ol□ed the follo□ing:

- □is□al Inspection of the s□b□ect areas follo□ing the asbestos re□o□al □or□s as per the scope of re□o□al;
- Preparation of an Asbestos Clearance Report o□tlining the site data, concl□sions and reco□ □endations (if necessary).

Scop e of Rem□□a□

Soil and asbestos containing □aterial (ACM) □as re□o□ed fro□ part of old contain□ent pit 3. An approxi□ate area □eas□ring 10 x 30 □ □as exca□ated fro□ old contain□ent pit 3 do□n to a depth bet□een 0.5-1.1m belo□ gro□nd le□el. The depth of exca□ation □as □nderta□en to approxi□ately 300mm belo□ b□l□earth□or□s depth□Once the exca□ation □as co□plete a geotextile □ar□er layer □as installed on the base and □alls of the exca□ation and approxi□ately 300mm of clean fill placed o□er the □ar□er layer. An approxi□ate location of the re□o□al □or□s area is incl□ded in *Figure 1*.

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Areas inspected □ithin the asbestos re□o□al area by the assessor incl□ded:

- □isible and accessible s□rface soils □ithin old contain□ent pit 3.

□o s□spect asbestos □aterial or debris associated □ith the scope of re□o□al □as identified by the assessor d□ring the inspection. Photos of the re□o□al area are incl□ded in *Appendix 1*.

Control air □onitoring □as □nderta□en d□ring re□o□al □or□s, all airborne fibre concentrations □ere belo□ the reporting li□it of 0.01 fibres/□L of air.

It is the opinion of the assessor the re□o□al □or□s □nderta□en by Affecti□e Ser□ices is of appropriate ind□stry standard and in accordance □ith adopted Code of Practice*: How to Safely Remove Asbestos* (2019).

C onc lusio n s & Rec□mmendat□□n□

Based on the data presented in this report, it is the opinion of Safe □ or□ & □n□iron□ents Pty Ltd that:

- Soils i□pacted □ith asbestos ce□ent sheeting ha□e been re□o□ed fro□ the s□rface of the old contain□ent pit 3.
- The assessor fo□nd no □isible asbestos debris fro□ asbestos re□o□al □or□in the area□or in the □icinity of the area, □here the □or□ □as carried o□t.
- It is the opinion of the assessor the inspected area is safe, in regards to asbestos, to be re□occ□pied by □nprotected persons (pro□iding s□rface soils are not dist□rbed).
- Soils □ithin the old contain□ent pit 3 are li□ely to contain asbestos □aterial beneath the □ar□er layer. Soil dist□rbance □ithin the area of the old contain□ent pit sho□ld be □nderta□en □ith appropriate asbestos □or□ controls in place (in accordance □ith the sites asbestos □anage□ent plan).
- If any additional asbestos □aterials are identified □ithin the site at a later date, □or□s □ □st cease for the asbestos □aterials to be re□o□ed□All asbestos re□o□al of □or□s sho□ld be carried o□t in accordance □ith the NSW Safe□ or□A□stralia 2019 Code of Practice*: How to Safely Remove Asbestos* or as directed by the tas□ specific asbestos safe □or□s proced□re.

Sho□ld yo□ ha□e any □□eries regarding this certificate, please do not hesitate to contact the □ndersigned for f□rther infor□ation or assistance.

Yo□rs faithf□lly,

[redacted]

□n□iron□ental Cons□ltant
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□a□e Wo rk and □n□r□nment□ Pty □td
PO Box 230, Dic□son ACT 2602
P: 02 6247 0022
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□□g□re 1: Asbestos Re□o□al □or□Area
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Figure 1: Goulburn Hospital HY Site - Air Monitoring Locations- 10/01/2020

Author: [redacted] – Safe Work & Environments

SAFE WORK & ENVIRONMENTS

□h□t□gra□h□ 1: prior to contain□ent cell exca□ation. □ote blac□plastic on site office and entry □as restricted.

□h□t□gra□h□ 2: Post exca□ation and geotextile □ar□er e□ident on pit □alls.

C□□8 □□3 □CLR6□□1 □Asbestos Clearance Certificate

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□h□t□gra□h□ 3: Post exca□ation and geotextile □ar□er e□ident on pit □alls. □ot □arying depth of exca□ation to acco□ □odate f□t□re site □or□s.

□h□t□gra□h□ 4: Post exca□ation and geotextile □ar□er e□ident and □se of clean fill.

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ASBES TOS VISUAL CLEA RAN CE C□RT□□C□T□
C108603 / C□R7. □1

14 □an□ary 2020

□ttent□□n: [redacted]
C□m□an□: Do□glas Partners
□a□ema□: Peter□Storey@ do□glaspartners□co□ □a□

SWE □r□ect No.: C108603
Date of wo rks: 13 □an□ary 202 □
Asb estos **Rem□□a□□t**: Affecti□e Ser□ices
□te □ddre□□: Go□lb□rn Hospital Rede□elop□ent, Faithf□ll Street, Go□lb□rn NSW

Dear Peter,

R□: C108603 – Visu al C□earance Cert□□cate for A□bestos Dec□ntam□nat□□n Wo rks: **Dec□ntam□nat□□n □nit Dec□nta #C**5000 A, **G**oulbu **rn H□□□ta□Rede□e□□ment**, □a**th□□□□treet**, **G**oulbu **rn** NSW.

□ntr□d□ct□□n

Safe □ or□ and □n□iron□ents Pty Ltd (SWE) □as engaged by Do□glas Partners to □nderta□e a □is□al Asbestos Clearance Inspection follo□ing deconta□ination □or□s on a Deconta□ination □nit (Deconta #C5000 A). Licenced Asbestos Assessor Da□id Langston (LAA001429) carried o□t an inspection of the □or□s area follo□ing deconta□ination □or□s at 4:00 p□ on the 13 □an□ary 2020.

The scope of □or□ in□ol□ed the follo□ing:

- □is□al Inspection of the s□b□ect areas follo□ing the asbestos re□o□al □or□s as per the scope of re□o□al;
- Preparation of an Asbestos Clearance Report o□tlining the site data, concl□sions and reco□ □endations (if necessary).

Photographs of the Deconta□ination □nit area incl□ded in Appendix A.

Sc op e of **Rem□□a□**

The re□o□al of asbestos debris fro□ Deconta□ination □nit Deconta #C50□0 A.

□n□□ect□□n Deta□□

Areas inspected by the assessor incl□ded the □isible and accessible internal and external □all and floor s□rfaces of the deconta□ination □nit. □o s□spect asbestos □aterial or debris □as identified by the assessor d□ring the inspection.

It □ □st be noted that the clearance inspection did not incl□de inaccessible s□rfaces and □aterials s□ch as drainage pipes and filters.

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PO Box □3□□Dic□son ACT 2□□2
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It is the opinion of the assessor the re□o□al□deconta□ination □or□s □nderta□en by Affecti□e Ser□ices is of appropriate ind□stry standard and in accordance □ith adopted Code of Practice*: How to Safely Remove Asbestos* (2018).

C onc lusio ns & Rec□mmendat□□n□

Based on the data presented in this report, it is the opinion of Safe □ or□ & □n□iron□ents Pty Ltd that:

- The assessor fo□nd no □isible asbestos □aterials □ithin Deconta□ination □nit Deconta #C5000 A;
- The □isible and accessible s□rfaces of the □nit Deconta #C5000 A ha□e been s□ccessf□lly deconta□inated of asbestos □aterial;
- The scope of this clearance report does not co□er inaccessible s□rfaces and □aterials s□ch as drainage pipes and filters;
- Based on the res□lts of the inspection; it is the opinion of the assessor the inspected area is safe in regard to the asbestos ris□ and □ay be □sed by □nprotected persons;
- The deconta□ination □nit internal negati□e air filter □as left in place and is to be replaced by the hire co□pany. All asbestos re□o□al of □or□s sho□ld be carried o□t in accordance □ith the Safe□ or□A□stralia 2018 Code of Practice*: How to Safely Remove Asbestos* or as directed by the tas□specific asbestos safe □or□s proced□re.

Sho□ld yo□ ha□e any □□eries regarding this certificate, please do not hesitate to contact the □ndersigned for f□rther infor□ation or assistance.

Yo□rs faithf□lly,

Da□□d □ang□t□n
□n□iron□ental Cons□ltant
□□ail: dlangston@ s□e□co□ □a□

□a□e Wo**r**k **and □n□r□nment□** P**t**y **□td**
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P: 02 6247 0022
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□ttachment A – Photographs

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□ttachment A – □h□t□gra□ah□

□h□t□gra□h 1. Deconta□ination □nit

□h□t□gra□h 2. Interior of Deconta□ination □nit.

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C108603 / C□R8. □1

14 □an□ary 2020

□ttent□□n: [redacted]
C□m□an□: Do□glas Partners
□ma□: Peter□Storey@ do□glaspartners□co□ □a□
C□ent Re□erence: 94054.06 – Go□lb□rn Hospital Rede□elop□ent

S□ E □r□ect No.: C108603
Date of wo **r**ks: 13 □an□ary 2020
Asb **e**s**t**os **Rem**□□**a**□□**t**: Affecti□e Ser□ices
□**te □ddre**□□: Go□lb□rn Hospital Rede□elop□ent, Faithf□ll Street, Go□lb□rn NSW

Dear Peter,

R□: **C**108603 **–** Visu **a**l **C**□earance **Cert**□□**cate** fo**r** Asb **e**s**t**os **Rem**□□**a**□ Wo**r**ks: □□**ca**□**at**□□**n** wo**r**ks of **n**□**rthern em**□**an**□**ment ad**□**acent t**□ **C**□**mm**□**n**□**t**□ **Hea**□**th Centre**.

□ntr□d□ct□□n

Safe □ or□and □n□iron□ents Pty Ltd (SWE) □as engaged by Do□glas Partners to □nderta□e an Asbestos Clearance Inspection follo□ing the exca□ation, □attering and encaps□lation of in□sit□ soil containing non□friable asbestos ce□ent sheeting fro□ northern e□ban□□ent located so□th of the Co□□□nity Health Centre. The □or□s □ere cond□cted to facilitate rede□elop□ent □or□s of Go□lb□rn Hospital. Licenced Asbestos Assessor Da□id Langston (LAA001429) carried o□t an inspection of the re□o□al area follo□ing co□pletion of the re□o□al □or□s at 4:00 p□ on the 13 □an□ary 2020.

The scope of □or□in□ol□ed the follo□ing:

- □is□al Inspection of the s□b□ect areas follo□ing the asbestos re□o□al □or□s as per the scope of re□o□al and re□ediation;
- Preparation of an Asbestos Clearance Report o□tlining the site data, concl□sions and reco□□endations (if necessary).

S**c**op**e** of **Rem**□□**a**□

To exca□ate and re□o□e fro□ site soils containing asbestos containing □aterial fro□ the northern section of the fleet carpar□ (as far as practicable) to facilitate b□ilding □or□s. Te□porarily encaps□late soils re□aining in□sit□ s□spected of containing asbestos □aterial □ntil f□rther re□ediation □or□can occ□r.

. An approxi□ate location of the re□o□al □or□s area is incl□ded in *Figure 1*□

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Areas inspected □ithin the asbestos re□o□al area by the assessor incl□ded:

- □isible and accessible s□rface soils □ithin the northern e□ban□□ent and load o□t area.

D□ring the inspection the assessor noted the northern e□ban□□ent area □eas□ring 30x2□ had soils s□spected of containing ACM □hich contin□es □nder the □or□ bo□ndary. At the ti□e of inspection the e□ban□□ent area had a te□porarily geotextile □ar□er layer and clean fill to te□porarily encaps□late the e□ban□□ent □ntil f□rther exca□ation and re□ediation can occ□r.

□o other s□spect asbestos □aterial or debris associated □ith the scope of re□o□al □as identified by the assessor d□ring the inspection. Photos of the re□o□al area are incl□ded in *Appendix 1*.

Control air □onitoring □as □nderta□en d□ring re□o□al □or□s, all airborne fibre concentrations □ere belo□ the reporting li□it of 0.01 fibres/□L of air.

It is the opinion of the assessor the re□o□al □or□s □nderta□en by Affecti□e Ser□ices is of appropriate ind□stry standard and in accordance □ith adopted Code of Practice*: How to Safely Remove Asbestos* (2019).

C□nc□lusio ns & Rec□mmendat□□n□

Based on the data presented in this report, it is the opinion of Safe □ or□ & □n□iron□ents Pty Ltd that:

- Soils i□pacted □ith asbestos containing □aterial □ithin the northern e□ban□□ent ha□e been exca□ated and te□porarily encaps□lated □here fill □as identified.
- The assessor fo□nd no □isible asbestos debris fro□ asbestos re□o□al □or□in the area□or in the □icinity of the area, □here the □or□ □as carried o□t.
- It is the opinion of the assessor the inspected area is safe, in regards to asbestos, to be re□occ□pied by □nprotected persons (pro□iding s□rface soils are not dist□rbed).
- Soils □ithin the e□ban□□ent belo□ the □ar□er hori□on are li□ely to contain asbestos □aterial. Soil dist□rbance □ithin the area are to occ□r at a later date and sho□ld be □nderta□en □ith appropriate asbestos □or□controls in place (in accordance □ith the sites asbestos □anage□ent plan).
- If any additional asbestos □aterials are identified □ithin the site at a later date, □or□s □ □st cease for the asbestos □aterials to be re□o□ed□All asbestos re□o□al of □or□s sho□ld be carried o□t in accordance □ith the NSW Safe□ or□A□stralia 2019 Code of Practice*: How to Safely Remove Asbestos* or as directed by the tas□ specific asbestos safe □or□s proced□re.

Sho□ld yo□ ha□e any □□eries regarding this certificate, please do not hesitate to contact the □ndersigned for f□rther infor□ation or assistance.

Yo□rs faithf□lly,

[redacted]
□n□iron□ental Cons□ltant
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Attach□ents:
Fig□re 1: Asbestos Re□o□al □or□Area
Appendix 1: Site Photographs

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Figure 1: Goulburn Hospital HY Site - Air Monitoring Locations- 13/01/2020

Author: [redacted] – Safe Work & Environments

SAFE WORK & ENVIRONMENTS

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□h□t□gra□h 1: Prior to additional exca□ation on the northern e□ ban□□ ent, located so□th of the Co□ □ □nity Health Centre.

□h□t□gra□h 2: Post additional exca□ation and battering.

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□h□t□gra□h 3: Post exca□ation and geotextile □ ar□er e□ident on battered □alls. □ote □arying depth of exca□ation to acco□ □odate f□t□re site □or□s.

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PO Box □3 □□Dic□son ACT 2 □□2
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Douglas Partners
Geotechnics / Environment / Groundwater

Douglas Partners Pty Ltd
ABN [illegible]
www.douglaspartners.com.au
[illegible] Herbitage Road
West Ryde NSW [illegible]
PO Box [illegible]
West Ryde NSW [illegible]
Phone ([illegible]) [illegible]

Hansen Yuncken Pty Ltd
Sydney Corporate Park
Building [illegible] 85 O'Riordan Street
Alexandria NSW [illegible]

Project [illegible]
[illegible] March [illegible]
R[illegible]Rev[illegible]
TB:T[illegible]

Attention: Noel Redmond
Email: NRedmond@hansenyuncken.com.au

Subject: Clearance Inspection [illegible] Piling Area
Goulburn Base Hospital
[illegible] Goldsmith Street, Goulburn NSW

[illegible] Introduction

Douglas Partners Pty Ltd (DP) was engaged by Hansen Yuncken Pty Ltd (Hansen Yuncken) to undertake an asbestos clearance inspection at Goulburn Base Hospital, [illegible] Goldsmith Street, Goulburn NSW [illegible] (the Site). The clearance inspection was undertaken following piling work that involved excavation of fill containing friable and non-friable asbestos conducted from [illegible] to [illegible] March [illegible] inclusive.

Tim Bransgrove (Licensed Asbestos Assessor, LAA[illegible]) of DP observed the piling work and conducted the clearance inspection on [illegible] March [illegible]. The clearance inspection was conducted for Work Health and Safety (WHS) purposes in accordance with requirements of the NSW WHS Regulation [illegible] (Regulation [illegible]).

[illegible] Area Inspected

The Area Inspected comprised:

- Safely accessible exposed ground surfaces of the piling area as identified approximately on the Site Plan in Attachment A;
- The piling rig;
- The excavator used to transfer asbestos impacted material to waste storage bins; and
- The personal decontamination unit.

The Area Inspected excludes:

- The piling holes (inaccessible for safety reasons).

- The asbestos □aste bins□stoc□pile and associated storage area (Hansen Y□nc□en reports that this □aste is sched□led for off□site disposal on □ ednesday □□ March □□□□ (approxi□ ately))□

- The stockpile(s) of "natural" material de□eloped d□ring the piling □or□ □hich ha□e been sa□ pled by DP□ These sa□ ples are to □ndergo analysis for asbestos prior to any dist□rbance or re□□se of the stoc□pile(s)□

- The enclosed □ater capt□re and filtration syste□ associated □ith the personal deconta□ination □nit□

- All areas and □ aterials belo□ the exposed gro□nd s□rface□

□□ Meth□d

The clearance inspection co□ prised an □nassisted □is□al exa□ination of safely accessible s□rfaces □ithin the Area Inspected cond□cted by a Licensed Asbestos Assessor (LAA)□

Airborne asbestos □ onitoring □as □nderta□en as part of the asbestos re□ o□al process and co□ prised□

- □□ March □□□□□bac□gro□nd □ onitoring in the Area Inspected prior to piling □or□□

- □□ March □□□□□control □ onitoring aro□nd the Area Inspected d□ring piling □or□□

- □□ March □□□□□control □ onitoring aro□nd the Area Inspected d□ring restoration (i□e□general clean□□p) □or□□and

- □□ March □□□□□control □ onitoring d□ring exca□ation of a single additional pile and then clearance □ onitoring in the Area Inspected at co□ pletion of all piling □or□□

The air □ onitoring □as cond□cted in accordance □ith re□□ire□ ents of the □ational Occ□pational Health and Safety Co□ □ission (□OHSC) *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition*□□□ OHSC□□□□□(□□□□)□□ The laboratory certificate(s) of analysis for the air □ onitoring are pro□ided in Attach□ ent B□

Photographs □ere ta□en by DP d□ring the □is□al inspection and selected photographs are presented in Attach□ ent C□

□□ Re□□t□

Based on the res□lts o□tlined in the Laboratory Certificate(s) of Analysis (refer Attach□ ent C) the airborne asbestos fibre le□el □as □□□□□f□□ L □hich is the lo□er reporting li□ it of the □ ethod □sed□These air □ onitoring res□lts are considered acceptable for asbestos clearance p□rposes□

At co□ pletion of the □is□al inspection the assessor fo□nd no □isible asbestos resid□e fro□ asbestos re□ o□al □or□in the Area Inspected□or in the □icinity of the Area Inspected □here the □or□ □as carried

o□t□ The □icinity of the Area Inspected co□prises the associated access□loading and deconta□ination areas□

□ot□ithstanding the res□lts of the □is□al inspection□asbestos is □nderstood to re□ain present□

- In fill belo□ and□or aro□nd the Area Inspected□and
- In the asbestos □aste bins and fill stoc□pile de□eloped d□ring the piling □or□□

□□ Rec□mmendat□□n□

Sho□ld asbestos or Asbestos Containing Material (ACM) be identified in the Area Inspected d□ring f□t□re □se then □or□in the rele□ant area sho□ld cease□access to the rele□ant area sho□ld be restricted and ad□ice sho□ld be so□ght fro□ a s□itably □□alified and experienced LAA□

All □or□in□ol□ing asbestos □ □st be □nderta□en in accordance □ith rele□ant reg□latory re□□ire□ents incl□ding those o□tlined in the □S□ □ or□ Health and Safety Reg□lation □□□□ (□ HS Reg□lation) and follo□ing Codes of Practice (CoP)□

- Safe□ or□ □S□ *Code of Practice: How to Safely Remove Asbestos*□and
- Safe□ or□ □S□ *Code of Practice: How to Manage and Control Asbestos in the Workplace*□

Any asbestos containing fill re□aining at the site □ □st not be dist□rbed □nless appropriate controls are in place that precl□de expos□re and en□iron□ental conta□ination□

Access to the asbestos □aste bins and associated □aste storage area sho□ld re□ain ade□□ately restricted □ntil the asbestos □aste is disposed of off□site at a landfill that is la□f□lly per□itted to recei□e the □aste□F□rther□

- Airborne asbestos □onitoring is to contin□e aro□nd the asbestos □aste storage area □ntil the □aste is re□o□ed off□site and d□ring this re□o□al process□
- An asbestos clearance inspection and clearance air □onitoring □ □st be cond□cted after re□o□al of this stored asbestos □aste□and
- The □onitoring and clearances □ □st be cond□cted by an LAA□

The stoc□pile(s) of “natural” materials generated during the piling work should remain undisturbed until asbestos analysis res□lts are recei□ed for the sa□ples collected fro□ these stoc□piles□ Appropriate controls□□hich □ay incl□de isolation and□or co□ering of the stoc□pile(s)□sho□ld be i□ple□ented to pre□ent their dist□rbance□

Any asbestos conta□ination that □ay be present in the □ater capt□re and filtration syste□ associated □ith the personal deconta□ination □nit sho□ld be □anaged in accordance □ith rele□ant reg□latory re□□ire□ents incl□ding those o□tlined in the □ HS Reg□lation and CoP□

□□ □□m□tat□□n□

This report is pro□ided for the excl□si□e □se of Hansen Y□nc□en for this pro□ect only and for the p□rposes as described in the report□ It sho□ld not be □sed by or relied □pon for other pro□ects or p□rposes on the sa□e or other site or by a third party□ Any party so relying □pon this report beyond its excl□si□e □se and p□rpose as stated abo□e□and □itho□t the express □ritten consent of DP□does so entirely at its o□n ris□ and □itho□t reco□rse to DP for any loss or da□age□ In preparing this report DP has necessarily relied □pon infor□ation pro□ided by the client and□or their agents□

The res□lts pro□ided in the report are indicati□e of the conditions on the site only at the specific locations inspected and □onitored□□ hile □or□ is □nderta□en in a professional □anner the nat□re of the conta□inant and li□itations of the □ethod(s) □sed □ean that □e cannot g□arantee that all asbestos or ACM has been identified□

Inspections and □onitoring are li□ited to areas that are safely accessible at the ti□e of the □or□ and excl□de hidden and inaccessible locations s□ch as □ithin stoc□piles□belo□ the exposed gro□nd s□rface and □ithin enclosed areas□Any dist□rbance of the s□rface(s) inspected □ay res□lt in the expos□re of additional asbestos or ACM that is o□tside the scope the □is□al inspection cond□cted□

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the ad□ice pro□ided by DP in this report □ay be affected by □ndetected □ariations in conditions across the site bet□een and beyond the inspection and□or □onitoring locations□ The ad□ice □ay also be li□ited by b□dget constraints i□posed by others or by site accessibility□

This report □ □st be read in con□□nction □ith all of the attached and sho□ld be □ept in its entirety □itho□t separation of indi□id□al pages or sections□ DP cannot be held responsible for interpretations or concl□sions □ade by others □nless they are s□pported by an expressed state□ent□interpretation□ o□tco□e or concl□sion stated in this report□

This report□or sections fro□ this report□sho□ld not be □sed as part of a specification for a pro□ect□□itho□t re□ie□ and agree□ent by DP□ This is beca□se this report has been □ritten as ad□ice and opinion rather than instr□ctions for constr□ction□

DP and o□r personnel are not licenced □□antity s□r□eyors□Any □□antities incl□ded in this report are pro□ided as a general g□ide only and sho□ld not be relied □pon□The ser□ices of a licenced □□antity s□r□eyor sho□ld be engaged if reliable □□antities are re□□ired□

The inspection(s) cond□cted do not constit□te an □n□iron□ental Site In□estigation (□SI) □nder the Conta□inated Land Manage□ent (CLM) Act□ F□rther testing of soils and other b□□□aterials p□rs□ant to the □ational □n□iron□ent Protection (Assess□ent of Site Conta□ination) Meas□re (□□PM) □ay be re□□ired to ens□re the site is s□itable for the proposed land □se□

□ hile □or□ is □nderta□en in a professional □anner DP cannot g□arantee that all asbestos□ACM or iss□es of concern ha□e been identified□

The contents of this report do not constit□te for□al design co□ponents s□ch as are re□□ired□by the Health and Safety Legislation and Reg□lations□to be incl□ded in a Safety Report specifying the ha□ards li□ely to be enco□ntered d□ring constr□ction and the controls re□□ired to □itigate ris□□ This design process re□□ires ris□ assess□ent to be □nderta□en□□ith s□ch assess□ent being dependent □pon factors relating to li□elihood of occ□rrence and conse□□ences of da□age to property and to life□ This□ in t□rn□re□□ires pro□ect data and analysis presently beyond the □no□ledge and pro□ect role respecti□ely of DP□ DP □ay be able□ho□e□er□to assist the client in carrying o□t a ris□ assess□ent of potential ha□ards contained in this report□as an extension to the c□rrent scope of □or□s□if so re□□ested□and pro□ided that s□itable additional infor□ation is □ade a□ailable to DP□Any s□ch ris□assess□ent □o□ld□ ho□e□er□be necessarily restricted to the en□iron□ental co□ponents set o□t in this report and to their application by the pro□ect designers to pro□ect design□constr□ction□□ aintenance and de□olition□

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□ e tr□st that the foregoing is of assistance□ Please contact the □ndersigned if yo□ ha□e any □□eries regarding this □atter□

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T□m □ran□gr□□e
Occ□pational Hygienist □□n□iron□ental Scientist
Licenced Asbestos Assessor (LAA□□□□□□)

Re□ie□ed by

[redacted]

T□m □□mar
Associate □Senior Occ□pational Hygienist
Licenced Asbestos Assessor (LAA□□□□□□)

Attach□ents□ Attach□ent A – Site Plan
Attach□ent B – Laboratory Certificate(s) of Analysis (Air Monitoring)
Attach□ent C □Photographic Plates

□ttachment □

Site Plan

FOR CONTINUATION REFER TO DRG. No. ST-MW-10-00001

ALL PILES TO HAVE DIAMETERS LARGE ENOUGH SUCH THAT A COLUMN CAN BE LOCATED WITH SUITABLE TOLERANCE. TYP.

PILES TO LOADING DOCK LINK STRUCTURE ON HOLD PENDING SERVICES COORDINATION AND SITE INVESTIGATION WORKS IN THIS ZONE

REFER SHEET ST-MW-60-00005 FOR LINK STRUCTURE

PILES ON HOLD PENDING VIBRATION REVIEW OF LOADING DOCK BY VIBRATION / ACOUSTIC CONSULTANT.

Area Inspected (green shading)

FOOTING PLAN - ZONE 2

SCALE: 1 : 100

- REFER SHEET ST-MW-30-00010 FOR STEEL MEMBER FRAMING SCHEDULE

ZONE 1

ZONE 2

KEY PLAN

Rev	Description	Date	By	App
G	FOR CONSTRUCTION - PILING & PLUNGE CAGES ONLY	19.12.19	PM	
H	ISSUED FOR INFORMATION	17.12.19		
G	ISSUED FOR COORDINATION	29.11.19	TJW	
F	ISSUED FOR CONSTRUCTION CERTIFICATE	29.10.19	TW	
E	100% SUBMISSION	15.10.19	TW	
D	REISSUED FOR 100% DESIGN DEVELOPMENT	12.06.19	PM	
C	REISSUED FOR 100% DESIGN DEVELOPMENT	29.05.19	PM	
B	100% DESIGN DEVELOPMENT	10.05.19	PM	
A	80% DESIGN DEVELOPMENT	03.05.19	PM	

NSW GOVERNMENT Health Infrastructure

GOULBURN HOSPITAL
GOULBURN NSW

BONACCI

Bonacci Group (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers. Structural - Civil - Infrastructure
Level 5, 37 York Street, Sydney, NSW 2000, Australia
Tel +61 2 8247 8400 Fax +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

FOOTING PLAN
ZONE 2

Project Ref. 11294

CONSTRUCTION

Designed	AC	Project Director Approved	Date
Drawn	PM		
Scale	1:100	Drawing No.	Rev.
Date	03/05/19	ST-MW-10-00002	0
Sheet	A1		

North

PAD FOOTING SCHEDULE

MARK	WIDTH	LENGTH	DEPTH
PF1	1500	1500	400
PF2	2000	2000	450
PF3	1850	2500	450
PF4	1800	1800	450

STRUCTURAL WALL SCHEDULE

MARK	THICKNESS	REMARKS
BW1	140	FIRE RATED BLOCKWORK (CORE SIZE < 30%)
BW2	190	FIRE RATED BLOCKWORK (CORE SIZE < 30%)
RW1	200	INSITU RW
RW2	350	INSITU RW
RW3	250	INSITU RW
W1	200	INSITU
W3	150	INSITU

STRIP FOOTING SCHEDULE

MARK	DIMENSIONS	
	WIDTH	DEPTH
SF1	1200	600
SF2	600	450
SF3	450	600
SF4	1800	450

PILING SCHEDULE

MARK	SIZE	G (kN)	Q (kN)	SHEAR X (ULT) (kN)	SHEAR Y (ULT) (kN)	TENSION (ULT) (kN)	COMP (ULT) (kN)	ALT PAD FOOTING SIZE
P1	450	150	90	10	10	-	315	-
P2	900	1200	450	60	60	-	2150	1750 x 1750 x 500dp
P3	900	1600	550	70	70	-	2750	2000 x 2000 x 600dp
P4	900	1550	650	80	80	-	2850	2000 x 2000 x 600dp
P5	900	3000	1250	150	150	-	5475	2800 x 2800 x 900dp
P6	900	3450	1350	160	190	-	6175	2900 x 2900 x 900dp
P7	900	1900	800	90	90	-	3500	2200 x 2200 x 650dp
P8	900	1000	250	500	400	-3400	4750	-
P9	900	1000	250	450	400	-2100	3650	-
P10	900	1800	400	400	500	-2900	5350	-
P11	900	1500	500	400	400	-1250	3250	-
P12	900	1200	400	500	600	-450	2500	-
P13	900	850	300	500	250	-1400	2200	-
P14	450	450	90	100	100	-	700	-
P15	450	300	120	15	15	-	550	-
P16	450	150	120	10	10	-	375	-
P17	900	500	250	500	500	-1100	1500	-
P18	450	200	125	15	15	-	450	-

NOTE
ALTERNATIVE PAD FOOTING SIZES ARE BASED ON EXTREMELY LOW STRENGTH ROCK (DENOTED 'EL' IN BOREHOLE LOGS) AS THE FOUNDING STRATA WITH ALLOWABLE BEARING PRESSURE (ABP) = 600 kPa. WHERE LOW STRENGTH ROCK (DENOTED 'L' IN BOREHOLE LOGS) IS THE FOUNDING STRATA, ALLOWABLE BEARING PRESSURE (ABP) = 1000 kPa AND THE PAD FOOTING SIZE MAY BE REDUCED.

A1

□ttachment □

Laboratory Certificate(s) of Analysis
(Air Monitoring)

SAFE WORK &
ENVIRONMENTS

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Accredited for co□pliance □ith ISO□□C □□□□□ □ Testing

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□□□ntr□d□ct□□n□ Bac□gro□nd □onitoring for airborne asbestos fibres □ere collected by Do□glas Partners and s□b□itted to the Safe □or□ and □n□iron□ents Laboratory for analysis by the □e□brane filter □o□nt and co□nt □ethodology□

□□Meth□d□□ Airborne asbestos fibre □onitoring □as carried o□t by Do□glas Partners and sa□ples analysed as recei□ed□Analysis of collected filter □e□brane sa□ples □as perfor□ed in accordance □ith □OHSC:3003 (2005) and SWE's In□Ho□se Method □ – Asbestos Air Fibre Mo□nt and Co□nt□

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□Period of Sa□pling defined by the on□ti□e of the first air □onitoring sa□ple to the off□ti□e of the last air □onitoring sa□ple□

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SAFE WORK & ENVIRONMENTS

NATA
WORLD RECOGNISED ACCREDITATION

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Analyst and Appro□ed Iss□er of Report

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SAFE WORK & ENVIRONMENTS

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SAFE WORK & ENVIRONMENTS

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SAFE WORK & ENVIRONMENTS

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Certificate of Analysis

eurofins | Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	709306-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054.06
Received Date	Mar 23, 2020
Date Reported	Mar 23, 2020

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054.06
Date Sampled Mar 23, 2020
Report 709306-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
20-Ma33197	DL010239	DP19	SOUTH EAST CORNER OF WORK AREA, ON FENCE	7:10	11:20	4.0	4.0	0/100	< 0.01
20-Ma33198	DL010228	DP04	SOUTHERN CENTRAL BOUNDARY OF WORK AREA, ON FENCE	7:10	11:29	4.0	4.0	0/100	< 0.01
20-Ma33199	DL010338	DP11	SOUTH WESTERN CORNER OF WORK AREA, ON FENCE	7:10	11:29	4.0	4.0	0/100	< 0.01
20-Ma33200	DL010446	DP12	NORTH WESTERN CORNER OF WORK AREA,ON FENCE	7:11	11:31	4.0	4.0	0/100	< 0.01
20-Ma33201	DL010169	DP03	NORTHERN CENTRAL BOUNDARY OF WORK AREA, ON FENCE	7:12	11:27	4.0	4.0	0/100	< 0.01
20-Ma33202	DL010559	DP15	NORTH EASTERN CORNER OF WORK AREA, ON FENCE	7:13	11:26	4.0	4.0	0/100	< 0.01
20-Ma33203	DL010511	DP09	CLEAN SIDE OF DECON UNIT ON DOOR	7:12	11:25	4.0	4.0	0/100	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Mar 23, 2020	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Mar 23, 2020	Indefinite

eurofins | Environment Testing

ABN – 50 005 085 521 web : www.eurofins.com.au e.mail : EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: GOULBURN HOSPITAL
Project ID: 94054.06

Order No.:
Report #: 709306
Phone: 02 9809 0666
Fax:

Received: Mar 23, 2020 1:50 PM
Due: Mar 23, 2020
Priority: Same day
Contact Name: [redacted]

Eurofins Analytical Services Manager : [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	DL010239	Mar 23, 2020	11:30AM	Air	S20-Ma33197	X
2	DL010228	Mar 23, 2020	11:29AM	Air	S20-Ma33198	X
3	DL010338	Mar 23, 2020	11:29AM	Air	S20-Ma33199	X
4	DL010446	Mar 23, 2020	11:31AM	Air	S20-Ma33200	X
5	DL010169	Mar 23, 2020	11:27AM	Air	S20-Ma33201	X
6	DL010559	Mar 23, 2020	11:26AM	Air	S20-Ma33202	X
7	DL010511	Mar 23, 2020	11:25AM	Air	S20-Ma33203	X
Test Counts						7

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted], Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins Environment Testing and therefore volume measurements contained in this report are traceable back to Eurofins Environment Testing. Eurofins Environment Testing are respons ble for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised [redacted]

[redacted] Senior Analyst-Asbestos (NSW)

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention:	[redacted]
Report	709298-AFC
Project Name	GOULBURN HOSPITAL
Project ID	94054.06
Received Date	Mar 23, 2020
Date Reported	Mar 23, 2020

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]
Pump Calibration	Defender 520M: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Project Name GOULBURN HOSPITAL
Project ID 94054.06
Date Sampled Mar 23, 2020
Report 709298-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
20-Ma33147	DL010340	DP01	EASTERN CENTRE OF WORK AREA, ON POLE	9:03	11:30	4.0	4.0	0/100	< 0.01
20-Ma33148	DL010165	DP04	WESTERN CENTRE OF WORK AREA, ON POLE	9:05	11:29	4.0	4.0	0/100	< 0.01
20-Ma33149	DL010232	DP07	INSIDE DECONTAMINATION UNIT	9:05	11:28	4.0	4.0	0/100	< 0.01
20-Ma33150	DL010342	DP02	INSIDE CABIN OF PILING RIG	9:05	11:28	4.0	4.0	0/100	< 0.01
20-Ma33151	DL010382	DP18	INSIDE CABIN OF EXCAVATOR	9:07	11:27	4.0	4.0	0/100	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8010	Sydney	Mar 23, 2020	Indefinite
Asbestos - LTM-ASB-8010	Sydney	Mar 23, 2020	Indefinite

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ABN – 50 005 085 521 web : www.eurofins.com.au e.mail : EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name:	Douglas Partners (Syd)	**Order No.:**	**Received:** Mar 23, 2020 1:50 PM
Address:	96 Hermitage Road West Ryde NSW 2114	**Report #:** 709298 **Phone:** 02 9809 0666 **Fax:**	**Due:** Mar 23, 2020 **Priority:** Same day **Contact Name:** [redacted]
Project Name:	GOULBURN HOSPITAL		
Project ID:	94054.06		**Eurofins Analytical Services Manager :** [redacted]

Sample Detail						Asbestos (concentration of fibres in air)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	DL010340	Mar 23, 2020	11:30AM	Air	S20-Ma33147	X
2	DL010165	Mar 23, 2020	11:29AM	Air	S20-Ma33148	X
3	DL010232	Mar 23, 2020	11:28AM	Air	S20-Ma33149	X
4	DL010342	Mar 23, 2020	11:28AM	Air	S20-Ma33150	X
5	DL010382	Mar 23, 2020	11:27AM	Air	S20-Ma33151	X
Test Counts						5

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Volume Measurement : [redacted] Douglas Partners (Syd), has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by Douglas Partners (Syd) were calibrated by Eurofins Environment Testing and therefore volume measurements contained in this report are traceable back to Eurofins Environment Testing. Eurofins Environment Testing are respons ble for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

[redacted] Senior Analyst-Asbestos (NSW)

Authorised [redacted]

Sayeed Abu Senior Analyst-Asbestos (NSW)

[redacted]

[redacted]

General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Attachment C

Photographic Plates

Photograph 1: Typical portion of Area Inspected follo□ing piling □or□.

Photograph 2: Area Inspected as □ie□ed fro□ □est to east follo□ing piling □or□.

Douglas Partners Geotechnics / Environment / Groundwater	□te □h□t□gra□h□ Asb es□os C□earance □n□□ect□□n G□□□□rn □a□e H□□□ta□Rede□e□□ment	PRO□□CT: □□□□□06 PLAT□ □o: 1 REV: A
	CLI□□T: Hansen Y□nc□en Pty Ltd	DAT□: □□03/ □□0

Photograph 3: Typical portion of Area Inspected (left hand side of photo) follo□ing piling □or□.

Photograph 4: □ aste bin storage area.

Douglas Partners Geotechnics / Environment / Groundwater	□te □h□t□gra□h□ Asb es t os C□earance □n□□ect□□n G□□□□rn □a□e H□□□□ta□Rede□e□□□ment	PRO□□CT: □□□□□06 PLAT□ □o: 2 REV: A
	CLI□□T: Hansen Y□nc□en Pty Ltd	DAT□: □□03/ □□0

Photograph □□Piling rig□

Photograph □□Asbestos □aste stoc□pile excl□ded fro□ clearance inspection□

Douglas Partners Geotechnics / Environment / Groundwater	□te □h□t□gra□h□ □□□e□t□□ C□earance □n□□ect□□n G□□□□rn □a□e H□□□□ta□Rede□e□□ment	PRO□□CT□ □□□□□□□□ PLAT□ □o□ □ R□□□ A
	CLI□□T□ Hansen Y□nc□en Pty Ltd	DAT□□ □□□□□□□□□

Photograph □□Deconta□ination □nit□

Photograph □□Typical portion of b□l□□aterial transport ro□te□

Douglas Partners Geotechnics / Environment / Groundwater	□te □h□t□gra□h□ □□□e□t□□ C□earance □n□□ect□□n G□□□□rn □a□e H□□□□ta□Rede□e□□□ment	PRO□□CT□ □□□□□□□□ PLAT□ □o□ □ R□□□ A
	CLI□□T□ Hansen Y□nc□en Pty Ltd	DAT□□ □□□□□□□□

Photograph □□Typical piling hole□

Photograph □□□Stoc□piles excl□ded fro□ □is□al clearance□

Douglas Partners Geotechnics / Environment / Groundwater	□□te □h□t□gra□h□ □□□e□t□□ C□earance □n□□ect□□n G□□□□rn □a□e H□□□□ta□Rede□e□□ment	PRO□□CT□ □□□□□□□□ PLAT□ □o□ □ R□□□ A
	CLI□□T□ Hansen Y□nc□en Pty Ltd	DAT□□ □□□□□□□□

Douglas Partners
Geotechnics | Environment | Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	egodfrey@hansenyuncken.com.au	
From	[redacted]	**Date**	29 Jan 2020
Subject	Vibration Monitoring Report 1 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.001.Rev0

Installation and Monitoring

On 9 December 2019 Texcel Construction Vibration Monitors #7221 and #7153 were installed at ground level at monitoring locations A (adjacent to the community health centre) and B (adjacent to the nearest hospital building), respectively (see attached Monitor Location Plan). The monitors were installed to monitor vibrations generated during compaction works in the adjacent borrow pit.

With reference to the CNVMP, an "Allowed Vibration Limit" of 5 mm/s vector sum peak particle velocity (VSPPV) was assigned by DP, based on the potential for damage to the adjacent structures and the comfort of the occupants. The monitors were configured for continuous monitoring 6 am - 6 pm Mon - Sat, with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding 4.5 mm/s VSPPV, as a contingency for the Allowed Limit of 5 mm/s VSPPV).

Monitoring was suspended on 13 January 2020 upon completion of compaction works in the borrow pit.

Outcome this period: 9-December 2019 to 13-January 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	7221	0	n/a	n/a
Monitoring Location B	7153	0	n/a	n/a

Douglas Partners Pty Ltd

[redacted]

Senior Geophysicist

Reviewed by

[redacted]

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

Limitations

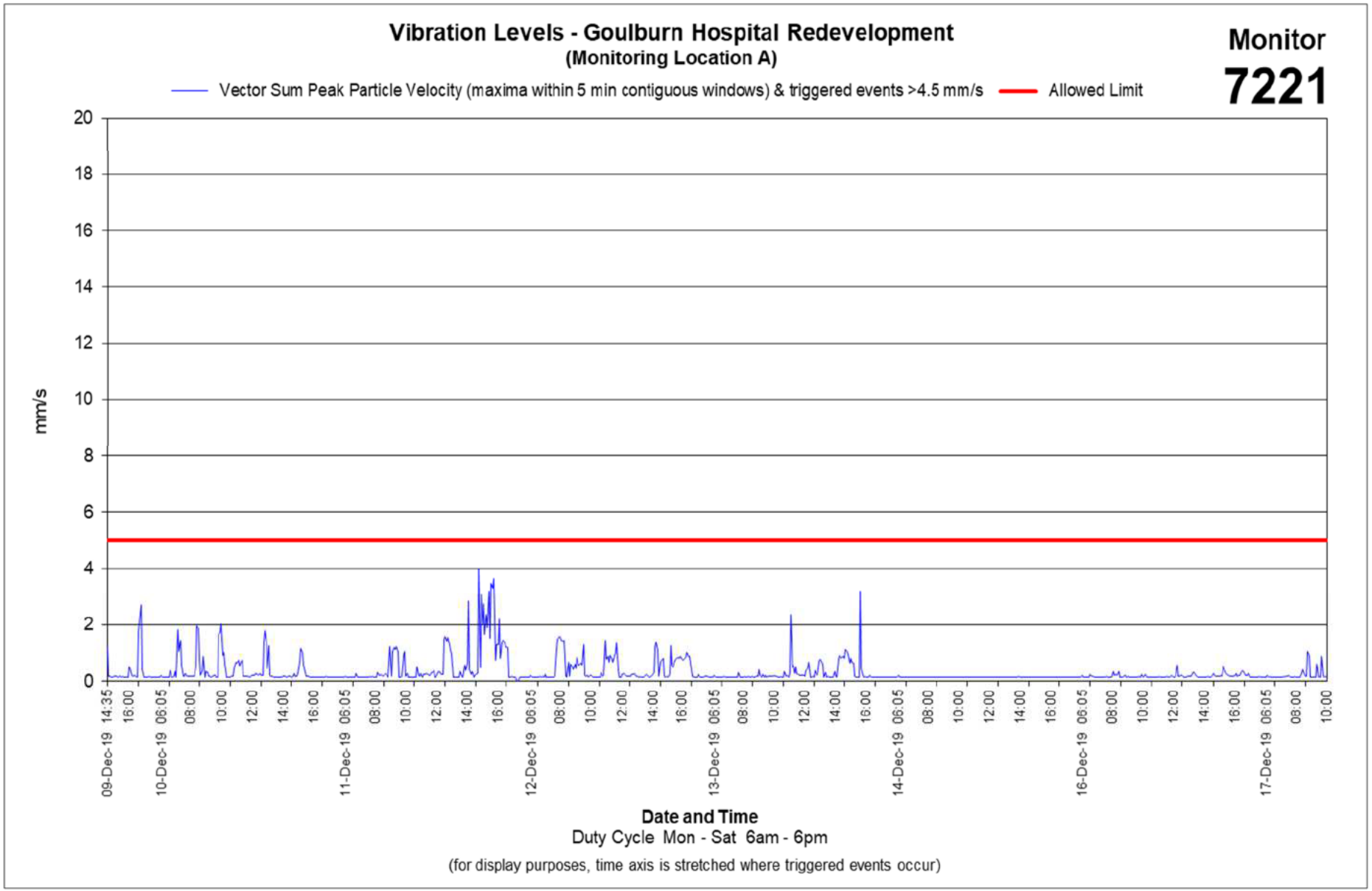
Douglas Partners Pty Ltd (DP) has prepared this report for Hansen Yuncken Pty Ltd. The report is provided for the exclusive use of Hansen Yuncken Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice may be based on observations, measurements, tests, or derived interpretations. The accuracy of the advice provided by DP in this report may be affected by unobserved features and variations in ground conditions and conditions affecting vibration across the site, between and beyond the testing locations or by variations with time. Vibration monitoring and advice may also be limited by budget constraints imposed by others or by site accessibility.

The results provided in the report are indicative of the vibration levels at the sensor location(s) only and only during the specified period of monitoring. Vibration levels in other locations may therefore differ from those reported herein.

As neither estimations of safe operating distances for vibrations (if provided) nor the presence of an unattended vibration monitor can prevent exceedances, the real-time management of vibration remains the responsibility of Hansen Yuncken Pty Ltd and its plant operators. Interference with (e.g. movement or damage to) the monitoring equipment may influence readings and the Client is responsible for advising DP immediately to assess whether readings are affected, re-installation and/or repair is required.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location A)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >4.5 mm/s
Allowed Limit
mm/s
20
18
16
14
12
10
8
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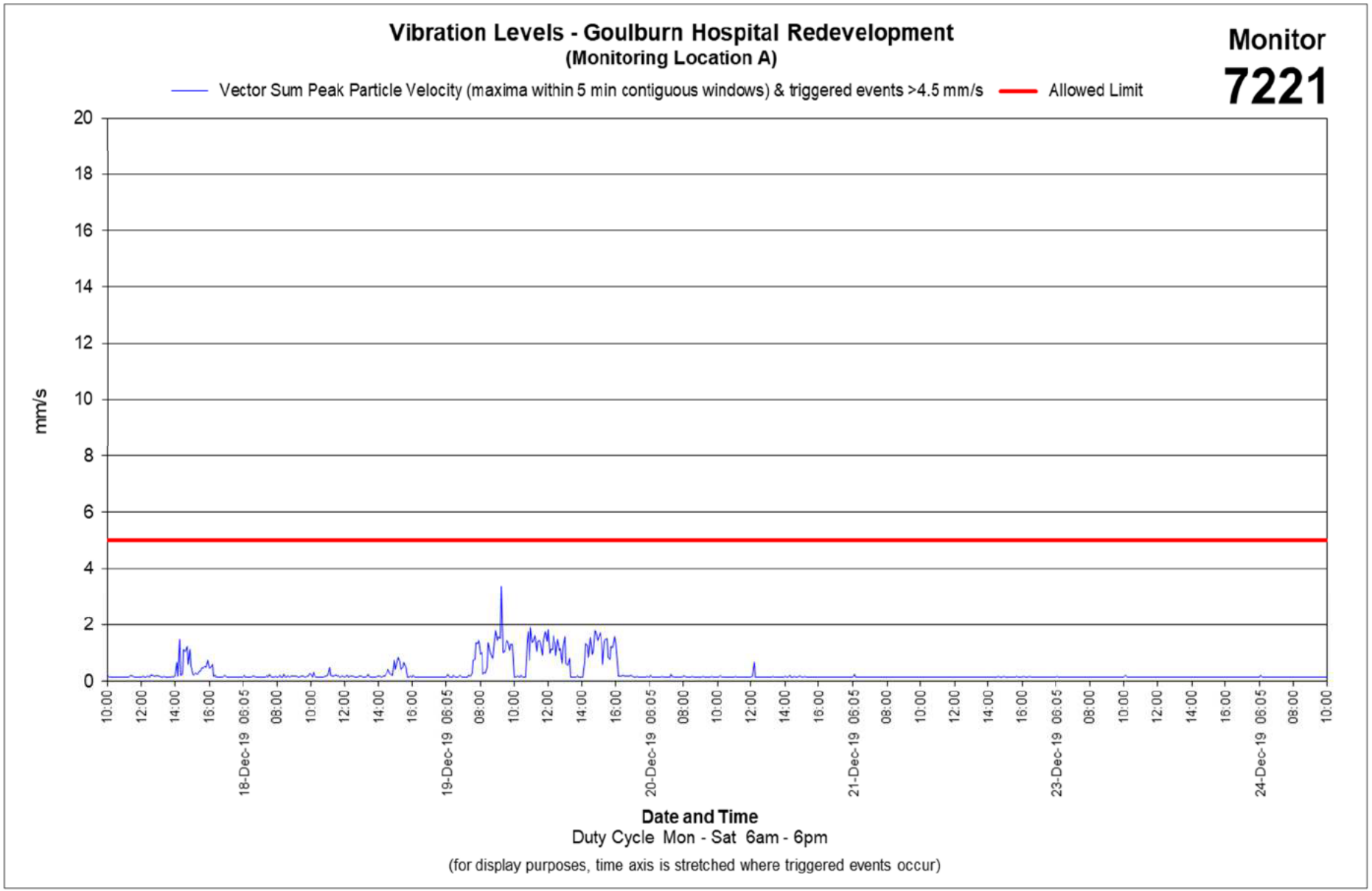
09-Dec-19 14:35
10-Dec-19 06:05
11-Dec-19 06:05
12-Dec-19 06:05
13-Dec-19 06:05
14-Dec-19 06:05
16-Dec-19 06:05
17-Dec-19 06:05
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location A)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >4.5 mm/s
Allowed Limit
mm/s
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06:05
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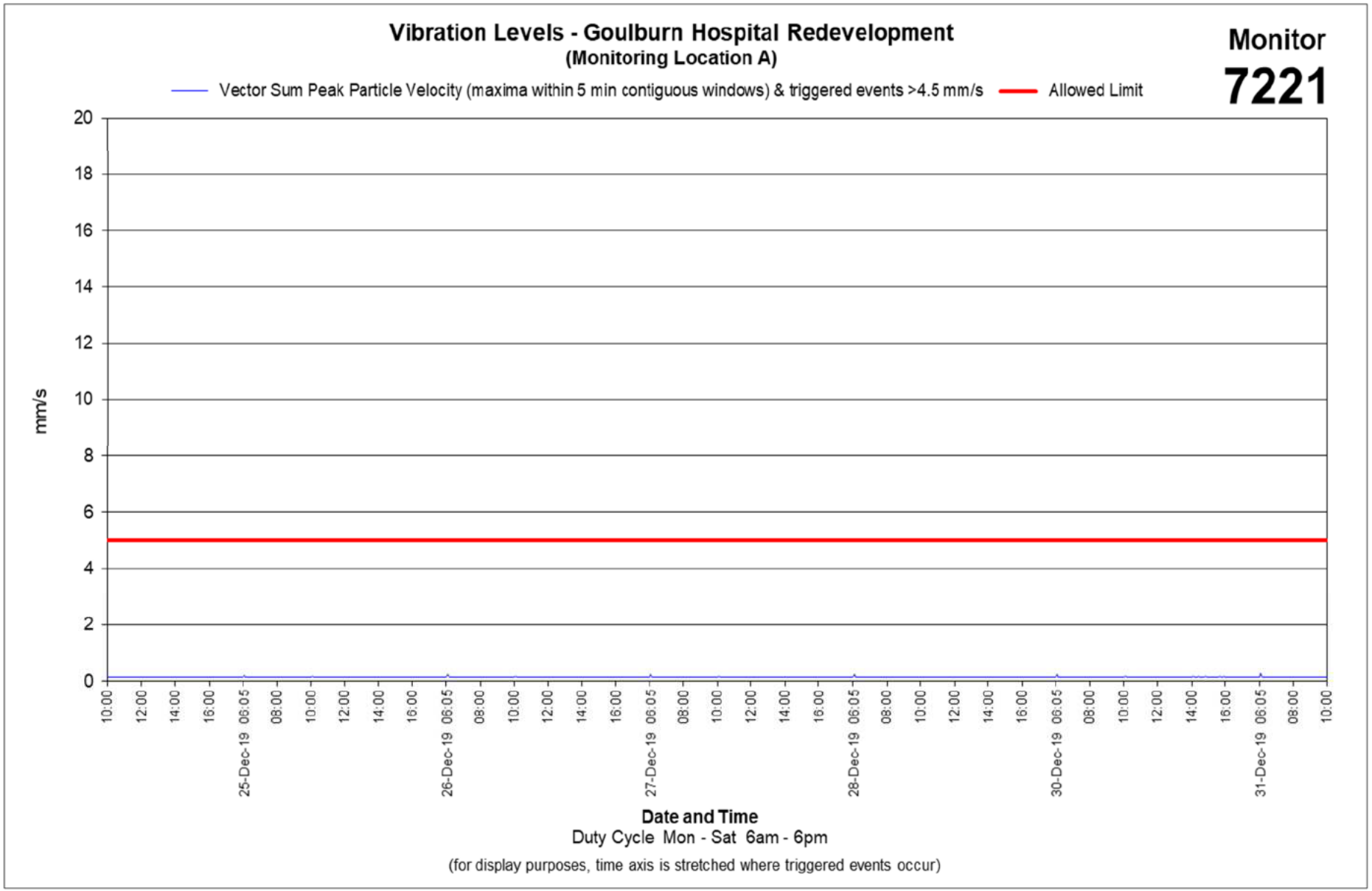
10:00
18-Dec-19
19-Dec-19
20-Dec-19
21-Dec-19
23-Dec-19
24-Dec-19
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location A)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >4.5 mm/s
Allowed Limit
mm/s
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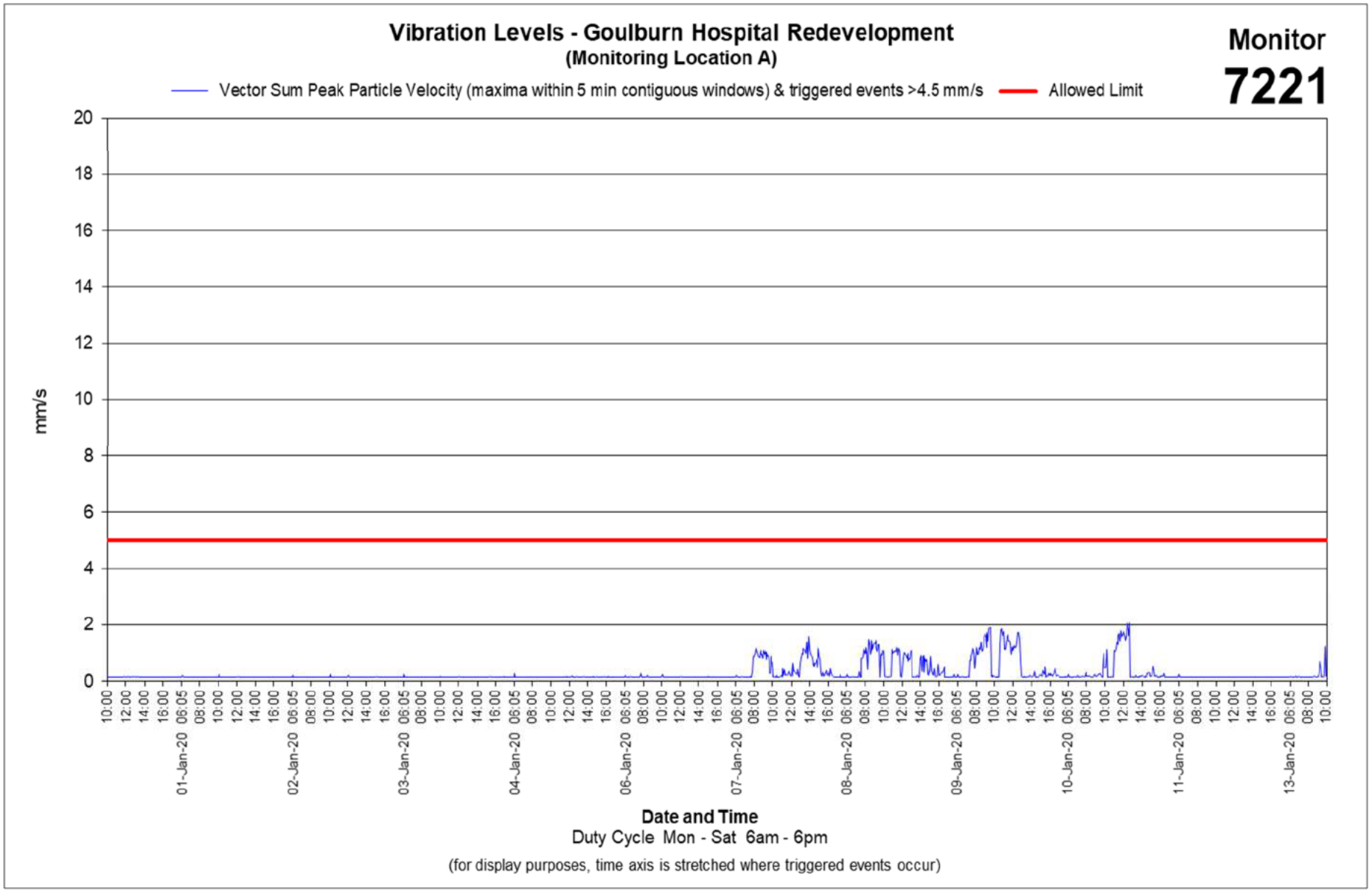
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location A)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >4.5 mm/s
Allowed Limit
mm/s
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06-Jan-20
07-Jan-20
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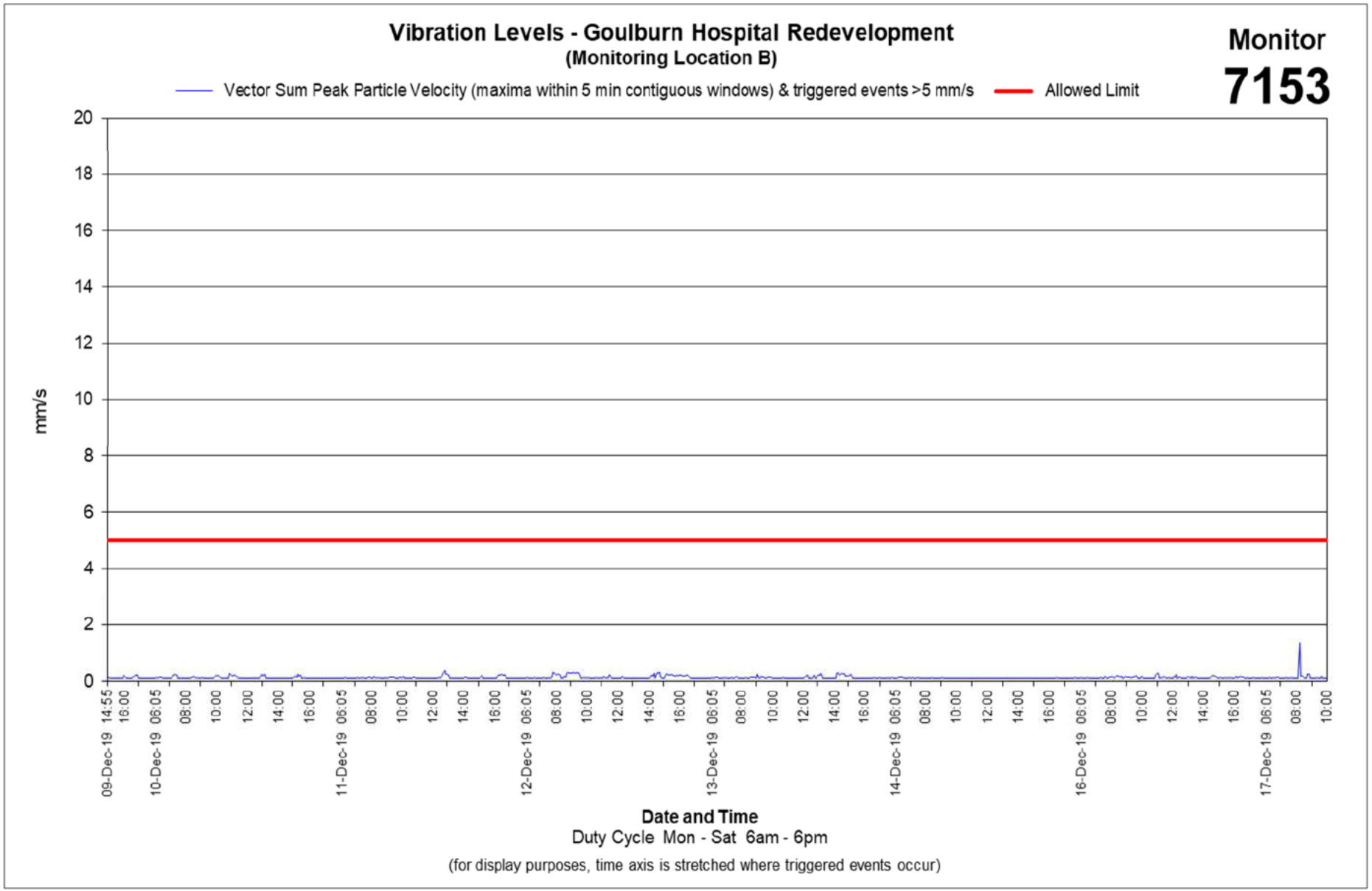
09-Jan-20
10-Jan-20
11-Jan-20
13-Jan-20
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location B)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >5 mm/s
Allowed Limit
mm/s
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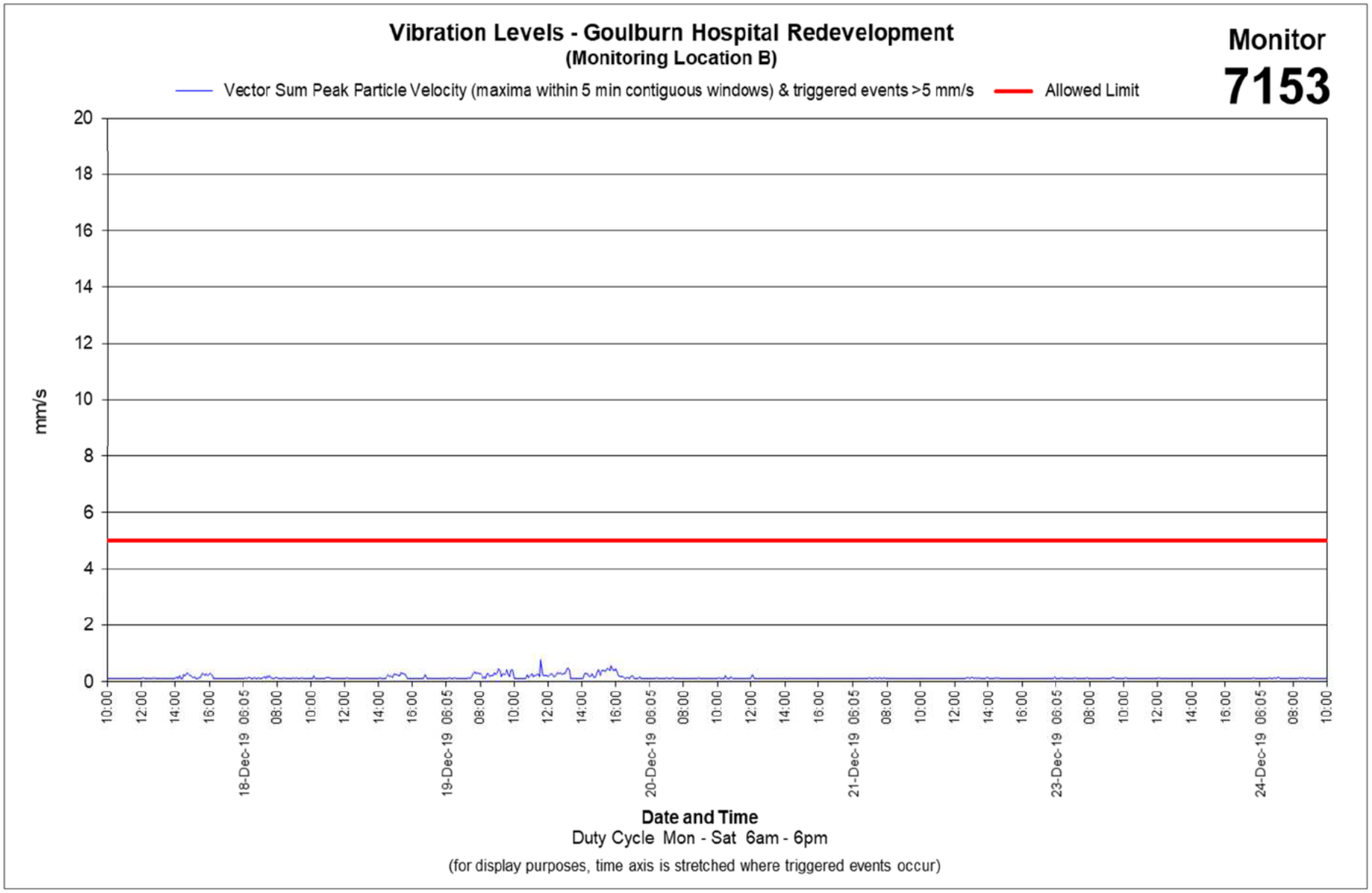
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location B)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >5 mm/s
Allowed Limit
mm/s
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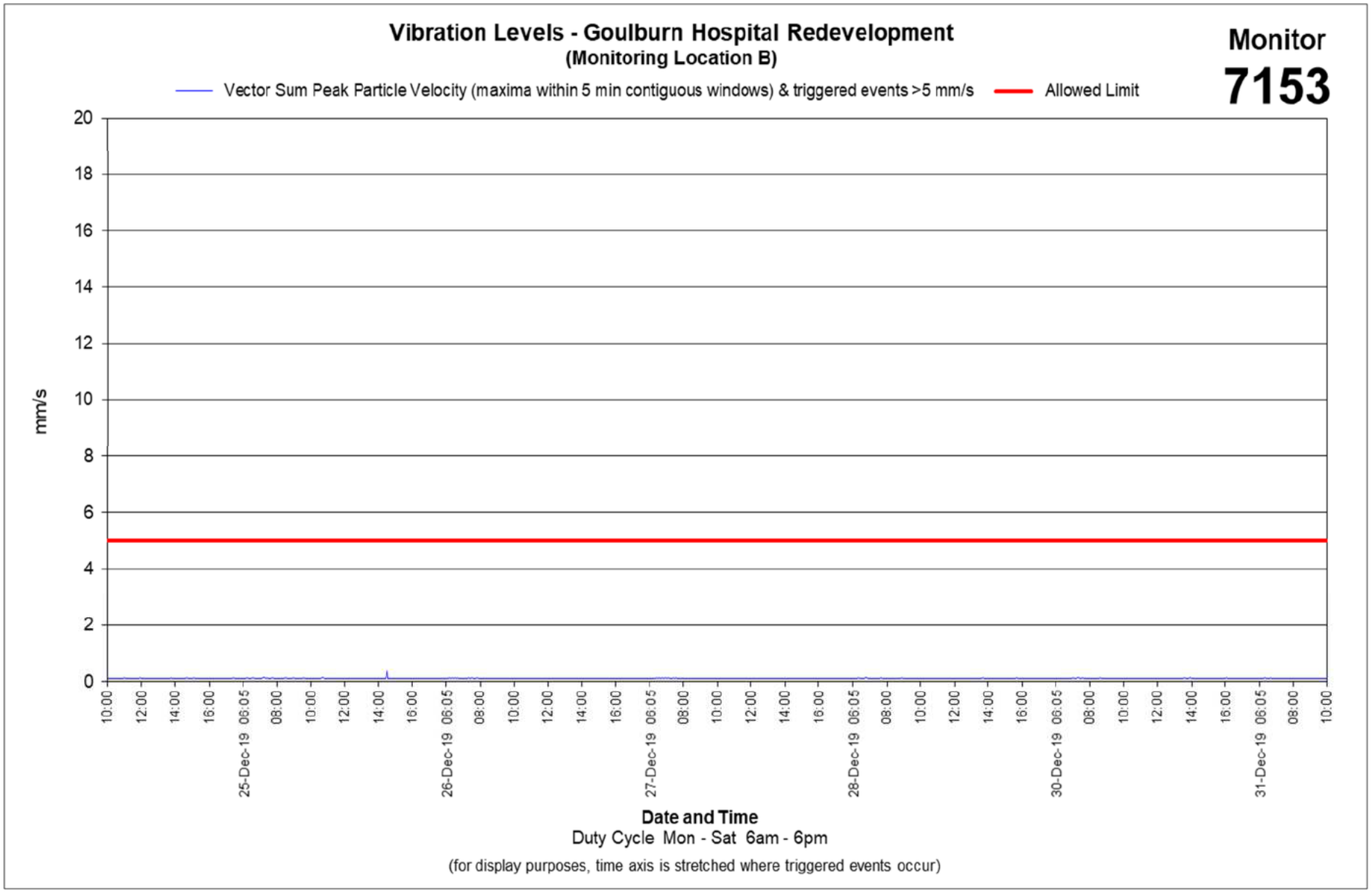
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location B)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >5 mm/s
Allowed Limit
mm/s
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26-Dec-19 06:05
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27-Dec-19 06:05
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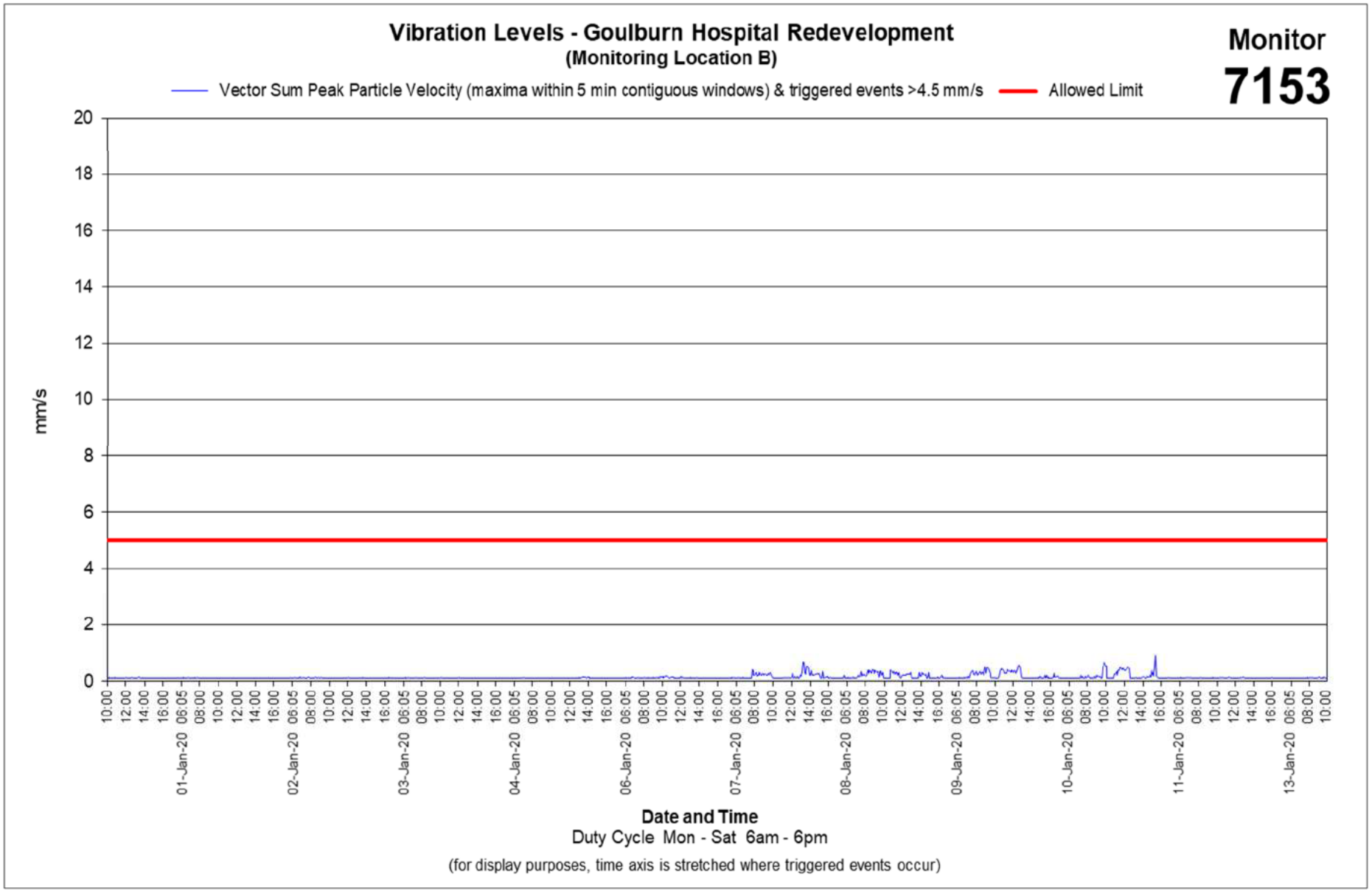
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Levels - Goulburn Hospital Redevelopment
(Monitoring Location B)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >4.5 mm/s
Allowed Limit
mm/s
20
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02-Jan-20
03-Jan-20
04-Jan-20
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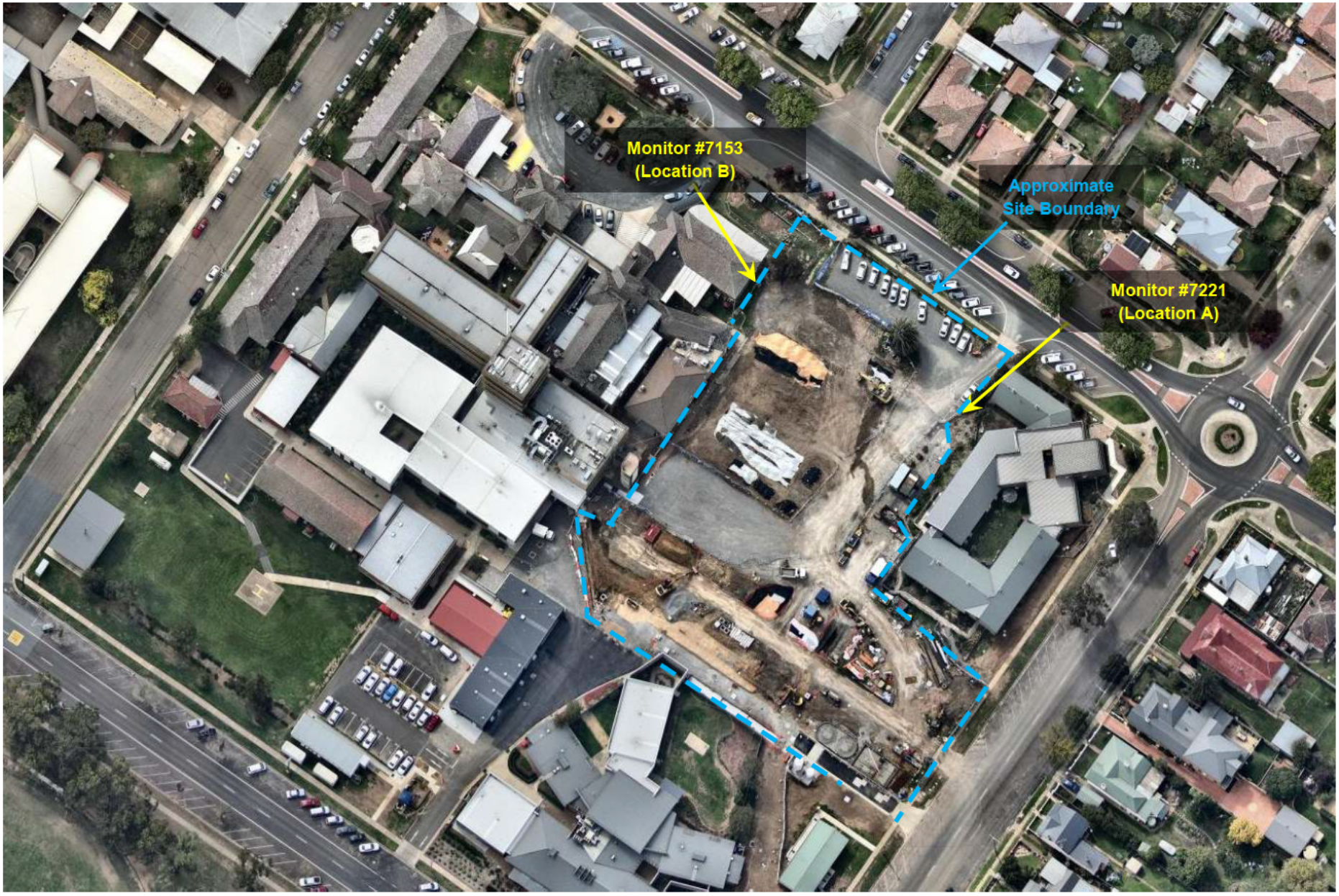
09-Jan-20
10-Jan-20
11-Jan-20
13-Jan-20
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Monitor #7153
(Location B)
Approximate
Site Boundary
Monitor #7221
(Location A)

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency.
- Changes in policy or interpretations of policy by statutory authorities, or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

□te □n□ma□e□

In the e□ent that conditions enco□ntered on site d□ring constr□ction appear to □ary fro□ those □hich □ere expected fro□ the infor□ation contained in the report□ DP re□□ests that it be i□□ediately notified□ Most proble□s are □□ch □ore readily resol□ed □hen conditions are exposed rather than at so□e later stage□□ell after the e□ent.

□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

□here infor□ation obtained fro□ this report is pro□ided for tendering p□rposes, it is reco□□ended that all infor□ation, incl□ding the □ritten report and disc□ssion□be □ade a□ailable□ In circ□□stances □here the disc□ssion or co□□ents section is not rele□ant to the contract□al sit□ation, it □ay be appropriate to prepare a specially edited doc□□ent□ DP □o□ld be pleased to assist in this regard and□or to □a□e additional report copies a□ailable for contract p□rposes at a no□inal charge.

□te □n□□ect□□n

The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□

Douglas Partners
Geotechnics / Environment / Groundwater

Douglas Partners Pty Ltd
ABN [illegible]
[illegible]douglaspartners.com.au
[illegible] Hermitage Road
West Ryde NSW [illegible]
PO Box [illegible]
West Ryde NSW [illegible]
Phone ([illegible]) [illegible]

Memorandum

To:	Eugene Godfrey — Hansen Yuncken Pty Ltd — egodfrey@hansenyuncken.com.au		
From:	Anthony Zielniacz	**Date:**	[illegible] Feb [illegible]
Subject:	Vibration Monitoring Report – Goulburn Base Hospital Redevelopment	**Project No:**	[illegible]
		Doc No:	[illegible]R[illegible]Re[illegible]

Installation and Monitoring

On [illegible] January [illegible] Texcel Construction Vibration Monitors [illegible] were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works.

With reference to the C[illegible]MP (the Monitoring Plan), "Allowed Vibration Limits" of [illegible] mm/s vector sum peak particle velocity (VSPPV) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of [illegible] m/s[illegible] for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon–Sat [illegible] am – [illegible] pm with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding [illegible] mm/s VSPPV as a contingency for impulsive events).

The eVDV shown in the attached graphs is a calculated estimate of VDV from velocity data rather than acquired acceleration data. The Dose Rate and Maximum values refer to accumulated vibration activity per day during daytime hours and includes summations of RMS velocities, wavelength durations and amplitudes (as detailed in NSW EPA Assessing Vibration: A Technical Guideline, February [illegible]). "Critical Areas" includes hospital operating theatres and precision laboratories where sensitive operations are occurring, and these criteria are indicative only, therefore consideration of continuous and impulsive vibrations is included (as recommended), see attached graphs. The table of acceptable daily Dose Values (Table [illegible]) includes a "Preferred Value", being half of the "Maximum Value".

Outcome th[illegible] Period [illegible] January [illegible]

Location	Monitor	Exceedances		Time of maximum exceedance
		[illegible]	Max [illegible]	
Monitoring Location A	[illegible]	[illegible]	n/a	n/a
Monitoring Location B	[illegible]	[illegible]	n/a	n/a

D□□g□a□ □artner□ □t□ □td

[redacted]

□nth□n□ □□e□n□ac□
Senior Geophysicist

Re□ie□ed by

[redacted]

□eter □tmaa
Principal

Attach□ ents□Graphs of □ibration Le□els□Monitor Location Plan□Abo□t This Report

□m□tat□□n□

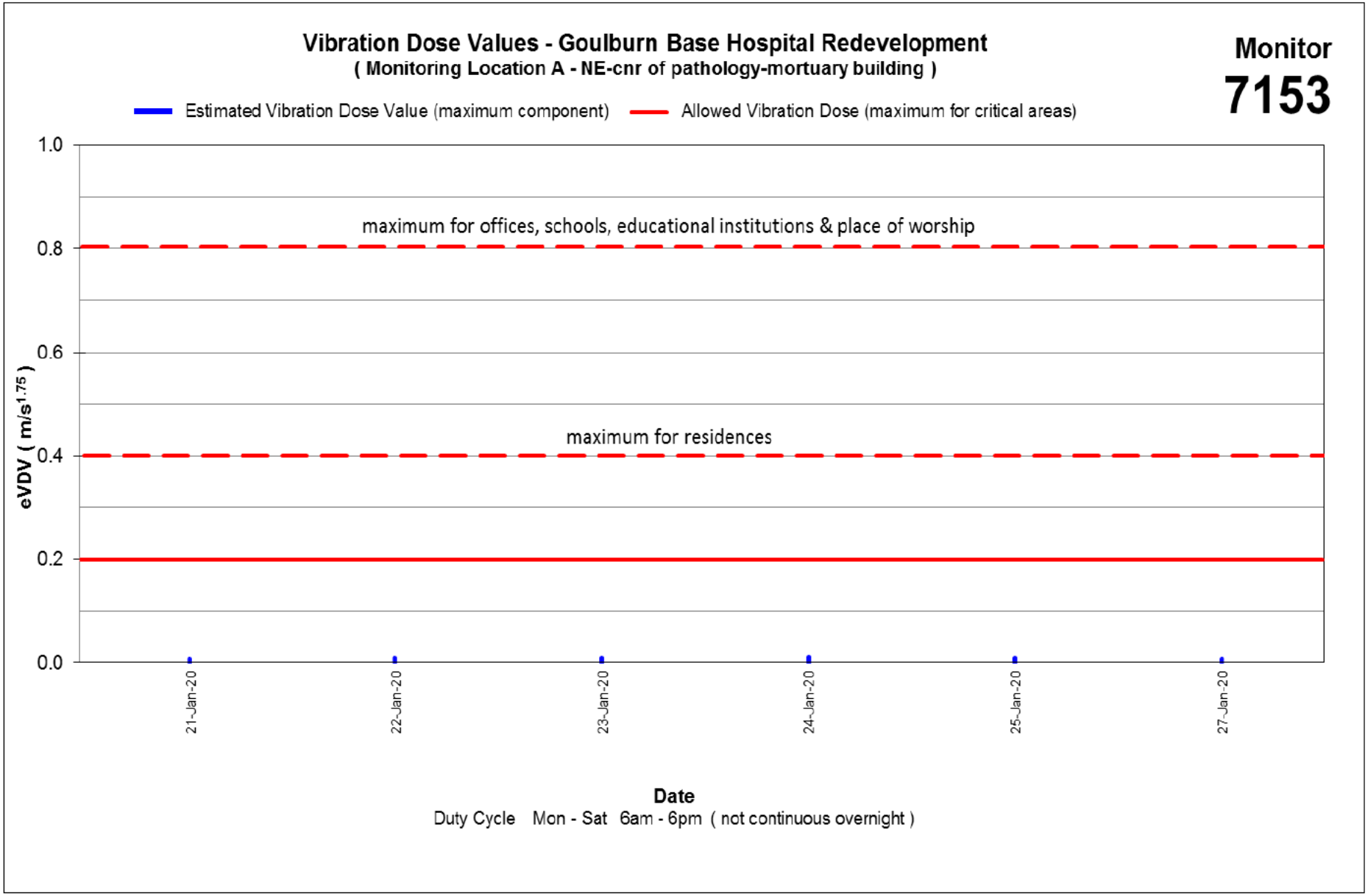
Do□glas Partners Pty Ltd (DP) has prepared this report for Hansen Y□nc□en Pty Ltd□ The report is pro□ided for the excl□si□e □se of Hansen Y□nc□en Pty Ltd for this pro□ect only and for the p□rpose(s) described in the report□ It sho□ld not be □sed for other pro□ects or by a third party□ In preparing this report DP has necessarily relied □pon infor□ ation pro□ided by the client and□or their agents□

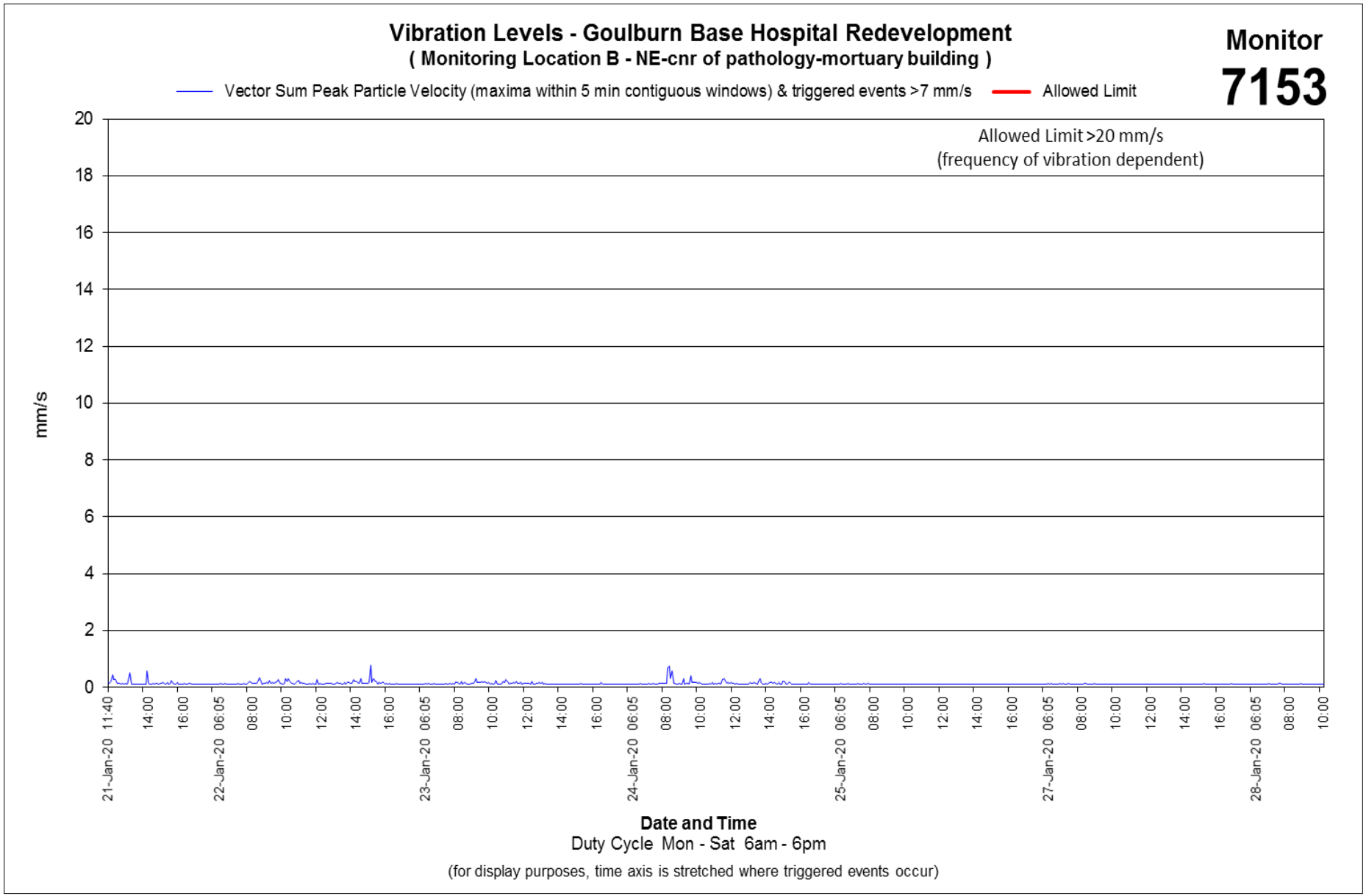
DP's advice may be based on observations, measurements, tests, or derived interpretations. The acc□racy of the ad□ice pro□ided by DP in this report □ ay be affected by □nobser□ed feat□res and □ariations in gro□nd conditions and conditions affecting □ibration across the site□bet□een and beyond the testing locations or by □ariations □ith ti□ e□ □ibration □ onitoring and ad□ice □ ay also be li□ited by b□dget constraints i□ posed by others or by site accessibility□

The res□lts pro□ided in the report are indicati□e of the □ibration le□els at the sensor location(s) only and only d□ring the specified period of □ onitoring□ □ibration le□els in other locations □ ay therefore differ fro□ those reported herein□

As neither esti□ ations of safe operating distances for □ibrations (if pro□ided) nor the presence of an □nattended □ibration □ onitor can pre□ent exceedances□ the real□ti□ e □ anage□ ent of □ibration re□ ains the responsibility of Hansen Y□nc□en Pty Ltd and its plant operators□ Interference □ith (e□g□ □ o□e□ ent or da□ age to) the □ onitoring e□□ip□ ent □ ay infl□ence readings and the Client is responsible for ad□ising DP i□ □ ediately to assess □hether readings are affected□ re□installation and□or repair is re□□ired□

This report □ □st be read in con□□nction □ith all of the attached notes and sho□ld be □ept in its entirety □itho□t separation of indi□id□al pages or sections□ DP cannot be held responsible for interpretations or concl□sions □ ade by others □nless they are s□pported by an expressed state□ ent□interpretation□ o□tco□ e or concl□sion gi□en in this report□


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
21-Jan-20
22-Jan-20
23-Jan-20
24-Jan-20
25-Jan-20
27-Jan-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
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22-Jan-20 06:05
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23-Jan-20 06:05
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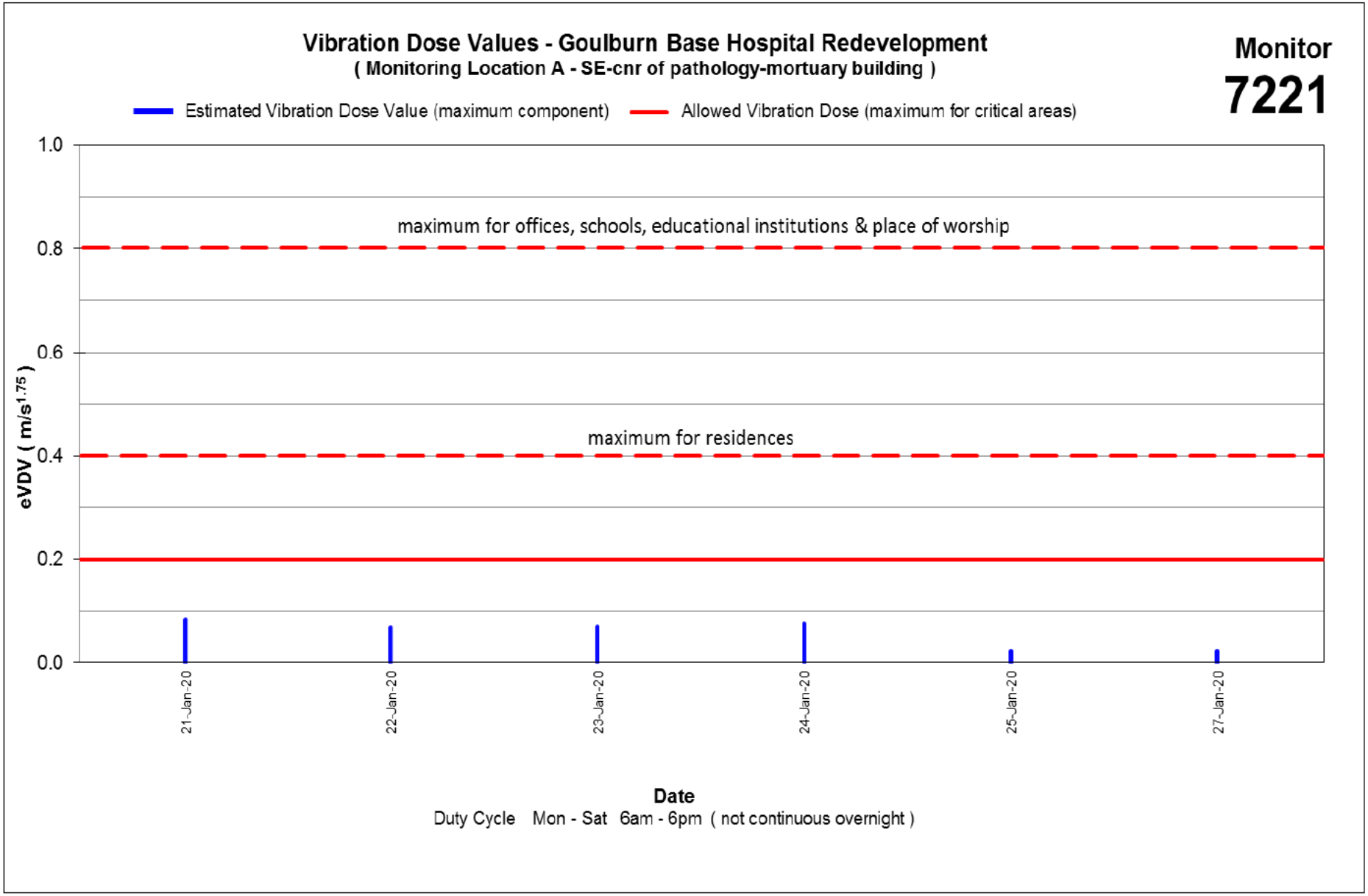
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
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Allowed Vibration Dose (maximum for critical areas)
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0.6
0.4
0.2
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eVDV (m/s1.75)
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24-Jan-20
25-Jan-20
27-Jan-20
Date
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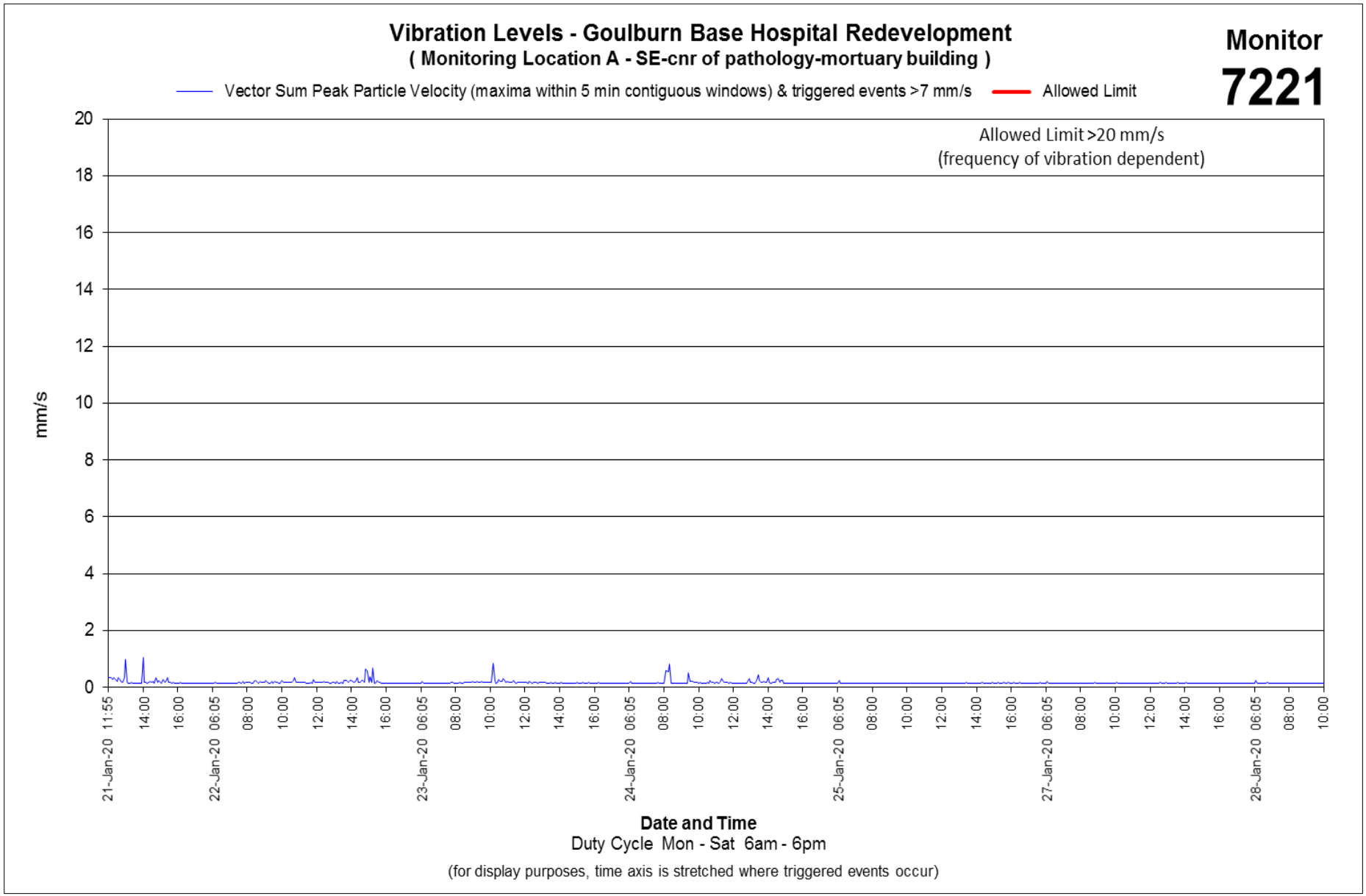
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Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
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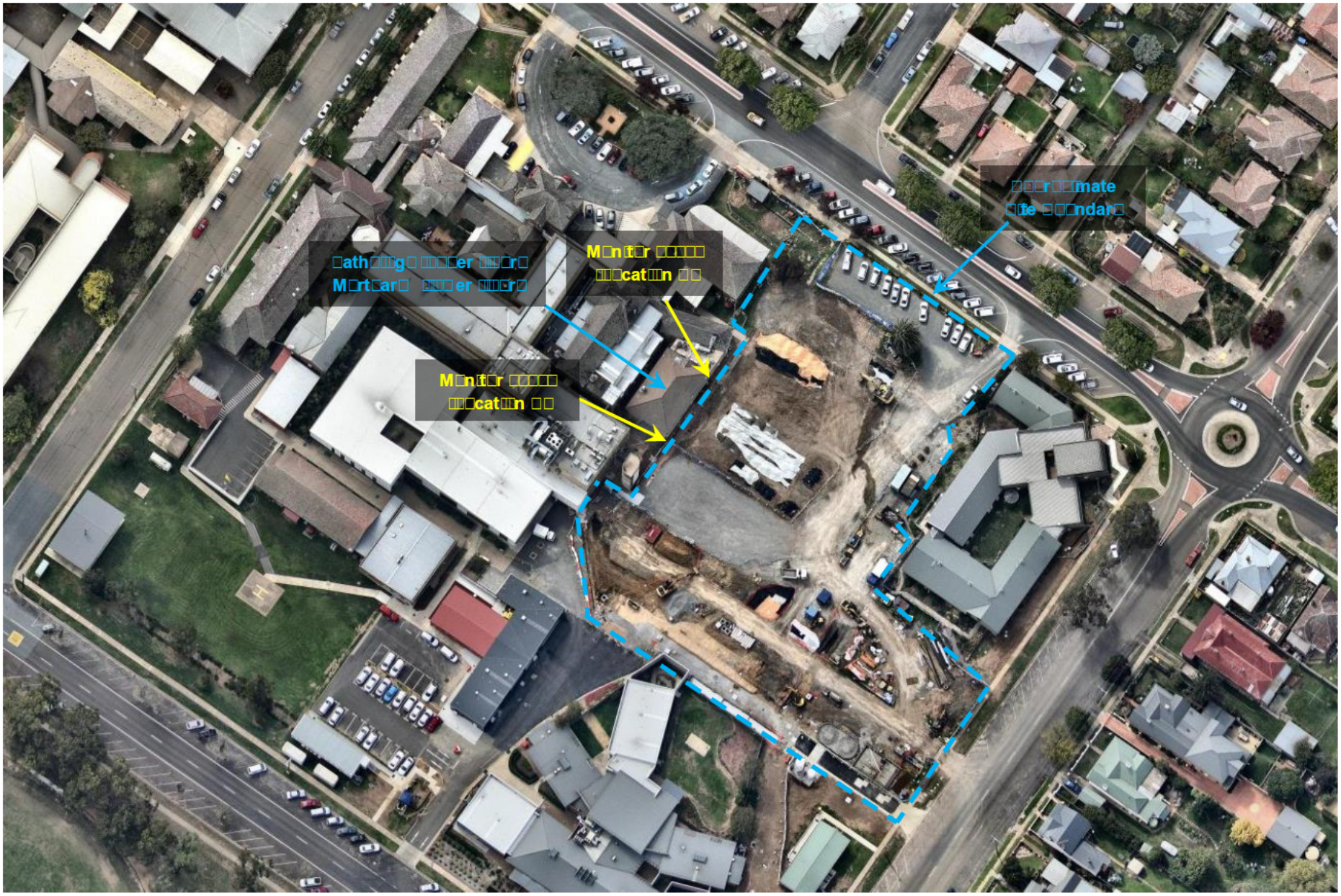
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About this Report

Douglas Partners

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency.
- Changes in policy or interpretations of policy by statutory authorities, or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

□te □n□ma□e□

In the e□ent that conditions enco□ntered on site d□ring constr□ction appear to □ary fro□ those □hich □ere expected fro□ the infor□ation contained in the report□ DP re□□ests that it be i□□ediately notified□ Most proble□s are □□ch □ore readily resol□ed □hen conditions are exposed rather than at so□e later stage□□ell after the e□ent.

□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

□here infor□ation obtained fro□ this report is pro□ided for tendering p□rposes, it is reco□□ended that all infor□ation, incl□ding the □ritten report and disc□ssion□be □ade a□ailable□ In circ□□stances □here the disc□ssion or co□□ents section is not rele□ant to the contract□al sit□ation, it □ay be appropriate to prepare a specially edited doc□□ent□ DP □o□ld be pleased to assist in this regard and□or to □a□e additional report copies a□ailable for contract p□rposes at a no□inal charge.

□te □n□□ect□□n

The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□

Douglas Partners Pty Ltd
ABN [illegible]
www.douglaspartners.com.au
[illegible] Hermitage Road
West Ryde NSW [illegible]
PO Box [illegible]
West Ryde NSW [illegible]
Phone ([illegible]) [illegible]

Douglas Partners
Geotechnics | Environment | Groundwater

Memorandum

To:	Eugene Godfrey	Hansen Yuncken Pty Ltd	egodfrey@hansenyuncken.com.au	
From:	Anthony [illegible]ielniac[illegible]		**Date:**	[illegible] Feb [illegible]
Subject:	Vibration Monitoring Report – Goulburn Base Hospital Redevelopment		**Project No:** **Doc No:**	[illegible] [illegible]R[illegible]Rev[illegible]

Installation and Monitoring

On [illegible] January [illegible] Texcel Construction Vibration Monitors [illegible] were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works.

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Outcome this Period: [illegible] January – [illegible] February [illegible]

Location	Monitor	Exceedances		Time of maximum exceedance
		[illegible]	Max [illegible]	
Monitoring Location A	[illegible]	[illegible]	n/a	n/a
Monitoring Location B	[illegible]	[illegible]	n/a	n/a

D□□g□a□ □artner□ □t□ □td

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□nth□n□ □□e□n□ac□
Senior Geophysicist

Re□ie□ed by

[redacted]

□eter □ □maa
Principal

Attach□ ents□Graphs of □ibration Le□els□Monitor Location Plan□Abo□t This Report

□m□tat□□n□

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The res□lts pro□ided in the report are indicati□e of the □ibration le□els at the sensor location(s) only and only d□ring the specified period of □ onitoring□ □ibration le□els in other locations □ ay therefore differ fro□ those reported herein□

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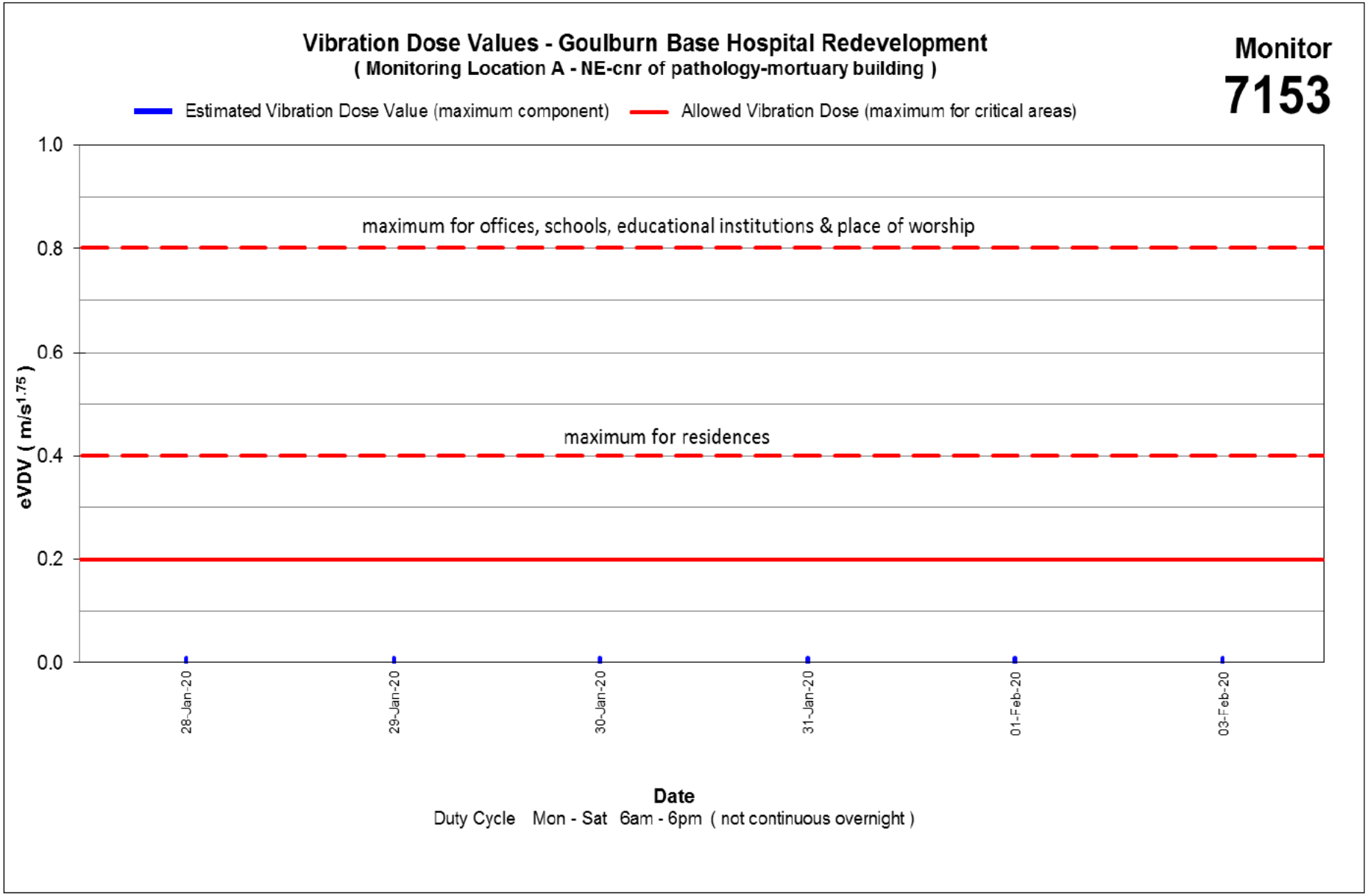
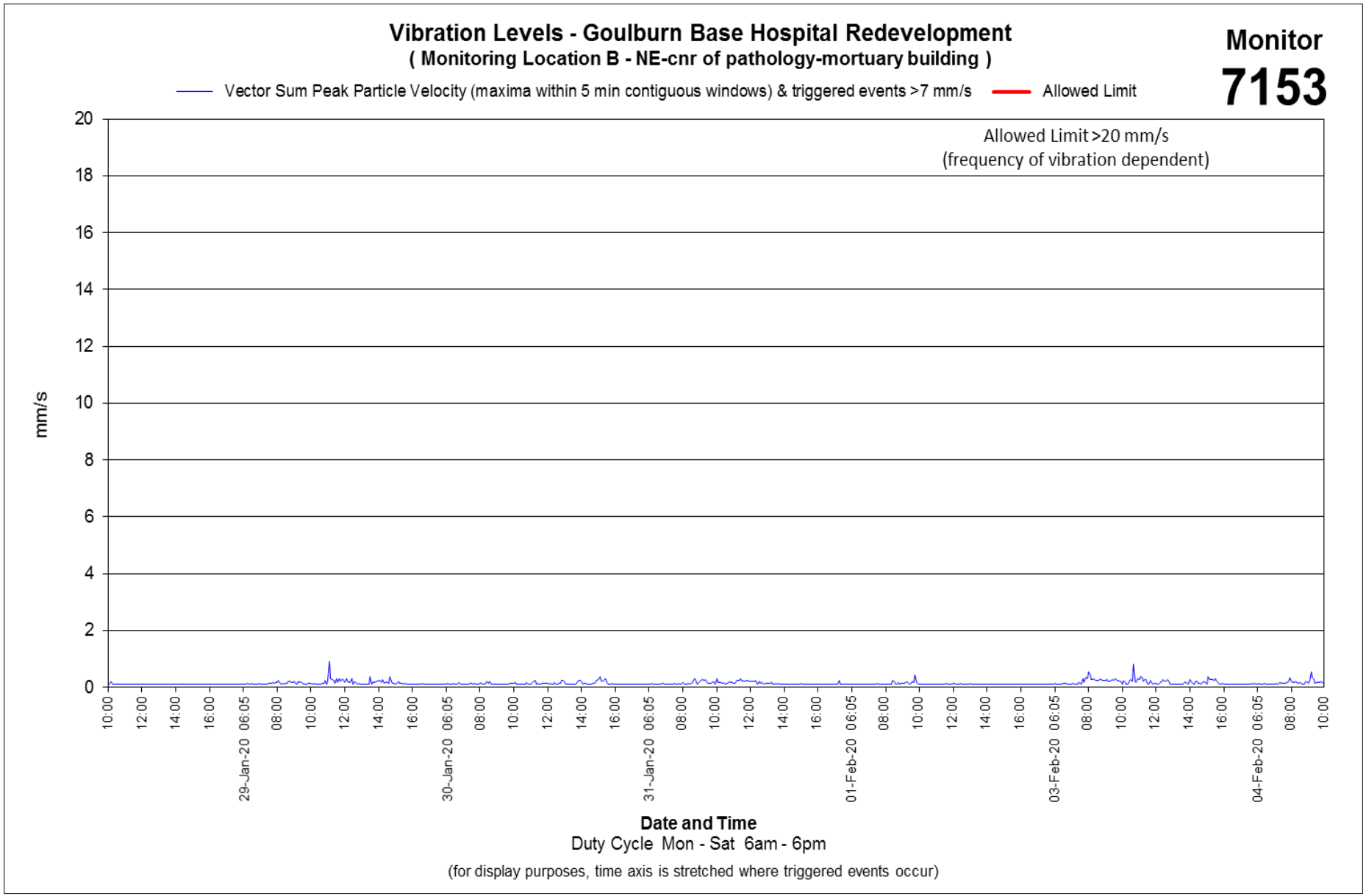

Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
28-Jan-20
29-Jan-20
30-Jan-20
31-Jan-20
01-Feb-20
03-Feb-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
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Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
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Allowed Limit >20 mm/s
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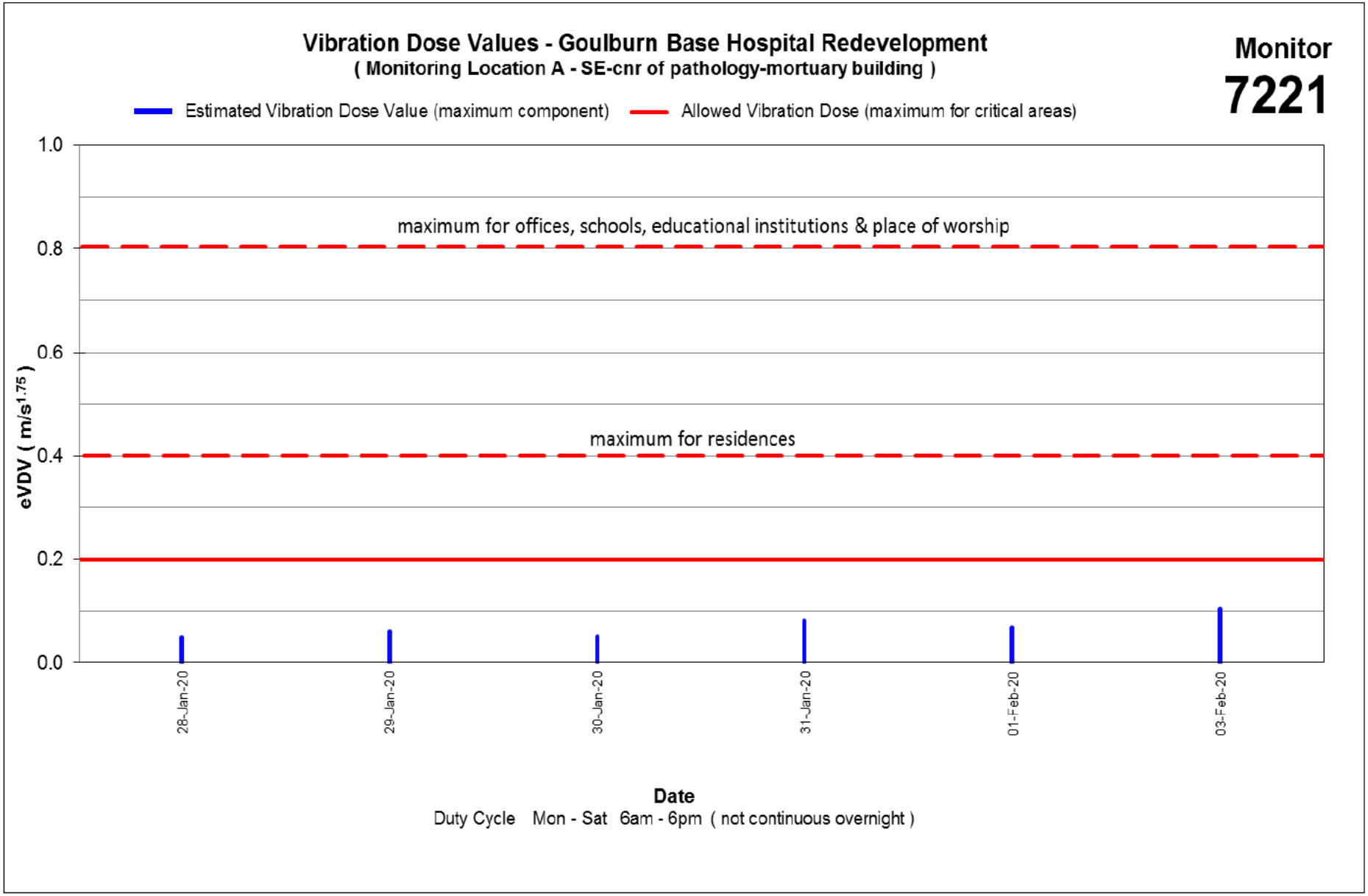
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(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
7221
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
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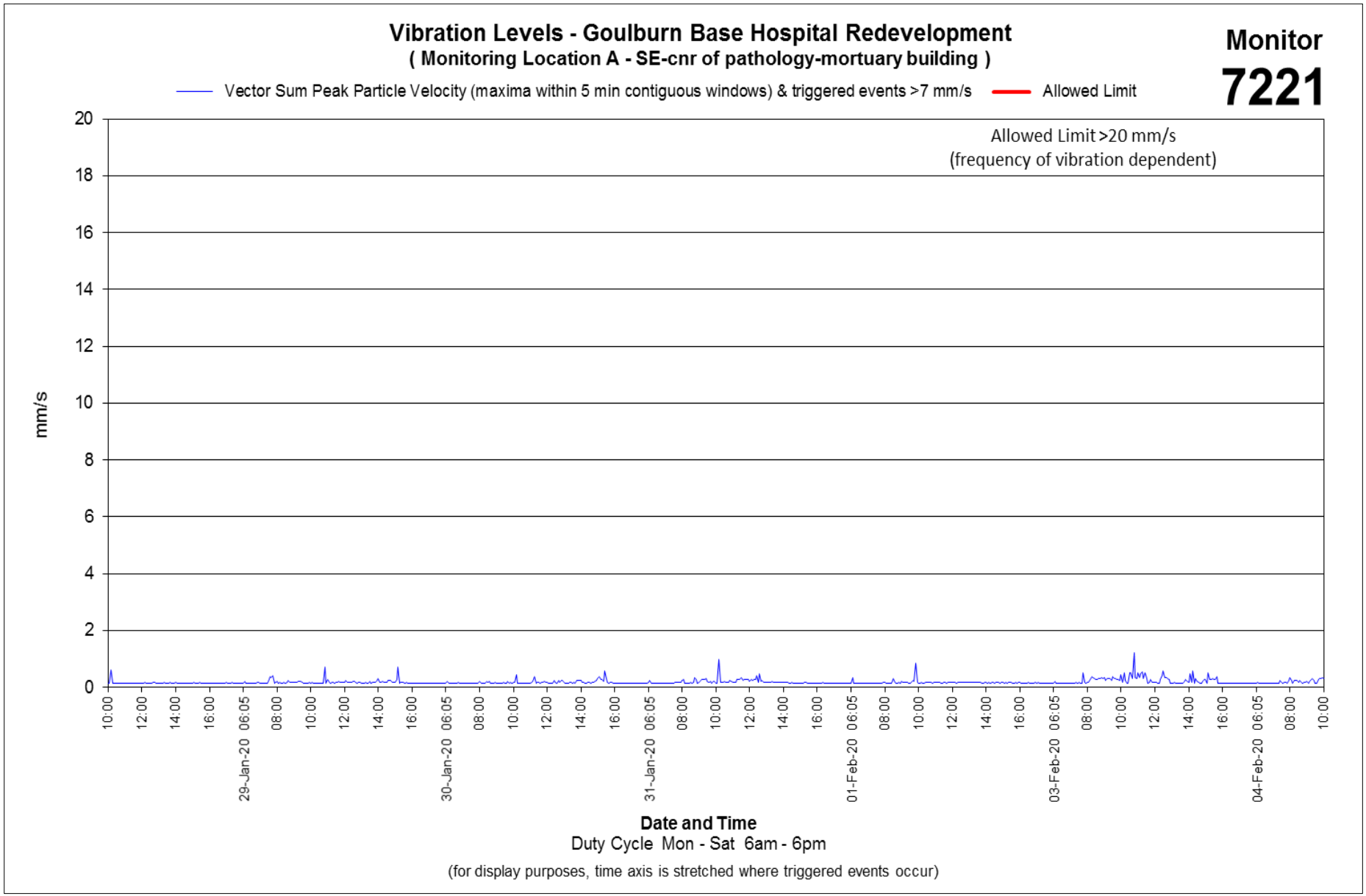
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- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency.
- Changes in policy or interpretations of policy by statutory authorities, or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

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In the e□ent that conditions enco□ntered on site d□ring constr□ction appear to □ary fro□ those □hich □ere expected fro□ the infor□ation contained in the report□ DP re□□ests that it be i□□ediately notified□ Most proble□s are □□ch □ore readily resol□ed □hen conditions are exposed rather than at so□e later stage□□ell after the e□ent.

□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

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□te □n□□ect□□n

The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□

Douglas Partners Pty Ltd
ABN [illegible]
[illegible].douglaspartners.com.au
[illegible] Hermitage Road
West Ryde NSW [illegible]
PO Box [illegible]
West Ryde NSW [illegible]
Phone ([illegible]) [illegible]

Memorandum

To:	Eugene Godfrey	Hansen Yuncken Pty Ltd	egodfrey@hansenyuncken.com.au	
From:	Anthony [illegible]ielniac[illegible]		**Date:**	[illegible] Feb [illegible]
Subject:	Vibration Monitoring Report – Goulburn Base Hospital Redevelopment		**Project No:** **Doc No:**	[illegible] [illegible]

Installation and Monitoring

On [illegible] January [illegible] Texcel Construction Vibration Monitors [illegible] were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works.

With reference to the C[illegible]MP (the Monitoring Plan), "Allowed Vibration Limits" of [illegible]s vector sum peak particle velocity ([illegible]SPP[illegible]) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of [illegible]s[illegible] for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon–Sat [illegible] with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding [illegible]s [illegible]SPP[illegible] as a contingency for impulsive events).

The eVDV shown in the attached graphs is a calculated estimate of VDV from velocity data rather than acquired acceleration data. The Dose Rate and Maximum values refer to accumulated vibration activity per day during daytime hours and includes summations of RMS velocities, wavelength durations and amplitudes (as detailed in NSW EPA Assessing Vibration: A Technical Guideline, February [illegible]). "Critical Areas" includes hospital operating theatres and precision laboratories where sensitive operations are occurring, and these criteria are indicative only, therefore consideration of continuous and impulsive vibrations is included (as recommended), see attached graphs. The table of acceptable daily Dose Values (Table [illegible]) includes a "Preferred Value", being half of the "Maximum Value".

Outcome this period [illegible] February [illegible]

Location	Monitor	Exceedances		Time of maximum exceedance
		[illegible]	Max [illegible]	
Monitoring Location A	[illegible]	[illegible]	n/a	n/a
Monitoring Location B	[illegible]	[illegible]	n/a	n/a

D□□g□a□ □artner□ □t□ □td

[redacted]

□nth□n□ □□e□n□ac□
Senior Geophysicist

Re□ie□ed by

[redacted]

□eter □□tmaa
Principal

Attach□ ents□Graphs of □ibration Le□els□Monitor Location Plan□Abo□t This Report

□□m□tat□□n□

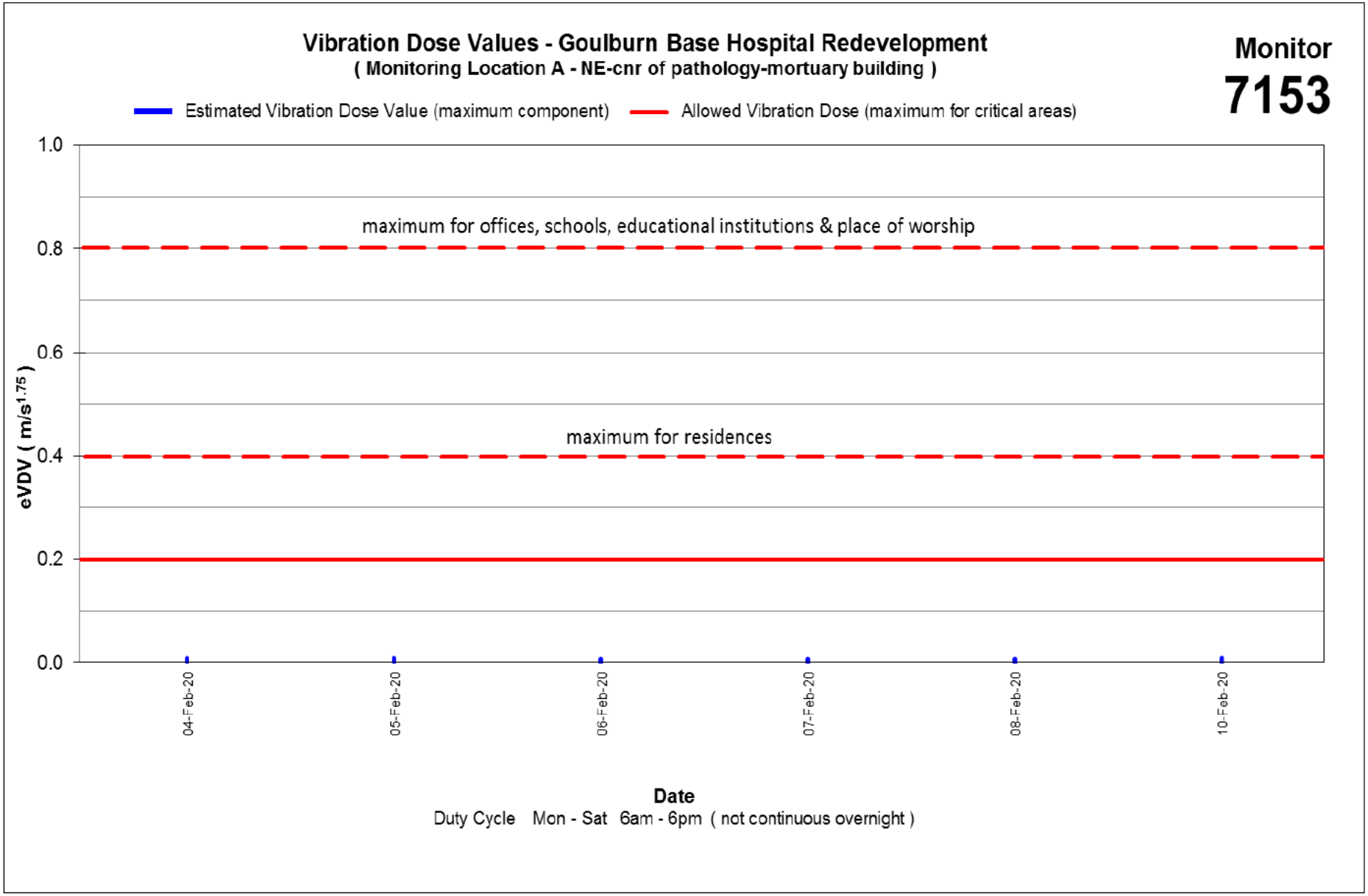
Do□glas Partners Pty Ltd (DP) has prepared this report for Hansen Y□nc□en Pty Ltd□ The report is pro□ided for the excl□si□e □se of Hansen Y□nc□en Pty Ltd for this pro□ect only and for the p□rpose(s) described in the report□ It sho□ld not be □sed for other pro□ects or by a third party□ In preparing this report DP has necessarily relied □pon infor□ ation pro□ided by the client and□or their agents□

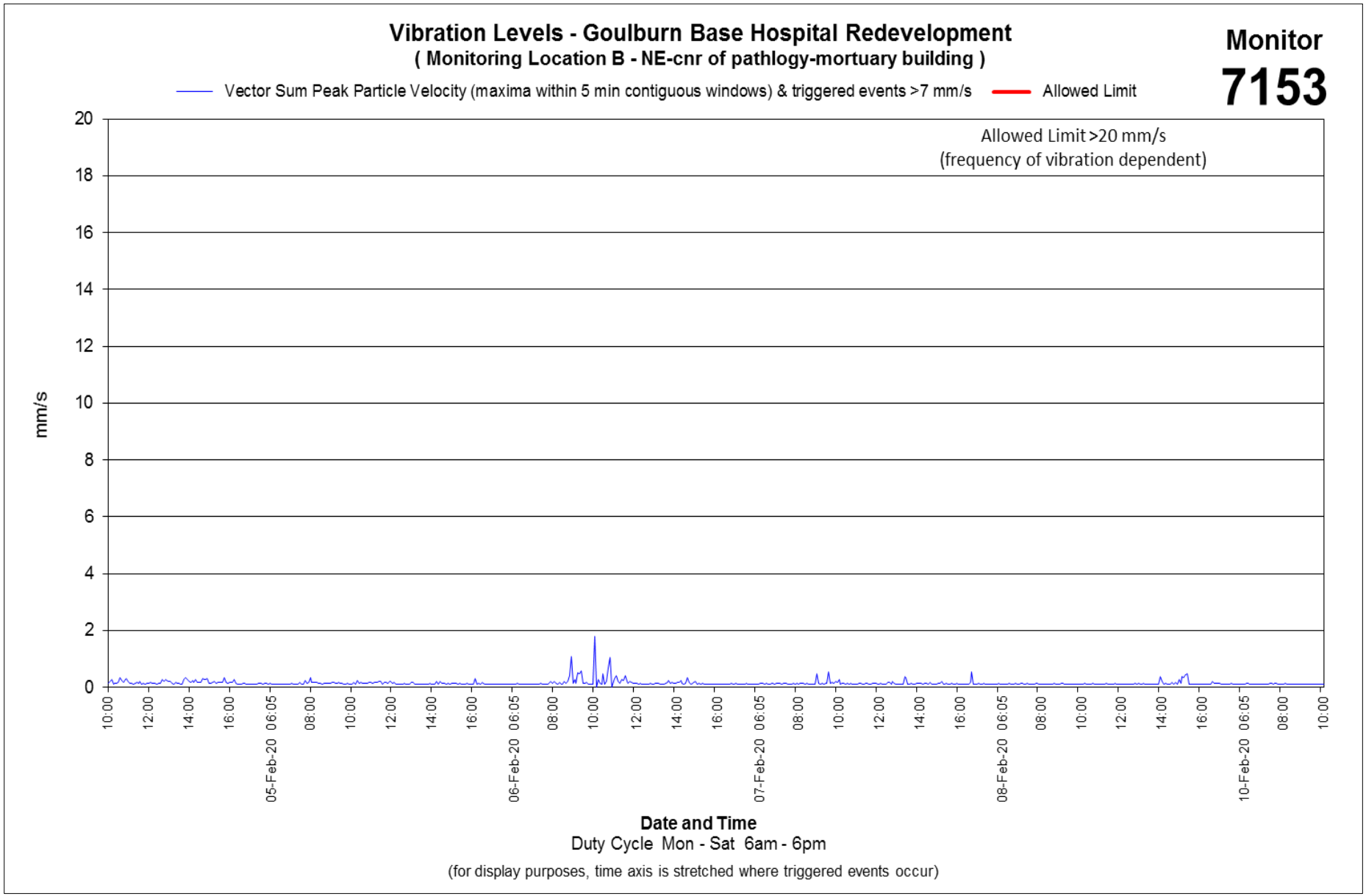
DP's advice may be based on observations, measurements, tests, or derived interpretations. The acc□racy of the ad□ice pro□ided by DP in this report □ ay be affected by □nobser□ed feat□res and □ariations in gro□nd conditions and conditions affecting □ibration across the site□bet□een and beyond the testing locations or by □ariations □ith ti□ e□ □ibration □ onitoring and ad□ice □ ay also be li□ ited by b□dget constraints i□ posed by others or by site accessibility□

The res□lts pro□ided in the report are indicati□e of the □ibration le□els at the sensor location(s) only and only d□ring the specified period of □ onitoring□ □ibration le□els in other locations □ ay therefore differ fro□ those reported herein□

As neither esti□ ations of safe operating distances for □ibrations (if pro□ided) nor the presence of an □nattended □ibration □ onitor can pre□ent exceedances□ the real□ti□ e □ anage□ ent of □ibration re□ ains the responsibility of Hansen Y□nc□en Pty Ltd and its plant operators□ Interference □ith (e□g□ □ o□e□ ent or da□ age to) the □ onitoring e□□ip□ ent □ ay infl□ence readings and the Client is responsible for ad□ising DP i□ □ ediately to assess □hether readings are affected□ re□installation and□or repair is re□□ired□

This report □ □st be read in con□□nction □ith all of the attached notes and sho□ld be □ept in its entirety □itho□t separation of indi□id□al pages or sections□ DP cannot be held responsible for interpretations or concl□sions □ ade by others □nless they are s□pported by an expressed state□ ent□interpretation□ o□tco□ e or concl□sion gi□en in this report□


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
eVDV (m/s1.75)
1.0
0.8
0.6
0.4
0.2
0.0
04-Feb-20
05-Feb-20
06-Feb-20
07-Feb-20
08-Feb-20
10-Feb-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathlogy-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
2
0
10:00
12:00
14:00
16:00
05-Feb-20 06:05
08:00
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06-Feb-20 06:05
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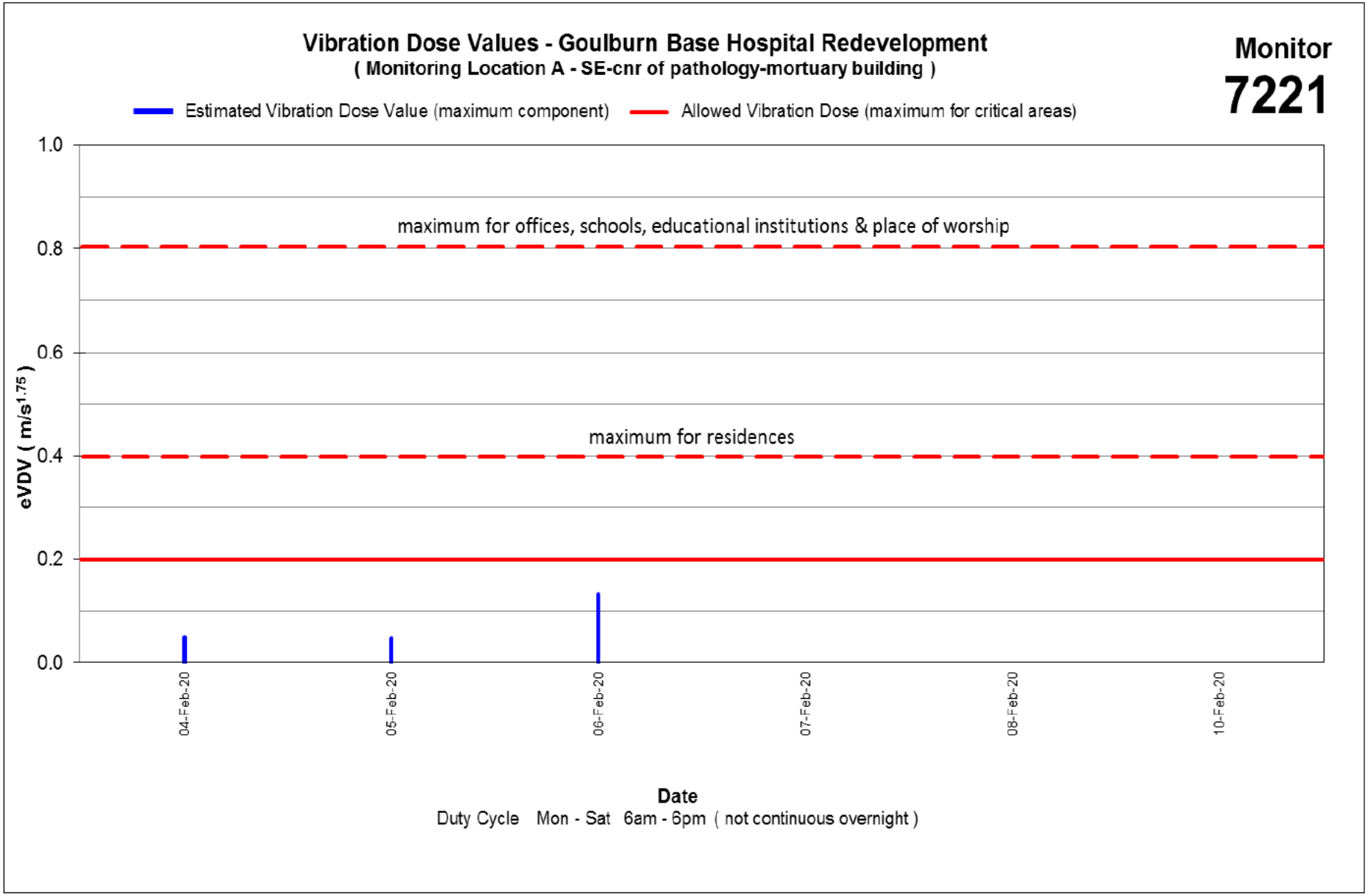
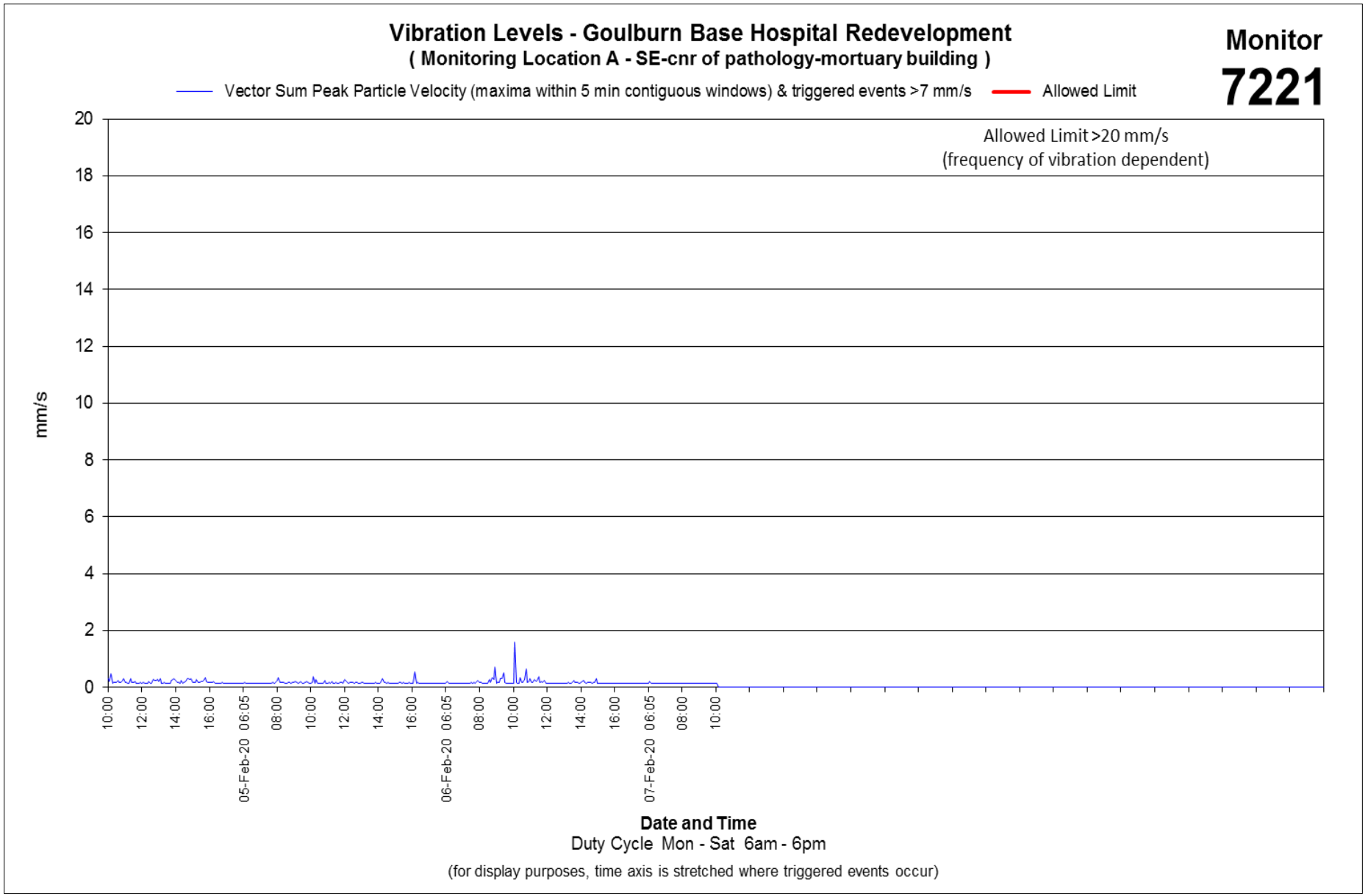
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
7221
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
04-Feb-20
05-Feb-20
06-Feb-20
07-Feb-20
08-Feb-20
10-Feb-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
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Date and Time
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About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
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More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

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□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

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Douglas Partners
Geotechnics / Environment / Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	[redacted]u	
From	[redacted]	**Date**	17 Mar 2020
Subject	Vibration Monitoring Report 5 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.005.Rev0

Installation and Monitoring

On 21 January 2020 Texcel Construction Vibration Monitors #7221, #7153 were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works.

With reference to the CNVMP (the Monitoring Plan), an "Allowed Vibration Limit" of 25 mm/s vector sum peak particle velocity (VSPPV) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of 0.20 $m/s^{1.75}$ for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon - Sat, 6 am - 6 pm, with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding 7 mm/s VSPPV, as a contingency for impulsive events).

The eVDV shown in the attached graphs is a calculated estimate of VDV from velocity data rather than acquired acceleration data. The Dose Rate and Maximum Values refer to accumulated vibration activity per day during daytime hours and includes summations of RMS velocities, wavelength durations and amplitudes (as detailed in NSW EPA Assessing Vibration: A Technical Guideline, February 2006). "Critical Areas" includes hospital operating theatres and precision laboratories where sensitive operations are occurring, and these criteria are indicative only, therefore consideration of continuous and impulsive vibrations is included (as recommended), see attached graphs. The table of acceptable daily Dose Values, Table 2.4, includes a "Preferred Value", being half of the "Maximum Value".

Outcome this period: 10 - 17 February 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	7221*	n/a	n/a	n/a
Monitoring Location B	7153	0	n/a	n/a

*No data recorded by monitor #7221 for the period.

Douglas Partners Pty Ltd

[redacted]

Senior Geophysicist

Reviewed by

[redacted]

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

Limitations

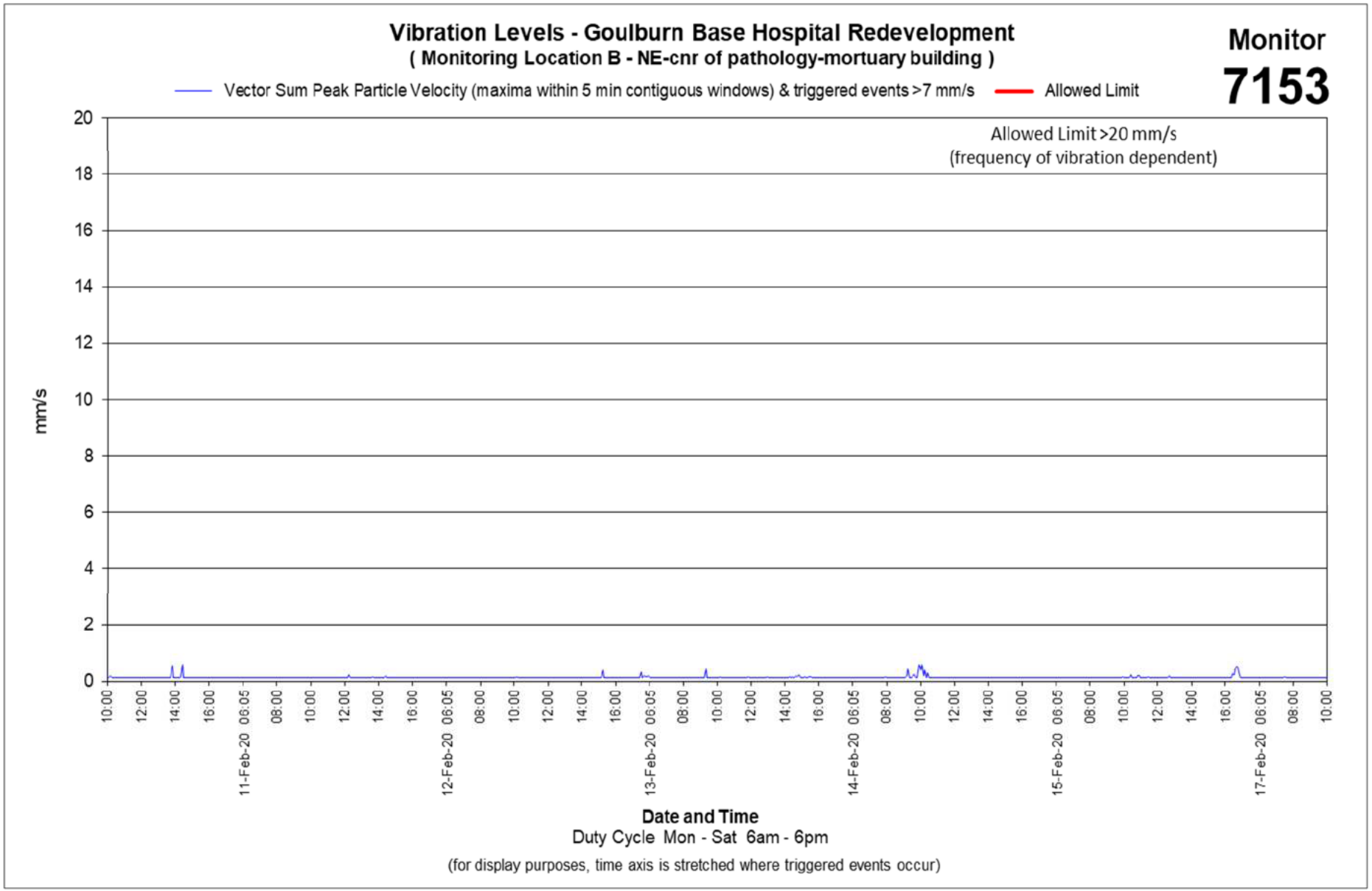
Douglas Partners Pty Ltd (DP) has prepared this report for Hansen Yuncken Pty Ltd. The report is provided for the exclusive use of Hansen Yuncken Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice may be based on observations, measurements, tests, or derived interpretations. The accuracy of the advice provided by DP in this report may be affected by unobserved features and variations in ground conditions and conditions affecting vibration across the site, between and beyond the testing locations or by variations with time. Vibration monitoring and advice may also be limited by budget constraints imposed by others or by site accessibility.

The results provided in the report are indicative of the vibration levels at the sensor location(s) only and only during the specified period of monitoring. Vibration levels in other locations may therefore differ from those reported herein.

As neither estimations of safe operating distances for vibrations (if provided) nor the presence of an unattended vibration monitor can prevent exceedances, the real-time management of vibration remains the responsibility of Hansen Yuncken Pty Ltd and its plant operators. Interference with (e.g. movement or damage to) the monitoring equipment may influence readings and the Client is responsible for advising DP immediately to assess whether readings are affected, re-installation and/or repair is required.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
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10:00
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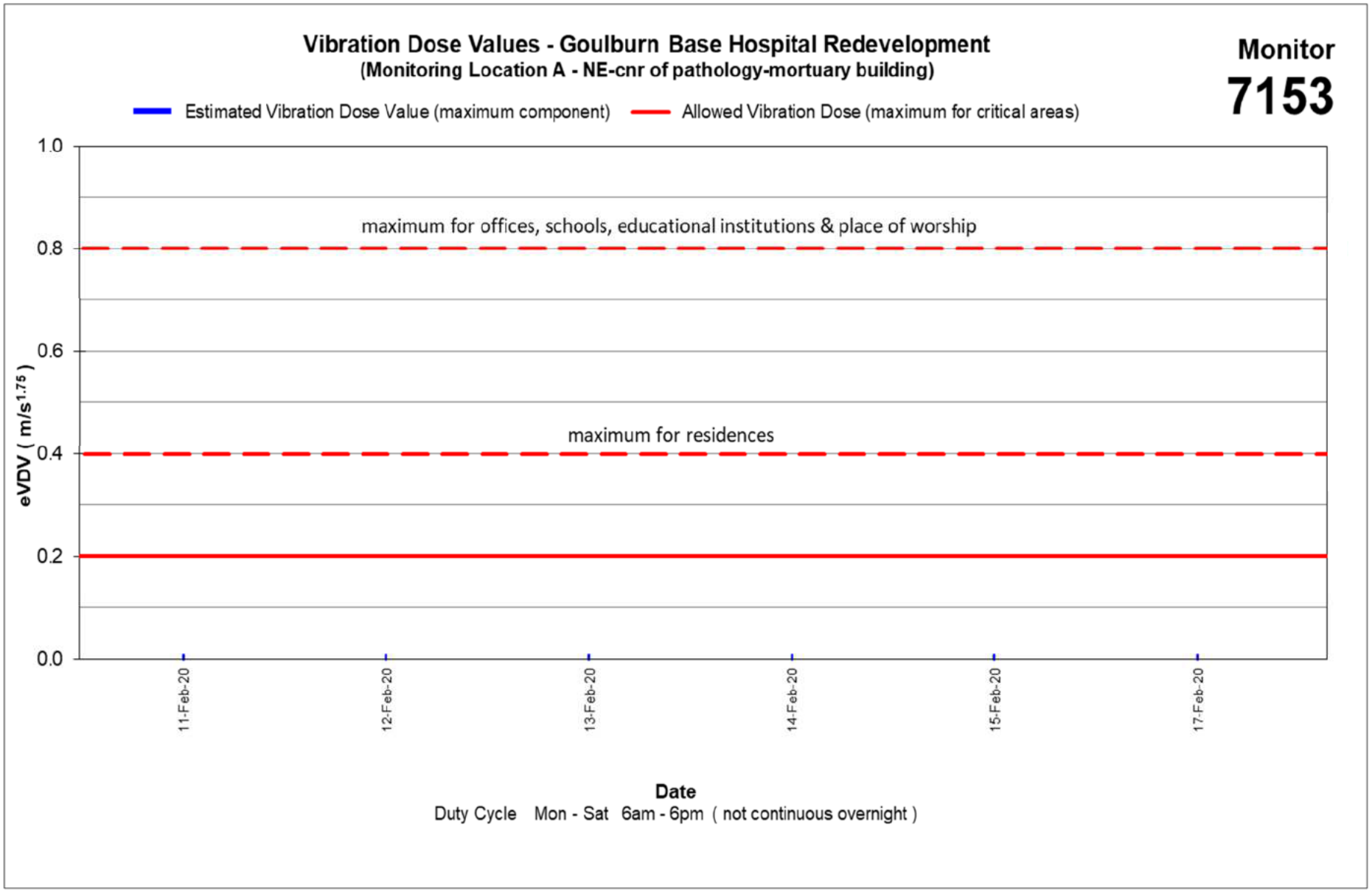
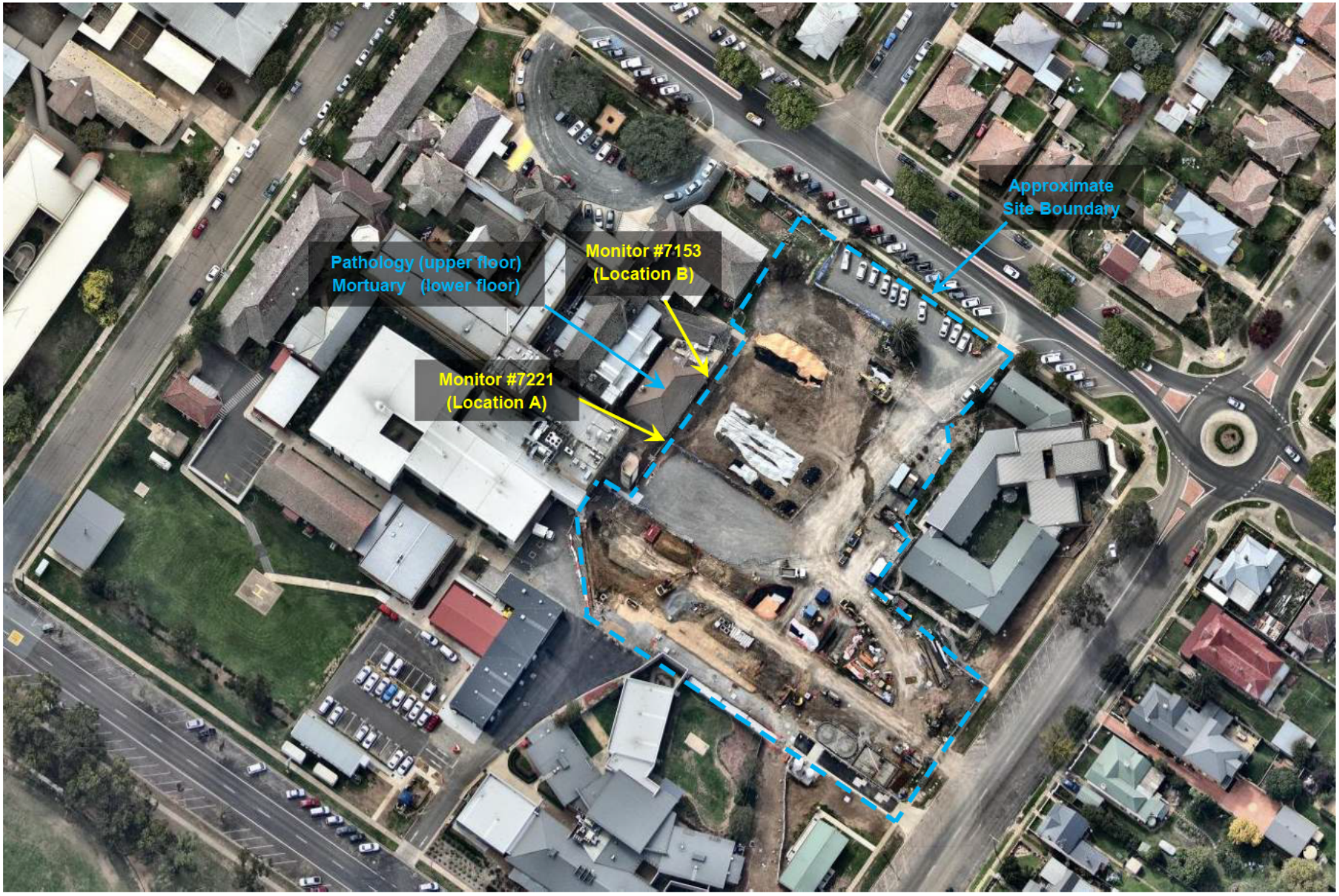
16:00
06:05
08:00
10:00
11-Feb-20
12-Feb-20
13-Feb-20
14-Feb-20
15-Feb-20
17-Feb-20
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
11-Feb-20
12-Feb-20
13-Feb-20
14-Feb-20
15-Feb-20
17-Feb-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Approximate
Site Boundary
Pathology (upper floor)
Mortuary (lower floor)
Monitor #7153
(Location B)
Monitor #7221
(Location A)

About this Report

Douglas Partners

Introduction

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About this Report

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In the e□ent that conditions enco□ntered on site d□ring constr□ction appear to □ary fro□ those □hich □ere expected fro□ the infor□ation contained in the report□ DP re□□ests that it be i□□ediately notified□ Most proble□s are □□ch □ore readily resol□ed □hen conditions are exposed rather than at so□e later stage□□ell after the e□ent.

□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

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The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□

Douglas Partners
Geotechnics / Environment / Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	[redacted]	
From	[redacted]	**Date**	17 Mar 2020
Subject	Vibration Monitoring Report 6 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.006.Rev0

Installation and Monitoring

On 21 January 2020 Texcel Construction Vibration Monitors #7221, #7153 were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works.

With reference to the CNVMP (the Monitoring Plan), an "Allowed Vibration Limit" of 25 mm/s vector sum peak particle velocity (VSPPV) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of 0.20 $m/s^{1.75}$ for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon - Sat, 6 am - 6 pm, with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding 7 mm/s VSPPV, as a contingency for impulsive events).

The eVDV shown in the attached graphs is a calculated estimate of VDV from velocity data rather than acquired acceleration data. The Dose Rate and Maximum Values refer to accumulated vibration activity per day during daytime hours and includes summations of RMS velocities, wavelength durations and amplitudes (as detailed in NSW EPA Assessing Vibration: A Technical Guideline, February 2006). "Critical Areas" includes hospital operating theatres and precision laboratories where sensitive operations are occurring, and these criteria are indicative only, therefore consideration of continuous and impulsive vibrations is included (as recommended), see attached graphs. The table of acceptable daily Dose Values, Table 2.4, includes a "Preferred Value", being half of the "Maximum Value".

Outcome this period: 17 - 24 February 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	7221*	n/a	n/a	n/a
Monitoring Location B	7153	0	n/a	n/a

*No data recorded by monitor #7221 for the period.

Douglas Partners Pty Ltd

[redacted]

[redacted]

Senior Geophysicist

Reviewed by

[redacted]

[redacted]

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for Hansen Yuncken Pty Ltd. The report is provided for the exclusive use of Hansen Yuncken Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice may be based on observations, measurements, tests, or derived interpretations. The accuracy of the advice provided by DP in this report may be affected by unobserved features and variations in ground conditions and conditions affecting vibration across the site, between and beyond the testing locations or by variations with time. Vibration monitoring and advice may also be limited by budget constraints imposed by others or by site accessibility.

The results provided in the report are indicative of the vibration levels at the sensor location(s) only and only during the specified period of monitoring. Vibration levels in other locations may therefore differ from those reported herein.

As neither estimations of safe operating distances for vibrations (if provided) nor the presence of an unattended vibration monitor can prevent exceedances, the real-time management of vibration remains the responsibility of Hansen Yuncken Pty Ltd and its plant operators. Interference with (e.g. movement or damage to) the monitoring equipment may influence readings and the Client is responsible for advising DP immediately to assess whether readings are affected, re-installation and/or repair is required.

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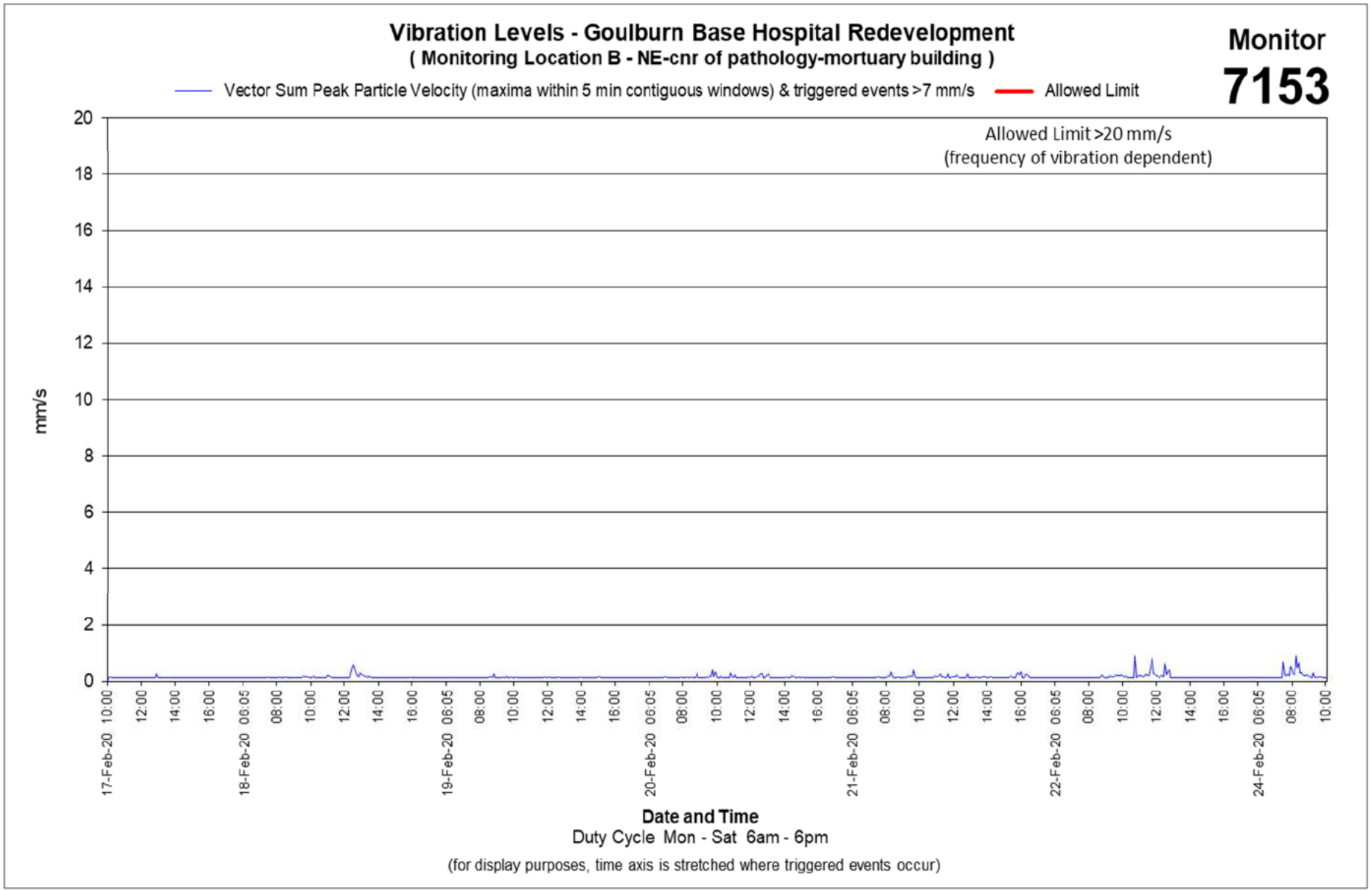
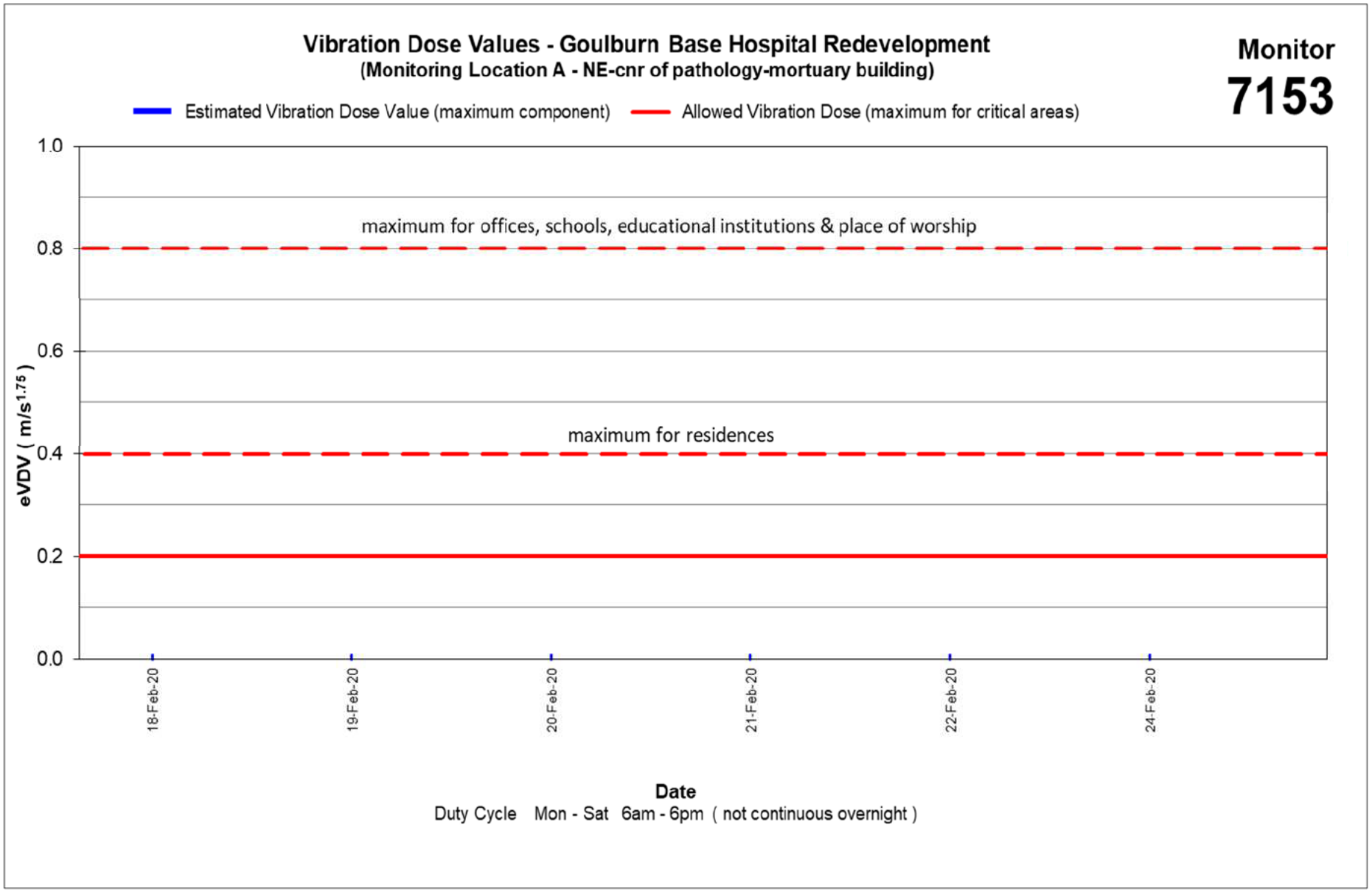
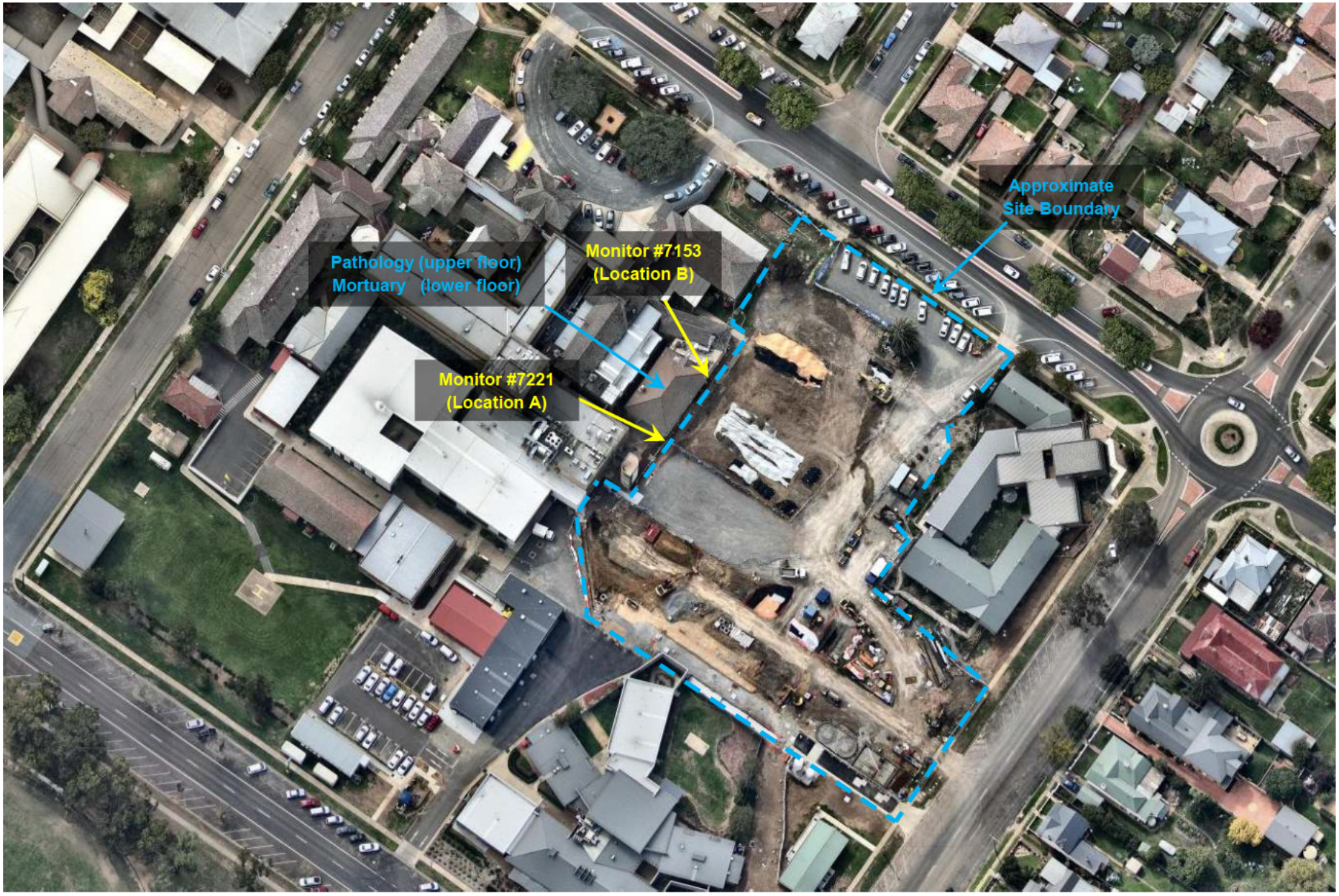

Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
2
0
17-Feb-20 10:00
18-Feb-20 06:05
19-Feb-20 06:05
20-Feb-20 06:05
21-Feb-20 06:05
22-Feb-20 06:05
24-Feb-20 06:05
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
eVDV (m/s1.75)
1.0
0.8
0.6
0.4
0.2
0.0
18-Feb-20
19-Feb-20
20-Feb-20
21-Feb-20
22-Feb-20
24-Feb-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Approximate
Site Boundary
Pathology (upper floor)
Mortuary (lower floor)
Monitor #7153
(Location B)
Monitor #7221
(Location A)

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency.
- Changes in policy or interpretations of policy by statutory authorities, or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

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Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	[redacted]	
From	[redacted]	**Date**	17 Mar 2020
Subject	Vibration Monitoring Report 7 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.007.Rev0

Installation and Monitoring

On 21 January 2020 Texcel Construction Vibration Monitors #7221, #7153 were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works. On 26 February 2020, Monitor #7221 was replaced with Omnidot Vibration Monitor "Vujaca".

With reference to the CNVMP (the Monitoring Plan), an "Allowed Vibration Limit" of 25 mm/s vector sum peak particle velocity (VSPPV) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of 0.20 $m/s^{1.75}$ for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon - Sat, 6 am - 6 pm, with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding 7 mm/s VSPPV, as a contingency for impulsive events).

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Outcome this period: 24 February to 2 March 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	7221/Vujaca	0	n/a	n/a
Monitoring Location B	7153	0	n/a	n/a

Douglas Partners Pty Ltd

[redacted]

[redacted]

Senior Geophysicist

Reviewed by

[redacted]

[redacted]

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

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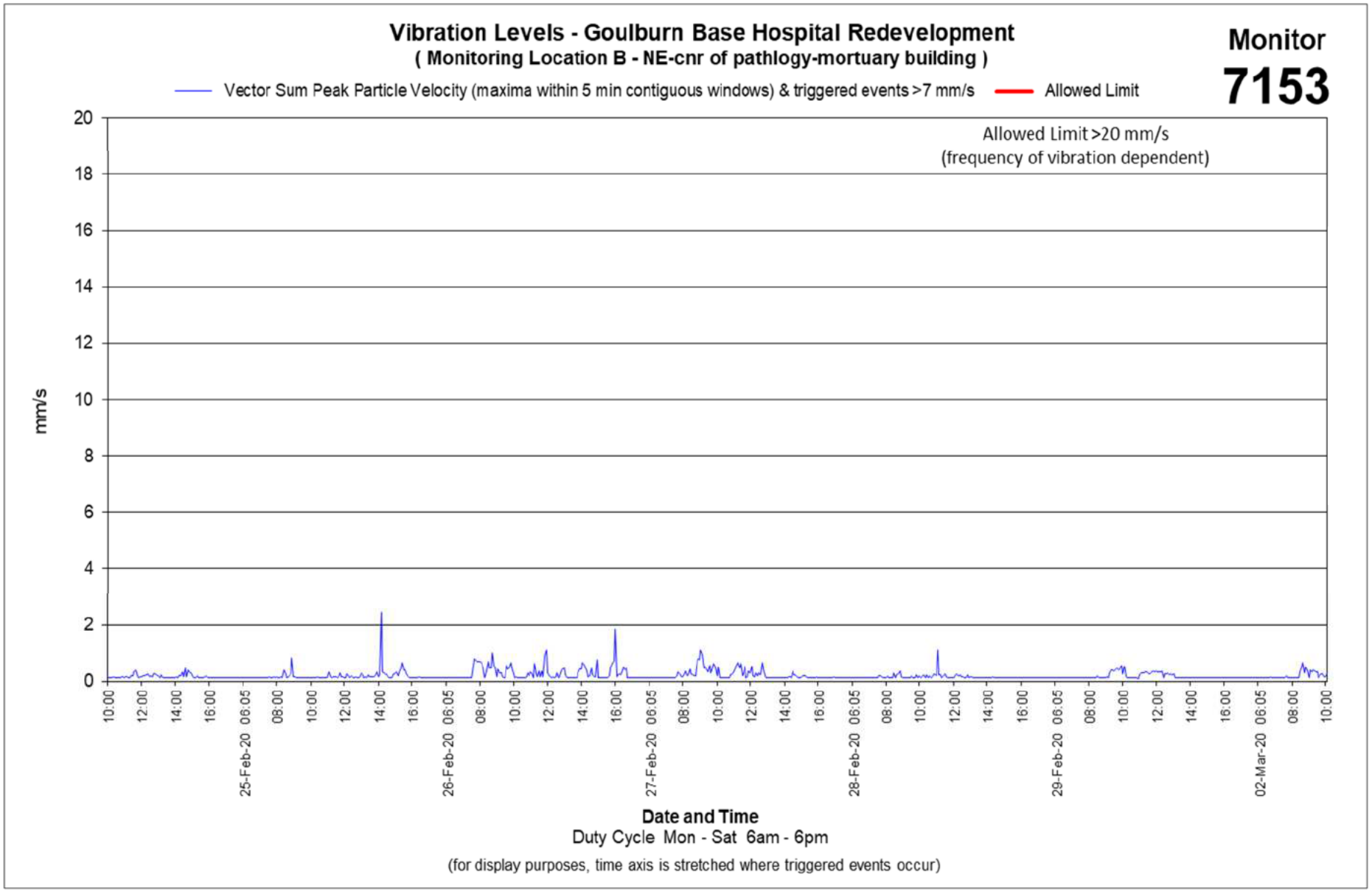
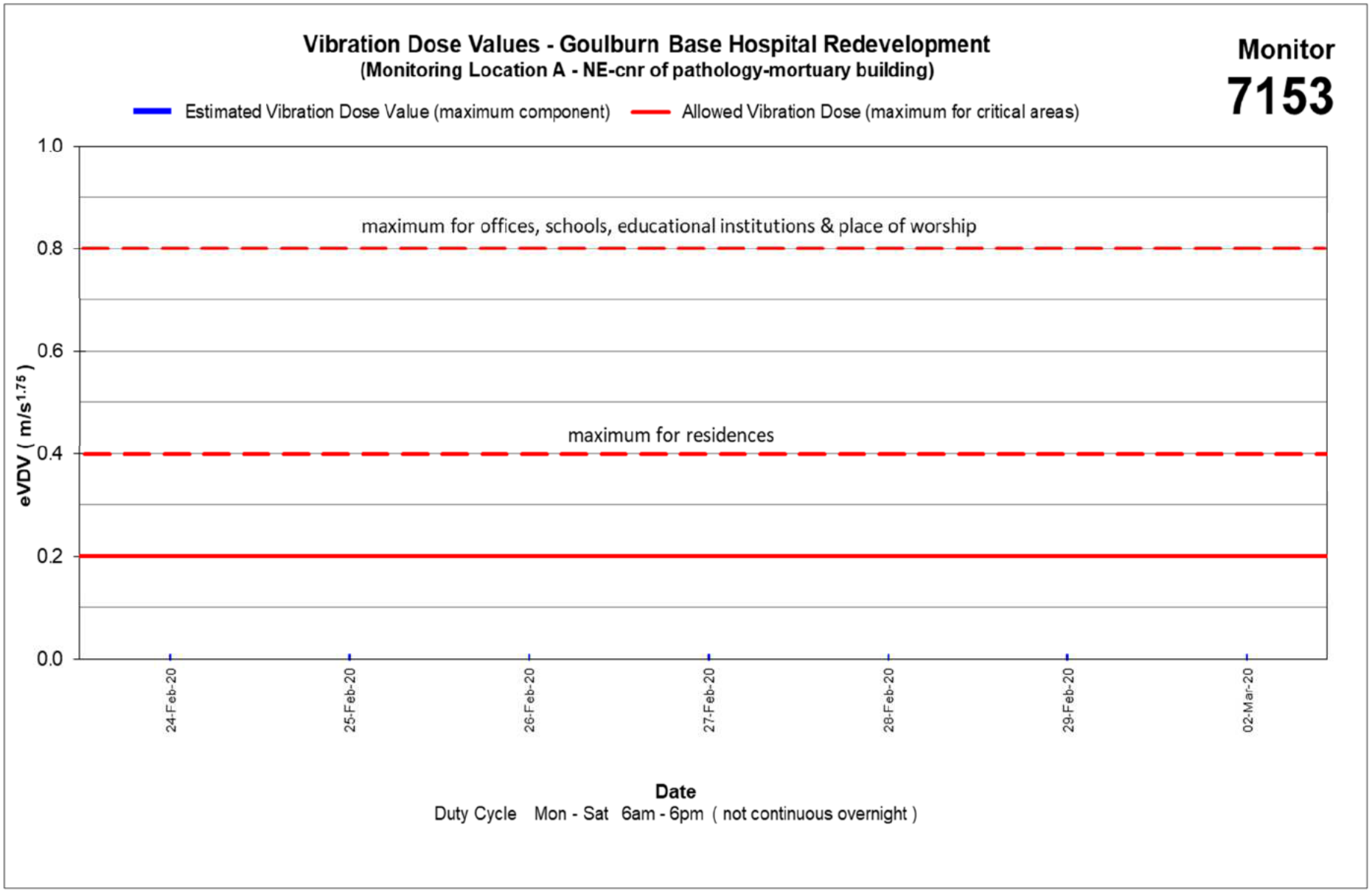
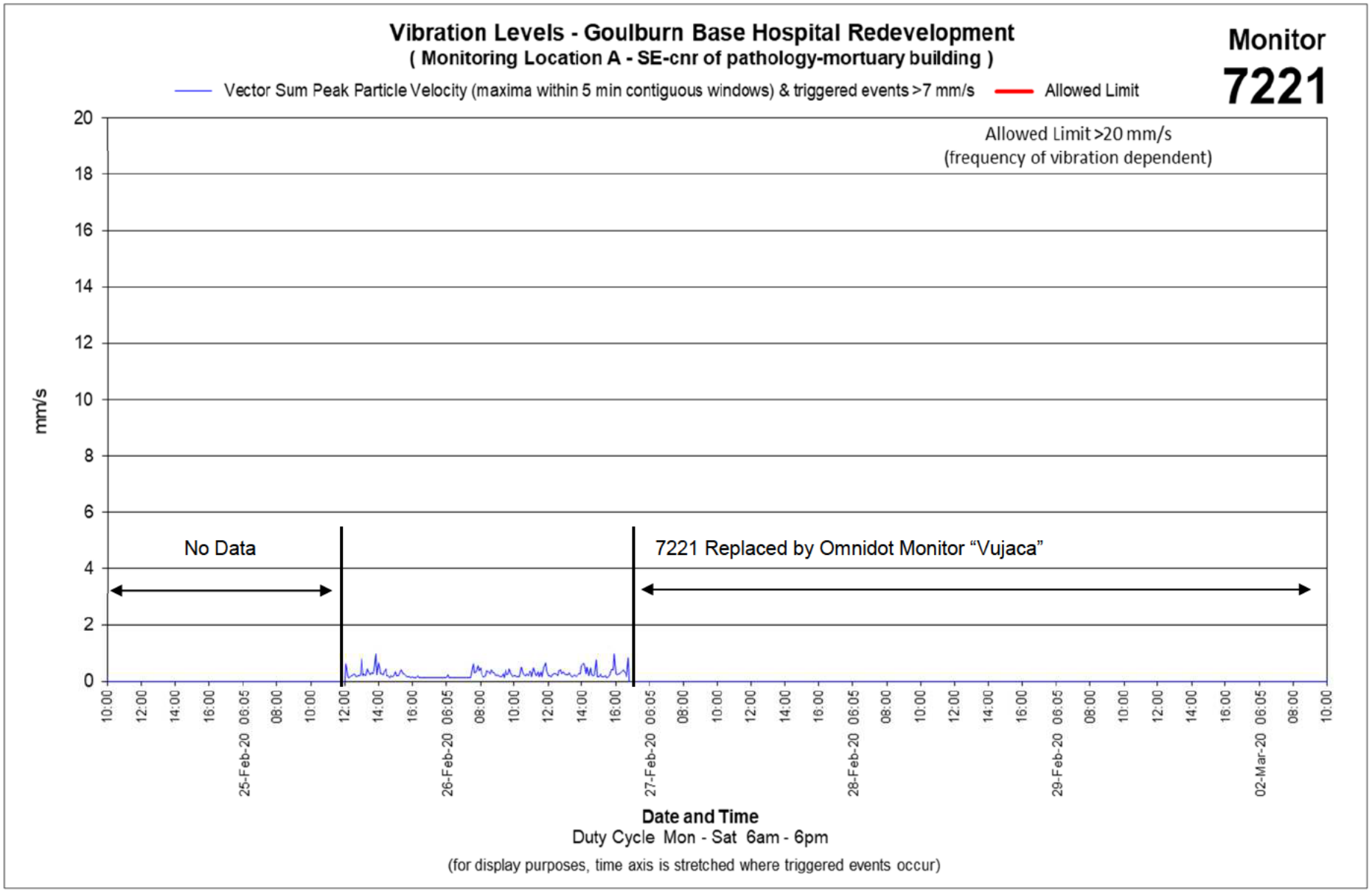

Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathlogy-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
2
0
10:00
12:00
14:00
16:00
25-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
26-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
27-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
28-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
29-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
02-Mar-20 06:05
08:00
10:00
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
eVDV (m/s1.75)
1.0
0.8
0.6
0.4
0.2
0.0
24-Feb-20
25-Feb-20
26-Feb-20
27-Feb-20
28-Feb-20
29-Feb-20
02-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
7221
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
2
0
No Data
7221 Replaced by Omnidot Monitor "Vujaca"
10:00
12:00
14:00
16:00
25-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
26-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
27-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
28-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
29-Feb-20 06:05
08:00
10:00
12:00
14:00
16:00
02-Mar-20 06:05
08:00
10:00
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
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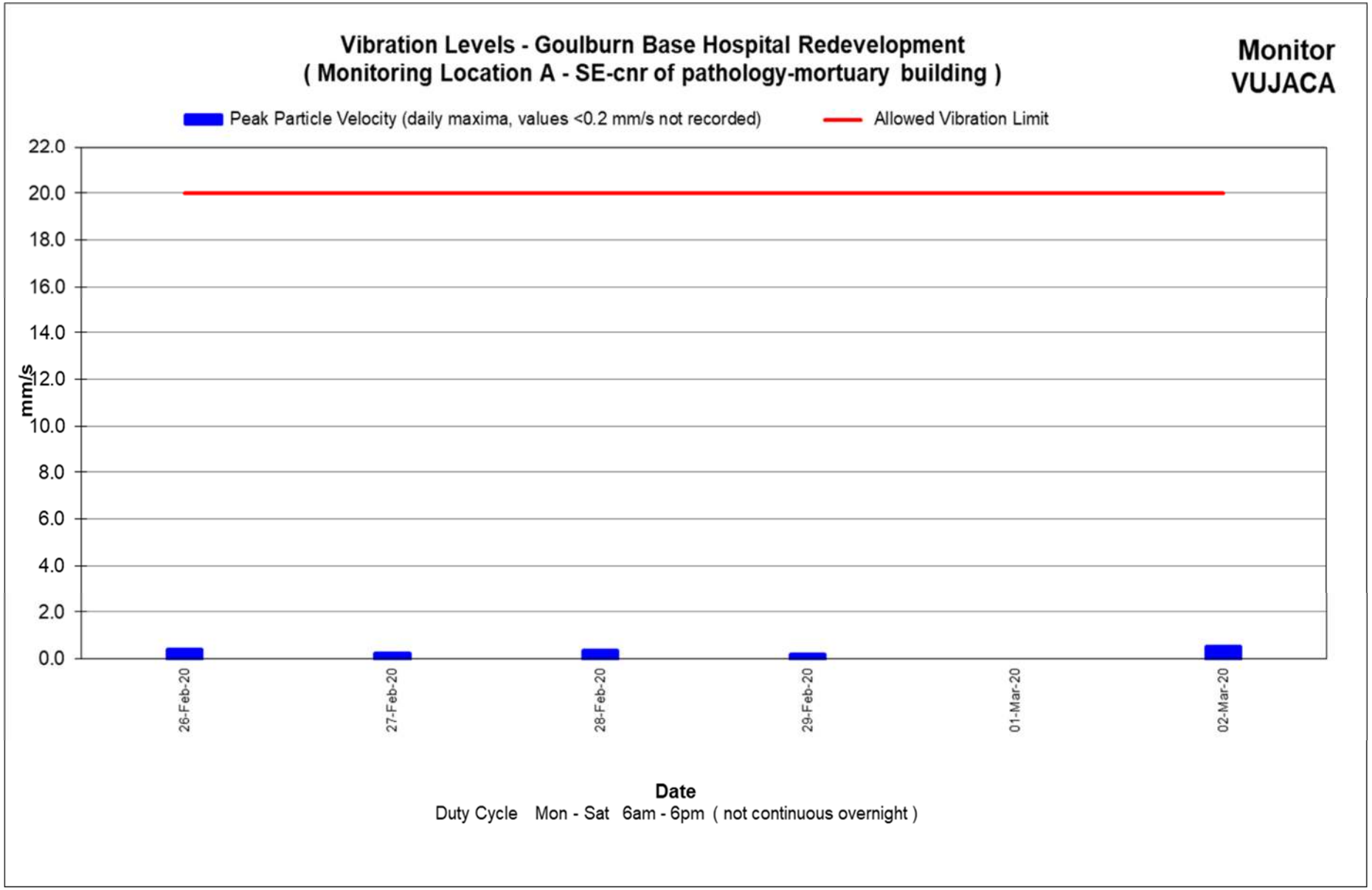
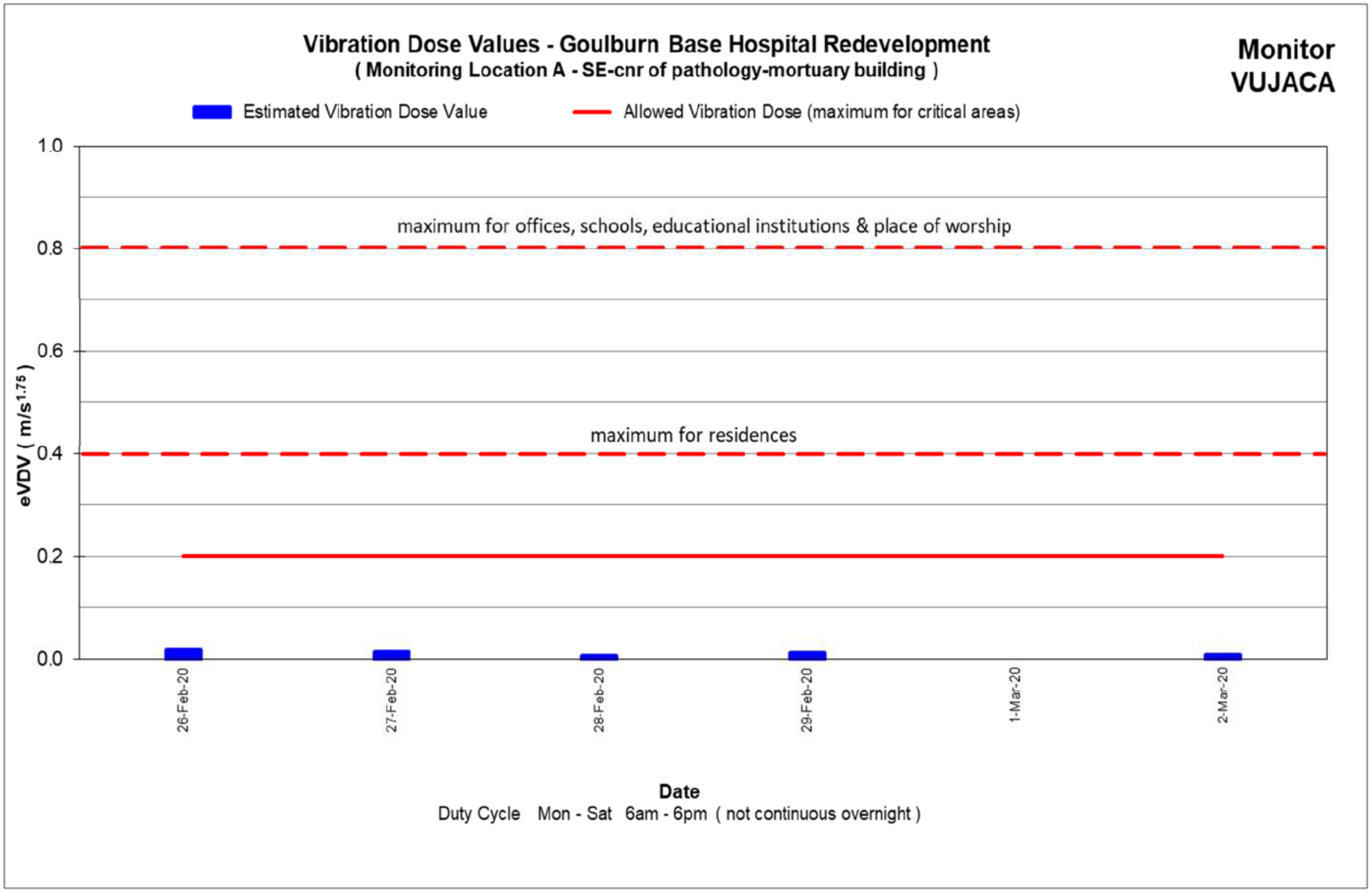

Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Peak Particle Velocity (daily maxima, values <0.2 mm/s not recorded)
Allowed Vibration Limit
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
mm/s
26-Feb-20
27-Feb-20
28-Feb-20
29-Feb-20
01-Mar-20
02-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Estimated Vibration Dose Value
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
26-Feb-20
27-Feb-20
28-Feb-20
29-Feb-20
1-Mar-20
2-Mar-20
Date
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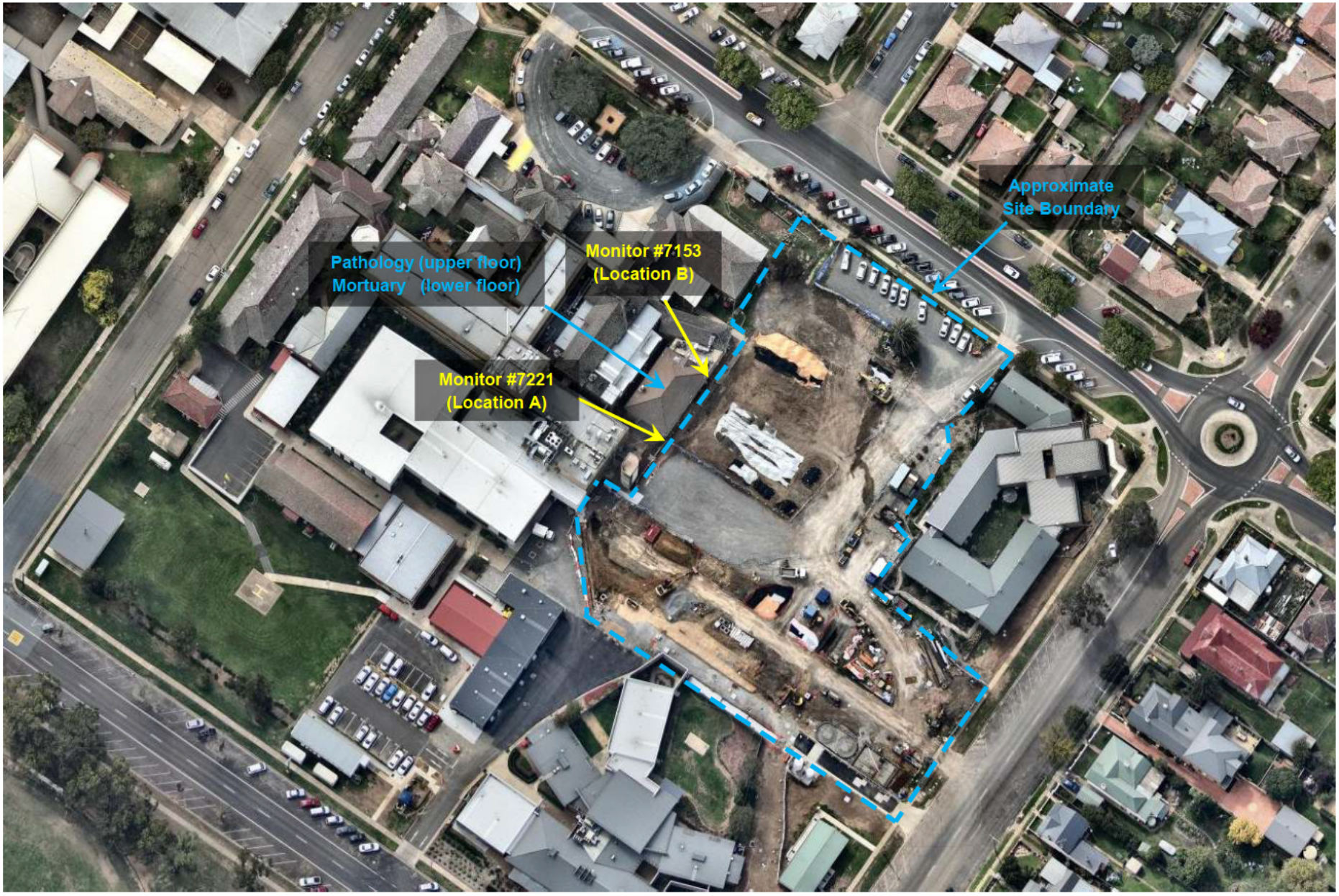
Approximate
Site Boundary
Pathology (upper floor)
Mortuary (lower floor)
Monitor #7153
(Location B)
Monitor #7221
(Location A)

About this Report

Douglas Partners

Introduction

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Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

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□te □n□□ect□□n

The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□

Douglas Partners
Geotechnics / Environment / Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	[redacted]	
From	[redacted]	**Date**	19 Mar 2020
Subject	Vibration Monitoring Report 8 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.008.Rev0

Installation and Monitoring

On 21 January 2020 Texcel Construction Vibration Monitors #7221, #7153 were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works. On 26 February 2020, Monitor #7221 was replaced with Omnidot Vibration Monitor "Vujaca".

With reference to the CNVMP (the Monitoring Plan), an "Allowed Vibration Limit" of 25 mm/s vector sum peak particle velocity (VSPPV) was assigned by DP based on the potential for damage to the adjacent structures and a Vibration Dose Value (VDV) of 0.20 $m/s^{1.75}$ for comfort of the occupants (whole body vibration). The monitors were configured for continuous monitoring Mon - Sat, 6 am - 6 pm, with SMS (text message) alarms to be sent automatically to Eugene Godfrey and DP in the event of vibration exceedances (vibration levels exceeding 7 mm/s VSPPV, as a contingency for impulsive events).

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Outcome this period: 2 March to 9 March 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	Vujaca	0	n/a	n/a
Monitoring Location B	7153	0	n/a	n/a

Senior Geophysicist

Reviewed by

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

Limitations

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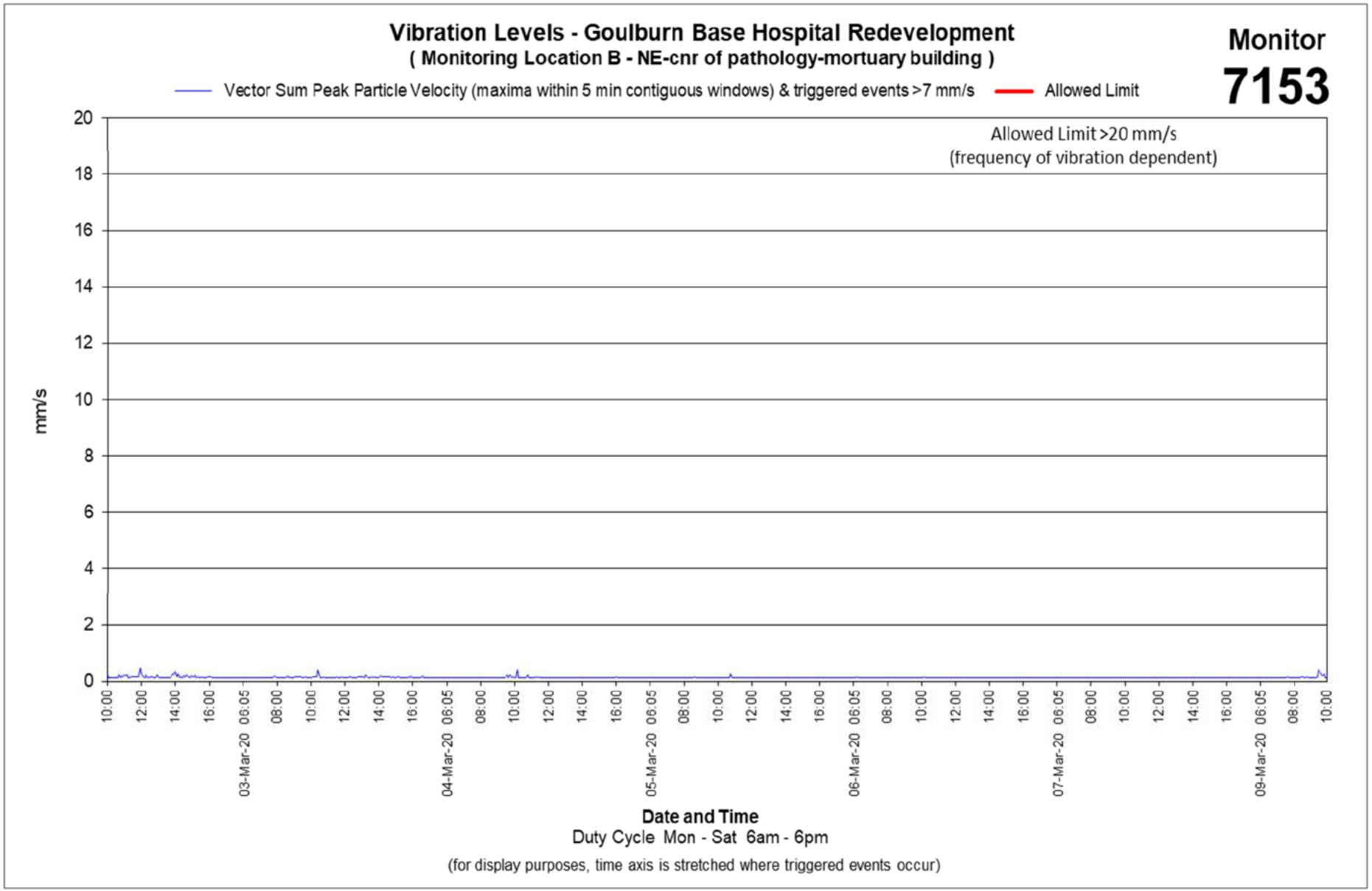
Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
4
2
0
10:00
12:00
14:00
16:00
03-Mar-20 06:05
08:00
10:00
12:00
14:00
16:00
04-Mar-20 06:05
08:00
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16:00
05-Mar-20 06:05
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07-Mar-20 06:05
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14:00
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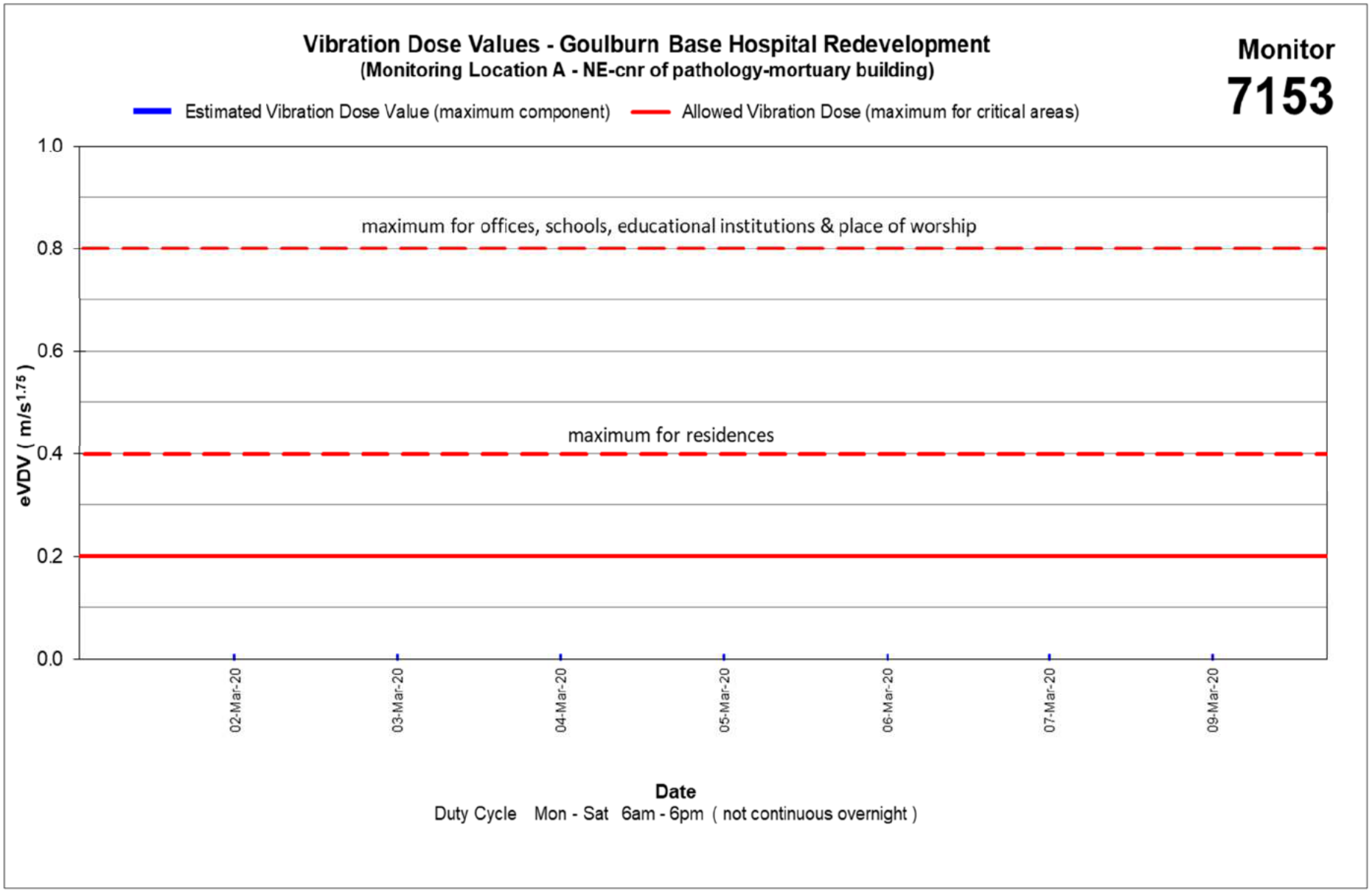
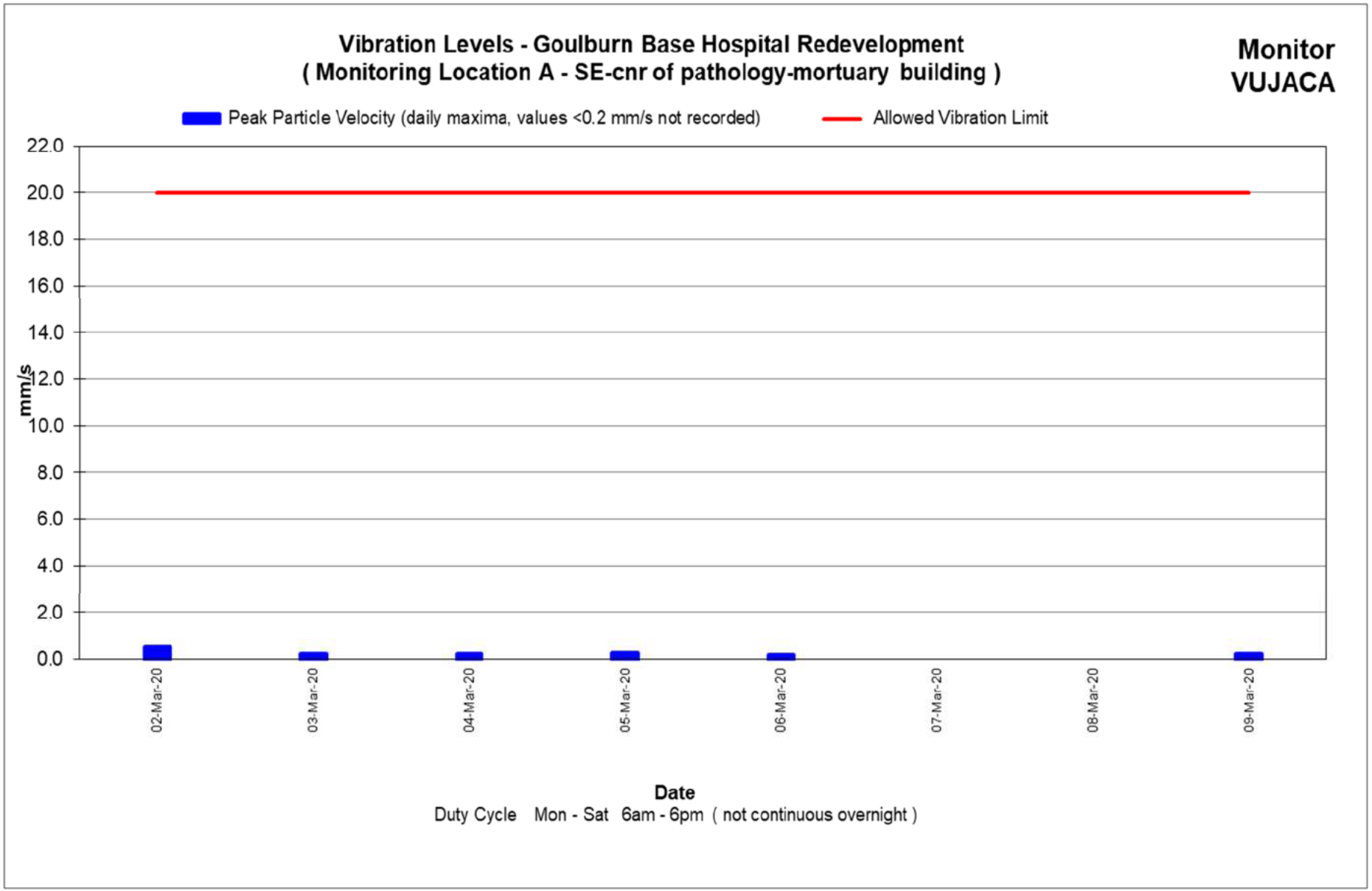
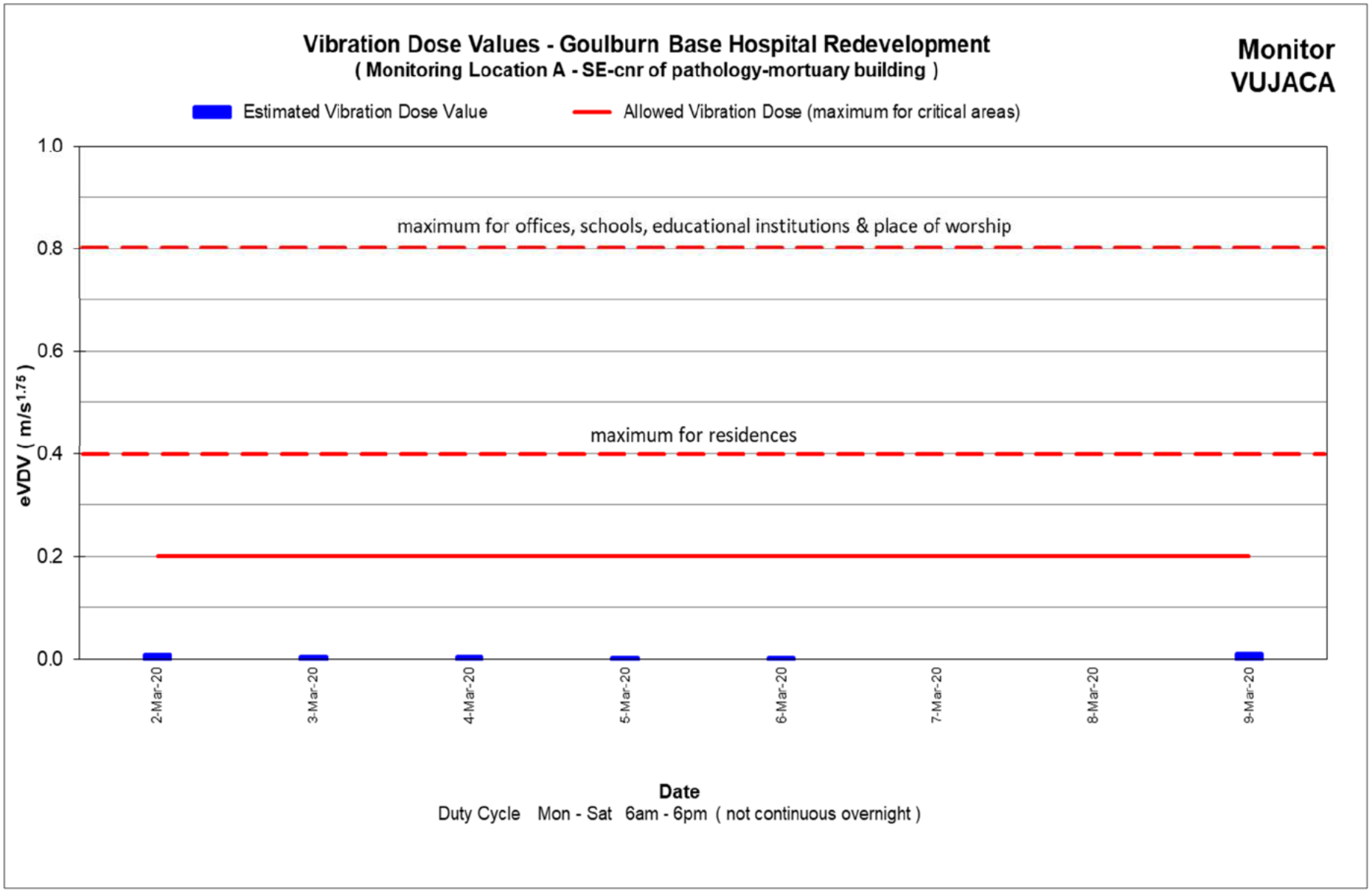
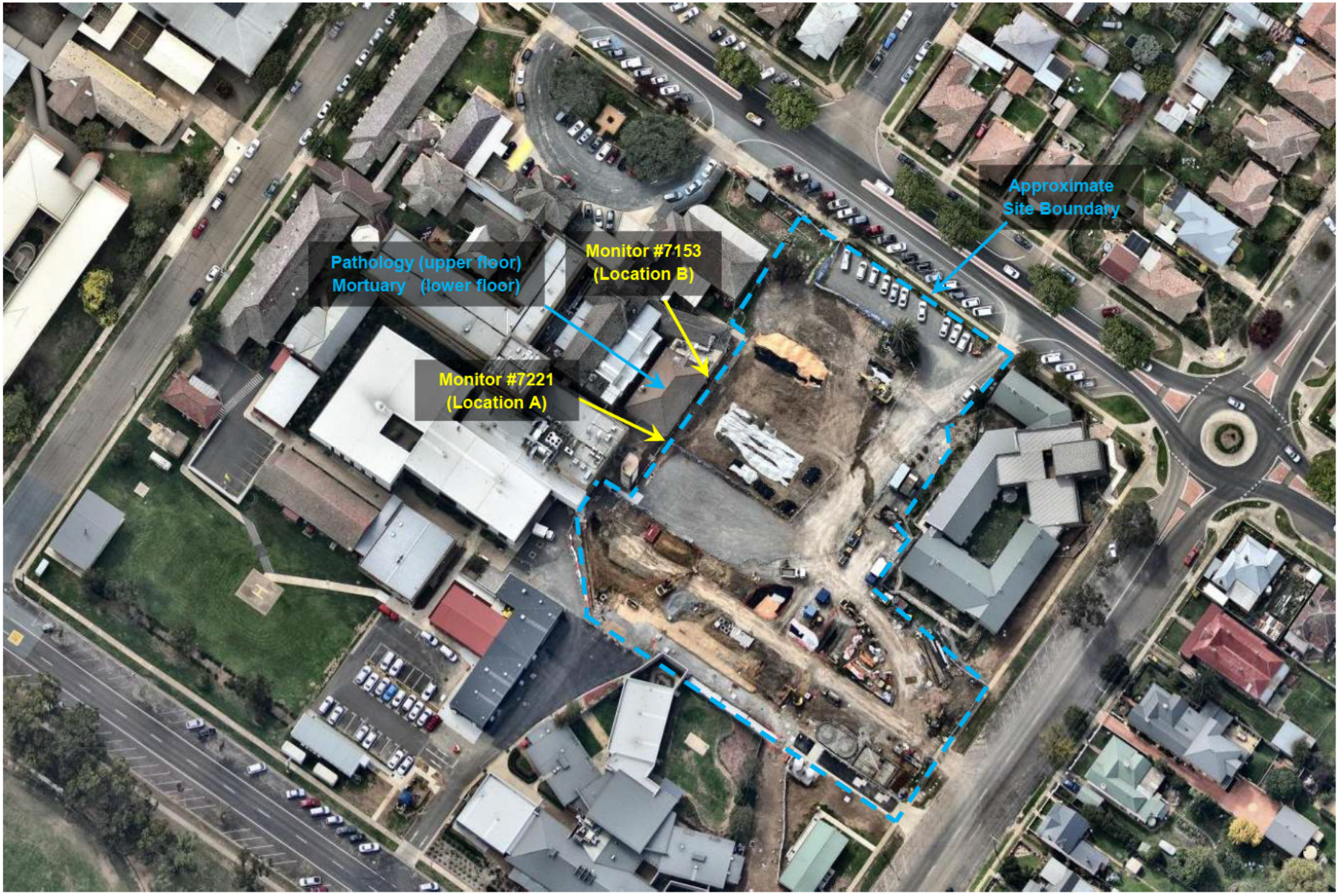
10:00
Date and Time
Duty Cycle Mon - Sat 6am - 6pm
(for display purposes, time axis is stretched where triggered events occur)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
eVDV (m/s1.75)
1.0
0.8
0.6
0.4
0.2
0.0
02-Mar-20
03-Mar-20
04-Mar-20
05-Mar-20
06-Mar-20
07-Mar-20
09-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Peak Particle Velocity (daily maxima, values <0.2 mm/s not recorded)
Allowed Vibration Limit
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
mm/s
02-Mar-20
03-Mar-20
04-Mar-20
05-Mar-20
06-Mar-20
07-Mar-20
08-Mar-20
09-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Estimated Vibration Dose Value
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
2-Mar-20
3-Mar-20
4-Mar-20
5-Mar-20
6-Mar-20
7-Mar-20
8-Mar-20
9-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Approximate
Site Boundary
Pathology (upper floor)
Mortuary (lower floor)
Monitor #7153
(Location B)
Monitor #7221
(Location A)

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than straight line variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open.
- A localised, perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report, and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps nested for low permeability soils. Piezometers, sealed in a particular stratum may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However DP cannot always anticipate or assume responsibility for:

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- Changes in policy or interpretations of policy by statutory authorities, or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

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□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

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ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Memorandum

To	[redacted] Hansen Yuncken Pty Ltd	[redacted]	
From	[redacted]	**Date**	19 Mar 2020
Subject	Vibration Monitoring Report 9 Goulburn Base Hospital Redevelopment	**Project No.** **Doc. No.**	94054.07 94054.07.R.009.Rev0

Installation and Monitoring

On 21 January 2020 Texcel Construction Vibration Monitors #7221, #7153 were relocated to the positions shown in the attached Monitoring Location Plan, before the start of augered piling. Both monitors were coupled to the ground with a surcharge, close to and at ground level of the adjacent building, which includes Pathology (upper floor) and the Mortuary (lower floor). The monitors were installed to manage vibrations generated during piling works. On 26 February 2020, Monitor #7221 was replaced with Omnidot Vibration Monitor "Vujaca".

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Outcome this period: 9 March to 16 March 2020

Location	Monitor	Exceedances		Time of maximum exceedance
		No.	Max (VSPPV)	
Monitoring Location A	Vujaca	0	n/a	n/a
Monitoring Location B	7153	2*	28.7	12-Mar, 2:35 pm

*Isolated impulsive events, likely direct bumps to sensor.

[redacted]

Senior Geophysicist

Reviewed by

[redacted]

Principal

Attachments: Graphs of Vibration Levels, Monitor Location Plan, About This Report

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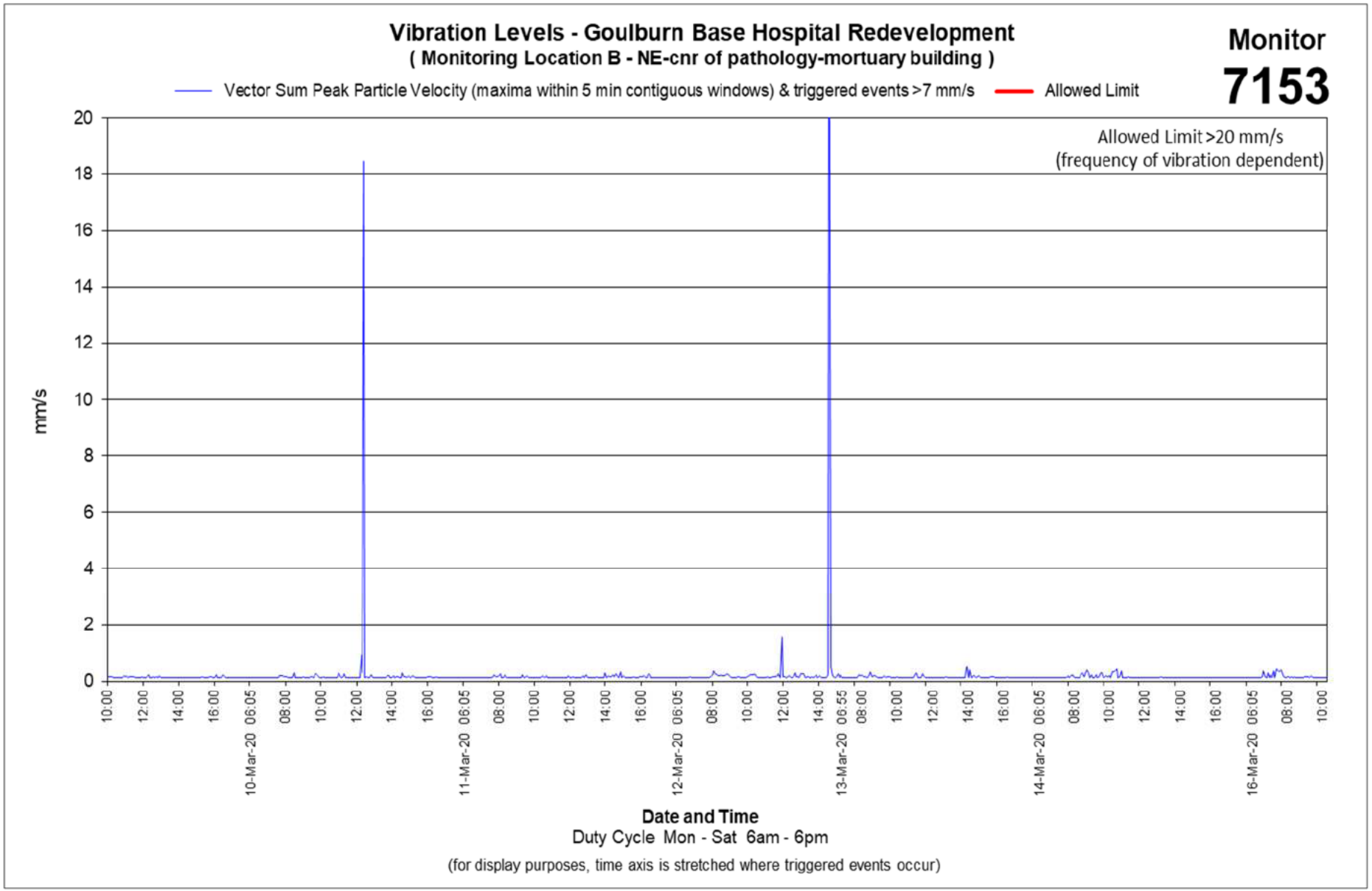
Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location B - NE-cnr of pathology-mortuary building)
Monitor
7153
Vector Sum Peak Particle Velocity (maxima within 5 min contiguous windows) & triggered events >7 mm/s
Allowed Limit
Allowed Limit >20 mm/s
(frequency of vibration dependent)
mm/s
20
18
16
14
12
10
8
6
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10:00
12:00
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10-Mar-20 06:05
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Date and Time
Duty Cycle Mon - Sat 6am - 6pm
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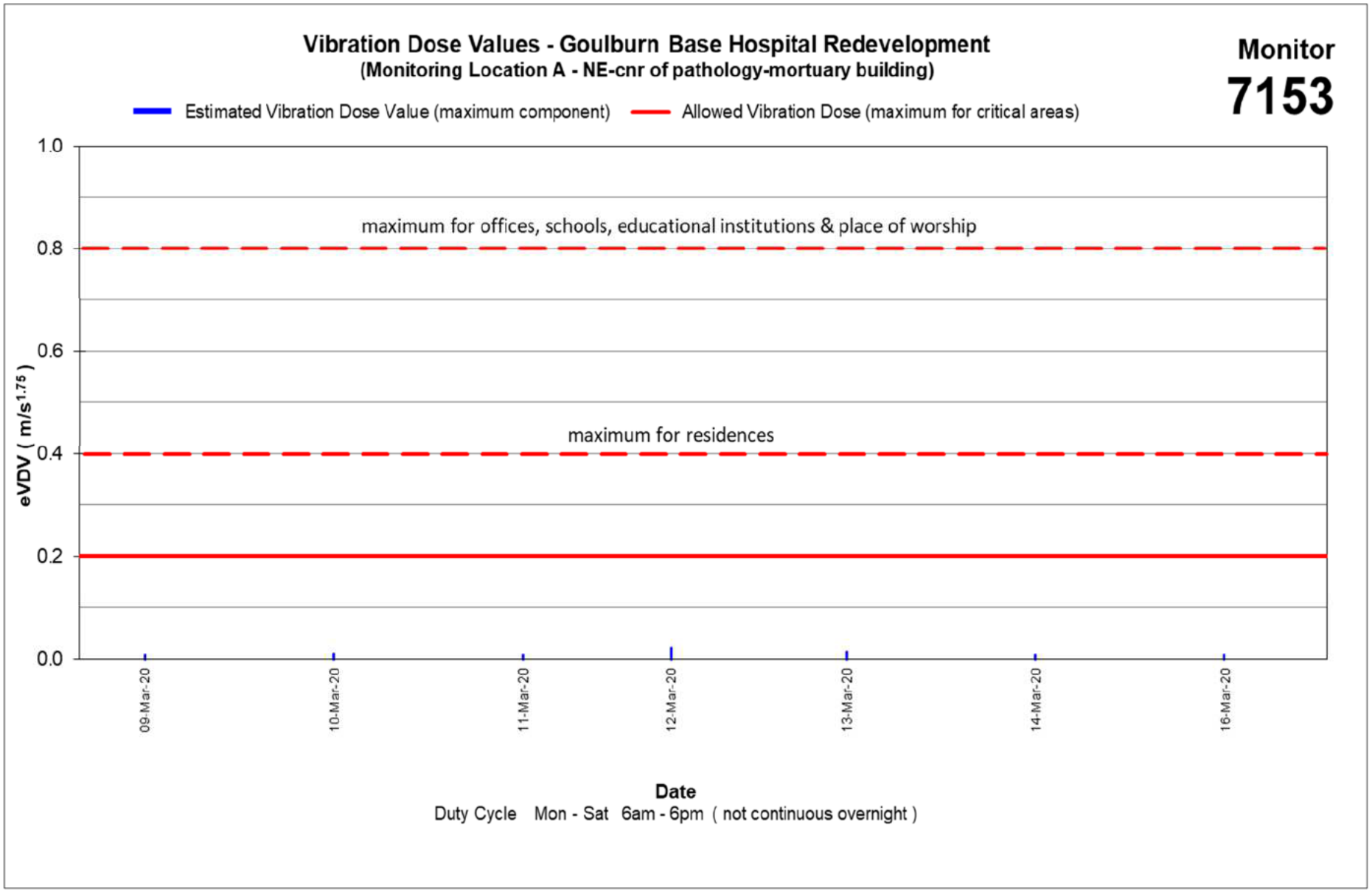
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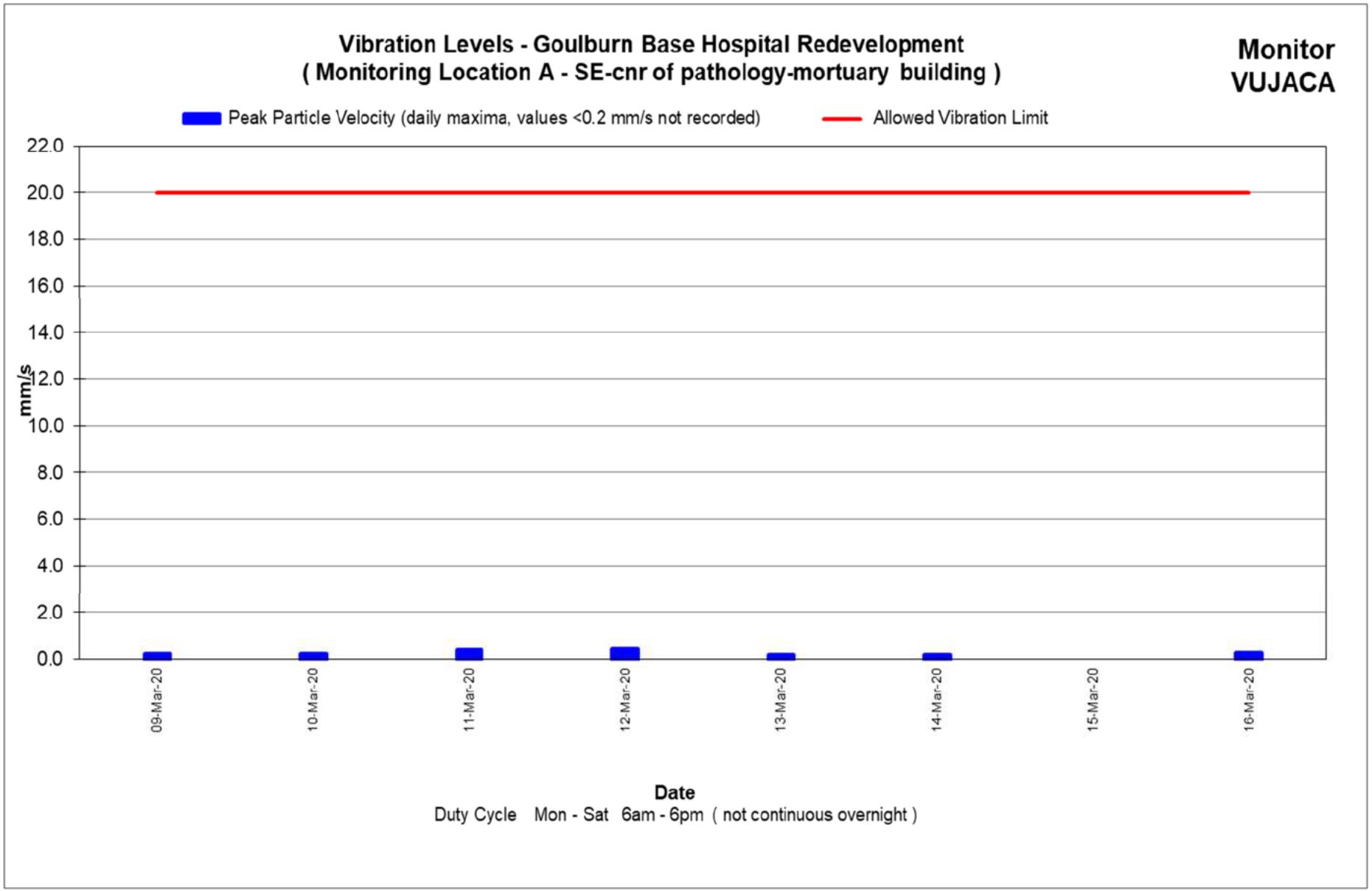
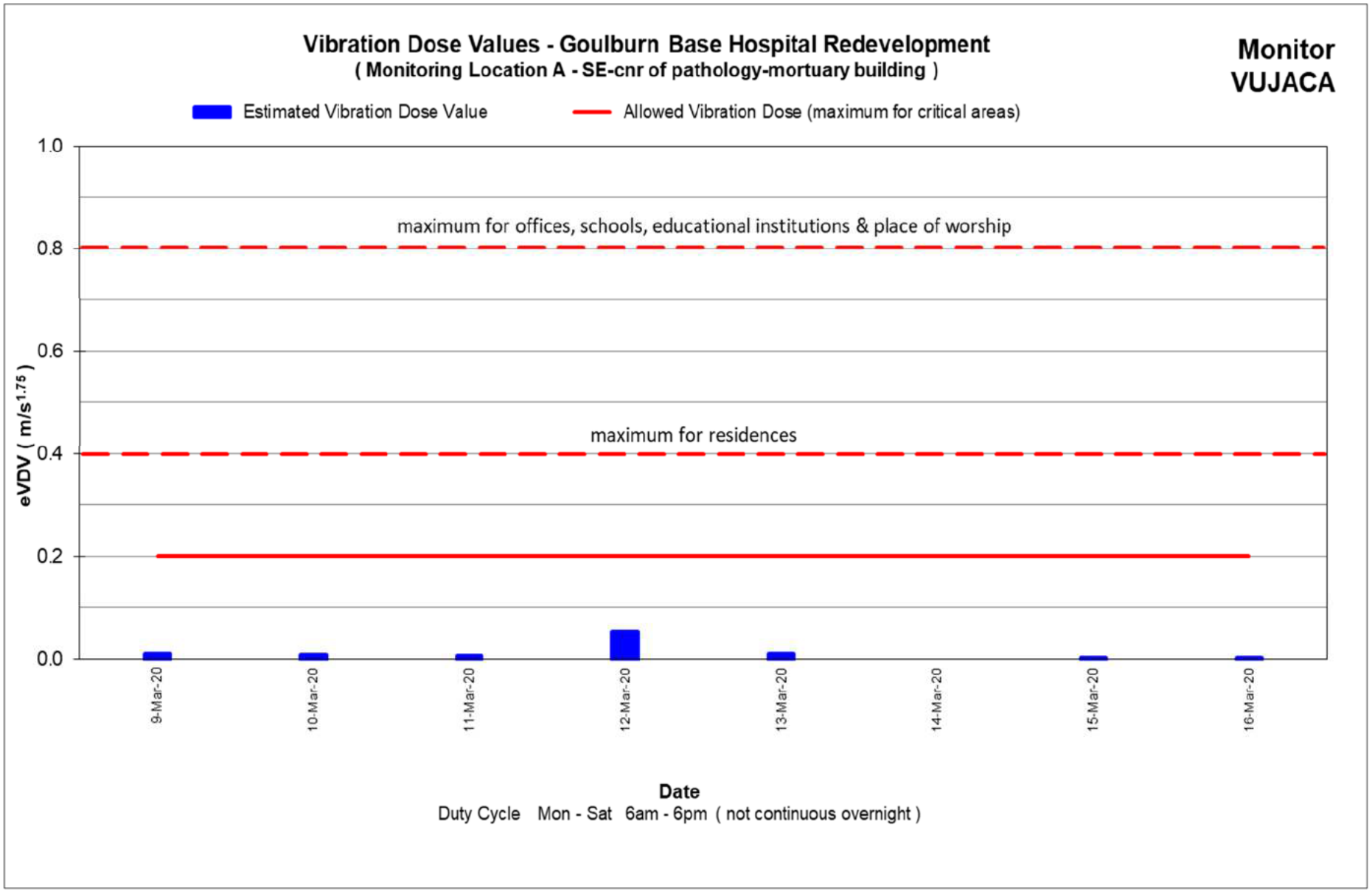
(Monitoring Location A - NE-cnr of pathology-mortuary building)
Monitor
7153
Estimated Vibration Dose Value (maximum component)
Allowed Vibration Dose (maximum for critical areas)
maximum for offices, schools, educational institutions & place of worship
maximum for residences
eVDV (m/s1.75)
1.0
0.8
0.6
0.4
0.2
0.0
09-Mar-20
10-Mar-20
11-Mar-20
12-Mar-20
13-Mar-20
14-Mar-20
16-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Levels - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Peak Particle Velocity (daily maxima, values <0.2 mm/s not recorded)
Allowed Vibration Limit
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
mm/s
09-Mar-20
10-Mar-20
11-Mar-20
12-Mar-20
13-Mar-20
14-Mar-20
15-Mar-20
16-Mar-20
Date
Duty Cycle Mon - Sat 6am - 6pm (not continuous overnight)


Vibration Dose Values - Goulburn Base Hospital Redevelopment
(Monitoring Location A - SE-cnr of pathology-mortuary building)
Monitor
VUJACA
Estimated Vibration Dose Value
Allowed Vibration Dose (maximum for critical areas)
1.0
0.8
0.6
0.4
0.2
0.0
eVDV (m/s1.75)
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11-Mar-20
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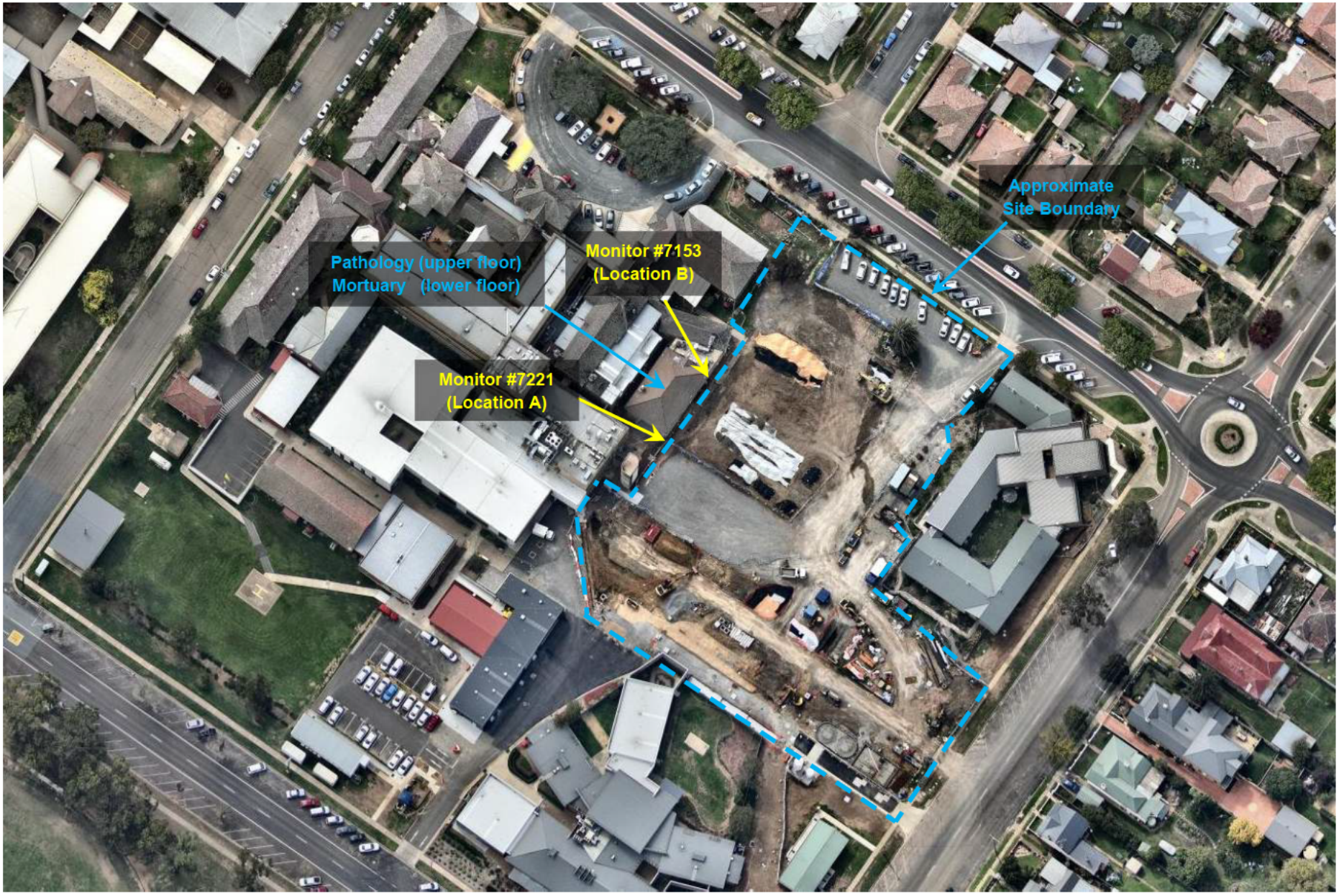
Approximate
Site Boundary
Pathology (upper floor)
Mortuary (lower floor)
Monitor #7153
(Location B)
Monitor #7221
(Location A)

About this Report

Douglas Partners

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In the e□ent that conditions enco□ntered on site d□ring constr□ction appear to □ary fro□ those □hich □ere expected fro□ the infor□ation contained in the report□ DP re□□ests that it be i□□ediately notified□ Most proble□s are □□ch □ore readily resol□ed □hen conditions are exposed rather than at so□e later stage□□ell after the e□ent.

□n□□rmat□□n fo**r C□ntract□a□**Pu**r**pos**e**s

□here infor□ation obtained fro□ this report is pro□ided for tendering p□rposes, it is reco□□ended that all infor□ation, incl□ding the □ritten report and disc□ssion□be □ade a□ailable□ In circ□□stances □here the disc□ssion or co□□ents section is not rele□ant to the contract□al sit□ation, it □ay be appropriate to prepare a specially edited doc□□ent□ DP □o□ld be pleased to assist in this regard and□or to □a□e additional report copies a□ailable for contract p□rposes at a no□inal charge.

□te □n□□ect□□n

The co□pany □ill al□ays be pleased to pro□ide engineering inspection ser□ices for geotechnical and en□iron□ental aspects of □or□ to □hich this report is related□ This co□ld range fro□ a site □isit to confir□ that conditions exposed are as expected□ to f□ll ti□e engineering presence on site□