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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 11:21 AM
To: Lacey, Glenn
Subject: FW: Togas Mix Design - Flemington Rd

Importance: High

Glenn

GHD has requested approval of TOGAS design.
It is their responsibility to release hold points, but they may be like me and not up to speed on TOGAS design.
I referred it to Peter Thompson, see below.
Do you have any comments?
Steve

From: Thompson, Peter
Sent: Thursday, 22 November 2012 10:56 AM
To: Greenhalgh, Steve
Subject: RE: Togas Mix Design - Flemington Rd

Steve

Downer and Boral both make reasonable product in the ACT and this performs well. We put down about 1,500 tonnes in 2010/11, this year we were considering a very small program but over expenditure in other areas has caused this to be a casualty of budget constraints.

The design is based on R123 and should meet your needs.

Operationally I have the greatest problem with Togas as the pavers are hard to come by and when they arrive, they have problems with the tack coating and they are not able to split the screed resulting in much higher spread rates than planned. On maintenance projects we look for a 15mm layer but on existing roads with crowns and wheel ruts we normally yield closer to 22mm in thickness and this bumps up the costs. The same issue with the screed results in problems when keying in longitudinal edges to the pavement.

The Australian market for Togas is probably below 10,000 tonnes per year and pavers are difficult to come by. Boral had one which was broken and would cost about \$100K to repair and Downer had one that they were going to send to NZ because there is no work for it in Australia, this was the story 12 months ago and I doubt if much has changed.

I hope this helps and if you need more information, please ring me.

Regards

Peter Thompson

Project Manager
Major Capital Works / Road Maintenance Services
Roads ACT
Ph 02 62076829
Mob. 0419 639154

email peter.thompson@act.gov.au

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From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 10:07 AM
To: Thompson, Peter
Subject: FW: Togas Mix Design - Flemington Rd

Peter
Do you have any comment on proposed design.
I am not up to date with TOGAS design
Regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Wednesday, 21 November 2012 4:25 PM
To: Greenhalgh, Steve
Subject: FW: Togas Mix Design - Flemington Rd

Steve

Attached is Guidelines (Downers) proposed mix design for the TOGAS.

Is this acceptable to SSP

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
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WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

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From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Wednesday, 21 November 2012 3:30 PM
To: Tony Ryan
Cc: John Hite; Nick Zardo (InTouch)
Subject: FW: Togas Mix Design - Flemington Rd

Tony,

Apologies about the delay, please find attached the mix design for the Togas for Flemington Rd.

Regards,

Matthew Lowe
Project Engineer



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
Web: www.guidelineact.com.au

From: Ryan Jennings [<mailto:Ryan.Jennings@downerediworks.com.au>]
Sent: Friday, 16 November 2012 3:46 PM
To: Matt Lowe

Cc: Sean Holding; Michael Baker
Subject: Mix Design - Flemington Rd Upgrade



Ryan Jennings | Laboratory Supervisor / Systems Support | Downer Australia
T +61 2 6269 1715 | M +61 488 334 879 | F +61 2 6269 1797
36 Sawmill Circuit; Hume A.C.T. 2620

Think before you print



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ASPHALT MIX DESIGN

Mix Type: AC14 (450) HD Mix Code: 1301420 Design Date: 2/07/2012
 Specification: R116.8.1 Category: HEAVY DUTY Generic Mix Type: AC14
 Plant: HUME Plant Number: Lab ID No.:

Compatible Specifications:

RTA NSW R47.2.2 :

RTA NSW R116.4.4 :

AS2150 : **Note:**

SSROC : The specification is compatible if it has a tick next to it.

:

Mix Components					Nominated Mix Properties			
Component	% in Mix	Type	Supplier	Plant/Quarry	Sieve Size	Target	Lower Tol.	Upper Tol.
AGGREGATE:					PARTICLE SIZE DISTRIBUTION:			
40 mm					(% passing by weight)			
28 mm					63.0 mm	100	100	100
20 mm					37.5 mm	100	100	100
14 mm	17.6	14mm	Holcim	COOMA ROAD	26.5 mm	100	100	100
10 mm	10.0	10mm	Holcim	COOMA ROAD	19.0 mm	100	100	100
7 mm	12.1	7mm	Holcim	COOMA ROAD	13.2 mm	96	89	98
5 mm					9.5 mm	83	76	90
Crusher Dust	44.9	Dust	Holcim	COOMA ROAD	6.7 mm	68	61	75
Crusher Dust 2					4.75 mm	60	53	67
Coarse Sand	7.0		Holcim	COOMA ROAD	2.36 mm	40	35	45
Fine Sand					1.18 mm	30	25	35
RAP					600 um	20	16	24
FILLERS:					300 um	16	12	20
Baghouse Dust	1.5				150 um	9	6.5	11.5
Fly Ash					75 um	6.5	5	8
Hydrated Lime	1.5		BLUE CIRCLE	Marulan	Filler/Binder Ratio: 1.2			
MIX ADDITIVES:					Binder Film Thickness: - um			
BINDER ADDITIVES: % of Total Binder					AS2891.8 Comb. Agg. B.Density: 2.802			
					AS2891.9.2 120 cycle Mass: g			
BINDER:					Comments:			
Binder to add	5.4	AR450	Caltex	KURNELL				
Binder in RAP								
Total Binder:	5.4	-Tol 5.1	+Tol 5.7					
Mix Total	100.0							

Trial Approved by: R Jennings Date:	Production Approved by: R Jennings Date: 2/07/2012
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ASPHALT MIX DESIGN

Mix Type: TOGAS

Mix Code: 1301024

Design Date: 15/11/2012

Specification: R129.1.2

Category: HEAVY DUTY

Generic Mix Type:

Plant: HUME

Plant Number:

Lab ID No.:

Compatible Specifications:

RTA NSW R47.2.2 :

RTA NSW R116.4.4 :

AS2150 : Note:

SSROC : The specification is compatible if it has a tick next to it.

Mix Components					Nominated Mix Properties			
Component	% In Mix	Type	Supplier	Plant/Quarry	Sieve Size	Target	Lower Tol.	Upper Tol.
AGGREGATE:					PARTICLE SIZE DISTRIBUTION:			
40 mm					(% passing by weight)			
28 mm					63.0 mm	100	100	100
20 mm					37.5 mm	100	100	100
14 mm					26.5 mm	100	100	100
10 mm	53.3	10mm	Holcim	COOMA ROAD	19.0 mm	100	100	100
7 mm	8.0	7mm	Holcim	COOMA ROAD	13.2 mm	100	100	100
5 mm					9.5 mm	94	87	100
Crusher Dust	20.0	Dust	Holcim	COOMA ROAD	6.7 mm	48	41	55
Crusher Dust 2					4.75 mm	33	26	40
Coarse Sand	7.0		Holcim	BUNGENDORE	2.36 mm	28	23	33
Fine Sand					1.18 mm	21	16	26
RAP					600 um	17	13	21
FILLERS:					300 um	11	7	15
Baghouse Dust	4.5				150 um	8.5	6	11
Fly Ash					75 um	6.2	4.7	7.7
Hydrated Lime	1.5		BLUE CIRCLE	Marulan	Filler/Binder Ratio: 1.1			
MIX ADDITIVES:					Binder Film Thickness: -um			
BINDER ADDITIVES: % of Total Binder					AS2891.8 Comb. Agg. B.Density: 2.634			
BINDER:					AS2891.9.2 120 cycle Mass: g			
Binder to add	5.7	A15E	SAMI	Camellia	Comments:			
Binder in RAP								
Total Binder:	5.7	-Tol 5.4	+Tol 6.0					
Mix Total	100.0							

Trial Approved by: R Jennings	Production Approved by: R Jennings
Date:	Date: 15/11/2012



AG:PT/T231 - Deformation Resistance of Asphalt Mixtures by the wheel tracking test

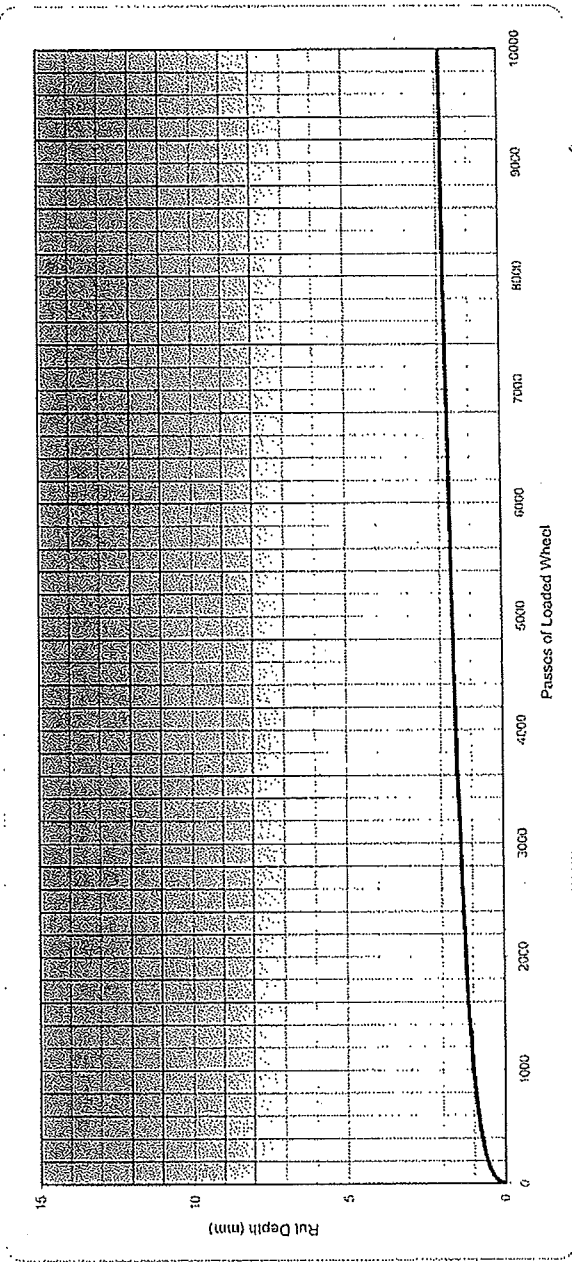
Project No: 11/0212 Report No: R11/0212C Date Compacted: 15/11/2011
 Mix details: Hume AC20HD, Sample # 42020142 Specimen Air Voids: 5.0 % Date Tested: 22/11/2011
 Bitumen Content: - % Specimen Bulk Density: 2.381 t/m³ Test conducted: 7 days after compaction

Thickness	75mm
Applied Load	700N
Temperature before test	59°C
Temperature after test	61°C

Results based on a mean	
Tracking Rate	0.06 mm/Pass
cen Tracking Rate	0.54 mm/hour
Final Rut depth	1.88 mm

Results based a central reading	
Tracking Rate	0.06 mm/Pass
cen Tracking Rate	0.44 mm/hour
Final Rut depth	1.81 mm

Pass No.	Mean Rut (mm)	Central Rut (mm)
0	0.00	0.00
10	0.11	0.11
20	0.19	0.17
30	0.23	0.22
40	0.28	0.26
50	0.32	0.29
75	0.39	0.36
100	0.44	0.40
125	0.48	0.45
150	0.52	0.48
200	0.57	0.53
250	0.62	0.58
500	0.80	0.74
1000	1.01	0.95
1175	1.05	1.00
1375	1.10	1.04
1500	1.13	1.07
1750	1.18	1.11
2500	1.30	1.23
3000	1.37	1.30
4000	1.50	1.43
5000	1.59	1.52
6000	1.66	1.59
7000	1.73	1.65
8000	1.79	1.72
9000	1.83	1.77
10000	1.88	1.81



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Approved Signatory: Jerry Tan
 Date: 25/11/2011

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7.



National Research and Development Laboratory
125 - 129 Somerton Rd
Somerton Vic 3062
Ph: (03) 9930 4859
Fax (03) 9930 4838

Determination of the resilient modulus of asphalt—Indirect tensile method AS2891.13.1

Report Number: R11/0212C Date & time of test: 23/11/2011 8.59am - 9.28am
Mix size & type: Hume AC20HD. Sample # 42020142 Tested by: WCH
Binder content & type: AR450 Project: 11/0212

Laboratory compacted samples

Method of compaction: Gyropac No. of cycles or blows: 50 Cycles
Mixing temperature: N/A Conditioning temp & time: N/A
Initial compaction temperature: 150°C Date of sample manufacture: 10/06/2011

Cored samples

Date of placement of layer: N/A Date of coring: N/A
Core location in pavement: N/A Direction of traffic flow: N/A

TEST RESULTS

Variation to standard conditions: N/A

Comments: Reheated Plant Mix. Sample 11/0212S not within 15% of average resilient modulus result

Sample Number	Pulse 1		Pulse 2		Pulse 3		Pulse 4		Pulse 5	
	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus
11/0212S	26.97	6500	28.37	6360	27.81	6370	28.65	6580	27.54	6900
11/0212V	22.80	7910	20.86	8430	23.09	8080	20.58	8600	22.25	8470
11/0212X	21.73	8100	22.00	8620	19.49	9210	21.17	9000	19.22	9150

Table 1: Preconditioning results. If the preconditioning pulse did not achieve 50±20 ue, record the recovered strain and resilient modulus for each preconditioning pulse in the Table below.

Sample Number	Mean height (mm)	Mean diameter (mm)	Core temp. (°C)	Rise time (ms)	Pulse rep. Period (ms)	Average resilient modulus (MPa)	Coefficient of variation (%)
11/0212S	68.2	99.9	25	40	3000	6450	4.2
11/0212V	66.6	99.9	25	40	3000	8320	3.3
11/0212X	67.1	99.8	25	40	3000	8570	4.3
Average						7800	3.9

Table 2: Resilient modulus test results

Checked by: BV

Date: 25/11/2011



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Date: 25/11/2011

Jerry Tan

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9.



National Research and Development Laboratory
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Fax (03) 5530 4838

Stripping Potential of Asphalt - Visual assessment RTA T640

Lab No: 11/0212 Date: 09/11/11 Operator: WCH/JT
 Mix Info: Hume AC20HD, Sample # 42020142 Report No: R11/0212C Mix Temperature: 150
 % Bit: Sample Prep Method: Plant Mix Bitumen Class: AR450

Freeze/Thaw Subset

Core Number	Aggregate size	Property	Visual Rating	Observations
MSWA	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSWB	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSWC	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal

Dry Subset

Core Number	Aggregate size	Property	Visual Rating	Observations
MSDA	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSDB	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSDC	Coarse	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	No/Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi-gloss / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal



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Date:

Jerry Tan
25/11/2011
Page 4 of 4



AG-PT/T231 - Deformation Resistance of Asphalt Mixtures by the wheel tracking test

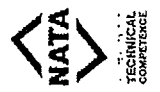
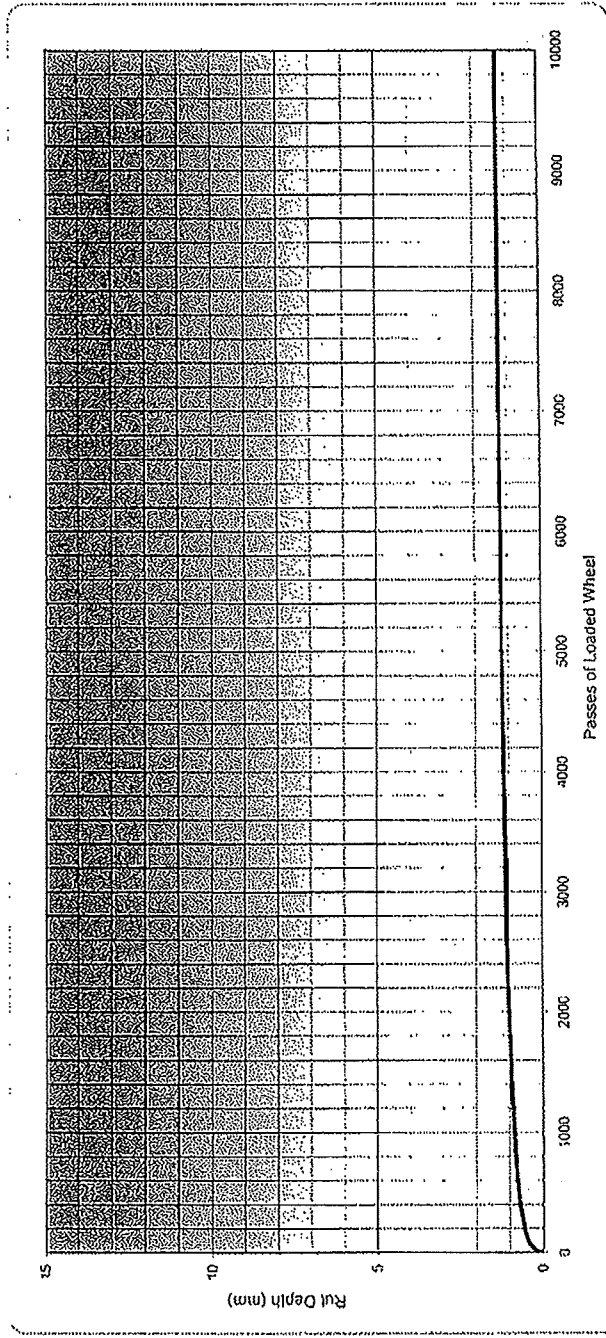
Project No: 11/0212
 Report No: R110212B
 Date Compacted: 16/11/2011
 Mix details: Hume AC14HD, Job # 341129911
 Specimen Air Voids: 5.0 %
 Date Tested: 22/11/2011
 Bitumen Content: - %
 Specimen Bulk Density: 2.347 t/m³
 Test conducted: 6 days after compaction

Thickness	50
Applied Load	700N
Temperature before test	60°C
Temperature after test	60°C

Results based on a mean	
Tracking Rate	0.02 mm/kPass
cen Tracking Rate	0.36 mm/hour
Final Rut depth	1.27 mm

Results based a central reading	
Tracking Rate	0.02 mm/kPass
cen Tracking Rate	0.31 mm/hour
Final Rut depth	1.26 mm

Pass No.	Mean Rut (mm)	Central Rut (mm)
0	0.00	0.00
10	0.13	0.13
20	0.20	0.21
30	0.26	0.26
40	0.30	0.31
50	0.33	0.34
75	0.40	0.40
100	0.45	0.44
125	0.48	0.48
150	0.51	0.51
200	0.56	0.55
250	0.59	0.59
500	0.73	0.74
1000	0.85	0.85
1175	0.89	0.88
1375	0.92	0.91
1500	0.93	0.92
1750	0.96	0.95
2500	1.05	1.04
3000	1.09	1.07
4000	1.14	1.13
5000	1.18	1.18
6000	1.20	1.19
7000	1.23	1.22
8000	1.24	1.23
9000	1.25	1.24
10000	1.27	1.26



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National Research and Development Laboratory
 125-129 Somerton Rd
 Somerton Vic 3062
 Ph: (03) 9930 4859
 Fax: (03) 9930 4838

Determination of the resilient modulus of asphalt—Indirect tensile method
AS2891.13.1

Report Number: R11/0212B Date & time of test: 23/11/2011 8.59am - 9.28am
 Mix size & type: Hume AC14HD, Job # 341129911 Tested by: WCH
 Binder content & type: AR450 Project: 11/0212

Laboratory compacted samples

Method of compaction: Gyropac No. of cycles or blows: 50 Cycles
 Mixing temperature: N/A Conditioning temp & time: N/A
 Initial compaction temperature: 150°C Date of sample manufacture: 10/06/2011

Cored samples

Date of placement of layer: N/A Date of coring: N/A
 Core location in pavement: N/A Direction of traffic flow: N/A

TEST RESULTS

Variation to standard conditions: N/A
 Comments: Reheated Plant Mix

Sample Number	Pulse 1		Pulse 2		Pulse 3		Pulse 4		Pulse 5	
	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus	Recovered strain	Resilient modulus

Table 1: Preconditioning results. If the preconditioning pulse did not achieve 50±20 ue, record the recovered strain and resilient modulus for each preconditioning pulse in the Table below.

Sample Number	Mean height (mm)	Mean diameter (mm)	Core temp. (°C)	Rise time (ms)	Pulse rep. Period (ms)	Average resilient modulus (MPa)	Coefficient of variation (%)
11/0212M	67.0	99.8	25	40	3000	5700	3.7
11/0212B	67.1	99.8	25	40	3000	5260	1.7
11/0212O	66.6	100.0	25	40	3000	5490	2.3
Average						5500	2.6

Table 2: Resilient modulus test results

Checked by: BV

Date: 25/11/2011



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Date 25/11/2011

Jerry Ten

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National Research and Development Laboratory
125 - 129 Smoketree Rd
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Stripping Potential of Asphalt - Tensile Strength Ratio

RTA T640

Lab No:	11/0212	Date:	21/11/11	Operator:	WCHJT
Mix Info:	Hume AC14HD, Job # 341129911	Report No:	R 11/0212B	Mix Temperature:	150
% Bit:		Sample Prep Method:	Plant Mix	Bitumen Class:	AR450

Vacuum (Freeze/Thaw Subset)

Core Number	MSWA	MSWB	MSWC	Average
Air Voids (%)	8.7	8.6	8.8	8.7
Degree of Saturation (%)	71.8	73.1	63.2	69.4
Swell	0.4	0.2	0.5	0.4
Tensile Strength (kPa)	879.3	823.0	927.5	876.6

Dry (Subset)

Core Number	MSDA	MSDB	MSDC	Average
Air Voids (%)	8.4	8.5	8.1	8.3
Degree of Saturation (%)	N/A	N/A	N/A	N/A
Swell	N/A	N/A	N/A	N/A
Tensile Strength (kPa)	855.6	798.9	915.7	856.8

Saturated (Wet Subset)

Core Number				Average
Air Voids (%)				
Degree of Saturation (%)				
Swell				
Tensile Strength (kPa)				

Tensile Strength Ratio (Saturated / Dry)	102.3	%
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25/11/2011
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13.



National Research and Development Laboratory
 126-129 Somerset R
 Somerton Vic 301
 Ph: (03) 9330 481
 Fax: (03) 9330 482

Stripping Potential of Asphalt - Visual assessment
 RTA T640

Lab No: 11/0212 Date: 21/11/11 Operator: WCHJT
 Mix Info: Hume AC14HD, Job # 341129911 Report No: R11/0212B Mix Temperature: 150
 % Bit: Sample Prep Method: Plant Mix Bitumen Class: AR450

Freeze/Thaw Subset

Core Number	Aggregate size	Property	Visual Rating	Observations
MSWA	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSWB	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSWC	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal

Dry Subset

Core Number	Aggregate size	Property	Visual Rating	Observations
MSDA	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSDB	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
MSDC	Coarse	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal
	Fine	Binder Coating	N/A Minimal / Moderate / Complete	Complete
		Binder Condition	Flat / Semi - glossy / Gloss	Flat
		Broken aggregate	Minimal / Moderate / Excessive	Minimal



This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory Number: 15351

APPROVED SIGNATORY

Jerry Tan

Date: Jerry Tan
 25/11/2011
 Page 4 of 4



Accredited for compliance with ISO/IEC 17025 Accreditation Number 5598



SAMI Bitumen Technologies

12 Grand Ave, Camellia
NSW 2142 Or PO Box 163
Granville, NSW 2142

Laboratory @samibitumen.com.au

Ph: 02 9638 0150
Fax: 02 9638 4983
Fax: 02 8209 4873

PRODUCT TEST REPORT

Test Report No.: 22485
Product: SAMIFALT A15E
Batch No.: C12746
SAMI Sample No.: C127461
Date of Receipt: 13-11-2012
Sample Details: Ex Plant
Date Tested: 13-11-2012
Specification: RTA 3252 ED 10, A15E

Method	Property	Result	Specification
AGPT/T122	Torsional Recovery at 25C, %	60	50 min.
AGPT/T111	Viscosity at 165C, Pas	0.63	0.9 max.
AGPT/T131	Softening Point, C	101.0	80 min.
AGPT/T121	Consistency at 60C, Pas	11174	8000 min.
AGPT/T121	Elastic Recovery at 60C, %	94	Report
Frequency Tests (Batch number: C11919)			
AGPT/T121	Stiffness at 25C, kPa	19	30 max.
AGPT/T121	Elastic Recovery at 25C, %	86	Report
AGPT/T103	Loss of mass on Heating, % mass	<0.1	0.6 max.
AGPT/T124	Toughness at 4C, 100 mm, Nm	2.4	Report
AGPT/T112	Flash Point C	326	250 C min.

Certificate Issued Date: 16-11-2012
Sampling Method: AGPT/T101
Testing Operator Name: G. Y.
AGPT/T121: Shear rate of 0.1s⁻¹ and shear strain of 1

Authorised Officer of the Company
B. Chik, Lab Manager

Doc: SAMI-IT09M29KA10E
Issue A Revision 0
27/11/2006
Page 1 of 1

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15.



Product Test Report

Page 1 of 1
 PM-08-LYA01.006
 March 18th, 2009
 Dir: g:\lab\reports\

Product	Bitumen Class AR450	Test Report No.	12-0481
Tank No.	FT149	Date Sampled	08/05/12
Batch Ref. No.	28057	Sample No.	950234

Property	Result	Specification	Method
Flash Point, °C	>350	250 min	AS2341.14
Penetration @ 25 °C, 100g, 5 sec, 0.1mm	36	Report	AS2341.12
Viscosity @ 60 °C, Pa.s	422	Report	AS2341.2
Sieve Residue, mass%	<0.1	1.0 max	AS2341.20*
Effect of Heat and Air (RTFO test)			AS2341.10
Viscosity @ 60 °C after RTFO, Pa.s	813	750 - 1150	AS2341.2
Viscosity @ 60 °C after RTFO, % of original	193	Report	AS2341.2
Penetration @ 25 °C, after RTFO, 100g, 5secs, 0.1mm	28	26 min	AS2341.12
Frequency Tests : Batch No. 28039		Note 1	
Density at 15 °C, kg/L	1.0481	Report	AS2341.7
Viscosity @ 135 °C, Pa.s	0.547	0.70 max	AS2341.3
Mass Loss @ 163 °C, mass%	<0.1	0.6 max	AS2341.10*

* Testing not covered by the NATA scope of accreditation
 Note 1. Frequency tests performed on the first batch of the month

NATA Accredited
 Laboratory
 Number: 226

The latest issues of the relevant test methods apply unless otherwise stated.

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The samples have been drawn in accordance with the AS 2008 Standard for bitumen sampling

Caltex Refineries (NSW) Pty Ltd ABN 19 000 108 725

Laboratory - 2 Solander Street, Kurnell NSW 2231

Phone: (02) 9668 1557 Fax: (02) 9668 1920 E-mail: lab@caltex.com.au

Authorised Signatory	Yvonne Yee Laboratory Shift Supervisor	Date	May 8, 2012
----------------------	---	------	-------------

Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 11:56 AM
To: 'Tony Ryan'
Cc: Lacey, Glenn
Subject: RE: Togas Mix Design - Flemington Rd

Tony
 ACT Govt is adopting RTA Spec for all major roadworks.
 TOGAS Design based on R123 will be acceptable.
 Regards
 Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Wednesday, 21 November 2012 4:25 PM
To: Greenhalgh, Steve
Subject: FW: Togas Mix Design - Flemington Rd

Steve

Attached is Guidelines (Downers) proposed mix design for the TOGAS.

Is this acceptable to SSP

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Wednesday, 21 November 2012 3:30 PM
To: Tony Ryan
Cc: John Hite; Nick Zardo (InTouch)
Subject: FW: Togas Mix Design - Flemington Rd

Tony,

Apologies about the delay, please find attached the mix design for the Togas for Flemington Rd.

Regards,

Matthew Lowe
 Project Engineer



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 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
 Web: www.guidelineact.com.au

1011

29.

From: Ryan Jennings [mailto:Ryan.Jennings@downerediworks.com.au]
Sent: Friday, 16 November 2012 3:46 PM
To: Matt Lowe
Cc: Sean Holding; Michael Baker
Subject: Mix Design - Flemington Rd Upgrade



Ryan Jennings | Laboratory Supervisor / Systems Support | Downer Australia
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36 Sawmill Circuit, Hume A.C.T. 2620

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November 22, 2012

John Hite
Guideline ACT
16b Bass St
Queanbeyan
NSW 2620

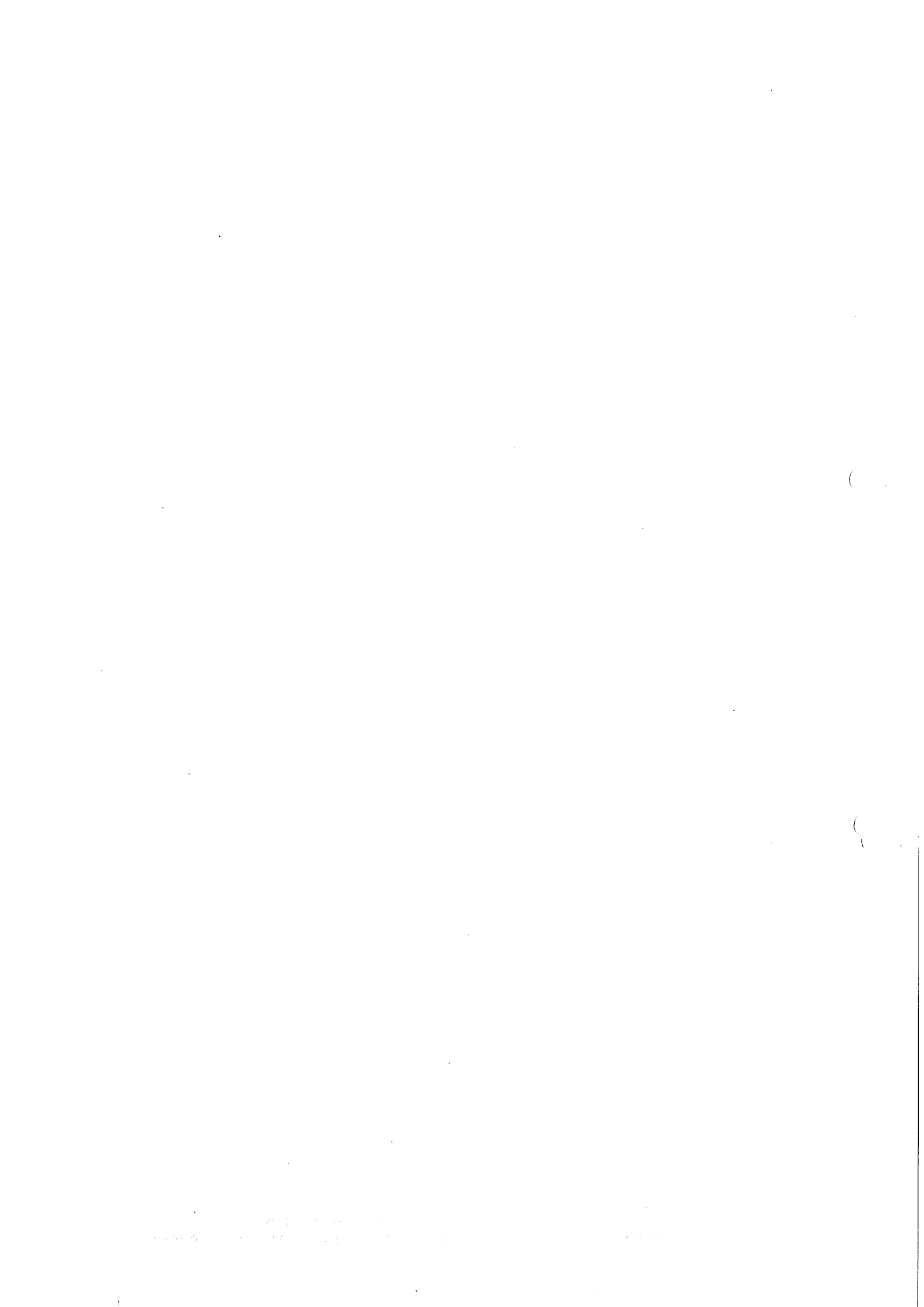
Dear John

Downer Australia wished to inform you that the mix designs submitted and constituent components for your Flemington Drive Patching works Project conforms to RTA Specification R116.8.2 and R123.2.1

Sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Jennings', written over a large, stylized circular scribble.

Ryan Jennings
Quality & Laboratory Supervisor
ACT and Southern NSW



Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 3:57 PM
To: Greenhalgh, Steve; Scott O'Keefe; Alex Aitkenhead
Subject: FW: Flemington Rd Remedial Works -planned work starting 24/11/12
Attachments: img-Y22134543-0001.pdf.pdf

FYI

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:39 PM
To: Ben McHugh (InTouch); Matt Lowe
Cc: Michael Day (InTouch); Lacey, Glenn (Glenn.Lacey@act.gov.au); Tony Ryan
Subject: RE: Flemington Rd Remedial Works -planned work starting 24/11/12

Ben,

The loops will be cut in on Saturday before the togas, and connected on Monday morning.

All patching completed today by COB

Planned work for the weekend is the togas placement, with the slow lane closed overnight, we are planning to have the VMS displaying delays commencing Saturday again, from tomorrow morning.

Sunday temporary stick and stomp markers will be installed along the centreline, and turning lanes, until mid-next week when linemarking can commence

Subsoil work to commence 26/11/12 during 9.30am-4pm sth bound, 7am-5pm nth bound.
Only small length temporary lane closures in the fast lane to protect workers at back of kerb in the median.

Regards,

John Hite
General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

From: McHugh, Ben [<mailto:Ben.McHugh@act.gov.au>]
Sent: Tuesday, 20 November 2012 10:30 AM
To: Matt Lowe

Cc: John Hite; Day, Michael
Subject: FW: Flemington Rd Remedial Works

Hi Matt,

Can you please contact Mike Day to discuss the replacement of the damaged detector loop on Flemington Road at Nullarbor Avenue.

Mike can be contacted on 6207 5223.

Thanks

Ben

From: Day, Michael
Sent: Tuesday, 20 November 2012 9:31 AM
To: McHugh, Ben
Subject: Flemington Rd Remedial Works

Ben

The contractor doing the works has damaged the advance loop in the left hand lane on the northbound approach to Nullarbor Ave.

Mike

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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 4:02 PM
To: 'Tony Ryan'
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

Thanks Tony
 Re Purchase Order issue, I have asked Glenn to confirm funding source with Roads.
 Regards
 Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 3:58 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints

FYI

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:28 PM
To: Tony Ryan
Cc: Alex Aitkenhead; Scott O'Keefe; Matt Lowe
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

Tony,

Please find attached letter confirming the submitted designs are in accordance with RTA specs.

Work will commence 7.30am sat., with the slow lane remaining closed overnight. Sunday afternoon Temporary stick and stomp markers will be placed on the centreline until mid-next week when line marking can commence.

Regards,

John Hite
 General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
 Web: www.guidelineact.com.au

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 2:52 PM

1017

34.

To: John Hite
Cc: Alex Aitkenhead; Scott O'Keefe
Subject: Flemington Rd - TOGAS R123 Specification and Holdpoints

John

Attached is R123 specification.

The Hold points in the spec are:

C1 SCHEDULE OF HOLD POINTS AND WITNESS POINTS Clause	Type	Description
2.3.1	Hold	Use of each nominated mix.
4.1	Witness	Each placement trial and initial placing of each nominated mix.
4.11	Hold	Commencement of placing trial TOGAS.

I need to get the mix design ticked off. So you need to get Downers to confirm that the mix sent through is to the R123 specification.

I also need to have the initial placement of the TOGAS witnessed. Scott O'Keefe will attend from GHD on Saturday and Alex Aitkenhead will attend on Sunday. Please advise what time this work will commence.

Can you also advise whether the new work will be opened to traffic on Saturday evening. I would like to have any temporary line marking inspected so that road safety is OK. I would also like this to be repeated on Sunday.

Regards

Tony Ryan
Senior Project Manager

GHD

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36.

1024

Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Friday, 23 November 2012 3:37 PM
To: McHugh, Ben
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints
Attachments: img-Y22134543-0001.pdf.pdf

Ben
Are you aware of TOGAS work programmed for this weekend on Flemington Road and is there a need for a media release?
I am assuming that there is an approved TTM
Regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 3:58 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints

FYI

Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:28 PM
To: Tony Ryan
Cc: Alex Aitkenhead; Scott O'Keefe; Matt Lowe
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

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Regards,

John Hite
General Manager



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Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

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37.

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 2:52 PM
To: John Hite
Cc: Alex Aitkenhead; Scott O'Keefe
Subject: Flemington Rd - TOGAS R123 Specification and Holdpoints

John

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4.11	Hold	Commencement of placing trial TOGAS.

I need to get the mix design ticked off. So you need to get Downers to confirm that the mix sent through is to the R123 specification.

I also need to have the initial placement of the TOGAS witnessed. Scott O'Keefe will attend from GHD on Saturday and Alex Aitkenhead will attend on Sunday. Please advise what time this work will commence.

Can you also advise whether the new work will be opened to traffic on Saturday evening. I would like to have any temporary line marking inspected so that road safety is OK. I would also like this to be repeated on Sunday.

Regards

Tony Ryan
Senior Project Manager

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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Friday, 23 November 2012 4:05 PM
To: Greenhalgh, Steve
Cc: Scott O'Keefe; Alex Aitkenhead
Subject: RE: Togas Mix Design - Flemington Rd

Steve

Guideline are on schedule to lay the TOGAS surfacing at Flemington Rd tomorrow, commencing at 7:30.

We will have surveillance over the weekend. Scott O'Keefe will be on site in the morning at the kick-off. Alex Aitkenhead will on site on Sunday. Neither will be on-site full-time as I do not consider this necessary.

Guideline submitted a package of QA records for the patching work today. We have reviewed these and the test results for mix, density and layer thickness appear OK. There are no impediments to the TOGAS being placed.

Regards

Tony Ryan
Senior Project Manager

GHD

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 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Greenhalgh, Steve [mailto:Steve.Greenhalgh@act.gov.au]
Sent: Thursday, 22 November 2012 1:48 PM
To: Tony Ryan
Subject: RE: Togas Mix Design - Flemington Rd
Importance: High

Tony

As the TOGAS is scheduled for this weekend, who will be your rep on site?

Ensure your site rep is familiar with R123 requirements.

Tack coating type and application rate are important elements of design.

Downer should be on top of all this, but Hold Points should still be formally assessed and released.

Plse also ensure TTM approval is complied with for the operation, including any restricted hours and single lane or two lane paving?

Plse discuss

Regards

Steve

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Wednesday, 21 November 2012 4:25 PM
To: Greenhalgh, Steve
Subject: FW: Togas Mix Design - Flemington Rd

Steve

1022

39.

Attached is Guidelines (Downers) proposed mix design for the TOGAS.

Is this acceptable to SSP

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Wednesday, 21 November 2012 3:30 PM
To: Tony Ryan
Cc: John Hite; Nick Zardo (InTouch)
Subject: FW: Togas Mix Design - Flemington Rd

Tony,

Apologies about the delay, please find attached the mix design for the Togas for Flemington Rd.

Regards,

Matthew Lowe
Project Engineer



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
Web: www.guidelineact.com.au

From: Ryan Jennings [<mailto:Ryan.Jennings@downerediworks.com.au>]
Sent: Friday, 16 November 2012 3:46 PM
To: Matt Lowe
Cc: Sean Holding; Michael Baker
Subject: Mix Design - Flemington Rd Upgrade



Ryan Jennings | Laboratory Supervisor / Systems Support | Downer Australia
T +61 2 6269 1715 | M +61 488 334 879 | F +61 2 6269 1797
36 Sawmill Circuit, Hume A.C.T. 2620

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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Monday, 26 November 2012 9:28 AM
To: Greenhalgh, Steve
Cc: Lacey, Glenn
Subject: Flemington Road Pavement Repairs

Steve

FYI

The TOGAS was placed over the weekend. All went well.

Guideline will replace the TCDs starting Wednesday.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Monday, 3 December 2012 2:14 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Road line marking

Steve

Progress advice on pavement repairs.

I will check progress on Wednesday.

When complete, we can do an inspection.

Regards

*checked Friday & Sunday
L/m OK [Signature] 5/12*

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Monday, 3 December 2012 1:25 PM
To: Tony Ryan
Cc: John Hite; Alex J Aitkenhead (alex@albaccss.com.au); Scott O'Keefe; Ben McHugh (InTouch)
Subject: Flemington Road line marking

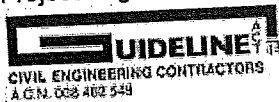
Tony,

The line marking for Flemington Road will be complete, at the latest, by Wednesday this week (5/11/12). The centre line, and fog lines from Wells Station to Mapleton (Nth bound) were completed last Friday, as well as the centre and fog lines along the rest of the job where the patches went over the lines. The thermoplastic stop lines, turning lane lines and arrows will be complete today. Tomorrow and Wednesday the green bike lane paint will be done, and the raised pavement markers also.

If you need anything else please don't hesitate to get in contact with me.

Regards,

Matthew Lowe
Project Engineer



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 3:57 PM
To: Greenhalgh, Steve; Scott O'Keefe; Alex Aitkenhead
Subject: FW: Flemington Rd Remedial Works -planned work starting 24/11/12
Attachments: img-Y22134543-0001.pdf.pdf

FYI

Regards

Tony Ryan
Senior Project Manager

GHD

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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:39 PM
To: Ben McHugh (InTouch); Matt Lowe
Cc: Michael Day (InTouch); Lacey, Glenn (Glenn.Lacey@act.gov.au); Tony Ryan
Subject: RE: Flemington Rd Remedial Works -planned work starting 24/11/12

Ben,

The loops will be cut in on Saturday before the togas, and connected on Monday morning.

All patching completed today by COB

Planned work for the weekend is the togas placement, with the slow lane closed overnight, we are planning to have the VMS displaying delays commencing Saturday again, from tomorrow morning.

Sunday temporary stick and stomp markers will be installed along the centreline, and turning lanes, until mid-next week when linemarking can commence

Subsoil work to commence 26/11/12 during 9.30am-4pm sth bound, 7am-5pm nth bound.
Only small length temporary lane closures in the fast lane to protect workers at back of kerb in the median.

Regards,

John Hite
General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

From: McHugh, Ben [<mailto:Ben.McHugh@act.gov.au>]
Sent: Tuesday, 20 November 2012 10:30 AM
To: Matt Lowe

Cc: John Hite; Day, Michael
Subject: FW: Flemington Rd Remedial Works

Hi Matt,

Can you please contact Mike Day to discuss the replacement of the damaged detector loop on Flemington Road at Nullarbor Avenue.

Mike can be contacted on 6207 5223.

Thanks

Ben

From: Day, Michael
Sent: Tuesday, 20 November 2012 9:31 AM
To: McHugh, Ben
Subject: Flemington Rd Remedial Works

Ben

The contractor doing the works has damaged the advance loop in the left hand lane on the northbound approach to Nullarbor Ave.

Mike

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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 4:02 PM
To: 'Tony Ryan'
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints.

Thanks Tony

Re Purchase Order issue, I have asked Glenn to confirm funding source with Roads.

Regards

Steve

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 3:58 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints

FYI

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
[WATER](#) | [ENERGY & RESOURCES](#) | [ENVIRONMENT](#) | [PROPERTY & BUILDINGS](#) | [TRANSPORTATION](#)

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From: John Hite [mailto:John.Hite@guidelineact.com.au]
Sent: Thursday, 22 November 2012 3:28 PM
To: Tony Ryan
Cc: Alex Aitkenhead; Scott O'Keefe; Matt Lowe
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

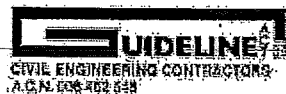
Tony,

Please find attached letter confirming the submitted designs are in accordance with RTA specs.

Work will commence 7.30am sat., with the slow lane remaining closed overnight. Sunday afternoon Temporary stick and stomp markers will be placed on the centreline until mid-next week when line marking can commence.

Regards,

John Hite
 General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
 Web: www.guidelineact.com.au

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 2:52 PM

To: John Hite
Cc: Alex Aitkenhead; Scott O'Keefe
Subject: Flemington Rd - TOGAS R123 Specification and Holdpoints

John

Attached is R123 specification.

The Hold points in the spec are:

C1 SCHEDULE OF HOLD POINTS AND WITNESS POINTS Clause	Type	Description
2.3.1	Hold	Use of each nominated mix.
4.1	Witness	Each placement trial and initial placing of each nominated mix.
4.11	Hold	Commencement of placing trial TOGAS.

I need to get the mix design ticked off. So you need to get Downers to confirm that the mix sent through is to the R123 specification.

I also need to have the initial placement of the TOGAS witnessed. Scott O'Keefe will attend from GHD on Saturday and Alex Aitkenhead will attend on Sunday. Please advise what time this work will commence.

Can you also advise whether the new work will be opened to traffic on Saturday evening. I would like to have any temporary line marking inspected so that road safety is OK. I would also like this to be repeated on Sunday.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Friday, 23 November 2012 3:37 PM
To: McHugh, Ben
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints
Attachments: img-Y22134543-0001.pdf

Ben
Are you aware of TOGAS work programmed for this weekend on Flemington Road and is there a need for a media release?
I am assuming that there is an approved TTM
Regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 3:58 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints

FYI

Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:28 PM
To: Tony Ryan
Cc: Alex Aitkenhead; Scott O'Keefe; Matt Lowe
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

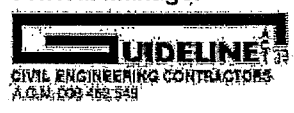
Tony,

Please find attached letter confirming the submitted designs are in accordance with RTA specs.

Work will commence 7.30am sat., with the slow lane remaining closed overnight. Sunday afternoon Temporary stick and stomp markers will be placed on the centreline until mid-next week when line marking can commence.

Regards,

John Hite
General Manager



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Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

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From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 2:52 PM
To: John Hite
Cc: Alex Aitkenhead; Scott O'Keefe
Subject: Flemington Rd - TOGAS R123 Specification and Holdpoints

John

Attached is R123 specification.

The Hold points in the spec are:

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4.1	Witness	Each placement trial and initial placing of each nominated mix.
4.11	Hold	Commencement of placing trial TOGAS.

I need to get the mix design ticked off. So you need to get Downers to confirm that the mix sent through is to the R123 specification.

I also need to have the initial placement of the TOGAS witnessed. Scott O'Keefe will attend from GHD on Saturday and Alex Aitkenhead will attend on Sunday. Please advise what time this work will commence.

Can you also advise whether the new work will be opened to traffic on Saturday evening. I would like to have any temporary line marking inspected so that road safety is OK. I would also like this to be repeated on Sunday.

Regards

Tony Ryan
Senior Project Manager

GHD

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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Monday, 26 November 2012 9:28 AM
To: Greenhalgh, Steve
Cc: Lacey, Glenn
Subject: Flemington Road Pavement Repairs

Steve

FYI

The TOGAS was placed over the weekend. All went well.

Guideline will replace the TCDs starting Wednesday.

Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Wednesday, 9 January 2013 8:16 AM
To: Greenhalgh, Steve
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking
Attachments: GHD Letter 69980.pdf

Steve

I believe you have all the necessary paperwork to enable the bank guarantee to be released.

Regards

Tony Ryan
Senior Project Manager

GHD

61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Monday, 7 January 2013 5:02 PM
To: Tony Ryan; Steve Greenhalgh (InTouch)
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Tony/Steve,

Thank you for the payment of the Togas prior to Xmas. I am just following up on the below for the release of the retention. Please advise when this will be released.

Regards,

John Hite
 General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
 Web: www.guidelineact.com.au

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 13 December 2012 11:39 AM
To: Steve Greenhalgh (InTouch)
Cc: John Hite
Subject: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

With the rectification of the pavement defects on Flemington Road, the Post Completion Undertaking can now be released.

GHD letter 69980 refers (attached).

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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98A.

12



CLIENTS | PEOPLE | PERFORMANCE

13 December 2012

Steve Greenhalgh
Shared Services Procurement
16 Challis Street
Dickson ACT 2602

Our ref: 23/13137
69980
Your ref:

Dear Steve

Flemington Road Duplication
Post Completion Period.

With reference to the Post Completion Period of 12 Months (Clause 37.2.2).

This letter is to certify that the 12 months Post Completion Period nominated in Clause 37.2.2 of the contract expired on 24 September 2011 and further, defective work recorded at that date has now been rectified by the contractor, Guideline ACT P/L.

As a consequence, the Post Completion Undertaking of \$154,011 should now be released.

Sincerely

Tony Ryan
Senior Project Manager
61 2 6742 5427

Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Monday, 3 December 2012 2:14 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Road line marking

Steve

Progress advice on pavement repairs.

I will check progress on Wednesday.

When complete, we can do an inspection.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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*checked Friday + Sunday
 L/M OK J/S/12*

From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Monday, 3 December 2012 1:25 PM
To: Tony Ryan
Cc: John Hite; Alex J Aitkenhead (alex@albaccss.com.au); Scott O'Keefe; Ben McHugh (InTouch)
Subject: Flemington Road line marking

Tony,

The line marking for Flemington Road will be complete, at the latest, by Wednesday this week (5/11/12). The centre line, and fog lines from Wells Station to Mapleton (Nth bound) were completed last Friday, as well as the centre and fog lines along the rest of the job where the patches went over the lines. The thermoplastic stop lines, turning lane lines and arrows will be complete today. Tomorrow and Wednesday the green bike lane paint will be done, and the raised pavement markers also.

If you need anything else please don't hesitate to get in contact with me.

Regards,

Matthew Lowe
 Project Engineer



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
 Web: www.guidelineact.com.au

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National Australia Bank Limited ("Bank")
ABN 12 004 044 937

Bank Guarantee

Details

COPY

A. Beneficiary

Name

ACT Procurement Solutions
A.C.N./A.R.B.N./ABN 66676633401

Address

PO Box 818
Dickson ACT 2602

Name

A.C.N./A.R.B.N./ABN

Address

B. Customer

Name 1

Guideline (ACT) Pty Limited
A.C.N./A.R.B.N./ABN 65008462548

Address 1

PO Box 537
Queanbeyan NSW 2620

C. Outlet (of Bank)

Fyshwick Business Banking Centre

D. Agreement (Insert short description of agreement *between Beneficiary and Customer* giving rise to guarantee, including any identifying number, contract or reference number. Note, where item No. 2 of the Details section of the Indemnity for Bank Guarantee has been completed, this description must match Agreement in that section)

C09052 - Design & Construction of Flemington Road Duplication

E. Amount (Insert total amount of guarantee and currency in which it is to be paid.)

Amount

154,011.00

Currency of

AUD

Amount in words

One Hundred & Fifty Four Thousand & Eleven Dollars Only

F. Termination Date (if appropriate, insert latest date guarantee will be in force, otherwise delete.)

Terms printed in bold in the Details have the same meaning in the Provisions below where those terms commence with a capital letter.



34 Post-Completion Undertaking

Mentioned in clause 37.1

Percentage of the *Contract Price* at the 1%
Date of Contract is:

35 Return of Post-Completion Undertaking

Mentioned in clause 37.2.2

Period for return of *Post-Completion Undertaking* is: 12 months

Site information

36 Site information

Mentioned in clause 40

Information contained in the documents listed in Contract Information Items 36A and 36B does not form part of the Contract.

A - Documents not guaranteed for completeness

Documents not guaranteed for completeness are: Not applicable

B Documents not guaranteed for accuracy, quality or completeness

Documents not guaranteed for accuracy, quality or completeness are:
Flemington Road Corridor Concept Plan 2007.
Flemington Road Landscape Concept April 2008.
Brown Consulting Engineers Master Plan.
Maunsell Australia Pty Ltd detailed design for Franklin 3 estate roads.
GPS survey July 2008 by Land Data Surveys.
Flemington Road Estate Services Concept Planning July 2008.
Maunsell McIntyre Pty Ltd report on surface deviations of existing Flemington Road Carriageway.

Scope of activities

37 Scope of Design activities

Mentioned in clause 1.1.1

A - Extent of Design by the Contractor

Mentioned in clauses 1.1.1 and 43.1

Extent of *Design* by the Contractor is: All necessary design for or in respect of the Works not already performed by the Principal, as described in the *Principal's Documents* including but not limited to all

Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Wednesday, 16 January 2013 12:19 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking


Steve

Guideline have advised that the repairs works were undertaken as per plan.

I have compiled Guideline's information on the repairs, plus their QA, onto a CD. This will be sent to you by courier.

Regards

Tony Ryan
Senior Project Manager

↑
 rec'd 17/1


GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Tony Ryan
Sent: Friday, 11 January 2013 11:43 AM
To: Steve Greenhalgh (InTouch)
Cc: Lacey, Glenn; Vlad Milic (InTouch)
Subject: RE: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

Guideline have submitted test results for the AC used in the patching and for the TOGAS. I have issued the patching data to SSP and can add the TOGAS data to provide you with the full QA data set for the repairs.

We previously had received the TOGAS design and this was OK.

They have also submitted field notes and photos for the SSD clearance.

I will ask them to confirm that the patching undertaken matched the mark-up of pavement distress submitted on 2 December. GHD's Surveillance Officers confirmed that all the areas marked were actually patched. I am not sure whether any of the patches were made larger due to what was found when the pavements were opened up.

Regards

Tony Ryan
Senior Project Manager

GHD

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From: Greenhalgh, Steve [<mailto:Steve.Greenhalgh@act.gov.au>]
Sent: Friday, 11 January 2013 10:46 AM
To: Tony Ryan

Cc: Lacey, Glenn; Vlad Milic (InTouch)

Subject: RE: Flemington Road Duplication - Release of Post Completion Undertaking

Tony
Given the extensive nature of the defective works/rectification, Guideline should provide an accurate sketch plan of the location of rectification works (pavement patching) as completed including statements that

1. linemarking has been reinstated as per original WAE
2. all subsoil drains are now functional
3. summary of test results for patching AC and TOGAS
4. any issues/observations during rectification works

regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Wednesday, 9 January 2013 8:16 AM
To: Greenhalgh, Steve
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

I believe you have all the necessary paperwork to enable the bank guarantee to be released.

Regards

Tony Ryan
Senior Project Manager

GHD

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Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Monday, 7 January 2013 5:02 PM
To: Tony Ryan; Steve Greenhalgh (InTouch)
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Tony/Steve,

Thank you for the payment of the Togas prior to Xmas. I am just following up on the below for the release of the retention. Please advise when this will be released.

Regards,

John Hite
General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

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Sent: Thursday, 13 December 2012 11:39 AM
To: Steve Greenhalgh (InTouch)

011.

Cc: John Hite
Subject: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

With the rectification of the pavement defects on Flemington Road, the Post Completion Undertaking can now be released.

GHD letter 69980 refers (attached).

Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
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Transmittal

16 January 2013

To Shared Services Procurement
PO Box 818
Dickson ACT 2602

Your ref: Your Reference

Job no. 23/13137

From Tony Ryan

Attention Steve Greenhalgh

GHD tel 61 2 6742 5427

Project Flemington Road Duplication

GHD fax 61 2 6742 4791

Subject Pavement Repair Quality Records

Email cbrmail@ghd.com.au

Drawing no./ Document ref.	Issue	Description/Title	No. of copies
		Guideline Quality Records	1
111202		Pavement Defects	
121107		Guideline Repair Proposal	
121122		TOGAS Design	
121123		Patching QA	
121204		SSD Clearance	
121213		TOGAS QA	

ISSUED FOR your information construction quotation
 your approval/comments for re-submission returned to you

Sent by GHD messenger Receiver's messenger Mailed under separate cover Mail enclosed

Per: On CD

REMARKS:

Records on CD

114.

2

Greenhalgh, Steve

From: McHugh, Ben
Sent: Wednesday, 19 December 2012 8:50 AM
To: Greenhalgh, Steve
Cc: Lacey, Glenn
Subject: Flemington Road Pavement rehab.

Steve,

The togas should be processed against the Gungahlin Drive Pavement Rehab project.

TMS12CUP10-Road Pavement Gungahlin Dr

Regards

Ben

Ben McHugh

Major Capital Works

Directorate of Territory & Municipal Services · Roads ACT
Level 7, Macarthur House · 12 Wattle Street, Lyneham ACT 2602
Locked Bag 2000 Civic Square · ACT 2600
Ph: (02) 6207 2738 Mobile: 0421 414 605 Facsimile: (02) 6207 6872
ACT Government Homepage: www.act.gov.au

Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 11:21 AM
To: Lacey, Glenn
Subject: FW: Togas Mix Design - Flemington Rd

Importance: High

Glenn

GHD has requested approval of TOGAS design.

It is their responsibility to release hold points, but they may be like me and not up to speed on TOGAS design.

I referred it to Peter Thompson, see below.

Do you have any comments?

Steve

From: Thompson, Peter
Sent: Thursday, 22 November 2012 10:56 AM
To: Greenhalgh, Steve
Subject: RE: Togas Mix Design - Flemington Rd

Steve

Downer and Boral both make reasonable product in the ACT and this performs well. We put down about 1,500 tonnes in 2010/11, this year we were considering a very small program but over expenditure in other areas has caused this to be a casualty of budget constraints.

The design is based on R123 and should meet your needs.

Operationally I have the greatest problem with Togas as the pavers are hard to come by and when they arrive, they have problems with the tack coating and they are not able to split the screed resulting in much higher spread rates than planned. On maintenance projects we look for a 15mm layer but on existing roads with crowns and wheel ruts we normally yield closer to 22mm in thickness and this bumps up the costs. The same issue with the screed results in problems when keying in longitudinal edges to the pavement.

The Australian market for Togas is probably below 10,000 tonnes per year and pavers are difficult to come by. Boral had one which was broken and would cost about \$100K to repair and Downer had one that they were going to send to NZ because there is no work for it in Australia, this was the story 12 months ago and I doubt if much has changed.

I hope this helps and if you need more information, please ring me.

Regards

Peter Thompson

Project Manager
 Major Capital Works / Road Maintenance Services
 Roads ACT
 Ph 02 62076829
 Mob. 0419 639154

email peter.thompson@act.gov.au

116.

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From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 10:07 AM
To: Thompson, Peter
Subject: FW: Togas Mix Design - Flemington Rd

Peter
Do you have any comment on proposed design.
I am not up to date with TOGAS design
Regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Wednesday, 21 November 2012 4:25 PM
To: Greenhalgh, Steve
Subject: FW: Togas Mix Design - Flemington Rd

Steve

Attached is Guidelines (Downers) proposed mix design for the TOGAS.

Is this acceptable to SSP

Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: Matt Lowe [<mailto:Matt.Lowe@guidelineact.com.au>]
Sent: Wednesday, 21 November 2012 3:30 PM
To: Tony Ryan
Cc: John Hite; Nick Zardo (InTouch)
Subject: FW: Togas Mix Design - Flemington Rd

Tony,

Apologies about the delay, please find attached the mix design for the Togas for Flemington Rd.

Regards,

Matthew Lowe
Project Engineer



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 401 313 470
Web: www.guidelineact.com.au

From: Ryan Jennings [<mailto:Ryan.Jennings@downerediworks.com.au>]
Sent: Friday, 16 November 2012 3:46 PM
To: Matt Lowe

117.

32,

Cc: Sean Holding; Michael Baker
Subject: Mix Design - Flemington Rd Upgrade



Ryan Jennings | Laboratory Supervisor / Systems Support | Downer Australia
T +61 2 6269 1715 | M +61 488 334 879 | F +61 2 6269 1797
36 Sawmill Circuit, Hume A.C.T. 2620

Think before you print



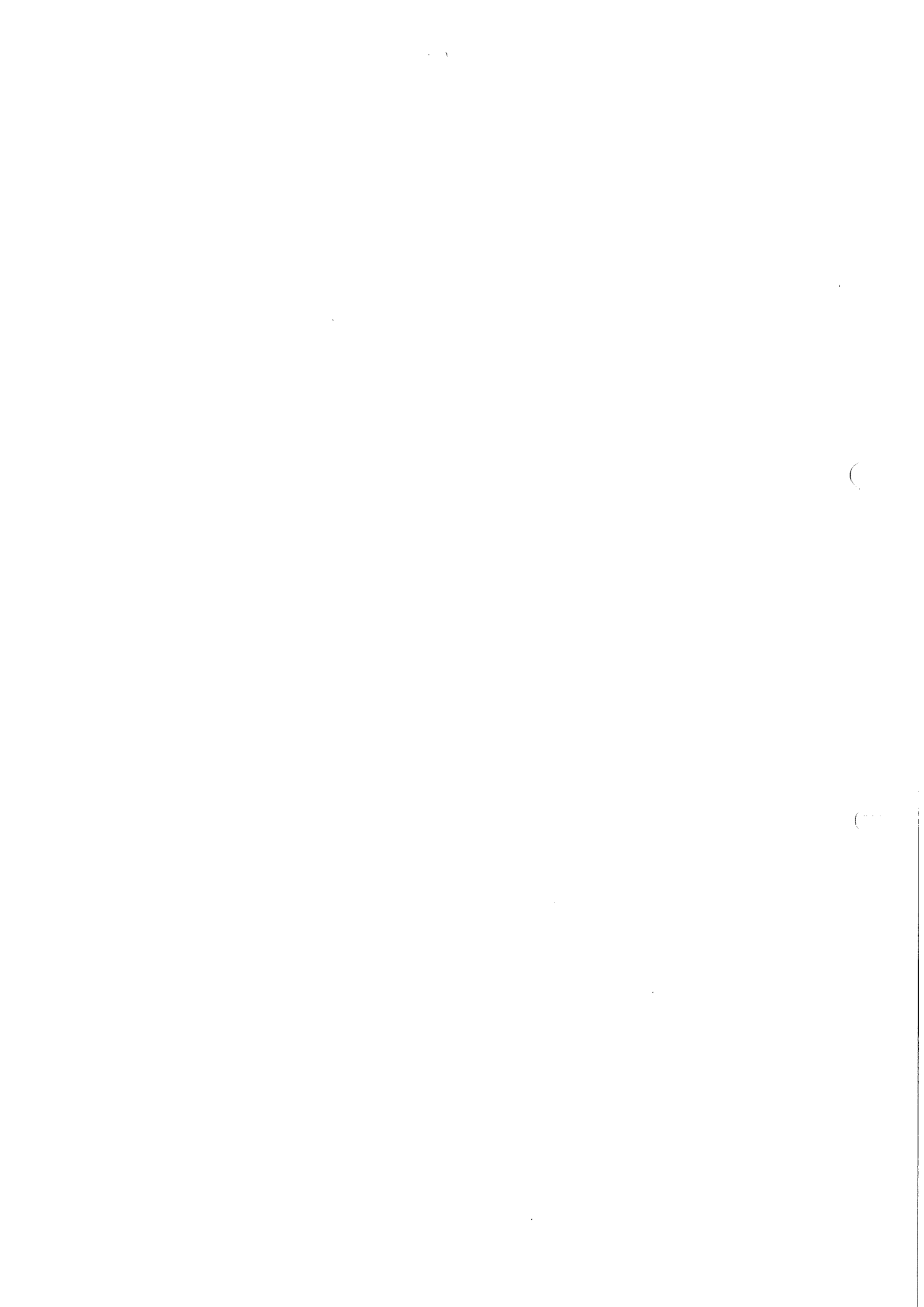
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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 3:51 PM
To: Lacey, Glenn
Cc: Milic, Vladan
Subject: FW: Flemington Rd - DLP for TOGAS

Importance: High

Glenn

What is the funding source for the TOGAS?

Do we need a further submission to Roads or is funding being arranged currently?

I can't raise a Purchase Order until funding is notified/approved.

Work is programmed for this weekend.

Steve

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 22 November 2012 3:18 PM
To: Greenhalgh, Steve
Subject: Flemington Rd - DLP for TOGAS

Steve

We need to consider the mechanism for the payment to Guideline for the TOGAS – variation to existing Flemington road contract or a new PO.

Guideline want to close-off contract once the repairs are done. This is OK but ends DLP. Ie no DLP for the TOGAS.

A new PO requires a new contract but will enable the TOGAS to have a DLP period.

I presume AC overlays laid for maintenance purposes attract a DLP period. What is the norm for ACT Roads for maintenance works?

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630. | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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Greenhalgh, Steve

From: Greenhalgh, Steve
Sent: Thursday, 22 November 2012 4:02 PM
To: 'Tony Ryan'
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

Thanks Tony
Re Purchase Order issue, I have asked Glenn to confirm funding source with Roads.
Regards
Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 3:58 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Rd - TOGAS R123 Specification and Holdpoints

FYI
Regards

Tony Ryan
Senior Project Manager

GHD
T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Thursday, 22 November 2012 3:28 PM
To: Tony Ryan
Cc: Alex Aitkenhead; Scott O'Keefe; Matt Lowe
Subject: RE: Flemington Rd - TOGAS R123 Specification and Holdpoints

Tony,
Please find attached letter confirming the submitted designs are in accordance with RTA specs.

Work will commence 7.30am sat., with the slow lane remaining closed overnight. Sunday afternoon Temporary stick and stomp markers will be placed on the centreline until mid-next week when line marking can commence.

Regards,

John Hite
General Manager

A.C.N. 008 462 549

16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Thursday, 22 November 2012 2:52 PM

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To: John Hite
Cc: Alex Aitkenhead; Scott O'Keefe
Subject: Flemington Rd - TOGAS R123 Specification and Holdpoints

John

Attached is R123 specification.

The Hold points in the spec are:

C1 SCHEDULE OF HOLD POINTS AND WITNESS POINTS Clause	Type	Description
2.3.1	Hold	Use of each nominated mix.
4.1	Witness	Each placement trial and initial placing of each nominated mix.
4.11	Hold	Commencement of placing trial TOGAS.

I need to get the mix design ticked off. So you need to get Downers to confirm that the mix sent through is to the R123 specification.

I also need to have the initial placement of the TOGAS witnessed. Scott O'Keefe will attend from GHD on Saturday and Alex Aitkenhead will attend on Sunday. Please advise what time this work will commence.

Can you also advise whether the new work will be opened to traffic on Saturday evening. I would like to have any temporary line marking inspected so that road safety is OK. I would also like this to be repeated on Sunday.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Wednesday, 12 December 2012 12:20 PM
To: Greenhalgh, Steve
Cc: Lacey, Glenn
Subject: FW: Flemington road rectification works claim
Attachments: rectification works claim 121212.pdf

Steve

I have received the claim for the TOGAS from Guideline. I will process this claim, plus the release of their bank guarantee for the end of the 12 month DLP.

Please advise how the claim for the TOGAS is to be processed – as a separate purchase order or as a vary to the original contract.

Pending your advice, I shall assume the payment will be made as a separate, one-off payment.

I would also like to do a joint inspection when you are available.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
 Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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From: John Hite [<mailto:John.Hite@guidelineact.com.au>]
Sent: Wednesday, 12 December 2012 11:48 AM
To: Tony Ryan
Cc: Matt Lowe
Subject: Flemington road rectification works claim

Tony,

Please find attached claim for the Togas placement, and request for final retention release for Flemington road.

Please call to advise if this can be processed prior to xmas shut down

Regards,

John Hite
 General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
 Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
 Web: www.guidelineact.com.au

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CIVIL ENGINEERING CONTRACTORS
A.C.N. 008 462 548 A.B.N. 65 008 462 548

POSTAL ADDRESS: P.O. BOX 537 QUEANBEYAN N.S.W. 2620
ADMIN. OFFICE: 16B BASS STREET QUEANBEYAN
PHONE: (02) 6299 3262
FAX: (02) 6299 2444
EMAIL: civil@guidelineact.com.au
WEBSITE: www.guidelineact.com.au

2/12/2012
GHD
Level 8 16 Marcus Clarke Street
Canberra ACT 2601
Australia
Attention: Tony Ryan

Flemington Road Pavement Rectification Works

Dear Sir,

Guideline ACT submits the following claim for the placement of 15mm of togas over the pavement between Wells station and Mapleton. Please refer to letter 69678 dated 12/11/12 for agreement of payment by ACT Government

TOGAS 10 (PMB)	659.2 t @\$285.5/t	= \$188,201.60
Total ex GST		= \$188,201.60

Please find attached invoice as evidence for the claim

Guideline hereby request the release of the remaining security on the project now the rectification works is complete.

Yours Sincerely,

John Hite

General manager

128.

Downer

RECEIVED
11 DEC 2012

TAX INVOICE

Downer EDI Works Pty Ltd
ABN 66 008 709 608

Invoice: 1006955

Quote:

Date: 25/11/12

To:

GUIDELINE (ACT)
PO BOX 537
QUEANBEYAN NSW 2620

Job Details:

FLEMINGTON RD PATCHES

Client: 072151

Job: 139003
W/O:

Description	Quantity	Unit	Rate	Extension
Patching [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
TOGAS10 (PMB)	659.20	Tonne	285.50	188201.60

INVOICE TOTAL \$ [REDACTED]



GST AMOUNT [REDACTED]
TOTAL PAYABLE [REDACTED]

Asphalt Dockets	Date	Order No	Quantity	Product	Description
4209656	24/11/12		12.04	1301024	TOGAS10 (PMB)
4209657	24/11/12		12.64	1301024	TOGAS10 (PMB)
4209658	24/11/12		33.24	1301024	TOGAS10 (PMB)
4209659	24/11/12		31.98	1301024	TOGAS10 (PMB)
4209660	24/11/12		34.06	1301024	TOGAS10 (PMB)
4209661	24/11/12		12.00	1301024	TOGAS10 (PMB)
4209662	24/11/12		12.28	1301024	TOGAS10 (PMB)
4209663	24/11/12		33.02	1301024	TOGAS10 (PMB)
4209664	24/11/12		32.08	1301024	TOGAS10 (PMB)
4209665	24/11/12		12.12	1301024	TOGAS10 (PMB)
4209666	24/11/12		34.28	1301024	TOGAS10 (PMB)
4209667	24/11/12		12.34	1301024	TOGAS10 (PMB)
4209668	24/11/12		33.28	1301024	TOGAS10 (PMB)
4209669	24/11/12		12.00	1301024	TOGAS10 (PMB)

TERMS: 30 days EOM

Email: accountsreceivable.ho@downerediworks.com.au

THIS IS A PAYMENT CLAIM MADE UNDER THE BUILDING AND CONSTRUCTION SECURITY OF PAYMENT ACT 1999.

Remit to: Accounts Receivable, Locked Bag 1014, Port Melbourne VIC 3207, or fax to (03) 8645 0850

Direct Payment: Westpac BSB: 033018 Account No: 233401

Mat

Downer Australia
ABN 66 008 709 608

A 36 Sawmill Circuit Hume ACT 2620
P PO Box 186, Queanbeyan NSW 2620
T +61 2 6269 1700 | F +61 2 6269 1797 | W downergroup.com

Invoice: 1006955 Job: 139003

Page: 2

Asphalt Dockets	Date	Order No	Quantity	Product	Description
4209670	24/11/12		32.26	1301024	TOGAS10 (PMB)
4209671	24/11/12		12.28	1301024	TOGAS10 (PMB)
4209672	25/11/12		12.50	1301024	TOGAS10 (PMB)
4209673	25/11/12		12.56	1301024	TOGAS10 (PMB)
4209674	25/11/12		33.28	1301024	TOGAS10 (PMB)
4209675	25/11/12		32.28	1301024	TOGAS10 (PMB)
4209676	25/11/12		12.52	1301024	TOGAS10 (PMB)
4209677	25/11/12		12.68	1301024	TOGAS10 (PMB)
4209678	25/11/12		33.30	1301024	TOGAS10 (PMB)
4209679	25/11/12		32.20	1301024	TOGAS10 (PMB)
4209680	25/11/12		12.48	1301024	TOGAS10 (PMB)
4209681	25/11/12		12.54	1301024	TOGAS10 (PMB)
4209682	25/11/12		33.40	1301024	TOGAS10 (PMB)
4209683	25/11/12		32.06	1301024	TOGAS10 (PMB)
4209684	25/11/12		12.50	1301024	TOGAS10 (PMB)
4209685	25/11/12		13.00	1301024	TOGAS10 (PMB)
4209617	22/11/12		13.00	1301025	AC10 (450) HD
4209586	21/11/12		14.42	1301025	AC10 (450) HD
4209588	21/11/12		12.42	1301025	AC10 (450) HD
4209589	21/11/12		12.32	1301025	AC10 (450) HD
4209596	21/11/12		13.68	1301025	AC10 (450) HD
4209603	21/11/12		10.02	1301025	AC10 (450) HD
4209611	22/11/12		12.20	1301025	AC10 (450) HD
4209612	22/11/12		13.20	1301025	AC10 (450) HD
4209533	19/11/12		14.20	1301025	AC10 (450) HD
4209535	19/11/12		12.36	1301025	AC10 (450) HD
4209545	19/11/12		13.64	1301025	AC10 (450) HD
4209546	19/11/12		12.06	1301025	AC10 (450) HD
4209547	20/11/12		13.60	1301025	AC10 (450) HD
4209548	20/11/12		12.12	1301025	AC10 (450) HD
4209549	20/11/12		12.36	1301025	AC10 (450) HD
4209550	20/11/12		12.52	1301025	AC10 (450) HD
4209559	20/11/12		13.54	1301025	AC10 (450) HD
4209576	20/11/12		5.00	1301025	AC10 (450) HD
4209417	14/11/12		34.00	1301025	AC10 (450) HD
4209418	14/11/12		31.50	1301025	AC10 (450) HD

TERMS: 30 days EOMEmail: accountsreceivable.ho@downerediworks.com.au

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Remit to: Accounts Receivable, Locked Bag 1014, Port Melbourne VIC 3207, or fax to (03) 8645 0850

Direct Payment: Westpac BSB: 033018 Account No: 233401

(

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1

Greenhalgh, Steve

From: McHugh, Ben
Sent: Wednesday, 19 December 2012 8:50 AM
To: Greenhalgh, Steve
Cc: Lacey, Glenn
Subject: Flemington Road Pavement rehab.

Steve,

The togas should be processed against the Gungahlin Drive Pavement Rehab project.

TMS12CUP10-Road Pavement Gungahlin Dr

Regards

Ben

Ben McHugh

Major Capital Works

Directorate of Territory & Municipal Services · Roads ACT
Level 7, Macarthur House · 12 Wattle Street, Lyneham ACT 2602
Locked Bag 2000 Civic Square · ACT 2600
Ph: (02) 6207 2738 Mobile: 0421 414 605 Facsimile: (02) 6207 6872
ACT Government Homepage: www.act.gov.au

Lacey, Glenn

From: John Hite [John.Hite@guidelineact.com.au]
Sent: Monday, 17 December 2012 5:12 PM
To: Lacey, Glenn
Cc: Greenhalgh, Steve; 'Tony.Ryan@ghd.com'
Subject: FW: Flemington Road Duplication - Guideline Invoice for TOGAS
Attachments: GHD Letter 69981.pdf; Togas payment invoice.pdf

Glenn,

As discussed with Nick, please find attached payment certificate from GHD and Guideline invoice for the Togas.

Much appreciated

Regards,

John Hite
General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 13 December 2012 12:01 PM
To: Steve Greenhalgh (InTouch)
Cc: John Hite
Subject: Flemington Road Duplication - Guideline Invoice for TOGAS

Steve

Please find attached payment certificate for the TOGAS surfacing on Flemington Road

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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13 December 2012

Steve Greenhalgh
Shared Services Procurement
16 Challis Street
Dickson ACT 2602

Our ref: 23/13137
Your ref: 69981

Dear Steve

**Flemington Road Duplication
Payment for TOGAS Surfacing**

Please find attached a payment certificate and invoice for the TOGAS surfacing at Flemington Road.

As per agreement (refer attached email), this work has been undertaken by Guideline and they have submitted their invoice for the work.

GHD consider the TOGAS work has been properly performed and payment can be made.

Sincerely



Tony Ryan
Senior Project Manager
61 2 6742 5427



Payment Claim Worksheet

Refer to clause 62 of the GC21 General Conditions of Contract.

The Contractor: Guideline (ACT) Pty Ltd
ABN 65 008 462 548

The Contract: The contract between the Principal
and the Contractor

Contract Title: TOGAS Surfacing
Flemington Road Duplication
(Wells Station Drive to Hamer Street)

Contract Number: -

Payment Claim Number: 1

	Values (including GST)
Contract Value as Awarded	\$207,021.76
Variations Approved	\$NIL
Adjusted Contract Value	\$207,021.76
Claimed to Date	\$207,021.76
Less Previous claims	\$NIL
Claimed Amount	\$207,021.76

Approved by

Tony Ryan

Principal's Authorised Person

Date 12 December 2012

Tony Ryan

From: Greenhalgh, Steve <Steve.Greenhalgh@act.gov.au>
Sent: Friday, 9 November 2012 11:52 AM
To: Tony Ryan
Subject: Flemington Road TOGAS

Importance: High

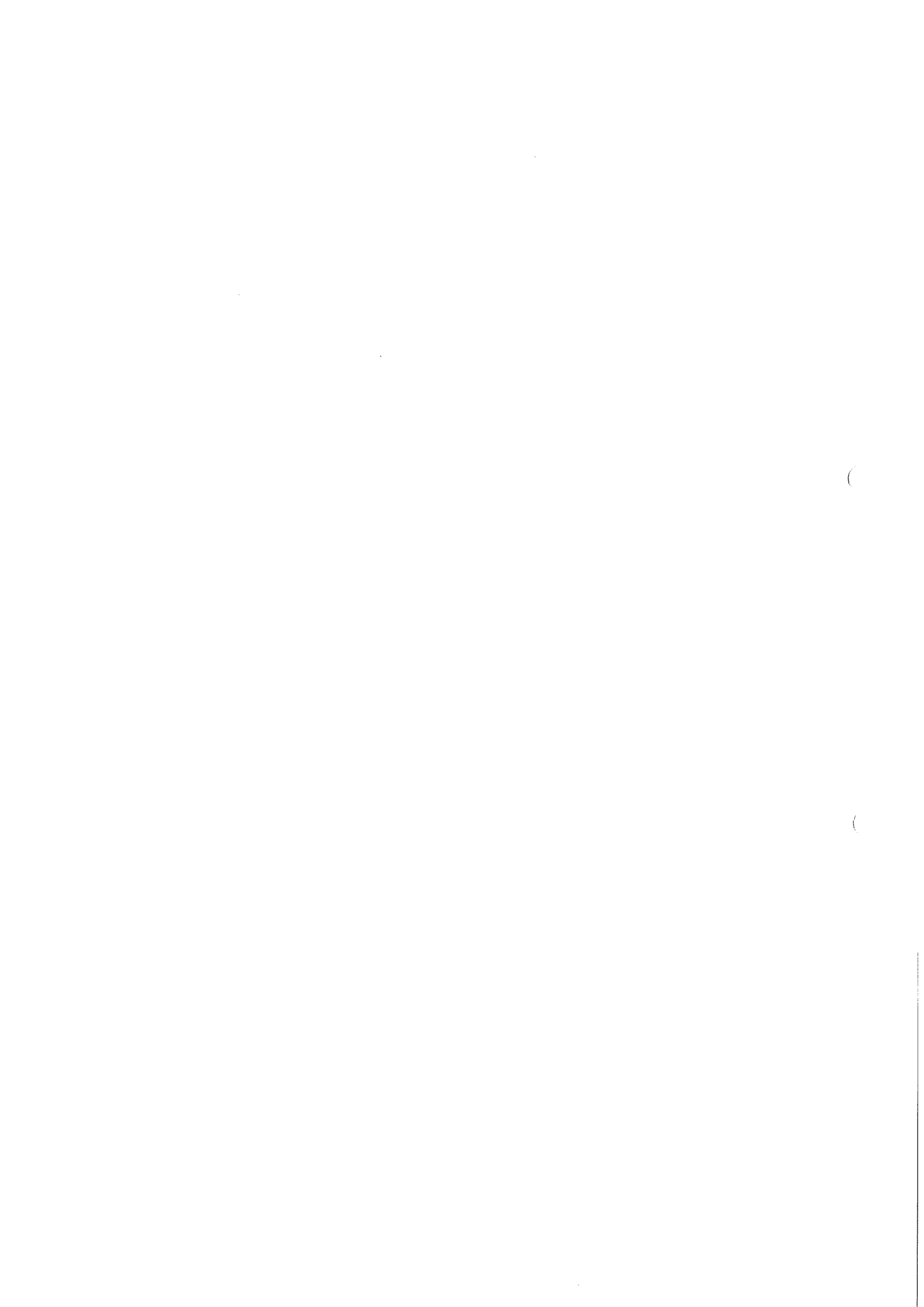
CompleteRepository: 2313137
Description: Flemington Road Duplication - Superintendence
JobNo: 13137
OperatingCentre: 23
RepoEmail: 2313137@ghd.com
RepoType: Job

Tony
News from Glenn:

Please advise Guideline that the client will fund the TOGAS component of the rectification works – Wells Stn to Mapleton.
Guideline can incorporate the TOGAS works to follow immediately after the heavy patching that they carry out.
Regards
Steve

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Greenhalgh, Steve

From: Tony Ryan [Tony.Ryan@ghd.com]
Sent: Thursday, 13 December 2012 11:39 AM
To: Greenhalgh, Steve
Cc: John Hite
Subject: Flemington Road Duplication - Release of Post Completion Undertaking
Attachments: GHD Letter 69980.pdf

Steve

With the rectification of the pavement defects on Flemington Road, the Post Completion Undertaking can now be released.

GHD letter 69980 refers (attached).

Regards

Tony Ryan
Senior Project Manager

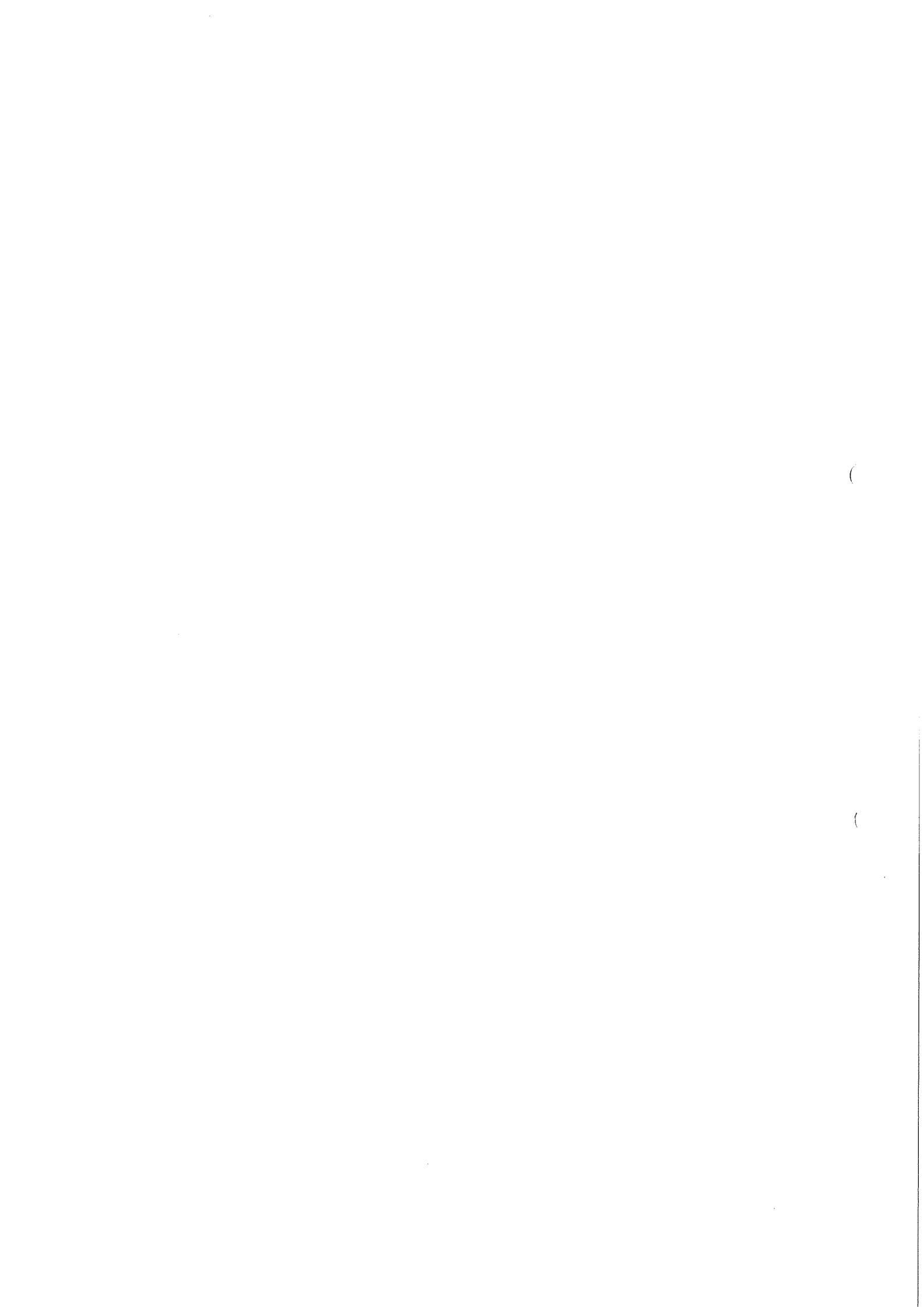
GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
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Greenhalgh, Steve

From: Faryna, Eva
Sent: Thursday, 17 January 2013 3:33 PM
To: Greenhalgh, Steve
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking
Attachments: GHD Letter 69980.pdf

Steve

Security released as requested.

Regards

Eva Faryna | Senior Contracts Officer Procurement

Phone 02 6207 5554 | Fax 02 6207 6500

Shared Services | Commerce and Works | ACT Government

Level 3 Annex, Macarthur House, 12 Wattle Street Lyneham ACT 2602 | PO Box 818 Dickson ACT 2602 | www.act.gov.au

From: Aldwell, Lee-Anne
Sent: Thursday, 17 January 2013 11:45 AM
To: Faryna, Eva
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Can you do this please.

Lee-Anne

From: Greenhalgh, Steve
Sent: Thursday, 17 January 2013 11:34 AM
To: Aldwell, Lee-Anne
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Le-Anne

Can you please arrange release of remaining security (154,011?) on Flemington Road Duplication contract C09052

thanks

Steve

From: Tony Ryan [<mailto:Tony.Ryan@ghd.com>]
Sent: Wednesday, 9 January 2013 8:16 AM
To: Greenhalgh, Steve
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

I believe you have all the necessary paperwork to enable the bank guarantee to be released.

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com

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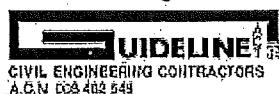
From: John Hite [mailto:John.Hite@guidelineact.com.au]
Sent: Monday, 7 January 2013 5:02 PM
To: Tony Ryan; Steve Greenhalgh (InTouch)
Subject: FW: Flemington Road Duplication - Release of Post Completion Undertaking

Tony/Steve,

Thank you for the payment of the Togas prior to Xmas. I am just following up on the below for the release of the retention. Pleasev advise when this will be released.

Regards,

John Hite
General Manager



16B Bass Street, QUEANBEYAN, NSW, 2620, Australia
Tel: +61 2 6299 3262 | Fax: +61 2 6299 2444 | Mob: +61 407 008 195
Web: www.guidelineact.com.au

From: Tony Ryan [mailto:Tony.Ryan@ghd.com]
Sent: Thursday, 13 December 2012 11:39 AM
To: Steve Greenhalgh (InTouch)
Cc: John Hite
Subject: Flemington Road Duplication - Release of Post Completion Undertaking

Steve

With the rectification of the pavement defects on Flemington Road, the Post Completion Undertaking can now be released.

GHD letter 69980 refers (attached).

Regards

Tony Ryan
Senior Project Manager

GHD

T: 61 2 6113 3345 | V: 233345 | M: 0409 699 630 | E: tony.ryan@ghd.com
Level 8 16 Marcus Clarke Street Canberra ACT 2601 Australia | www.ghd.com
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

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This e-mail has been scanned for viruses by MessageLabs.

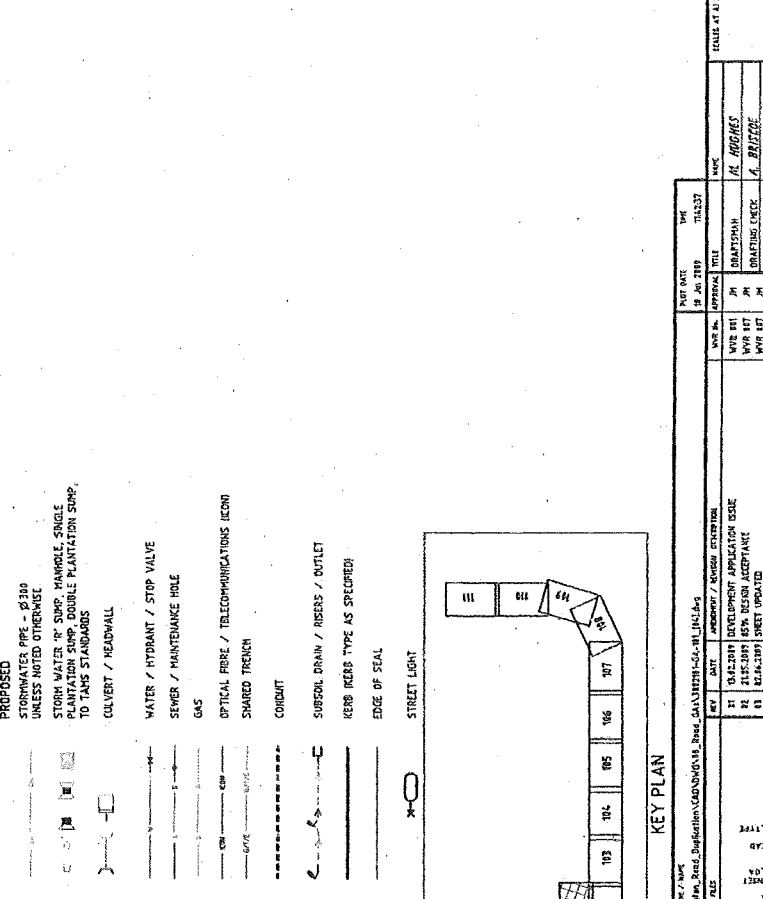
This e-mail has been scanned for viruses by MessageLabs.

151

#1



LEGEND	LEGEND
EXISTING STORMWATER / MANHOLE / SUMP	ASPHALT - FLAY TO EXISTING PAVEMENT
WATER / HYDRANT / VALVE	NEW PAVEMENT - MAIN CARRIAGEWAY
SEWER / MANHOLE	NEW PAVEMENT - SERVICE / MINOR ROADS
DAY TRANSMISSION LINES (OVERHEAD) / POWER POLE	CONCRETE SHARED PATHWAY (UNPAVED)
ELECTRICITY - OVERHEAD	CONCRETE SHARED PATHWAY / ROAD CROSSING
EXISTING ELECTRICITY - UNDERGROUND	REINFORCED CONCRETE BUS BAY (EXCISE BUSES)
STREET LIGHT CABLE / LIGHT POLE	EXISTING PAVEMENT TO BE RECEIVED
GAS MAIN / PIPE / MARKER	RESTORE AREAS DISTURBED BY THE WORKS WITH TOPSOIL & NON-IRRIGATED GRASS
TELECOMMUNICATIONS CABLE (TELSTRA)	TRAFFIC ISLAND
OPTICAL FIBRE (TELSTRA) / PIT	CONCRETE CONCRETE BUS STOP PAD REMOVE LAMPHOL BUS SHELTER TYPE TRK BY OTHERS
OPTICAL FIBRE / TELECOMMUNICATIONS (COM)	NORTH MITCHELL GRASSLANDS (CONSTRUCTION NOT PERMITTED TO ENTER)
DEISED OPTICAL FIBRE / TELECOMMUNICATIONS (COM)	
SHARED TRENCH - GAS, TELSTRA & ELECTRICITY	
SHARED TRENCH - TELSTRA & ELECTRICITY	
FENCE	
EXISTING SUB-SOIL	
QUARD FENCE	
EXISTING SERVICE / FEATURE TO BE REMOVED / ABANDONED, AS NOTED	
EXISTING TREE TO BE RETAINED	
EXISTING TREE TO BE REMOVED	
PROPOSED	
STORMWATER PIPE - Ø 300 UNLESS NOTED OTHERWISE	
STORM WATER "R" SUMP, MANHOLE, SINGLE PLANTATION SUMP, DOUBLE PLANTATION SUMP, TO TANK STANDARDS	
CULVERT / HEADWALL	
WATER / HYDRANT / STOP VALVE	
SEWER / MAINTENANCE HOLE	
GAS	
OPTICAL FIBRE / TELECOMMUNICATIONS (COM)	
SHARED TRENCH	
CONDUIT	
SUBSOIL DRAIN / RISERS / OUTLET	
KERB RISERS TYPE AS SPECIFIED	
EDGE OF SEAL	
STREET LIGHT	



JOINS DRG No 3002181-GA-102

NOTES:
 1. FOR GENERAL NOTES REFER DRG No. 3002181-GA-100
 2. FOR LEGEND REFER DRG No. 3002181-GA-101

CONSTRUCTION

GENERAL ARRANGEMENT SHEET 1 AND LEGEND

PROJECT TITLE: FLEMINGTON ROAD DUPLICATION FROM WELLS STATION DRIVE TO HAMER STREET

SCALE: AS SHOWN

DATE: 10/06/2010

PROJECT NO: 3002181-GA-101

SMEC

SMEC AUSTRALIA PTY LTD

CIVIL ENGINEERING CONTRACTORS

100 ST. GEORGE STREET SYDNEY NSW 2000 AUSTRALIA

PH: 61 2 959 96000 FAX: 61 2 959 96001

DATE	BY	CHKD
10/06/2010	J.M. HUGHES	J.M. HUGHES
10/06/2010	A. BARNETT	A. BARNETT
10/06/2010	J. HUGHES	J. HUGHES
10/06/2010	L. FERRELL	L. FERRELL
10/06/2010	J. HUGHES	J. HUGHES

SCALE	1:1
DATE	10/06/2010
PROJECT NO	3002181-GA-101

NO	DATE	REVISION / WORKS CHANGED
01	10/06/2010	DEVELOPMENT APPLICATION ISSUE
02	21/06/2010	80% DESIGN ACCEPTANCE
03	22/06/2010	SHEET UPDATED
04	10/06/2010	CONSTRUCTION ISSUE

KEY PLAN

SHOWN ALL EXISTING & PROPOSED WORKS

INTERNAL ROADWORKS ONLY

154

JOINS DRG No 3002181-GA-105

33

CHRISTINA STEAD STREET

REMOVE REMNANT
RESID & PATCH
RESTORE AREA WITH
TOPSOIL & LANDSCAPING

PROPOSED WATER MAIN
REFER WATER SUPPLY
DRG NO. 3002181-WS-100

EXISTING (CON CONDUIT
TO BE ABANDONED
REMOVE REDUNDANT PITS

PROPOSED FIBRE OPTIC
CONDUIT (CON. REFER TO
DRG NO. 3002181-DR-03)

ADJUST EXISTING
HYDRANT TO SUIT
NEW WORKS

EXISTING TREE TO
BE REMOVED

NEW CARBAGEWAY

EXISTING TREE TO
BE REMOVED

JOINS DRG No 3002181-GA-103

FLEMINGTON ROAD
3x30

F 3710

F 3710

CONSTRUCT
CONCRETE
BUS PAD

WINDJANA STREET

SINGLE LANE SERVICE ROAD
WITH INDENTED PARKING

CONDUITS, REFER TO
DRG NO. 3002181-DR-03

PROPOSED WATER MAIN
REFER WATER SUPPLY
DRG NO. 3002181-WS-100

PROPOSED STORMWATER
DRAINAGE REFER TO
DRG NO. 3002181-DR-05

PROPOSED SHARED
TRENCH, REFER DRG NO.
3002181-DR-03

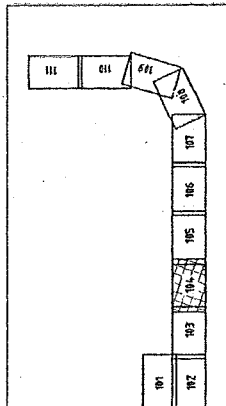
BUNGLE BUNGLE CRES

CONDUITS, REFER TO
DRG NO. 3002181-DR-03

MATCH EXISTING
KNOB / TYPICAL
CONDUITS, REFER TO
DRG NO. 3002181-DR-03

F = FAILURE
H = HOLE

KINGS CANYON ST



NOTES:
1. FOR GENERAL NOTES REFER DRG No. 3002181-GA-100
2. FOR LEGEND REFER DRG No. 3002181-GA-101

CONSTRUCTION



SMEC AUSTRALIA LTD
100 ST GEORGE'S ROAD
SYDNEY NSW 2000 AUSTRALIA
PH: 61 2 923 9200 FAX: 61 2 923 9201

SCALE: 1:500
DATE: 10/10/2017

NO	DATE	BY	APPROVAL	TITLE	SCALE
01	10/10/2017	M. AUGUSTE		TELEGRAPH	AS SHOWN
02	10/10/2017	A. BRADY		DEVELOPMENT APPLICATION ISSUE	AS SHOWN
03	10/10/2017	T. JERVIS		CONSTRUCTION ISSUE	AS SHOWN
04	10/10/2017	C. STOTTON		CONSTRUCTION	AS SHOWN

PROJECT TITLE
FROM WELLS STATION DRIVE TO HANER STREET
GENERAL ARRANGEMENT
SHEET 4

PROJECT NO.
3002181-GA-104

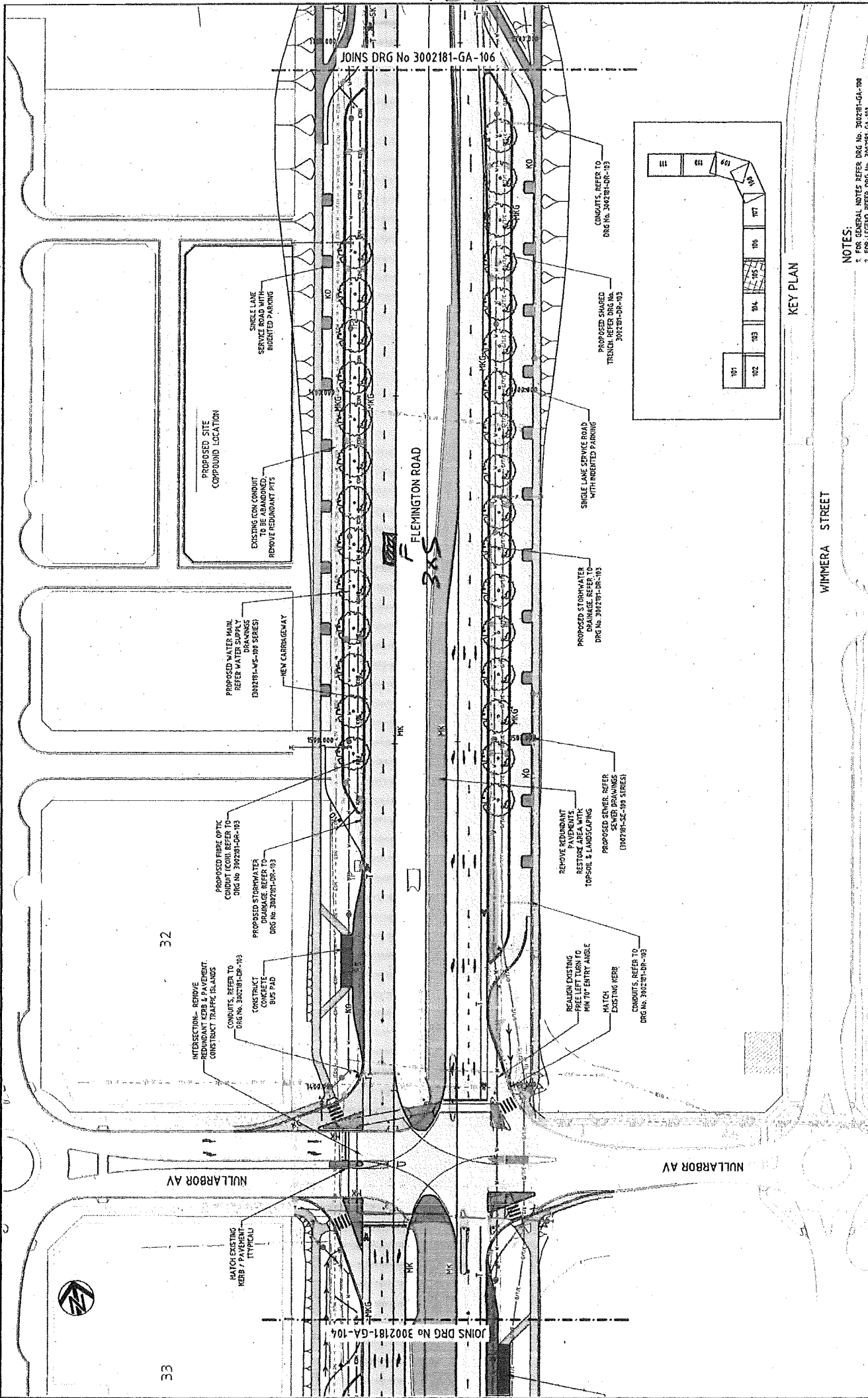
DATE: 10/10/2017
BY: M. AUGUSTE
APPROVAL: A. BRADY
T. JERVIS
C. STOTTON

PROJECT NO. 3002181-GA-104
SHEET 4

155

JOINS DRG No 3002181-GA-106

JOINS DRG No 3002181-GA-104



KEY PLAN

NOTES:

- 1. FOR GENERAL NOTES REFER DRG No. 3002181-GA-106
- 2. FOR LEGEND REFER DRG No. 3002181-GA-01

CONSTRUCTION

CLIENT
GUIDELINE
 CIVIL ENGINEERING CONTRACTORS
 A.C.N. 009 430 248

CLIENT
SMEC
 SMEC AUSTRALIA PTY LTD
 UNIT 2, 2 WINDUP STREET SYDNEY NSW
 A.C.N. 105 475 417

NAME	ROLE
M. ANDRES	DESIGNER
A. BRIDGEMAN	DESIGNER
R. VAN DER WERF	DESIGNER
J. TEEBIE	DESIGNER
J. WATSON	PROJECT MANAGER
C. SPITTY	PROJECT DIRECTOR

DATE	BY	CHKD BY	DESCRIPTION
12/01/2017	J.H.	J.H.	ISSUED FOR PERMIT
12/01/2017	J.H.	J.H.	ISSUED FOR CONSTRUCTION

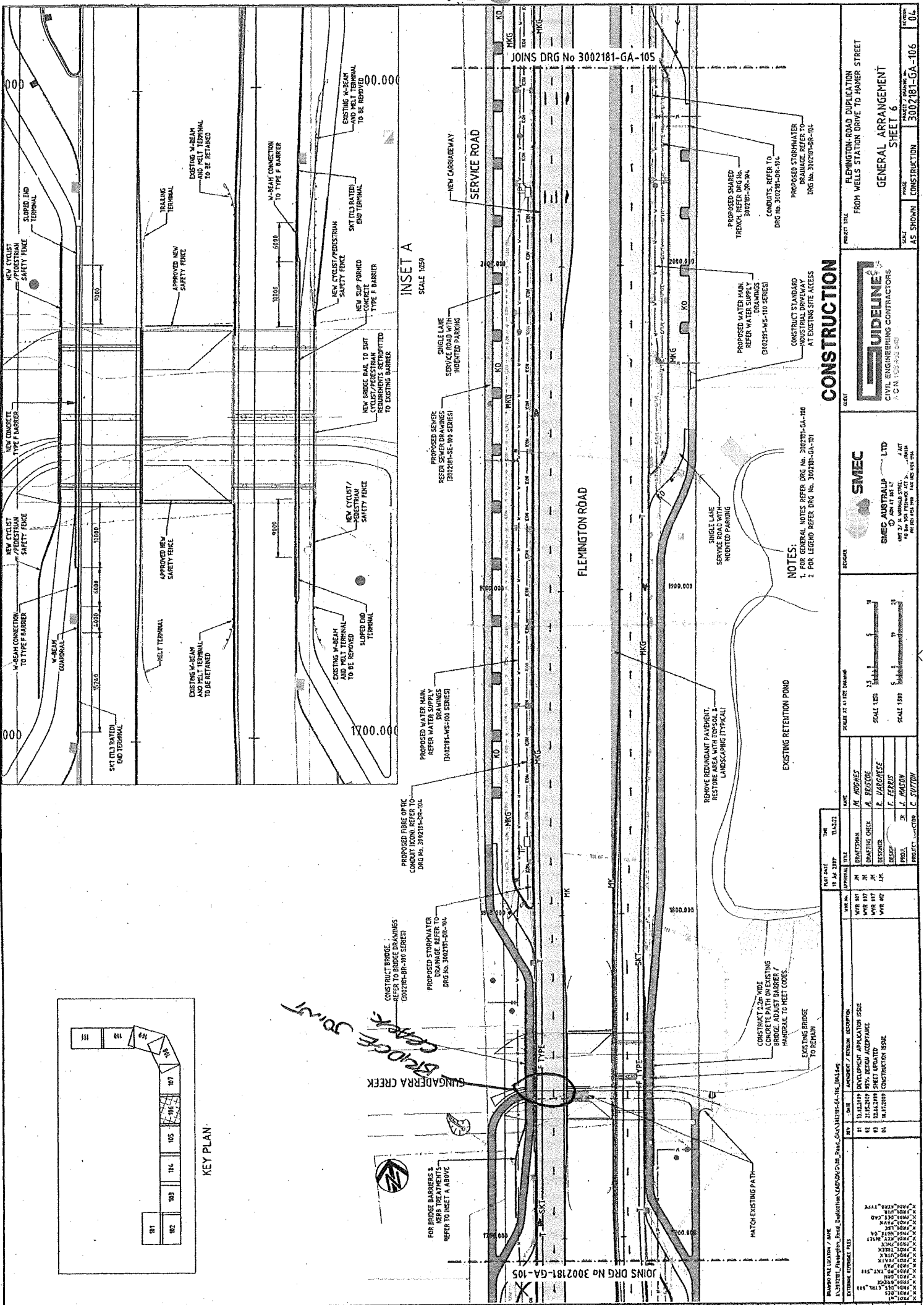
NO.	DATE	REVISION / APPROVAL
1	12/01/2017	ISSUED FOR PERMIT
2	12/01/2017	ISSUED FOR CONSTRUCTION

NO.	DATE	REVISION / APPROVAL
1	12/01/2017	ISSUED FOR PERMIT
2	12/01/2017	ISSUED FOR CONSTRUCTION

NO.	DATE	REVISION / APPROVAL
1	12/01/2017	ISSUED FOR PERMIT
2	12/01/2017	ISSUED FOR CONSTRUCTION

NO.	DATE	REVISION / APPROVAL
1	12/01/2017	ISSUED FOR PERMIT
2	12/01/2017	ISSUED FOR CONSTRUCTION

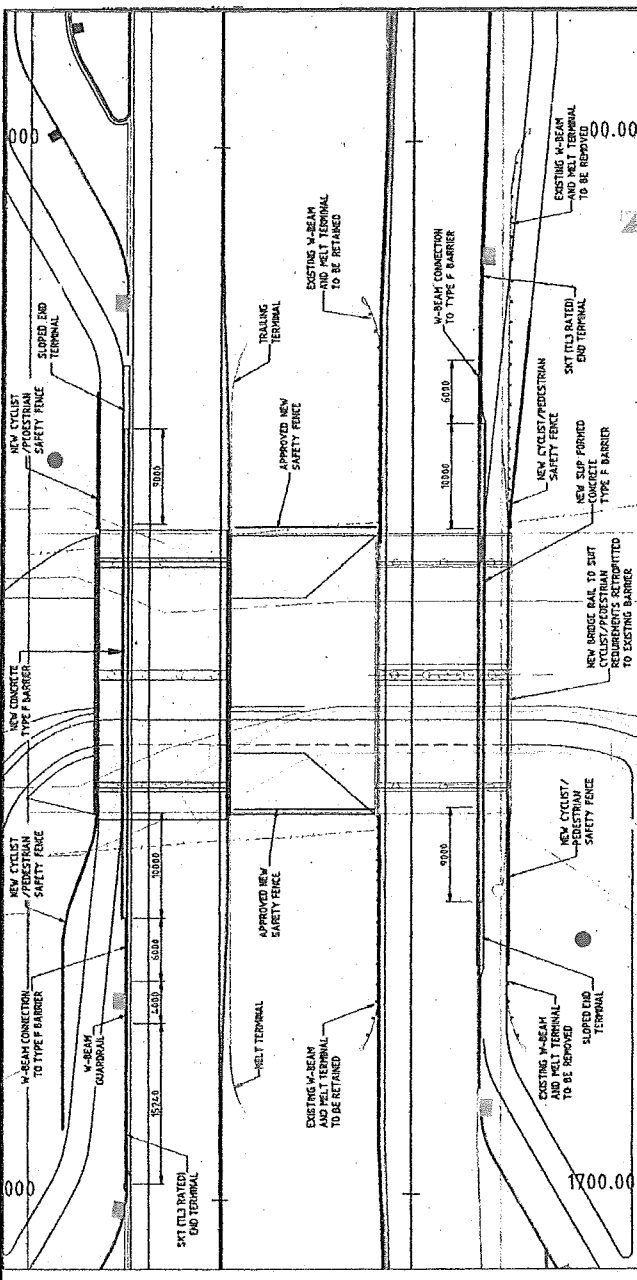
156



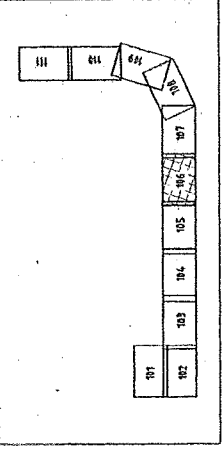
JOINS DRG No 3002181-GA-105

JOINS DRG No 3002181-GA-105

INSET A
SCALE 1:250



KEY PLAN



NOTES:

- FOR GENERAL NOTES REFER DRG No. 3002181-GA-100
- FOR LEGEND REFER DRG No. 3002181-GA-01

CONSTRUCTION

CONSTRUCT STANDARD INDUSTRIAL DRIVEWAY AT EXISTING SITE ACCESS

PROPOSED WATER MAIN REFER WATER SUPPLY DRAWINGS (3002181-WS-100 SERIES)

PROPOSED SHARED TRENCH REFER DRG No. 3002181-DR-104

CONDUITS REFER TO DRG No. 3002181-DR-104

PROPOSED STORMWATER DRAINAGE REFER TO DRG No. 3002181-DR-104

SMEC
SMEC AUSTRALIA LTD
100 ANN STREET SYDNEY NSW 2000
TEL: 61 2 9550 6200 FAX: 61 2 9550 6201

GUIDELINE
GUIDELINE CIVIL ENGINEERING CONTRACTORS
A.C.N. 102 842 530

NO.	DATE	REVISION / REVISION DESCRIPTION
01	11/11/11	ISSUED FOR PERMIT APPLICATION ISSUE
02	21/11/11	REVISED PERMIT ACCEPTANCE
03	21/11/11	SHEET UPDATED
04	11/11/11	CONSTRUCTION ISSUE

NO.	DATE	APPROVAL / SIGNATURE
01		PROJECT MANAGER
02		ENGINEER
03		DESIGNER
04		DRAWING CHECKER

NO.	DATE	REVISION / REVISION DESCRIPTION
01	11/11/11	ISSUED FOR PERMIT APPLICATION ISSUE
02	21/11/11	REVISED PERMIT ACCEPTANCE
03	21/11/11	SHEET UPDATED
04	11/11/11	CONSTRUCTION ISSUE

PROJECT TITLE
FLEMINGTON ROAD DUPLICATION
FROM WELLS STATION DRIVE TO HANER STREET

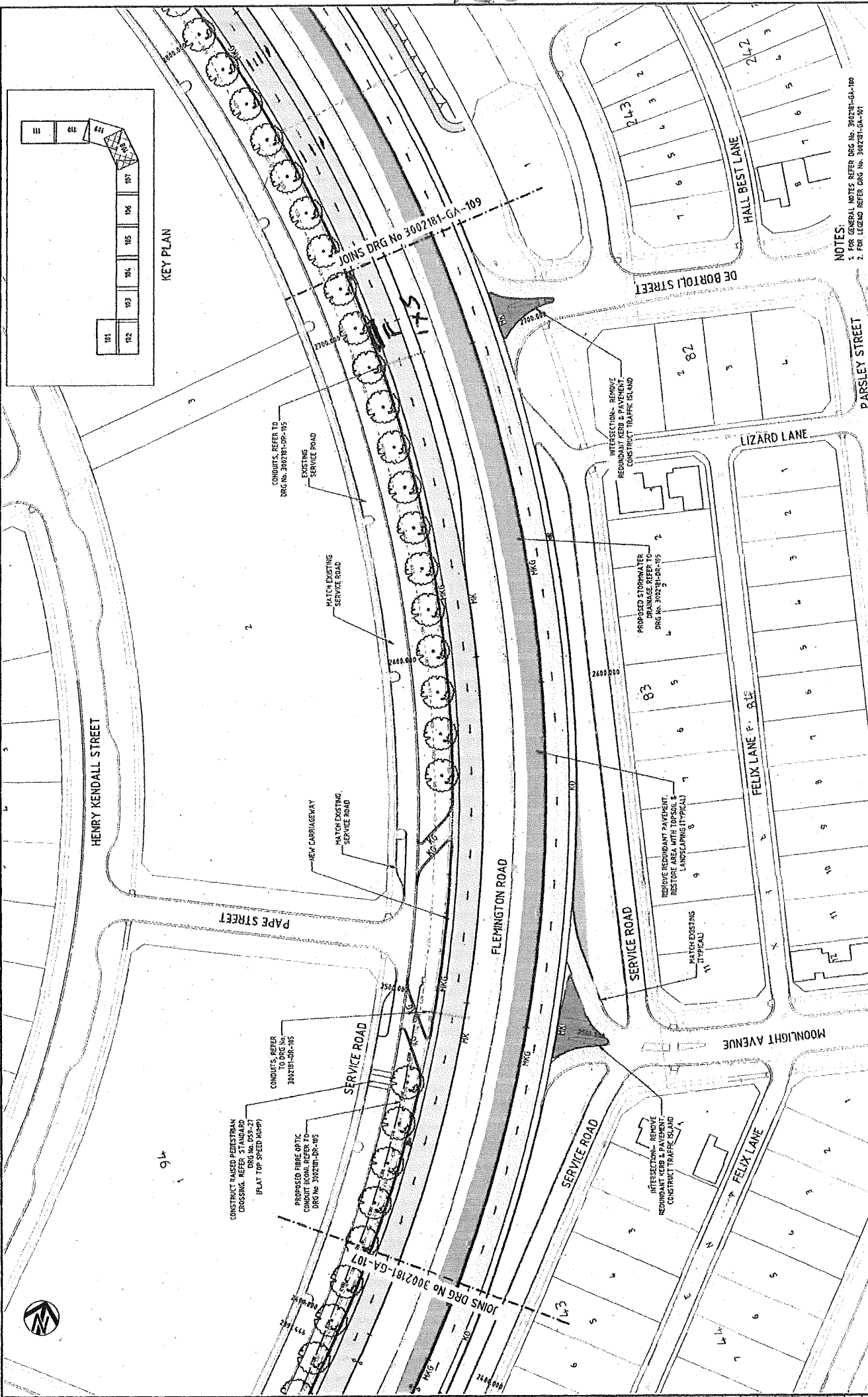
GENERAL ARRANGEMENT
SHEET 6

SCALE
AS SHOWN

PROJECT / DRAWING NO.
3002181-GA-106

DATE
04

185



NOTES:
 1. FOR GENERAL NOTES REFER DRG No. 3002181-GA-100
 2. FOR LEGEND REFER DRG No. 3002181-GA-101

CONSTRUCTION

PROJECT TITLE
 FLEMINGTON ROAD DUPLICATION
 FROM WELLS STATION DRIVE TO HAMER STREET
 GENERAL ARRANGEMENT
 SHEET 8

CLIENT
SMEC
SMEC AUSTRALIA LTD
 10 JUNE 2014
 150 WELLS STATION DRIVE
 SYDNEY NSW 1588

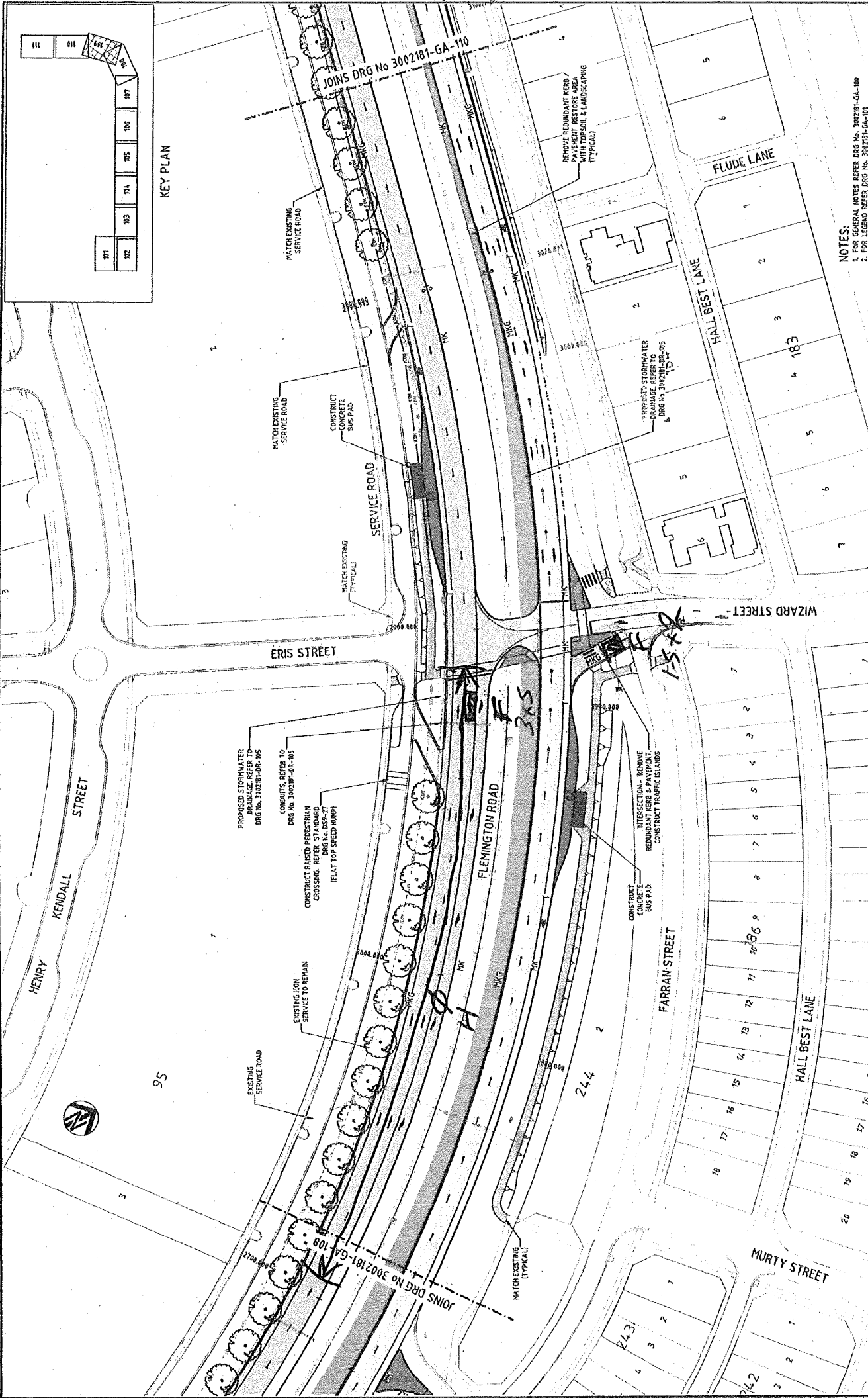
DESIGNER
GUIDELINE
 CIVIL ENGINEERING CONTRACTORS
 4/111 LINDA ST
 SYDNEY NSW 1588

SCALE 1:500
 DATE 15/06/14
 PROJECT NO. 3002181-GA-108

NO.	DATE	BY	DESCRIPTION
01	15/06/14	AM/MS/AS	PRELIMINARY DEVELOPMENT APPLICATION ASSESSMENT
02	21/06/14	AM/MS/AS	PRELIMINARY DESIGN ACCEPTANCE
03	03/07/14	AM/MS/AS	FINAL DESIGN
04	18/07/14	AM/MS/AS	CONSTRUCTION ISSUE

NO.	DATE	BY	DESCRIPTION
01	15/06/14	AM/MS/AS	PRELIMINARY DEVELOPMENT APPLICATION ASSESSMENT
02	21/06/14	AM/MS/AS	PRELIMINARY DESIGN ACCEPTANCE
03	03/07/14	AM/MS/AS	FINAL DESIGN
04	18/07/14	AM/MS/AS	CONSTRUCTION ISSUE

159



NOTES:
 1. FOR GENERAL NOTES REFER DRG NO. 3002181-GA-100
 2. FOR LEGEND REFER DRG NO. 3002181-GA-101

CONSTRUCTION

GUIDELINE
 CIVIL ENGINEERING CONTRACTORS
 1/100 1/100 1/100 1/100

SMC
SMC AUSTRALIA PTY LTD
 1/100 1/100 1/100 1/100

SCALE 1:500

DATE: 15/08/2017

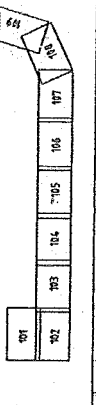
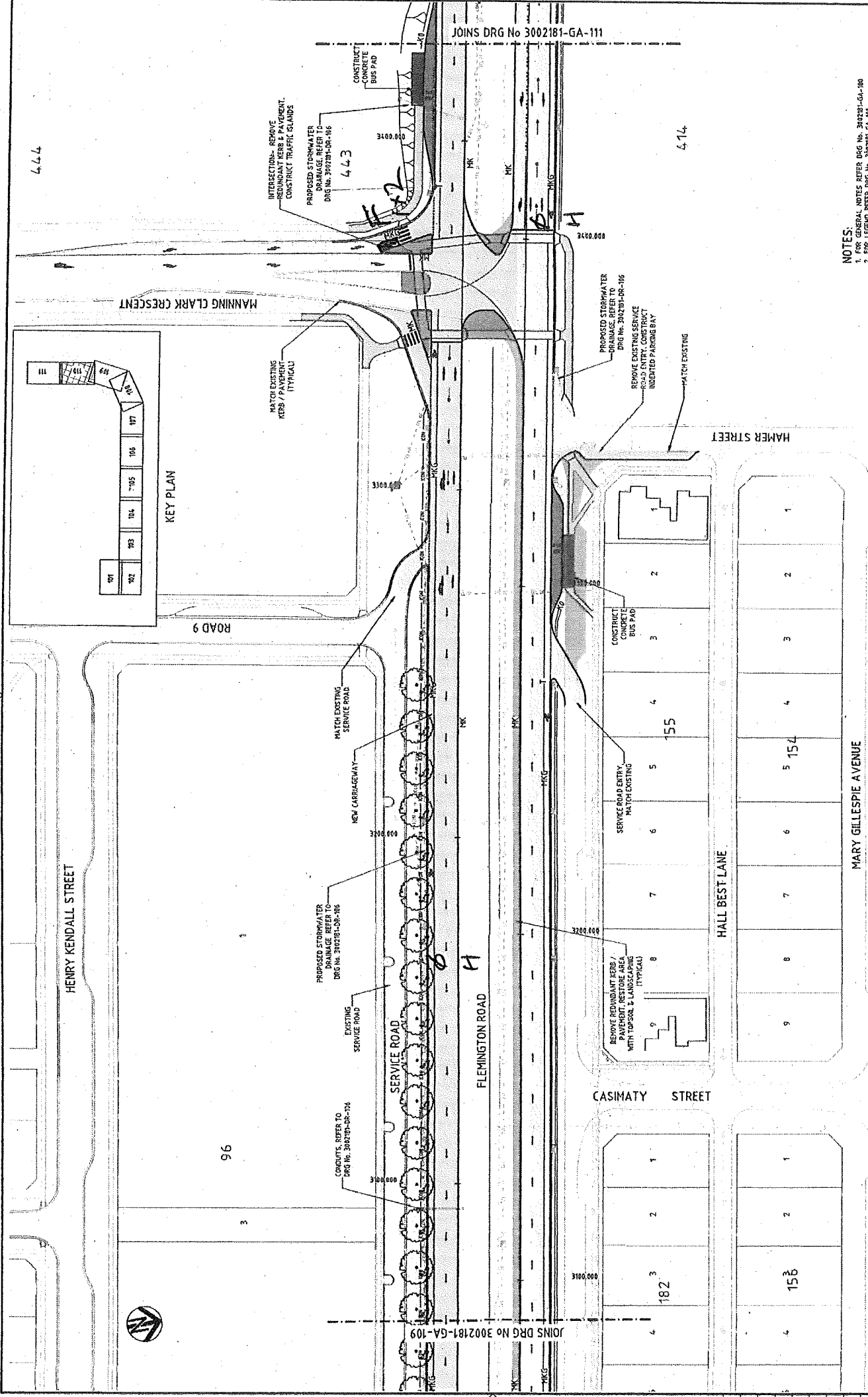
PROJECT: 3002181-GA-109

NO.	DATE	BY	CHKD.	APP'D.	TITLE
1	15/08/2017	JH	JH	JH	DRAFTSMAN
2	15/08/2017	JH	JH	JH	DRAWING CHECK
3	15/08/2017	JH	JH	JH	DESIGN CHECK
4	15/08/2017	JH	JH	JH	DESIGN CHECK
5	15/08/2017	JH	JH	JH	DESIGN CHECK
6	15/08/2017	JH	JH	JH	DESIGN CHECK
7	15/08/2017	JH	JH	JH	DESIGN CHECK
8	15/08/2017	JH	JH	JH	DESIGN CHECK
9	15/08/2017	JH	JH	JH	DESIGN CHECK
10	15/08/2017	JH	JH	JH	DESIGN CHECK
11	15/08/2017	JH	JH	JH	DESIGN CHECK
12	15/08/2017	JH	JH	JH	DESIGN CHECK
13	15/08/2017	JH	JH	JH	DESIGN CHECK
14	15/08/2017	JH	JH	JH	DESIGN CHECK
15	15/08/2017	JH	JH	JH	DESIGN CHECK
16	15/08/2017	JH	JH	JH	DESIGN CHECK
17	15/08/2017	JH	JH	JH	DESIGN CHECK
18	15/08/2017	JH	JH	JH	DESIGN CHECK
19	15/08/2017	JH	JH	JH	DESIGN CHECK
20	15/08/2017	JH	JH	JH	DESIGN CHECK
21	15/08/2017	JH	JH	JH	DESIGN CHECK
22	15/08/2017	JH	JH	JH	DESIGN CHECK
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24	15/08/2017	JH	JH	JH	DESIGN CHECK
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26	15/08/2017	JH	JH	JH	DESIGN CHECK
27	15/08/2017	JH	JH	JH	DESIGN CHECK
28	15/08/2017	JH	JH	JH	DESIGN CHECK
29	15/08/2017	JH	JH	JH	DESIGN CHECK
30	15/08/2017	JH	JH	JH	DESIGN CHECK

NO.	DATE	BY	CHKD.	APP'D.	TITLE
1	15/08/2017	JH	JH	JH	DRAFTSMAN
2	15/08/2017	JH	JH	JH	DRAWING CHECK
3	15/08/2017	JH	JH	JH	DESIGN CHECK
4	15/08/2017	JH	JH	JH	DESIGN CHECK
5	15/08/2017	JH	JH	JH	DESIGN CHECK
6	15/08/2017	JH	JH	JH	DESIGN CHECK
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9	15/08/2017	JH	JH	JH	DESIGN CHECK
10	15/08/2017	JH	JH	JH	DESIGN CHECK
11	15/08/2017	JH	JH	JH	DESIGN CHECK
12	15/08/2017	JH	JH	JH	DESIGN CHECK
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14	15/08/2017	JH	JH	JH	DESIGN CHECK
15	15/08/2017	JH	JH	JH	DESIGN CHECK
16	15/08/2017	JH	JH	JH	DESIGN CHECK
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18	15/08/2017	JH	JH	JH	DESIGN CHECK
19	15/08/2017	JH	JH	JH	DESIGN CHECK
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22	15/08/2017	JH	JH	JH	DESIGN CHECK
23	15/08/2017	JH	JH	JH	DESIGN CHECK
24	15/08/2017	JH	JH	JH	DESIGN CHECK
25	15/08/2017	JH	JH	JH	DESIGN CHECK
26	15/08/2017	JH	JH	JH	DESIGN CHECK
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28	15/08/2017	JH	JH	JH	DESIGN CHECK
29	15/08/2017	JH	JH	JH	DESIGN CHECK
30	15/08/2017	JH	JH	JH	DESIGN CHECK

PROJECT: 3002181-GA-109
 SHEET: 9

160



KEY PLAN

NOTES:
 1. GENERAL NOTES REFER DRG No. 300281-GA-100
 2. FOR LEGEND REFER DRG No. 300281-GA-101

CONSTRUCTION

PROJECT TITLE
 FLEMINGTON ROAD DUPLICATION
 FROM WELLS STATION DRIVE TO HAMER STREET
 GENERAL ARRANGEMENT
 SHEET 10

SMEC
 SMEC AUSTRALIA
 CIVIL ENGINEERING CONTRACTORS
 7/CLIN/026/112/818

NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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AS SHOWN / CONSTRUCTION
 PROJECT / DRAWING No.
 3002181-GA-110
 SHEET 10

PROJECT TITLE
 FLEMINGTON ROAD DUPLICATION
 FROM WELLS STATION DRIVE TO HAMER STREET
 GENERAL ARRANGEMENT
 SHEET 10

SMEC
 SMEC AUSTRALIA
 CIVIL ENGINEERING CONTRACTORS
 7/CLIN/026/112/818

NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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NO.	REV.	DATE	DESCRIPTION
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KATE CRACE STREET

KATE CRACE ST

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FUTURE DEVELOPMENT

LIMIT OF WORK

MATCH EXISTING

FLEMINGTON ROAD

PROPOSED STORMWATER DRAINAGE REFER TO DRG NO. 3002181-DR-105

PROPOSED STORMWATER DRAINAGE REFER TO DRG NO. 3002181-DR-106

JOINS DRG No 3002181-GA-110

NOTES:
1. FOR GENERAL NOTES REFER DRG No. 3002181-GA-100
2. FOR LEGEND REFER DRG No. 3002181-GA-101

CONSTRUCTION



SMEC
SMEC AUSTRALIA PTY LTD
Unit 2, K. LAMARCA STREET SYDNEY, NSW
AUSTRALIA. TEL: 61 2 9550 6200
FAX: 61 2 9550 6201

PROJECT TITLE
FLEMINGTON ROAD DUPLICATION
FROM WELLS STATION DRIVE TO HAMER STREET

GENERAL ARRANGEMENT
SHEET 11

PROJECT / DRAWING No.
3002181-GA-111
SHEET
04

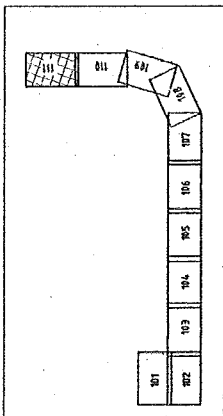
SCALE 1:100

SCALE 1:100

REV	DATE	DESCRIPTION
01	13.02.2019	ISSUE FOR PERMIT APPLICATION ISSUE
02	13.05.2019	ISSUE FOR PERMIT ACCEPTANCE
03	12.08.2019	SHEET UPDATED
04	19.12.2019	CONSTRUCTION ISSUE

APP'D	DATE	BY	FOR
FOR DESIGN	13.02.2019	M. BRIDGE	105.02
FOR CHECK	13.02.2019	A. BRIDGE	
FOR DESIGN	13.05.2019	R. BRIDGE	
FOR CHECK	13.05.2019	T. FERRELL	
PROJECT MANAGER		J. AMESON	
PROJECT DIRECTOR		C. SMYTH	

KEY PLAN



REV	DATE	DESCRIPTION
01	13.02.2019	ISSUE FOR PERMIT APPLICATION ISSUE
02	13.05.2019	ISSUE FOR PERMIT ACCEPTANCE
03	12.08.2019	SHEET UPDATED
04	19.12.2019	CONSTRUCTION ISSUE

PROJECT / DRAWING No. 3002181-GA-111

1 1

190



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D131112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code : 1302016
 Placement Date: 13 November 2012
 Mix Type: AC20 (450) HD Tonnes Represented: 328.66

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21348	Yes	No	2221508	
21350	Yes	Yes		
21351	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

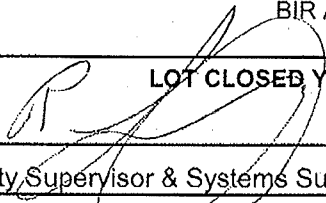
COMPACTION & THICKNESS REPORT

Attached? Yes/No: <u>Yes</u>	Report No.: <u>21393</u>
Compaction Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	
Number of Cores Correct? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y / N ? Yes

Signed: 
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 13/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209405

Sampled at: 215.8 t

Production Lot: 131112D1302016

Sample Time: 14:08

Lab ID No.: 021348

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.389	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.0	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	15.8	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.489	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	85
	9.5 mm	76	69	83	75
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	55
	2.36 mm	34	29	39	35
	1.18 mm	26	21	31	25
	600 um	18	14	22	18
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.2
	75 um	6.0	4.5	7.5	6.3
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 13/11/2012 Time of Test:

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c:

The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

36 Sawmill Circuit
Hume ACT 2620

Production Date: 13/11/2012

P.O. Box 186
Queanbeyan NSW 2620

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Phone: 02 9269 1700
Fax: 02 9269 1797

Docket No.: 4209405

Sampled at: 215.8 t

Production Lot: 131112D1302016

Specification: R116.8.1

Mix Category: Heavy Duty

Lab ID No.: 021348

BIR No.: 2221508

GRADING DEDUCTIONS

SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	94	87	94	98	-	-	-
13.2 mm	85	78	85	92	-	-	-
9.50 mm	76	69	75	83	-	-	-
6.70 mm	61	54	61	68	-	-	-
4.75 mm	55	48	55	62	-	-	-
2.36 mm	34	29	35	39	-	-	-
1.18 mm	26	21	25	31	-	-	-
0.600 mm	18	14	18	22	-	-	-
0.300 mm	13	9	13	17	-	-	-
0.150 mm	8.2	5.7	8.2	10.7	-	-	-
0.075 mm	6.0	4.5	6.3	7.5	-	-	-

GRADING SUBTOTAL: 0 %

GRADING DEDUCTION: 0 %

BINDER CONTENT DEDUCTION

TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.0	4.7	5.0	5.3	-	-	0

BINDER CONTENT DEDUCTION: 0 %

GRADING AND BINDER CONTENT DEDUCTION: 0 %

VOIDS DEDUCTIONS

	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120 cycles	3.0	4.0	4.0	6.0	-	-
350 cycles	2.0	-	-	-	-	-

VOIDS DEDUCTION: 0 %

TOTAL DEDUCTION: 0 %

Pass Specification: NO

Signed: *[Signature]*

This Report was printed on: 14/11/2012

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DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number 2221508

SECTION 1: IDENTIFICATION

To be completed by ORIGINATOR of issue

Issue Affects: [x] Quality [] Safety [] Environmental [] Financial [] Complaint [] Audit [] Other
Issue Location: GUIDELINE FLEMINGTON RD PATCHES Date Issue Raised: 13/11/2012
Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION

To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .1 % high; END OF BIR DETAIL.
Contract/Compliance Reference:
Reported By: Reported To:

Work Details (If Applicable)
Work Order/Job No: 1311139003 Contract No:
Work Order/Job No: Contract No:
Work Order/Job No: Contract No:
Work Order/Job No: Contract No:
Lot/Batch No: 131112d1302016 Product/Mix/Spec No: AC20 R116.8.1
Lab Id No: 21348 External Report No:

SECTION 3: INVESTIGATION

To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN

To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:
Customer Acceptance: [] Yes [] No [] Not Applicable Date:
Customer - Position/Title (Print): Signature:
Completion of Action Verified: [] Yes [] No [] Not Applicable Date:
Verified By - Position/Title (Print): Signature: [Signature]

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:
Completion of Action Verified: [] Yes [] No [] Not Applicable Date:
Verified By - Position/Title (Print): Signature:
Cost: Business Risk: [] High [] Medium [] Low

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME
 Date Sampled: 13/11/2012
 Mix Size/Type: AC20 Mix Approval Date: 1/07/2012
 Docket No.: 4209384 Sampled at: 34.0 t
 Production Lot: 131112D1302016 Sample Time: 10:08 Lab ID No.: 021350
 Specification: R116 Ed.8 Rev.1 Mix Category: Heavy Duty

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.378	-	-
		t/cu.m	350 cycles Gyropac		-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.2	3	6
		%	350 cycles Gyropac		-	2.0
	VMA	%	-	16.1	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.481	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	83
	9.5 mm	76	69	83	76
	6.7 mm	61	54	68	62
	4.75 mm	55	48	62	56
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	27
	600 um	18	14	22	18
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.6
	75 um	6.0	4.5	7.5	6.0
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.
 Sample preparation/compaction to RTA T661/T662. Test Date 13/11/2012 Time of Test:
 Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 64 350c:
 The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Approved Signatory: *J Morarty*
J Morarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 13/11/2012

Mix Size/Type: AC20

Docket No.: 4209384

Production Lot: 131112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 34.0 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021350

BIR No.: 2221510

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	94	98	-	-	-	
13.2 mm	85	78	83	92	-	-	-	
9.50 mm	76	69	76	83	-	-	-	
6.70 mm	61	54	62	68	-	-	-	
4.75 mm	55	48	56	62	-	-	-	
2.36 mm	34	29	34	39	-	-	-	
1.18 mm	26	21	27	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	13	17	-	-	-	
0.150 mm	8.2	5.7	8.6	10.7	-	-	-	
0.075 mm	6.0	4.5	6.0	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:								
							0	%

VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.2	4.2	6.0	-	-	
350	cycles	2.0	-	-	-	-	-	
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:							0	%
------------------	--	--	--	--	--	--	---	---

Pass Specification: NO

Signed: *[Signature]*

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME
 Date Sampled: 13/11/2012
 Mix Size/Type: AC20 Mix Approval Date: 1/07/2012
 Docket No.: 4209411 Sampled at: 328.7 t
 Production Lot: 131112D1302016 Sample Time: 16:20 Lab ID No.: 021351
 Specification: R116 Ed.8 Rev.1 Mix Category: Heavy Duty

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.392	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.1	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	15.6	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.494	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	95
	13.2 mm	85	78	92	86
	9.5 mm	76	69	83	74
	6.7 mm	61	54	68	62
	4.75 mm	55	48	62	55
	2.36 mm	34	29	39	35
	1.18 mm	26	21	31	26
	600 um	18	14	22	18
	300 um	13	9	17	12
	150 um	8.2	5.7	10.7	8.4
	75 um	6.0	4.5	7.5	6.2
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.
 Sample preparation/compaction to RTA T661/T662. Test Date 13/11/2012 Time of Test: 17:20
 Compaction Temp. Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c:
 The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Approved Signatory: *J Moriarty*
J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 13/11/2012

Mix Size/Type: AC20

Docket No.: 4209411

Production Lot: 131112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 328.7 t

Mix Category: Heavy Duty

Lab ID No.: 021351

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

BIR No.: 2221511

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	95	98	-	-	-	
13.2 mm	85	78	86	92	-	-	-	
9.50 mm	76	69	74	83	-	-	-	
6.70 mm	61	54	62	68	-	-	-	
4.75 mm	55	48	55	62	-	-	-	
2.36 mm	34	29	35	39	-	-	-	
1.18 mm	26	21	26	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	12	17	-	-	-	
0.150 mm	8.2	5.7	8.4	10.7	-	-	-	
0.075 mm	6.0	4.5	6.2	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.1	4.1	6.0	-	-	
350	cycles	2.0	-	-	-	-	-	
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: NO

Signed: *[Signature]*

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REPORT ON COMPACTED ASPHALT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: **021393**

Job No.: 131139003

Order No.:

Location: guideline flemington road cores

Paving Lot No.: 131139003D131112

Paving Spec.: R116

Date Placed: 13/11/2012

Mix Type: AC20

Mix Code: 1302016

Mix Category: HEAVY DUTY

Page 1 of 1

Core No	Chainage, m	Offset, m	Thickness, mm	Density, t/m ³	Comp. Rel. to Max. Density, %	AS2891.9.2 Core Air Voids Sub Lot Attribute (a) %
1			75	2.311	93.0	7.0
2			73	2.358	94.8	5.2
3			68	2.319	93.3	6.7

Mean Maximum Density of Production Lot No. 131112D1302016	t/m ³	2.487
Mean of attribute test results of all sub lot	\bar{a}	6.31 %
Standard deviation:	s	1.01 %
Acceptance constant for number of cores:	k (see Chart 1)	0.52
Characteristic value of attribute: Minimum	$V = \bar{a} - (k \times s)$	5.8 %
Characteristic value of attribute: Maximum	$V = \bar{a} + (k \times s)$	6.8 %

Comment:

guideline flemington road cores

Chart 1

Sample Size	K
3	0.52
4	0.62
5	0.67
6	0.72
7	0.75
8	0.78
9	0.81
10	0.83
15	0.90
20+	0.95

Were cores taken to AS2891.1.2? Yes

Approved Signatory:

J Moriarty Laboratory Technician



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CONFORMANCE REPORT ON COMPACTED ASPHALT THICKNESS



Lab ID No.: **021393**

Job No.: 131139003

Order No.:

Location: guideline flemington road cores

Paving Lot No.: 131139003D131112

Paving Spec.: R116

Date Placed: 13/11/2012

Mix Type: AC20

Mix Code: 1302016

Mix Category: HEAVY DUTY

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Page 1 of 1

Core No	Chainage, m	Offset, m	Thickness, mm
1			75
2			73
3			68

Mean layer thickness from cores:	Y	72 mm
Standard deviation:	s	3.6 mm
Acceptance constant for number of cores:	k (see Chart 1)	0.52
Characteristic value of attribute:	$T=Y-k*s$	70 mm
Characteristic value of attribute:	$T=Y+k*s$	73 mm
Acceptable range:		

Comment:

Chart 1

Sample Size	K
3	0.52
4	0.62
5	0.67
6	0.72
7	0.75
8	0.78
9	0.81
10	0.83
15	0.90
20+	0.95

Pass Specification:

Were cores taken to AS2891.1.27: Yes

This Report was printed on:

23/11/2012

Conformance Clerk:



NRDFM181 - Asphalt Paving Site Record Sheet

PAVING LOT No. 131139003 DATE 13-11-12 AC TYPE/LAYER CODE AC20 450 40 SITE No. BASE B INTERMEDIATE LAYER CUSTOMER ORDER/CONTRACT No. 072 151 SHEET: 1 OF 1 CUSTOMER G. DELINE

IS BASE SUITABLE FOR PAVING TO START? Y/N: ROAD AND/OR LOCATION: FLEMINGTON RD

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hr)		PAVEMENT TEMPERATURE (deg.C)		TACKCOAT BROKEN Y/N		TEMP.		TIME		CARRIAGE WAY		LANE OR RUN		CHAINAGE		OFFSET		LOAD TEMP. deg.C		JOINT TEMP. deg.C		MAT TEMP. deg.C		SHAPE mm.		DIR. LT	
		COMPLETED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	TIME	TEMP.	VEL.	TIME	TIME	CHAINAGE START	CHAINAGE END	CHAINAGE	TIME	TIME	LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT								
3E	9397	2.00	2.10			181.80										174					174			164					
3E	9405	2.45	3.05													174					174			172					
3E	9406	3.05	3.20													174					174			174					
3E	9408	3.30	4.00			215.80										174					174			170					
3E	9415	4.00	4.10			248.82										174					174			169					
3E	9416	4.10	4.55			261.44										174					174			167					
3E	9416	4.55	5.15													174					174			171					
3E	9416	5.15	5.35			294.34										174					174			170					
3E	9416	5.35	5.50													174					174			169					
3E	9416	5.50	6.20			328.66										174					174			167					
13E		6.20	6.40													174					174			167					
15		6.40	7.05																										

Notes for the use of this form are to be found on the back.

COMPLETED BY:

- ACTIVITY KEY
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 5. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation



NRDFM181 - Asphalt Paving Site Record Sheet

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PAVING LOT No.		Works JOB No.		DATE		AC TYPE / LAYER CODE		SITE No.		LAYER		CUSTOMER ORDER/CONTRACT No.		SHEET: OF	
131139003		13-11-12		AC 20 450 HA		BASE 3 INTERMEDIATE		072151		GUIDELINE					
IS BASE SUITABLE FOR PAVING TO START? Y/N:															
NONCONFORMANCE REPORT No. (IF RAISED):															
ROAD AND/OR LOCATION: FLEMINGTON RD.															
TACKCOAT TYPE:															
TACKCOAT BROKEN Y/N:															
APPLICATION RATE:															
PAVEMENT TEMPERATURE (deg.C):															
WIND VELOCITY (km/h):															
TRUCK HOURLY HIRE:															
TRUCK WAITING TIME:															
PROGRESSIVE TONNES:															
CARRIAGE WAY:															
VEL.:															
CHAINAGE START:															
CHAINAGE END:															
OFFSET:															
LOAD TEMP. deg.C:															
JOINT TEMP. deg.C:															
MAT TEMP. deg.C:															
SHAPE DIR.:															
DIR. LT.:															
PAVING GANG:															
A B C D E F G H I J K L															
M J															
K															
L															
M															
N															
O															
P															
Q															
R															
S															
T															
U															
V															
W															
X															
Y															
Z															

- Notes for the use of this form are to be found on the back.
- ACTIVITY KEY
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 3I - Correction
 - 4. Smoke
 - 5. Lurch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation
- COMPLETED BY:

D2

202



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D141112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code: 1301025
 Placement Date: 14 November 2012
 Mix Type: AC10 (450) HD Tonnes Represented: 98.24

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21358	Yes	Yes		
21362	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

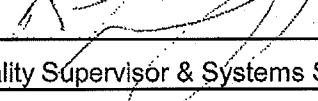
COMPACTION & THICKNESS REPORT

Attached? Yes/No: <u>Yes</u>	Report No.: <u>21387</u>
Compaction Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	
Number of Cores Correct? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LOT CLOSED Y / N ? Yes

Signed: 
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME
 Date Sampled: 14/11/2012
 Mix Size/Type: AC10 Mix Approval Date: 1/07/2012
 Docket No.: 4209417 Sampled at: 34.0 t
 Production Lot: 141112D1301025 Sample Time: 7:55 Lab ID No.: 021358
 Specification: R116 Ed.8 Rev.1 Mix Category: Heavy Duty Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.343	-	-
		t/cu.m	350 cycles Gyropac	2.365	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.1	3	6
		%	350 cycles Gyropac	3.2	2.0	-
	VMA	%	-	16.1	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.442	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	97
	6.7 mm	79	72	86	78
	4.75 mm	71	64	78	70
	2.36 mm	52	47	57	51
	1.18 mm	35	30	40	34
	600 um	23	19	27	24
	300 um	14	10	18	14
	150 um	9.5	7.0	12.0	9.3
	75 um	6.0	4.5	7.5	6.7
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 14/11/2012 Time of Test: 8:55

Compaction Temp. Deg.C.: 150 Gyrotary Angle Degrees: 2 Sample Ht. mm Cyclic: 80c: 0 120c: 66 350c: 65

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

Approved Signatory: 
J McFarty - Laboratory Technician



NATA Accredited
Laboratory Number: 4411

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

36 Sawmill Circuit
Hume ACT 2620

Production Date: 14/11/2012

P.O. Box 186
Queanbeyan NSW 2620

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Phone: 02 9269 1700
Fax: 02 9269 1797

Docket No.: 4209417

Sampled at: 34.0 t

Production Lot: 141112D1301025

Specification: R116.8.1

Mix Category: Heavy Duty

Lab ID No.: 021358

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	97	98	-	-	-	
6.70 mm	79	72	78	86	-	-	-	
4.75 mm	71	64	70	78	-	-	-	
2.36 mm	52	47	51	57	-	-	-	
1.18 mm	35	30	34	40	-	-	-	
0.600 mm	23	19	24	27	-	-	-	
0.300 mm	14	10	14	18	-	-	-	
0.150 mm	9.5	7.0	9.3	12.0	-	-	-	
0.075 mm	6.0	4.5	6.7	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	6.8	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:								
							0	%

VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	4.1	4.1	6.0	-	-		
350 cycles	2.0	3.2	3.2	-	-	-		
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:								
							0	%

Pass Specification: YES

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Signed:



NRDFM181 - Asphalt Paving Site Record Sheet

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WEARING COURSE PATCHES P1, P4, P6, P9, P11, P12, P14, P15, 17, 20, 24, 25, 29-^{*}200WE

PAVING LOT No.	Works JOB No.	DATE	AC TYPE / LAYER CODE	SITE No.	LAYER	CUSTOMER ORDER/CONTRACT No.	SHEET: OF
131139003	14-11-12	AC10 45040	WEARINGS	072 181	GUIDELINE		

IS BASE SUITABLE FOR PAVING TO START? Y/N: ROAD AND/OR LOCATION: FLEMINGTON DD

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (Mph/ft/s)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	TIME	TEMP.	APPLICATION RATE:			LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
														TEMP.	TIME	TIME					
1			7.00	7.30																	
2			7.30	8.00																	
18			8.00	8.50																	
9			8.50	10.00																	
3E	4209417		10.00	10.40																	
3E	9418		10.40	11.25																	
3E	9417		11.25	11.50																	
3E	9418		11.50	12.00			34.00														
5.			12.00	12.15			65.50														
6			12.15	12.55																	
3E	9436		12.55	1.30																	
3E	9436		1.30	1.55																	
3E	9440		1.55	2.40			98.24														
19			2.40	3.00																	
			3.00	3.20																	

Notes for the use of this form are to be found on the back.

ACTIVITY KEY

- 1. Travel to site
- 2. Set-up
- 3A - Countdown
- 3B - Straights
- 3C - Parking Bays
- 3D - Correction
- 3E - Patching
- 3F - Handwork
- 3G - Roundabout
- 3H - Intersection

COMPLETED BY:

- 4. Smoke
- 5. Lunch
- 6. LT Weather
- 7. LT Breakdown
- 8. LT Mix
- 9. Waiting for Mill
- 10. LT Parked Cars
- 11. Travel to next job
- 12. Taking levels
- 13. Clean-up
- 14. Post-job inspection
- 15. Travel back to yard
- 16. LT waiting for Traffic Control
- 17. LT waiting for access
- 18. LT caused by customer
- 19. Job preparation

D2

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D141112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code: 1302016
 Placement Date: 14 November 2012
 Mix Type: AC20 (450) HD Tonnes Represented: 101.94

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21359	Yes	No	2221512	
21360	Yes	No	2221513	

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: <u>Yes</u>	Report No.: <u>21387</u>
Compaction Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
Thickness Conforms to Spec.? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
Number of Cores Correct? Yes/No: <u>Yes</u>	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LOT CLOSED / N? Yes

Signed:
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2820

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 14/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209441

Sampled at: 451.4 t

Production Lot: 141112D1302016

Sample Time: 13:51

Lab ID No.: 021359

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.380	-	-
		t/cu.m	350 cycles Gyropac		-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.2	3	6
		%	350 cycles Gyropac		-	2.0
	VMA	%	-	16.1	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.484	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	95
	13.2 mm	85	78	92	84
	9.5 mm	76	69	83	76
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	55
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	26
	600 um	18	14	22	18
	300 um	13	9	17	14
	150 um	8.2	5.7	10.7	8.1
	75 um	6.0	4.5	7.5	6.6
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 14/11/2012 Time of Test: 14:50

Compaction Temp, Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c:

The calculated Filler/Binder Ratio of 1.4 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Laboratory Number:

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Approved Signatory:

J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 14/11/2012

Mix Size/Type: AC20

Docket No.: 4209441

Production Lot: 141112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 451.4 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021359

BIR No.: 2221512

GRADING DEDUCTIONS

SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	94	87	95	98	-	-	-
13.2 mm	85	78	84	92	-	-	-
9.50 mm	76	69	76	83	-	-	-
6.70 mm	61	54	61	68	-	-	-
4.75 mm	55	48	55	62	-	-	-
2.36 mm	34	29	34	39	-	-	-
1.18 mm	26	21	26	31	-	-	-
0.600 mm	18	14	18	22	-	-	-
0.300 mm	13	9	14	17	-	-	-
0.150 mm	8.2	5.7	8.1	10.7	-	-	-
0.075 mm	6.0	4.5	6.6	7.5	-	-	-

GRADING SUBTOTAL: 0 %

GRADING DEDUCTION: 0 %

BINDER CONTENT DEDUCTION

TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.0	4.7	5.0	5.3	-	-	0

BINDER CONTENT DEDUCTION: 0 %

GRADING AND BINDER CONTENT DEDUCTION: 0 %

VOIDS DEDUCTIONS

	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120 cycles	3.0	4.2	4.2	6.0	-	-
350 cycles	2.0	-	-	-	-	-

VOIDS DEDUCTION: 0 %

TOTAL DEDUCTION: 0 %

Pass Specification: NO

Signed: *[Signature]*

This Report was printed on: 22/11/2012

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BUSINESS IMPROVEMENT REPORT

BIR Number 2221512

SECTION 1: IDENTIFICATION

To be completed by ORIGINATOR of issue

Issue Affects: [Quality checked] [Safety] [Environmental] [Financial] [Complaint] [Audit] [Other]
Issue Location: HEWATT COTTER ROAD /KIRKPATRICK ST Date Issue Raised: 14/11/2012
Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION

To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .2 % high; END OF BIR DETAIL.
Contract/Compliance Reference:
Reported By: Reported To:

Table with 4 columns: Work Order/Job No, Contract No, Lot/Batch No, Product/Mix/Spec No, Lab Id No, External Report No. Includes values like 13113808, 141112D1302016, AC20, R116B1, 21359.

SECTION 3: INVESTIGATION

To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN

To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:
Customer Acceptance: [Yes] [No] [Not Applicable] Date:
Customer - Position/Title (Print): Signature:
Completion of Action Verified: [Yes] [No] [Not Applicable] Date:
Verified By - Position/Title (Print): Signature: [Signature]

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:
Completion of Action Verified: [Yes] [No] [Not Applicable] Date:
Verified By - Position/Title (Print): Signature:
Cost: Business Risk: [High] [Medium] [Low]

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 14/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209412

Sampled at: 316.0 t

Production Lot: 141112D1302016

Sample Time: 12:10

Lab ID No.: 021360

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.384	-	-
		t/cu.m	350 cycles Gyropac	2.419	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.3	3	6
		%	350 cycles Gyropac	2.9	2.0	-
	VMA	%	-	15.9	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.490	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	86
	9.5 mm	76	69	83	75
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	55
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	26
	600 um	18	14	22	18
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.9
	75 um	6.0	4.5	7.5	6.3
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 14/11/2012 Time of Test: 13:10

Compaction Temp. Deg. C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c: 65

The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Laboratory Number:

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Approved Signatory:

J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 14/11/2012

Mix Size/Type: AC20

Docket No.: 4209412

Production Lot: 141112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 316.0 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021360

BIR No.: 2221513

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	94	98	-	-	-	
13.2 mm	85	78	86	92	-	-	-	
9.50 mm	76	69	75	83	-	-	-	
6.70 mm	61	54	61	68	-	-	-	
4.75 mm	55	48	55	62	-	-	-	
2.36 mm	34	29	34	39	-	-	-	
1.18 mm	26	21	26	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	13	17	-	-	-	
0.150 mm	8.2	5.7	8.9	10.7	-	-	-	
0.075 mm	6.0	4.5	6.3	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:								
							0	%

VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.3	4.3	6.0	-	-	
350	cycles	2.0	2.9	2.9	-	-	-	
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:								
							0	%

Pass Specification: NO

Signed:

This Report was printed on: 22/11/2012

DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number
2221513

SECTION 1: IDENTIFICATION To be completed by ORIGINATOR of issue

Issue Affects: Quality Safety Environmental Financial Complaint Audit Other

Issue Location: HEWATT COTTER ROAD / KIRKPATRICK ST Date Issue Raised: 14/11/2012

Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .1 % high; END OF BIR DETAIL.

(Incident, injury, Accident, damage, non conformance etc.)

Contract/Compliance Reference:

Reported By: Reported To:

Work Details (If Applicable)		Contract No.	
Work Order/Job No. 1	134138081		
Work Order/Job No. 1			
Work Order/Job No. 1			
Work Order/Job No. 1			
Lot/Batch No.	141712D1302016	Product/Mix/Spec No.	AG20 R116:8.1
Lab Id No.	21360	External Report No.	

SECTION 3: INVESTIGATION To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:

Estimated Completion Date:

Customer Acceptance: Yes No Not Applicable Date:

Customer - Position/Title (Print): Signature:

Completion of Action Verified: Yes No Not Applicable Date:

Verified By - Position/Title (Print): Signature:

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:

Estimated Completion Date:

Completion of Action Verified: Yes No Not Applicable Date:

Verified By - Position/Title (Print): Signature:

Cost: Business Risk: High Medium Low

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy

1 LAYER 37 EXTENDED FROM YESTERDAY / 41 1 LAYER
 DEEP LIFT
 DEEP LIFT 2 LAYER / 52, 57, 63, 72, 73, 74



NRDFM181 - Asphalt Paving Site Record Sheet

PAVING LOT No. _____ SHEET: _____ OF _____ CUSTOMER

Works JOB No. 131139003 DATE 14-11-12 AC TYPE/LAYER CODE AC1045040 LAYER WEARINGS CUSTOMER ORDER/CONTRACT No. 072 151

WEARINGS

ROAD AND/OR LOCATION: FLEMINGTON RQ

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (KM/Hour):		TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	TEMP.	APPLICATION RATE:		LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
		COMPLETED	FINISHED									TEMP.	TIME					
3E	9440	3.20	4.05			30.80								174		162		
3E	9443	4.05	4.30			92.86								174		165		
3E	9447	4.30	4.50															
3E	9446	4.50	5.10			54.86								174		167		
3E	9447	5.10	5.25			88.94												
3E	9448	5.25	5.55			101.94								175		164		
15		5.55	6.15															
15		6.15	6.45															

IS BASE SUITABLE FOR PAVING TO START? Y/N: _____

NONCONFORMANCE REPORT No. (IF RAISED): _____

Notes for the use of this form are to be found on the back.

COMPLETED BY: _____

- ACTIVITY KEY**
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handover
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation

20

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D151112

Process: PAVING

Contract/Work Order No.: 131139003

Mix Code : 1301025

Placement Date: 15 November 2012

Mix Type: AC10 (450) HD

Tonnes Represented: 86.14

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21367	Yes	Yes		
21368	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes

BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	
BIR No.: _____	BIR Accepted: _____

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y/N? No

Signed: [Signature]

Title: Quality Supervisor & Systems Support

Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queenbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 15/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209452

Sampled at: 36.7 t

Production Lot: 151112D1301025

Sample Time: 8:20

Lab ID No.: 021368

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.353	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	3.3	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	15.7	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.433	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
53.0 mm	100	100	100	100	
37.5 mm	100	100	100	100	
26.5 mm	100	100	100	100	
19.0 mm	100	100	100	100	
13.2 mm	100	100	100	100	
9.5 mm	98	91	98	96	
6.7 mm	79	72	86	81	
4.75 mm	71	64	78	70	
2.36 mm	52	47	57	51	
1.18 mm	35	30	40	34	
600 um	23	19	27	22	
300 um	14	10	18	15	
150 um	9.5	7.0	12.0	9.7	
75 um	6.0	4.5	7.5	6.8	
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 15/11/2012 Time of Test: 9:20

Compaction Temp. Deg.C.: 150 Gyratory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c:

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 19/11/2012

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 15/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209452

Sampled at: 36.7 t

Production Lot: 151112D1301025

Specification: R116.8.1

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021368

BIR No.:

GRADING DEDUCTIONS

SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	100	100	100	100	-	-	-
13.2 mm	100	100	100	100	-	-	-
9.50 mm	98	91	96	98	-	-	-
6.70 mm	79	72	81	86	-	-	-
4.75 mm	71	64	70	78	-	-	-
2.36 mm	52	47	51	57	-	-	-
1.18 mm	35	30	34	40	-	-	-
0.600 mm	23	19	22	27	-	-	-
0.300 mm	14	10	15	18	-	-	-
0.150 mm	9.5	7.0	9.7	12.0	-	-	-
0.075 mm	6.0	4.5	6.8	7.5	-	-	-

GRADING SUBTOTAL: 0 %

GRADING DEDUCTION: 0 %

BINDER CONTENT DEDUCTION

TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.8	5.5	5.8	6.1	-	-	0

BINDER CONTENT DEDUCTION: 0 %

GRADING AND BINDER CONTENT DEDUCTION: 0 %

VOIDS DEDUCTIONS

	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120 cycles	3.0	3.3	3.3	6.0	-	-
350 cycles	2.0	-	-	-	-	-

VOIDS DEDUCTION: 0 %

TOTAL DEDUCTION: 0 %

Pass Specification: YES

Signed:

This Report was printed on: 19/11/2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 15/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209461

Sampled at: 50.2 t

Production Lot: 151112D1301025

Sample Time: 9:47

Lab ID No.: 021367

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.338	-	-
		t/cu.m	350 cycles Gyropac	2.361	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	3.7	3	6
		%	350 cycles Gyropac	2.8	2.0	-
	VMA	%	-	16.3	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.428	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
		% passing AS sieve size, by weight			
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	98
	6.7 mm	79	72	86	79
	4.75 mm	71	64	78	70
	2.36 mm	52	47	57	51
	1.18 mm	35	30	40	36
	600 um	23	19	27	24
	300 um	14	10	18	14
	150 um	9.5	7.0	12.0	9.5
	75 um	6.0	4.5	7.5	6.0
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 15/11/2012 Time of Test: 10:45

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c: 65

The calculated Filler/Binder Ratio of 1.1 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

Approved Signatory:

J Moriarty - Laboratory Technician



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Laboratory Number:

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 15/11/2012

Mix Size/Type: AC10

Docket No.: 4209461

Production Lot: 151112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 50.2 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyen NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: **021367**

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	98	98	-	-	-	
6.70 mm	79	72	79	86	-	-	-	
4.75 mm	71	64	70	78	-	-	-	
2.36 mm	52	47	51	57	-	-	-	
1.18 mm	35	30	36	40	-	-	-	
0.600 mm	23	19	24	27	-	-	-	
0.300 mm	14	10	14	18	-	-	-	
0.150 mm	9.5	7.0	9.5	12.0	-	-	-	
0.075 mm	6.0	4.5	6.0	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.8	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:								
							0	%

VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	3.7	3.7	6.0	-	-		
350 cycles	2.0	2.8	2.8	-	-	-		
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:								
							0	%

Pass Specification: YES

Signed:

This Report was printed on: 19/11/2012



NRDFM181 - Asphalt Paving Site Record Sheet

WEARING 10mm PATCHES 37, 41, 43, 45, 47, 48, 49, 52, 53, 55, 57, 59, 60, 61, 63, 65, 68, 69, 72, 73, 74

PAVING LOT No.		DATE	AC TYPE / LAYER CODE	SITE No.	LAYER	CUSTOMER ORDER/CONTRACT No.	SHEET: OF										
131139003		15-11-12	AC20 450 40		FUTURE DATE	022 151	CUSTOMER										
IS BASE SUITABLE FOR PAVING TO START? Y/N:		AC-10 450 40		ROAD AND/OR LOCATION													
NONCONFORMANCE REPORT No. (IF RAISED):		FLEMINGTON RD															
ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hr):		TEMPERATURE (deg.C):		PAVING GANG		A	B	C	D	E	F	G	H	I	J
		ACTIVITY COMMENCED	ACTIVITY FINISHED	PAVEMENT	TEMP.	TRUCK WAITING TIME	TRUCK HOURLY HIRE										
1		7.00	7.30														
2		7.30	8.45														
3E	9209449	8.45	9.55			13.22						173		167			
3E	9950	9.15	9.40			12.34		END 20mm				174		166			
3E	9951	9.40	10.00			24.42		START 10mm				174		164			
3E	9452	10.00	10.30			36.72						174		162			
19		10.30	11.00														
3E	9461	11.00	11.40														
18		11.40	12.10														
3E	9461	12.10	12.30			50.24						174		170			
3E		12.30	12.55			62.56						174		168			
3E	9467	12.55	1.15			74.14						173		165			
3E	9475	1.15	1.50			86.14						173		159			
5		1.50	2.20														
19		2.20	2.45														

- Notes for the use of this form are to be found on the back.
- ACTIVITY KEY
- 1. Travel to site
 - 2. Set-up
 - 3A - Courthouse
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation
- COMPLETED BY: _____

DS

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D151112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code : 1302016
 Placement Date: 15 November 2012
 Mix Type: AC20 (450) HD Tonnes Represented: 142.68

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21365	Yes	Yes		
21366	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y/N ?

No

Signed: _____

Title: Quality Supervisor & Systems Support

Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 15/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209468

Sampled at: 154.2 t

Production Lot: 151112D1302016

Sample Time: 10:32

Lab ID No.: 021365

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.370	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.7	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.4	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.488	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	95
	13.2 mm	85	78	92	85
	9.5 mm	76	69	83	77
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	56
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	27
	600 um	18	14	22	18
	300 um	13	9	17	12
	150 um	8.2	5.7	10.7	8.2
	75 um	6.0	4.5	7.5	6.1
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 15/11/2012 Time of Test: 11:30

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c:

The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 19/11/2012

DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 15/11/2012

Mix Size/Type: AC20

Docket No.: 4209468

Production Lot: 151112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 154.2 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021365

BIR No.: 2221516

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	95	98	-	-	-	
13.2 mm	85	78	85	92	-	-	-	
9.50 mm	76	69	77	83	-	-	-	
6.70 mm	61	54	61	68	-	-	-	
4.75 mm	55	48	56	62	-	-	-	
2.36 mm	34	29	34	39	-	-	-	
1.18 mm	26	21	27	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	12	17	-	-	-	
0.150 mm	8.2	5.7	8.2	10.7	-	-	-	
0.075 mm	6.0	4.5	6.1	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:							0	%
---------------------------------------	--	--	--	--	--	--	---	---

VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.7	4.7	6.0	-	-	
350	cycles	2.0	-	-	-	-	-	
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:							0	%
------------------	--	--	--	--	--	--	---	---

Pass Specification: NO

Signed: *[Signature]*

This Report was printed on: 19/11/2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 15/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209454

Sampled at: 26.1 t

Production Lot: 151112D1302016

Sample Time: 8:32

Lab ID No.: 021366

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.376	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	5.0	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.1	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.501	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	81
	9.5 mm	76	69	83	73
	6.7 mm	61	54	68	64
	4.75 mm	55	48	62	50
	2.36 mm	34	29	39	35
	1.18 mm	26	21	31	26
	600 um	18	14	22	18
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.1
	75 um	6.0	4.5	7.5	5.5
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	4.9

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 15/11/2012 Time of Test: 9:30

Compaction Temp. Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cvc. 80c: 0 120c: 66 350c:

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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Approved Signatory:

J Moriarty Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 15/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209454

Sampled at: 26.1 t

Production Lot: 151112D1302016

Specification: R116.8.1

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021366

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	94	98	-	-	-	
13.2 mm	85	78	81	92	-	-	-	
9.50 mm	76	69	73	83	-	-	-	
6.70 mm	61	54	64	68	-	-	-	
4.75 mm	55	48	50	62	-	-	-	
2.36 mm	34	29	35	39	-	-	-	
1.18 mm	26	21	26	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	13	17	-	-	-	
0.150 mm	8.2	5.7	8.1	10.7	-	-	-	
0.075 mm	6.0	4.5	5.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	4.9	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%

GRADING AND BINDER CONTENT DEDUCTION:								
							0	%

VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	5.0	5.0	6.0	-	-		
350 cycles	2.0	-	-	-	-	-		
VOIDS DEDUCTION:							0	%

TOTAL DEDUCTION:								
							0	%

Pass Specification: YES

Signed:

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06

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D161112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code: 1301025
 Placement Date: 16 November 2012
 Mix Type: AC10 (450) HD Tonnes Represented: 13.28

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21370	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	
BIR No.: _____	BIR Accepted: _____

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LOT CLOSED Y / N ?

No

Signed: _____
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 16/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209493

Sampled at: 13.3 t

Production Lot: 161112D1301025

Sample Time: 8:33

Lab ID No.: 021370

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	l/cu.m	120 cycles Gyropac	2.334	-	-
		l/cu.m	350 cycles Gyropac	2.384	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.6	3	6
		%	350 cycles Gyropac	2.6	2.0	-
	VMA	%	-	16.4	16	-
AS2891.7.3	Maximum Density	l/cu.m	-	2.447	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
* % passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	98
	6.7 mm	79	72	86	80
	4.75 mm	71	64	78	72
	2.36 mm	52	47	57	52
	1.18 mm	35	30	40	36
	600 um	23	19	27	23
	300 um	14	10	18	13
	150 um	9.5	7.0	12.0	9.6
	75 um	6.0	4.5	7.5	6.3
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891:1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 16/11/2012 Time of Test: 9:30

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c: 64

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 16/11/2012

Mix Size/Type: AC10

Docket No.: 4209493

Production Lot: 161112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 13.3 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021370

BIR No.:

GRADING DEDUCTIONS

SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	100	100	100	100	-	-	-
13.2 mm	100	100	100	100	-	-	-
9.50 mm	98	91	98	98	-	-	-
6.70 mm	79	72	80	86	-	-	-
4.75 mm	71	64	72	78	-	-	-
2.36 mm	52	47	52	57	-	-	-
1.18 mm	35	30	36	40	-	-	-
0.600 mm	23	19	23	27	-	-	-
0.300 mm	14	10	13	18	-	-	-
0.150 mm	9.5	7.0	9.6	12.0	-	-	-
0.075 mm	6.0	4.5	6.3	7.5	-	-	-

GRADING SUBTOTAL: 0 %

GRADING DEDUCTION: 0 %

BINDER CONTENT DEDUCTION

TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.8	5.5	5.8	6.1	-	-	0

BINDER CONTENT DEDUCTION: 0 %

GRADING AND BINDER CONTENT DEDUCTION: 0 %

VOIDS DEDUCTIONS

	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120 cycles	3.0	4.6	4.6	6.0	-	-
350 cycles	2.0	2.6	2.6	-	-	-

VOIDS DEDUCTION: 0 %

TOTAL DEDUCTION: 0 %

Pass Specification: YES

Signed:

This Report was printed on: 23/11/2012



NRDFM181 - Asphalt Paving Site Record Sheet

WEARWAS PATCH COMPLETED 74.72

PAVING LOT No.		Works JOB No.		DATE		AC TYPE / LAYER CODE		SITE No.		LAYER		CUSTOMER ORDER/CONTRACT No.		SHEET: OF						
181139603		16-11-12		AC10 45040		AC20 45040		WEARWAS		072151		GUIDELINE								
IS BASE SUITABLE FOR PAVING TO START? Y/N: BASE 3 INTERMEDIATE ROAD AND/OR LOCATION: FLEMING TON RD																				
NONCONFORMANCE REPORT No. (IF RAISED):																				
ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hr):		PAVEMENT TEMPERATURE (deg.C):		TACKCOAT BROKEN Y/N:		APPLICATION RATE:												
		ACTIVITY COMMENCED	ACTIVITY FINISHED	TEMP.	TEMP.	TEMP.	TEMP.	TIME	TEMP.	TIME	TEMP.	TIME	TEMP.	TIME	TEMP.	TIME				
								VELOCITY	CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	OFFSET	LOAD TEMP. deg.C	PAVING GANG	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT.	
1		7.00	7.56																	
2		7.30	8.00																	
3	4209493	8.00	9.15																	
3E	9499	9.15	9.45		13.20						START 10mm				173		169			
3E	9501	9.45	10.15		30.80						START 20mm				174		168			
3E	9499	10.15	10.40												173		167			
3E	9502	10.40	11.00		42.90										173		185			
3E	9504	11.00	11.10		55.20										174		166			
3E	9505	11.10	11.35		89.20										174		162			
3E	9504	11.35	11.45		101.70										174		160			
3E	9505	11.45	12.55		114.22										174		174			
3E	9504	12.05	12.30												174		174			
5		12.30	1.00																	
3E	9511	1.00	1.15		145.02										174		168			

- Notes for the use of this form are to be found on the back.
- ACTIVITY KEY**
- 1. Travel to site
 - 2. Set-up
 - 3A - Courtbow
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation
- COMPLETED BY: _____

07

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D161112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code: 1302016
 Placement Date: 16 November 2012
 Mix Type: AC20 (450) HD Tonnes Represented: 145.02

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21372	Yes	No	2221520	
21373	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____
Thickness Conforms to Spec.? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____
Number of Cores Correct? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LOT CLOSED Y / N ? No

Signed:
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME
 Date Sampled: 16/11/2012
 Mix Size/Type: AC20 Mix Approval Date: 1/07/2012
 Docket No.: 4209510 Sampled at: 322.2 t
 Production Lot: 161112D1302016 Sample Time: 11:38 Lab ID No.: 021373
 Specification: R116 Ed.8 Rev.1 Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.382	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.2	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.0	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.487	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	95
	13.2 mm	85	78	92	85
	9.5 mm	76	69	83	75
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	53
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	26
	600 um	18	14	22	19
	300 um	13	9	17	14
	150 um	8.2	5.7	10.7	8.5
	75 um	6.0	4.5	7.5	5.9
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891:1.1.
 Sample preparation/compaction to RTA T661/T662. Test Date 16/11/2012 Time of Test: 12:40
 Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c:
 The calculated Filler/Binder Ratio of 1.2 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2



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J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 16/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209510

Sampled at: 322.2 t

Production Lot: 161112D1302016

Specification: R116.8.1

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021373

BIR No.:

GRADING DEDUCTIONS							
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	94	87	95	98	-	-	-
13.2 mm	85	78	85	92	-	-	-
9.50 mm	76	69	75	83	-	-	-
6.70 mm	61	54	61	68	-	-	-
4.75 mm	55	48	53	62	-	-	-
2.36 mm	34	29	34	39	-	-	-
1.18 mm	26	21	26	31	-	-	-
0.600 mm	18	14	19	22	-	-	-
0.300 mm	13	9	14	17	-	-	-
0.150 mm	8.2	5.7	8.5	10.7	-	-	-
0.075 mm	6.0	4.5	5.9	7.5	-	-	-
GRADING SUBTOTAL:							0 %
GRADING DEDUCTION:							0 %
BINDER CONTENT DEDUCTION							
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.0	4.7	5.0	5.3	-	-	0
BINDER CONTENT DEDUCTION:							0 %
GRADING AND BINDER CONTENT DEDUCTION:							0 %
VOIDS DEDUCTIONS							
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120	cycles	3.0	4.2	4.2	6.0	-	-
350	cycles	2.0	-	-	-	-	-
VOIDS DEDUCTION:							0 %
TOTAL DEDUCTION:							0 %

Pass Specification: YES

Signed:

This Report was printed on: 22/11/2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory

36 Sawmill Circuit
Hume ACT 2620P.O. Box 186
Queanbeyan NSW 2620Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 16/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209500

Sampled at: 157.3 t

Production Lot: 161112D1302016

Sample Time: 9:54

Lab ID No.: 021372

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.384	-	-
		t/cu.m	350 cycles Gyropac	2.426	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.3	3	6
		%	350 cycles Gyropac	2.6	2.0	-
	VMA	%	-	15.9	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.490	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	85
	9.5 mm	76	69	83	76
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	55
	2.36 mm	34	29	39	34
	1.18 mm	26	21	31	26
	600 um	18	14	22	17
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.1
	75 um	6.0	4.5	7.5	6.4
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 16/11/2012 Time of Test: 11:00

Compaction Temp. Deg. C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c: 65

The calculated Filler/Binder Ratio of 1.3 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2

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Laboratory Number:

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Approved Signatory:

J Moriarty - Laboratory Technician

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 16/11/2012

Mix Size/Type: AC20

Docket No.: 4209500

Production Lot: 161112D1302016

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 157.3 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021372

BIR No.: 2221520

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	94	98	-	-	-	
13.2 mm	85	78	85	92	-	-	-	
9.50 mm	76	69	76	83	-	-	-	
6.70 mm	61	54	61	68	-	-	-	
4.75 mm	55	48	55	62	-	-	-	
2.36 mm	34	29	34	39	-	-	-	
1.18 mm	26	21	26	31	-	-	-	
0.600 mm	18	14	17	22	-	-	-	
0.300 mm	13	9	13	17	-	-	-	
0.150 mm	8.2	5.7	8.1	10.7	-	-	-	
0.075 mm	6.0	4.5	6.4	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%

VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	4.3	4.3	6.0	-	-		
350 cycles	2.0	2.6	2.6	-	-	-		
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: NO

Signed:

This Report was printed on: 22/11/2012

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DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number 2221520

SECTION 1: IDENTIFICATION To be completed by ORIGINATOR of issue

Issue Affects: [Quality checked] Safety Environmental Financial Complaint Audit Other
Issue Location: HEWATT COTTER RD Date Issue Raised: 16/11/2012
Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .1 % high; END OF BIR DETAIL.
Contract/Compliance Reference:
Reported By: Reported To:

Table with 4 columns: Work Order/Job No., Contract No., Lot/Batch No., Product/Mix/Spec. No., Lab Id No., External Report No.
Values include: 131138081, 161112D1302016, 21372, AC20, R116B1

SECTION 3: INVESTIGATION To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:
Customer Acceptance: [Yes/No/Not Applicable] Date:
Customer - Position/Title (Print): Signature:
Completion of Action Verified: [Yes/No/Not Applicable] Date:
Verified By - Position/Title (Print): Signature: [Signature]

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:
Completion of Action Verified: [Yes/No/Not Applicable] Date:
Verified By - Position/Title (Print): Signature:
Cost: Business Risk: [High/Medium/Low]

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy



NRDFW181 - Asphalt Paving Site Record Sheet

WEARINS PATCH COMPLETED 74, 72

PAVING LOT No. 131139603 DATE 10-11-12 AC TYPE / LAYER CODE AC10 45040 LAYER WEARINS SHEET: 072151 OF 1
 Works JOB No. 131139603 DATE 10-11-12 AC TYPE / LAYER CODE AC10 45040 LAYER WEARINS CUSTOMER ORDER/CONTRACT No. 072151 CUSTOMER GUNDELINC

IS BASE SUITABLE FOR PAVING TO START? Y/N: AC20 45040 ROAD AND/OR LOCATION: BASES INTERCHANGE FLEMING RD

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/h)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	TIME	TEMP.	APPLICATION RATE		LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
														TIME	TIME					
1			7:00	7:36																
2			7:36	8:06																
3	4209493		8:00	9:15																
4			9:15	9:45			13.20			START 10mm										
5			9:45	10:15						START 20mm										
6	9499		10:15	10:40			30.80													
7	9501		10:40	11:00																
8	9489		11:00	11:10			42.90													
9	9502		11:10	11:35			55.20													
10	9504		11:35	11:45			89.70													
11	9505		11:45	12:05			101.70													
12	9504		11:55	12:05																
13	9509		12:05	12:30			114.22													
14			12:30	1:00																
15	9511		1:00	1:15			145.02													

Notes for the use of this form are to be found on the back.

- ACTIVITY KEY**
- 1. Travel to site
 - 2. Set-up
 - 3A - Courtyard
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - Paving
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation

COMPLETED BY:



NRDFM181 - Asphalt Paving Site Record Sheet

INTERMEDIATE SUB 7 13, 21, - 23

BASE 3 INTERMEDIATE PATCHES DOWNS P2, 28, 36, 38, 44, 54, 58, 62 BOTH LAYERS

PAVING LOT No. 131139003
 Works JOB No. 16-11-12
 DATE 16-11-12
 AC TYPE/LAYER CODE AC 20 450 W9
 SITE No. PAVED INTERMEDIATE
 LAYER PAVED INTERMEDIATE
 CUSTOMER ORDER/CONTRACT No. 072 151
 SHEET: OF CUSTOMER C. GUYELINE

IS BASE SUITABLE FOR PAVING TO START? Y/N:
 NONCONFORMANCE REPORT No. (IF RAISED):
 ROAD AND/OR LOCATION: FLEMING ST SW Q0

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hr)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	TEMP.	TIME	TACKCOAT BROKEN Y/N	APPLICATION RATE:		PAVING GANG	LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
															TEMP.	TIME						
3E	9513	1.15	1:35	1:35			157.16											174		170		
3E	9514	1.35	2:10	2:10			169.12											173		170		
3E	9515	2.10	2:35	2:35			182.92											174		165		
3E	9511	2.35	3:00	3:00														174		161		
13		3.00	3:25	3:25																		
15		3.25	4:00	4:00																		

- Notes for the use of this form are to be found on the back.
- ACTIVITY KEY
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Tailing levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation

08

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NRDFM280 Quality Verification Checklist

Lot No.: 131139003D171112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code : 1301025
 Placement Date: 17 November 2012
 Mix Type: AC10 (450) HD Tonnes Represented: 135.84

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21374	Yes	Yes		
21375	Yes	Yes		
Sampling & Testing Frequencies Correct? Yes/No: <u>Yes</u>				
BIR No.: _____		BIR Accepted: _____		

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____
Thickness Conforms to Spec.? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____
Number of Cores Correct? Yes/No: _____	BIR No.: _____
BIR No.: _____	BIR Accepted: _____

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y / N ? No

Signed:
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 17/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 42209522

Sampled at: 135.8 t

Production Lot: 171112D1301025

Sample Time: 10:48

Lab ID No.: 021375

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.330	-	-
		t/cu.m	350 cycles Gyropac	2.395	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	5.1	3	6
		%	350 cycles Gyropac	2.4	2.0	-
	VMA	%	-	16.5	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.455	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	98
	6.7 mm	79	72	86	79
	4.75 mm	71	64	78	71
	2.36 mm	52	47	57	52
	1.18 mm	35	30	40	35
	600 um	23	19	27	24
	300 um	14	10	18	14
	150 um	9.5	7.0	12.0	9.4
	75 um	6.0	4.5	7.5	6.4
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 17/11/2012 Time of Test: 12:30

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyclic: 80c: 0 120c: 64 350c: 65

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2



NATA Accredited
Laboratory Number:

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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 23/11/2012

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 17/11/2012

Mix Size/Type: AC10

Docket No.: 42209522

Production Lot: 171112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 135.8 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021375

BIR No.:

GRADING DEDUCTIONS

SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION
53.0 mm	100	100	100	100	-	-	-
37.5 mm	100	100	100	100	-	-	-
26.5 mm	100	100	100	100	-	-	-
19.0 mm	100	100	100	100	-	-	-
13.2 mm	100	100	100	100	-	-	-
9.50 mm	98	91	98	98	-	-	-
6.70 mm	79	72	79	86	-	-	-
4.75 mm	71	64	71	78	-	-	-
2.36 mm	52	47	52	57	-	-	-
1.18 mm	35	30	35	40	-	-	-
0.600 mm	23	19	24	27	-	-	-
0.300 mm	14	10	14	18	-	-	-
0.150 mm	9.5	7.0	9.4	12.0	-	-	-
0.075 mm	6.0	4.5	6.4	7.5	-	-	-

GRADING SUBTOTAL: 0 %

GRADING DEDUCTION: 0 %

BINDER CONTENT DEDUCTION

TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION
AR450	5.8	5.5	5.8	6.1	-	-	0

BINDER CONTENT DEDUCTION: 0 %

GRADING AND BINDER CONTENT DEDUCTION: 0 %

VOIDS DEDUCTIONS

	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH
120 cycles	3.0	5.1	5.1	6.0	-	-
350 cycles	2.0	2.4	2.4	-	-	-

VOIDS DEDUCTION: 0 %

TOTAL DEDUCTION: 0 %

Pass Specification: YES

This Report was printed on: 23/11/2012

Signed:

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory

36 Sawmill Circuit
Hume ACT 2620P.O. Box 186
Queanbeyan NSW 2620Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 17/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209518

Sampled at: 34.1 t

Production Lot: 171112D1301025

Sample Time: 7:56

Lab ID No.: 021374

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.338	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.8	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.3	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.456	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	97
	6.7 mm	79	72	86	78
	4.75 mm	71	64	78	71
	2.36 mm	52	47	57	52
	1.18 mm	35	30	40	36
	600 um	23	19	27	23
	300 um	14	10	18	14
	150 um	9.5	7.0	12.0	9.3
	75 um	6.0	4.5	7.5	5.7
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.9

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 17/11/2012 Time of Test: 9:00

Compaction Temp. Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c:

The calculated Filler/Binder Ratio of 1.0 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

NATA Accredited
Laboratory Number:

4411

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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 23/11/2012

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 17/11/2012

Mix Size/Type: AC10

Docket No.: 4209518

Production Lot: 171112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 34.1 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021374

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	97	98	-	-	-	
6.70 mm	79	72	78	86	-	-	-	
4.75 mm	71	64	71	78	-	-	-	
2.36 mm	52	47	52	57	-	-	-	
1.18 mm	35	30	36	40	-	-	-	
0.600 mm	23	19	23	27	-	-	-	
0.300 mm	14	10	14	18	-	-	-	
0.150 mm	9.5	7.0	9.3	12.0	-	-	-	
0.075 mm	6.0	4.5	5.7	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.9	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%

VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	4.8	4.8	6.0	-	-		
350 cycles	2.0	-	-	-	-	-		
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: YES

This Report was printed on: 23/11/2012

Signed:

BODCAT MILLING
17.11.12 30m

NRDFM181 - Asphalt Paving Site Record Sheet

44, 46, 49, 51
26, 28, 30, 31, 34, 35, 36, 38, 39, 40, 42
WEARINGS PATCHES COMPLETED 2, 3, 5, 7, 8, 10, 13, 16, 18, 19, 21, 22, 23



PAVING LOT No. 131139003 DATE 17-11-12 AC TYPE / LAYER CODE AC 10 H&HD LAYER WEARINGS SHEET: OF CUSTOMER GUIDELINE

CUSTOMER ORDER/CONTRACT No. 072 151 ROAD AND / OR LOCATION: FLEMINGTON RD.

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hour)		PAVEMENT TEMPERATURE (deg.C)		TACKCOAT BROKEN Y/N	APPLICATION RATE		PAVING GANG	LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
		ACTIVITY COMMENCED	ACTIVITY FINISHED	TEMP.	TIME		TEMP.	TIME						
1		6:30	7:00											
2		7:00	7:00											
3		7:00	7:30											
4		8:00	8:30											
3E	4269518	8:30	9:10							174		170		
3E	9519	9:10	9:30							174		168		
3E	9518	9:30	10:00							174		168		
3E	9519	10:00	10:15							174		165		
3E	9520	10:15	10:25											
3E		10:25	11:15											
3E	9521	11:15	11:35											
3E	9522	11:35	11:55											
3E	9521	11:55	12:20											
3E	9522	12:20	1:15											
13		1:15	1:30											
15		1:30	4:00											

IS BASE SUITABLE FOR PAVING TO START? Y/N:
NONCONFORMANCE REPORT NO. (IF RAISED):

COMPLETED BY:

- Notes for the use of this form are to be found on the back.
- ACTIVITY KEY
1. Travel to site
2. Setup
3A - Courbowl
3B - Straights
3C - Parking Bays
3D - Correction
3E - Patching
3F - Handwork
3G - Roundabout
3H - Intersection
4. Smoke
5. Lunch
6. LT Weather
7. LT Breakdown
8. LT Mix
9. Waiting for Mill
10. LT Parked Cars
11. Travel to next job
12. Taking levels
13. Clean-up
14. Post-job inspection
15. Travel back to yard
16. LT waiting for Traffic Control
17. LT waiting for access
18. LT caused by customer
19. Job preparation

09

244



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D191112

Process: PAVING

Contract/Work Order No.: 131139003

Mix Code : 1301025

Placement Date: 19 November 2012

Mix Type: AC10 (450) HD

Tonnes Represented: 52.26

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21379	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y / N ? No

Signed: [Signature]
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 19/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209543

Sampled at: 52.3 t

Production Lot: 191112D1301025

Sample Time: 14:11

Lab ID No.: 021379

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.355	-	-
		t/cu.m	350 cycles Gyropac	2.381	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	3.6	3	6
		%	350 cycles Gyropac	2.6	2.0	-
	VMA	%	-	15.6	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.444	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
* % passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	97
	6.7 mm	79	72	86	77
	4.75 mm	71	64	78	70
	2.36 mm	52	47	57	51
	1.18 mm	35	30	40	33
	600 um	23	19	27	23
	300 um	14	10	18	14
	150 um	9.5	7.0	12.0	9.4
	75 um	6.0	4.5	7.5	6.5
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.7

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 19/11/2012 Time of Test: 15:10

Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 66 350c: 65

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2



ACCREDITED FOR
TECHNICAL
COMPETENCE

NATA Accredited
Laboratory Number:

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Approved Signatory:

J Moriarty Laboratory Technician

This Report was printed on: 22/11/2012

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 19/11/2012

Mix Size/Type: AC10

Docket No.: 4209543

Production Lot: 191112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 52.3 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021379

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	97	98	-	-	-	
6.70 mm	79	72	77	86	-	-	-	
4.75 mm	71	64	70	78	-	-	-	
2.36 mm	52	47	51	57	-	-	-	
1.18 mm	35	30	33	40	-	-	-	
0.600 mm	23	19	23	27	-	-	-	
0.300 mm	14	10	14	18	-	-	-	
0.150 mm	9.5	7.0	9.4	12.0	-	-	-	
0.075 mm	6.0	4.5	6.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%

BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.7	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%

VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	3.6	3.6	6.0	-	-	
350	cycles	2.0	2.6	2.6	-	-	-	
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: YES

Signed:

This Report was printed on: 22/11/2012



WEARLINE PATCHES
 71, 76, 77, 79, 80, 83, 85
 54, 56, 58, 62, 64, 67, 70
 BASE & INTERMEDIATE 66, 78

NRDFM181 - Asphalt Paving Site Record Sheet

247

PAVING LOT No. _____ SHEET: _____ OF _____ CUSTOMER

Works JOB No. 131139003 DATE 19.11.12 AC TYPE/LAYER CODE A-20 40mm LAYER BASE & INTERMEDIATE CUSTOMER ORDER/CONTRACT No. 072 151 CUSTOMER GUIDELINE

IS BASE SUITABLE FOR PAVING TO START? Y/N: _____ ROAD AND/OR LOCATION: FLEMINGTON Rd

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hour)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	OFFSET	LOAD TEMP. deg.C	PAVING GANG			DIR. LT
														A	B	C	
1			6:30	9:15													
2			9:15	10:15													
3E	4209524		10:15	10:45		12:50				START 20mm			174	170			
3E	9529		10:45	11:25		24:66							177	167			
3E	9533		11:25	11:55		14:20				START 0mm			174	164			
3E	7535		12:15	1:00		26:56							174	159			
5			1:00	1:30													
3E	4541		1:30	1:45						START 20mm							
3E	9543		1:45	2:10		37:20							173	158			
19			2:10	2:40		49:48							171	157			
3E	9545		2:40	2:55													
3E	9546		3:20	4:00		40:20				START 10mm			170	165			
13			4:00	4:15		52:26							172	161			
15			4:15	4:45													

Notes for the use of this form are to be found on the back

- ACTIVITY KEY
- 1. Travel to site
 - 2. Set-up
 - 3A - Courbowl
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Skidoo
 - 5. Lurch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D191112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code: 1302016
 Placement Date: 19 November 2012
 Mix Type: AC20 (450) HD Tonnes Represented: 49.48

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21376	Yes	No	2221523	

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____
BIR No.: _____	BIR Accepted: _____

LOT CLOSED Y / N ? No

Signed: [Signature]
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9289 1700
Fax: 02 9289 1797

Plant Location: HUME

Date Sampled: 19/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209525

Sampled at: 25.0 t

Production Lot: 191112D1302016

Sample Time: 8:38

Lab ID No.: 021376

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.377	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.2	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.2	14	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.482	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	94	87	98	94
	13.2 mm	85	78	92	85
	9.5 mm	76	69	83	75
	6.7 mm	61	54	68	61
	4.75 mm	55	48	62	53
	2.36 mm	34	29	39	33
	1.18 mm	26	21	31	25
	600 um	18	14	22	18
	300 um	13	9	17	13
	150 um	8.2	5.7	10.7	8.7
	75 um	6.0	4.5	7.5	6.5
AS2891.3.1	Binder Content %TM	5.0	4.7	5.3	5.0

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 19/11/2012 Time of Test: 9:40

Compaction Temp. Deg. C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c:

The calculated Filler/Binder Ratio of 1.4 was nominated as 1.2 with a Lower Limit of 0.8 and an Upper Limit of 1.2

Approved Signatory:

J Moriarty - Laboratory Technician



NATA Accredited
Laboratory Number:

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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 19/11/2012

Mix Size/Type: AC20

Mix Approval Date: 1/07/2012

Docket No.: 4209525

Sampled at: 25.0 t

Production Lot: 191112D1302016

Specification: R116.8.1

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021376

BIR No.: 2221523

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	94	87	94	98	-	-	-	
13.2 mm	85	78	85	92	-	-	-	
9.50 mm	76	69	75	83	-	-	-	
6.70 mm	61	54	61	68	-	-	-	
4.75 mm	55	48	53	62	-	-	-	
2.36 mm	34	29	33	39	-	-	-	
1.18 mm	26	21	25	31	-	-	-	
0.600 mm	18	14	18	22	-	-	-	
0.300 mm	13	9	13	17	-	-	-	
0.150 mm	8.2	5.7	8.7	10.7	-	-	-	
0.075 mm	6.0	4.5	6.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.0	4.7	5.0	5.3	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.2	4.2	6.0	-	-	
350	cycles	2.0	-	-	-	-	-	
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: NO

Signed: *[Signature]*

This Report was printed on: 22/11/2012

DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number 2221523

SECTION 1: IDENTIFICATION

To be completed by ORIGINATOR of issue

Issue Affects: [Quality checked] [Safety] [Environmental] [Financial] [Complaint] [Audit] [Other]
Issue Location: HEWATT COTTER ROAD Date Issue Raised: 19/11/2012
Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION

To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .2 % high; END OF BIR DETAIL.
Contract/Compliance Reference:
Reported By: Reported To:

Table with 4 columns: Work Order/Job No., Contract No., Lot/Batch No., Product/Mix/Spec No., Lab Id No., External Report No. Includes values like 131138081, 191112d1302016, AC20, R116.8.1.

SECTION 3: INVESTIGATION

To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN

To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:
Customer Acceptance: [Yes] [No] [Not Applicable] Date:
Customer - Position/Title (Print): Signature:
Completion of Action Verified: [Yes] [No] [Not Applicable] Date:
Verified By - Position/Title (Print): Signature: [Handwritten Signature]

To be completed by MANAGER RESOLVING issue

Action to Prevent Recurrence:
Completion of Action Verified: [Yes] [No] [Not Applicable] Date:
Verified By - Position/Title (Print): Signature:
Cost: Business Risk: [High] [Medium] [Low]

White Copy/Original: Customer/Oriinator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy



NRDFM181 - Asphalt Paving Site Record Sheet

71, 76, 77, 79, 80, 83, 85
54, 56, 58, 62, 64, 67, 70

WEARLINE PATCHES
BASE & INTERMEDIATE 66, 78

PAVING LOT No. 131139003

Works JOB No. 19-11-12

DATE 19-11-12

AC TYPE/LAYER CODE A-20 45049

SITE No.

LAYER BASE & INTERMEDIATE

CUSTOMER ORDER/CONTRACT No. 072 151

OF SHEET: 15

CUSTOMER GUIDELINE

IS BASE SUITABLE FOR PAVING TO START? Y/N:

NONCONFORMANCE REPORT No. (IF RAISED):

ROAD AND/OR LOCATION: FLEMINGTON Rd

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hr)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	TEMP:		TIME:		VELOCITY	CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	OFFSET	LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT		
								TEMP.	TIME	TEMP.	TIME													
1			6:30	9:15																				
2			9:15	10:15																				
3E	4209528		10:15	10:45			12:50										174							
3E	9529		10:45	11:25			24:66										177							
3E	9533		11:25	11:55			14:20										174							
19			11:55	12:15																				
3E	7535		12:15	1:00			26:56										174							
5			1:00	1:30																				
19			1:30	1:45																				
3E	9541		1:45	2:10			37:20										173							
3E	9543		2:10	2:40			49:48										171							
19			2:40	2:55																				
3E	9545		2:55	3:20			40:20										170							
3E	9546		3:20	4:00			52:26										172							
13			4:00	4:15																				
15			4:15	4:45																				

Notes for the use of this form are to be found on the back.

ACTIVITY KEY

- 1. Travel to site
- 2. Set-up
- 3A - Courbowl
- 3B - Straights
- 3C - Parking Bays
- 3D - Correction
- 3E - Patching
- 3F - Handwork
- 3G - Roundabout
- 3H - Intersection
- 4. Smoke
- 5. Lunch
- 6. LT Weather
- 7. LT Breakdown
- 8. LT Mix
- 9. Waiting for Mill
- 10. LT Parked Cars
- 11. Travel to next job
- 12. Taking levels
- 13. Clean-up
- 14. Post-job inspection
- 15. Travel back to yard
- 16. LT waiting for Traffic Control
- 17. LT waiting for access
- 18. LT caused by customer
- 19. Job preparation

COMPLETED BY:

253



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D201112
 Process: PAVING
 Contract/Work Order No.: 131139003 Mix Code : 1301025
 Placement Date: 20 November 2012
 Mix Type: AC10 (450) HD Tonnes Represented: 69.14

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21384	Yes	Yes		
21389	Yes	No	2221526	

Sampling & Testing Frequencies Correct? Yes/No: Yes
 BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y/N ? No

Signed: [Signature]
 Title: Quality Supervisor & Systems Support
 Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory

36 Sawmill Circuit
Hume ACT 2820P.O. Box 186
Queanbeyan NSW 2620Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 20/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209552

Sampled at: 26.1 t

Production Lot: 201112D1301025

Sample Time: 8:18

Lab ID No.: 021384

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.331	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.5	3	6
		%	350 cycles Gyropac	-	2.0	-
	VMA	%	-	16.4	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.442	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	96
	6.7 mm	79	72	86	80
	4.75 mm	71	64	78	73
	2.36 mm	52	47	57	55
	1.18 mm	35	30	40	33
	600 um	23	19	27	24
	300 um	14	10	18	17
	150 um	9.5	7.0	12.0	10.3
	75 um	6.0	4.5	7.5	6.5
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.7

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 20/11/2012 Time of Test: 9:20

Compaction Temp.Deg.C.: 150 Gyratory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 64 350c:

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

ACCEPTED FOR
TECHNICAL
COMPETENCENATA Accredited
Laboratory Number:

4411

Accredited for compliance with ISO/IEC 17025.

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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 23/11/2012

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DEDUCTIONS CALCULATIONS
Hume Laboratory



Plant Location: HUME

36 Sawmill Circuit
Hume ACT 2620

Production Date: 20/11/2012

P.O. Box 186
Queanbeyan NSW 2620

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Phone: 02 9269 1700
Fax: 02 9269 1797

Docket No.: 4209552

Sampled at: 26.1 t

Production Lot: 201112D1301025

Specification: R116.8.1

Mix Category: Heavy Duty

Lab ID No.: 021384

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	96	98	-	-	-	
6.70 mm	79	72	80	86	-	-	-	
4.75 mm	71	64	73	78	-	-	-	
2.36 mm	52	47	55	57	-	-	-	
1.18 mm	35	30	33	40	-	-	-	
0.600 mm	23	19	24	27	-	-	-	
0.300 mm	14	10	17	18	-	-	-	
0.150 mm	9.5	7.0	10.3	12.0	-	-	-	
0.075 mm	6.0	4.5	6.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.7	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	4.5	4.5	6.0	-	-		
350 cycles	2.0	-	-	-	-	-		
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: YES

This Report was printed on: 23/11/2012

Signed:

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME
 Date Sampled: 21/11/2012
 Mix Size/Type: AC10 Mix Approval Date: 1/07/2012
 Docket No.: 4209603 Sampled at: 62.9 t
 Production Lot: 211112D1301025 Sample Time: 13:49 Lab ID No.: 021389
 Specification: R116 Ed.8 Rev.1 Mix Category: Heavy Duty

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.343	-	-
		t/cu.m	350 cycles Gyropac	2.372	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	3.6	3	6
		%	350 cycles Gyropac	2.4	2.0	-
	VMA	%	-	16.1	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.430	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	96
	6.7 mm	79	72	86	79
	4.75 mm	71	64	78	67
	2.36 mm	52	47	57	49
	1.18 mm	35	30	40	33
	600 um	23	19	27	23
	300 um	14	10	18	17
	150 um	9.5	7.0	12.0	10.9
	75 um	6.0	4.5	7.5	7.5
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.
 Sample preparation/compaction to RTA T661/T662. Test Date 21/11/2012 Time of Test: 14:50
 Compaction Temp.Deg.C.: 150 Gyrotory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c: 64
 The calculated Filler/Binder Ratio of 1.4 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

Approved Signatory:
 J Moriarty - Laboratory Technician



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DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 21/11/2012

Mix Size/Type: AC10

Docket No.: 4209603

Production Lot: 211112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 62.9 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021389

BIR No.: 2221526

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	96	98	-	-	-	
6.70 mm	79	72	79	86	-	-	-	
4.75 mm	71	64	67	78	-	-	-	
2.36 mm	52	47	49	57	-	-	-	
1.18 mm	35	30	33	40	-	-	-	
0.600 mm	23	19	23	27	-	-	-	
0.300 mm	14	10	17	18	-	-	-	
0.150 mm	9.5	7.0	10.9	12.0	-	-	-	
0.075 mm	6.0	4.5	7.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.8	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	3.6	3.6	6.0	-	-	
350	cycles	2.0	2.4	2.4	-	-	-	
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: NO

Signed:

This Report was printed on: 22/11/2012

DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number
2221526

SECTION 1: IDENTIFICATION To be completed by ORIGINATOR of issue

Issue Affects: Quality Safety Environmental Financial Complaint Audit Other

Issue Location: GUIDELINE FLEMINGTON ROAD Date Issue Raised: 21/11/2012

Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Blinder Ratio out of specification limits of 0.8 - 1.2 by .2 % high; END OF BIR DETAIL.
(Incident, injury, Accident, damage, non conformance etc.)

Contract/Compliance Reference:

Reported By: Reported To:

<i>Work Details (If Applicable)</i>			
Work Order/Job No. 1	131139083	Contract No.	
Work Order/Job No. 1		Contract No.	
Work Order/Job No. 1		Contract No.	
Work Order/Job No. 1		Contract No.	
Lot/Batch No.	211112D1301025	Product/Mix/Spec No.	AC10 R1168/1
Lab Id No.	21389	External Report No.	

SECTION 3: INVESTIGATION To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:

Customer Acceptance: Yes No Not Applicable Date:

Customer - Position/Title (Print): Signature:

Completion of Action Verified: Yes No Not Applicable Date:

Verified By - Position/Title (Print): Signature:

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:

Completion of Action Verified: Yes No Not Applicable Date:

Verified By - Position/Title (Print): Signature:

Cost: Business Risk: High Medium Low

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy



Completed Today
 WEARING PATCHES
 112, 113,
 96, 97, 101, 107, 108, 109, 110, 111,
 66, 78, 85, 86, 87, 88, 89, 90, 92, 93, 94,

NRDFM181 - Asphalt Paving Site Record Sheet

PAVING LOT No. 131139003
 Works JOB No. 20-11-12
 DATE 20-11-12
 ACT TYPE / LAYER CODE AC 10 450 HA
 SITE No. WEARING
 LAYER WEARING
 CUSTOMER ORDER/CONTRACT No. 072 151
 SHEET: OF CUSTOMER GUIDELINE

IS BASE SUITABLE FOR PAVING TO START? Y/N:
 NONCONFORMANCE REPORT No. (IF RAISED):
 ROAD AND/OR LOCATION: FLEMINGTON RD.

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (MM/ROU):		TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	TIME	TEMP.	APPLICATION RATE	PAVING GANG			LOAD TEMP. deg.C	JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
		COMPLETED	FINISHED											A	B	C					
1		7:00	7:50																		
2		7:30	8:00																		
7		8:00	8:30																		
19		8:30	8:55																		
3E	4209547	8:55	9:25			13.60										165	158				
3E	9548	9:25	10:00			25-72										165	156				
3E	9549	10:00	10:50			38.08										170	155				
19*		10:50	11:30			50.60										170	151				
3E	9550	11:30	12:15																		
7		12:15	2:15																		
5		12:30	1:00																		
3E	9559	2:15	3:35			64.14										171	149				
3E	9576	3:35	4:00			69.14										171	165				
13		4:00	4:15																		
15		4:15	4:45																		

Notes for the use of this form are to be found on the back.

ACTIVITY KEY

- 1. Travel to site
- 2. Set-up
- 3A - Countdown
- 3B - Straights
- 3C - Parking Bays
- 3D - Correction
- 3E - Patching
- 3F - Handwork
- 3G - Roundabout
- 3H - Intersection
- 4. Smoke
- 5. Lunch
- 6. LT Weather
- 7. LT Breakdown
- 8. LT Mix
- 9. Waiting for Mill
- 10. LT Parked Cars
- 11. Travel to next job
- 12. Taking levels
- 13. Clean-up
- 14. Post-job inspection
- 15. Travel back to yard
- 16. LT waiting for Traffic Control
- 17. LT waiting for access
- 18. LT caused by customer
- 19. Job preparation

COMPLETED BY:

D(12)

260



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D211112

Process: PAVING

Contract/Work Order No.: 131139003

Mix Code : 1301025

Placement Date: 21 November 2012

Mix Type: AC10 (450) HD

Tonnes Represented: 62.86

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21389	Yes	No	2221526	
21394	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes

BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y / N ? No

Signed: _____

Title: Quality Supervisor & Systems Support

Date: 23-November-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 166
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 21/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209588

Sampled at: 26.8 t

Production Lot: 211112D1301025

Sample Time: 8:45

Lab ID No.: 021394

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.326	-	-
		t/cu.m	350 cycles Gyropac	2.364	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	4.5	3	6
		%	350 cycles Gyropac	3.0	2.0	-
	VMA	%	-	16.7	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.436	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	95
	6.7 mm	79	72	86	80
	4.75 mm	71	64	78	66
	2.36 mm	52	47	57	48
	1.18 mm	35	30	40	34
	600 um	23	19	27	24
	300 um	14	10	18	17
	150 um	9.5	7.0	12.0	10.6
	75 um	6.0	4.5	7.5	6.6
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 21/11/2012 Time of Test: 9:45

Compaction Temp, Deg.C.: 150 Gyratory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 64 350c: 63

The calculated Filler/Binder Ratio of 1.2 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2



ACCREDITED FOR
TECHNICAL
COMPETENCE

NATA Accredited
Laboratory Number:

4411

Accredited for compliance with ISO/IEC 17025.

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Approved Signatory:

J Moriarty - Laboratory Technician

This Report was printed on: 23/11/2012

262

DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

Production Date: 21/11/2012

Mix Size/Type: AC10

Docket No.: 4209588

Production Lot: 211112D1301025

Specification: R116.8.1

Mix Approval Date: 1/07/2012

Sampled at: 26.8 t

Mix Category: Heavy Duty

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Lab ID No.: 021394

BIR No.:

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	95	98	-	-	-	
6.70 mm	79	72	80	86	-	-	-	
4.75 mm	71	64	66	78	-	-	-	
2.36 mm	52	47	48	57	-	-	-	
1.18 mm	35	30	34	40	-	-	-	
0.600 mm	23	19	24	27	-	-	-	
0.300 mm	14	10	17	18	-	-	-	
0.150 mm	9.5	7.0	10.6	12.0	-	-	-	
0.075 mm	6.0	4.5	6.6	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.8	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
		MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH	
120	cycles	3.0	4.5	4.5	6.0	-	-	
350	cycles	2.0	3.0	3.0	-	-	-	
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

Pass Specification: YES

Signed:

This Report was printed on: 23/11/2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory

36 Sawmill Circuit
Hume ACT 2620P.O. Box 186
Queanbeyan NSW 2620Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Date Sampled: 21/11/2012

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Docket No.: 4209603

Sampled at: 62.9 t

Production Lot: 211112D1301025

Sample Time: 13:49

Lab ID No.: 021389

Specification: R116 Ed.8 Rev.1

Mix Category: Heavy Duty

Page 1 of 1

TEST RESULTS

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.2	Bulk Density	t/cu.m	120 cycles Gyropac	2.343	-	-
		t/cu.m	350 cycles Gyropac	2.372	-	-
AS2891.8	Air Voids	%	120 cycles Gyropac	3.6	3	6
		%	350 cycles Gyropac	2.4	2.0	-
	VMA	%	-	16.1	16	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.430	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	98	91	98	96
	6.7 mm	79	72	86	79
	4.75 mm	71	64	78	67
	2.36 mm	52	47	57	49
	1.18 mm	35	30	40	33
	600 um	23	19	27	23
	300 um	14	10	18	17
	150 um	9.5	7.0	12.0	10.9
	75 um	6.0	4.5	7.5	7.5
AS2891.3.1	Binder Content %TM	5.8	5.5	6.1	5.8

Comments: Sample taken to AS2891.1.1.

Sample preparation/compaction to RTA T661/T662. Test Date 21/11/2012 Time of Test: 14:50

Compaction Temp.Deg.C.: 150 Gyratory Angle Degrees: 2 Sample Ht. mm Cyc. 80c: 0 120c: 65 350c: 64

The calculated Filler/Binder Ratio of 1.4 was nominated as 1.0 with a Lower Limit of 0.8 and an Upper Limit of 1.2

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Laboratory Number:

4411

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Approved Signatory:

J Morarty - Laboratory Technician

This Report was printed on: 22/11/2012

264

DEDUCTIONS CALCULATIONS

Hume Laboratory



Plant Location: HUME

36 Sawmill Circuit
Hume ACT 2620

Production Date: 21/11/2012

P.O. Box 186
Queanbeyan NSW 2620

Mix Size/Type: AC10

Mix Approval Date: 1/07/2012

Phone: 02 9269 1700
Fax: 02 9269 1797

Docket No.: 4209603

Sampled at: 62.9 t

Production Lot: 211112D1301025

Specification: R116.8.1

Mix Category: Heavy Duty

Lab ID No.: 021389

BIR No.: 2221526

GRADING DEDUCTIONS								
SIEVE	NOMINATED	MIN	PASSING	MAX	LOW	HIGH	DEDUCTION	
53.0 mm	100	100	100	100	-	-	-	
37.5 mm	100	100	100	100	-	-	-	
26.5 mm	100	100	100	100	-	-	-	
19.0 mm	100	100	100	100	-	-	-	
13.2 mm	100	100	100	100	-	-	-	
9.50 mm	98	91	96	98	-	-	-	
6.70 mm	79	72	79	86	-	-	-	
4.75 mm	71	64	67	78	-	-	-	
2.36 mm	52	47	49	57	-	-	-	
1.18 mm	35	30	33	40	-	-	-	
0.600 mm	23	19	23	27	-	-	-	
0.300 mm	14	10	17	18	-	-	-	
0.150 mm	9.5	7.0	10.9	12.0	-	-	-	
0.075 mm	6.0	4.5	7.5	7.5	-	-	-	
GRADING SUBTOTAL:							0	%
GRADING DEDUCTION:							0	%
BINDER CONTENT DEDUCTION								
TYPE	NOMINATED	MIN	ACTUAL	MAX	LOW	HIGH	DEDUCTION	
AR450	5.8	5.5	5.8	6.1	-	-	0	
BINDER CONTENT DEDUCTION:							0	%
GRADING AND BINDER CONTENT DEDUCTION:							0	%
VOIDS DEDUCTIONS								
	MIN	ACTUAL	ROUNDED	MAX	LOW	HIGH		
120 cycles	3.0	3.6	3.6	6.0	-	-		
350 cycles	2.0	2.4	2.4	-	-	-		
VOIDS DEDUCTION:							0	%
TOTAL DEDUCTION:							0	%

This Report was printed on: 22/11/2012

Pass Specification: NO

Signed:

265

DRAFT

BUSINESS IMPROVEMENT REPORT

BIR Number 2221526

SECTION 1: IDENTIFICATION To be completed by ORIGINATOR of issue

Issue Affects: [X] Quality [] Safety [] Environmental [] Financial [] Complaint [] Audit [] Other
Issue Location: GUIDELINE FLEMINGTON ROAD Date Issue Raised: 21/11/2012
Customer/Company: WorkGroup Involved: PRODUCTION

SECTION 2: DESCRIPTION To be completed by ORIGINATOR of issue

Describe the Issue: Filler/Binder Ratio out of specification limits of 0.8 - 1.2 by .2 % high; END OF BIR DETAIL.
Contract/Compliance Reference:
Reported By: Reported To:

Table with 4 columns: Work Order/Job No., Contract No., Lot/Batch No., Product/Mix/Spec No., Lab Id No., External Report No. Contains handwritten values like 131139083, 211112D1301026, AC10, R116.8.1.

SECTION 3: INVESTIGATION To be completed by PERSON RESOLVING issue

Cause of Issue:

SECTION 4: ACTION TAKEN To be completed by PERSON RESOLVING issue

Immediate Action Proposed/Actual To Fix Issue:
Customer Acceptance: [] Yes [] No [] Not Applicable Date:
Customer - Position/Title (Print): Signature:
Completion of Action Verified: [] Yes [] No [] Not Applicable Date:
Verified By - Position/Title (Print): Signature: [Handwritten Signature]

To be completed by MANAGER RESOLVING issue

Action to Prevent Reoccurrence:
Completion of Action Verified: [] Yes [] No [] Not Applicable Date:
Verified By - Position/Title (Print): Signature:
Cost: Business Risk: [] High [] Medium [] Low

White Copy/Original: Customer/Originator Yellow: Area Manager Pink: Work File/Data Input Blue: Book Copy

BOSCAT BLOOMING

266



WEAR SURF PATCHES COMPLETED 102, 103, 104, 105, 106, 107, 123, 124, 129
75, 81, 82, 84, 91, 95, 98, 99, 100

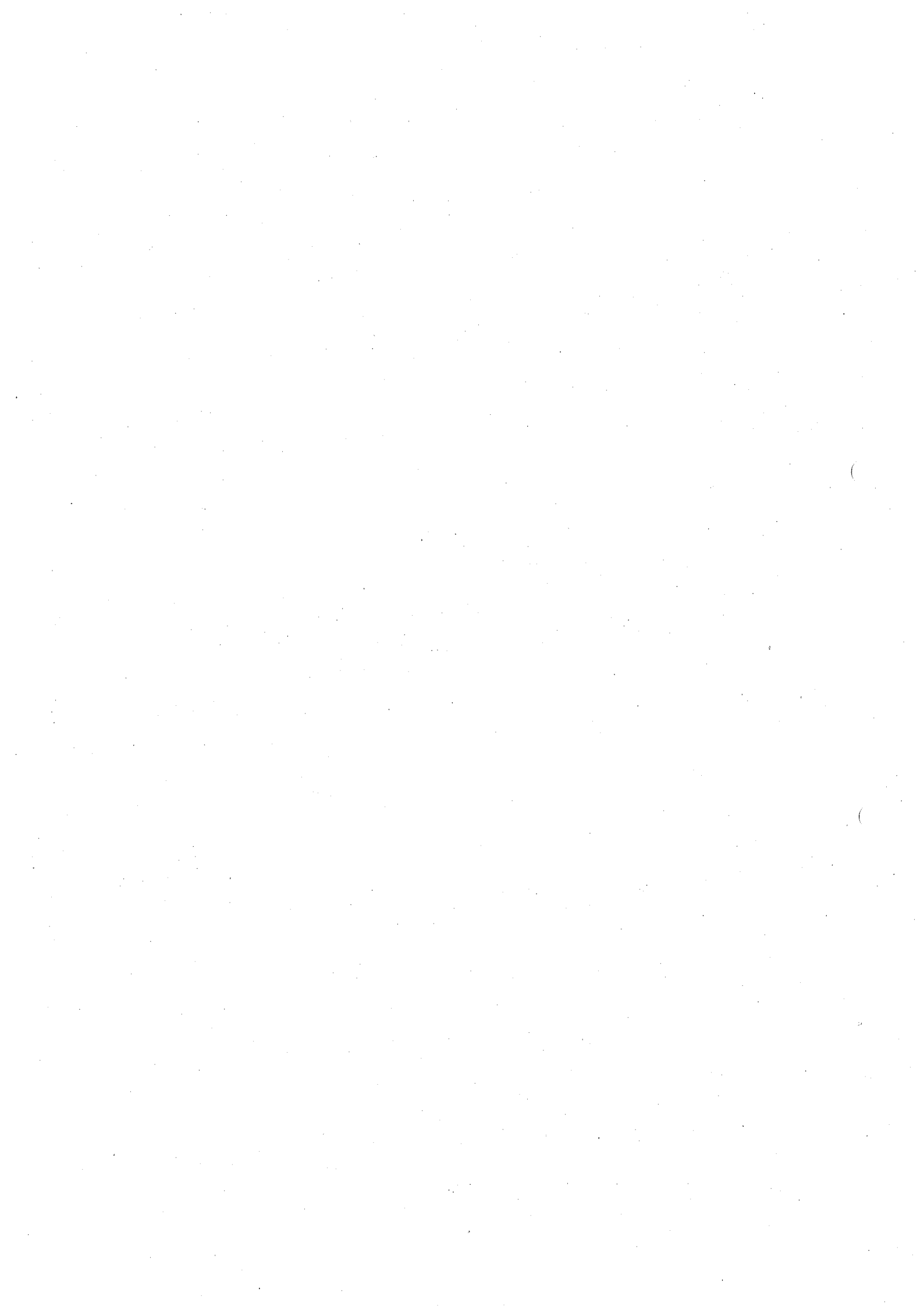
NRDFM181 - Asphalt Paving Site Record Sheet

PAVING LOT No.		DATE	AC TYPE / LAYER CODE	SITE No.	LAYER	CUSTOMER ORDER/CONTRACT No.	SHEET	OF											
131139003		21-11-12	AC 10 ASD H4		WEAR SURF	072151		G											
IS BASE SUITABLE FOR PAVING TO START? Y/N:		ROAD AND/OR LOCATION:																	
NONCONFORMANCE REPORT No. (IF RAISED):		FLEMINGSTON RD																	
ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hour):		TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	VEL. CARRIAGE WAY	LANE OR RUN	CHAINAGE START	CHAINAGE END	OFFSET	LOAD TEMP. deg.C	PAVING GANG			JOINT TEMP. deg.C	MAT TEMP. deg.C	SHAPE mm.	DIR. LT
		COMPLETED	FINISHED										TEMP.	TIME	TEMP.				
1		7:00	7:30																
2		7:30	8:00																
18		8:00	9:00																
19		9:00	9:25																
36	4209586	9:25	9:50			14.42							170			165			
3E	9588	9:50	10:30			26.84							171			170			
19		10:30	11:05																
3E	9584	11:05	11:50			39.16							172			166			
19		11:50	12:15																
3E	9596	12:15	12:45																
18		12:45	1:15			52.84							172			159			
3E	9603	1:15	2:55			62.86													
13		2:55	3:25																
15		3:25	3:50																
15		3:50	4:30																

Notes for the use of this form are to be found on the back.

- ACTIVITY KEY**
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handwork
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Parked Cars
 - 11. Travel to next job
 - 12. Taking levels
 - 13. Clean-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for access
 - 18. LT caused by customer
 - 19. Job preparation

COMPLETED BY:



E①

267





269



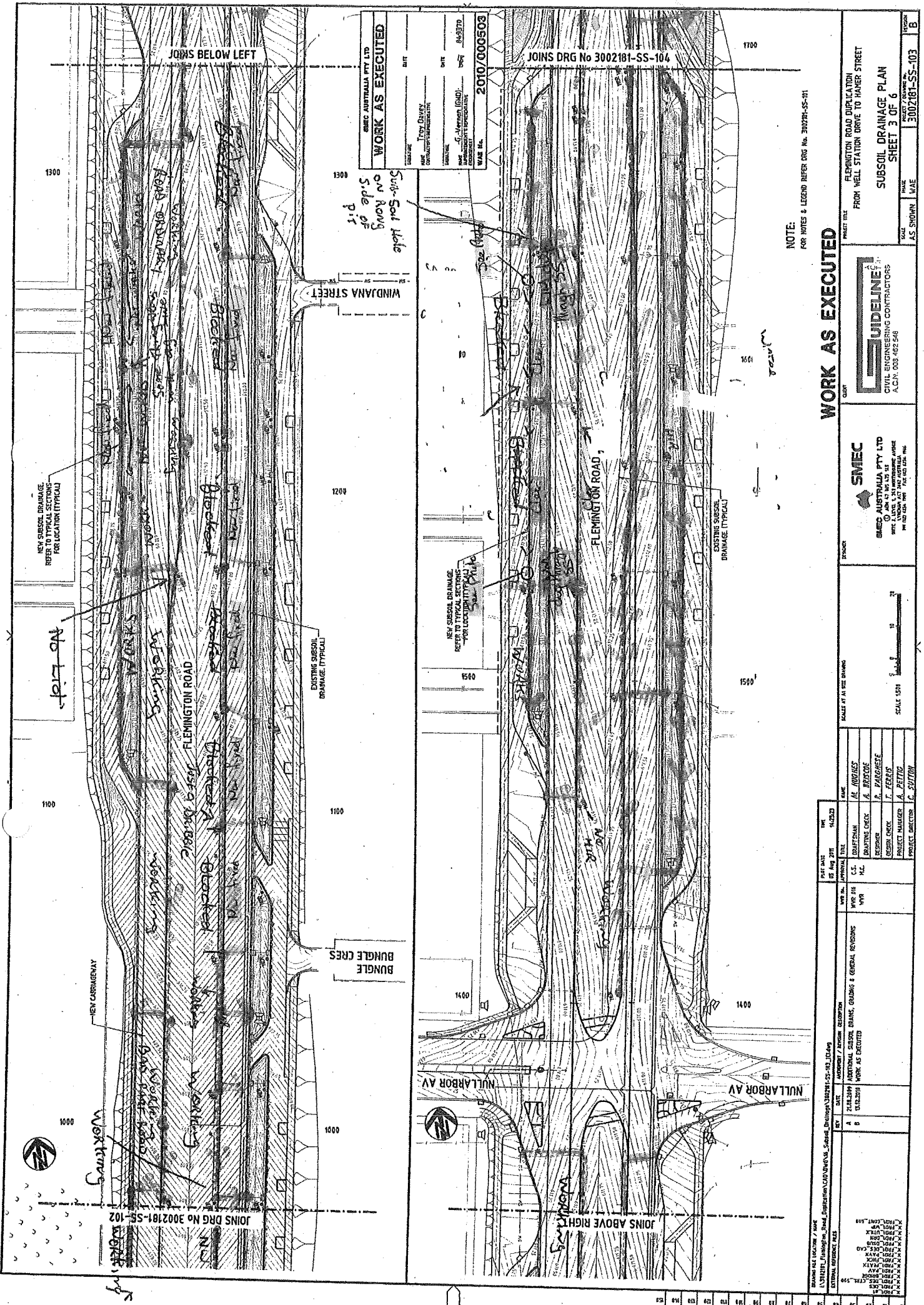
272

WORK AS EXECUTED

DATE: 04/23/20
 DRAWN BY: J. PARSONS
 CHECKED BY: J. PARSONS
 PROJECT NUMBER: 3002181-SS-104
 WARE No. 2010/000503

WORK AS EXECUTED

DATE: 04/23/20
 DRAWN BY: J. PARSONS
 CHECKED BY: J. PARSONS
 PROJECT NUMBER: 3002181-SS-104
 WARE No. 2010/000503



NOTE: FOR NOTES & LEGEND REFER DRG No. 3002181-SS-01

WORK AS EXECUTED

GUIDELINE
 CIVIL ENGINEERING CONTRACTORS
 A.C.N. 003 682 548
 100 WILSON ST
 SYDNEY NSW 2000

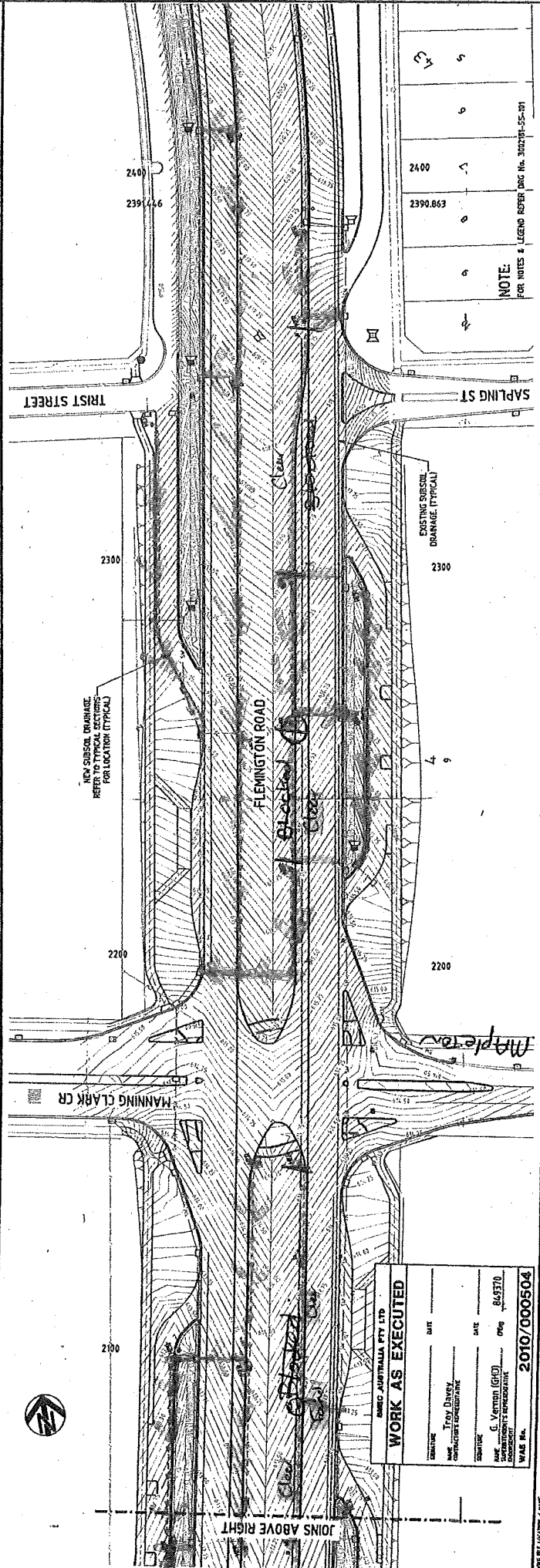
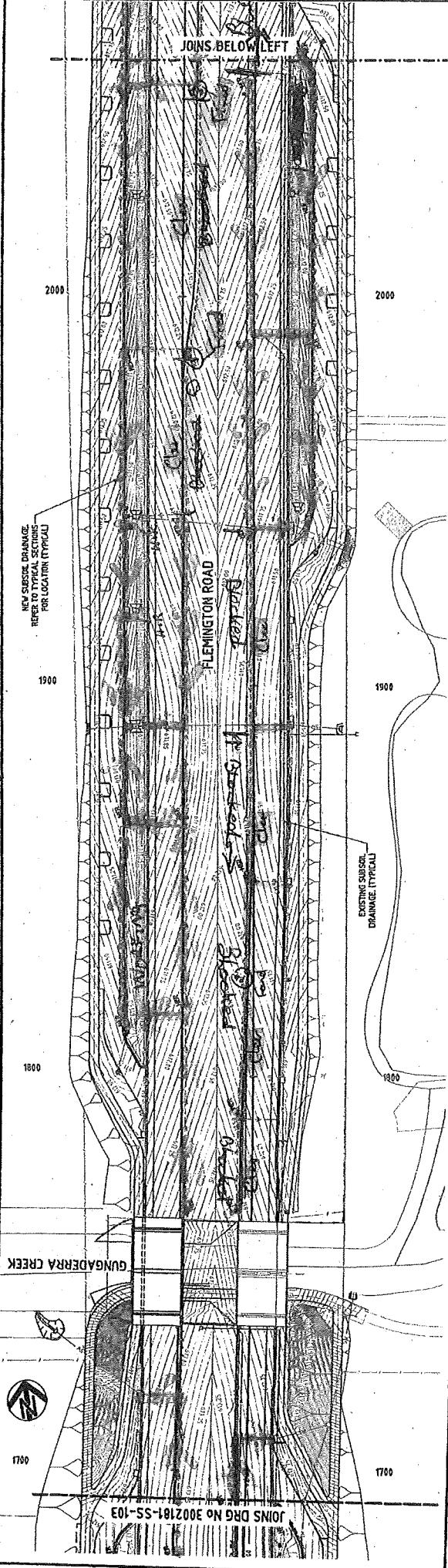
SMEC
 SMC AUSTRALIA PTY LTD
 10 JAMES ST
 SYDNEY NSW 2000

SCALE: 1:500
 SCALE AT A SIZE DRAWING

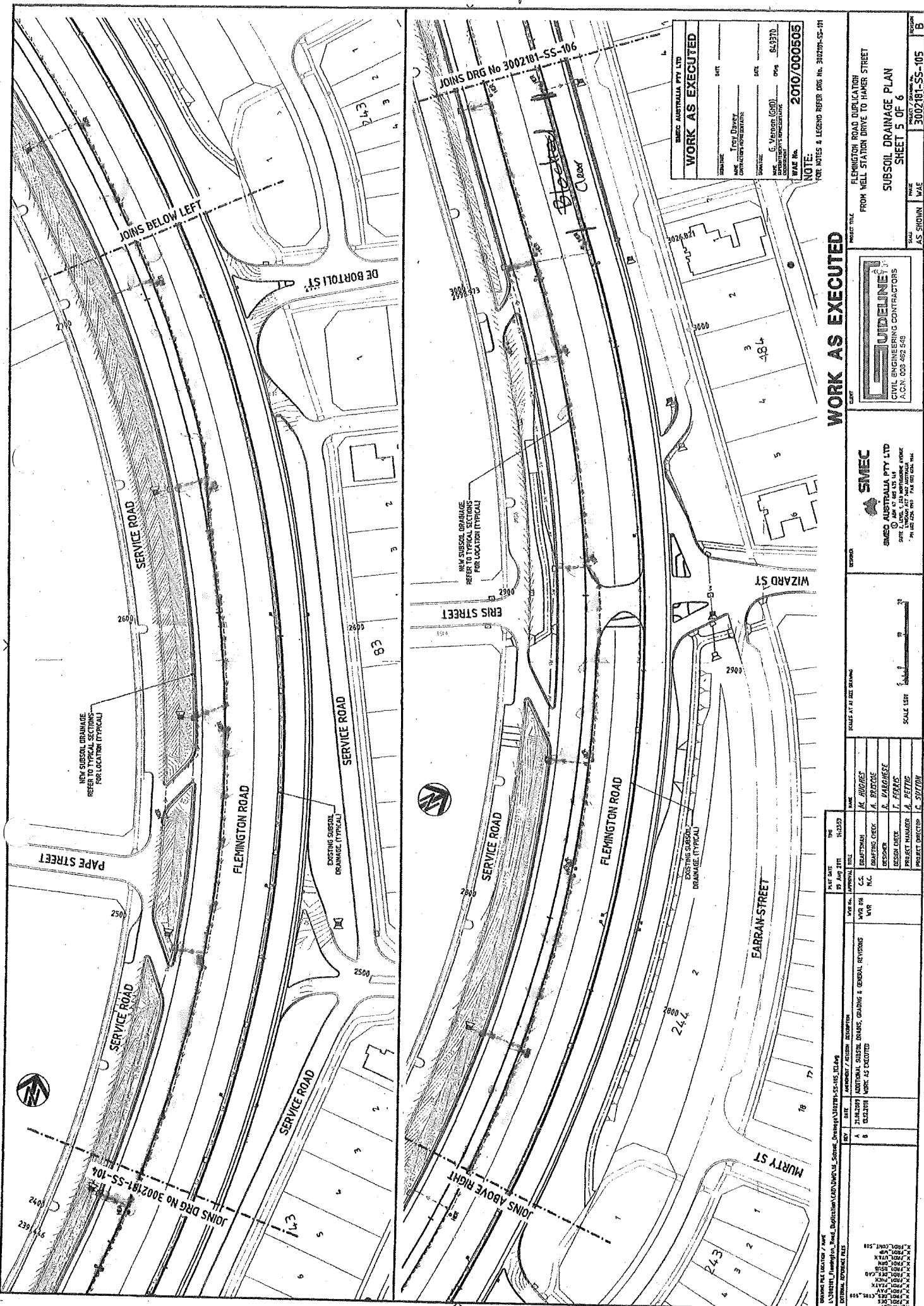
DATE	BY	DESCRIPTION
14/02/20	J. PARSONS	ISSUED FOR TENDER
14/02/20	J. PARSONS	ISSUED FOR TENDER
14/02/20	J. PARSONS	ISSUED FOR TENDER

PROJECT TITLE	FLEMINGTON ROAD DRAINAGE FROM WELL STATION DRIVE TO HANER STREET
PROJECT NUMBER	3002181-SS-103
SCALE	AS SHOWN
DATE	04/23/20
DRAWN BY	J. PARSONS
CHECKED BY	J. PARSONS
PROJECT NUMBER	3002181-SS-104
PROJECT DIRECTOR	L. SMITH

PROJECT TITLE: FLEMINGTON ROAD DRAINAGE FROM WELL STATION DRIVE TO HANER STREET
 PROJECT NUMBER: 3002181-SS-103
 SCALE: AS SHOWN
 DATE: 04/23/20
 DRAWN BY: J. PARSONS
 CHECKED BY: J. PARSONS
 PROJECT NUMBER: 3002181-SS-104
 PROJECT DIRECTOR: L. SMITH



<p>PROJECT TITLE: FLEMINGTON ROAD DUPLICATION FROM WELL STATION DRIVE TO HANGER STREET</p> <p>SUBSOIL DRAINAGE PLAN SHEET 4 OF 6</p> <p>SCALE: AS SHOWN</p> <p>DATE: 21/08/2010</p> <p>PROJECT NUMBER: 2010/000504</p>	
<p>SMC</p> <p>SMC AUSTRALIA PTY LTD</p> <p>CIVIL ENGINEERING CONTRACTORS</p> <p>A.C.N. 028 482 548</p> <p>PH: 02 9241 7477</p> <p>FX: 02 9241 7478</p>	
<p>GUIDELINE</p> <p>CIVIL ENGINEERING CONTRACTORS</p>	
<p>WORK AS EXECUTED</p> <p>DATE: 21/08/2010</p> <p>BY: G. VENTURA (HATCH)</p> <p>PROJECT: 2010/000504</p>	
<p>SCALE: 1:500</p> <p>SCALE: 1:500</p>	
<p>PROJECT: 2010/000504</p> <p>DATE: 21/08/2010</p> <p>BY: G. VENTURA (HATCH)</p> <p>PROJECT: 2010/000504</p>	



JOINS DRG No 3002181-SS-106

JOINS BELOW LEFT

NEW SUBSOL DRAINAGE REFER TO TYPICAL SECTIONS FOR LOCATION (TYPICAL)

NEW SUBSOL DRAINAGE REFER TO TYPICAL SECTIONS FOR LOCATION (TYPICAL)

EXISTING SUBSOL DRAINAGE (TYPICAL)

WORK AS EXECUTED

DESIGNER: SMC CIVIL ENGINEERING CONTRACTORS
 DATE: 2010/000505
 CONTRACTOR: AS SHOWN
 PROJECT NO: 3002181-SS-105

WORK AS EXECUTED

PROJECT TITLE: FLEMINGTON ROAD DUBLICATION FROM WELL STATION DRIVE TO HAMER STREET
 SHEET 5 OF 6
 DRAWN BY: AS SHOWN
 CHECKED BY: AS SHOWN

GUIDELINE
 CIVIL ENGINEERING CONTRACTORS
 A.C.N. 002 462 549

SMC
 SMC AUSTRALIA PTY LTD
 10 JAM ST BRISBANE
 QLD 4002 AUSTRALIA
 PH: 07 325 8911 FAX: 07 325 1944

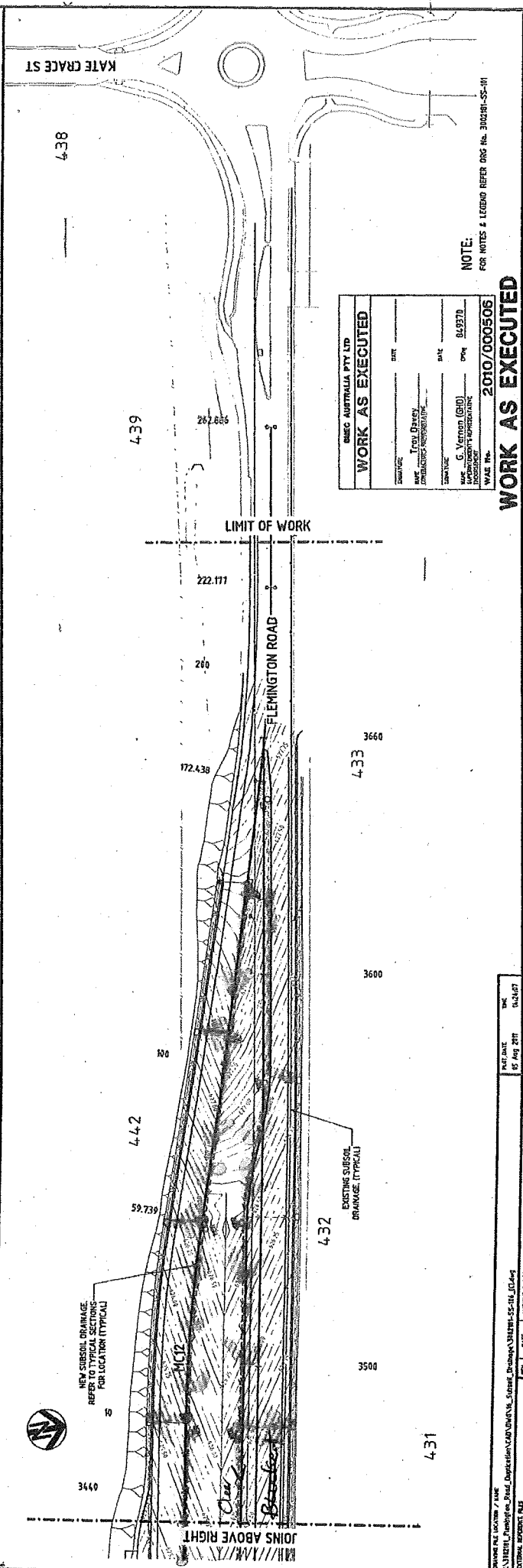
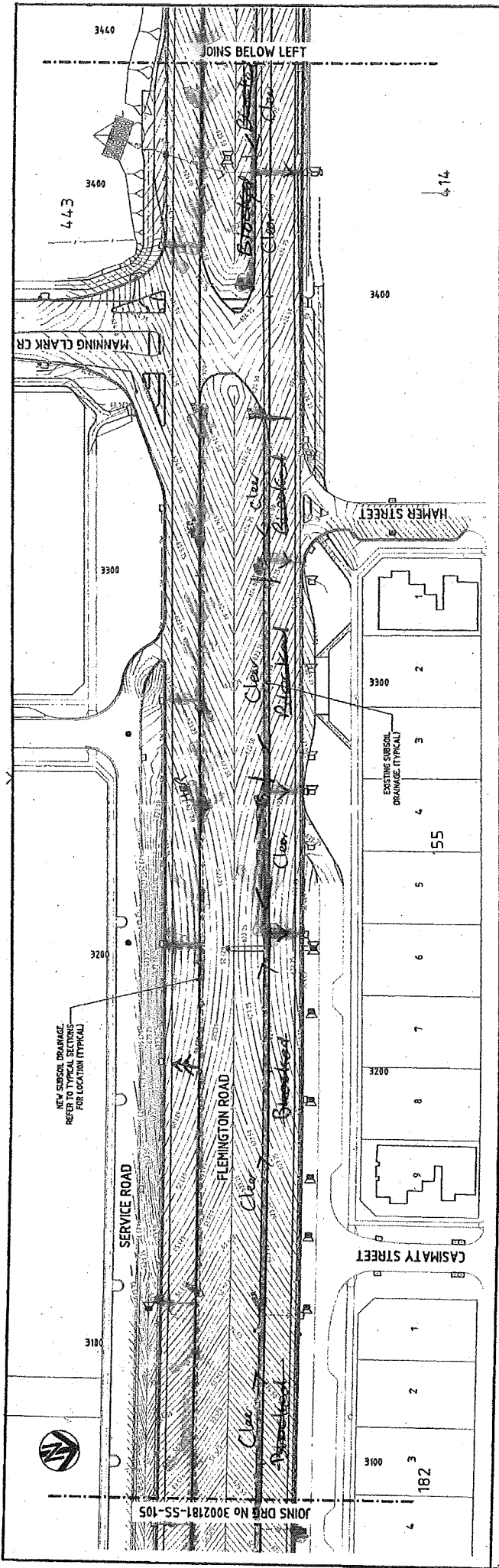
SCALE: 1:100
 SCALE USED: AS SHOWN

NO.	DATE	BY	REVISIONS
1	19 JAN 2011	M. HUGHES	ISSUED
2		A. BRADY	REVISIONS
3		R. VARGHESE	REVISIONS
4		L. FERAS	REVISIONS
5		A. PETTING	REVISIONS
6		L. SWITON	REVISIONS

NO.	DATE	BY	REVISIONS
1	19 JAN 2011	M. HUGHES	ISSUED
2		A. BRADY	REVISIONS
3		R. VARGHESE	REVISIONS
4		L. FERAS	REVISIONS
5		A. PETTING	REVISIONS
6		L. SWITON	REVISIONS

DRIVING INSTRUCTIONS / MAKE SURE YOU ARE IN THE CORRECT LANE FOR THE ROADWORK. DO NOT OVERTAKE OR PASS THE WORK ZONE. BE CAREFUL OF THE WORKERS AND MACHINERY. KEEP YOUR DISTANCE FROM THE WORK ZONE. BE CAREFUL OF THE WORKERS AND MACHINERY. KEEP YOUR DISTANCE FROM THE WORK ZONE.

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WORK AS EXECUTED

SMC AUSTRALIA PTY LTD
 DATE: 15/05/2010
 DRAWN BY: G. YEMM (G10)
 CHECKED BY: G. YEMM (G10)
 PROJECT: 3002181-SS-106

NOTE: FOR NOTES & LEGEND REFER DOC NO. 3002181-SS-01

PROJECT TITLE: FLEMINGTON ROAD DRAINAGE FROM WELL STATION DRIVE TO HAMER STREET

SUBSOIL DRAINAGE PLAN SHEET 6 OF 6

SCALE: AS SHOWN

PROJECT NO: 3002181-SS-106

DATE: 15/05/2010

SCALE: 1:100

PROJECT: 3002181-SS-106

DESIGNER: M. JORGENSEN
 CHECKER: A. BIRCHALL
 PROJECT: A. BIRCHALL

DATE: 15/05/2010

SCALE: 1:100

PROJECT: 3002181-SS-106



NRDFM280 Quality Verification Checklist

Lot No.: 131139003D241112

Process: PAVING

Contract/Work Order No.: 131139003

Mix Code : 1301024

Placement Date: 24 November 2012

Mix Type: TOGAS10 (PMB)

Tonnes Represented: 361.90

SITE RECORD SHEETS

Attached? Yes/No: <u>Yes</u>	Conforms to Spec.? Yes/No: <u>Yes</u>
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LABORATORY TEST RESULTS

Lab.Id.No.	Attached Yes/No	Conforms to Spec. Yes/No	BIR No.	BIR Accepted
21410	Yes	Yes		
21411	Yes	Yes		
21412	Yes	Yes		

Sampling & Testing Frequencies Correct? Yes/No: Yes

BIR No.: _____ BIR Accepted: _____

COMPACTION & THICKNESS REPORT

Attached? Yes/No: _____	Report No.: _____
Compaction Conforms to Spec.? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	
Thickness Conforms to Spec.? Yes/No: _____	
BIR No.: _____	
Number of Cores Correct? Yes/No: _____	BIR Accepted: _____
BIR No.: _____	

OTHER LOT RELATED NCR Nos.

BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____
BIR No.: _____	BIR Accepted : _____

LOT CLOSED Y / N ? Yes

Signed: _____

Title: Quality Supervisor & Systems Support

Date: 11-December-2012

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



Plant Location: HUME

Production Date: 24/11/2012

Mix Size/Type:

Mix Approval Date: 1/07/2012

Docket No.: 4209664

Sampled at: 213.3 t

Production Lot: 241112D1301024

Lab ID No.: 021412

Specification: R123.2.1

Mix Category: Heavy Duty

Page 1 of 1

36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.3 / AS2891.8	Bulk Density	t/cu.m	Marshall - blows	-	-	-
		t/cu.m	80 c Gyrotory	2.099	-	-
	Air Voids	%	Marshall - blows	-	-	-
		%	80 c Gyrotory	13.6	-	-
	VMA	%	-	-	-	-
VFB	%	-	-	-	-	
AS2891.9.2 Gyrotory	Bulk Density	t/cu.m	-cycles Gyropac	-	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	-cycles Gyropac	-	-	-
		%	350 cycles Gyropac	-	-	-
	VMA	%	-	-	-	-
	VFB	%	-	-	-	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.430	-	-
AAAMT001	Maximum Theoretical Density	t/cu.m	-	-	-	-
	Stability	kN	Marshall	-	-	-
	Flow	kN	Marshall	-	-	-
	Stability	kN	Hubbard Field	-	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	94	87	100	95
	6.7 mm	48	41	55	48
	4.75 mm	33	26	40	34
	2.36 mm	28	23	33	28
	1.18 mm	21	16	26	21
	600 um	17	13	21	16
	300 um	11	7	15	12
	150 um	8.5	6.0	11.0	8.4
	75 um	6.2	4.7	7.7	6.3
	Binder Content %TM	5.7	5.4	6.0	5.7

Comments:

Sample taken to AS2891.1.1.

The calculated Filler/Binder Ratio of 1.1 was nominated as 1.1 with a Lower Limit of - and an Upper Limit of -



NATA Accredited
Laboratory Number:

4411

Approved Signatory:

R Jennings - Laboratory Supervisor

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



Plant Location: HUME
 Production Date: 24/11/2012
 Mix Size/Type:
 Docket No.: 4209660
 Production Lot: 241112D1301024
 Specification: R123.2.1

Mix Approval Date: 1/07/2012
 Sampled at: 124.0 t

36 Sawmill Circuit
 Hume ACT 2620
 P.O. Box 186
 Queanbeyan NSW 2620
 Phone: 02 9269 1700
 Fax: 02 9269 1797

Lab ID No.: 021411

Mix Category: Heavy Duty Page 1 of 1

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.3 / AS2891.8	Bulk Density	t/cu.m	Marshall - blows	-	-	-
		t/cu.m	80 c Gyratory	2.074	-	-
	Air Voids	%	Marshall - blows	-	-	-
		%	80 c Gyratory	14.7	-	-
	VMA	%	-	-	-	-
VFB	%	-	-	-	-	
AS2891.9.2 Gyratory	Bulk Density	t/cu.m	-cycles Gyropac	-	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	-cycles Gyropac	-	-	-
		%	350 cycles Gyropac	-	-	-
	VMA	%	-	-	-	-
	VFB	%	-	-	-	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.432	-	-
AAAMT001	Maximum Theoretical Density	t/cu.m	-	-	-	-
	Stability	kN	Marshall	-	-	-
	Flow	kN	Marshall	-	-	-
	Stability	kN	Hubbard Field	-	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
% passing AS sieve size, by weight					
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	94	87	100	95
	6.7 mm	48	41	55	48
	4.75 mm	33	26	40	35
	2.36 mm	28	23	33	25
	1.18 mm	21	16	26	19
	600 um	17	13	21	14
	300 um	11	7	15	11
	150 um	8.5	6.0	11.0	7.6
	75 um	6.2	4.7	7.7	5.6
	Binder Content %TM	5.7	5.4	6.0	5.7

Comments:

Sample taken to AS2891.1.1.

The calculated Filler/Binder Ratio of 1.0 was nominated as 1.1 with a Lower Limit of - and an Upper Limit of -



NATA Accredited Laboratory Number: 4411

Approved Signatory:

R Jennings - Laboratory Supervisor

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ASPHALTIC CONCRETE TEST REPORT

Hume Laboratory



36 Sawmill Circuit
Hume ACT 2620

P.O. Box 186
Queanbeyan NSW 2620

Phone: 02 9269 1700
Fax: 02 9269 1797

Plant Location: HUME

Production Date: 24/11/2012

Mix Size/Type:

Mix Approval Date: 1/07/2012

Docket No.: 4209657

Sampled at: 24.7 t

Production Lot: 241112D1301024

Lab ID No.: 021410

Specification: R123.2.1

Mix Category: Heavy Duty

Page 1 of 1

Test Method	Property	Unit	Compaction Type	RESULT	Specification	
					Min.	Max.
AS2891.9.3 / AS2891.8	Bulk Density	t/cu.m	Marshall - blows	-	-	-
		t/cu.m	80 c Gyratory	2.072	-	-
	Air Voids	%	Marshall - blows	-	-	-
		%	80 c Gyratory	14.9	-	-
	VMA	%	-	-	-	-
VFB	%	-	-	-	-	
AS2891.9.2 Gyratory	Bulk Density	t/cu.m	cycles Gyropac	-	-	-
		t/cu.m	350 cycles Gyropac	-	-	-
AS2891.8	Air Voids	%	cycles Gyropac	-	-	-
		%	350 cycles Gyropac	-	-	-
	VMA	%	-	-	-	-
	VFB	%	-	-	-	-
AS2891.7.3	Maximum Density	t/cu.m	-	2.436	-	-
AAAMT001	Maximum Theoretical Density	t/cu.m	-	-	-	-
	Stability	kN	Marshall	-	-	-
	Flow	kN	Marshall	-	-	-
	Stability	kN	Hubbard Field	-	-	-

AS2891.3.1 Solvent used: Toluene	Particle Size Distribution	Nominated Value	Production Limits		RESULT
			Min.	Max.	
			% passing AS sieve size, by weight		
	53.0 mm	100	100	100	100
	37.5 mm	100	100	100	100
	26.5 mm	100	100	100	100
	19.0 mm	100	100	100	100
	13.2 mm	100	100	100	100
	9.5 mm	94	87	100	95
	6.7 mm	48	41	55	47
	4.75 mm	33	26	40	35
	2.36 mm	28	23	33	25
	1.18 mm	21	16	26	20
	600 um	17	13	21	15
	300 um	11	7	15	11
	150 um	8.5	6.0	11.0	8.5
	75 um	6.2	4.7	7.7	6.4
	Binder Content %TM	5.7	5.4	6.0	5.7

Comments:

Sample taken to AS2891.1.1.

The calculated Filler/Binder Ratio of 1.1 was nominated as 1.1 with a Lower Limit of - and an Upper Limit of -



NATA Accredited
Laboratory Number:

4411

Approved Signatory:

R Jennings - Laboratory Supervisor

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ASPHALT PAVING SITE RECORD SHEET

Paving Lot No. **13139003** DATE **24.11.12** AC TYPE / LAYER CODE **FOGASIO (PM3)** LAYER **WEG** DEPTH **100mm** CUSTOMER ORDER / CONTRACT NO. **gscoline**

Downer Epi Job No. **13139003** SITE No. **Flemington Rd** ROAD AND/OR LOCATION **Flemington Rd** CUSTOMER **gscoline**

IS BASE SUITABLE FOR PAVING TO START **Y/N**

BUSINESS IMPROVEMENT REPORT (BIR) No. (if raised)

TACKCOAT TYPE: **200 (S)** ROAD AND/OR LOCATION: **Flemington Rd**

PAVEMENT TEMPERATURE (deg. C): **14** APPLICATION RATE: **100**

ACTIVITY DOCKET NUMBER	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	TIME PROGRESSIVE TONNES	TEMP. VEL.	CARRIAGE WAY	LANE OR RUIN	TIME CHAINAGE START	TIME CHAINAGE END	TEMP. VEL.	PAVING GANG	TEMP. (deg. C)			SHAPE mm.	DIR./LT
													(A)	(B)	(C)		
101	6:00	6:30															
313	8:15	8:15			12.04								172	160			
314	8:45	8:45			24.08								155	151			
315	9:00	9:00			57.92								156	150			
316	9:15	9:25			89.40								150	140			
317	9:25	9:30															
318	9:30	9:45			123.96								165	157			
319	9:50	1:00			155.96								170	159			
320	9:45	9:50			146.24								163	154			
321	10:00	10:15															
322	10:15	10:25			181.26												
323	10:25	10:40															
324	11:00	12:45			213.34												
325	10:40	1:00															
326	12:45	1:00			225.46												

NOTES FOR THE USE OF THIS FORM ARE TO BE FOUND ON THE BACK.

ACTIVITY KEY:
 1. Travel to site
 2. Set-up
 Paving:
 3A - Coursework
 3B - Straights
 3C - Parking Bay
 3D - Correction
 3E - Patching
 3F - Handwork
 3G - Roundabout
 3H - Intersection

COMPLETED BY: Scott W

12. Taking levels
 13. Clear-up
 14. Post-job inspection
 15. Travel back to yard
 16. LT waiting for Traffic Control
 17. LT waiting for access
 18. LT caused by customer



ASPHALT PAVING SITE RECORD SHEET

Paving Lot No. _____ of _____
 Downroad EDI Job No. 13139003 DATE 24.11.12
 AC TYPE / LAYER CODE Toga 10 (AMB) Flemingston RD LAYER WEAR DEPTH 15 mm CUSTOMER gipcline
 SITE No. _____ CUSTOMER ORDER / CONTRACT No. _____

IS BASE SUITABLE FOR PAVING TO START Y/N

BUSINESS IMPROVEMENT REPORT (BIR) No. (if raised): _____

TACKCOAT TYPE: *2.5mm / 5.0mm*

PAVEMENT TEMPERATURE (deg. C): _____

ROAD AND / OR LOCATION: *Flemingston Rd*

TACKCOAT BROKEN Y/N

APPLICATION RATE: *0.2*

ACTIVITY	DOCKET NUMBER	WIND VELOCITY (km/hour)	PAVEMENT TEMPERATURE (deg. C)	ACTIVITY COMMENCED	ACTIVITY FINISHED	TRUCK WAITING TIME	TRUCK HOURLY HIRE	PROGRESSIVE TONNES	TEMP. VEL.	CARRIAGE WAY	TEMP. VEL.	LANE OR RUN	CHAINAGE START	CHAINAGE END	TIME	OFFSET	LOAD TEMP. deg. C	PAVING GANG	TEMP. (deg. C)			SHAPE CONT.	BIR. LT
																			JOINT	MAT	DIR.		
701	420976	3B	1.15	1.25	1.50			259.74									165		152				
702	420967	3B	1.35	1.35	1.35			272.08									155		148				
703	420966	3B	1.50	2.15	2.40			305.36									168		155				
704	420968	3B	2.25	2.25	2.40			317.36									161		157				
705	420966	3B	2.40	2.40	2.50			349.62															
706	420967	3B	2.50	2.50	3.30			361.90															
713		1.7		3.30	4.10																		

COMPLETED BY: *Scott M*

Notes for the use of this form are to be found on the back.

- ACTIVITY KEY**
- 1. Travel to site
 - 2. Set-up
 - 3A - Countdown
 - 3B - Straights
 - 3C - Parking Bays
 - 3D - Correction
 - 3E - Patching
 - 3F - Handover
 - 3G - Roundabout
 - 3H - Intersection
 - 4. Smoke
 - 5. Lunch
 - 6. LT Weather
 - 7. LT Breakdown
 - 8. LT Mix
 - 9. Waiting for Mill
 - 10. LT Perished Cars
 - 11. Travel to next job
 - 12. Tasking levels
 - 13. Clear-up
 - 14. Post-job inspection
 - 15. Travel back to yard
 - 16. LT waiting for Traffic Control
 - 17. LT waiting for address
 - 18. LT caused by customer