

REPORT

VicUrban c/- Dalton Consulting
Engineers Pty Ltd

Level 1 Inspection and Testing-
Riverwalk Estate, Stages 1A & 1B,
Werribee



Report prepared for:

VicUrban c/- Dalton Consulting Engineers Pty Ltd

Report prepared by:

Tonkin & Taylor Pty Ltd

Distribution:

VicUrban c/- Dalton Consulting Engineers Pty Ltd

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Tonkin & Taylor Pty Ltd (FILE)

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June 2011

T&T Ref: 1893.000.R1



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1 INTRODUCTION

Tonkin & Taylor Pty Ltd has been engaged by Dalton Consulting Engineers Pty Ltd (DCE) on behalf of its client VicUrban, to provide inspection and testing services on all earthworks (including stripping, proof rolling and associated works) during the filling of Stages 1A and 1B at Riverwalk Estate, Werribee.

The Level 1 inspection and testing of earthworks was carried out by Chadwick T&T Pty Ltd (CT&T) under the guidance of T&T and in accordance with AS3798-2007, *Guidelines on earthworks for commercial and residential developments*, with frequency of field density tests as per a Type 1 project (large scale operations).

2 PROJECT DETAILS

Project Name	:	Riverwalk Estate Lots in Stages 1A & 1B
Project Location	:	Old Geelong Road
Municipality	:	Werribee
Client	:	VicUrban
Client's Representative	:	Mr Ross McDonald, Dalton Consulting Engineers Pty Ltd
Contractor	:	Excel Gray Bruni (Vince Rainone)
Inspected by	:	Mr Baris Yildiz (Geotechnical Engineer)
Supervised & Tested by	:	Mr Boban Taseski (Technical Officer), Mr Chris Paros (Senior Technical Officer) & Michael Di Meglio (Senior Technical Officer)

The location of the site is shown in Figure 1 and a site plan is included in Appendix A.

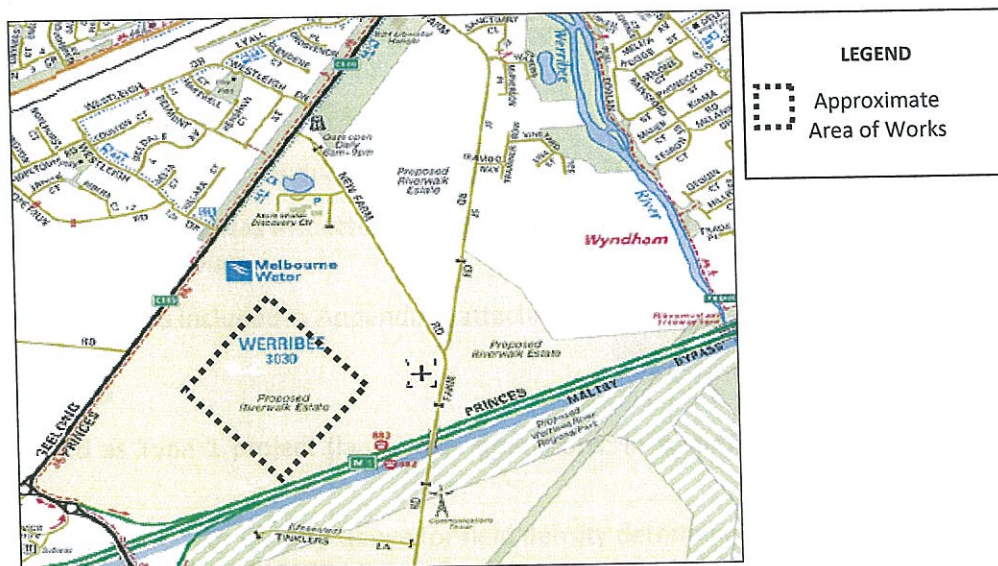


Figure 1: Location of Site
Source: Melways Map 205 Grid F11
Not to Scale

3 GEOLOGY

The Australia 1:63,360 Geological Series Map produced by the Geological Survey of Victoria indicates that the site is underlain by Quaternary Pleistocene Deutgam Silt.

4 SPECIFICATION

Initially fill was imported typically silty clay with high plasticity. Particles up to 150mm size were permitted in the lower layers of fill along proposed roads. From late March fill was derived from the excavation of the floodway within Stage 1 of the development.

CT&T sampled the imported clay fill and the site derived silty clay fill and carried out a suite of laboratory tests to determine appropriate values for the reference density (i.e. standard maximum dry density) and optimum moisture content. A summary of the Moisture Density Relationship test results are given in Table 1 and laboratory test reports are included in Appendix B.

Table 1 Summary of the Moisture Density Relationship tests

Material Source/Location	Date Sampled	Report Number	Sample Number	Max Dry Density (t/m ³)	Optimum Moisture Content (%)
In Situ	10/06/2010	405554-5	1002837	1.88	16.0
In Situ	10/06/2010	405554-5	1002839	1.67	20.5
Imported Fill	20/01/2011	306344-4	1100255	1.47	29.0
In Situ (Floodway borrow pit)	5/05/2011	306344-65	1102093	1.82	15.0

The dry density ratio (DDR) to be achieved was specified to be 95% of Standard Maximum Dry Density (SMDD) in accordance with AS3798 Table 5.1, within moisture content limits of 3.0% wet and 3.0% dry of optimum moisture contents.

5 INSPECTIONS

Inspections of the filling operation were conducted from 18th January 2011 to 9th May 2011.

Prior to any fill being placed, the site was inspected to confirm the suitability of the subgrade for the commencement of the filling procedure.

A summary of inspection works is included in Appendix C attached.

6 TESTING

The project was classified as Type 1 project (large scale operations) in accordance with Table 8.1 AS3798-2007.

Tests were performed using a Nuclear Density Gauge for field density determinations (AS1289.5.8.1) and the Hilf Rapid Compaction Test (AS1289.5.7.1) for laboratory peak converted wet density determinations.

A total of two-hundred and forty (240) tests were performed. The results show that the minimum density ratio was achieved at moisture contents that varied between 3.0% wet and 3.0% dry of optimum moisture content.

A total of thirty-four (34) tests failed to achieve the minimum density and moisture variation requirements and the areas were subsequently reworked and retested until the minimum requirements were achieved.

A summary of Hilf Density Ratio Reports is included in Appendix D. Hilf Density Ratio Reports and Inspection Records are included in Appendix E.

7 CONCLUSION

On the completion of the earthworks and after analysing the results achieved, it is concluded, so far as it is able to be determined, that the placement and compaction of fill performed by Excel Gray Bruni on Stages 1A & 1B at Riverwalk Estate, Werribee, satisfied the requirements of the Specification. The Controlled Fill Certificates issued are presented in Appendix F.

8 APPLICABILITY

This report has been prepared in good faith in accordance with the Tonkin & Taylor Pty Ltd quality system, for the filling process performed by Excel Gray Bruni on Lots in Stages 1A & 1B at Riverwalk Estate, Werribee under contract to VicUrban and its representative, Dalton Consulting Engineers. No responsibility or liability will be accepted for the use of this report for any purpose other than for that which T&T Pty Ltd was engaged, specifically Level One Supervision.

This report is based on the nature of the project and the conditions present in, or factors affecting the soil as at the time of inspection, namely 18th January 2011 to 9th May 2011. No responsibility or liability will be accepted, and T&T Pty Ltd is indemnified to the full extent permitted by law in respect of the use of this Report where there has been a change in the nature of the project or the conditions on site that may alter or affect the conclusions of this report.

No responsibility or liability is accepted where any part of this report is used in isolation, out of context or without consideration of the total document.

Should you require any further information regarding this report, please do not hesitate to contact the undersigned on (03) 8796 7900.

This report was prepared by:

Baris Yildiz (*BE, Civil Engineer*)
Geotechnical Engineer

QA Reviewed By:



David Mangan
Technical Director- Geotechnical & Pavements
Tonkin & Taylor Pty Ltd

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Appendix A: Site Plan

Drawing File: G:\Projects\10902A DP1\10902A DP1\10902A DP1.dwg - 10902A DP1
Date/Time: Tue Jan 11, 2011 11:32:40am - pchadwick

FOR CONTINUATION REFER SHEET 7

FUTURE STAGE 1B

FUTURE STAGE

FUTURE STAGE

STREET NAME	GAS		NO WATER		WATER		TELSTRA		OPTIC FIBRE		ELECTRICITY		SEWER	
	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET
NEWMARKET RD CH0-CH178.200	N	1.80	N	0.80	N	1.30	S	0.80	S	1.80	S	1.30	-	-
NEWMARKET RD CH178.200-CH271.119	N	3.10	N	2.10	N	2.60	S	1.75	S	2.55	S	2.05	-	-
EXPLORATION AVE CH0-270.00	E	2.10	E	2.60	E	3.10	W	1.75	W	2.55	W	2.05	W	1.00
EXPLORATION AVE CH270.00-499.76	E	2.10	E	2.60	E	3.10	W	1.75	W	2.55	W	2.05	E	1.00
AV4	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	-	-
FLOURISH WAY	E	2.10	E	2.60	E	3.10	W	1.75	W	2.55	W	2.05	-	-
HAMLET ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	N	1.00
CANOPY WAY	E	2.10	E	2.60	E	3.10	W	1.75	W	2.55	W	2.05	W	1.00
SUPPLE ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	S	1.00
ALLIANCE ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	-	-
LEAGUE ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	-	-
HUB ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	S	1.00
BAND LANE	-	-	-	-	-	-	-	-	-	-	N	2.05	S	1.00

NOTE: LOCATIONS OF LIGHT POLES SHOWN ON ALL TYPICAL SECTIONS ARE ONLY INDICATIVE AND NOT THE EXACT LOCATION OF PROPOSED LIGHT POLES. PROPOSED TREES SHALL BE CLEAR OF SERVICES AND LOCATED AT A SUITABLE LOCATION THAT WILL MINIMISE DAMAGE TO ADJUTING SERVICES.

WARNING!
THE LOCATION OF EXISTING SERVICES SHOWN ON THESE PLANS MUST BE PROVEN ON SITE, THE APPROPRIATE AUTHORITY MUST BE CONTACTED AND THE SERVICES LOCATED PRIOR TO COMMENCEMENT OF ANY WORKS.

COUNCIL REF 75/110/4235/10/E/1A

NOT TO BE USED FOR CONSTRUCTION

REV	AMENDMENTS	DATE	APPD.
F	COUNCIL COMMENTS 10/12/10	14/12/10	TL
E	COUNCIL COMMENTS 10/12/10	10/12/10	TL
D	COUNCIL COMMENTS 28/11/10	6/12/10	TL
C	COUNCIL COMMENTS 5/11/10	12/11/10	TL
B	COUNCIL SUBMISSION	15/10/10	TL
A	TENDER ISSUE	30/09/10	TL

Drawn OH Date 16/07/10
Designed LT Date 12/07/10
AN 25226
Verified X
Date X
AN X
Audited RCM
Date X
AN X
Approved TL
Date X
AN X
Written dimensions to take precedence over scale.
Contractor shall check and verify all dimensions on site.
Discrepancies to be brought to the attention of the Superintendent.

Ex W EXISTING WATER MAIN
Ex G EXISTING GAS MAIN
Ex E EXISTING ELECTRICAL CABLE
Ex S EXISTING SEWER MAIN & MANHOLE
Ex T EXISTING TELECOMM. CABLE AND PIT
Ex P EXISTING ELEC. POLE & O'HEAD LINES
X EXISTING STORMWATER DRAIN & PIT
X EXISTING TREES TO BE REMOVED
FS21.650 EXISTING SURFACE LEVEL
FS21.650 FINISHED SURFACE LEVEL
FS21.650 OPEN EARTH DRAIN (O.E.D.)

S SEWER MAIN AND MANHOLE
SD STORMWATER DRAIN & PIT
SD SW DRAIN & PIT
H HOUSE DRAIN
GC GAS CONDUIT
WC WATER CONDUIT
RWC RECYCLED WATER CONDUIT
TC TELECOMM. CONDUIT
PMS PERMANENT SURVEY MARK
TBM TEMPORARY BENCH MARK
FS FINISHED SURFACE CONTOUR

OF OPTIC FIBRE
W WATER
RW RECYCLED WATER
T TELECOMMUNICATIONS
E ELECTRICITY
G GAS
SS STREET NAME SIGN
R LOT 1 IN 150
A ASPHALT PAVEMENT
P PLAIN CONC FOOTPATH / DRIVEWAY
L LANDSCAPING
B BATTER 1 IN 6

CHARCOAL COLOURED CONCRETE
PORPHYRY STONE
DARK GREY EXPOSED AGGREGATE
CRUSHED ROCK TEMPORARY TURNING BAY



Coords: Levels: AHD
Hor 1:500 0m 5m 10m 20m 30m
Scale @ A1/A3 1:500/1:1000

VicUrban
RIVERWALK
GEELONG ROAD, WERRIBEE
STAGE 1A
DETAIL PLAN
Drawing No. 10902A DP1 Rev F
Sheet No. 06 PRELIMINARY
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ABN 78 428 221 018

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FOR CONTINUATION REFER SHEET 8

WARNING!
THE LOCATION OF EXISTING SERVICES SHOWN
ON THESE PLANS MUST BE PROVEN ON SITE,
THE APPROPRIATE AUTHORITY MUST BE
CONTACTED AND THE SERVICES LOCATED PRIOR
TO COMMENCEMENT OF ANY WORKS.

FOR CONTINUATION REFER SHEET 6

**NOT TO BE USED FOR
CONSTRUCTION**

REV	AMENDMENTS	DATE	APP'D.
D	COUNCIL COMMENTS 26/11/10	6/12/10	TL
C	COUNCIL COMMENTS 5/11/10	12/11/10	TL
B	COUNCIL SUBMISSION	15/10/10	TL
A	TENDER ISSUE	30/09/10	TL

Drawn OH Date 16/07/10

Designed LT Date 12/07/10

AN 25227

Verified X

Date X

AN X

Audited RCM

Date X

Approved TL

Date X

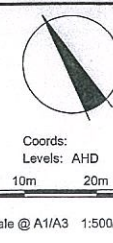
AN X

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- Ex W EXISTING WATER MAIN
- Ex G EXISTING GAS MAIN
- Ex E EXISTING ELECTRICAL CABLE
- Ex S EXISTING SEWER MAIN & MANHOLE
- Ex T EXISTING TELECOMM. CABLE AND PIT
- Ex P EXISTING ELEC. POLE & O'HEAD LINES
- Ex D EXISTING STORMWATER DRAIN & PIT
- Ex T EXISTING TREES TO BE REMOVED
- NS20.06 EXISTING SURFACE LEVEL
- FS21.650 FINISHED SURFACE LEVEL
- OPEN EARTH DRAIN (O.E.D.)
- S SEWER MAIN AND MANHOLE
- STORMWATER DRAIN & PIT
- PREVIOUS STAGE SW DRAIN & PIT
- PROPERTY INLETS
- HOUSE DRAIN
- GAS CONDUIT
- WATER CONDUIT
- RECYCLED WATER CONDUIT
- TELECOMM. CONDUIT
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- FINISHED SURFACE CONTOUR
- OF OPTIC FIBRE
- W WATER
- RW RECYCLED WATER
- T TELECOMMUNICATIONS
- E ELECTRICITY
- G GAS
- STREET NAME SIGN
- REGRADE LOT AT MIN 1 IN 150
- ASPHALT PAVEMENT
- PLAIN CONC FOOTPATH / DRIVEWAY
- LANDSCAPING
- BATTER 1 IN 6
- CHARCOAL COLOURED CONCRETE
- PORPHYRY STONE
- DARK GREY EXPOSED AGGREGATE
- CRUSHED ROCK TEMPORARY TURNING BAY



VicUrban
RIVERWALK
GEELONG ROAD, WERRIBEE
STAGE 1A
DETAIL PLAN
Drawing No. 10902A DP2 Rev D
Sheet No. 07
PRELIMINARY
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ABN 78 428 221 048

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Project File: C:\projects\10902B DP1\10902B DP1.dwg
 10902B DP1.dwg - 10/03/2011
 Date/Time: Tue Jan 11, 2011 - 3:25pm
 User: michel.reid

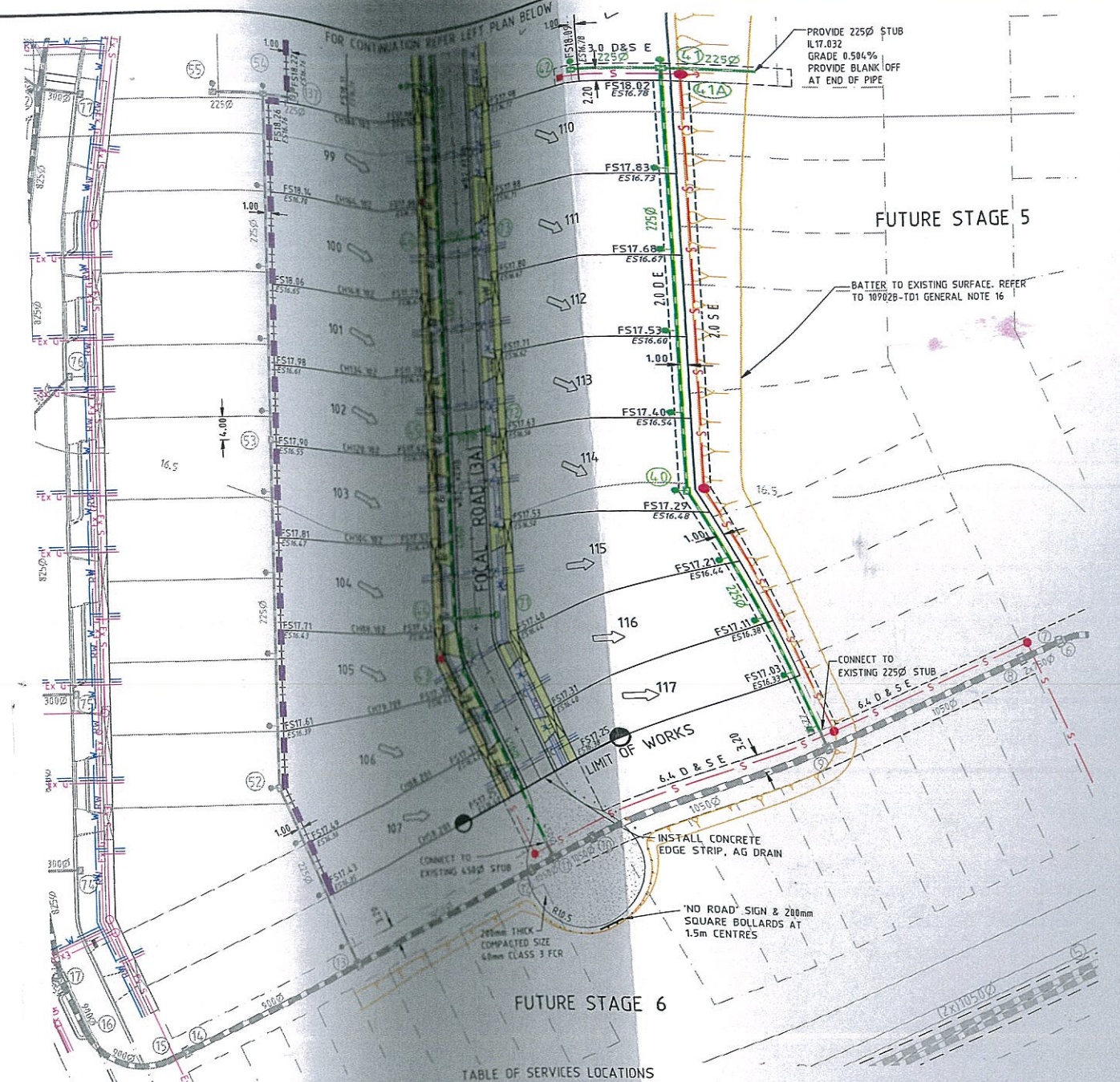
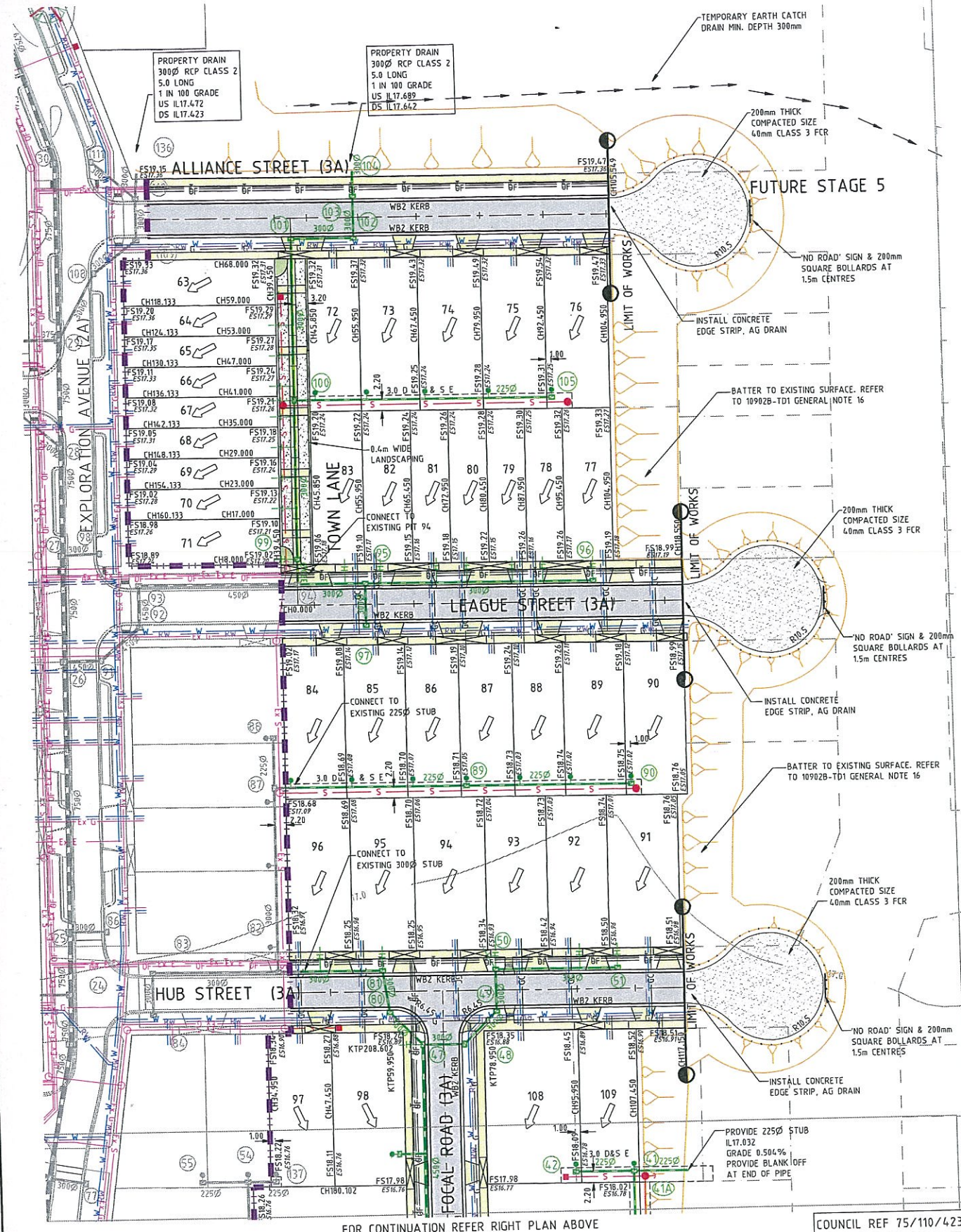


TABLE OF SERVICES LOCATIONS

STREET NAME	GAS		NO WATER		WATER		TELSTRA		OPTIC FIBRE		ELECTRICITY		SEWER	
	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET
HUB ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	S	1.00
ALLIANCE ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	-	-
LEAGUE ST	S	2.10	S	2.60	S	3.10	N	1.75	N	2.55	N	2.05	-	-
FOCAL RD	E	2.10	E	2.60	E	3.10	W	1.75	W	2.55	W	2.05	W	1.00
TOWN LANE	-	-	-	-	-	3.15	-	-	-	-	-	-	W	1.00

WARNING!
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REV	AMENDMENTS	DATE	APPD.
D	COUNCIL COMMENTS 26/11/10	08/12/10	TL
C	COUNCIL COMMENTS 5/11/10	12/11/10	TL
B	COUNCIL SUBMISSION	15/10/10	TL
A	TENDER ISSUE	30/09/10	TL

Drawn OH Date 16/07/10
 Designed LT Date 12/07/10
 AN 25295
 Verified X
 Date X
 AN X
 Audited RCM
 Date X
 AN X
 Approved TL
 Date X
 AN X
 Written dimensions to take precedence over scale.
 Contractor shall check and verify all dimensions on site.
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- Ex S - EXISTING SEWER MAIN & MANHOLE
- Ex T - EXISTING TELECOMM. CABLE AND PIT
- Ex P - EXISTING ELEC. POLE & D/HEAD LINES
- Ex D - EXISTING STORMWATER DRAIN & PIT
- Ex R - EXISTING TREES TO BE REMOVED
- Ex L - EXISTING SURFACE LEVEL
- Ex F - EXISTING FINISHED SURFACE LEVEL
- Ex O - EXISTING OPEN EARTH DRAIN (O.E.D.)
- S - SEWER MAIN AND MANHOLE
- SD - STORMWATER DRAIN & PIT
- SW - PREVIOUS STAGE SW DRAIN & PIT
- PI - PROPERTY INLETS
- H - HOUSE DRAIN
- GC - GAS CONDUIT
- WC - WATER CONDUIT
- RC - RECYCLED WATER CONDUIT
- TC - TELECOMM. CONDUIT
- PM - PERMANENT SURVEY MARK
- TM - TEMPORARY BENCH MARK
- FS - FINISHED SURFACE CONTOUR
- OF - OPTIC FIBRE
- W - WATER
- RW - RECYCLED WATER
- T - TELECOMMUNICATIONS
- E - ELECTRICITY
- G - GAS
- SS - STREET NAME SIGN
- RL - REGRADE LOT AT MIN 1 IN 150
- AP - ASPHALT PAVEMENT
- PC - PLAIN CONC FOOTPATH / DRIVEWAY
- LA - LANDSCAPING
- B1 - BATTER 1 IN 6
- CR - CRUSHED ROCK TEMP. TURNING BAYS



Coords: Levels: AHD
 Scale @ A1/A3 1:500/1:1000

VicUrban
 RIVERWALK
 GEELONG ROAD, WERRIBEE
 STAGE 1B
 DETAIL PLAN
 Drawing No. 10902B DP1 Rev D
 Sheet No. 06 PRELIMINARY
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Appendix B: Laboratory Test Reports



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MOISTURE DENSITY RELATIONSHIP REPORT

Report Number: 306344

-4

Report Date: 31/01/11

CT&T Order No: -

Test Method: AS 1289.5.1.1

Page: 1 of 1

Customer: Tonkin & Taylor Australia (Vic) Pty Ltd

Customer Address: 32 Fiveways Boulevard, Keysborough VIC 3173

Project: Riverwalk Estate St 1A & 1B

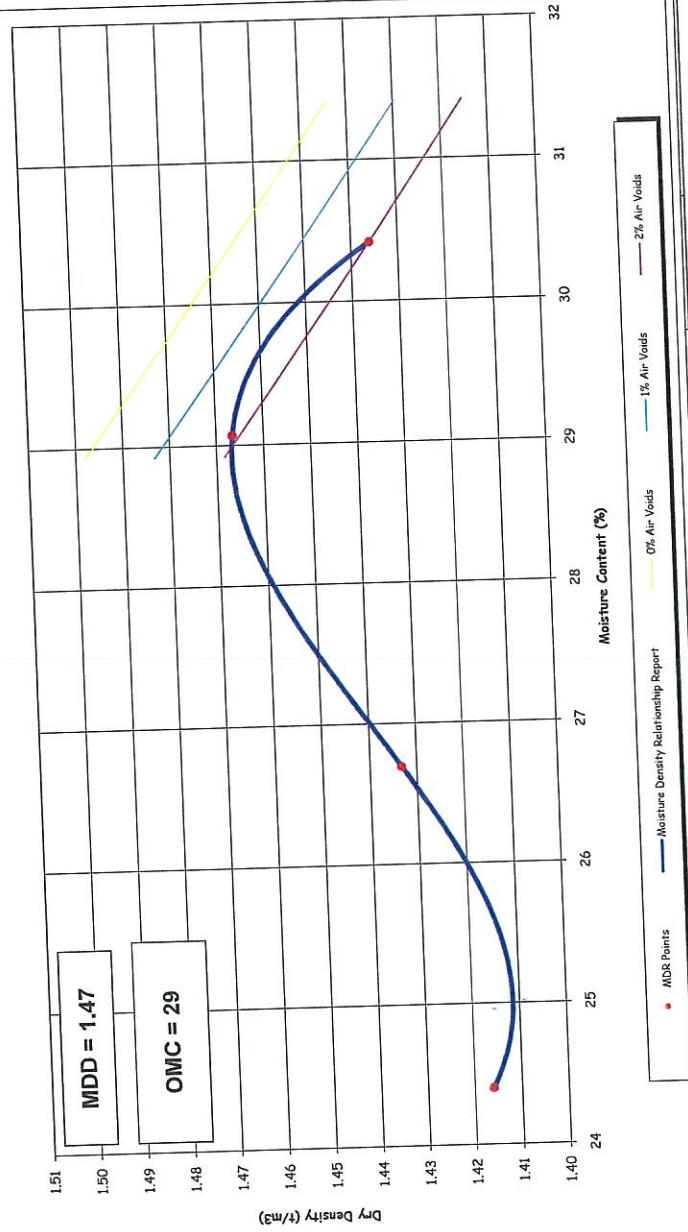
Location: Werribee

Customer Order No.: -

Testing performed and reported at our Keysborough Laboratory

Sample No.:	1100255
ID No.:	1
Lot No.:	-
Date Sampled:	20/01/2011
Time Sampled:	am
Date Tested:	22/01/2011
Material Source:	Imported
Material Type:	Silty Clay
To Be Used As	Material Analysis
Sample Location :	Stockpile
Layer Depth (mm):	-
Test Depth (mm):	-
Sampling Procedure:	AS1289.1.2.1.6.5.3
Compactive Effort	standard
Maximum Size (mm)	19.0
Oversize (%)	n/a
Moisture Content Test Method:	AS1289.2.1.1
Oversize Test Method:	n/a
Oversize Density (t/m^3):	n/a
Maximum Dry Density (t/m^3):	1.47
Optimum Moisture Content (%):	29.0

Moisture Density Relationship Graph



Remarks:

None

This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

The results of tests, calibrations and/or measurements included in this document are traceable

to Australian/national standards.

APPROVED SIGNATORY

M Di Meglio

NATA Accreditation No. 12719

APD value: 2.64 as calculated per Section 5(d) NOTE

Form No.: TC201-9

Issue Date: 1/01/2010



Chadwick

CHADWICK T&T Pty Ltd

Geotechnical and Geoenvironmental Consulting Engineers

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WARRNAMBOOL VIC 3280
Tel: (03) 5560 5214
Fax: (03) 5561 0482

www.chadwickt.com.au

MOISTURE DENSITY RELATIONSHIP REPORT

Report Number: 405554 -5

Report Date: 26/06/10

CT&T Order No: -

Test Method: AS 1289.5.1.1

Page: 1 of 2

Customer: Tonkin & Taylor Pty Ltd

Customer Address: 32 Fiveways Boulevard Keysborough 3173 VIC

Project: Riverwalk Sewer

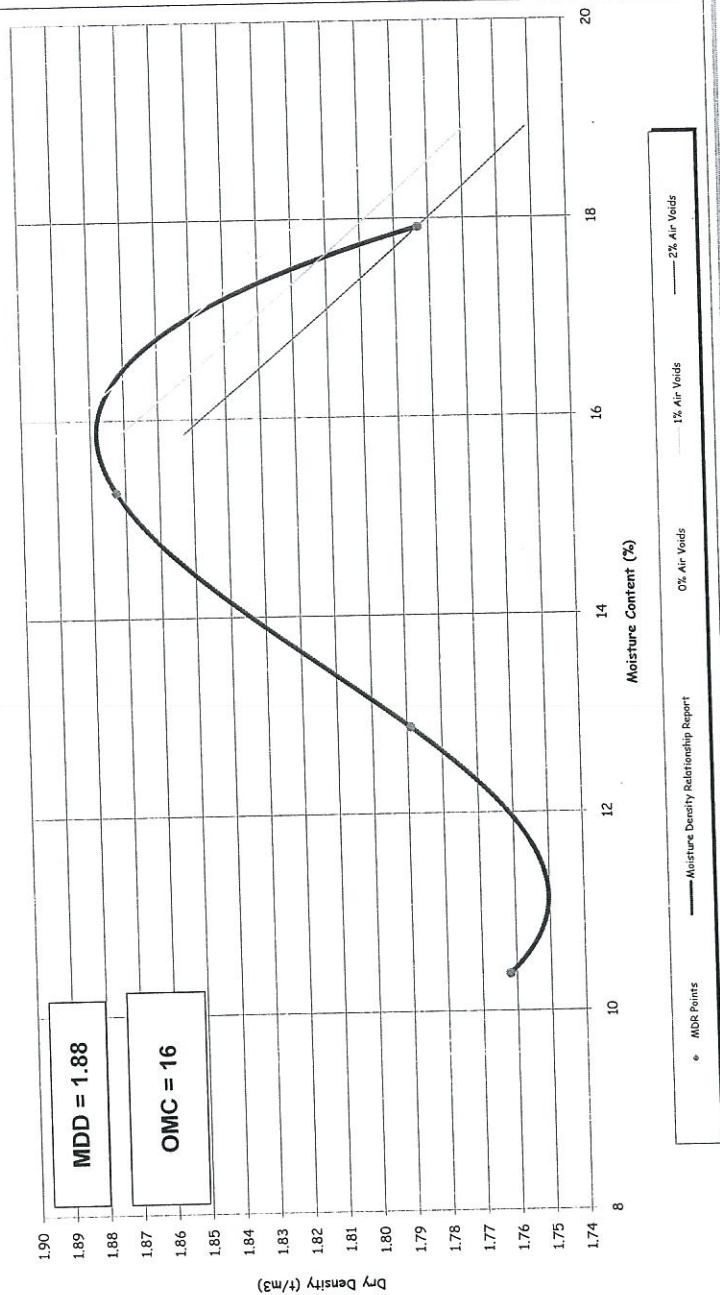
Location: Werribee

Customer Order No.: 1217

Testing performed and reported at our Keysborough Laboratory

Sample No.: 1002837
ID No.: 16
Lot No.: -
Date Sampled: 10/06/2010
Time Sampled: -
Date Tested: 15/06/2010
Material Source: In Situ
Material Type: Silty Clay
Material Analysis: Material Analysis
To Be Used As: -
Sample Location: BH 3
3.0 - 4.0m
-
-
-
Layer Depth (mm): -
Test Depth (mm): -
Sampling Procedure: AS1289.1.2.1.6.5.3
Compactive Effort: standard
Maximum Size (mm): 19.0
Oversize (%): n/a
Moisture Content Test Method: AS1289.2.1.1
Oversize Test Method: n/a
Oversize Density (t/m^3): n/a
Maximum Dry Density (t/m^3): 1.88
Optimum Moisture Content (%): 16.0

Moisture Density Relationship Graph



APD value: 2.70 as calculated per Section 5(d) NOTE

Remarks:

None

APPROVED SIGNATORY

This document is issued in accordance with NATA's accreditation requirements.
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The results of tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

M Di Meglio

NATA Accreditation No. 12719

Form No.: TC201-9

Issue Date: 1/01/2010



Chadwick
T&T

CHADWICK T&T Pty Ltd

Geotechnical and Geoenvironmental Consulting Engineers

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MOISTURE DENSITY RELATIONSHIP REPORT

Report Number: 405554

Report Date: 26/06/10

CT&T Order No: -

Test Method: AS 1289.5.1.1

Page: 2 of 2

Customer: Tonkin & Taylor Pty Ltd

Customer Address: 32 Fiveways Boulevard Keysborough 3173 VIC

Project: Riverwalk Sewer

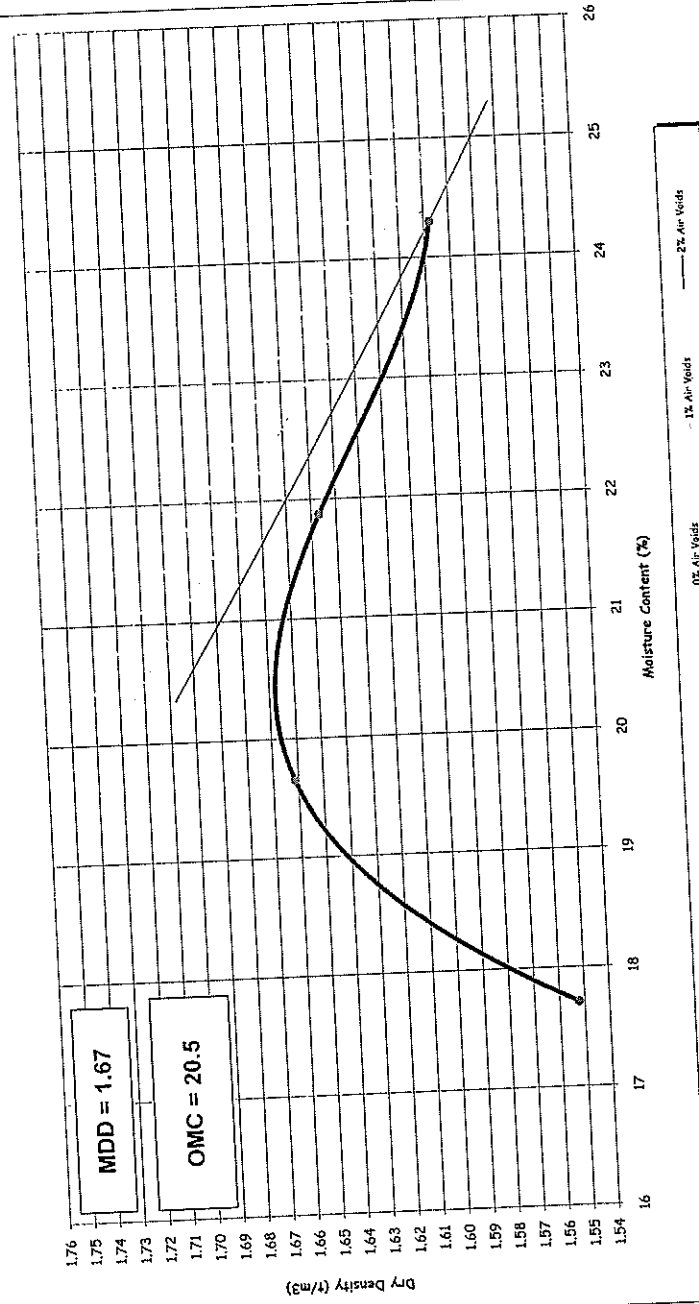
Location: Werribee

Customer Order No.: 1217

Testing performed and reported at our Keysborough Laboratory

Sample No.:	1002839
ID No.:	18
Lot No.:	-
Date Sampled:	10/06/2010
Time Sampled:	-
Date Tested:	15/06/2010
Material Source:	In Situ
Material Type:	Silty Clay
To Be Used As	Material Analysis
Sample Location :	BH 7 3.2 - 4.0m
Layer Depth (mm):	-
Test Depth (mm):	-
Sampling Procedure:	AS1289.1.2.1.6.5.3 standard
Compactive Effort	19.0
Maximum Size (mm)	n/a
Oversize (%)	AS1289.2.1.1
Moisture Content Test Method:	n/a
Oversize Test Method:	n/a
Oversize Density (t/m^3):	n/a
Maximum Dry Density (t/m^3):	1.67
Optimum Moisture Content (%):	20.5

Moisture Density Relationship Graph



1% Air Voids

0% Air Voids

2% Air Voids

APD value: 2.70 as calculated per Section 5(d) NOTE

Form No.: TC201-9

Issue Date: 10/1/2010

APPROVED SIGNATORY

M Di Meglio

Remarks: None

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MOISTURE DENSITY RELATIONSHIP REPORT

Report Number: 306344 -65

Report Date: 05/05/11

CT&T Order No: -

Test Method: AS 1289.5.1.1

Page: 1 of 1

Customer: Tonkin & Taylor Australia (Vic) Pty Ltd

Customer Address: 32 Fiveways Boulevard, Keysborough VIC 3173

Project: Rivervale Estate St 1A & 1B

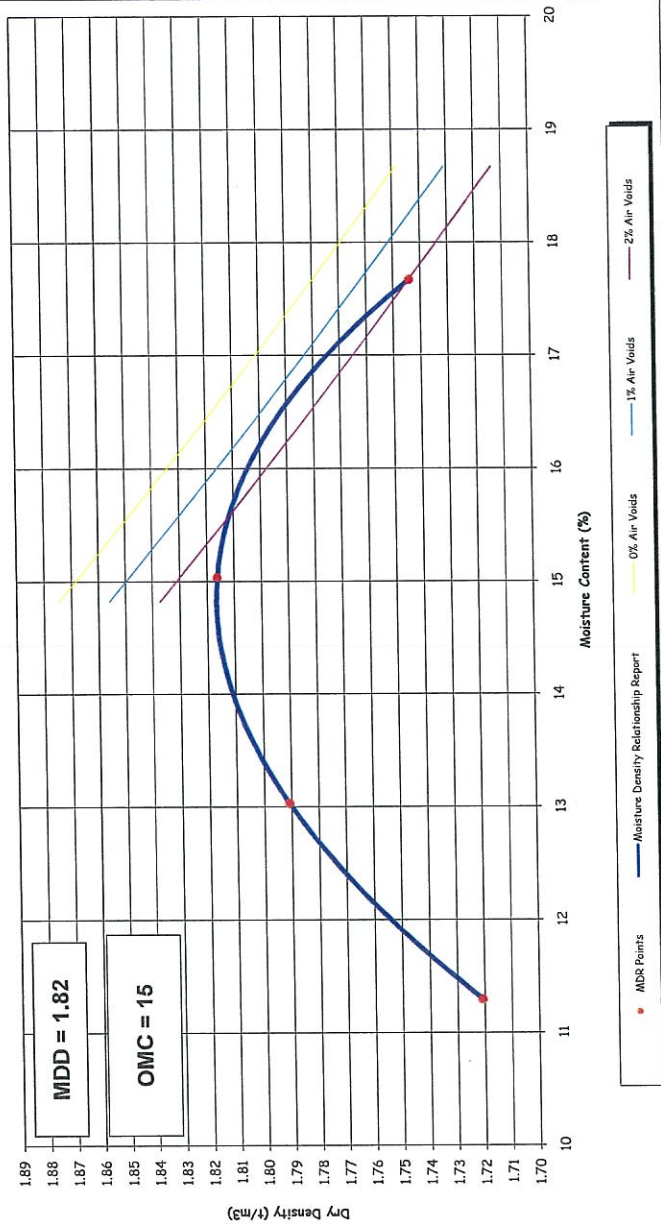
Location: Werribee

Customer Order No.: -

Testing performed and reported at our Keysborough Laboratory

Sample No.:	1102093
ID No.:	1
Lot No.:	-
Date Sampled:	5/05/2011
Time Sampled:	pm
Date Tested:	06/07/2011
Material Source:	Site Derived
Material Type:	Sandy Silty Clay
To Be Used As	Fill
Sample Location :	Floodway Borrow Pit
Layer Depth (mm):	-
Test Depth (mm):	-
Sampling Procedure:	AS1289.1.2.1.6.4(b)
Compactive Effort	standard
Maximum Size (mm)	19.0
Oversize (%)	n/a
Moisture Content Test Method:	AS1289.2.1.1
Oversize Test Method:	n/a
Oversize Density (t/m^3):	n/a
Maximum Dry Density (t/m^3):	1.82
Optimum Moisture Content (%):	15.0

Moisture Density Relationship Graph



Remarks:

None

This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
The results of tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

APPROVED SIGNATORY

M Di Meglio
NATA Accreditation No. 12719

as calculated per Section 5(d) NOTE

APD value: 2.60

Form No.: TC201-9

Issue Date: 1/01/2010