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

27th May 2014

Our Reference: 13390:JHF792

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
ARMSTRONG, MT DUNEED ESTATE (STAGE 6) – MOUNT DUNEED

Please find attached our Report Nos 13390/R001 to 13390/R003 that relate to the field density testing that was conducted within the filled allotments at the above subdivision. The level 1 inspections and associated field density testing commenced in late October 2013 and were completed in early November 2013.

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 reported allotments by Winslow Constructors during the aforementioned period. The approximate locations of the field density tests can be seen on the attached plan (Figure 1).

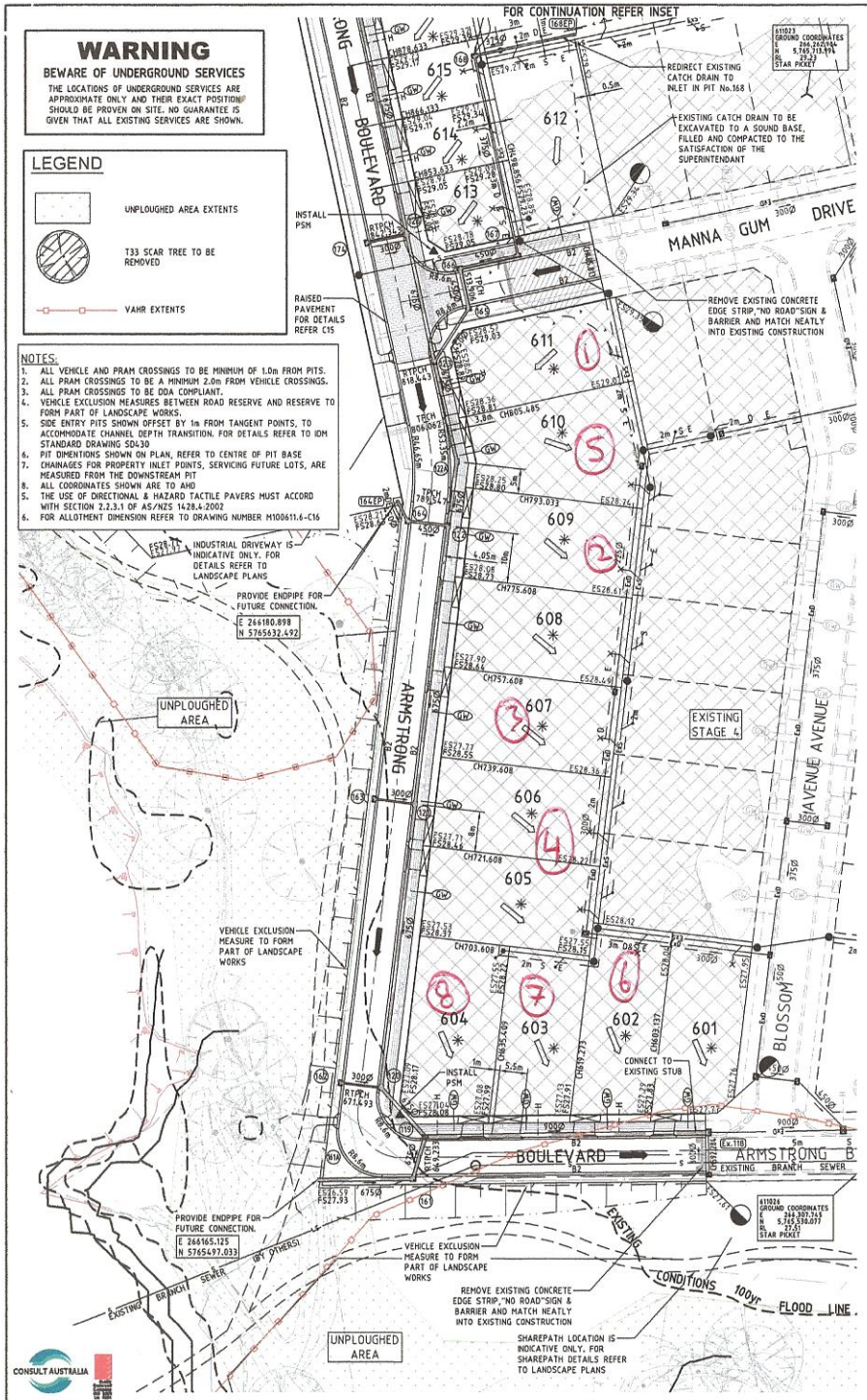
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

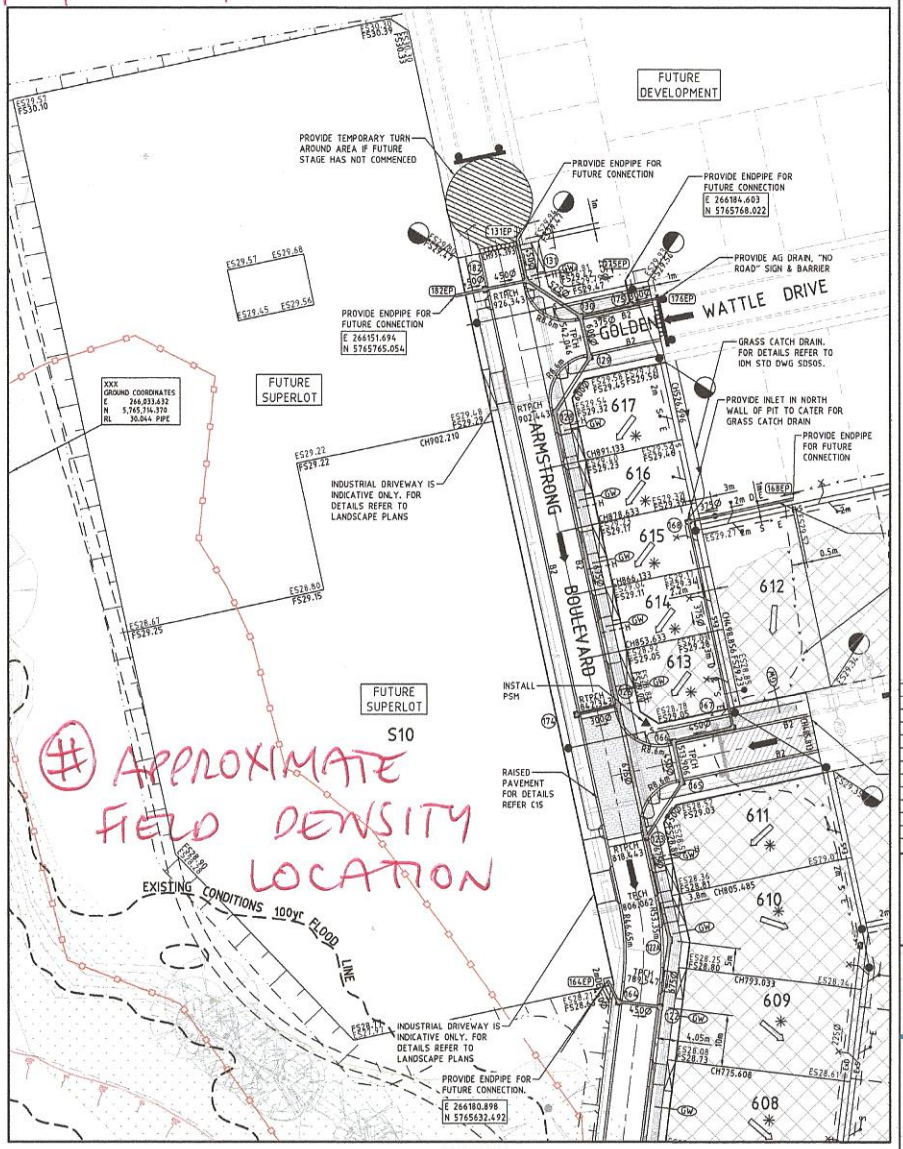
Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Justin Fry

FIGURE 1





INSET

SERVICES OFFSET SCHEDULE										
ROAD NAME	GAS		RECYCLED WATER		WATER		ELECTRICITY		COMMUNICATION	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
ARMSTRONG BOULEVARD (LOTS 601 - 604)	NORTH	2.10	NORTH	2.50	NORTH	2.95	SOUTH	0.50	NORTH	1.775
ARMSTRONG BOULEVARD (LOTS 605 - 609)	EAST	2.10	EAST	2.50	EAST	2.95	WEST	0.50	EAST	1.775
ARMSTRONG BOULEVARD (LOTS 613 - 617)	EAST	2.10	EAST	2.50	EAST	2.95	WEST	2.60	WEST	1.775
MANNA GUM DRIVE	NORTH	2.10	NORTH	2.50	NORTH	2.95	SOUTH	2.60	SOUTH	1.775
GOLDEN WATTLE DRIVE	NORTH	2.10	NORTH	2.50	NORTH	2.95	SOUTH	2.60	SOUTH	1.775

ROAD LAYOUT TABLE									
ROAD NAME	ROAD TYPE	RESERVE WIDTH (m)	ROAD WIDTH (m)			KERB TYPE		VERGE WIDTH (m)	
			LIP to LIP	INV to INV	BACK to BACK	NTH/WEST	STH/EAST	NTH/EAST	STH/WEST
ARMSTRONG BOULEVARD (LOTS 601 - 609)	ACCESS	13.50	6.70	7.30	7.60	B2	B2	4.35	1.55
ARMSTRONG BOULEVARD (LOTS 610 - 617)	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20
MANNA GUM DRIVE	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20
GOLDEN WATTLE DRIVE	ACCESS	16.00	6.70	7.30	7.60	B2	B2	4.20	4.20

LEGEND

- E — Electricity (Underground)
- G — Gas
- T — Telstra
- W — Water
- Stormwater Drain, Pit and Property Inlet
- Swale Drain
- S — Sewer, Maintenance Structures and Property Connection
- H — House Drain
- GW — Gas & Water Conduits
- Tactile Paver - Directional
- Tactile Paver - Hazard
- Existing Electricity (Underground)
- Existing Electricity (Overhead)
- Existing Gas
- Existing Telstra
- Existing Water
- Existing Stormwater Drain
- Existing Sewer
- Existing House Drain
- Existing Tree to Remain
- Existing Tree to be Removed
- Existing Swale Drain
- 14.134 — Existing Surface Level
- FS140.35 — Finished Building Line Level
- FR157.40 — Finished Ridge Line Level
- TW159.30 — Top of Retaining Wall
- BW159.30 — Bottom of Retaining Wall
- Retaining Wall
- Intersection Threshold Treatment
- Level 1 Fill > 200mm Deep
- Ex. Level 1 Fill > 200mm Deep
- Future Level 1 > 200mm Deep
- Proposed Driveway
- Allotment to be graded evenly in direction of fall to levels indicated
- Direction of Fall
- Overland Flow
- Permanent Survey Mark
- Temporary Bench Mark
- Concrete Edge Strip with Subsoil Drain underneath "No Road" sign and Barrier
- Building Envelope
- Limit of Works

REV	DATE	COMMENTS
1	01/10/13	LOTS 613 - 617 TITLE AMENDED
0	02/08/13	CONSTRUCTION ISSUE
B	01/07/13	COUNCIL COMMENTS DATED 04/06/13
A	28/06/13	LOT 603 DRIVEWAY INCREASED TO 5.5m

CLIENT: villawood properties — COMMUNITIES DESIGNED FOR LIVING

PROJECT: ARMSTRONG — STAGE 6

BROWN Smart Consulting

BROWN CONSULTING (VIC) PTY LTD
Engineers, Town Planners and Surveyors
Level 2, 55 Southbank Boulevard
Southbank VIC 3006
T 03 9203 9000

TITLE: LAYOUT PLAN

1:500 10 5 0 10 20 A1
1:1000 A3

SCALE @ A1	DRAWN	DESIGNED
1:500	R.KOZUL	R.KOZUL
PROJECT ENGINEER	PROJECT MANAGER	DATE FIRST ISSUE
J.CONSIGLIO	T.PALIOS	10/05/13

CONSTRUCTION

SIGNED: DATE:

DRAWING NUMBER: M100611.6-C02 REVISION: 2

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

		Job No	13390
		Report No	13390/R001
		Date Issued	10/12/13
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	JWM
Project	ARMSTRONG CREEK - STAGE 6	*Date tested*	31/10/13
Location	GROVEDALE	*Checked by*	JHF

Feature	**EARTHWORKS**	*Layer thickness*	200 mm	*Time:*	09:27

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**1**	**2**	**3**	**-**	**-**	**-**
Location		REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL		-	-	-	-	-	-
Measurement depth	*mm*	175	175	175	-	-	-
Field wet density	*t/m³*	1.95	1.96	1.79	-	-	-
Field moisture content	*%*	25.1	25.7	36.0	-	-	-

Test procedure AS 1289.5.7.1

Test No		1	2	3	-	-	-
Compactive effort		Standard					
Oversize rock retained on sieve	*mm*	19.0	19.0	19.0	-	-	-
Percent of oversize material	*wet*	0	0	0	-	-	-
Peak Converted Wet Density	*t/m³*	1.92	1.93	1.86	-	-	-
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-	-	-	-
Optimum Moisture Content	*%*	25.5	26.0	34.0	-	-	-

Moisture Variation From Optimum Moisture Content		0.0%	0.0%	2.0% wet	-	-	-

Density Ratio (R_{HD})	***%***	**101.5**	**101.5**	**96.5**	**-**	**-**	**-**

Material description

No 1 - 3 Clay Fill

Approved Signatory : Justin Fry

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

		Job No	13390
		Report No	13390/R002
		Date Issued	10/12/13
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	ARMSTRONG CREEK - STAGE 6	Date tested	06/11/13
Location	GROVEDALE	Checked by	JHF

Feature	**EARTHWORKS**	*Layer thickness*	200 mm	*Time:*	09:45

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**4**	**5**	**-**	**-**	**-**	**-**
Location		REFER TO FIGURE 1	REFER TO FIGURE 1				
Approximate depth below FSL		-	-	-	-	-	-
Measurement depth	*mm*	175	175	-	-	-	-
Field wet density	*t/m³*	1.90	1.82	-	-	-	-
Field moisture content	*%*	14.0	15.7	-	-	-	-

Test procedure AS 1289.5.7.1

Test No		4	5	-	-	-	-
Compactive effort		Standard					
Oversize rock retained on sieve	*mm*	19.0	19.0	-	-	-	-
Percent of oversize material	*wet*	0	0	-	-	-	-
Peak Converted Wet Density	*t/m³*	1.99	1.89	-	-	-	-
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-	-	-	-
Optimum Moisture Content	*%*	18.0	21.0	-	-	-	-

Moisture Variation From Optimum Moisture Content	4.0% dry	5.0% dry	-	-	-	-

Density Ratio (R_{HD})	**%**	**96.0**	**96.5**	**-**	**-**	**-**	**-**

Material description

No 4 - 5 Clay Fill

Approved Signatory : Justin Fry

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

		Job No	13390
		Report No	13390/R003
		Date Issued	30/11/13
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	ARMSTRONG CREEK - STAGE 6	Date tested	07/11/13
Location	GROVEDALE	Checked by	JHF

Feature	**EARTHWORKS**	*Layer thickness*	200 mm	*Time:*	12:00

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**6**	**7**	**8**	**-**	**-**	**-**
Location		REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL		-	-	-	-	-	-
Measurement depth	*mm*	175	175	175	-	-	-
Field wet density	*t/m³*	1.87	1.95	2.05	-	-	-
Field moisture content	*%*	21.7	21.4	19.0	-	-	-

Test procedure AS 1289.5.7.1

Test No		6	7	8	-	-	-
Compactive effort		Standard					
Oversize rock retained on sieve	*mm*	19.0	19.0	19.0	-	-	-
Percent of oversize material	*wet*	0	0	0	-	-	-
Peak Converted Wet Density	*t/m³*	1.90	2.05	2.08	-	-	-
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-	-	-	-
Optimum Moisture Content	*%*	25.5	15.0	19.5	-	-	-

Moisture Variation From Optimum Moisture Content		3.5% dry	6.5% wet	0.5% dry	-	-	-

Density Ratio (R_{HD})	**%**	**98.5**	**95.5**	**98.5**	**-**	**-**	**-**

Material description

No 6 - 8 Clay Fill

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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

Approved Signatory : Justin Fry