

PRELIMINARY ASSESSMENT: Acid Sulfate

For Proposed Pool at **38 Gondola Road, North Narrabeen**

<i>Class of land as shown on Acid Sulfate Soils Planning Maps</i>		<i>Type of Works</i>
<input type="checkbox"/>	1	Any works
<input type="checkbox"/>	2	Works below the natural ground surface. Works by which the water table is likely to be lowered.
<input checked="" type="checkbox"/>	3	Works beyond 1m below the natural ground surface. Works by which the water table is likely to be lowered beyond 1m below the natural ground surface.
<input type="checkbox"/>	4	Works beyond 2m below the natural ground surface. Works by which the water table is likely to be lowered beyond 2m below the natural ground surface.
<input checked="" type="checkbox"/>	5	Works on land below 5m AHD and within 500m of adjacent Class 1, 2, 3 or 4 land which are likely to lower the watertable below 1m AHD on adjacent Class 1, 2, 3 or 4 land.
<i>The class of the site is highlighted in red, it should be noted that the classification does not mean acid sulfate soils are present on site but that there is a risk they could be present.</i>		

1. Proposed Development

- 1.1** Install a new pool on the N side of the property by excavating to a maximum depth of ~2.0m.
- 1.2** Details of the proposed development are shown on 6 drawings prepared by Premier Pools, Project number 2111_003, drawing numbered 01 is dated 10/11/21, and drawings numbered 02 to 06 are dated 24/3/22.

2. Site Description

The site was inspected on the 22nd December, 2021.

The property is located on the very gently graded, low lying area that is located to the W of the N reaches of Narrabeen Lagoon. The surface varies between RL3.4 and RL4.0. The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Narrabeen Group of Rocks with the contact point of Alluvial Stream and Estuarine Sediment (Qha) in close proximity to

the NE of the property. Ground testing indicates the Alluvial Stream and Estuarine Sediment underlies the proposed works. These are described as silty to peaty quartz sand, silt and clay with ferruginous and humic cementation in places and common shell layers.

The NSW Environment and Heritage mapping program (eSpade) maps the soil landscape of the property as 'Warriewood'. The ground tests indicate the upper ~0.4m of soil is a loose, speckled, dark grey loamy sand (wa1) that overlies a bleached massive sand (wa2) and brown soft iron pan (wa5). Their documentation indicates these soils range in pH from 4.5 to 7.0.

None of the ground tests encountered weathered rock. The sands that were encountered are likely Holocene in age (spanning in time from present to ~10,000 years ago) and the Narrabeen Group of rocks are Triassic in age (spanning in time from 199-251 million years ago).

No visible signs of acid sulfate soils such as bare low-lying areas, corrosion on man-made surfaces, or unusually clear, milky, or iron-stained surface water were observed on the property.

3. Earthworks

An excavation to a maximum depth of ~2.0m will be required to install the new pool. The excavation will cover an area of ~30m². The excavation is only a risk in regards to potential acid sulfate soils while it is open. On completion of the excavation, it will be sealed with concrete, preventing access of oxygen to the soil and therefore greatly reducing the potential for acid generation.

4. Watertable

The watertable was not encountered in the ground tests that reached a maximum depth of ~2.4m below the current surface.

The proposed excavation will not exceed a depth of ~2.0m and it is envisaged the watertable will not be intercepted or impacted.

5. Field Testing

Four hand Auger Holes (AH) were put down in the locations shown on the site plan attached. Field pH and peroxide testing was carried out on samples taken from the auger holes at regular intervals. The logs of the auger holes and the test results are as follows. The soil reaction rating scale for the pHFOX test is shown in Appendix 1.

AUGER HOLE 1 (~RL3.4) – AH1

Depth (m)	Material Encountered
0.0 to 0.4	TOPSOIL , silty soil, brown, medium dense, dry, fine to medium grained with fine trace organic matter.
0.4 to 0.6	SAND , dark grey, loose to medium dense, dry, coarse grained.
0.6 to 1.8	SAND , grey, loose to medium dense, dry, coarse grained.
1.8 to 1.9	SAND , dark brown, medium dense, dry, fine to medium grained, trace clay.

End of hole @ 1.9m in Medium Dense Sand. No water table encountered.

TEST: AH1	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	pH _F	30% Peroxide reaction	pH _{FOX}	pH _F - pH _{FOX}	SS=Shell J=Jarosite R=Roots
0.3	7.2	L	7.0	0.2	~5% Roots
0.6	7.3	L	7.2	0.1	-
1.1	7.5	L	7.3	0.2	-
1.6	7.5	L	7.4	0.1	-
1.9	6.7	No Reaction	6.5	0.2	-

AUGER HOLE 2 (~RL3.6) – AH2

Depth (m)	Material Encountered
0.0 to 0.4	FILL , disturbed sandy soil, brown, grey, and yellow, loose to medium dense, dry, fine to coarse grained with fine trace organic matter, trace silt, and rock fragments.

Refusal @ 0.4m on unknown obstruction. No water table encountered.

TEST: AH2	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	pH _F	30% Peroxide reaction	pH _{FOX}	pH _F - pH _{FOX}	SS=Shell J=Jarosite R=Roots
0.4	6.2	No Reaction	6.3	-0.1	~5% Roots

AUGER HOLE 3 (~RL3.5) – AH3

Depth (m)	Material Encountered
0.0 to 0.2	TOPSOIL , silty soil, brown, medium dense, dry, fine to medium grained with fine trace organic matter.
0.2 to 0.5	SAND , dark grey, loose to medium dense, dry, coarse grained.
0.5 to 2.0	SAND , grey, loose to medium dense, dry, coarse grained.
2.0 to 2.1	SAND , dark brown, medium dense to dense, dry, fine to medium grained, trace clay.

End of hole @ 2.1m in Dense Sand. No water table encountered.

TEST: AH3	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	pH _F	30% Peroxide reaction	pH _{FOX}	pH _F - pH _{FOX}	SS=Shell J=Jarosite R=Roots
0.5	7.3	No Reaction	7.2	0.1	~5% Roots
1.0	7.2	L	7.1	0.1	-
1.5	7.5	L	7.3	0.2	-
2.1	7.1	No Reaction	7.0	0.1	-

AUGER HOLE 4 (~RL3.6) – AH4

Depth (m)	Material Encountered
0.0 to 0.2	TOPSOIL , silty soil, brown, medium dense, dry, fine to medium grained with fine trace organic matter.
0.2 to 0.5	SAND , dark grey, loose to medium dense, dry, coarse grained.
0.5 to 1.0	SAND , grey, loose to medium dense, dry, coarse grained.

End of hole @ 1.0m in Medium Dense Sand. No water table encountered.

TEST: AH4	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	pH _F	30% Peroxide reaction	pH _{FOX}	pH _F - pH _{FOX}	SS=Shell J=Jarosite R=Roots
0.5	7.4	No Reaction	7.2	0.2	~5% Roots
1.0	7.4	No Reaction	7.3	0.1	-

6. Conclusions

This report was carried out in accordance with the Field pH and Peroxide Test guidelines (ASSMAC, 1998).

No Acid Sulfate Soils were identified in the test holes. The pH_F levels tested in all auger holes did not fall lower than 6.2. This is above a PH of 4 that is an indicator of acid sulfate soils. No

Potential Acid Sulfate Soils were identified in the test holes. The measured pH_F Levels varied up to 0.2 from the measured pH_{FOX} levels. A movement of 1 unit or more is an indicator of potential acid sulfate soils. In addition, the measured pH_{FOX} did not fall lower than 6.3. A $pH_{FOX} < 3$ is a strong indicator of potential acid sulfate soils. No observable colour change or sulphurous odours were identified during the peroxide testing. It is likely the varying weak reactions to peroxide testing were due to inclusions in the soil other than sulphides as, where the reaction was strongest, pH_{FOX} changed little from pH_F as it did in most tests.

This preliminary assessment indicates that an Acid Sulfate Soils management plan is not required for the proposed works.

White Geotechnical Group Pty Ltd.



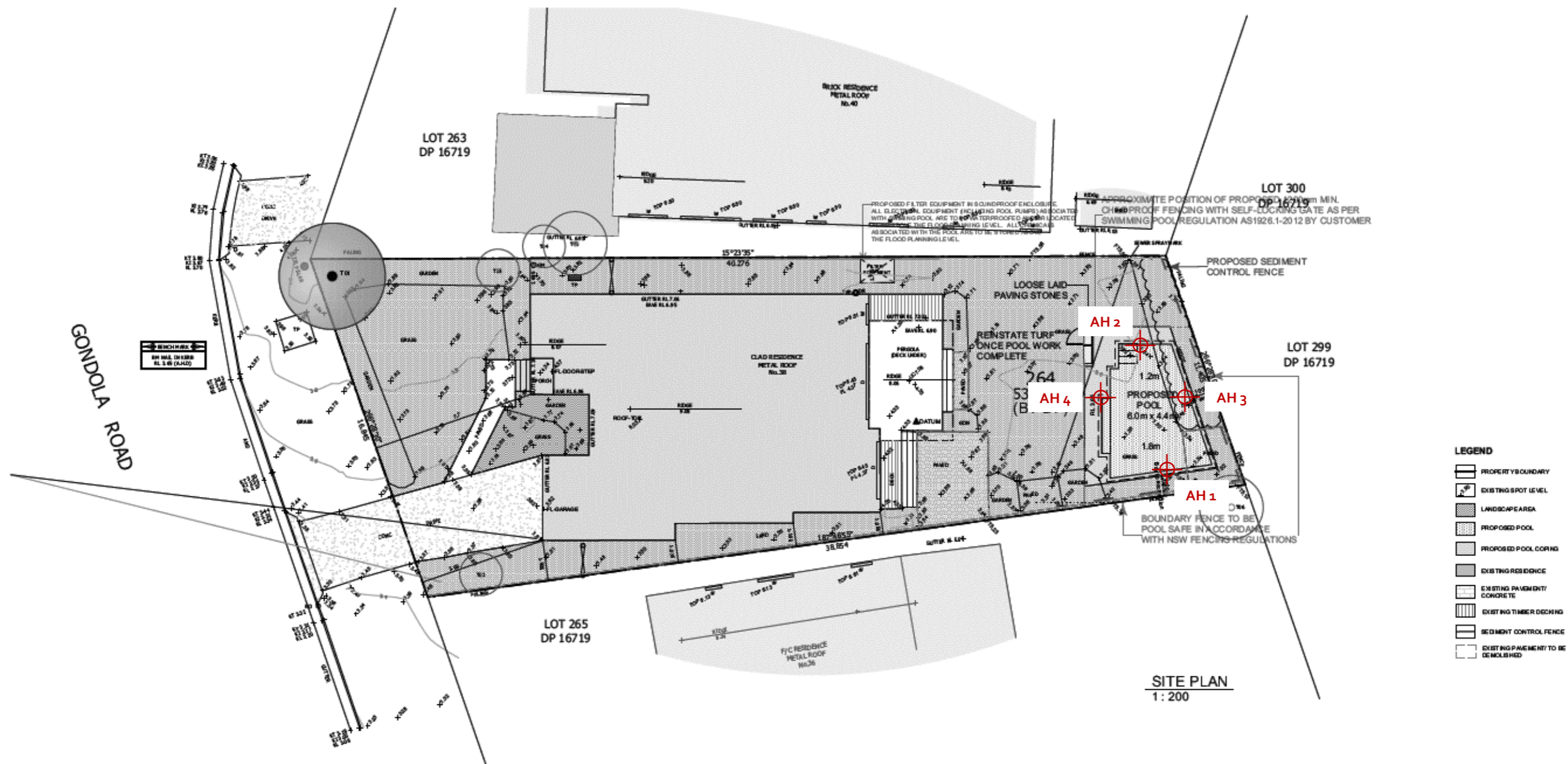
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Appendix 1: Soil Reaction Rating Scale

Rate of Reaction	Reaction Scale
Low	L
Medium	M
High	H
Extreme	X
Volcanic	V

Source: DER (2015a)

SITE PLAN – showing test locations



POOL VOLUME = 33.1KL

SWIMMING POOL SAFETY FENCE TO COMPLY WITH:
AS 1926.1-2012
AS 1926.2-2007
SWIMMING POOLS ACT 1992
SWIMMING POOLS REGULATION 2008
BUILDING CODE OF AUSTRALIA
BUILDING CODE OF AUSTRALIA NSW AMENDMENT -PART 3.9.3

SITE COVERAGE CALCULATIONS ZONED R2 RESIDENTIAL

SITE AREA: 537.5m²
Control: MIN. LANDSCAPE AREA % OF SITE AREA REQUIRED 268.75m² (50%)
PROPOSED SOFT LANDSCAPE AREA 269.7m² (50.2%)



NOTE:

THIS PLAN IS TO BE READ IN CONJUNCTION WITH ENGINEERING PLANS RELATING TO THE PROPOSED DEVELOPMENT. NO LIABILITY SHALL BE CARRIED FORWARD BY THE AUTHOR SHOULD IT BE USED FOR ANY OTHER PURPOSE.
FIGURED DIMENSIONS ARE TO BE TAKEN IN PREFERENCE TO SCALING FROM PLAN.
ALL DIMENSIONS AND LEVELS TO BE VERIFIED BY THE CONTRACTOR ON SITE.

PROJECT
PROPOSED SWIMMING POOL
CLIENT
FROWDE RESIDENCE
ADDRESS
38 Gondola Rd
NTH NARRABEEN

TITLE SITE
CALCULATION PLAN

DATE 24.03.22
SCALE AS SHOWN
DRAWN VP
CHKD

PROJECT
2111_003
REVISION

DWG

02

Premier Pools
THE POOL PROFESSIONALS

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