PRELIMINARY ASSESSMENT: Acid Sulfate
For Proposed Works at **41 Pacific Parade, Manly**

Class of land as shown on Acid Sulfate Soils Planning Maps		*Type of Works*
☐	**1**	Any works
☐	**2**	Works below the natural ground surface. Works by which the water table is likely to be lowered.
☐	**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.
■	**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.
☐	**5**	Works on land below 5m AHD and within 500m of adjacent Class1, 2, 3 or 4 land which are likely to lower the watertable below 1m AHD on adjacent Class 1, 2, 3 or 4 land.
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.		

1. Proposed Development

1.1 Demolish the uphill portion of the existing house. Rebuild the uphill portion of the house, extend further upslope and add a new first floor addition.

1.2 Other internal and external alterations to the existing house.

1.3 Install a new pool with deck requiring a stepped excavation. The upper and lower steps reach maximum depths of ~0.6m and 2.0m respectively. The benches between the steps range from ~1.1m to ~1.8m wide. The maximum combined stepped excavation depth is ~2.6m.

1.4 Details of the proposed development are shown on 28 drawings provided by Your Beautiful Home, drawings numbered 01 to 04, MD01, MD02, MD04 to MD08, SK100, SK111, SK121, SK130, SK200, SK210, SK220, SK230, SK301 to SK304, SK400, SK500, SK600 and SK601, dated October 2021.

2. Site Description

The site was inspected on the 7th March, 2022 and previously on the 6th May, 2021.

The block is located on gently sloping terrain at the toe of a hill. The surface varies between ~RL3.4 and ~RL6.6. The Sydney 1:100 000 Geological sheet indicates the site is underlain by Hawkesbury Sandstone. The test results indicates deep sands overlie the sandstone bedrock at the location of the proposed works.

The NSW Environment and Heritage mapping program (eSpade) maps the soil landscape of the property as 'Lambert', although the 'Newport' soil landscape is shown close to the N side of the property and at a residential scale the map is not always accurate. Ground testing indicates the soil materials more closely resemble the 'Newport' soil landscape at the location of the proposed works. The ground tests indicate the upper ~0.6m to ~0.7m of soil is loose dark brown sandy loam (np1) that overlies brown and grey bleached sand (np3). Their documentation indicates these soils range in pH from 5.0 to 7.0.

The sand sediments are Holocene in age (spanning in time from present to ~10 000 years ago).

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

3. Earthworks

A stepped excavation to a maximum combined depth of ~2.6m is required for the proposed pool and deck. The pool portion of the excavation will cover an area of ~24m^2. Additional earthworks include footing excavations for the proposed house additions. The excavations are only a risk in regards to potential acid sulfate soils while they are open. On completion of the footings, they will be sealed with the foundation, preventing access of oxygen to the soil and therefore greatly reducing the potential for acid generation.

4. Watertable

The watertable was encountered at depths from between ~0.6m to ~0.8m (~RL3.3 to ~RL4.1) below the current surface. It should be noted the watertable fluctuates with the tide and climatic changes. It is expected the watertable was higher than usual at the time of the inspection. Heavy and prolonged rainfall had occurred in the weeks prior and on the day of the inspection.

5. Field Testing

Four hand auger holes were put down in the locations shown on the site plan attached. Field pH and pH_{FOX} 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 pH_{FOX} test is shown in Appendix 1.

AUGER HOLE 1 (~RL3.6) **–** AH1

Depth (m)	Material Encountered
0.0 to 0.5	**TOPSOIL**, sandy soil, dark brown, damp, fine to medium grained.
0.5 to 1.3	**SAND**, dark brown, damp to wet, fine to medium grained.

End of Hole @ 1.3m in damp to wet sand. No watertable 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**
0.4	5.5	L	5.5	0	-
0.8	5.7	L	5.7	0	-
1.3	6.1	L	6.1	0	-

AUGER HOLE 2 (~RL4.7) **–** AH2

Depth (m)	Material Encountered
0.0 to 0.6	**TOPSOIL**, sandy soil, dark brown, damp, fine to medium grained.
0.6 to 1.3	**SAND**, light brown, wet, fine to medium grained.

End of Hole @ 1.3m in wet sand. Watertable encountered @ 0.8m.

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	5.3	L	5.3	0	-
0.8	5.7	No Reaction	5.7	0	-
1.3	6.3	L	6.3	0	-

AUGER HOLE 3 (~RL4.8) **–** AH3

Depth (m)	Material Encountered
0.0 to 0.7	**TOPSOIL**, sandy soil, dark brown, damp, fine to medium grained.
0.7 to 1.5	**SAND**, grey/brown, wet, fine to medium grained.

End of Hole @ 1.5m in wet sand, sand collapsing into hole. Watertable encountered @ 0.7m.

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	5.8	L	5.8	0	-
1.0	6.0	L	6.0	0	-
1.5	6.2	No Reaction	6.2	0	-

AUGER HOLE 4 (~RL4.4) **–** AH4

Depth (m)	Material Encountered
0.0 to 0.7	**FILL**, topsoil, dark brown, damp, fine to medium grained.
0.7 to 1.3	**SAND**, grey/brown, wet, fine to medium grained.

End of Hole @ 1.3m in wet sand, sand collapsing into hole. Watertable encountered @ 0.6m.

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**
0.4	6.8	L	6.7	0.1	-
0.8	6.3	L	6.3	0	-
1.3	5.9	L	5.9	0	-

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 5.3. 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 0.1 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} for all tests did not fall lower than 5.3. 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 low reactions to peroxide testing were due to inclusions in the soil other than sulphides.

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

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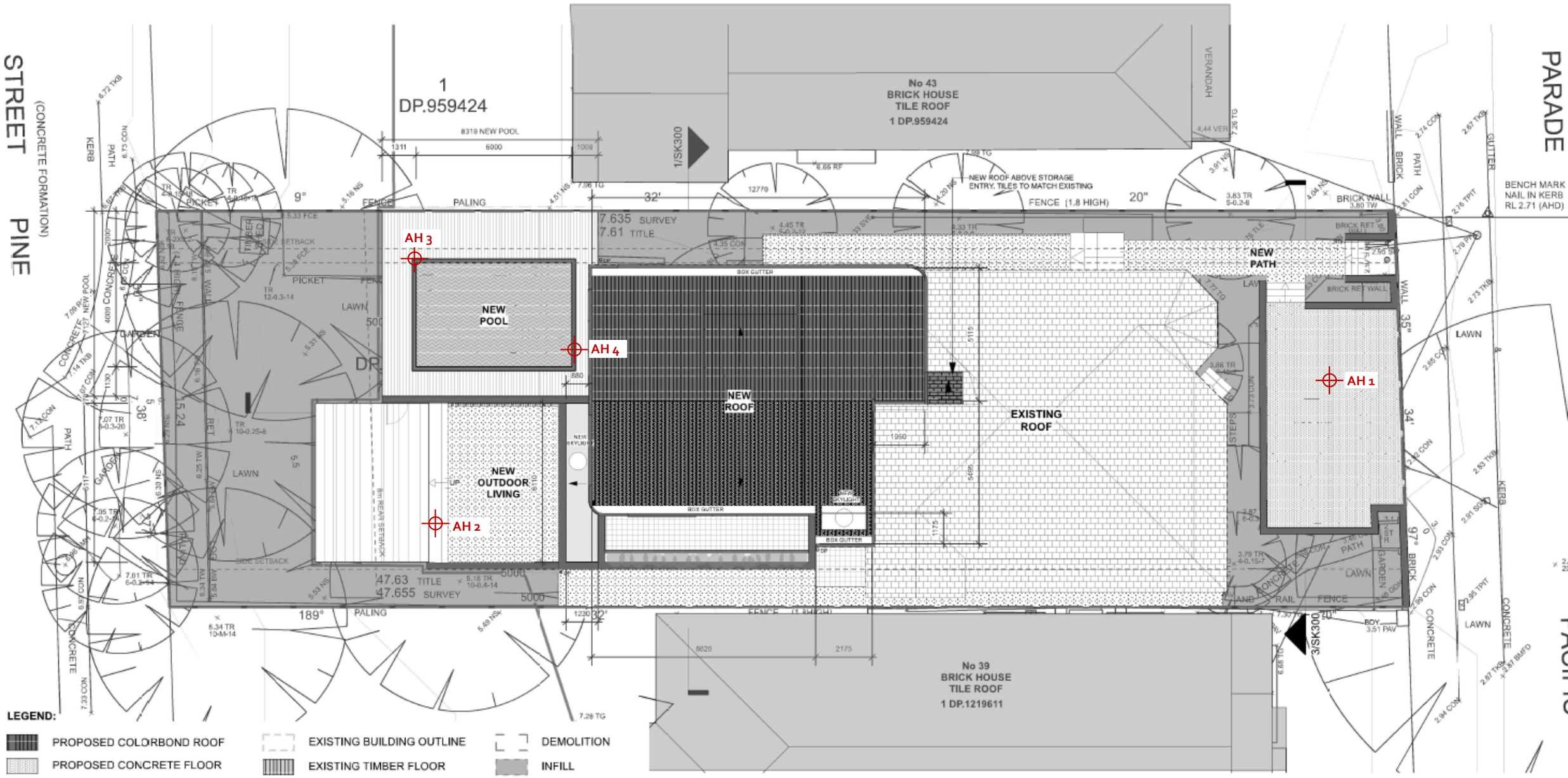
Appendix 1: Soil Reaction Rating Scale

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

Source: DER (2015a)

SITE PLAN – showing test locations



LEGEND:

- PROPOSED COLORBOND ROOF
- PROPOSED CONCRETE FLOOR
- PROPOSED DECK
- PROPOSED TIMBER FLOOR
- PROPOSED TILE FLOOR
- PROPOSED CARPET
- PROPOSED EXTERNAL WALL
- PROPOSED TIMBER FRAMED WALL
- EXISTING BUILDING OUTLINE
- EXISTING TIMBER FLOOR
- EXISTING CONCRETE FLOOR
- EXISTING TILE FLOOR
- EXISTING TILED ROOF
- LAWN
- EXISTING WALL
- DEMOLITION
- INFILL
- JOINERY
- STRUCTURAL GLASS

1 PROPOSED SITE & ROOF PLAN
Scale: 1:150

your beautiful HOME.

NOTES
All levels, contours,survey and cadastral information provided by Land Surveyors
YBH was provided with all site information including measured drawing. All dimensions will need to be confirmed on site.
The dimensions and profiles shown on the drawings are believed to be correct. It is the responsibility of those working on site to verify the dimensions and profiles and locate all services on site prior to commencing work
All dimensions in millimetres/Use figured dimensions only. Do not scale
If discrepancy exists notify designer immediately. All work shall comply with the Building Code of Australia, the rules and requirements of the Water Board, Council and the relevant Standards Association of Australia codes and specifications

PROJECT ADDRESS
41 Pacific Parade
Manly NSW 2095
Lot 1 Sec DP932367 725.6sqm

CLIENT/S
Becca &
Dom Price

DATE
October 2021

STATUS
For Client Review

REVISION

PROPOSED SITE & ROOF PLAN

FOR CLIENT REVIEW
NOT FOR CONSTRUCTION

SK100

SCALE
AS SHOWN @ A3