



CIVIL GEOTECHNICAL SERVICES
ABN 26 474 013 724
PO Box 678 Croydon Vic 3136
Telephone: 9723 0744 Facsimile: 9723 0799

3rd August 2018

Our Reference: 17467:NB252

Rokon Pty Ltd
1 / 75 River Street
RICHMOND VIC 3121

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
ROTHWELL – STAGE 14 (TRUGANINA)

Please find attached our Report No's 17467/R001 to 17467/R003 which relate to the field density testing that was conducted at the filled allotments of the above subdivision. The level 1 inspections and associated field density testing was performed in August 2017.

The inspections and testing of the earthworks was undertaken in general accordance with the Level 1 requirements of AS 3798 - Guidelines on Earthworks for Commercial and Residential Developments.

The site inspections and testing was performed by an experienced geotechnician from this office. Any areas that were deemed unsatisfactory were reworked and retested under their supervision. The testing was performed to the relevant Australian Standards and the accompanying test reports carry NATA endorsement. The attached compaction results, which were located randomly throughout the fill profile, are considered to be representative of the bulk fill materials that were placed across the filled allotments by Rokon during the aforementioned period. The approximate locations of the field density tests can be seen on the attached plan (Figure 1).

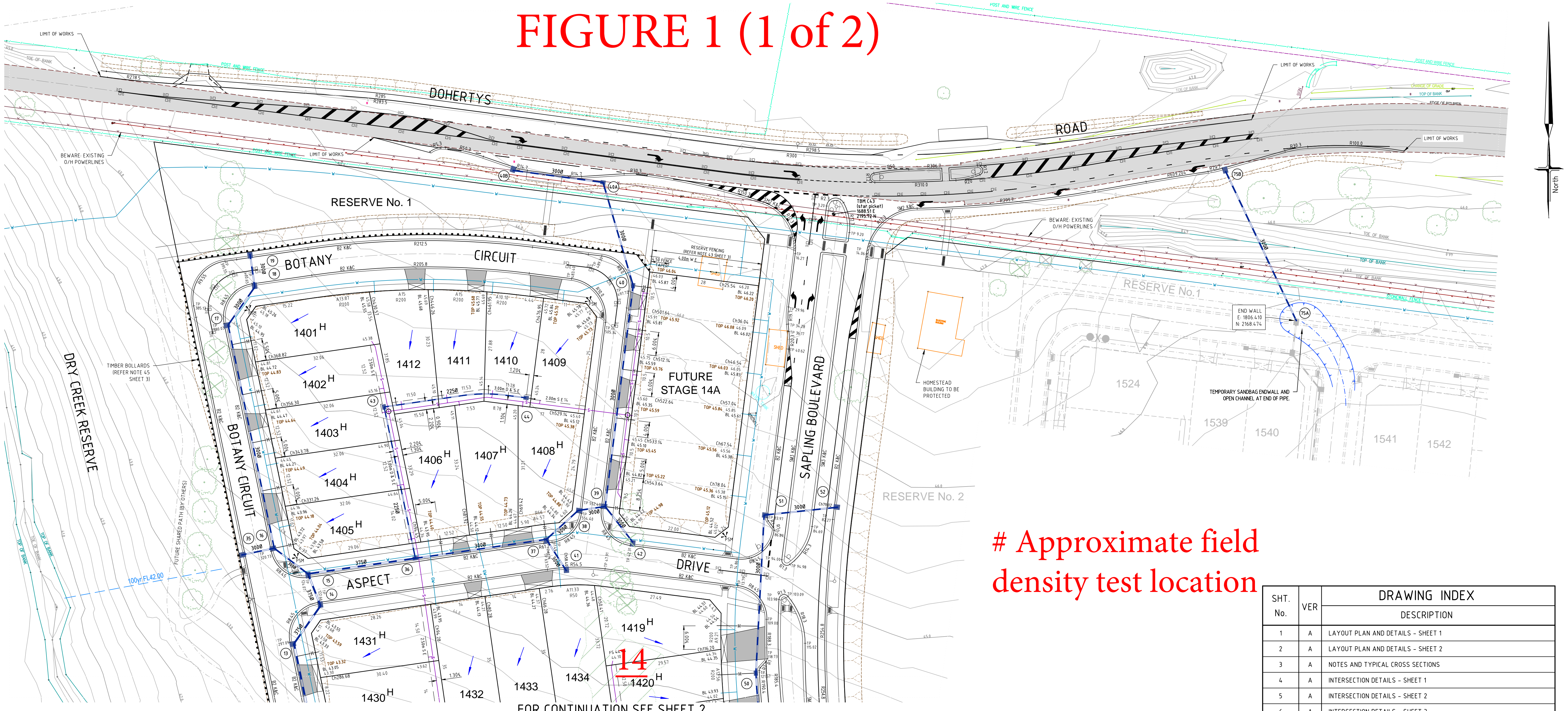
We are of the view that the bulk fill materials that have been placed across the filled allotments by Rokon during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

FIGURE 1 (1 of 2)



Approximate field density test location

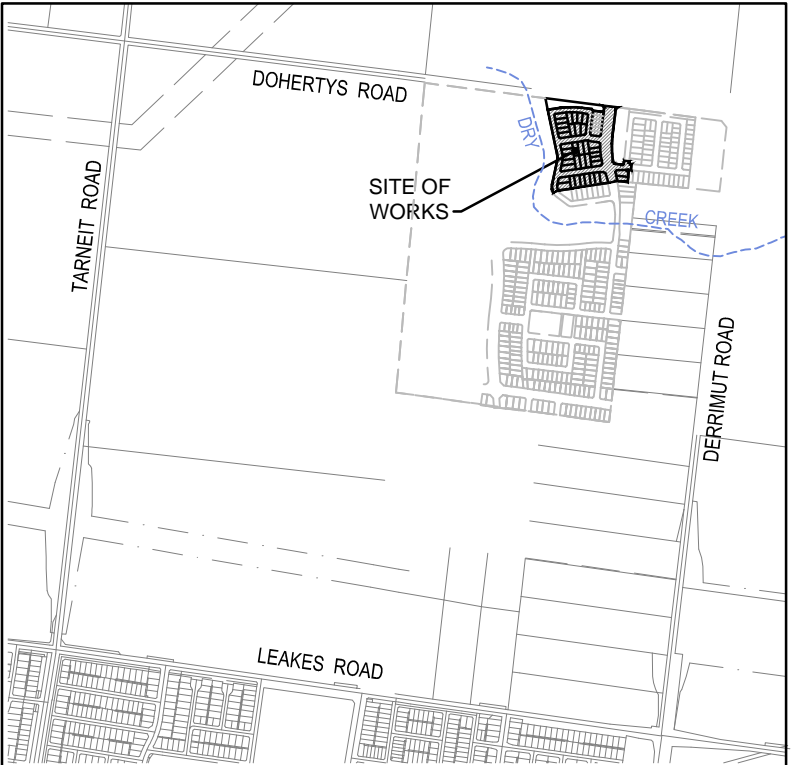
FOR CONTINUATION SEE SHEET 2

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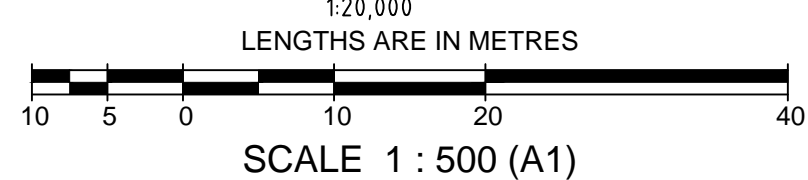
SERVICES OFFSETS AND LOCATIONS

| STREET NAME | Rd RESERVE | WATER | | SEWER | GAS | ELECTRICITY | | FIBRE TO THE HOME | | Bk. of KERB | JOINT TRENCHING |
|--------------------------------------|--------------|--------|--------|--------|--------|-----------------------|----------|-------------------|-----------|----------------------|-----------------|
| | | DW | NDW | | | CABLES | POLES | FTTH CABLES | FTTH PITS | | |
| SAPLING BOULEVARD | 31.00 VARIES | 3.70 W | 2.90 W | 0.80 E | 2.25 W | 2.70 E | 1.00 BOK | 1.85 E | 1.85 W | 9.15W / 4.35E VARIES | W & G, E & FTTH |
| ORIGIN DRIVE (WEST OF COLONIAL) | 16.00 VARIES | 3.20 S | 2.70 S | 0.80 S | 2.25 S | 2.25 N | 1.00 BOK | 1.25 N | 1.85 S | 4.35S / 4.05N VARIES | W & G, E & FTTH |
| ORIGIN DRIVE (EAST OF COLONIAL) | 16.00 | 3.20 S | 2.70 S | 0.80 S | 2.25 S | 2.60 N | 1.00 BOK | 1.85 N | 1.85 S | 4.35S / 4.05N | W & G, E & FTTH |
| COLONIAL CIRCUIT | 14.00 | 2.60 E | 2.10 E | - | 1.60 E | 3.80 E | 1.00 BOK | 3.15 E | - | 5.35E / 1.05W | W & G, E & FTTH |
| ASPECT DRIVE | 16.00 | 3.20 N | 2.70 N | - | 2.25 N | 2.60 S | 1.00 BOK | 1.85 S | 1.85 N | 4.35N / 4.05S | W & G, E & FTTH |
| STOUT STREET | 16.00 | 3.20 S | 2.70 S | 0.80 N | 2.25 S | 2.60 N | 1.00 BOK | 1.85 N | 1.85 S | 4.35S / 4.05N | W & G, E & FTTH |
| SEMBLANCE DRIVE (NORTH-SOUTH) | 14.00 | 3.60 E | 2.10 E | - | 1.60 E | 3.80 E | 1.00 BOK | 3.15 E | - | 5.35E / 1.05W | W & G, E & FTTH |
| BOTANY CIRCUIT (LOT 1401-1405) | 14.00 | 2.60 E | 2.10 E | - | 1.60 E | 3.80 E | 1.00 BOK | 3.15 E | - | 5.35E / 1.05W | W & G, E & FTTH |
| BOTANY CIRCUIT (LOT 1409-1412) | 14.00 | 2.60 S | 2.10 S | - | 1.60 S | 3.80 S | 1.00 BOK | 3.15 S | - | 5.35S / 1.05N | W & G, E & FTTH |
| BOTANY CIRCUIT (ADJACENT SUPERLOT B) | 12.00 | - | - | 1.00 E | - | 2.60 E | 1.00 BOK | 1.85 E | - | 3.60E / 2.60W | E & FTTH |
| RESERVE No. 1 | - | 2.00 S | 1.50 S | - | 1.00 S | - | - | - | - | - | W & G |
| DOHERTYS ROAD | 45.00 (fut) | - | - | - | - | O/H (Ex) 3.00 approx. | - | 1.50 S | - | VARIES | - |

PLAN 1:500



LOCALITY PLAN



LEGEND

PROPOSED DRAINAGE

DRAINAGE PIT/DIA./FLOW

PROPERTY INLET

HOUSE DRAIN

PROPOSED / EXIST SEWER

PROPOSED / EXIST WATER

FILL - PROP / EXIST

CUT - PROP / EXIST

LOT FALL

LOT LEVEL - F.S. / EXIST

F.S. AT BUILDING LINE

TOP / TOE OF BATTER

KERBING TYPE

LOT Bdy CHAINAGE

LOTS EASEMENT

STREET SIGN

LINEMARKING

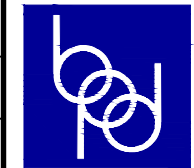
REMOVE EXIST TREE



WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ATTENTION TO CONTRACTOR

- IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETOUT PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
- CONTRACTOR TO ENSURE THAT THE SITE IS PEGGED AND OR SET OUT CHECKED BY THE LICENCED SURVEYOR RESPONSIBLE FOR CERTIFYING THE PLAN OF SUBDIVISION PRIOR TO UNDERGROUND INFRASTRUCTURE BEING INSTALLED.
- WHERE CONCRETE WORKS ABOUT A SEWER ACCESS CHAMBER SURROUND OR SIMILAR STRUCTURE, AN EXPANSION JOINT OF APPROVED MATERIAL SHALL BE PROVIDED BETWEEN THE TWO FACES.



breese pitt dixon pty. ltd.
land surveyors civil engineers

| | |
|-------------|---------|
| MELWAY REF. | 360-F10 |
| SURVEY | BPD |
| DESIGN | TBC |
| DRAWN | TBC |
| CHECKED | |

ROTHWELL WEST
STAGE 14
LAYOUT PLAN AND DETAILS - SHEET 1

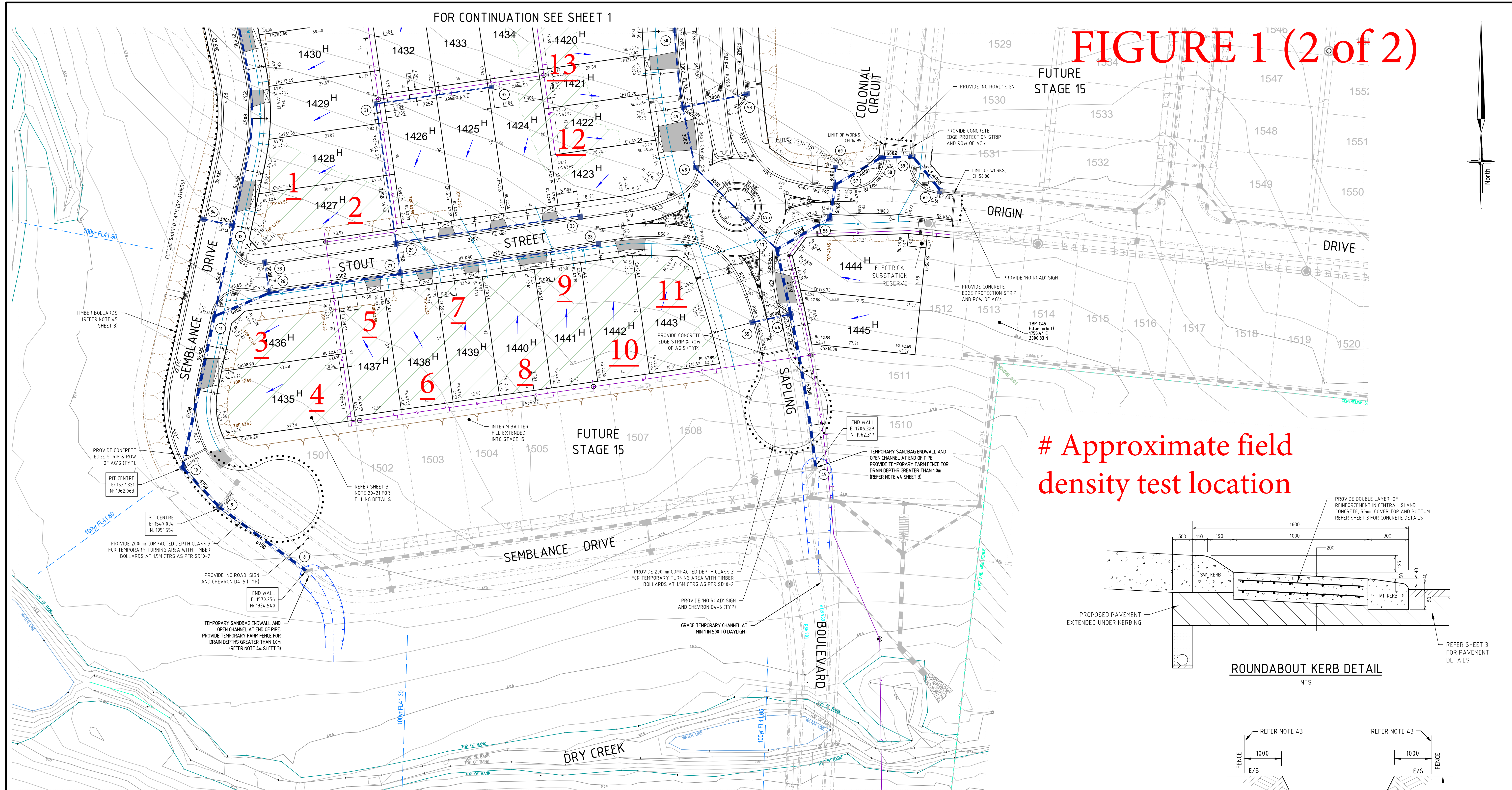
| | | | | | | | | |
|-------|----------|-------|-----|------|---------|-------|---------|---|
| SCALE | As Shown | DATUM | AHD | DATE | June'17 | SHEET | 1 OF 22 | A |
|-------|----------|-------|-----|------|---------|-------|---------|---|

1/19 cafo street
hawthorn east, 3123
telephone 8823 2300
fax no. 8823 2310

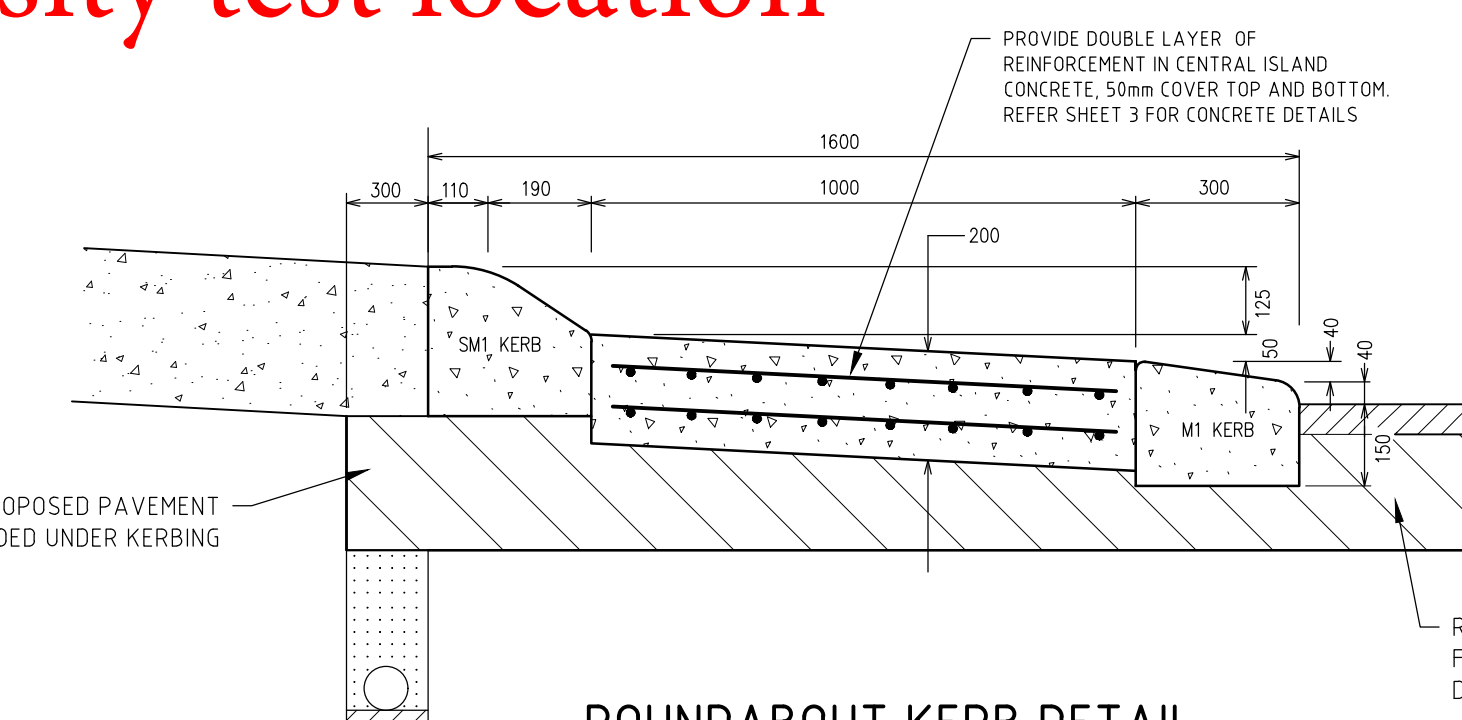
MUNICIPALITY
WYNDHAM

REFERENCE
8584 E/14

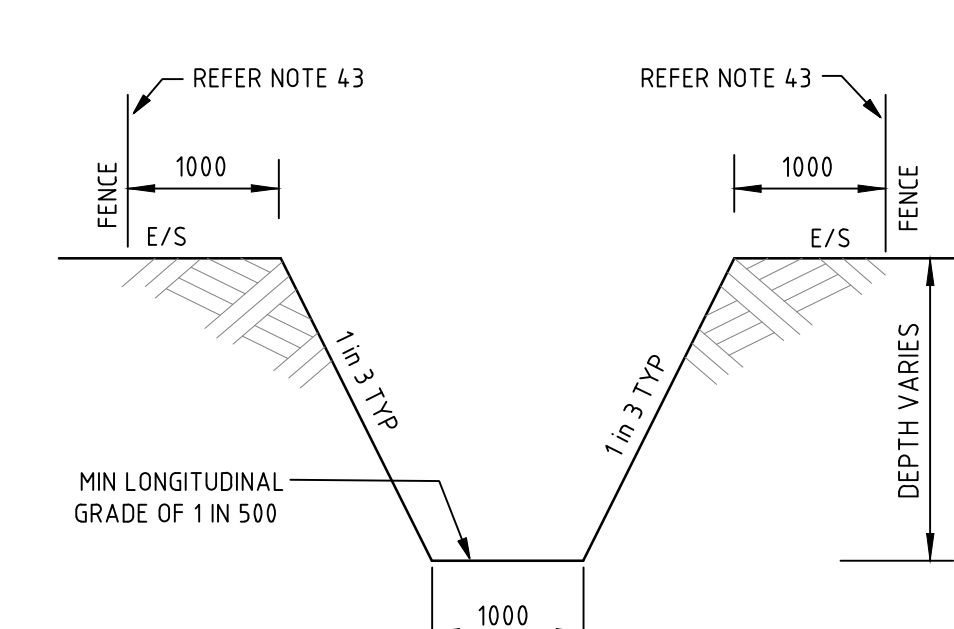
FIGURE 1 (2 of 2)



Approximate field density test location



ROUNDABOUT KERB DETAIL
NTS

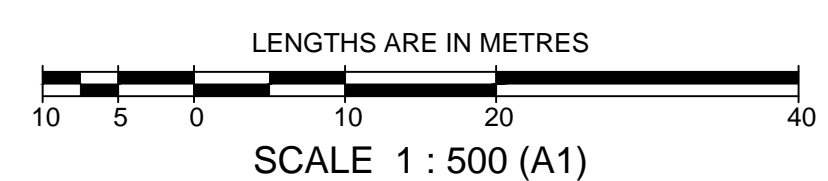


TEMPORARY OUTFALL CHANNEL DETAIL
NTS



WARNING
BEWARE OF UNDERGROUND SERVICES
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- ATTENTION TO CONTRACTOR**
- IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETOUT PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
 - CONTRACTOR TO ENSURE THAT THE SITE IS PEGGED AND OR SET OUT CHECKED BY THE LICENCED SURVEYOR RESPONSIBLE FOR CERTIFYING THE PLAN OF SUBDIVISION PRIOR TO UNDERGROUND INFRASTRUCTURE BEING INSTALLED.
 - WHERE CONCRETE WORKS ABOUT A SEWER ACCESS CHAMBER SURROUND OR SIMILAR STRUCTURE, AN EXPANSION JOINT OF APPROVED MATERIAL SHALL BE PROVIDED BETWEEN THE TWO FACES.



| LEGEND | |
|--------------------------|--|
| PROPOSED DRAINAGE | |
| EXISTING DRAINAGE | |
| DRAINAGE PIT/DIA./FLOW | |
| PROPERTY INLET | |
| HOUSE DRAIN | |
| PROPOSED / EXIST SEWER | |
| PROPOSED / EXIST WATER | |
| FILL - PROP / EXIST | |
| CUT - PROP / EXIST | |
| LOT FALL | |
| LOT LEVEL - F.S. / EXIST | |
| F.S. AT BUILDING LINE | |
| TOP / TOE OF BATTER | |
| KERBING TYPE | |
| LOT B'DY CHAINAGE | |
| LOTS EASEMENT | |
| STREET SIGN | |
| LINEMARKING | |
| REMOVE EXIST TREE | |

| AMENDMENTS | |
|------------|-------------------------|
| A | 29.06.17 |
| DATE | ISSUED FOR CONSTRUCTION |
| VER | |
| DATE | |
| REMARKS | |

breese pitt dixon pty. ltd.
land surveyors civil engineers

MELWAY REF: 360-F10
SURVEY: BPD
DESIGN: TBC
DRAWN: TBC
CHECKED:

ROTHWELL WEST
STAGE 14
LAYOUT PLAN AND DETAILS - SHEET 2

MUNICIPALITY: WYNDHAM
REFERENCE: 8584 E/14
SHEET: 2 OF 22
A

1/19 cato street
hawthorn east, 3123
telephone 8823 2300
fax no. 8823 2310

SCALE: As Shown
DATUM: AHD
DATE: June'17



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client ROKON (RICHMOND)
Project ROTHWELL ESTATE - STAGE 14
Location TRUGANINA

Job No 17467
Report No 17467/R001
Date Issued 14/09/2017

Tested by Jeff B Burns
Date tested 16/08/17
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 09:30

Test procedure AS 1289.2.1.1 & 5.8.1

| Test No | 1 | 2 | 3 | 4 | - | - |
|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---|---|
| Location | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | | |
| Approximate depth below FSL | | | | | | |
| Measurement depth mm | 175 | 175 | 175 | 175 | - | - |
| Field wet density t/m ³ | 1.78 | 1.78 | 1.84 | 1.83 | - | - |
| Field moisture content % | 31.6 | 29.4 | 30.0 | 27.4 | - | - |

Test procedure AS 1289.5.7.1

| Test No | 1 | 2 | 3 | 4 | - | - |
|--|----------|------|------|------|---|---|
| Compactive effort | Standard | | | | | |
| Oversize rock retained on sieve mm | 19.0 | 19.0 | 19.0 | 19.0 | - | - |
| Percent of oversize material wet | 0 | 0 | 1 | 2 | - | - |
| Peak Converted Wet Density t/m ³ | 1.77 | 1.79 | 1.81 | 1.79 | - | - |
| Adjusted Peak Converted Wet Density t/m ³ | - | - | 1.83 | 1.84 | - | - |
| Optimum Moisture Content % | 33.5 | 31.5 | 32.0 | 29.0 | - | - |

| | | | | | | |
|---|-------------|-------------|-------------|-------------|---|---|
| Moisture Variation From Optimum Moisture Content | 2.0% dry | 2.0% dry | 2.0% dry | 2.0% dry | - | - |
|---|-------------|-------------|-------------|-------------|---|---|

| | | | | | | | |
|----------------------------|---|-------|------|-------|------|---|---|
| Density Ratio (R_{HD}) | % | 100.5 | 99.5 | 100.0 | 99.5 | - | - |
|----------------------------|---|-------|------|-------|------|---|---|

Material description

No 1 - 4 Clay Fill



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Justin Fry

Approved Signatory : Justin Fry

AVRLOT HILF V1.10 MAR 13



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client ROKON (RICHMOND)
Project ROTHWELL ESTATE - STAGE 14
Location TRUGANINA

Job No 17467
Report No 17467/R002
Date Issued 19/09/2017

Tested by JB
Date tested 22/08/17
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 12:30

Test procedure AS 1289.2.1.1 & 5.8.1

| Test No | 5 | 6 | 7 | 8 | - | - |
|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---|---|
| Location | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | | |
| Approximate depth below FSL | | | | | | |
| Measurement depth mm | 175 | 175 | 175 | 175 | - | - |
| Field wet density t/m ³ | 1.79 | 1.82 | 1.82 | 1.81 | - | - |
| Field moisture content % | 29.5 | 24.0 | 26.8 | 27.1 | - | - |

Test procedure AS 1289.5.7.1

| Test No | 5 | 6 | 7 | 8 | - | - |
|--|----------|------|------|------|---|---|
| Compactive effort | Standard | | | | | |
| Oversize rock retained on sieve mm | 19.0 | 19.0 | 19.0 | 19.0 | - | - |
| Percent of oversize material wet | 2 | 1 | 1 | 3 | - | - |
| Peak Converted Wet Density t/m ³ | 1.78 | 1.78 | 1.79 | 1.80 | - | - |
| Adjusted Peak Converted Wet Density t/m ³ | 1.81 | 1.79 | 1.81 | 1.85 | - | - |
| Optimum Moisture Content % | 32.0 | 26.0 | 29.0 | 29.5 | - | - |

| | | | | | | |
|---|-------------|-------------|-------------|-------------|---|---|
| Moisture Variation From Optimum Moisture Content | 2.5% dry | 2.0% dry | 2.0% dry | 2.0% dry | - | - |
|---|-------------|-------------|-------------|-------------|---|---|

| | | | | | | | |
|----------------------------|---|------|-------|-------|------|---|---|
| Density Ratio (R_{HD}) | % | 98.5 | 101.5 | 100.5 | 98.0 | - | - |
|----------------------------|---|------|-------|-------|------|---|---|

Material description

No 5 - 8 Clay Fill



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Justin Fry

Approved Signatory : Justin Fry

AVRLOT HILF V1.10 MAR 13



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client ROKON (RICHMOND)
Project ROTHWELL ESTATE - STAGE 14
Location TRUGANINA

Job No 17467
Report No 17467/R003
Date Issued 13/09/2017

Tested by JB
Date tested 23/08/17
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 08:03

Test procedure AS 1289.2.1.1 & 5.8.1

| Test No | 9 | 10 | 11 | 12 | 13 | 14 |
|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Location | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 | REFER TO FIGURE 1 |
| Approximate depth below FSL | | | | | | |
| Measurement depth mm | 175 | 175 | 175 | 175 | 175 | 175 |
| Field wet density t/m ³ | 1.85 | 1.83 | 1.86 | 1.86 | 1.85 | 1.91 |
| Field moisture content % | 27.0 | 25.5 | 26.5 | 26.1 | 26.4 | 25.8 |

Test procedure AS 1289.5.7.1

| Test No | 9 | 10 | 11 | 12 | 13 | 14 |
|--|----------|------|------|------|------|------|
| Compactive effort | Standard | | | | | |
| Oversize rock retained on sieve mm | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percent of oversize material wet | 2 | 0 | 0 | 2 | 1 | 3 |
| Peak Converted Wet Density t/m ³ | 1.83 | 1.87 | 1.84 | 1.84 | 1.83 | 1.87 |
| Adjusted Peak Converted Wet Density t/m ³ | 1.87 | - | - | 1.88 | 1.84 | 1.93 |
| Optimum Moisture Content % | 28.5 | 24.5 | 28.5 | 27.0 | 28.0 | 26.5 |

| | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Moisture Variation From Optimum Moisture Content | 1.5% dry | 1.5% wet | 2.0% dry | 1.0% dry | 1.5% dry | 0.5% dry |
|---|-------------|-------------|-------------|-------------|-------------|-------------|

| | | | | | | | |
|----------------------------|---|------|------|-------|------|-------|------|
| Density Ratio (R_{HD}) | % | 99.5 | 98.0 | 101.0 | 99.0 | 100.0 | 99.5 |
|----------------------------|---|------|------|-------|------|-------|------|

Material description

No 9 - 14 Clay Fill



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Justin Fry

Approved Signatory : Justin Fry

AVRLOT HILF V1.10 MAR 13