GEOTECHNICAL INVESTIGATION:

Alterations and Additions **82 Clontarf Street, Seaforth**

1. Proposed Development

1.1 Construct a basement extension under the existing house by excavating to a maximum depth of ~1.5m.

1.2 Construct a new garage extension on the NW corner of the house by filling to a maximum depth of ~1.8m.

1.3 Various other alterations and additions.

1.4 Details of the proposed development are shown on 9 architectural drawings prepared by Site Specific Designs, project number 10-2021, drawings numbered DA00 to DA08, dated 19/09/22.

2. Site Description

2.1 The site was inspected on the 20th October, 2022.

2.2 This residential property is on the low side of the road and has an E aspect. The block is located on the gently graded upper reaches of a hillslope. The natural surface rises across the property at an average angle of <5°. The slope above and below continues at similar angles.

2.3 At the road frontage, a concrete driveway runs to a garage under the N side of the house (Photos 1 & 2). The cut for the driveway is supported by stable brick retaining walls up to ~1.2m high (Photo 2). Between the road frontage and the house is a gently sloping lawn. The single-storey brick house is supported on brick walls. The supporting brick walls show no significant signs of cracking. Access to the foundation space of the house was unavailable at the time of the inspection. A timber deck extends from the downhill side of the house. The deck is supported by posts which appear to stand vertical (Photo 3). The deck will be partially demolished and rebuilt as part of the proposed works. A gently sloping lawn extends from the E side of the property to the E 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 hand Auger Hole (AH) was put down to identify the soil materials. Five 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 attached. 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. However, excavation and foundation budgets should always allow for the possibility that the interpreted ground conditions in this report vary from those encountered during excavations. See the appended "Important information about your report" for a more comprehensive explanation. The results are as follows:

AUGER HOLE 1 (~RL69.5) **–** AH1 (Photo 4)

Depth (m)	Material Encountered
0.0 to 0.3	**SANDY CLAY**, brown, soft to firm, damp, fine to medium grained.
0.3 to 0.5	**SANDY CLAY**, grey-brown, grey-white near bottom, stiff, wet fine to medium grained.

Refusal @ 0.5m in Sandstone. No water table encountered.

<table>
<tr><th colspan="6">DCP TEST RESULTS – Dynamic Cone Penetrometer</th></tr>
<tr><td colspan="4">Equipment: 9kg hammer, 510mm drop, conical tip.</td><td colspan="2">Standard: AS1289.6.3.2 - 1997</td></tr>
<tr><td>Depth(m)
Blows/0.3m</td><td>DCP 1
(~RL67.9)</td><td>DCP 2
(~RL68.4)</td><td>DCP 3
(~RL69.0)</td><td>DCP 4
(~RL70.0)</td><td>DCP 5
(~RL69.5)</td></tr>
<tr><td>0.0 to 0.3</td><td>2</td><td>6</td><td>4</td><td rowspan="2">2F</td><td>2F</td></tr>
<tr><td>0.3 to 0.6</td><td>3</td><td>6</td><td>7</td><td>6</td></tr>
<tr><td>0.6 to 0.9</td><td>2</td><td>22</td><td>14</td><td>3</td><td>#</td></tr>
<tr><td>0.9 to 1.2</td><td>#</td><td>7</td><td>#</td><td>5</td><td></td></tr>
<tr><td>1.2 to 1.5</td><td></td><td>#</td><td></td><td>7</td><td></td></tr>
<tr><td>1.5 to 1.8</td><td></td><td></td><td></td><td>#</td><td></td></tr>
<tr><td></td><td>Refusal on Rock @ 0.7m</td><td>Refusal on Rock @ 1.1m</td><td>Refusal on Rock @ 0.9m</td><td>Refusal on Rock @ 1.4m</td><td>Refusal on Rock @ 0.5m</td></tr>
</table>

#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 @ 0.7m, DCP bouncing off rock surface, brown sandy clay on wet tip.
DCP2 – Refusal on rock @ 1.1m, DCP bouncing off rock surface, yellow sandstone fragments on dry tip.
DCP3 – Refusal on rock @ 0.9m, DCP bouncing off rock surface, grey-brown sandy clay on wet tip.
DCP4 – Refusal on rock @ 1.4m, DCP bouncing off rock surface, grey-brown sandy clay on wet tip.
DCP5 – Refusal on rock @ 0.5m, DCP bouncing off rock surface, brown sandy clay on wet tip.

5. Geological Observations/Interpretation

The surface features of the block are controlled by the 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. The rock is overlain by soils, and natural clays that fill the bench step formation. In the test locations, the rock was encountered at depths of between 0.5 to 1.4m below the current surface, being slightly deeper due to the stepped nature of the underlying bedrock. The sandstone underlying the property is estimated to be medium strength or better as the DCP bounced at the end of every test. 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 Clontarf Street above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above, below, or beside the property. The vibrations from the proposed excavation are a potential hazard (**Hazard One**). The proposed basement excavation is a potential hazard until the retaining walls are in place (**Hazard Two**). The excavation for the proposed basement undercutting the footings of the subject house is a potential hazard (**Hazard Three**). The proposed fill for the driveway is a potential hazard until retaining walls are in place (**Hazard Four**).

RISK ANALYSIS SUMMARY ON NEXT PAGE

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The vibrations produced during the proposed excavation impacting on the surrounding structures.	The proposed excavations collapsing onto the work site before retaining walls are in place.
LIKELIHOOD	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (15%)	'Medium' (30%)
RISK TO PROPERTY	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	5.3×10^{-7}/annum	$4.9 \text{ X } 10^{-4}$/annum
COMMENTS	This level of risk to life and property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels, the recommendations in **Section 12** are to be followed.	This level of risk to life and property is 'UNACCEPTABLE'. To move the risk to 'ACCEPTABLE' levels, the recommendations in **Section 13** are to be followed.

HAZARDS	Hazard Three	Hazard Four
TYPE	The proposed basement excavation undercutting the footings of the house causing failure.	The proposed fill (up to a maximum height of 1.8m) failing and impacting the proposed works.
LIKELIHOOD	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (35%)	'Medium' (15%)
RISK TO PROPERTY	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	5.3×10^{-5}/annum	6.0×10^{-5}/annum
COMMENTS	This level of risk to life and property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels, the recommendations in **Section 13** are to be followed.	This level of risk to life and property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels the recommendations in **Section 14** are to be 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

The fall is away from the street. The stormwater engineer is to refer to council stormwater policy for suitable options for stormwater disposal.

11. Excavations

An excavation to a maximum depth of ~1.5m is required to construct the proposed basement. The excavation is expected to be through a thin sandy soil and clays with Medium Strength Sandstone expected at a maximum depth of ~1.4m below the surface in the area of the proposed excavation.

It is envisaged that excavations through sandy soil and clays can be carried out with a toothed bucket and excavations through rock will require grinding or rock sawing and breaking.

12. Vibrations

Possible vibrations generated during excavations through sandy soil and clays will be below the threshold limit for building damage. It is expected that the majority of the excavations will be through Medium Strength Sandstone or better.

Excavations through rock should be carried out to minimise the potential to cause vibration damage to the neighbouring houses to the N and S. Allowing for 0.5m of backwall drainage, setbacks are as follows:

- ~5.0m from the N neighbouring house.
- ~7.5m from the S neighbouring house.

To reduce the likelihood of spurious claims, dilapidation reporting carried out on the N and S neighbouring properties is recommended prior to the excavation works commencing.

Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

Excavation methods are to be used that limit peak particle velocity to 8 mm/sec at the property boundaries. Vibration monitoring will be required to verify this is achieved. The vibration monitoring equipment must include a light/alarm so the operator knows if vibration limits have been exceeded. It also must log and record vibrations throughout the excavation works.

In Medium Strength Rock or better techniques to minimise vibration transmission will be required. These include:

- Rock sawing the excavation perimeter to at least 1.0m deep prior to any rock breaking with hammers, keeping the saw cuts below the rock to be broken throughout the excavation process.
- Limiting rock hammer size.
- Rock hammering in short bursts so vibrations do not amplify.
- Rock breaking with the hammer angled away from the nearby sensitive structures.
- Creating additional saw breaks in the rock where vibration limits are exceeded.
- Use of rock grinders (milling head).

Should excavation induced vibrations exceed vibration limits after the recommendations above have been implemented, excavation works are to cease immediately and our office is to be contacted.

It is worth noting that vibrations that are below thresholds for building damage may be felt by the occupants of the neighbouring houses.

13. Excavation Support Requirements

The excavation for the proposed basement will reach a maximum depth of ~1.5m. Allowing for 0.5m of back-wall drainage, the excavation will be flush with the existing house

As such, only the existing house will be within the zone of influence of the proposed excavation. In this instance, the zone of influence is the area above a theoretical 45° line from the base of the excavation or top of Medium Strength Rock, whichever is encountered first, towards the surrounding structures and boundaries.

Where the subject house falls within the zone of influence of the excavation, exploration pits along the walls will need to be put down by the builder to determine the foundation depth and material. These are to be inspected by the geotechnical consultant.

If the foundations are confirmed to be supported on rock or extend below the zone of influence of the proposed excavation, the excavation may commence. If they are not, the supporting walls will need to be underpinned to rock. See the site plan attached for the minimum extent of the required exploration pits/underpinning.

Underpinning is to follow the underpinning sequence 'hit one miss two'. Under no circumstances is the bulk excavation to be taken to the edge of the wall and then underpinned. Underpins are to be constructed from drives that should not exceed 0.6m in width along the supporting walls of the house. Allowances are to be made for drainage through the underpinning to prevent a build-up of hydrostatic pressure. Underpins that are not designed as retaining walls are to be supported by retaining walls. The void between the retaining walls and the underpinning is to be filled with free-draining material such as gravel.

Where the subject house falls over the footprint of the proposed excavation, the house is to be propped and supported with beams as necessary prior to the excavation through rock commencing.

During the excavation process, the geotechnical consultant is to inspect the cut in 1.5m intervals as it is lowered to ensure the ground materials are as expected and no wedges or other geological defects are present that could require additional support. Should additional ground-support be required, this will likely involve the use of mesh, sprayed concrete, and rock bolts.

During the excavation process, the geotechnical consultant is to inspect the excavations as they approach no less than 1.0m horizontally from the foundations of the house to confirm the stability of the cut to go flush with the footings.

Upon completion of the excavation, it is recommended all cut faces be supported with retaining walls to prevent any potential future movement of joint blocks in the cut face that can occur over time, when unfavourable jointing is obscured behind the excavation face. Additionally, retaining walls will help control seepage and to prevent minor erosion and sediment movement. Excavation spoil may be used for landscaping on site.

All excavation spoil is to be removed from site following the current Environmental Protection Agency (EPA) waste classification guidelines.

14. Fills

A fill will be placed on the NW of the property to fill the existing driveway. We are of the understanding that the fill will be used as formwork for the overlying slab only and that no foundations will be supported on the fill. No fills are to be laid until retaining walls are in place. The fills will reach a maximum depth of ~1.8m. The surface is to be prepared before any fills are laid by removing any organic matter and topsoil. Fills are to be laid in a loose thickness not exceeding 0.3m before being moderately compacted. Tracking the machine over the loose fill in 1 to 2 passes should be sufficient. Immediately behind the retaining walls (say to 1.5m), the fills are to be compacted with light weight equipment such as a hand-held plate compactor so as not to damage the retaining walls. Where light weight equipment is used, fills are to be laid in a loose thickness not exceeding 0.15m before being compacted. No structures are to be supported on fill.

15. Retaining Structures

For cantilever or singly-propped retaining structures, it is suggested the design be based on a triangular pressure distribution of lateral pressures using the parameters shown in Table 1.

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0
Fill, Sandy Soil and Residual Clays	20	0.40	0.55
Medium Strength Sandstone	24	0.00	0.01

For rock classes refer to Pells et al "Design Loadings for Foundations on Shale and Sandstone in the Sydney Region". Australian Geomechanics Journal 1978.

It is to be noted that the earth pressures in Table 1 assume a level surface above the structure, do not account for any surcharge loads, and assume retaining structures are fully drained. Rock strength and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

All retaining structures are to have sufficient back-wall drainage and be backfilled immediately behind the structure with free-draining material (such as gravel). This material is to be wrapped in a non-woven Geotextile fabric (i.e., Bidim A34 or similar), to prevent the drainage from becoming clogged with silt and clay. If no back-wall drainage is installed in retaining structures, the likely hydrostatic pressures are to be accounted for in the structural design.

16. Foundations

The proposed garage extension is to be supported on shallow pads or piers taken to Medium Strength Sandstone. This ground material is expected at shallow depths of between ~0.5m and ~1.4m below the current surface.

The proposed basement is expected to be seated in Medium Strength Sandstone. This is a suitable foundation material.

A maximum allowable bearing pressure of 1000kPa 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.

17. 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 owner or the regulating authorities if the following inspection has not been carried out during the construction process.

- During the excavation process, the geotechnical consultant is to inspect the cut faces as they are lowered in 1.5m intervals to ensure ground materials are as expected and that there are no wedges or other defects present in the rock that may require additional support.

- During the excavation process, the geotechnical consultant is to inspect the excavations as they approach no less than 1.0m horizontally from the foundations of the house to confirm the stability of the cut to go flush with the footings.
- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment and contractors are still onsite and before steel reinforcing is placed or concrete is poured.

White Geotechnical Group Pty Ltd.

Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist

Photo 1

Photo 2

Photo 3

Photo 5 (AH1 – Downhole is 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.

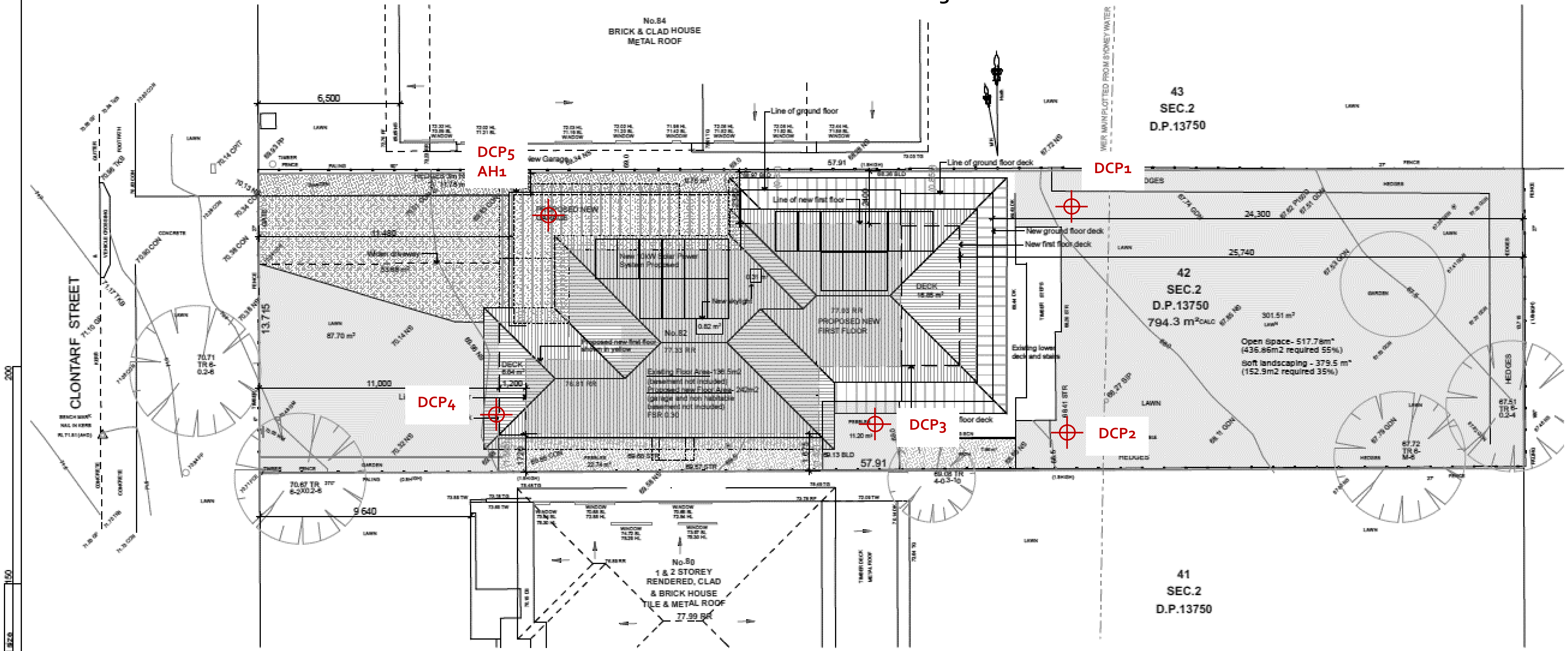
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- 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



3 Site and Roof Plan 1:200

BASIX COMMITMENTS

FIXTURES AND SYSTEMS

Hotwater -
Gas instantaneous

Lighting-
40% of all new or altered lighting to be LED, fluorescent, or compact fluorescent lamps

Fixtures -
Showerheads - <9Ltrs/min, 3 star
Toilets - <4Ltrs/flush, 3 star
Taps - <9Ltrs/min, 3 star

CONSTRUCTION

Floor -
Suspended floor with enclosed subfloor - R0.6 or R1.3 including construction

Walls-
Brick Veneer, R1.16 or R1.7 including construction
Framed weatherboards, R1.30 or R1.7 including construction

Roof -
Dark colour - Solar absorptance >0.7
55mm foil backed blanket R2.0 minimum

SKYLIGHTS

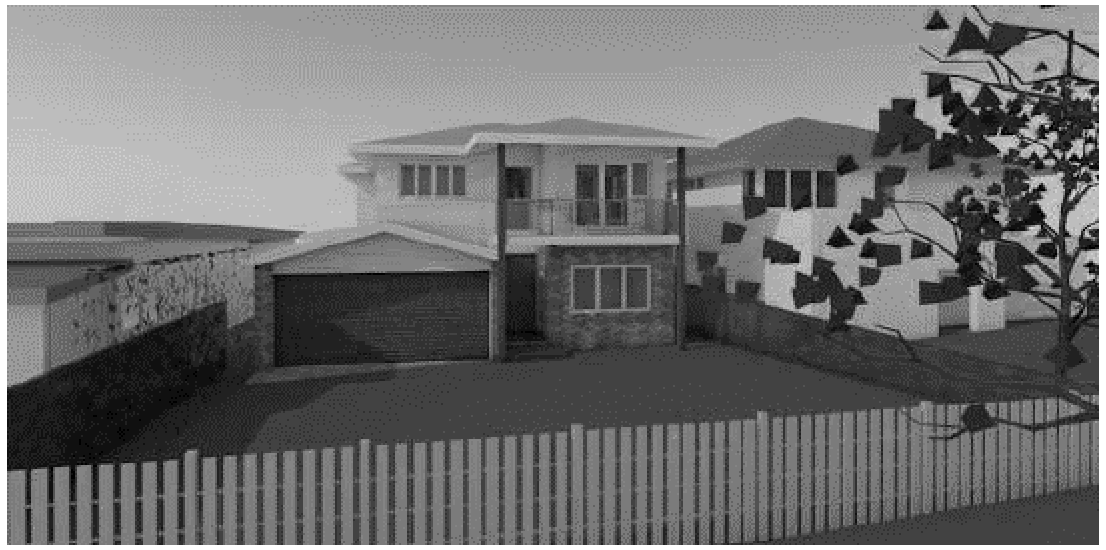
Timber framed

S01 - U2.5, SHGC 0.456
S02 - U2.5, SHGC 0.456

GLAZING

Timber framed windows and doors

W01 - 600mm eave, U 5.67 SHGC 0.49 - Toned glass
W02,W03 - 900mm eave, U 5.71 SHGC 0.66 - Clear glass
W04 - 0mm eave, U 5.71 SHGC 0.66 - Clear glass
W05,W06 - 900mm eave, U 5.71 SHGC 0.66 - Clear glass
W07 - 600mm eave, U 3.99 SHGC 0.4 - Low E glass
W08-W12 - 600mm eave, U 5.67 SHGC 0.49 - Toned glass
W13 - 900mm eave, U 5.67 SHGC 0.49 - Toned glass
W14,W16,W17 - 600mm eave, U 5.67 SHGC 0.49 - Toned glass
W15,W18 - 600mm eave, U 5.71 SHGC 0.66 - Clear glass
W19,W20 - 450mm eave, U 5.71 SHGC 0.66 - Clear glass



4 Streetfront View

The builder shall check and verify all dimensions and verify all errors and omissions to the Architect. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction.

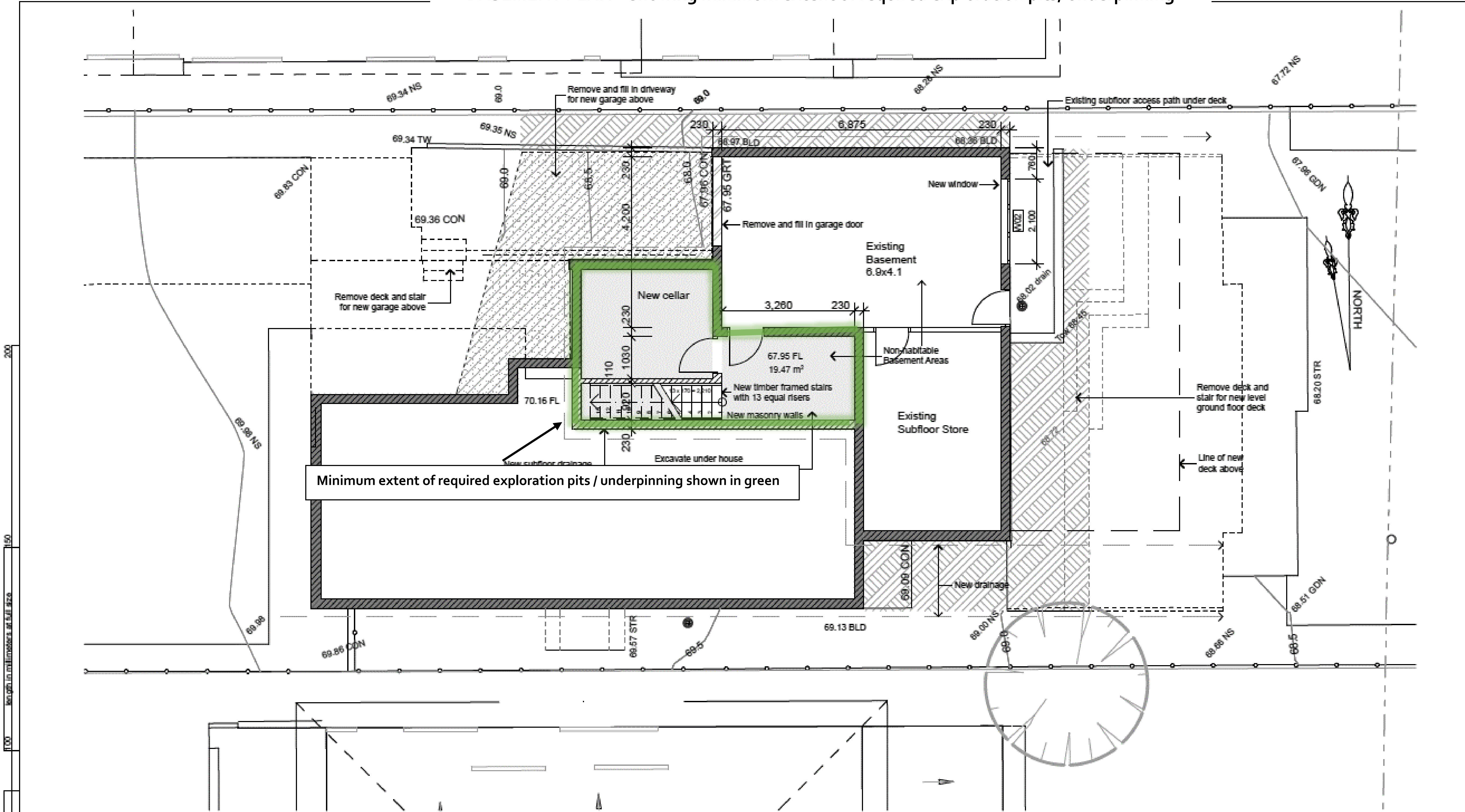
Client
Sarina Ramjahn + Steve Porter
Project Name
Clontarf St Home
82 Clontarf Street Seaforth
2092

Drawing Title:
Plans Ground - Site and Roof Plan
Site and Roof Plan, Streetfront View

Scale: as noted	Date: 19.09.22
Status: DA	Checked By: SH
Project No: 10-2021	Drawing No.: DA00

Plot Date: 29/09/2022

BASEMENT PLAN – showing minimum extent of required exploration pits/ underpinning



3 Basement Plan

1:100

BASIX COMMITMENTS

FIXTURES AND SYSTEMS

Hotwater -
Gas instantaneous

Lighting-
40% of all new or altered lighting to be LED, fluorescent, or compact fluorescent lamps

Fixtures -
Showerheads - <9Ltrs/min, 3 star
Toilets - <4Ltrs/flush, 3 star
Taps - <9Ltrs/min, 3 star

CONSTRUCTION

Floor -
Suspended floor with enclosed subfloor - R0.6 or R1.3 including construction

Walls-
Brick Veneer, R1.16 or R1.7 including construction
Framed weatherboards, R1.30 or R1.7 including construction

Roof -
Dark colour - Solar absorptance >0.7
55mm foil backed blanket R2.0 minimum

The builder shall check and verify all dimensions and verify all errors and omissions to the Architect. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction.

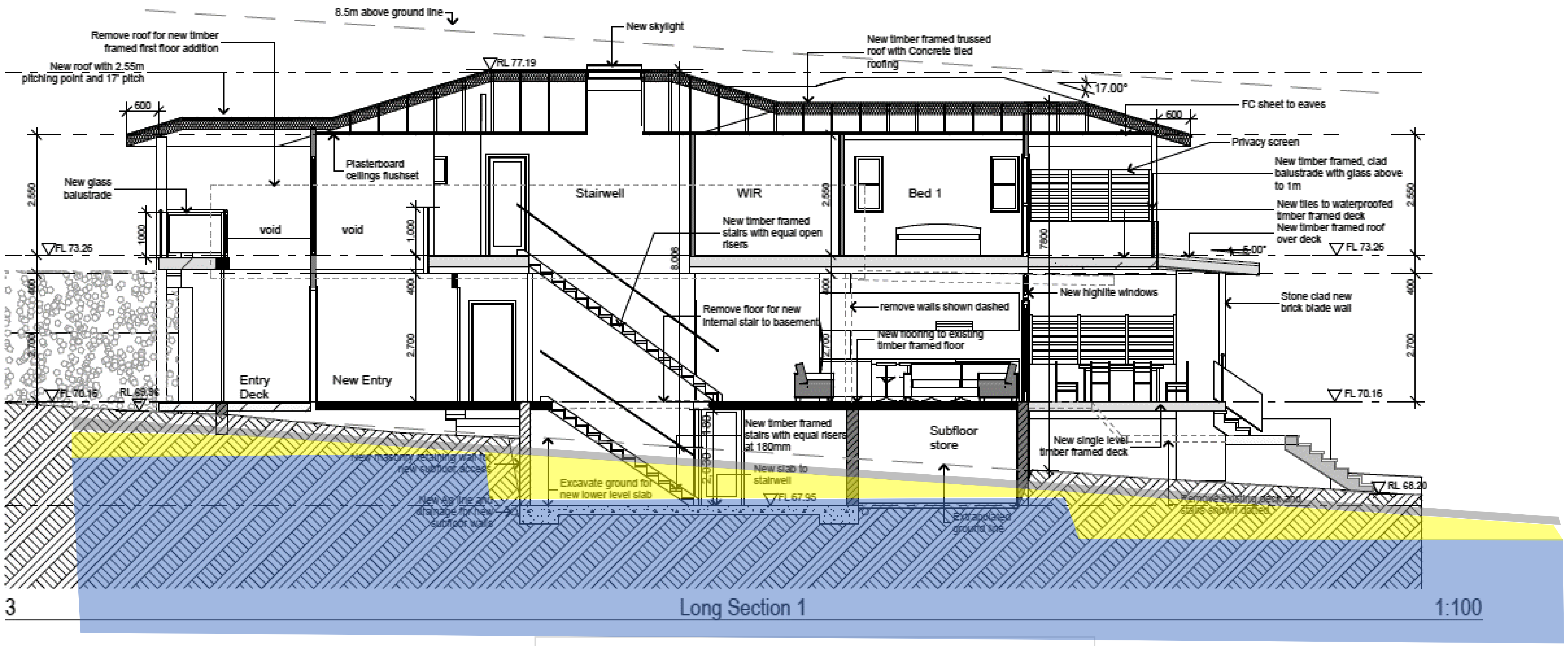
Client
Sarina Ramjahn + Steve Porter
Project Name
Clontarf St Home
82 Clontarf Street Seaforth
2092

Drawing Title:
Plans Ground - Lower Ground floor
Basement Plan

Scale: as noted	Date: 19.09.22
Status: DA	Checked By: SH
Project No: 10-2021	Drawing No.: DA03

Plot Date: 6/10/2022

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



Expected Ground Materials

- Fill
- Topsoil
- Clay – Soft to Stiff
- Hawkesbury Sandstone – Medium Strength

BASIX COMMITMENTS

FIXTURES AND SYSTEMS

Hotwater -
Gas instantaneous

Lighting-
40% of all new or altered lighting to be LED, fluorescent, or compact fluorescent lamps

Fixtures -
Showerheads - <9Ltrs/min, 3 star
Toilets - <4Ltrs/flush, 3 star
Taps - <9Ltrs/min, 3 star

CONSTRUCTION

Floor -
Suspended floor with enclosed subfloor - R0.6 or R1.3 including construction

Walls-
Brick Veneer, R1.16 or R1.7 including construction
Framed weatherboards, R1.30 or R1.7 including construction

Roof -
Dark colour - Solar absorptance >0.7
55mm foil backed blanket R2.0 minimum

GLAZING

Timber framed wind

W01 - 600mm eave
0.49 - Toned glass
W02,W03 - 900mm
SHGC 0.66 - Clear
W04 - 0mm eave, U
0.66 - Clear glass
W05,W06 - 900mm
SHGC 0.66 - Clear glass
W07 - 600mm eave, U 3.99 SHGC
0.4 - Low E glass
W08-W12 - 600mm eave, U 5.67
SHGC 0.49 - Toned glass
W13 - 900mm eave, U 5.67 SHGC
0.49 - Toned glass
W14,W16,W17 - 600mm eave, U
5.67 SHGC 0.49 - Toned glass
W15,W18 - 600mm eave, U 5.71
SHGC 0.66 - Clear glass
W19,W20 - 450mm eave, U 5.71
SHGC 0.66 - Clear glass

The builder shall check and verify all dimensions and verify all errors and omissions to the Architect. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction.

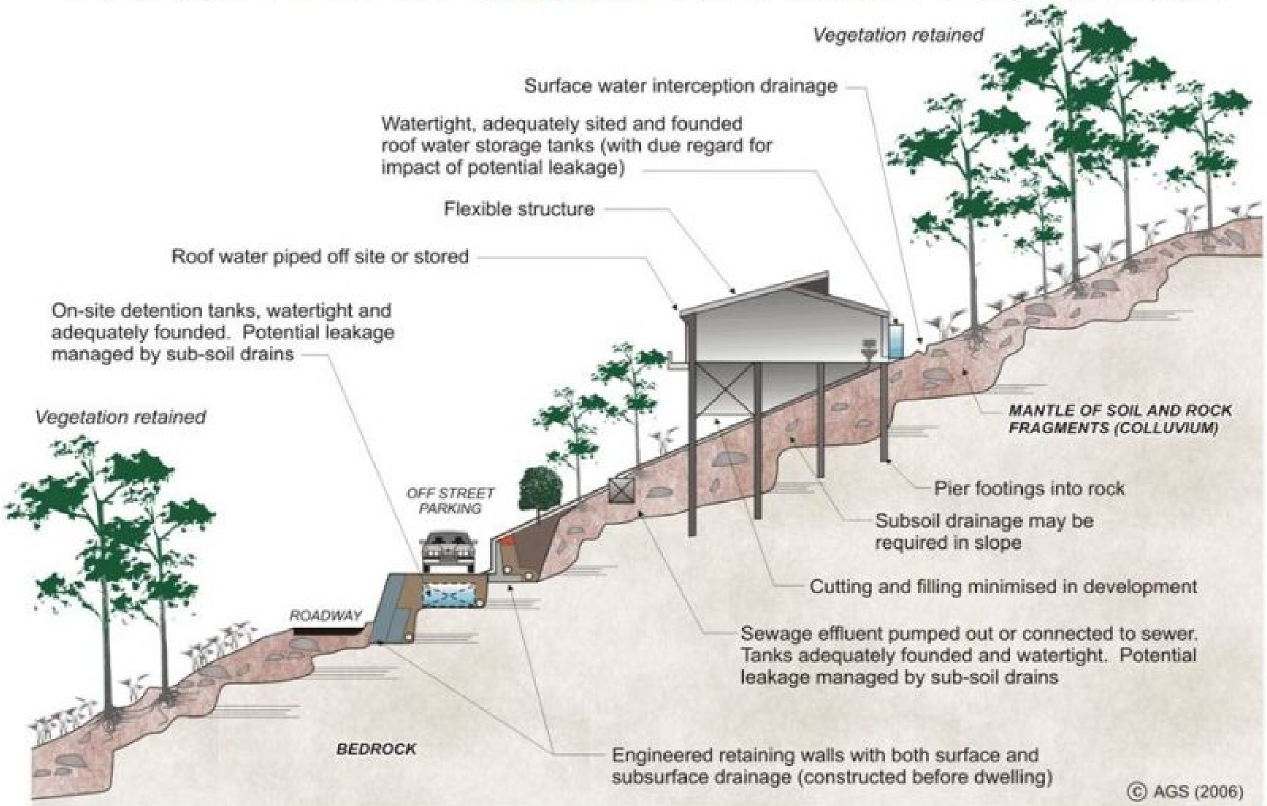
Client
Sarina Ramjahn + Steve Porter
Project Name
Clontarf St Home
82 Clontarf Street Seaforth
2092

Drawing Title:
Sections - Sections
Long Section 1

Scale: as noted	Date: 19.09.22
Status: DA	Checked By: SH
Project No: **10-2021**	Drawing No.: **DA04**

Plot Date: 19/09/2022

EXAMPLES OF GOOD HILLSIDE PRACTICE



EXAMPLES OF POOR HILLSIDE PRACTICE