TAYLOR
CONSULTING
CIVIL & STRUCTURAL ENGINEERS

25 March 2021

General Manager
Northern Beaches Council
1 Belgrave Street
MANLY NSW 2095

Dear Sir/ Madam

Re: Stormwater Management Plan – 16 Addison Road, Manly

With reference to the development application for the above property, please find enclosed copies of the site Stormwater Management Plan Sheet-1 and Sheet-2 for your perusal.

The plan shows runoff collected from the roof, landscaped and hardstand areas of the site draining via the existing site drainage system located at the rear of the property adjacent to little Manly Cove.

Note that it is also proposed to provide a 3000 litre rainwater storage tank for non-potable domestic re-use.

This is to certify that the Stormwater Management Plan layout as shown on Sheet-1 and Sheet-2 by Taylor Consulting Civil & Structural Engineers has been designed in accordance with section 3.1.2, 'Drainage', of the Building Code of Australia Housing Provision, AS/NZS 3500.3.2 – Stormwater Drainage and Northern Beaches - Manly - Specification for On-Site Stormwater Management 2003.

Should you require any further information please contact the undersigned.

Yours faithfully
TAYLOR CONSULTING

D M SCHAEFER - Director
B.E. Civil (Hons) M.I.E. Aust.
N.P.E.R. Eligible

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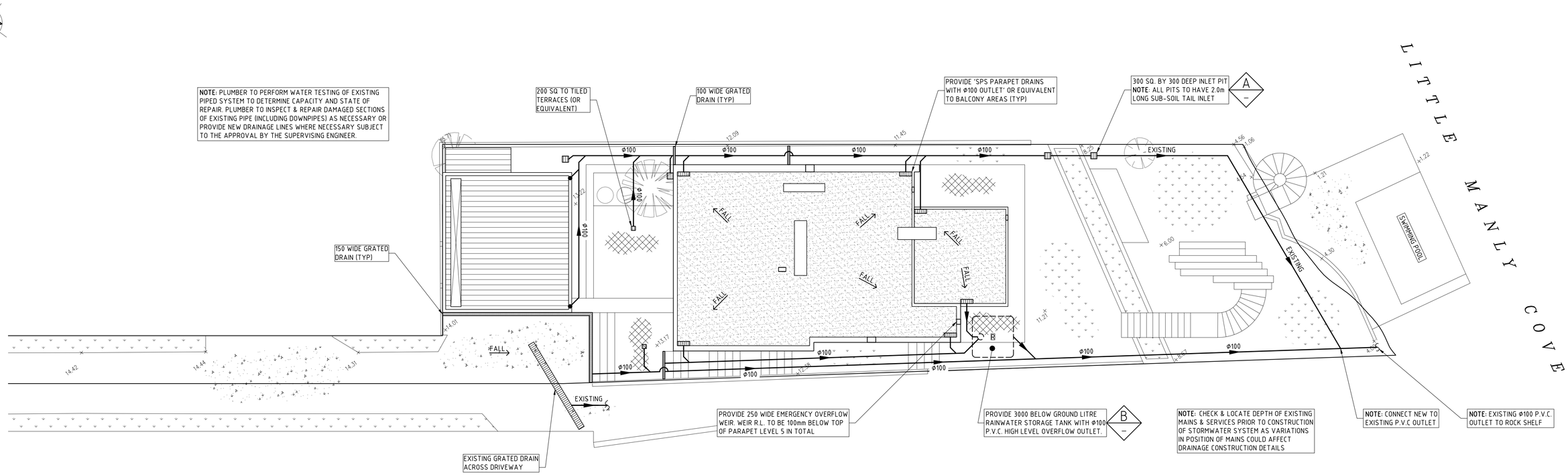


SITE DRAINAGE PLAN

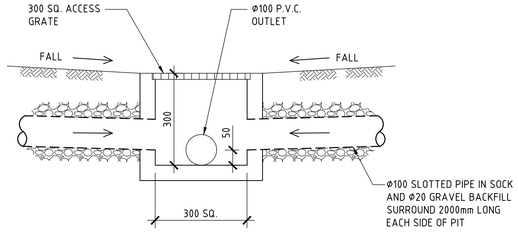
SCALE 1:100

DRAINAGE NOTES

1. + DENOTES EXISTING GROUND LEVEL
2. FALL STORMWATER PIPES AT 1% MIN. UNLESS OTHERWISE NOTED.
3. SUB-SOIL DRAINAGE TO BE CONNECTED TO THE SITE DRAINAGE SYSTEM AS NECESSARY.
4. SURFACE GRATES 300 SQ. UNLESS OTHERWISE NOTED.
5. ALL STORMWATER PIPES TO HAVE SOLVENT CEMENT WATERTIGHT JOINTS.
6. CHECK & LOCATE DEPTH OF EXISTING MAINS & SERVICES PRIOR TO CONSTRUCTION OF STORMWATER SYSTEM AS VARIATIONS IN POSITION OF MAINS COULD AFFECT DRAINAGE CONSTRUCTION DETAILS.
7. INSPECTIONS MUST BE UNDERTAKEN BY THIS OFFICE (BY PRIOR ARRANGEMENT WITH ENGINEER) DURING CONSTRUCTION TO ENABLE FULL CERTIFICATION UPON COMPLETION OF WORKS.
8. ALL CONSTRUCTION OF COUNCIL DRAINAGE WORKS TO COMPLY WITH COUNCIL STANDARD.
9. REMOVE REDUNDANT DRAINAGE PITS AND SEAL PIPES.
10. PIT BENCHING TO BE HALF THE OUTGOING PIPE DIAMETER. CONCRETE FOR BENCHING TO BE 20 MPa MASS CONCRETE.
11. APPROVED PRE-CAST PITS MAY BE USED.
12. ALL PIPES TO BE LAID ON COMPACTED FINE CRUSHED ROCK OR SAND BEDDING 75mm THICK & PIPES BACKFILLED WITH COMPACTED SAND TO 300mm ABOVE TOP OF PIPE, ELSE ATTACHED TO UNDERSIDE OF STRUCTURE AT 600mm c/c AS NECESSARY
13. PIPE ROUTES SHOWN ARE INDICATIVE ONLY AND SHOULD BE AS NECESSARY ACCORDING TO SITE CONDITIONS, TREE POSITIONS ETC. CONFIRM SIGNIFICANT CHANGES IN PIPES SYSTEM DETAILS WITH SUPERVISING ENGINEER PRIOR TO COMMENCEMENT OF DRAINAGE CONSTRUCTION WORKS.
14. CONTRACTOR SHALL ENSURE THAT SERVICES TO BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS WHERE REQUIRED. ONCE WORKS ARE COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SERVICES AND MAKE GOOD ALL DISTURBED AREAS.
15. STORMWATER SYSTEM REQUIRES SIGNIFICANT MAINTENANCE DUE TO POTENTIAL HIGH POLLUTANT LOAD. FILTERS AND POLLUTANT TRAPS SHOULD BE CHECKED AFTER LARGE STORM EVENTS AND CLEANED EVERY 6 MONTHS.
16. PLUMBING AND DRAINAGE WORKS TO COMPLY WITH AS-3500, THE NATIONAL DRAINAGE & PLUMBING CODE.
17. WHERE POSSIBLE DRAINAGE LINES SHALL BE LAID IN AREAS PREVIOUSLY DISTURBED BY OTHER SITE WORKS AND FOLLOW TOPOGRAPHICAL FEATURES TO REDUCE IMPACT AND AVOID TREE ROOTS
18. THIS STORMWATER MANAGEMENT PLAN HAS BEEN PREPARED FOR D.A. SUBMISSION TO COUNCIL AND DOES NOT NECESSARILY CONTAIN ALL APPROPRIATE INFORMATION TO ENABLE FOR ISSUE TO PLUMBER/BUILDER FOR CONSTRUCTION. CONTACT TAYLOR CONSULTING FOR MORE INFORMATION.

RAINWATER RE-USE NOTES AND SPECIFICATIONS

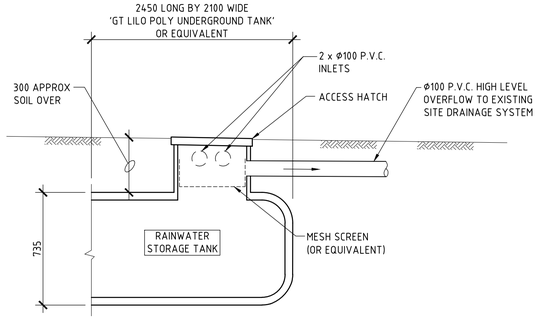
1. ROOF WATER ONLY TO BE DRAINED TO THE RAINWATER STORAGE TANK.
2. THE RAINWATER STORAGE TANK NEEDS TO BE CONNECTED FOR RE-USE AS REQUIRED BY THE OWNER.
3. RAINWATER STORAGE TANK TO BE CONFIGURED IN ACCORDANCE WITH SYDNEY WATER SPECIFICATIONS 'GUIDELINES FOR RAINWATER TANK ON RESIDENTIAL PROPERTIES'.
4. PROVIDE MAINS 'TOP-UP' SUPPLY TO RAINWATER TANK. MAINS TOP-UP ZONE TO BE BASED ON THE DAILY NON-POTABLE USAGE THAT MAY BE EXPECTED FROM THE TANK.
5. PROVIDE A MECHANICAL PUMPING ARRANGEMENT (IN SOUND-PROOF HOUSING) TO PUMP SUPPLIERS SPECIFICATION TO SUIT INTENDED USAGE OF RAINWATER STORAGE. PUMPING ARRANGEMENTS MUST COMPLY WITH EPA GUIDELINES.
6. INLETS TO RAINWATER TANK MUST BE SCREENED TO PREVENT THE ENTRY OF FOREIGN MATTER, ANIMALS OR INSECTS.
7. A SIGN MUST BE AFFIXED TO THE RAINWATER TANK CLEARLY STATING THAT THE WATER IN THE TANK IS RAINWATER AND IS NOT TO BE USED FOR HUMAN CONSUMPTION.
8. RAINWATER TANK TO BE PLACED ON A STRUCTURALLY ADEQUATE BASE IN ACCORDANCE WITH THE MANUFACTURER'S OR STRUCTURAL ENGINEER'S DETAILS.
9. THE TANK MUST NOT BE INSTALLED OVER ANY MAINTENANCE STRUCTURE OR FITTINGS USED BY A PUBLIC AUTHORITY.
10. RAINWATER TANK AND ASSOCIATED PLUMBING WORKS TO BE INSTALLED AND CONFIGURED BY A LICENSED PLUMBER. PUMP TO BE INSTALLED BY A LICENSED ELECTRICIAN.



DETAIL A

SCALE 1:10

TYPICAL SURFACE INLET PIT DETAIL



DETAIL B

SCALE 1:20

ISSUE	DATE	REVISION

TITLE

STORMWATER MANAGEMENT PLAN
16 ADDISON ROAD, MANLY

DRAWN	DATE	CHECKED	SCALE @ A1
RDCB	25 MARCH 2020	BE Civil (Hons) MIE Aust	1:100 1:20 1:10

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DRAWING NO. SHEET-1

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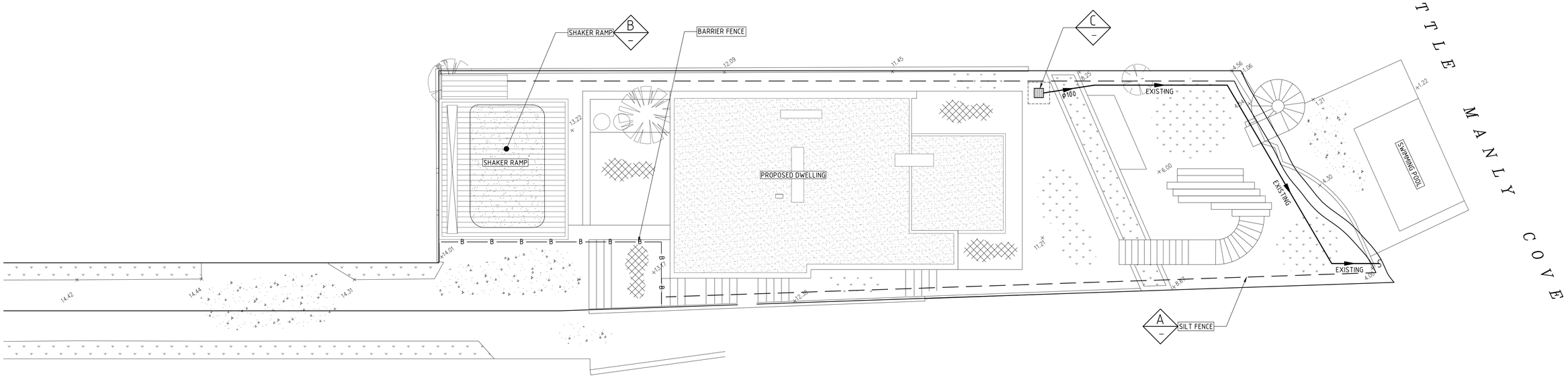


EROSION AND SEDIMENT CONTROL PLAN

SCALE 1:100

SCHEDULE OF WORKS

PLAN TO BE READ IN CONJUNCTION WITH DWG SHEET-1 SITE STORMWATER MANAGEMENT PLAN

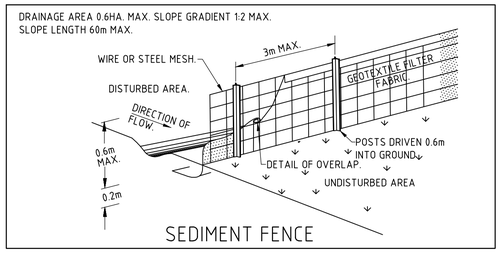
DESCRIPTION
THE PROJECT IS THE PROVISION OF A NEW RESIDENTIAL DWELLING. THE TOTAL DISTURBED AREA IS APPROXIMATELY 0.025 Ha.

EROSION
NO AREA IS TO BE DISTURBED OTHER THEN THAT DIRECTLY AFFECTED BY ACCESS, SITE REGRADING, SERVICING, ROAD WORKS AND DRAINAGE WORKS. FOR ALL OTHER AREAS ENTRY IS PROHIBITED AND IS TO BE CLEARLY DEFINED WITH THE INSTALLATION OF BARRIER FENCING. UPSTREAM WATER IS TO BE DIRECTED AROUND THE SITE WITHOUT CONTAMINATION.

SEDIMENT CONTROL
CONTROL WILL BE VIA THE INSTALLATION OF SILT FENCES AS SHOWN ON PLAN. STOCK PILES ARE TO BE LOCATED IN AREAS SHOWN ON THE PLAN (CLEAR OF SERVICING, WATERCOURSES, ROAD AND DRAINAGE WORKS) AND PROVIDED WITH SILT FENCES ON THEIR DOWNSTREAM SIDE.

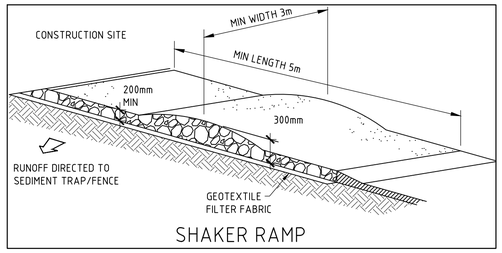
PHASING OF WORKS

1. INSTALL ALL BARRIER AND SILT FENCING. BARRIER FENCING MAY BE ERECTED AND REMOVED AS NECESSARY TO SUIT STAGING OF WORKS.
2. INSTALL ALL TEMPORARY DRAINAGE STRUCTURES AS NECESSARY.
3. STRIP & STOCKPILE TOPSOIL.
4. UNDERTAKE SITE DEVELOPMENT.
5. AS EARTHWORKS ARE COMPLETED THESE AREAS ARE TO BE TOPSOILED, SEEDED AND MULCHED OR PAVED WITHIN 20 WORKING DAYS.
6. ONLY AT THE COMPLETION OF WORKS AND STABILIZATION OF AREAS UPSTREAM ANY CONTROL DEVICES TO BE REMOVED.



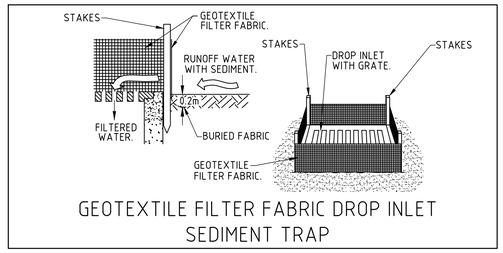
SEDIMENT FENCE

DETAIL A NOT TO SCALE



SHAKER RAMP

DETAIL B NOT TO SCALE



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

DETAIL C NOT TO SCALE

ISSUE DATE	REVISION

TITLE
EROSION AND SEDIMENT CONTROL PLAN
16 ADDISON ROAD, MANLY

DRAWN	DATE	CHECKED	SCALE @ A1
MDB	25 MARCH 2021	BE Civil (Hons) MIE Aust.	1:100

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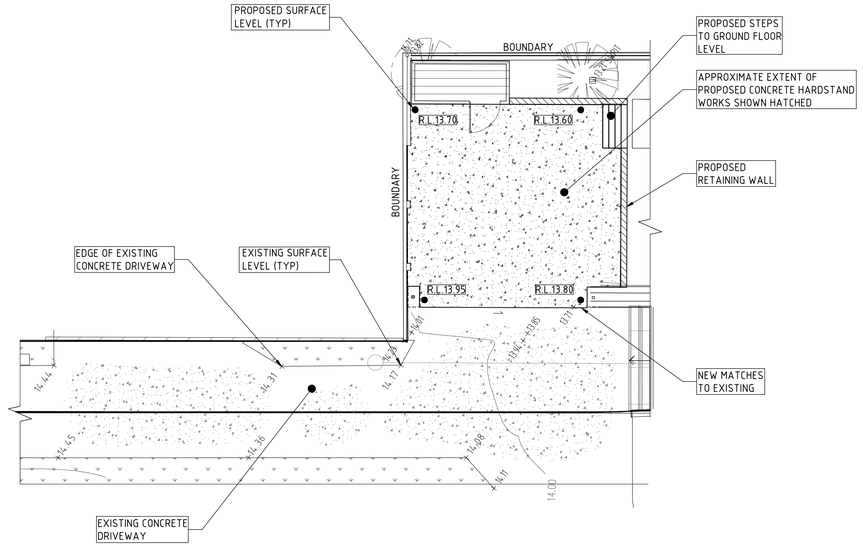
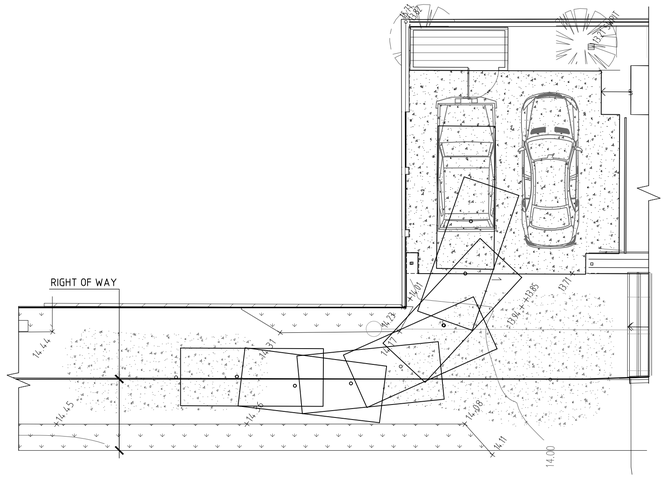


PARTIAL SITE PLAN

SCALE 1:100

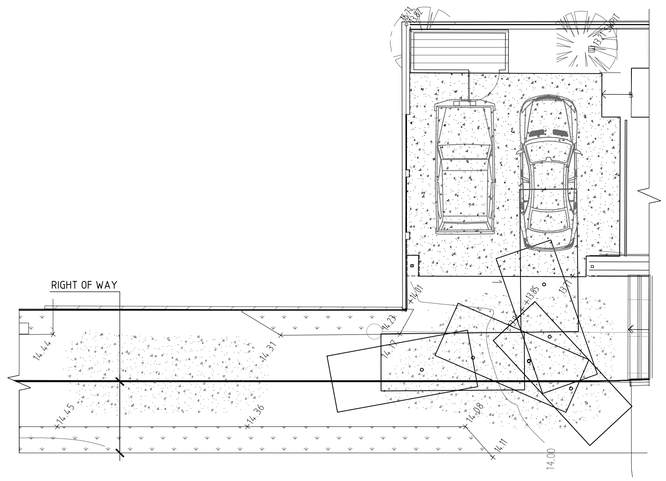
SHOWING PROPOSED CONCRETE HARDSTAND LEVEL & GEOMETRY



B85 TURNING CIRCLE PLAN -FORWARD INTO SITE

SCALE 1:100

SHOWING CRITICAL TURNING CIRCLE OF B85 WHEEL PATH



B85 TURNING CIRCLE PLAN - FORWARD OUT OF SITE

SCALE 1:100

SHOWING CRITICAL TURNING CIRCLE OF B85 WHEEL PATH

CONSTRUCTION NOTES

GENERAL

1. These drawings shall be read in conjunction with all architectural and other consultants drawings and specifications and with such other written instructions as may be issued during the course of the contract. All discrepancies shall be referred to the Supervising Officer for decision before proceeding with the work.
2. Dimensions shall not be obtained by scaling the structural drawings.
3. All dimensions shall be verified on site by the Contractor who shall be responsible for their correctness.
4. The contractor shall be responsible for maintaining the structure and neighbouring structures in a safe and stable condition during construction. No part shall be over-stressed.
5. All workmanship and materials shall be in accordance with the requirements of the current SAA Codes and the By-Laws and Ordinances of the relevant Government Authority.

FOUNDATIONS

1. Excavation shall be taken into **firm natural ground** the allowable bearing pressure on this material is assumed to be **150** kPa.
2. Foundation material shall be approved immediately before placing concrete.

CONCRETE

1. All workmanship and materials shall be in accordance with AS 3600, current edition with amendments.
2. Concrete quality: All cement shalle be Type A Normal Portland Cement.

Element	Slump mm	Max. Size Agg mm	f'c MPa	Special Requirements.

Strength shall be verified by plant control testing.

3. Clear concrete cover to reinforcement including ties and stirrups shall as follows unless shown otherwise.

Element	Exposure Classification		
	A1 Sheltered locations	B1 External locations over 1km from salt/wter shoreline	B2 External locations within 1km of salt/wter shoreline
Strip footings	-	50	50
Columns and piers	20	40	50
Beams	20	40	45
Slabs and walls	20	40	45

Note that slabs placed over a membrane on ground are included as A1.

4. Reinforcement symbols:
   N denotes Grade 500 deformed normal ductility bar to AS 4671.
   R denotes Grade 250 plain round normal ductility bar to AS 4671.
   SL denotes Grade 500 low ductility square welded mesh to AS 4671.
   RL denotes Grade 500 low ductility rectangular welded mesh to AS 4671.
   denotes direction of main bars of rectangular fabric (main bars down for bottom reinforcement, main bars up for top reinforcement).
   denotes square fabric.
   denotes extent of reinforcement.
5. All unsupported bars shall be tied in the transverse direction to unless otherwise noted.
6. Reinforcement is shown diagramatically and is not necessarily shown in the true projection.
7. Splices in the reinforcement shall be made only in the positions shown. The written approval of the Supervising Officer shall be obtained for any other splices. Where the lap length is not shown it shall be sufficient to develop the full strength of the reinforcement.
8. Welding of reinforcement will not be permitted unless shown on the structural drawings.
9. Fabric lap detail: 25 Min. Lap 2 wires
10. Slab reinforcement shall extend at least 65 onto masonry support walls unless shown otherwise.
11. Concrete sizes shown are minimum and no reductions by ducts, pipes, etc. shall be made without the approval of the Supervising Officer. Sizes do not include thickness of applied finishes.
12. Beam depths are written first and do not include slab thickness.
13. Pipes or conduits shall not be placed within the concrete cover to reinforcement without the approval of the Supervising Officer.
14. No holes or chases other than those shown on the structural drawings shall be made in concrete members without the prior approval of the Supervising Officer.
15. Construction joints where not shown shall be located to the approval of the Supervising Officer.
16. The contractor shall notify the Engineer 24 hours before pouring concrete.
17. The concrete shall be compacted using high frequency vibrators.
18. Columns, piers, and pedestals shall be placed 24 hours (min.) before concrete in slabs or beams over.
19. Curing of all concrete surfaces shall commence immediately after surfaces are finished as specified.

BRICK AND CONCRETE BLOCK MASONRY

1. All workmanship and materials shall be in accordance with AS 3700.
2. Two layers of approved metal based slip joint material shall be laid under all slabs where they bear on brickwork.
3. Walls shown on structural drawings are load bearing walls. Non load bearing walls under slabs shall be separated from the concrete by a minimum of 10mm thick compressible material.
4. No brickwork which is supported by the slab shall be erected until formwork has been removed.
5. Brick mortar to be proportions by volume of cement, lime and sand.
6. Brick strength of load bearing brickwork to be a minimum of f'uc = Mpa.

REINFORCED CONCRETE BLOCK MASONRY

1. All concrete masonry units shall conform to the requirements of AS 2733.
2. The design strength of concrete masonry shall be:

Element	Strength Grade of Units	Mortar Mix
		Cement, Lime ,Sand

3. Workmanship involved in placing concrete units shall comply with AS 3700 and all units shall be have fully bedded face shells and cross walls.
4. Clean out holes shall be provided at the base of all reinforced cores.
5. Unless noted otherwise the cores of all concrete masonry units shall be filled with concrete having a characteristic strength at 28 days (f'c) of 20 MPa, and a slump of 180mm to 230mm when being placed. the concrete filling shall be thoroughly compacted.
6. Max size of course aggregate in concrete used to fill cores shall be 10mm unless shown otherwise.

STRUCTURAL STEELWORK

1. All workmanship and materials shall be in accordance with AS 4100 and AS 1554 except where varied by the contract documents.
2. Three (3) copies of all shop details shall be submitted to the engineer for approval of structural sufficiency before fabrication.
3. All welds shall be 6mm continuous fillet, all bolts ⌀20mm, all gussets plates 10mm thick, unless noted otherwise on the drawing.
4. Concrete encased steelwork shall be wrapped with 3mm wire at 100mm centres and shall have a minimum 50 cover of concrete.
5. Steel beams and trusses with span greater than 6m shall be fabricated with an upwards precamber of 1/500 span in each span unless noted otherwise on the drawings.
6. Structural steelwork is to be wire brushed to remove rust and loose mill scale and coated with one coat of approved primed unless noted otherwise on the drawings.
7. All steelwork cast into brickwork is to be hot dipped galvanised.

TIMBER

1. Timber construction is to be in accordance with AS 1720 and the Timber Framing Code AS 1684.
2. Timber stress grade shall be F7 unless noted otherwise.

ISSUE DATE	REVISION

TITLE

DRIVEWAY PLAN AND CRITICAL SWEEP PATHS 16 ADDISON ROAD, MANLY

DRAWN	DATE	CHECKED	SCALE @ A1
RDCB	25 MARCH 2021	BE Civil (Hons) MIE Aust.	1:100

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SHEET – 3 OF 3 DRAWINGS

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