135 Seaforth Crescent, Seaforth

Comments on updates to Plans

We have reviewed the existing geotechnical report, the original plans, and the 9 amended plans prepared by Urban Escape. The drawings are all numbered LA101, apart from the swimming pool plan which is not numbered. The site plan is dated 21/4/22. The other drawings are dated 27/4/22.

The changes include:

- Raised the pool by ~0.5m.

The changes to the plans are minor from a geotechnical perspective and do not alter the recommendations or the risk assessment in the report carried out by this firm numbered J2379A and dated the 30th September, 2020.

White Geotechnical Group Pty Ltd.

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GEOTECHNICAL INVESTIGATION:

New Pool and Decks at **135 Seaforth Crescent, Seaforth**

1. Proposed Development

1.1 Construct a new pool and decks on the downhill side of the house.

1.2 Details of the proposed development are shown on 7 drawings prepared by Urban Escape, drawings labelled LA101, Landscape concept plan dated 23/9/20, and elevation and section drawings dated 29/9/20.

2. Site Description

2.1 The site was inspected on the 5th September, 2019.

2.2 This residential property is on the low side of the road and has a NW aspect. The block is located on the steeply graded middle reaches of a hillslope. From the road frontage, the natural surface falls at an average angle of ~33° to the downhill side of the house. The slope below the property continues at steep angles. The slope above the property continues at steep angles before easing as it reaches the crest of the hill.

2.3 At the road frontage, a concrete driveway runs to a suspended carport on the uphill side of the property (Photo 1). A timber and steel stair case runs downslope from the carport to the house (Photo 2). Outcropping sandstone was observed across the entire site. The three storey timber framed and clad house continues downslope. The house is partially suspended and is supported by steel beams and concrete footings on sandstone (Photo 3). All visible footings showed no signs of movement and are considered stable. An inclined lift runs along the S boundary and rough sandstone block set of stairs along the E side of the property (Photo 4). A ~3.0m high sloped and jointed sandstone rock face extends downslope of the house (Photo 5). The rock face is considered stable. The footprint of the suspended pool will fall over

this portion of the slope. A timber stair case has been cut into the sandstone rock face and provides access to narrow lawn covered terraces. Sandstone stack rock retaining walls founded on outcropping sandstone have been used to support the fills that form these terraces. The retaining walls range in height from 0.4m to 2.0m and are considered stable (Photo 6). Where terraces don't exist the slope is covered in native and exotic shrubs and trees. The steep slope continues to the downhill property boundary.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by Hawkesbury Sandstone. It is described as a medium to coarse grained quartz sandstone with very minor shale and laminite lenses.

4. Subsurface Investigation

One auger hole was put down to identify the soil materials. Four Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to bedrock. The locations of the tests are shown on the site plan. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to be an issue for the testing on this site and the results are as follows:

AUGER HOLE 1 (~RL33.8) **–** AH1 (Photo 7)

Depth (m)	**Material Encountered**
0.0 to 1.0	**Sandy Soil,** brown, medium grained with sandstone fragments

Refusal @ 1.0m grinding on rock. No watertable encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer				
Equipment: 9kg hammer, 510mm drop, conical tip.			Standard: AS1289.6.3.2 - 1997	
Depth(m) Blows/0.3m	**DCP 1** (~RL34.2)	**DCP 2** (~RL33.8)	**DCP 3** (~RL32.1)	**DCP 4** (~RL29.2)
0.0 to 0.3	4F	3	1	5
0.3 to 0.6	6	3	6	5
0.6 to 0.9	6	8	9	20
0.9 to 1.2	11	11	#	#
1.2 to 1.5	14	22		
1.5 to 1.8	21	#		
1.8 to 2.1	33			
2.1 to 2.4	6			
2.4 to 2.7	#			
	Refusal on Rock @ 2.1m	Refusal on Rock @ 1.5m	Refusal on Rock @ 0.75m	Refusal on Rock @ 0.9m

#refusal/end of test. F = DCP fell after being struck showing little resistance through all or part of the interval.

DCP Notes:

DCP1 – Refusal on rock @ 2.1m, DCP bouncing off rock surface, white to maroon impact dust on dry tip.
DCP2 – Refusal on rock @ 1.5m, DCP bouncing off rock surface, clean dry tip.
DCP3 – Refusal on rock @ 0.75m, DCP bouncing off rock surface, white impact dust on dry tip.
DCP4 – Refusal on rock @ 0.9m, DCP bouncing off rock surface, white to orange fragments on dry tip.

5. Geological Observations/Interpretation

The surface features of the block are controlled by the outcropping and underlying sandstone bedrock that steps down the property forming sub-horizontal benches between the steps. Where the grade is steeper, the steps are larger and the benches narrower. Where the slope eases, the opposite is true. Where the rock is not exposed, it is overlain by sandy soils over sandy clays that fill the bench step formation. In the test locations the depth to rock ranged between 0.0 to 2.1m below the current surface, being variable due to the jointed and blocky

nature of the top layer of bedrock. The outcropping sandstone on the property is estimated to be Medium Strength or better and similar strength rock is expected to underlie the entire site. See Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Normal ground water seepage is expected to move over the buried surface of the rock and through the cracks. Due to the slope and elevation of the block, the water table is expected to be many metres below the base of the proposed excavation.

7. Surface Water

No evidence of significant surface flows were observed on the property during the inspection. Normal sheet wash from the slope above will be intercepted by the street drainage system for Seaforth Crescent above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above, below, or beside the property. The steeply graded land surface that falls across the property is a potential hazard (**Hazard One**).

Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The steep slope that falls across the property and continues above and below failing and impacting on the property.
LIKELIHOOD	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Medium' (20%)
RISK TO PROPERTY	'Low' (2×10^{-5})
RISK TO LIFE	8.3×10^{-7}/annum
COMMENTS	'ACCEPTABLE' level of risk to life & property when the recommendation in **Section 13 & 14** are followed.

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

9. Suitability of the Proposed Development for the Site

The proposed development is suitable for the site. No geotechnical hazards will be created by the completion of the proposed development provided it is carried out in accordance with the requirements of this report and good engineering and building practice.

10. Stormwater

All stormwater or drainage runoff from the proposed covered deck are to be piped into the property's existing stormwater system.

11. Excavations

Apart from those for footings and minor levelling, no excavations are required.

12. Foundations

Piers supported directly off Medium Strength Sandstone are suitable footings for the proposed pool and decks. Due to the rocky surface, it is recommended when the footing locations are marked out the geotechnical consultant be on site to determine if the rock below each proposed pier is suitable to support the pool. Footing depth is expected to be variable on this site with the ground testing indicating a range from 0.0 to 2.1m below the surface. Piered foundations are to be socketed at least 0.3m into rock. Where suitable sloping rock is exposed at the surface level pads are to be cut into the rock for the foundation surface. On this location a maximum allowable bearing pressure of 600kPa can be assumed for footings on Medium Strength Sandstone.

Naturally occurring vertical cracks (known as joints) commonly occur in sandstone. These are generally filled with soil and are the natural seepage paths through the rock. They can extend to depths of several metres and are usually relatively narrow but can range between 0.1 to 0.8m wide. If a footing falls over a joint in the rock, the construction process is simplified if, with the approval of the structural engineer, the joint can be spanned or, alternatively, the footing can be repositioned so it does not fall over the joint.

NOTE: If the contractor is unsure of the footing material required, it is more cost-effective to get the geotechnical consultant on site at the start of the footing excavation to advise on footing depth and material. This mostly prevents unnecessary over-excavation in clay-like shaly-rock but can be valuable in all types of geology.

13. Inspections

The client and builder are to familiarise themselves with the following required inspections as well as council geotechnical policy. We cannot provide geotechnical certification for the owners or the regulating authorities if the following inspections have not been carried out during the construction process.

- When the pier locations are initially marked out on site the geotechnical consultant is to assess the surface rock and advise if it is suitable to support the point loads from the proposed pool.

- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment is still onsite and before steel reinforcing is placed or concrete is poured.

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Photo 1

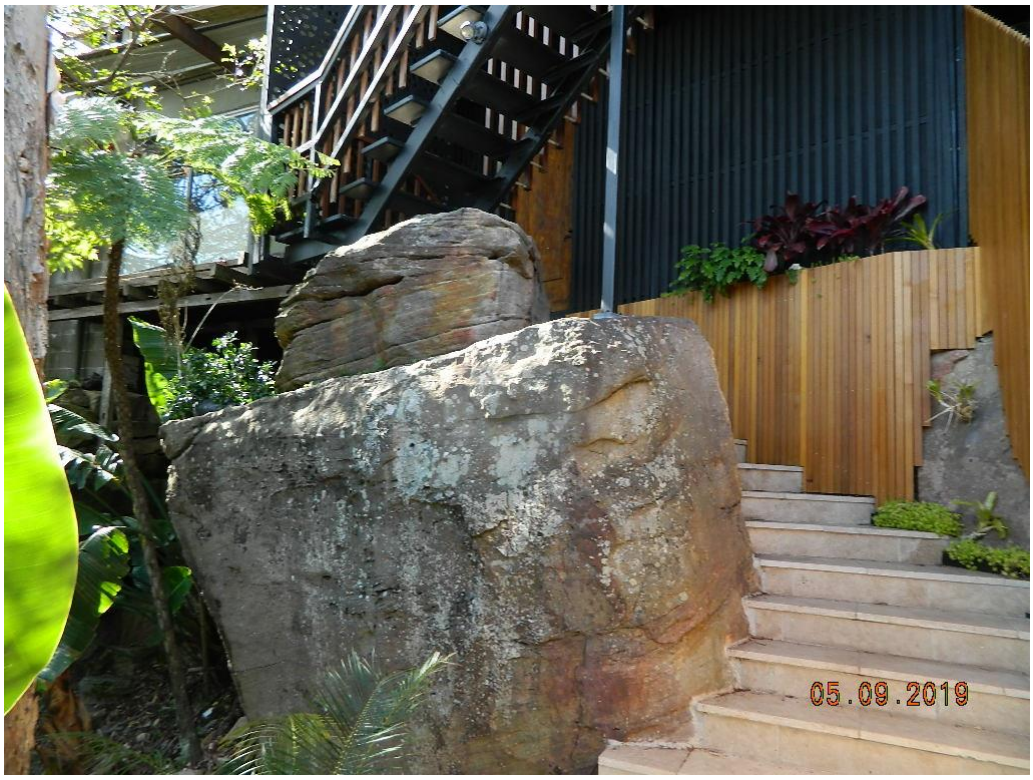


Photo 2

Photo 3

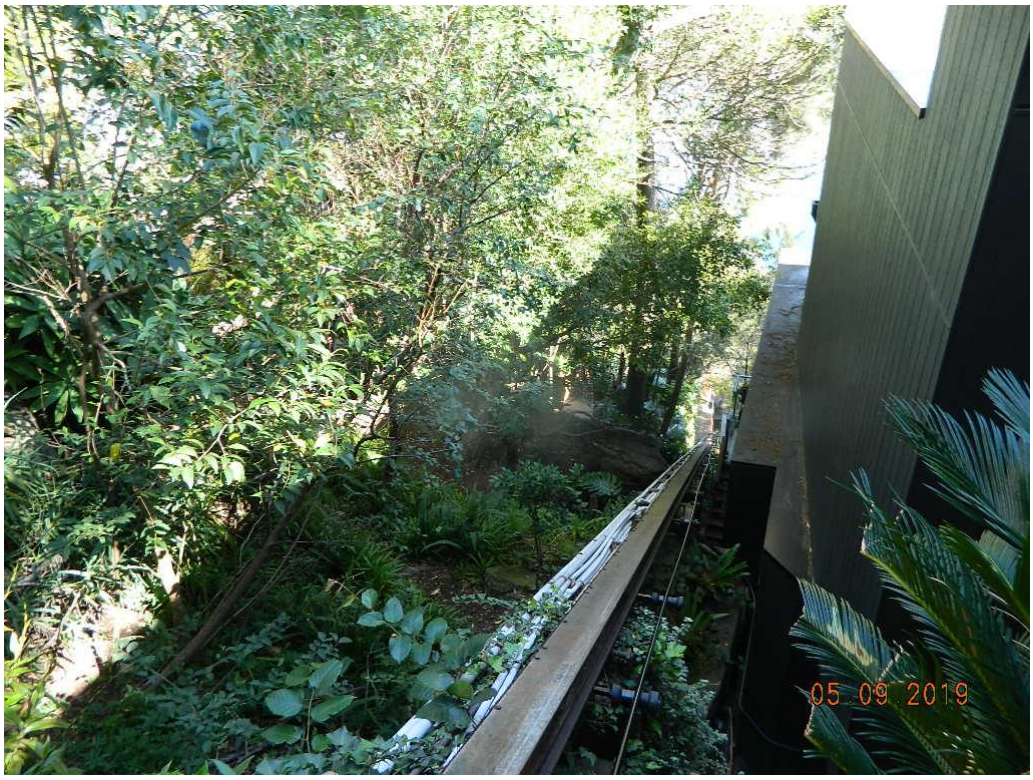


Photo 4

Photo 5

Photo 6

Photo 7 – AH1: Downhole is from top to bottom

Important Information about Your Report

It should be noted that Geotechnical Reports are documents that build a picture of the subsurface conditions from the observation of surface features and testing carried out at specific points on the site. The spacing and location of the test points can be limited by the location of existing structures on the site or by budget and time constraints of the client. Additionally, the test themselves, although chosen for their suitability for the particular project, have their own limiting factors. The testing gives accurate information at the location of the test, within the confines of the test's capability. A geological interpretation or model is developed by joining these test points using all available data and drawing on previous experience of the geotechnical consultant. Even the most experienced practitioners cannot determine every possible feature or change that may lie below the earth. All of the subsurface features can only be known when they are revealed by excavation. As such, a Geotechnical report can be considered an interpretive document. It is based on factual data but also on opinion and judgement that comes with a level of uncertainty. This information is provided to help explain the nature and limitations of your report.

With this in mind, the following points are to be noted:

- If upon the commencement of the works the subsurface ground or ground water conditions prove different from those described in this report, it is advisable to contact White Geotechnical Group immediately, as problems relating to the ground works phase of construction are far easier and less costly to overcome if they are addressed early.

- If this report is used by other professionals during the design or construction process, any questions should be directed to White Geotechnical Group as only we understand the full methodology behind the report's conclusions.

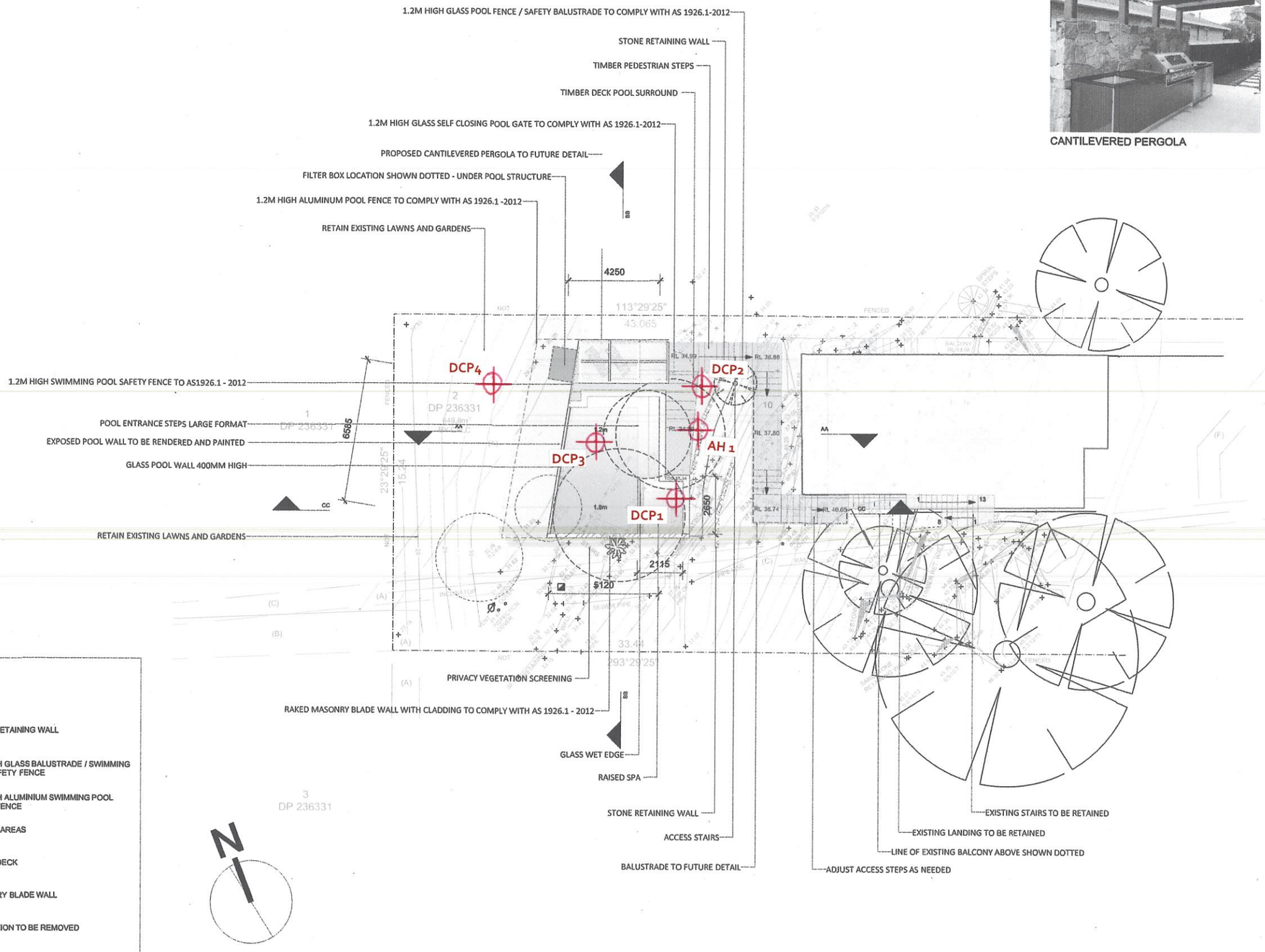
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- This report should not be applied to any other project other than that outlined in section 1.0.

- This report is to be read in full and should not have sections removed or included in other documents as this can result in misinterpretation of the data by others.

- It is common for the design and construction process to be adapted as it progresses (sometimes to suit the previous experience of the contractors involved). If alternative design and construction processes are required to those described in this report, contact White Geotechnical Group. We are familiar with a variety of techniques to reduce risk and can advise if your proposed methods are suitable for the site conditions.

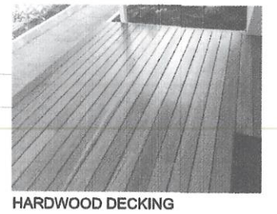
SITE PLAN – showing test locations



CANTILEVERED PERGOLA

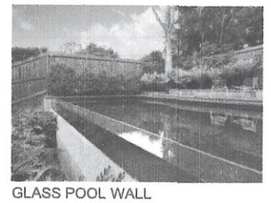
30MM STEEL ROUND BAR FENCE

ALUMINIUM FENCE

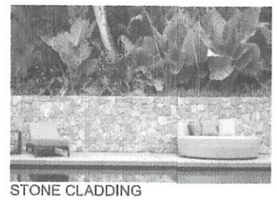


HARDWOOD DECKING

GLASS FENCING



GLASS POOL WALL



STONE CLADDING

LEGEND

- STONE RETAINING WALL
- 1.2M HIGH GLASS BALUSTRADE / SWIMMING POOL SAFETY FENCE
- 1.2M HIGH ALUMINIUM SWIMMING POOL SAFETY FENCE
- GARDEN AREAS
- TIMBER DECK
- MASONARY BLADE WALL
- VEGETATION TO BE REMOVED
- 30MM STEEL ROUND BAR POOL FENCE

URBAN ESCAPE
LANDSCAPE CONTRACTORS
Nick McCarthy T/A Urban Aqua Pools and Spas are fully licensed pool builders.
LANDSCAPING - DESIGN - POOLS

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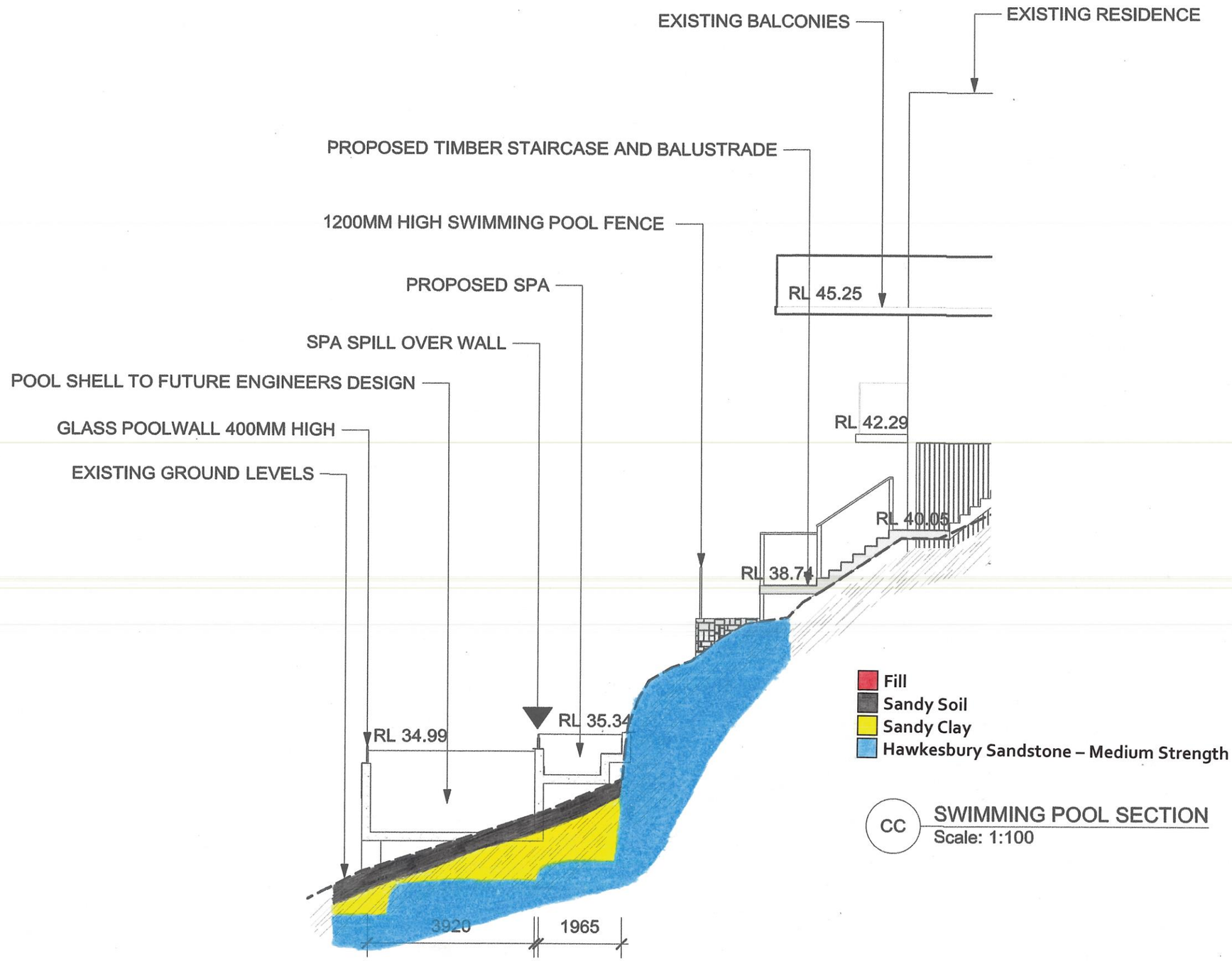
Member of Landscape Contractors Assoc. NSW

DRAWN	SCALE	DATE	DWG NO	REV
NM	1:100	23/09/20	LA101	

TITLE PAUL BARRETT
135 SEAFORTH AVE SEAFORTH

LANDSCAPE CONCEPT PLAN

TYPE SECTION – Diagrammatical Interpretation of Expected Ground Materials



CC **SWIMMING POOL SECTION**
Scale: 1:100

Note: If the status of this drawing is not signed off for construction, it may be subject to change, alteration or amendment at the discretion of Urban Escape. No liability will be accepted for any loss, damage, harm or injury whether special, consequential, direct or indirect suffered by you or any other person as a result of the use of this drawing. Contractors are to verify all dimensions and levels on site prior to commencement of any work. Report any discrepancies to designer before proceeding with any work. Location of underground services to be proven on site & protected if necessary prior to construction. Any damage to services caused by excavation works, shall be made good by contractor at contractors expense and to project managers satisfaction. All works shall comply with relevant authority requirements, Building codes & local council guidelines. All materials to be fixed according to manufacturers recommendations. Works are to be carried out by qualified tradesmen according to approved landscape plans. Urban Escape takes no responsibility for any variations in design, construction methods, materials or specifications without written permission by project manager.

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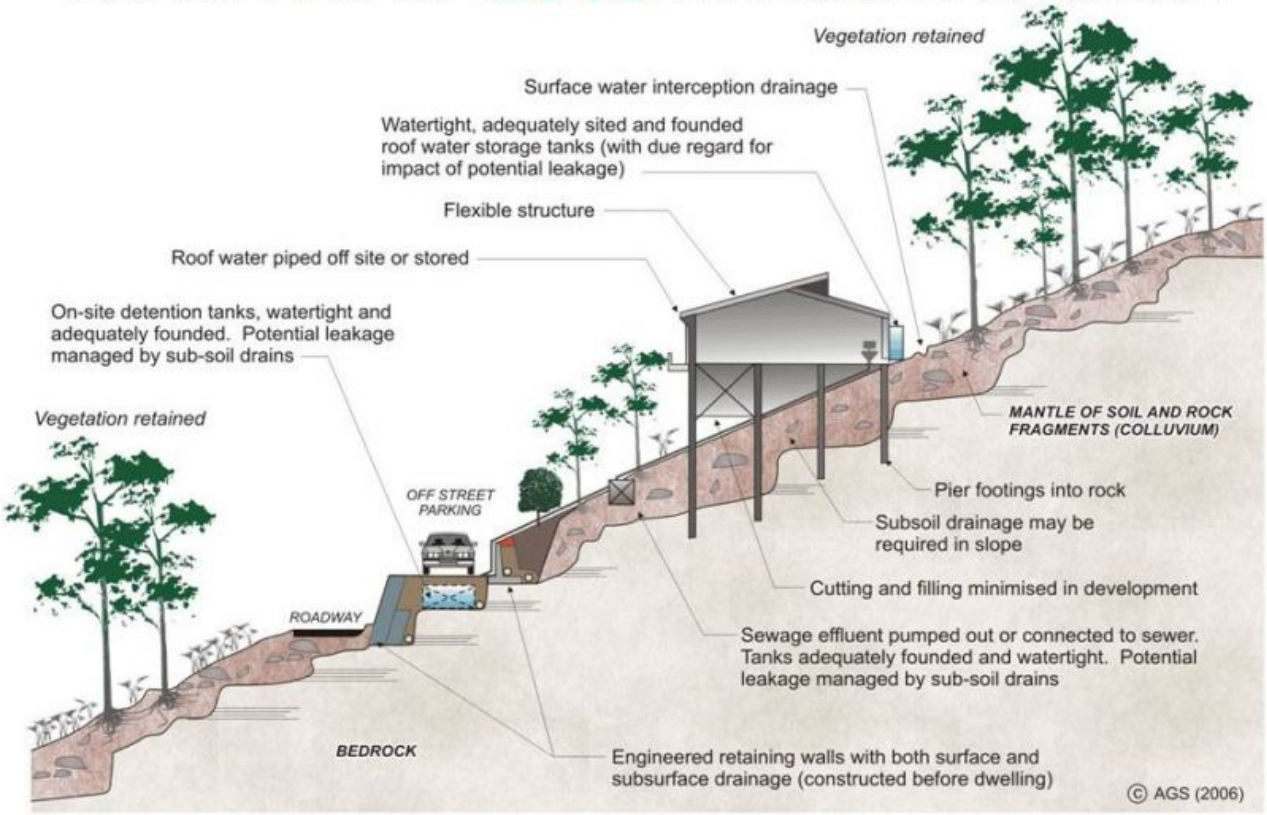
DRAWN	SCALE	DATE	DWG NO	REV
NM	1:100 @ A3	29/09/20	LA101	

TITLE PAUL BARRETT
135 SEAFORTH AVE SEAFORTH
SECTIONS

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE