

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 14	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

Classification Procedures:

Existing Subsurface Conditions: Refer attached test pit log(s) – Pit(s) 15,17 and Drawing 1.

Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

Site Classification: Site classification in accordance with AS2870:2011 provides guidance on the patterns and magnitude of moisture related seasonal ground movements that must be considered in design. Based on the current soil profile / state, on limited subsurface information, soil reactivity and allowing for variation in the subsoil profile, the natural soil profile would be equivalent to Class S (slightly reactive) conditions. If the building pad, following site excavations exposes entirely weathered rock, a Class A (non-reactive) classification may be appropriate. Should groundwater be encountered during any site cut, Class P conditions would be warranted. Appropriate drainage measures would then be required to control the groundwater seepages to possibly enable the conventional Class S site classification indicated above. Therefore the site classification must be reassessed should the subsurface profile change by either cutting or filling and/or if the presence of service trenches, retaining walls or submerged structures are within the zone of influence of the proposed footings. Reference must be made to the comments provided below.

Footing Systems: Reference must be made to AS2870:2011 which indicates footing systems that are appropriate for each site classification. All footings must be found within a uniform bearing stratum of suitable strength/material, below the zone of influence of any service trenches, backfill zones, retaining walls or underground structures. Masonry walls should be articulated in accordance with current best practice. Dwelling design must ensure suitable drainage and uniform moisture conditions are maintained in the vicinity of footings. Footing systems must be confirmed by a structural engineer taking into consideration any onsite or offsite constraints.

Maintenance Guidelines: Reference should be made to the attached CSIRO Sheet BTF 18 'Foundation Maintenance & Footing Performance' to comments about gardens, landscaping and trees on the performance of foundation soils and in particular in respect to maintaining good surface drainage. It notes that minor cracking in most structures is inevitable, and it describes site maintenance practices aimed at minimising foundation movements that can lead to cracking damage.

Comments/

Limitations:

The successful purchaser must make their own interpretations, deductions and conclusions from the information made available and will need to accept full responsibility for such interpretations, deductions and conclusions.

Development specific geotechnical investigations must be undertaken.

Additional topsoils / fill may have been spread subsequent to the investigation.

Site preparation prior to the construction should include removal of all vegetation, topsoil and any uncontrolled fill.

All new fill must be placed under controlled conditions (AS 3798:2007), otherwise Class P conditions would be warranted in those fill areas.

Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

The above site classification is provided on the basis that all building materials/waste and stockpiles are removed from site and have not been spread across the site.

It is recommended that footing excavations be inspected by a geotechnical engineer.

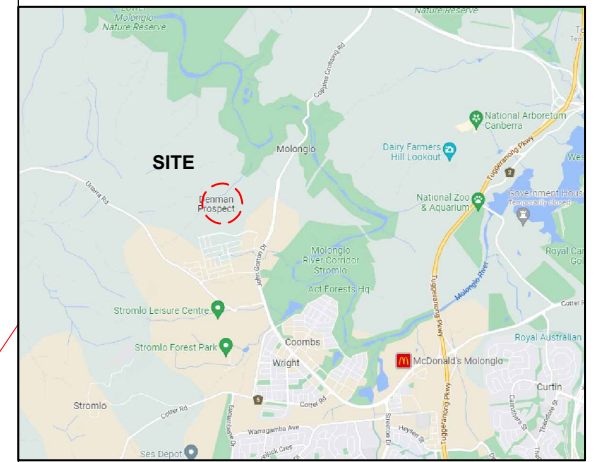
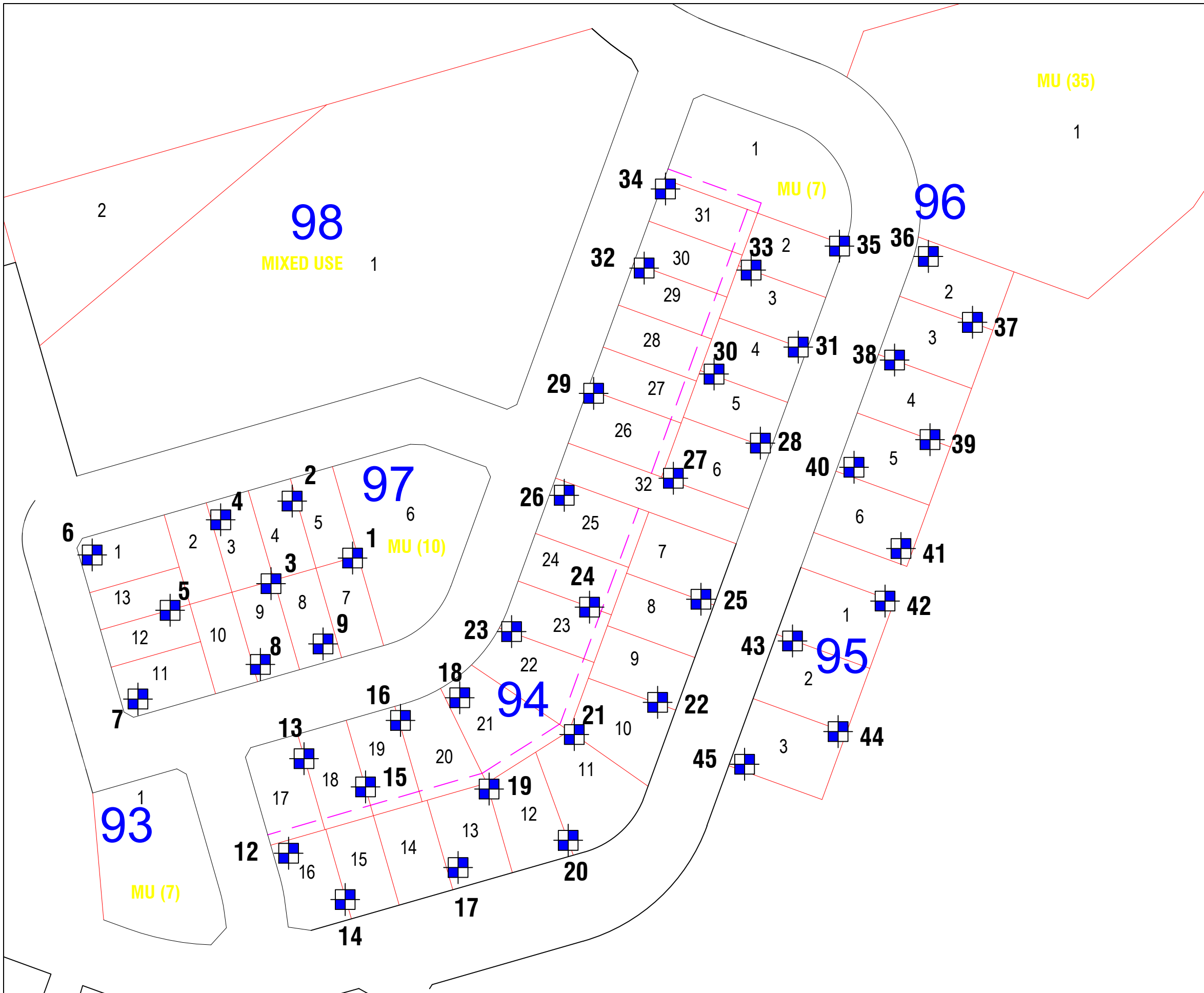
This report must be read in conjunction with the attached "Limitations" and notes "About this Report".

References: AS 2870:2011, Residential Slabs and Footings, Standards Australia.


Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 15,17
Drawing 1



Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

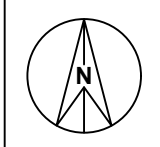
- LEGEND**
-  Approximate Test Pit Location
 - XY Block Number
 - XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
 OFFICE: Canberra
 SCALE: As Shown
 DRAWN BY: GM
 DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
 DRAWING No: 1
 REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 565.0 AHD
EASTING: 201292
NORTHING: 602379

PIT No: 15
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
565	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																	
	0.3	FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																	
	0.5	DACITIC IGNIMBRITE: fine to coarse grained, grey, dry to moist, high strength, slightly weathered, fractured																	
	0.5	Pit discontinued at 0.5m -Bucket refusal																	
564	1																		

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PLD	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 558.0 AHD
EASTING: 201316
NORTHING: 602361

PIT No: 17
PROJECT No: 88231.50
DATE: 3/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
558		TOPSOIL FILL/Sandy Silty CLAY (CL): low plasticity, brown, fine to coarse grained sand, dry to moist, w<PL, inferred very stiff, TOPSOIL FILL												
	0.15	Silty CLAY (CL): low plasticity, red brown, with fine to coarse grained sand, trace roots, dry to moist, w<PL, inferred very stiff, FILL												
	0.35	DACITIC IGNIMBRITE: fine to coarse grained, brown mottled orange black brown, with significantly weathered seams, low to medium strength, moderately weathered, fractured												
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D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PLD	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 15	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

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Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

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Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

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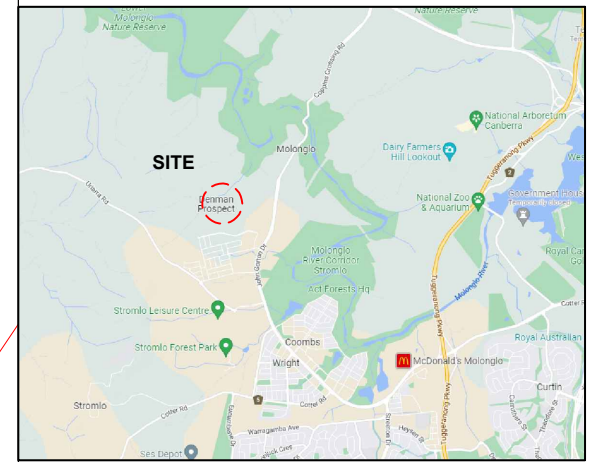
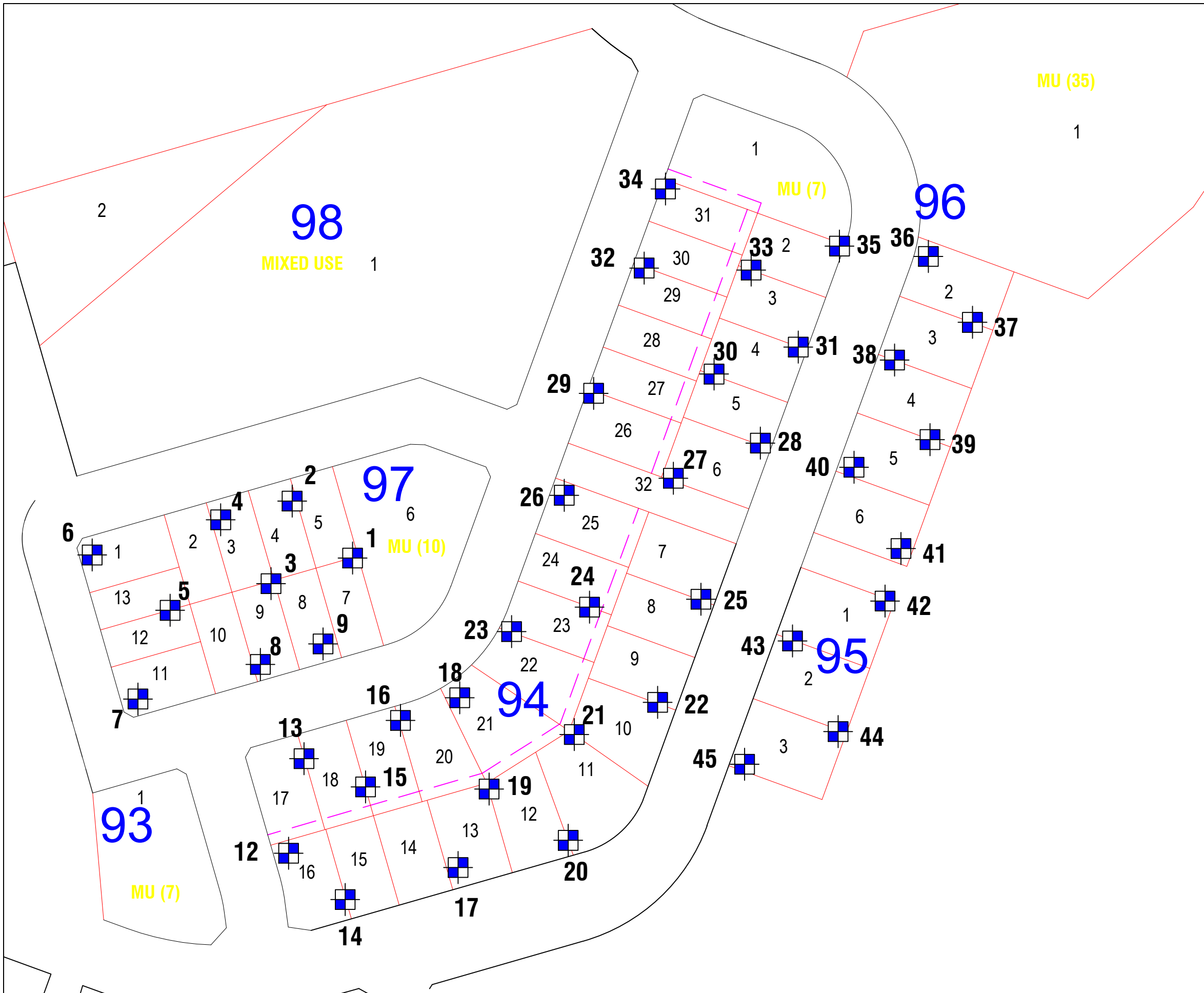
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Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 14,15
Drawing 1



Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

- LEGEND**
-  Approximate Test Pit Location
 - XY Block Number
 - XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
 OFFICE: Canberra
 SCALE: As Shown
 DRAWN BY: GM
 DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
 DRAWING No: 1
 REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 560.0 AHD
EASTING: 201283
NORTHING: 602349

PIT No: 14
PROJECT No: 88231.50
DATE: 3/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
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	0.1	FILL/Sandy Gravelly CLAY (CL): low plasticity, mottled orange brown, fine to coarse grained sand, fine to coarse gravel, dry to moist, w<PL, infererd very stiff, FILL											
	0.35	DACITIC IGNIMBRITE: fine to coarse grained, brown mottled orange black brown, with significantly weathered seams, low to medium strength, moderately weathered, fractured											
	0.4	Pit discontinued at 0.4m -Bucket slow progress											
559	1												

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
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D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
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TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 565.0 AHD
EASTING: 201292
NORTHING: 602379

PIT No: 15
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

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E	Environmental sample	≡	Water level	V	Shear vane (kPa)

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 16	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

Classification Procedures:

Existing Subsurface Conditions: Refer attached test pit log(s) – Pit(s) 12,14 and Drawing 1.

Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

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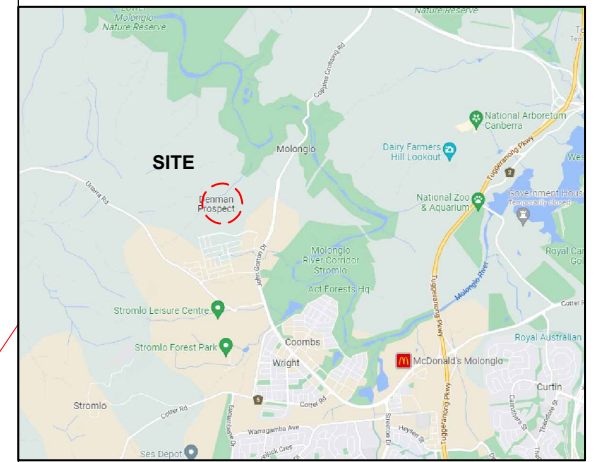
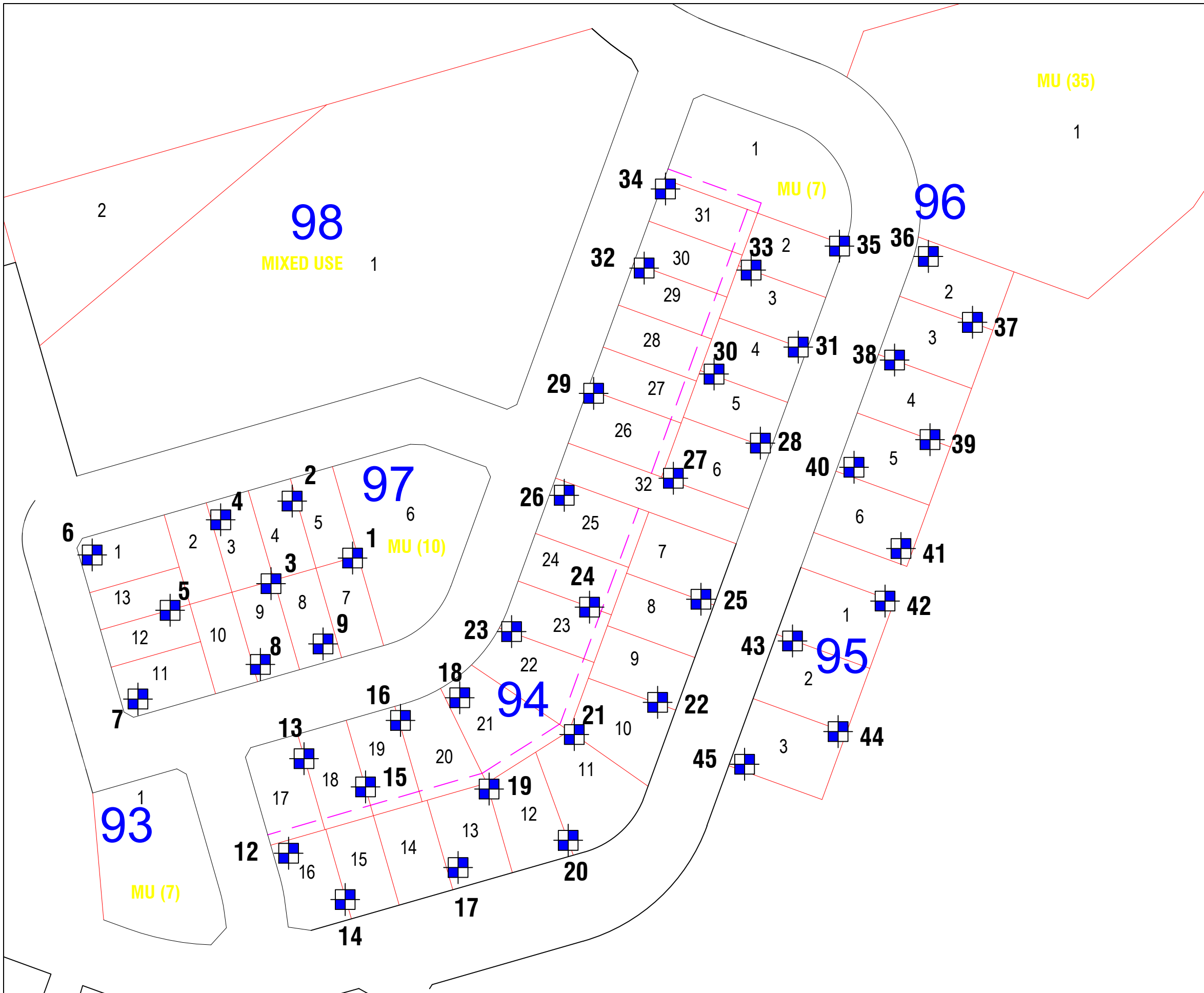
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Explanatory Notes
Test Pit Log(s) Pit(s) 12,14
Drawing 1




Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

LEGEND

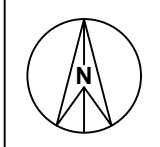
-  Approximate Test Pit Location
- XY Block Number
- XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
OFFICE: Canberra
SCALE: As Shown
DRAWN BY: GM
DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
DRAWING No: 1
REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 563.0 AHD
EASTING: 201261
NORTHING: 602370

PIT No: 12
PROJECT No: 88231.50
DATE: 3/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
563	0.1	TOPSOIL FILL/Sandy SILT (ML): low plasticity, brown, fine to coarse grained sand, trace fine to coarse gravel, dry to moist, w<PL, TOPSOIL FILL																
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LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

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TEST PIT LOG

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SURFACE LEVEL: 560.0 AHD
EASTING: 201283
NORTHING: 602349

PIT No: 14
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SHEET 1 OF 1

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JOB No:	88231.50			DATE:	August 2023
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Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

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Footing Systems: Reference must be made to AS2870:2011 which indicates footing systems that are appropriate for each site classification. All footings must be found within a uniform bearing stratum of suitable strength/material, below the zone of influence of any service trenches, backfill zones, retaining walls or underground structures. Masonry walls should be articulated in accordance with current best practice. Dwelling design must ensure suitable drainage and uniform moisture conditions are maintained in the vicinity of footings. Footing systems must be confirmed by a structural engineer taking into consideration any onsite or offsite constraints.

Maintenance Guidelines: Reference should be made to the attached CSIRO Sheet BTF 18 'Foundation Maintenance & Footing Performance' to comments about gardens, landscaping and trees on the performance of foundation soils and in particular in respect to maintaining good surface drainage. It notes that minor cracking in most structures is inevitable, and it describes site maintenance practices aimed at minimising foundation movements that can lead to cracking damage.

Comments/

Limitations:

The successful purchaser must make their own interpretations, deductions and conclusions from the information made available and will need to accept full responsibility for such interpretations, deductions and conclusions.

Development specific geotechnical investigations must be undertaken.

Additional topsoils / fill may have been spread subsequent to the investigation.

Site preparation prior to the construction should include removal of all vegetation, topsoil and any uncontrolled fill.

All new fill must be placed under controlled conditions (AS 3798:2007), otherwise Class P conditions would be warranted in those fill areas.

Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

The above site classification is provided on the basis that all building materials/waste and stockpiles are removed from site and have not been spread across the site.

It is recommended that footing excavations be inspected by a geotechnical engineer.

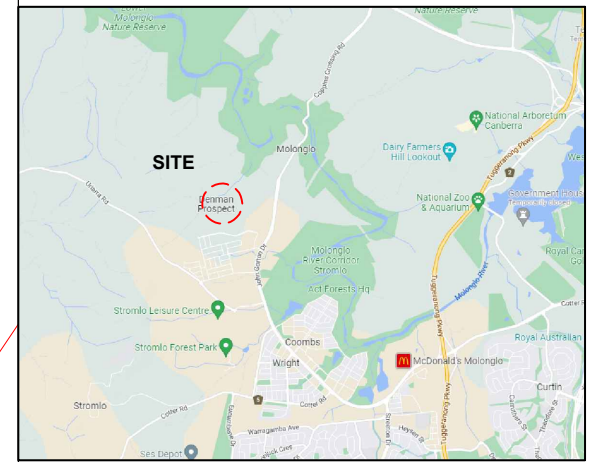
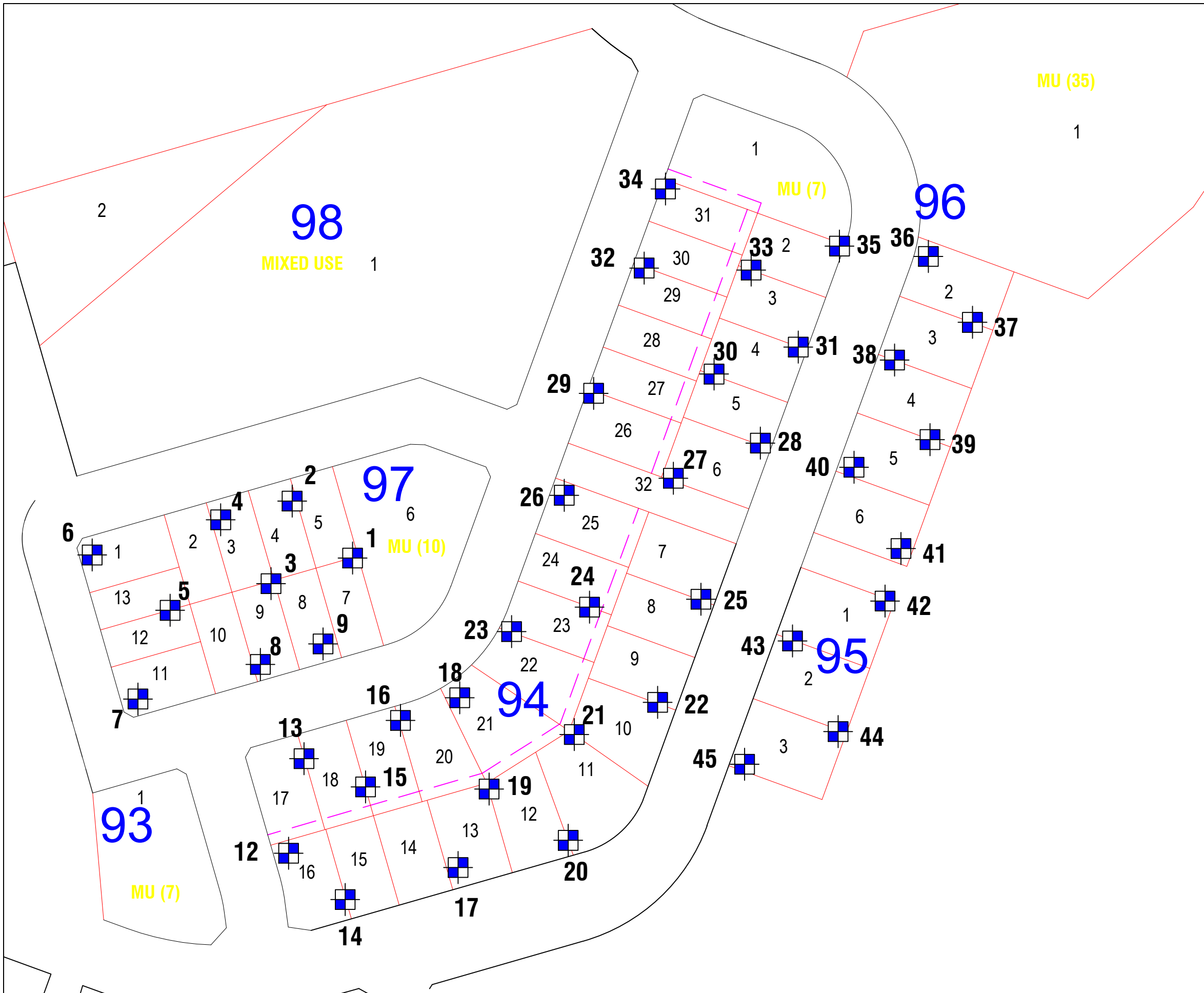
This report must be read in conjunction with the attached "Limitations" and notes "About this Report".

References: AS 2870:2011, Residential Slabs and Footings, Standards Australia.

Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 12,13
Drawing 1



Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

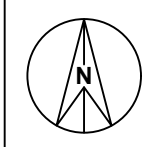
- LEGEND**
- Approximate Test Pit Location
 - XY Block Number
 - XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
 OFFICE: Canberra DRAWN BY: GM
 SCALE: As Shown DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
 DRAWING No: 1
 REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 563.0 AHD
EASTING: 201261
NORTHING: 602370

PIT No: 12
PROJECT No: 88231.50
DATE: 3/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
563	0.1	TOPSOIL FILL/Sandy SILT (ML): low plasticity, brown, fine to coarse grained sand, trace fine to coarse gravel, dry to moist, w<PL, TOPSOIL FILL																	
	0.1	FILL/Gravelly Sandy SILT (ML): low plasticity, grey, fine to coarse grained sand, fine to coarse gravel, dry to moist, w<PL, inferred very stiff, FILL																	
	0.3	DACITIC IGNIMBRITE: fine to coarse grained, brown mottled orange black brown, with significantly weathered seams, low to medium strength, moderately weathered, fractured																	
	0.4	Pit discontinued at 0.4m -Bucket refusal																	
562	1																		

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PLD	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 567.0 AHD
EASTING: 201268
NORTHING: 602405

PIT No: 13
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
567	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																
		FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																
	0.4	DACITIC IGNIMBRITE: fine to coarse grained, grey, dry to moist, high strength, slightly weathered, fractured																
	0.5	Pit discontinued at 0.5m -Bucket refusal																
566	1																	

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 18	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

Classification Procedures:

Existing Subsurface Conditions: Refer attached test pit log(s) – Pit(s) 13,15 and Drawing 1.

Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

Site Classification: Site classification in accordance with AS2870:2011 provides guidance on the patterns and magnitude of moisture related seasonal ground movements that must be considered in design. Based on the current soil profile / state, on limited subsurface information, soil reactivity and allowing for variation in the subsoil profile, the natural soil profile would be equivalent to Class S (slightly reactive) conditions. If the building pad, following site excavations exposes entirely weathered rock, a Class A (non-reactive) classification may be appropriate. Should groundwater be encountered during any site cut, Class P conditions would be warranted. Appropriate drainage measures would then be required to control the groundwater seepages to possibly enable the conventional Class S site classification indicated above. Therefore the site classification must be reassessed should the subsurface profile change by either cutting or filling and/or if the presence of service trenches, retaining walls or submerged structures are within the zone of influence of the proposed footings. Reference must be made to the comments provided below.

Footing Systems: Reference must be made to AS2870:2011 which indicates footing systems that are appropriate for each site classification. All footings must be found within a uniform bearing stratum of suitable strength/material, below the zone of influence of any service trenches, backfill zones, retaining walls or underground structures. Masonry walls should be articulated in accordance with current best practice. Dwelling design must ensure suitable drainage and uniform moisture conditions are maintained in the vicinity of footings. Footing systems must be confirmed by a structural engineer taking into consideration any onsite or offsite constraints.

Maintenance Guidelines: Reference should be made to the attached CSIRO Sheet BTF 18 'Foundation Maintenance & Footing Performance' to comments about gardens, landscaping and trees on the performance of foundation soils and in particular in respect to maintaining good surface drainage. It notes that minor cracking in most structures is inevitable, and it describes site maintenance practices aimed at minimising foundation movements that can lead to cracking damage.

Comments/

Limitations:

The successful purchaser must make their own interpretations, deductions and conclusions from the information made available and will need to accept full responsibility for such interpretations, deductions and conclusions.

Development specific geotechnical investigations must be undertaken.

Additional topsoils / fill may have been spread subsequent to the investigation.

Site preparation prior to the construction should include removal of all vegetation, topsoil and any uncontrolled fill.

All new fill must be placed under controlled conditions (AS 3798:2007), otherwise Class P conditions would be warranted in those fill areas.

Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

The above site classification is provided on the basis that all building materials/waste and stockpiles are removed from site and have not been spread across the site.

It is recommended that footing excavations be inspected by a geotechnical engineer.

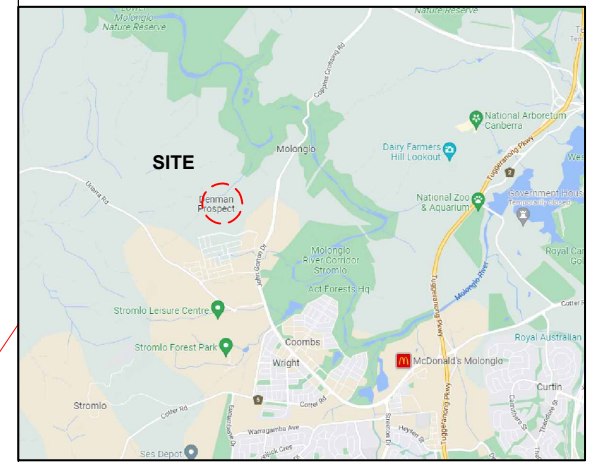
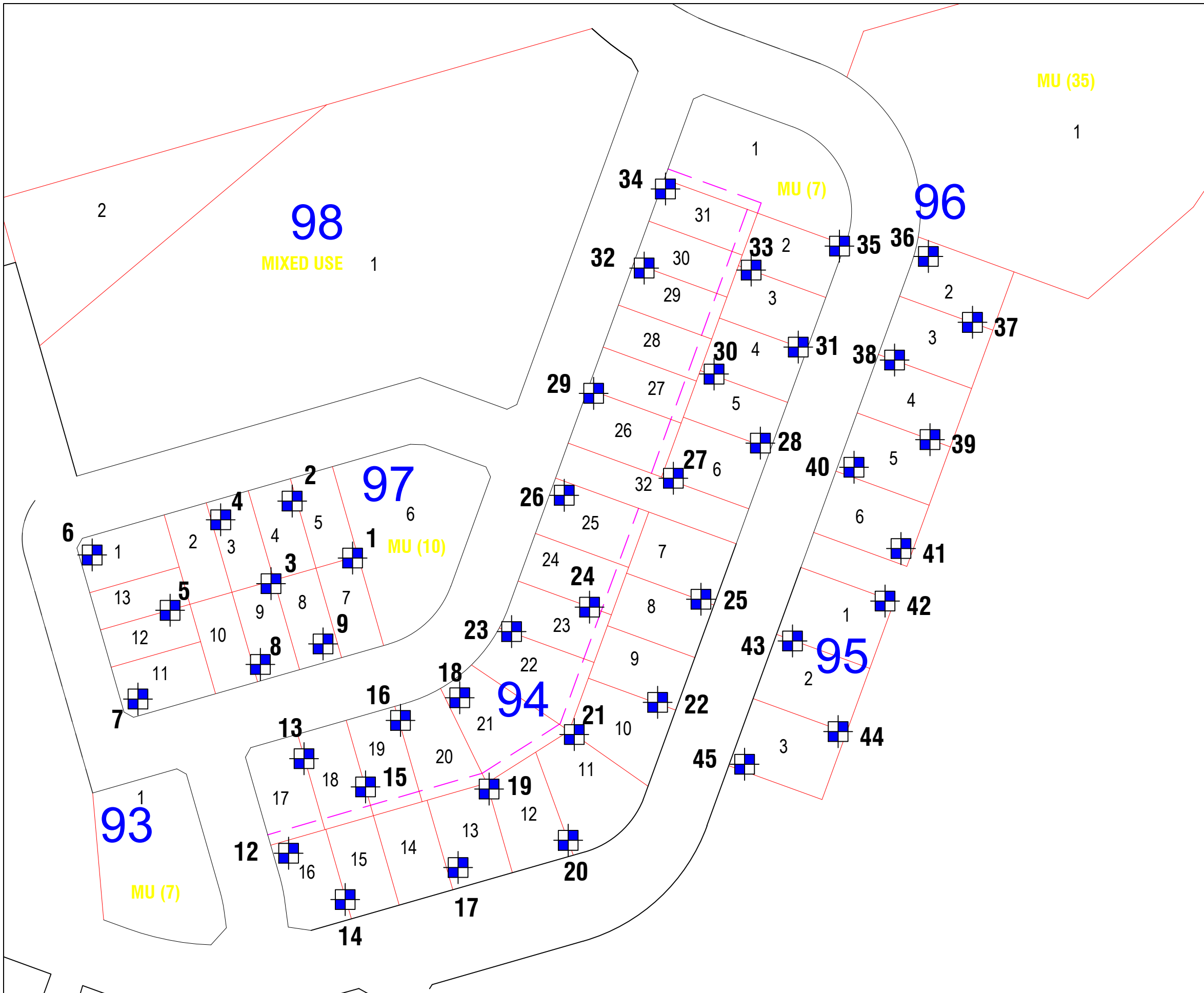
This report must be read in conjunction with the attached "Limitations" and notes "About this Report".

References: AS 2870:2011, Residential Slabs and Footings, Standards Australia.


Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 13,15
Drawing 1



Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

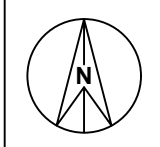
- LEGEND**
-  Approximate Test Pit Location
 - XY Block Number
 - XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
 OFFICE: Canberra DRAWN BY: GM
 SCALE: As Shown DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
 DRAWING No: 1
 REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 567.0 AHD
EASTING: 201268
NORTHING: 602405

PIT No: 13
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
567	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																
		FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																
	0.4	DACITIC IGNIMBRITE: fine to coarse grained, grey, dry to moist, high strength, slightly weathered, fractured																
	0.5	Pit discontinued at 0.5m -Bucket refusal																
566	1																	

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 565.0 AHD
EASTING: 201292
NORTHING: 602379

PIT No: 15
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
565	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL											
	0.3	FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL											
	0.5	DACITIC IGNIMBRITE: fine to coarse grained, grey, dry to moist, high strength, slightly weathered, fractured											
	0.5	Pit discontinued at 0.5m -Bucket refusal											
564	1												

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PLD	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 19	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

Classification Procedures:

Existing Subsurface Conditions: Refer attached test pit log(s) – Pit(s) 15,16 and Drawing 1.

Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

Site Classification: Site classification in accordance with AS2870:2011 provides guidance on the patterns and magnitude of moisture related seasonal ground movements that must be considered in design. Based on the current soil profile / state, on limited subsurface information, soil reactivity and allowing for variation in the subsoil profile, the natural soil profile would be equivalent to Class S (slightly reactive) conditions. If the building pad, following site excavations exposes entirely weathered rock, a Class A (non-reactive) classification may be appropriate. Should groundwater be encountered during any site cut, Class P conditions would be warranted. Appropriate drainage measures would then be required to control the groundwater seepages to possibly enable the conventional Class S site classification indicated above. Therefore the site classification must be reassessed should the subsurface profile change by either cutting or filling and/or if the presence of service trenches, retaining walls or submerged structures are within the zone of influence of the proposed footings. Reference must be made to the comments provided below.

Footing Systems: Reference must be made to AS2870:2011 which indicates footing systems that are appropriate for each site classification. All footings must be found within a uniform bearing stratum of suitable strength/material, below the zone of influence of any service trenches, backfill zones, retaining walls or underground structures. Masonry walls should be articulated in accordance with current best practice. Dwelling design must ensure suitable drainage and uniform moisture conditions are maintained in the vicinity of footings. Footing systems must be confirmed by a structural engineer taking into consideration any onsite or offsite constraints.

Maintenance Guidelines: Reference should be made to the attached CSIRO Sheet BTF 18 'Foundation Maintenance & Footing Performance' to comments about gardens, landscaping and trees on the performance of foundation soils and in particular in respect to maintaining good surface drainage. It notes that minor cracking in most structures is inevitable, and it describes site maintenance practices aimed at minimising foundation movements that can lead to cracking damage.

Comments/

Limitations:

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All new fill must be placed under controlled conditions (AS 3798:2007), otherwise Class P conditions would be warranted in those fill areas.

Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

The above site classification is provided on the basis that all building materials/waste and stockpiles are removed from site and have not been spread across the site.

It is recommended that footing excavations be inspected by a geotechnical engineer.

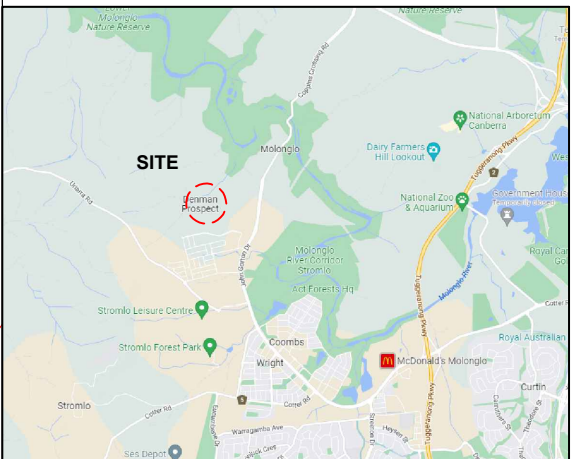
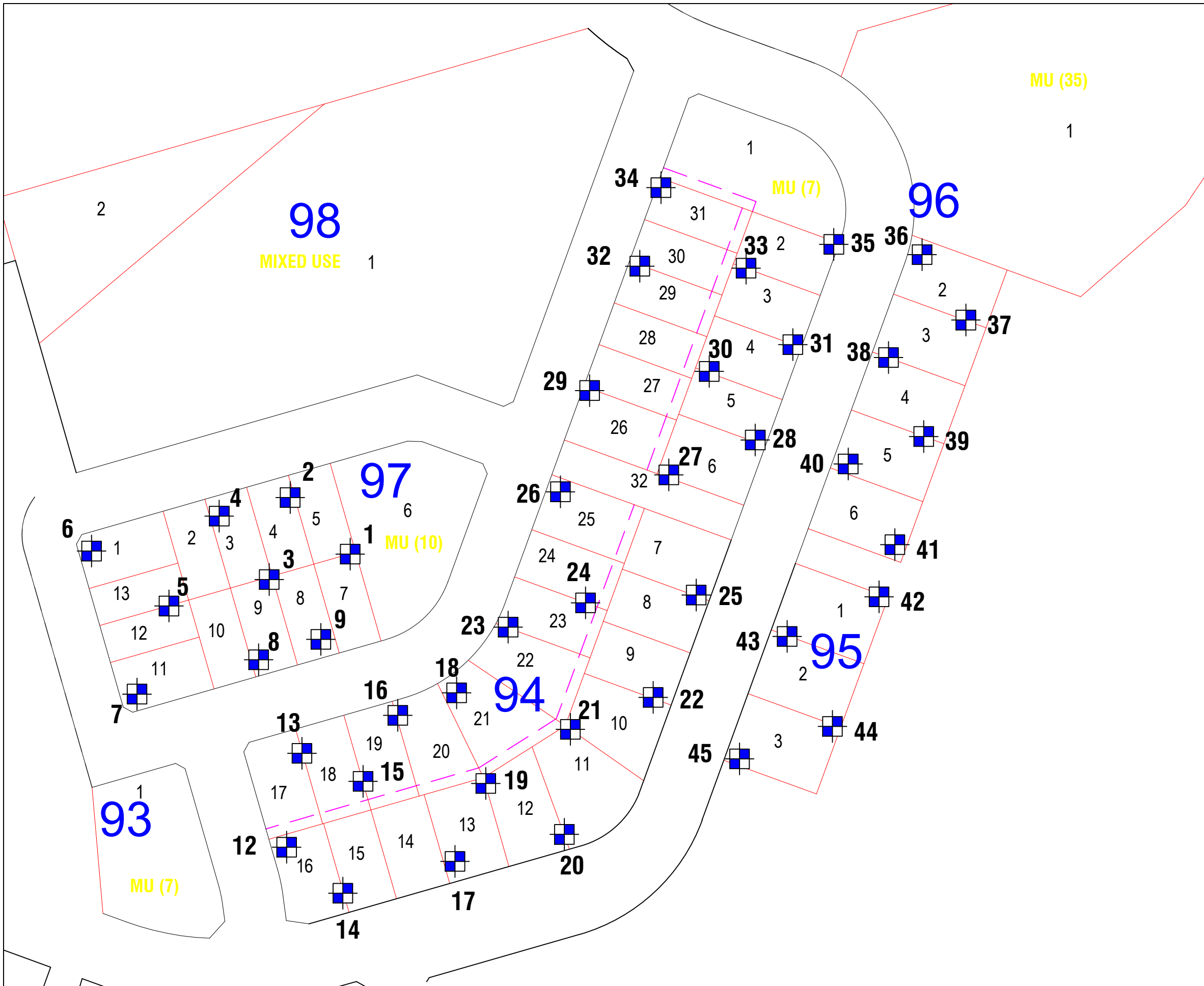
This report must be read in conjunction with the attached "Limitations" and notes "About this Report".

References: AS 2870:2011, Residential Slabs and Footings, Standards Australia.

Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 15,16
Drawing 1




Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

LEGEND

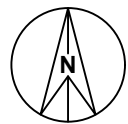
-  Approximate Test Pit Location
- XY Block Number
- XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd	
OFFICE: Canberra	DRAWN BY: GM
SCALE: As Shown	DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No:	88231.50
DRAWING No:	1
REVISION:	0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 565.0 AHD
EASTING: 201292
NORTHING: 602379

PIT No: 15
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
565	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																	
	0.3	FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																	
	0.5	DACITIC IGNIMBRITE: fine to coarse grained, grey, dry to moist, high strength, slightly weathered, fractured																	
	0.5	Pit discontinued at 0.5m -Bucket refusal																	
564	1																		

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: ADFH/SK

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PLD	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 567.0 AHD
EASTING: 201300
NORTHING: 602411

PIT No: 16
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
567	0.05	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																
		FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																
	0.3	DACITIC IGNIMBRITE: fine to coarse grained, brown mottled black, dry to moist, low to medium strength, highly to moderately weathered, highly fractured																
	0.7	Pit discontinued at 0.7m -Bucket slow progress																
566	1																	

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Shallow, medium strength rock at 0.5m depth at southern end of pit. Surface levels and coordinates are approximate only and must not be relied upon.

Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PLD	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

SITE CLASSIFICATION REPORT SUMMARY

BLOCK: 20	SECTION: 94	SUBURB: Denman Prospect
JOB No: 88231.50		DATE: August 2023
CLIENT: Capital Estate Developments Pty Ltd		REV: 0

Classification Procedures:

Existing Subsurface Conditions: Refer attached test pit log(s) – Pit(s) 16,18,19 and Drawing 1.

Laboratory Results: Previous laboratory testing results indicated liquid limit ranging from 25-80%, plasticity index ranging from 12-57%, and linear shrinkage ranging from 6-20%.

Site Classification: Site classification in accordance with AS2870:2011 provides guidance on the patterns and magnitude of moisture related seasonal ground movements that must be considered in design. Based on the current soil profile / state, on limited subsurface information, soil reactivity and allowing for variation in the subsoil profile, the natural soil profile would be equivalent to Class S (slightly reactive) conditions. If the building pad, following site excavations exposes entirely weathered rock, a Class A (non-reactive) classification may be appropriate. Should groundwater be encountered during any site cut, Class P conditions would be warranted. Appropriate drainage measures would then be required to control the groundwater seepages to possibly enable the conventional Class S site classification indicated above. Therefore the site classification must be reassessed should the subsurface profile change by either cutting or filling and/or if the presence of service trenches, retaining walls or submerged structures are within the zone of influence of the proposed footings. Reference must be made to the comments provided below.

Footing Systems: Reference must be made to AS2870:2011 which indicates footing systems that are appropriate for each site classification. All footings must be found within a uniform bearing stratum of suitable strength/material, below the zone of influence of any service trenches, backfill zones, retaining walls or underground structures. Masonry walls should be articulated in accordance with current best practice. Dwelling design must ensure suitable drainage and uniform moisture conditions are maintained in the vicinity of footings. Footing systems must be confirmed by a structural engineer taking into consideration any onsite or offsite constraints.

Maintenance Guidelines: Reference should be made to the attached CSIRO Sheet BTF 18 'Foundation Maintenance & Footing Performance' to comments about gardens, landscaping and trees on the performance of foundation soils and in particular in respect to maintaining good surface drainage. It notes that minor cracking in most structures is inevitable, and it describes site maintenance practices aimed at minimising foundation movements that can lead to cracking damage.

Comments/

Limitations:

The successful purchaser must make their own interpretations, deductions and conclusions from the information made available and will need to accept full responsibility for such interpretations, deductions and conclusions.

Development specific geotechnical investigations must be undertaken.

Additional topsoils / fill may have been spread subsequent to the investigation.

Site preparation prior to the construction should include removal of all vegetation, topsoil and any uncontrolled fill.

All new fill must be placed under controlled conditions (AS 3798:2007), otherwise Class P conditions would be warranted in those fill areas.

Some variability in subsurface conditions must be anticipated.

Moisture condition of site soils and/or the presence of groundwater may vary considerably from time of investigation compared to at the time of construction. Groundwater seepages are highly likely after heavy or prolonged rain.

Hard rock excavation must be anticipated. It is recommended that excavation depths be minimal to reduce potential site costs.

The above site classification is provided on the basis that all building materials/waste and stockpiles are removed from site and have not been spread across the site.

It is recommended that footing excavations be inspected by a geotechnical engineer.

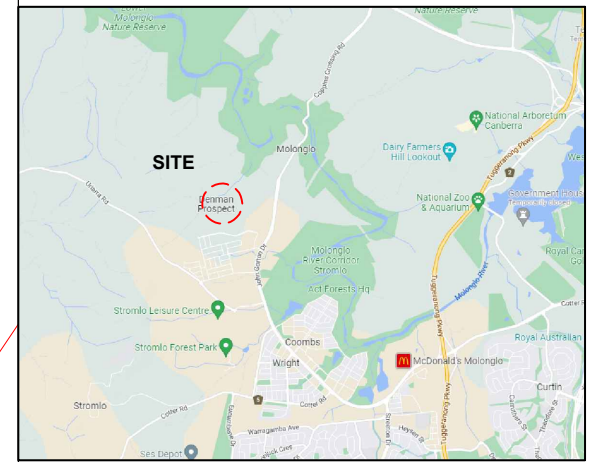
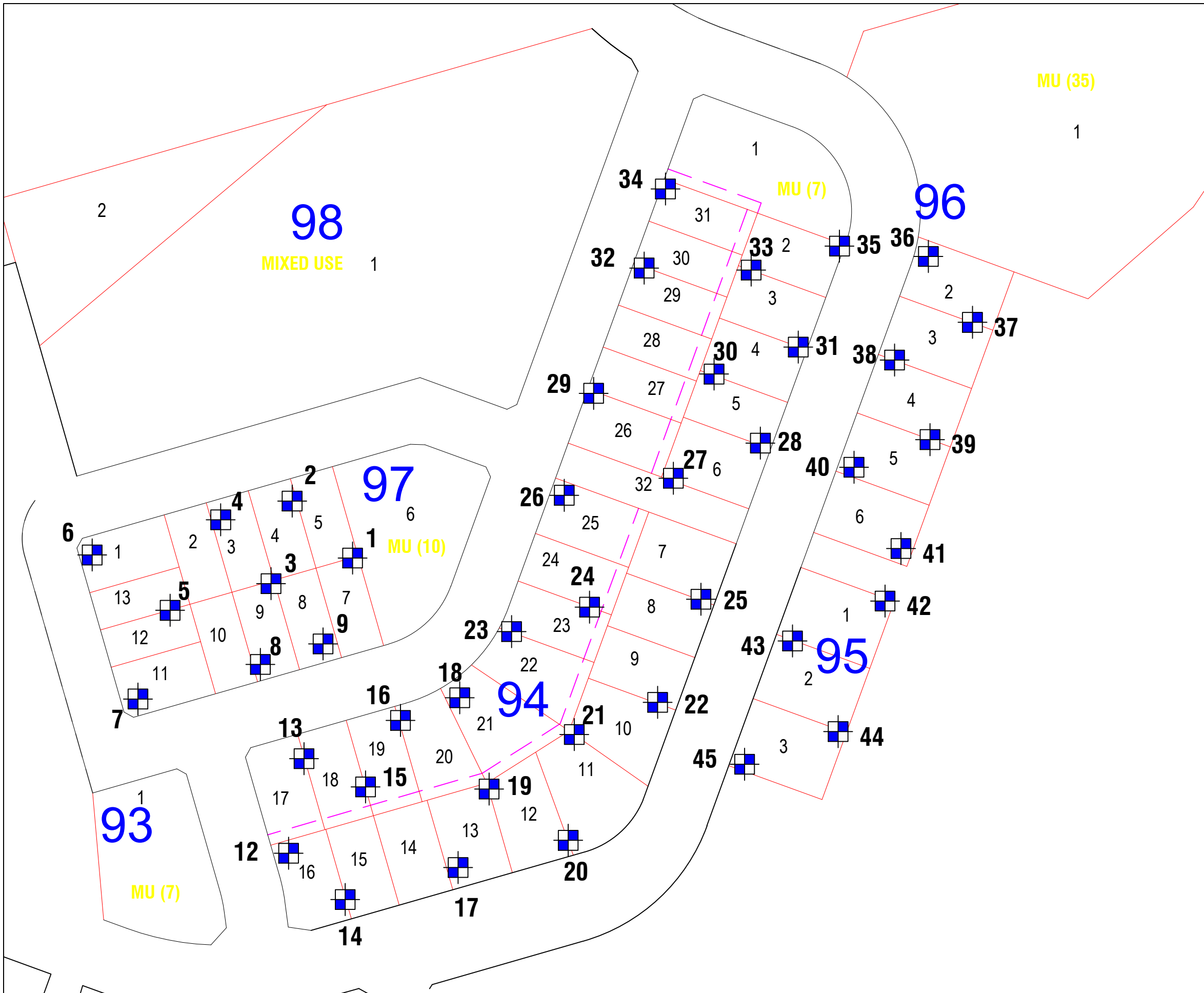
This report must be read in conjunction with the attached "Limitations" and notes "About this Report".

References: AS 2870:2011, Residential Slabs and Footings, Standards Australia.

Attachments: Limitations & About this Report
Explanatory Notes
Test Pit Log(s) Pit(s) 16,18,19
Drawing 1



Douglas Partners
Geotechnics | Environment | Groundwater



Locality Plan

- LEGEND**
- Approximate Test Pit Location
 - XY Block Number
 - XY** Section Number

NOTE: Base drawing from Woden Contractors



CLIENT: Capital Estate Developments Pty Ltd
 OFFICE: Canberra
 SCALE: As Shown
 DRAWN BY: GM
 DATE: 31.07.2023

TITLE: **Test Location Plan**
Proposed Residential Subdivision
Stage 2, Denman North Estate, Denman Prospect



PROJECT No: 88231.50
 DRAWING No: 1
 REVISION: 0

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 567.0 AHD
EASTING: 201300
NORTHING: 602411

PIT No: 16
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
567	0.05	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																	
	0.3	FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL																	
	0.7	DACITIC IGNIMBRITE: fine to coarse grained, brown mottled black, dry to moist, low to medium strength, highly to moderately weathered, highly fractured																	
	0.7	Pit discontinued at 0.7m -Bucket slow progress																	
566	1																		

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Shallow, medium strength rock at 0.5m depth at southern end of pit. Surface levels and coordinates are approximate only and must not be relied upon.

Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PLD	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 567.0 AHD
EASTING: 201315
NORTHING: 602420

PIT No: 18
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
567	0.1	TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL												
	0.2	FILL/Sandy CLAY (CL-CI): low to medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, regrade FILL												
	0.3	Sandy CLAY (CI): medium plasticity, red brown, fine to coarse grained sand, trace fine to medium gravel, dry to moist, w<PL, hard, residual		D	0.3		pp >400							
	0.4	DACITIC IGNIMBRITE: fine to coarse grained, pale red brown, dry to moist, low to medium strength, highly to moderately weathered, highly fractured												
	0.5	Pit discontinued at 0.5m -Bucket refusal												
566	1													

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Shallow, medium strength rock at 0.2m depth at south east end of pit. Surface levels and coordinates are approximate only and must not be relied upon.

Sand Penetrometer AS1289.6.3.3
 Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Capital Estate Developments Pty Ltd
PROJECT: Proposed Residential Subdivision
LOCATION: Stage 2 Denman North Estate, Denman Prospect

SURFACE LEVEL: 563.0 AHD
EASTING: 201329
NORTHING: 602388

PIT No: 19
PROJECT No: 88231.50
DATE: 2/8/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
563		TOPSOIL FILL/Silty Clayey SAND (SC): fine to coarse grained, pale grey brown, low plasticity fines, dry to moist, TOPSOIL FILL																
	0.15	DACITIC IGNIMBRITE: fine to coarse grained, yellow brown mottled red brown, dry to moist, medium strength, moderately weathered, fractured																
	0.4	Pit discontinued at 0.4m -Bucket refusal																
562	1																	

RIG: CAT 304C CR mini excavator fitted with a 300mm wide bucket

LOGGED: GM/WT

SURVEY DATUM: ACT Stromlo

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels and coordinates are approximate only and must not be relied upon.

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)