





EXCAVATION FOOTPRINT  
1548m<sup>2</sup>

EXISTING SEWER LINE

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**SECTION 96AA**

**MARMORA**



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REV	DATE	ISSUE
A	JAN 14	ISSUED TO COUNCIL FOR PRE DA
B	JUN 14	S96 AA

CLIENT  
**Moorgate Property**  
Suite 1, 38 East Esplanade  
Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

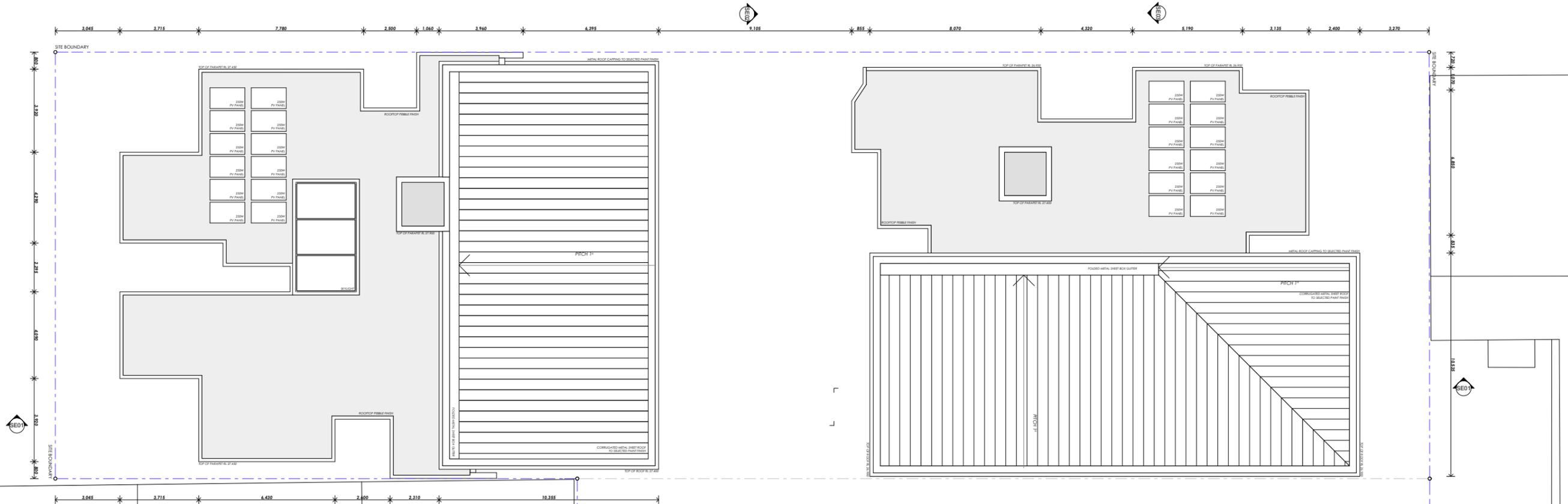
DRAWING  
**EXCAVATION PLANS**

DRAWING NO.  
**A-0050**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
atn: 74 129 130 285  
studio: 5, 505 balmain rd lilyfield NSW  
p: 61 2 9818 0777 f: 61 2 9818 0778  
nom. arch - david benson 7285





**BASIX NOTES**

The following assumptions have been used in the thermal and BASIX assessment

**BASIX WATER**  
3 star rated (>6 but <= 7.5 L/min) showerheads, 4 star rated toilets, 4 star rated kitchen and bathroom taps.

**ALTERNATIVE WATER SOURCE**  
3000L Central Water Tank Single tank connected to Units B01, B02 and B03  
Single tank connected to Units C01, C02 and C03

**BASIX ENERGY**  
**HOT WATER SYSTEM**  
5.5 star rated central gas instantaneous hot water system.

**VENTILATION**  
All individual exhaust fans to be sealed, ducted to facade or roof

**ARTIFICIAL LIGHTING**  
All bedrooms, all living areas, all kitchens, all bathrooms, all laundries and all hallways are to be primarily lit by LED or fluorescent lighting.

Plans have been assessed with 2 downlights in each bedroom, 1 in each bathroom, 1 in each laundry and 5 in living/kitchen areas.

**ALTERNATIVE ENERGY SUPPLY**  
5.5kW peak output photovoltaic system

**BASIX THERMAL COMFORT**

EXTERNAL WALLS	INSULATION	COLOUR
Cavity Brick	R0.14 cellular insulation to all external walls of Units B02, B05, B06, B07 and B08 R1.14 polystyrene insulation to external walls of Units B01, B03, B04, C01 (including walls to hallways), C04 (including walls to hallways)	Light

Weatherboard clad Reverse Brick Veneer	R1.5 insulation to all external walls of Units B07, B08, C07 and C08.	Dark
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Weatherboard clad Reverse Brick Veneer	R1.5 insulation to all external walls of Unit D01	Medium
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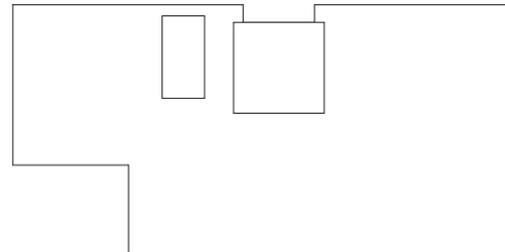
INTERNAL WALLS	INSULATION
Brick	Nil
Concrete Black Party Walls	Nil

FLOORS	INSULATION	COVERING
200mm Concrete	R3.5 to slab soffit of Unit B01, B02, B03, C01, C02, C03 and D01	Timber board/Tile

ROOFING	INSULATION	COVERING	COLOUR
Concrete		Loose pebble	Light
Timber	Foil (sisalation) to Metal roof	Colorbond steel	Dark

CEILING	INSULATION	COLOUR
Suspended Plasterboard	R3.0 to ceiling of Unit B07, B08, C07, C08 and D01	Light

GLAZING	FRAME	U VALUE	SHGC <sub>w</sub>
6.38 Laminated	Aluminium	6.35	0.77



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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

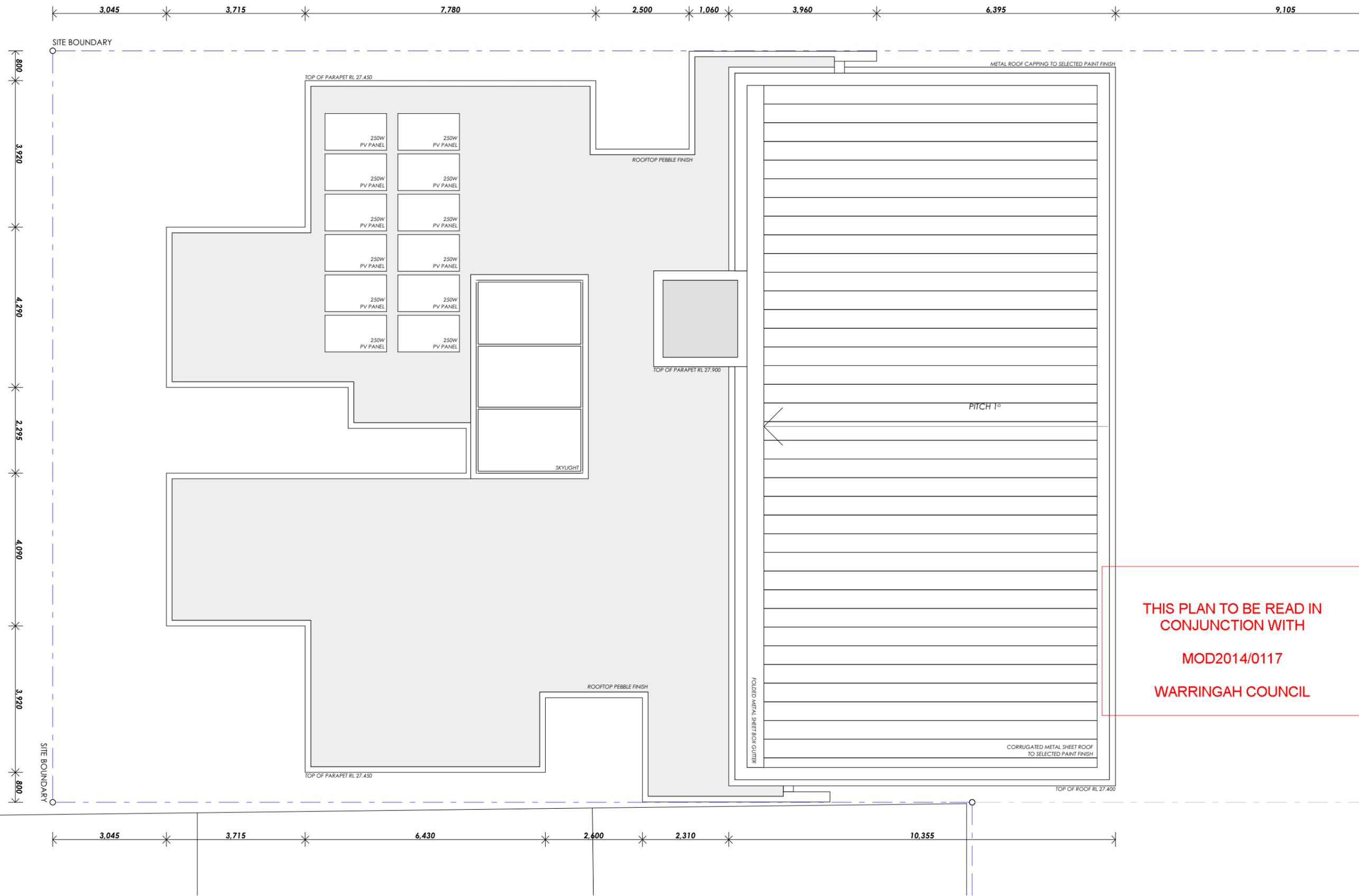
PROJECT NO.  
**1353A**  
DRAWING  
**ROOF PLAN**

DRAWING NO.  
**A-0103**  
ISSUE  
**B**

**SECTION 96AA**

ARCHITECT  
**benson mccormack**  
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PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING B ROOF PLAN**

DRAWING NO.  
**A-0108**

ISSUE  
**B**

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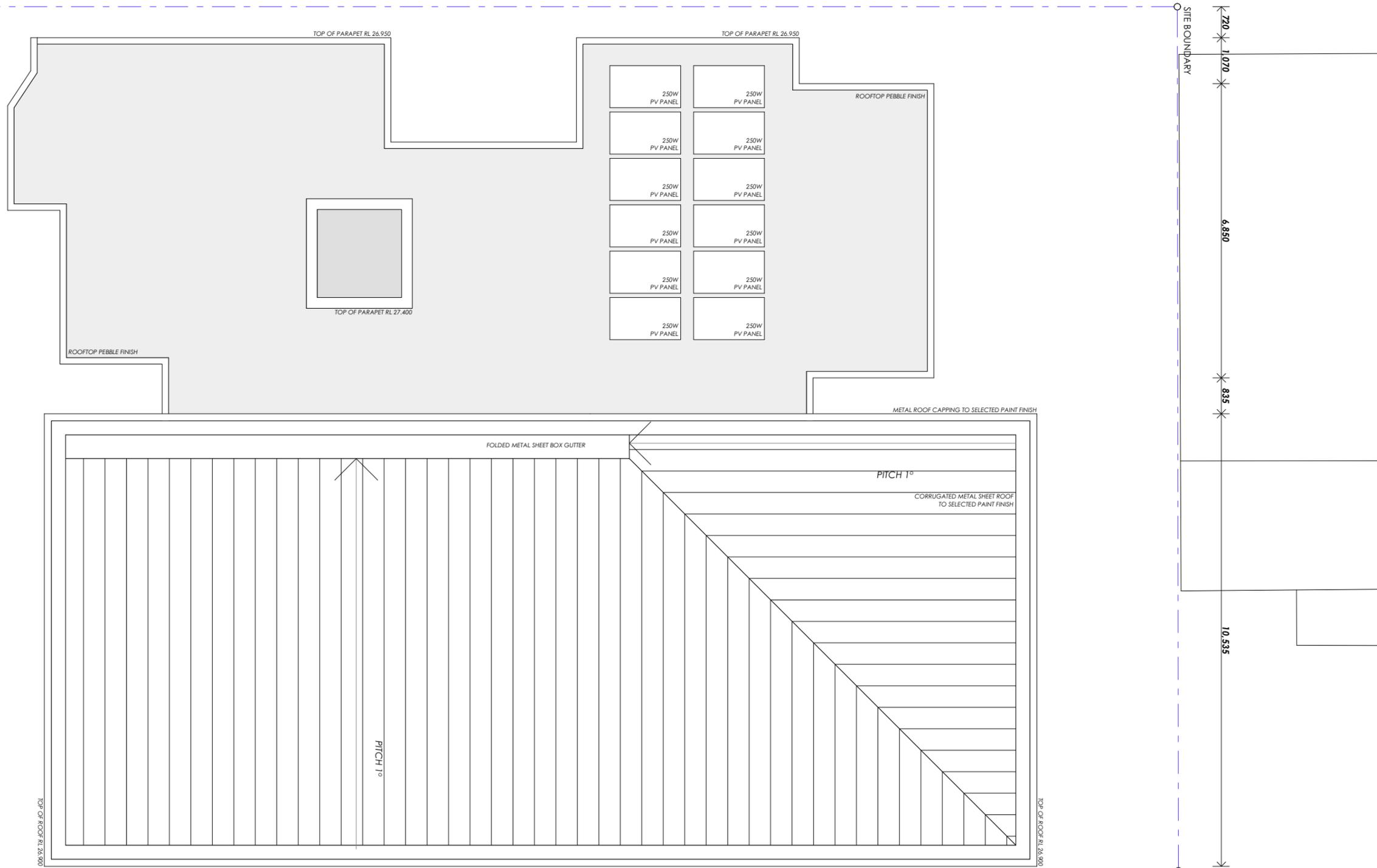
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## SECTION 96AA

## MARMORA

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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING C ROOF  
PLAN**

DRAWING NO.  
**A-0112**

ISSUE  
**B**

ARCHITECT  
**bensonmccormack**  
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**BASIX NOTES**

The following assumptions have been used in the thermal and BASIX assessment

**BASIX WATER**

3 star rated (>6 but <= 7.5 L/min) showerheads, 4 star rated toilets, 4 star rated kitchen and bathroom taps.

**ALTERNATIVE WATER SOURCE**

3000L Central Water Tank Single tank connected to Units B01, B02 and B03  
Single tank connected to Units C01, C02 and C03

**BASIX ENERGY**

**HOT WATER SYSTEM**

5.5 star rated central gas instantaneous hot water system.

**VENTILATION**

All individual exhaust fans to be sealed, ducted to facade or roof

**ARTIFICIAL LIGHTING**

All bedrooms, all living areas, all kitchens, all bathrooms, all laundries and all hallways are to be primarily lit by LED or fluorescent lighting.

Plans have been assessed with 2 downlights in each bedroom, 1 in each bathroom, 1 in each laundry and 5 in living/kitchen areas.

**ALTERNATIVE ENERGY SUPPLY**

5.5kW peak output photovoltaic system

**BASIX THERMAL COMFORT**

**EXTERNAL WALLS**

INSULATION	COLOUR
Cavity Brick R0.14 cellular insulation to all external walls of Units B02, B05, B06, B07 and B08 R1.14 polystyrene insulation to external walls of Units B01, B03, B04, C01 (including walls to hallways), C04 (including walls to hallways)	Light
Weatherboard clad Reverse Brick Veneer R1.5 insulation to all external walls of Units B07, B08, C07 and C08.	Dark
Weatherboard clad Reverse Brick Veneer R1.5 insulation to all external walls of Unit D01	Medium

**INTERNAL WALLS**

INSULATION
Brick Concrete Block Party Walls
Nil Nil

**FLOORS**

INSULATION	COVERING
200mm Concrete R3.5 to slab soffit of Unit B01, B02, B03, C01, C02, C03 and D01	Timber board/Tile and D01

**ROOFING**

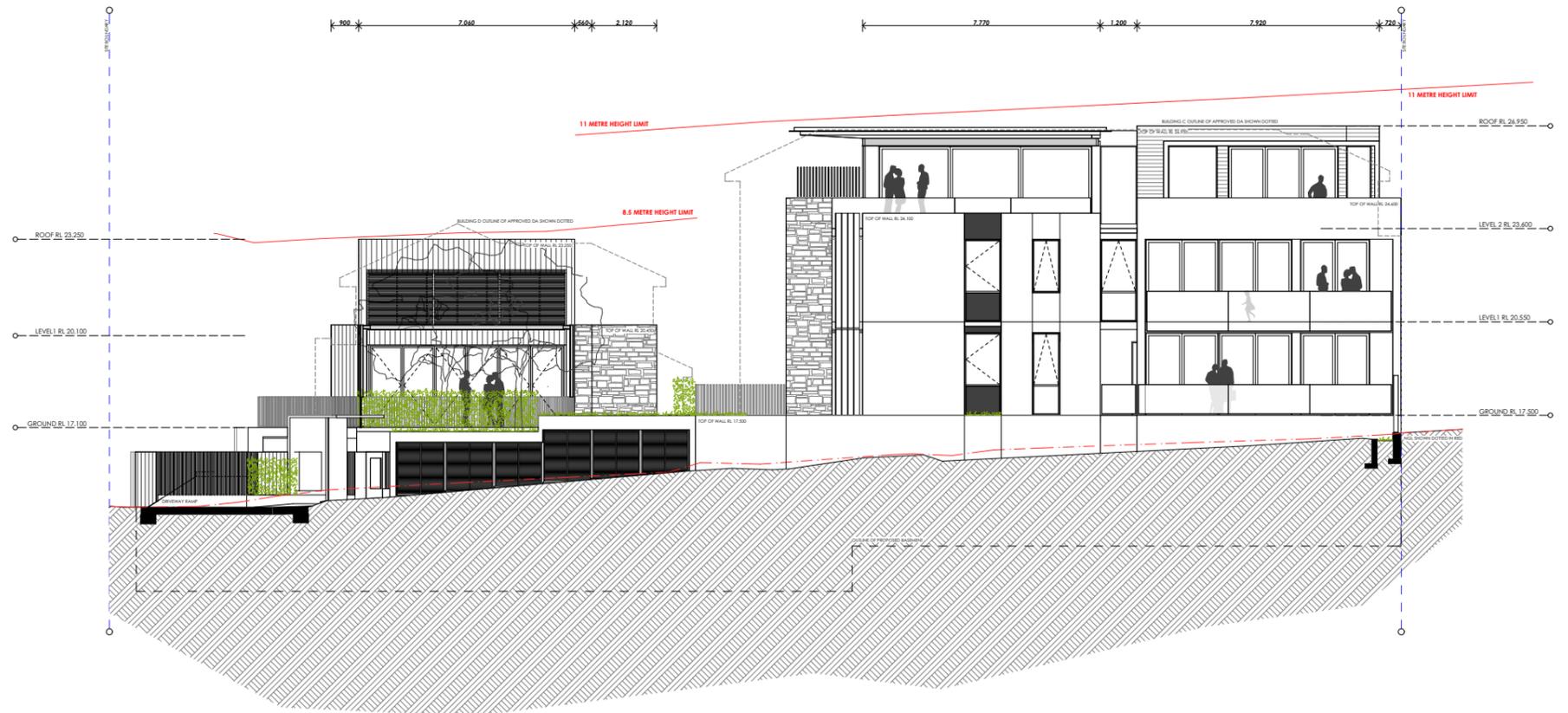
INSULATION	COVERING	COLOUR
Concrete Foil (isolation) to Metal roof	Loose pebble Colorbond steel	Light Dark

**CEILING**

INSULATION	COLOUR
Suspended Plasterboard R3.0 to ceiling of Unit B07, B08, C07, C08 and D01	Light

**GLAZING**

FRAME	U VALUE	SHGCw
6.38 Laminated Aluminium	6.35	0.77



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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**NORTH ELEVATION**

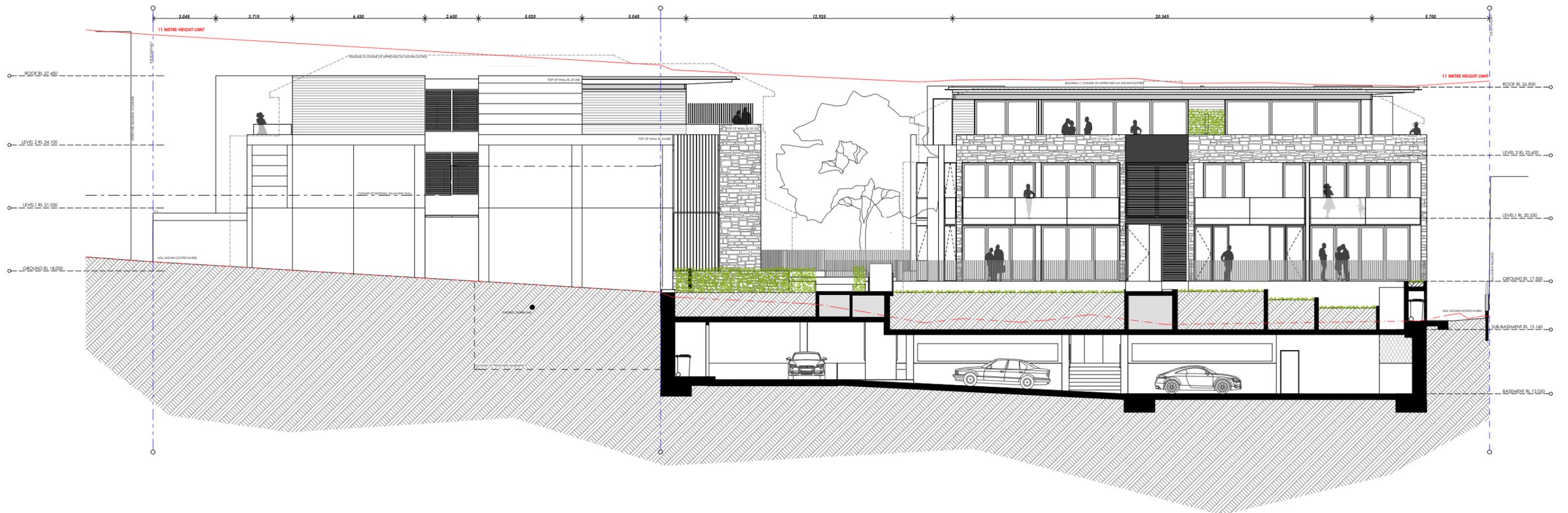
DRAWING NO.  
**A-0200**

ISSUE  
**B**

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**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**EAST ELEVATION**

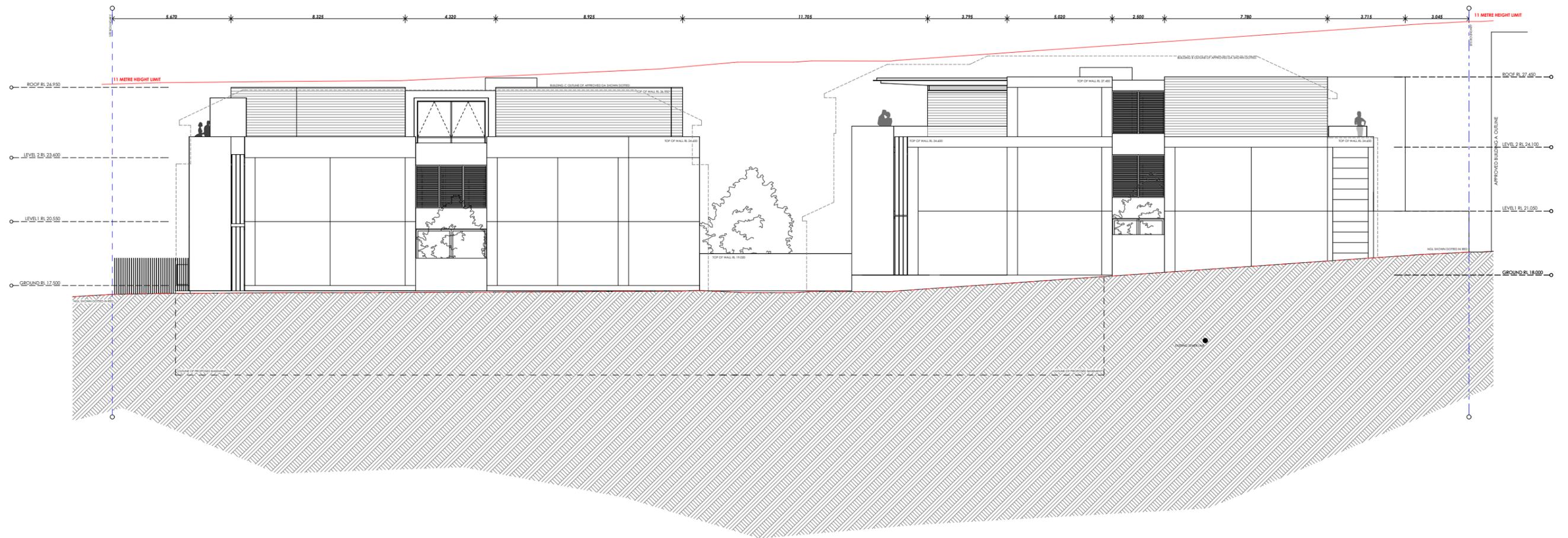
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**A-0201**

ISSUE  
**B**

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CLIENT  
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Suite 1, 38 East Esplanade  
Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096

PROJECT NORTH  
○

SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**WEST ELEVATION**

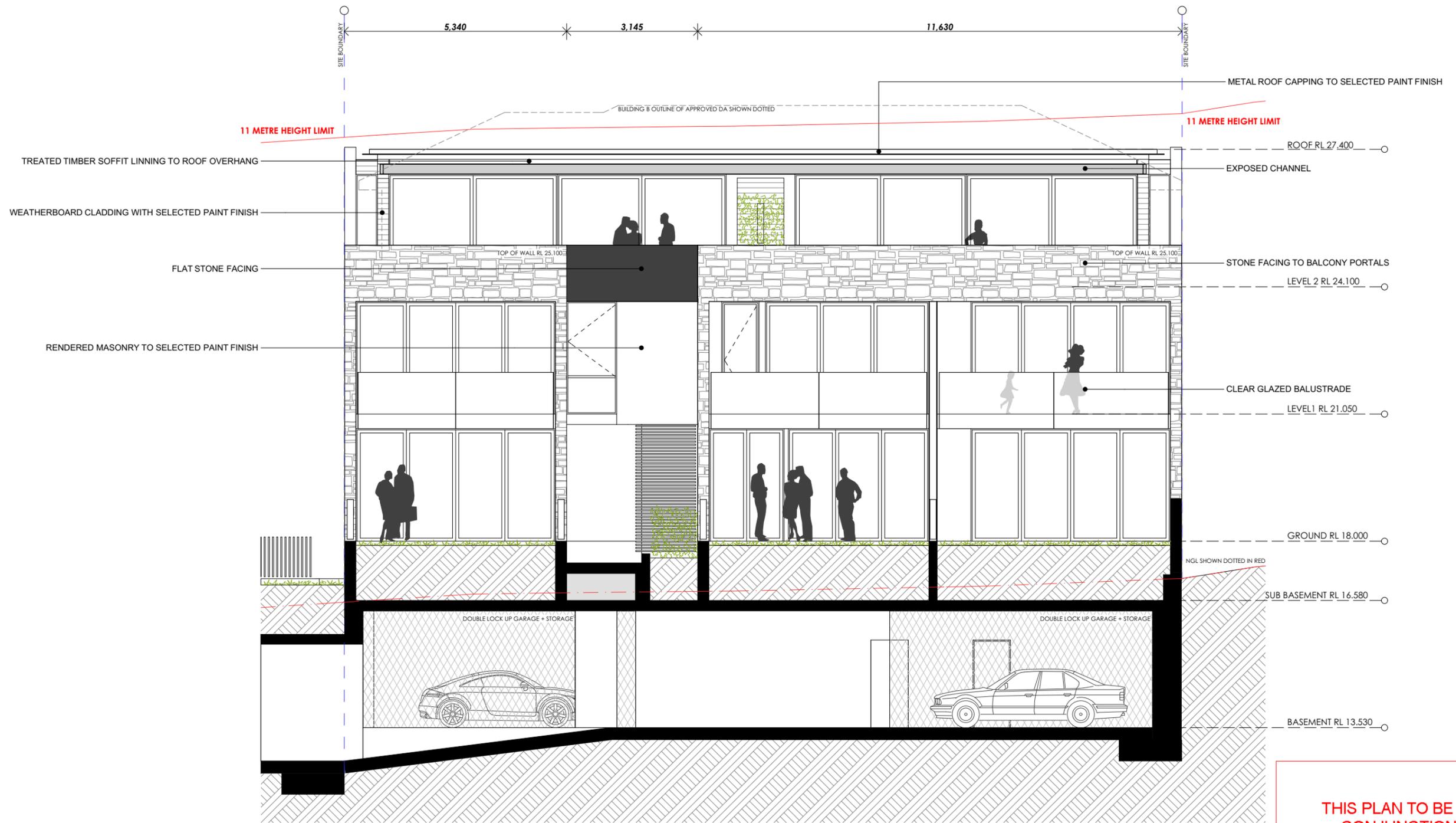
DRAWING NO.  
**A-0202**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
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CLIENT  
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Suite 1, 38 East Esplanade  
Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096

PROJECT NORTH  
○

SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING B - NORTH  
ELEVATION**

DRAWING NO.  
**A-0203**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abru 76 129 130 285  
studio 5, 505 balmain rd lilyfield NSW  
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CLIENT  
**Moorgate Property**  
 Suite 1, 38 East Esplanade  
 Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
 18 Marmora Street  
 Freshwater NSW 2096



SCALE  
 1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING B - SOUTH  
 ELEVATION**

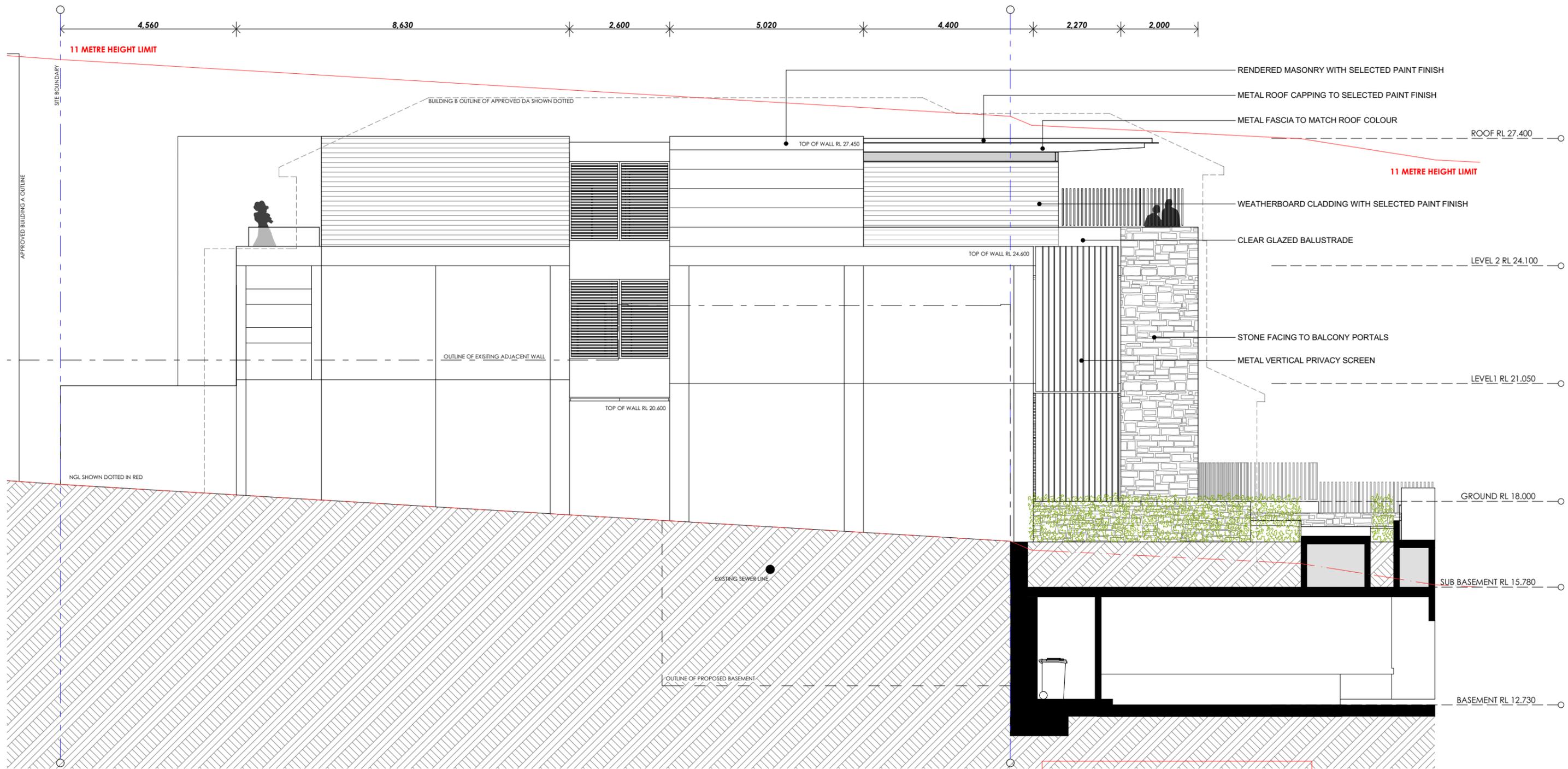
DRAWING NO.  
**A-0204**

ISSUE  
**B**

ARCHITECT  
**bensonmccormack**  
 abru 76 129 130 285  
 studio 5, 505 balmain rd lilyfield NSW  
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# SECTION 96AA



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CLIENT  
**Moorgate Property**  
Suite 1, 38 East Esplanade  
Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096

PROJECT NORTH  
○

SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING B - EAST  
ELEVATION**

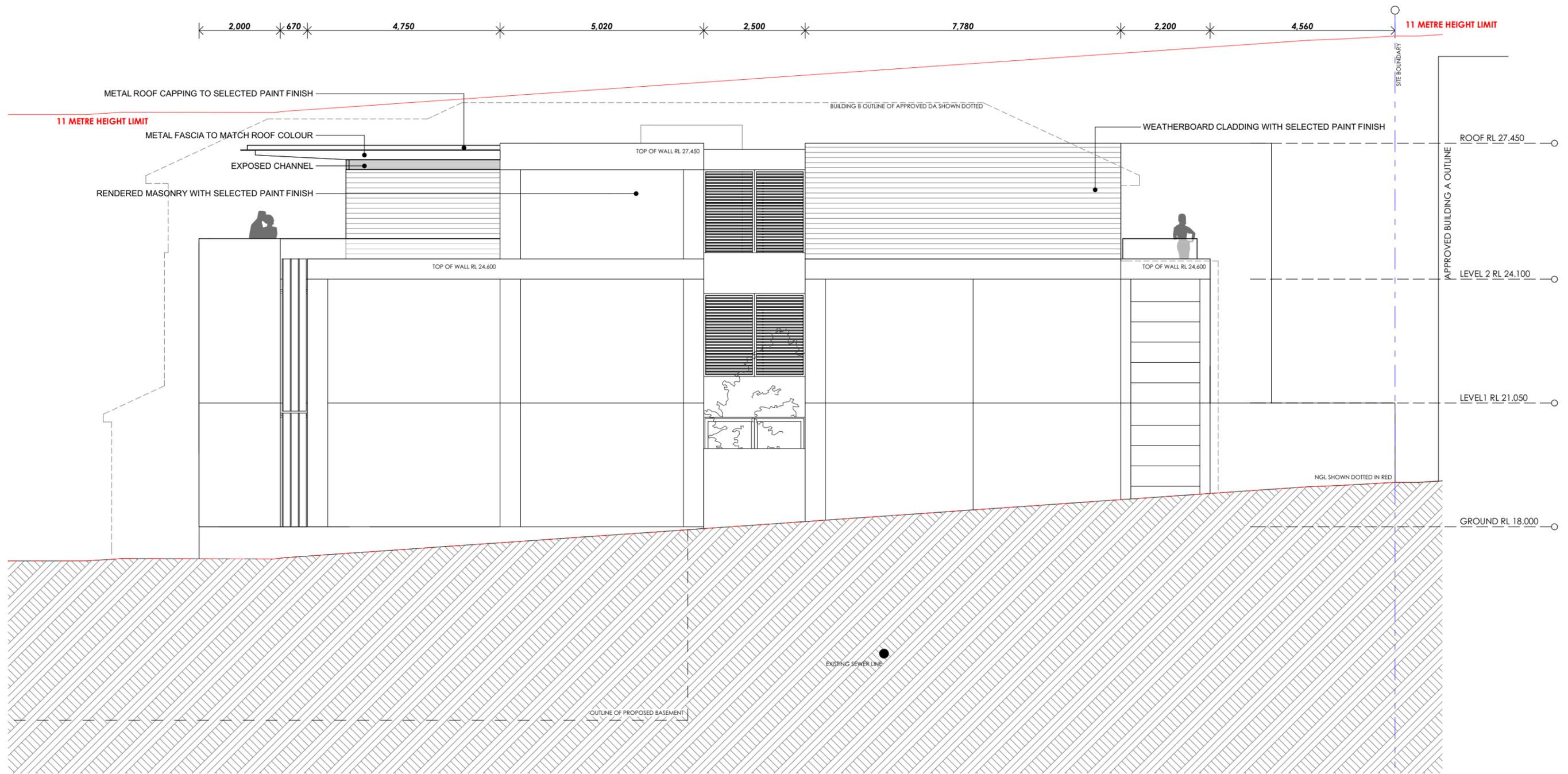
DRAWING NO.  
**A-0205**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abn: 76 129 130 285  
studio: 5, 505 balmain rd lilyfield NSW  
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## SECTION 96AA



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# MARMORA

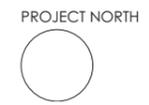


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CLIENT  
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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING B - WEST  
ELEVATION**

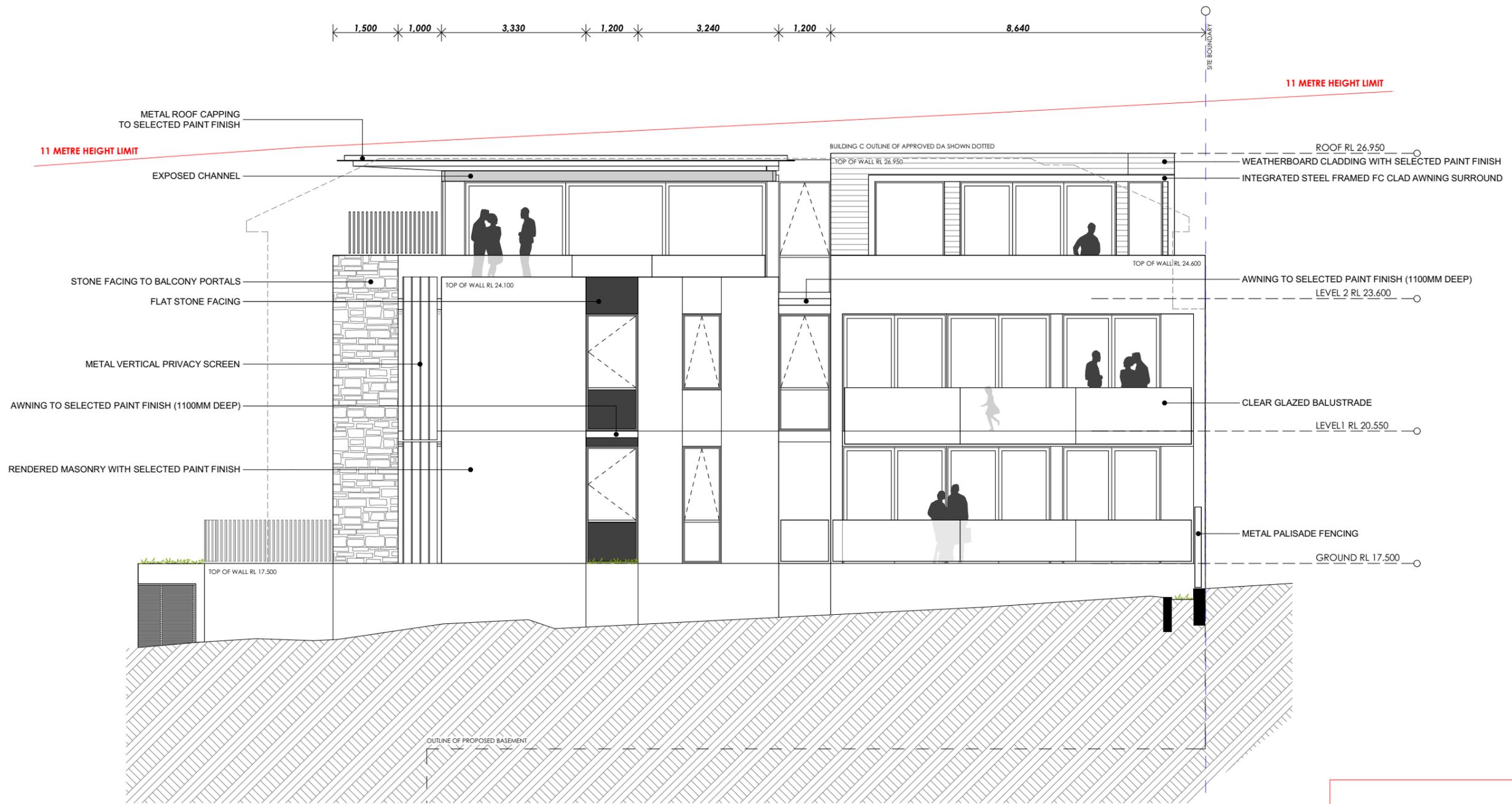
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**A-0206**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
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CLIENT  
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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096

PROJECT NORTH  
○

SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING C - NORTH  
ELEVATION**

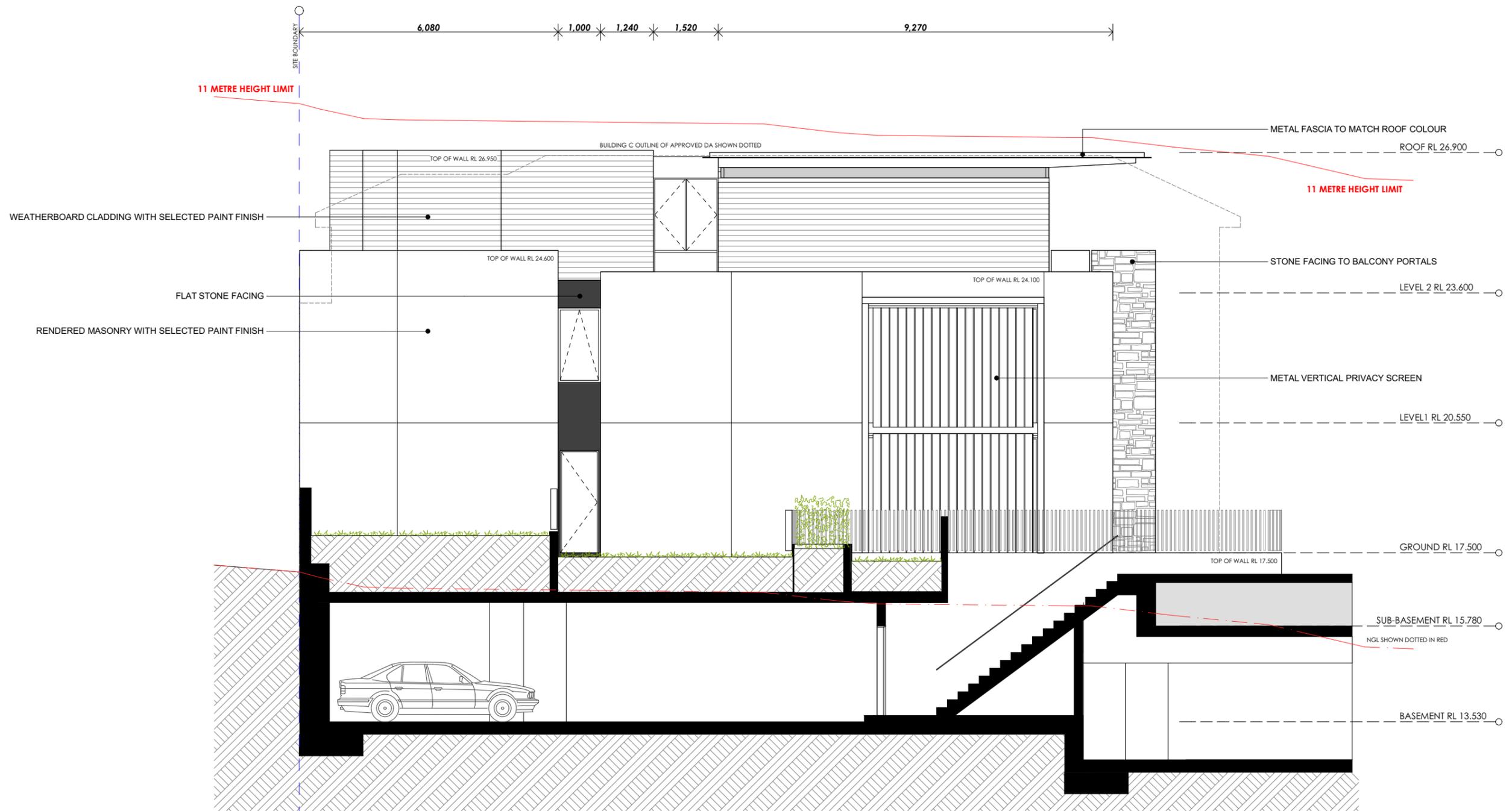
DRAWING NO.  
**A-0207**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abn: 76 129 130 285  
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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING C - SOUTH  
ELEVATION**

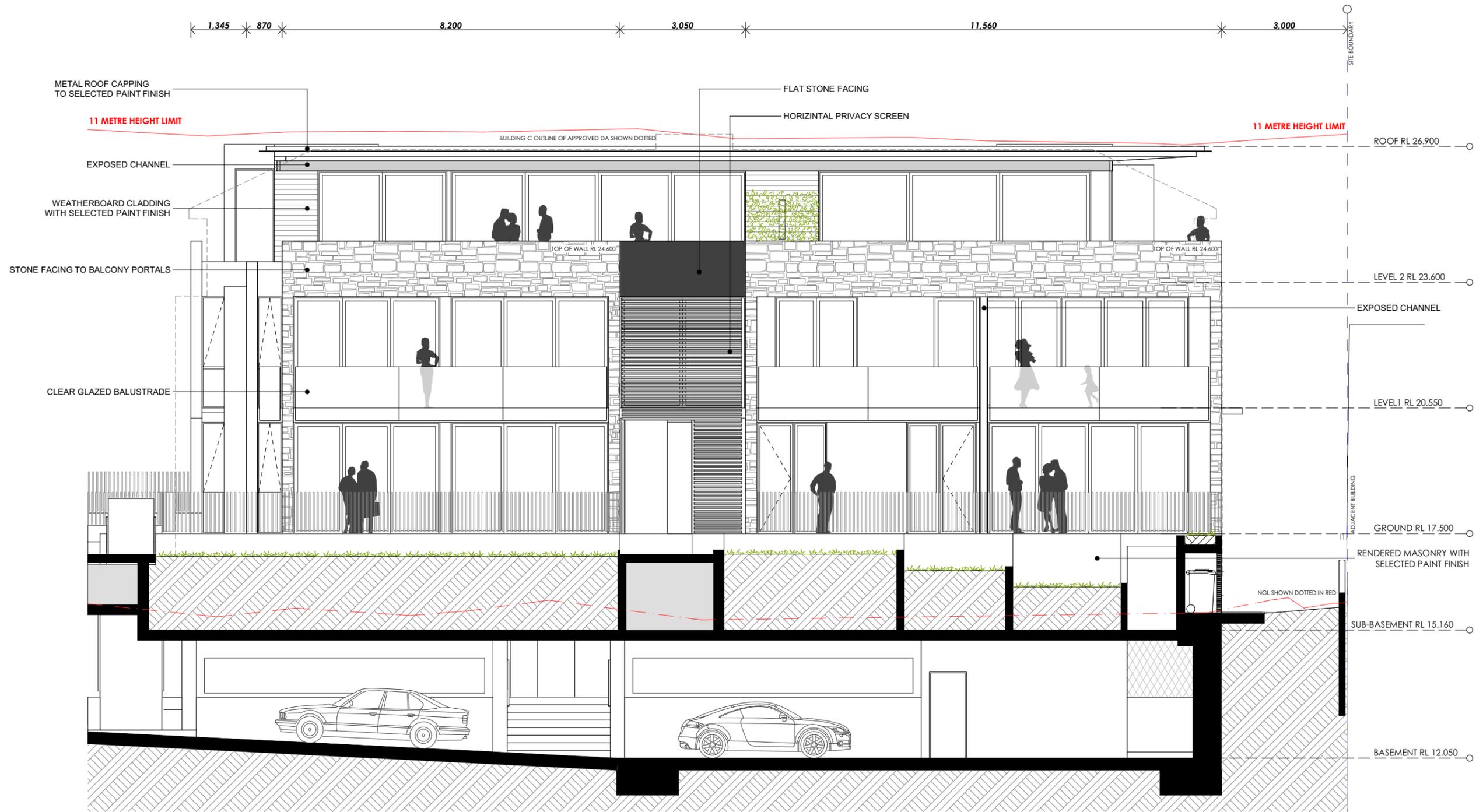
DRAWING NO.  
**A-0208**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
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**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING C - EAST  
ELEVATION**

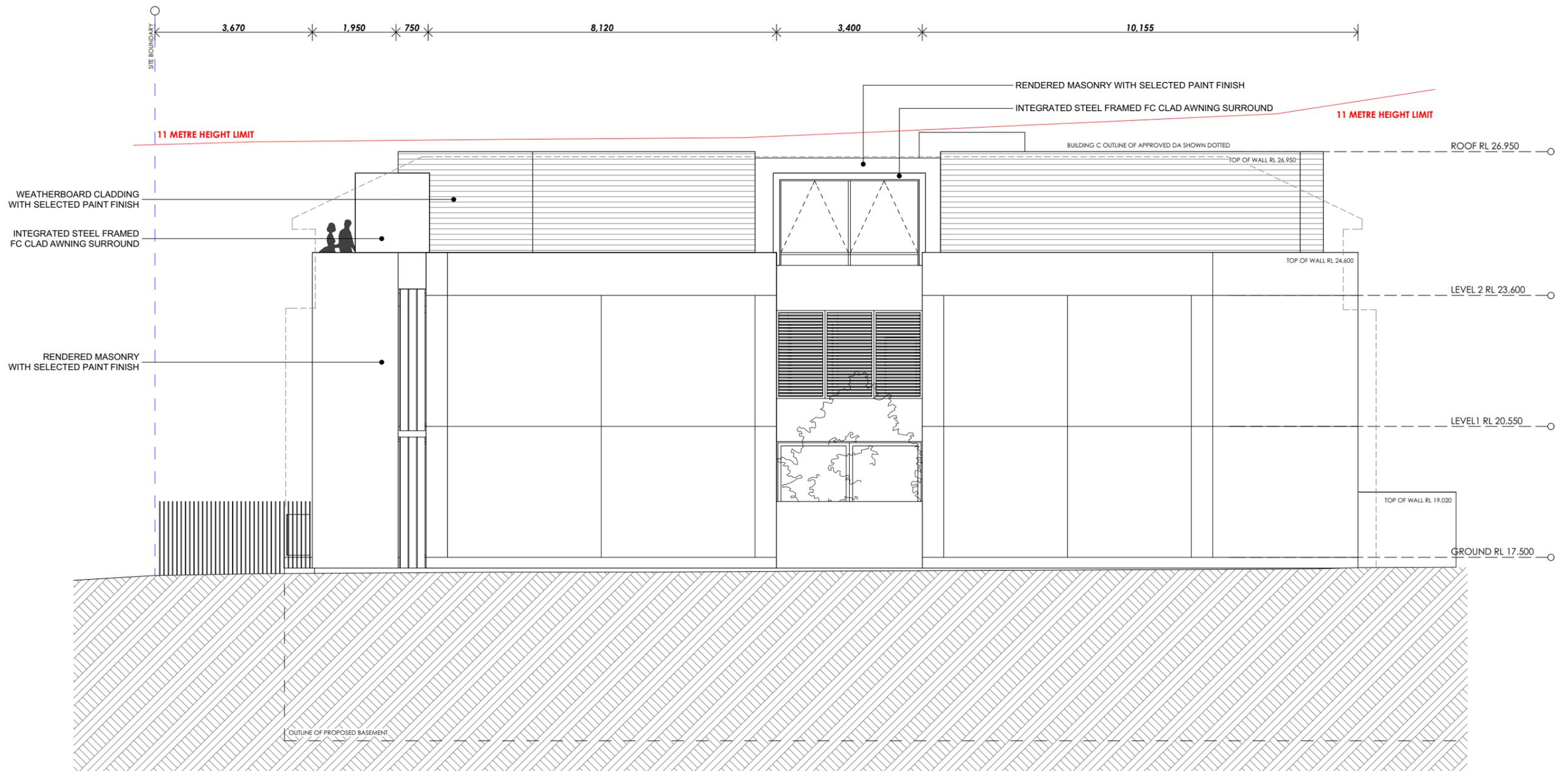
DRAWING NO.  
**A-0209**

ISSUE  
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SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING C - WEST  
ELEVATION**

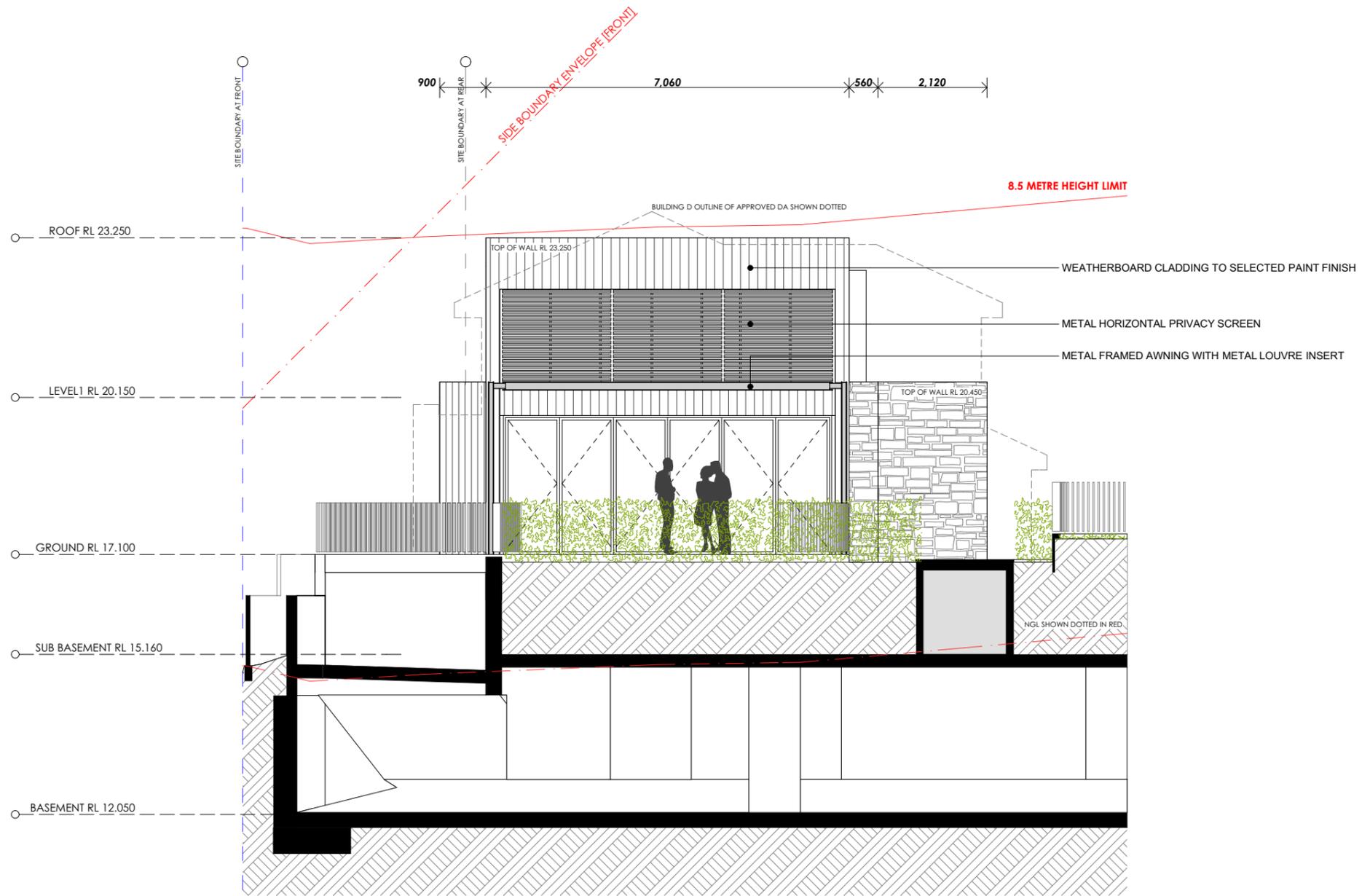
DRAWING NO.  
**A-0210**

ISSUE  
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B	JUN 14	S96 AA

CLIENT  
**Moorgate Property**  
Suite 1, 38 East Esplanade  
Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING D - NORTH  
ELEVATION**

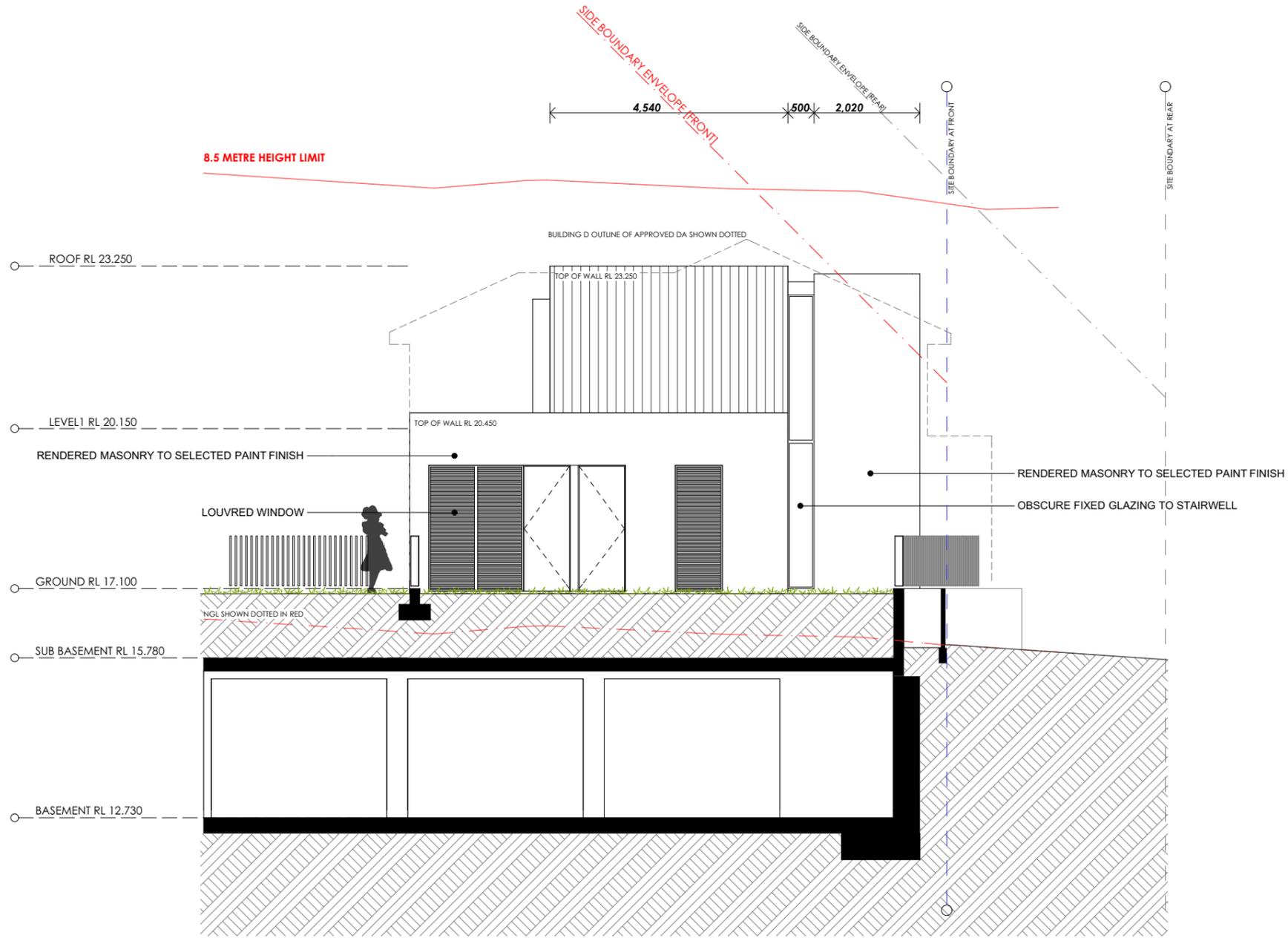
DRAWING NO.  
**A-0211**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abru 76 129 130 285  
studio 5, 505 balmain rd lilyfield NSW  
p: 61 2 9818 0777 f: 61 2 9818 0778  
nom. arch - david benson 7285



# SECTION 96AA



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WARRINGAH COUNCIL

# MARMORA

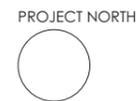
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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING D - SOUTH  
ELEVATION**

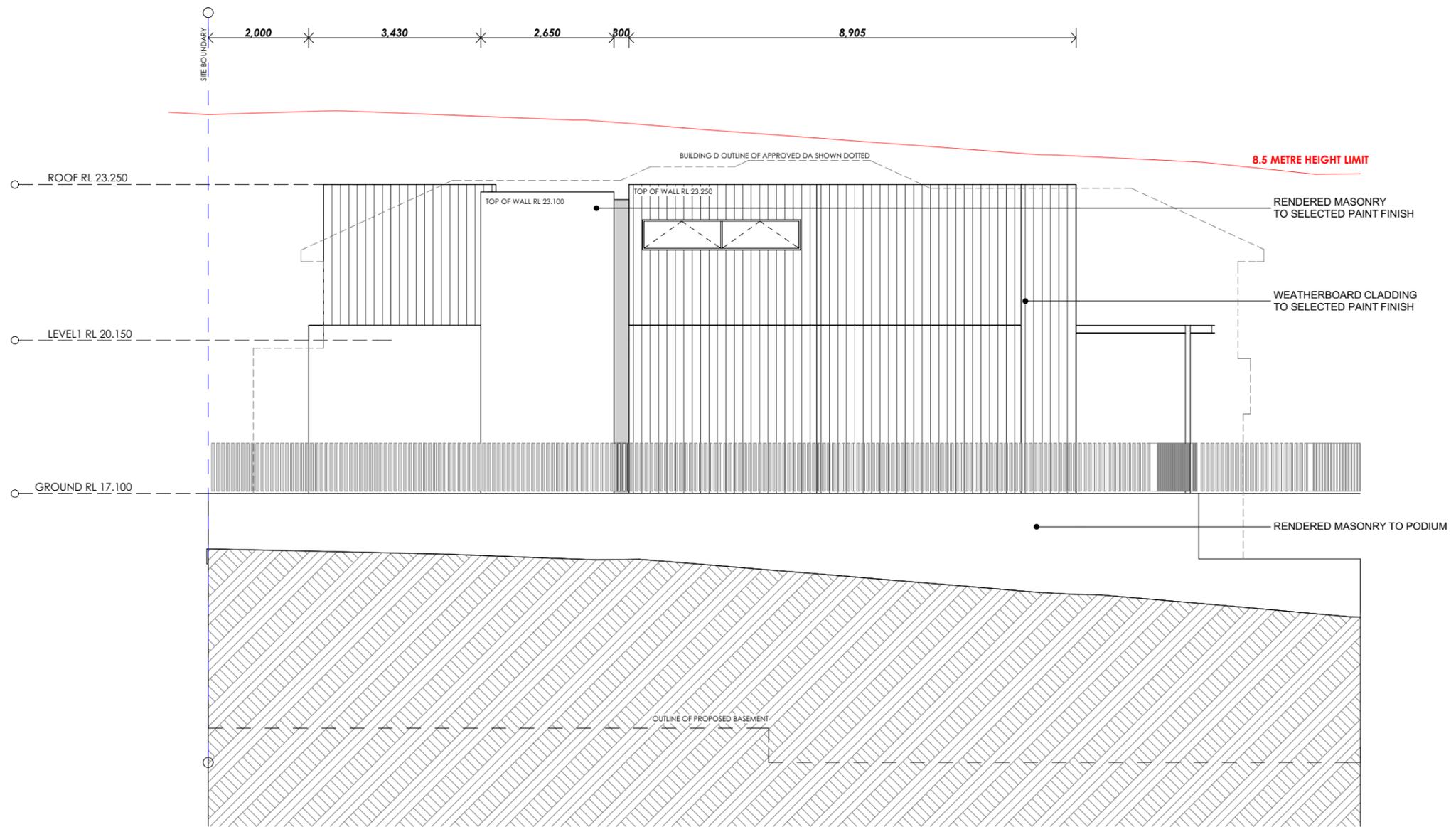
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**A-0212**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abn: 76 129 130 285  
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## SECTION 96AA



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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:100 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**BUILDING D - EAST  
ELEVATION**

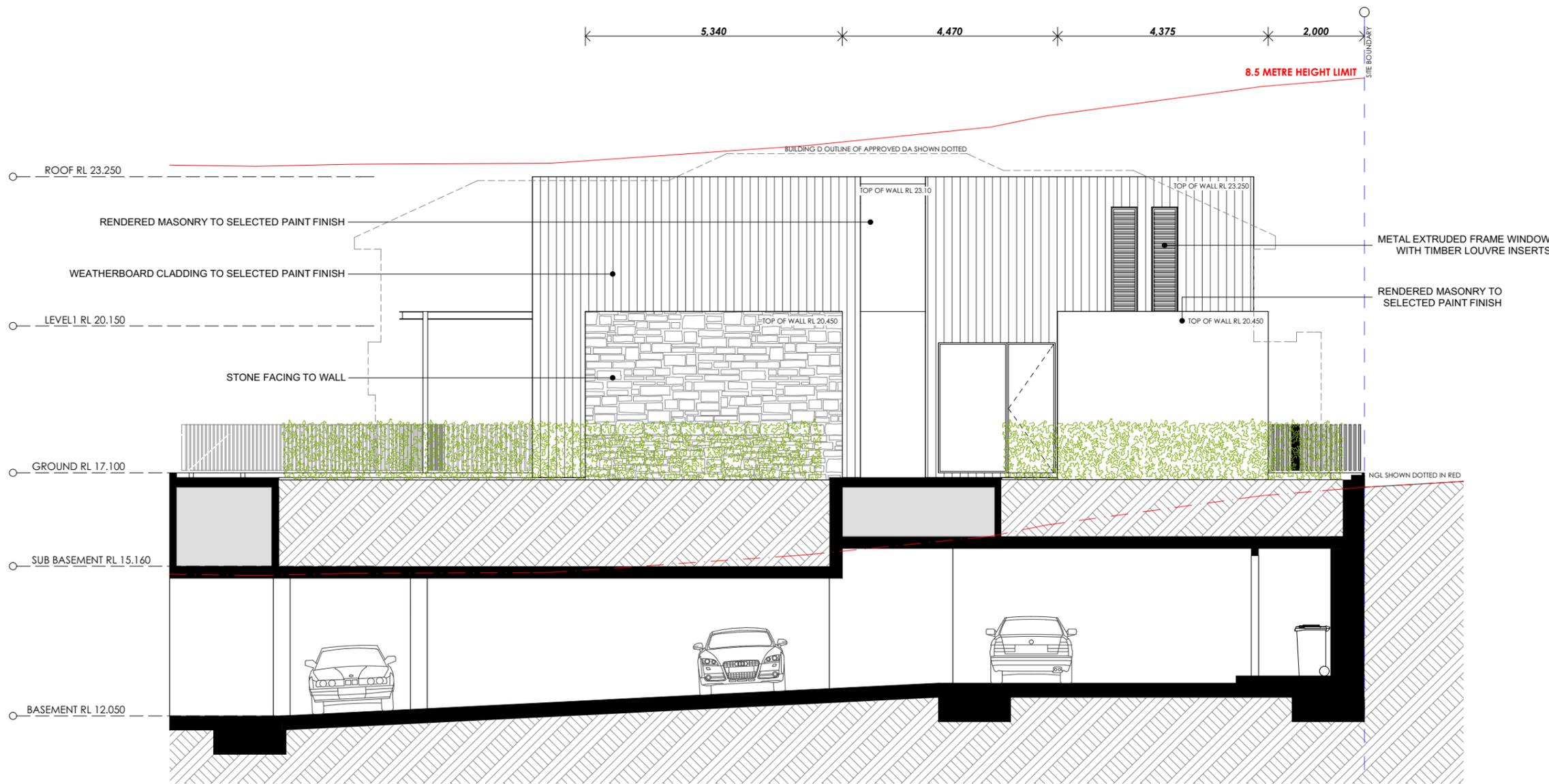
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**A-0213**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abn: 76 129 130 285  
studio: 5, 505 balmain rd lilyfield NSW  
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## SECTION 96AA



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## SECTION 96AA

## MARMORA

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Manly NSW 2095

PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
Freshwater NSW 2096

PROJECT NORTH  
○

SCALE  
1:100 @ A3

PROJECT NO.  
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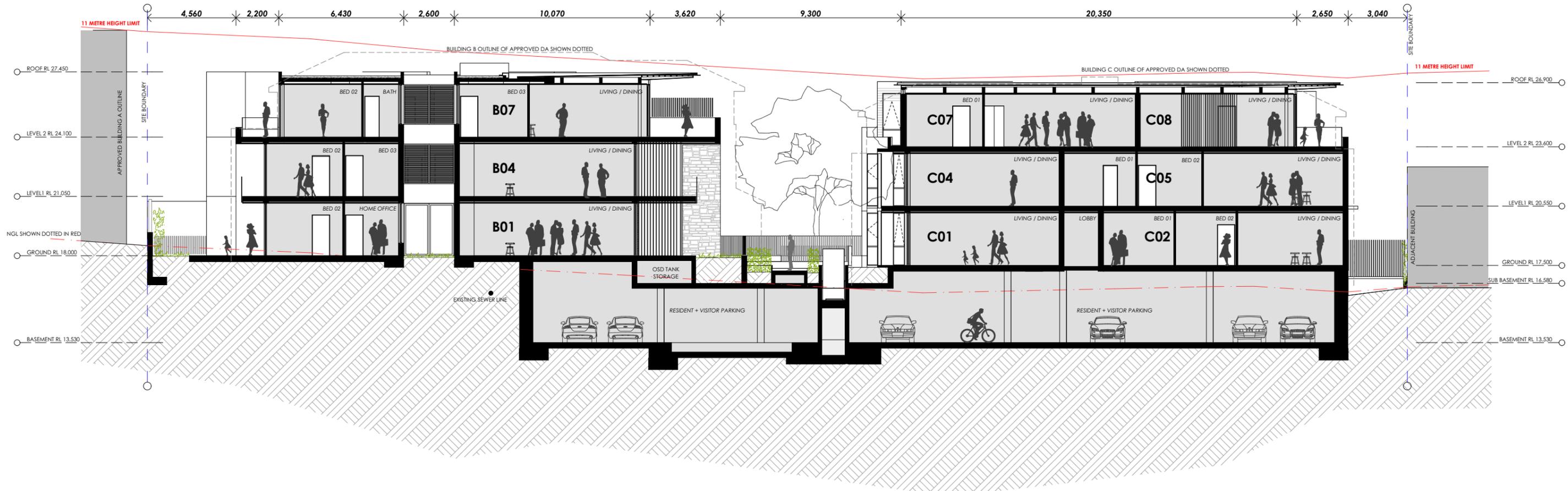
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**BUILDING D - WEST  
ELEVATION**

DRAWING NO.  
**A-0214**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abru 76 129 130 285  
studio 5, 505 balmain rd lilyfield NSW  
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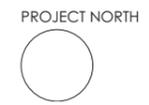


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**Marmora**  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**SECTION A**

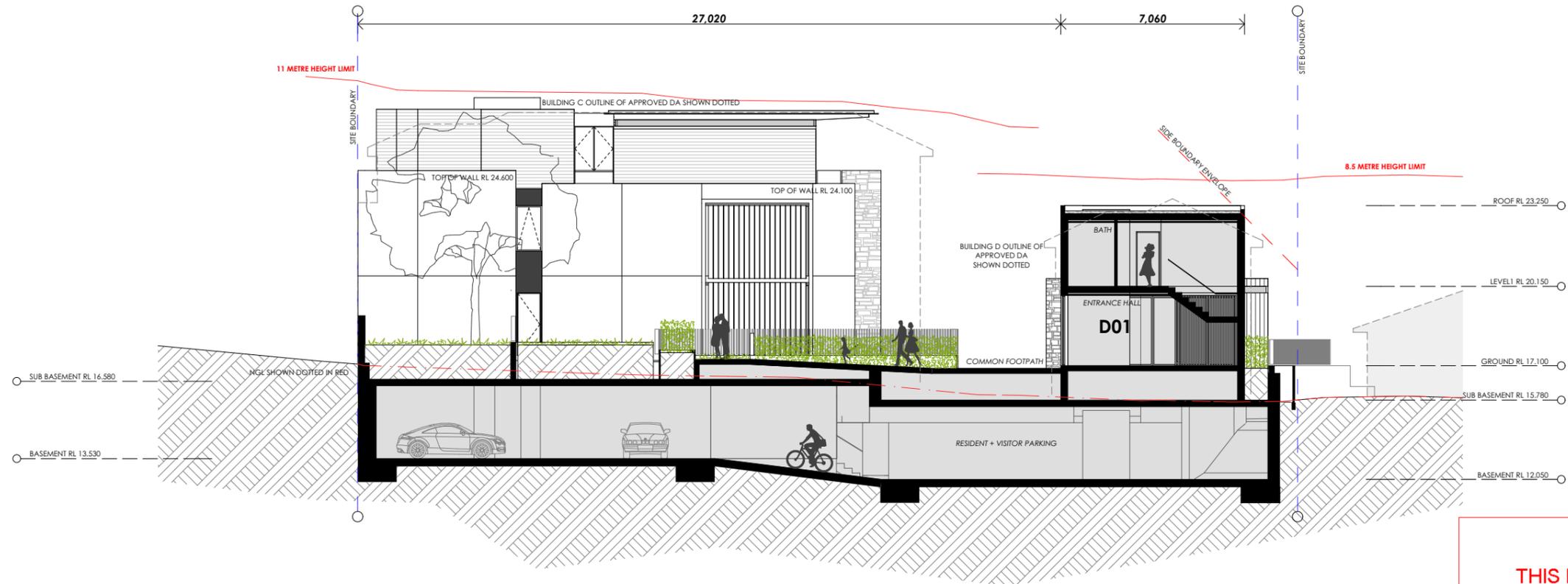
DRAWING NO.  
**A-0221**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
studio 5, 505 balmain rd lilyfield NSW  
p: 61 2 9818 0777 f: 61 2 9818 0778  
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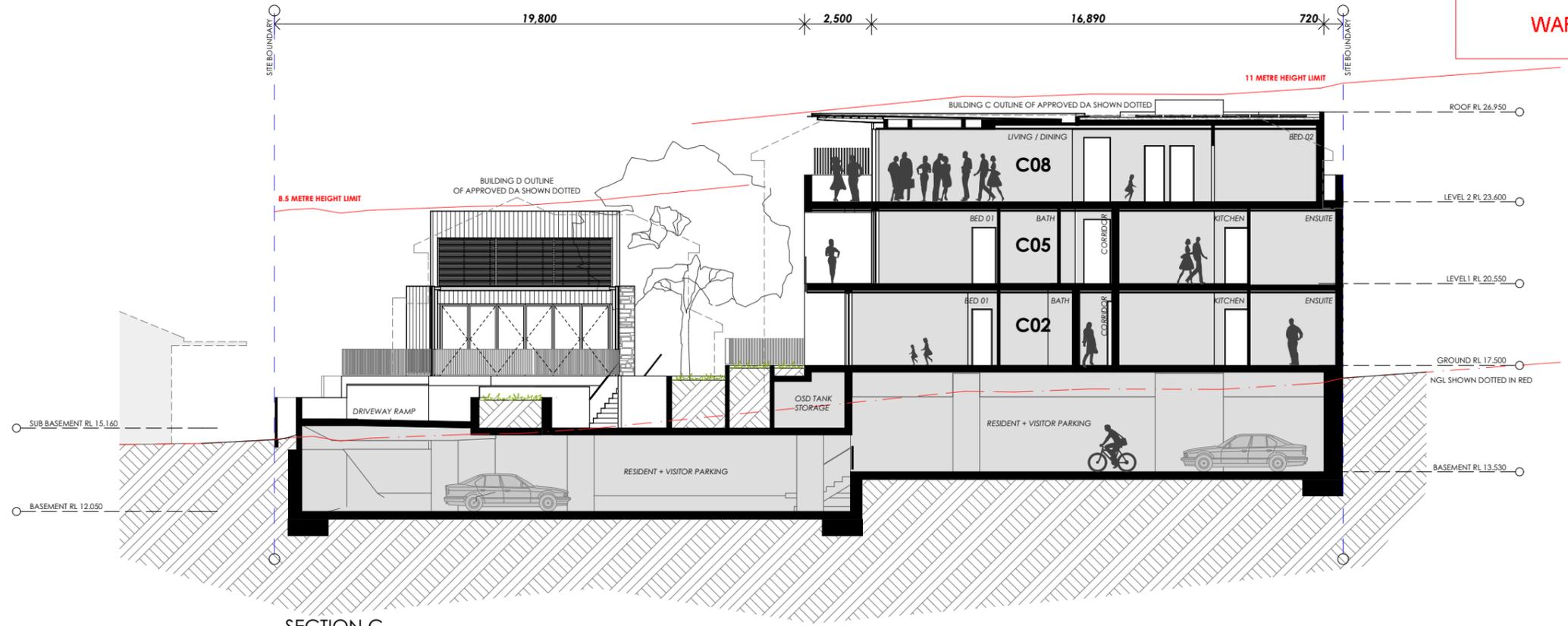


# SECTION 96AA



SECTION B

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SECTION C

MARMORA

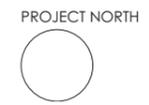


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PROJECT DETAILS  
Marmora  
18 Marmora Street  
Freshwater NSW 2096



SCALE  
1:200 @ A3

PROJECT NO.  
1353A

DRAWING  
SECTION B + C

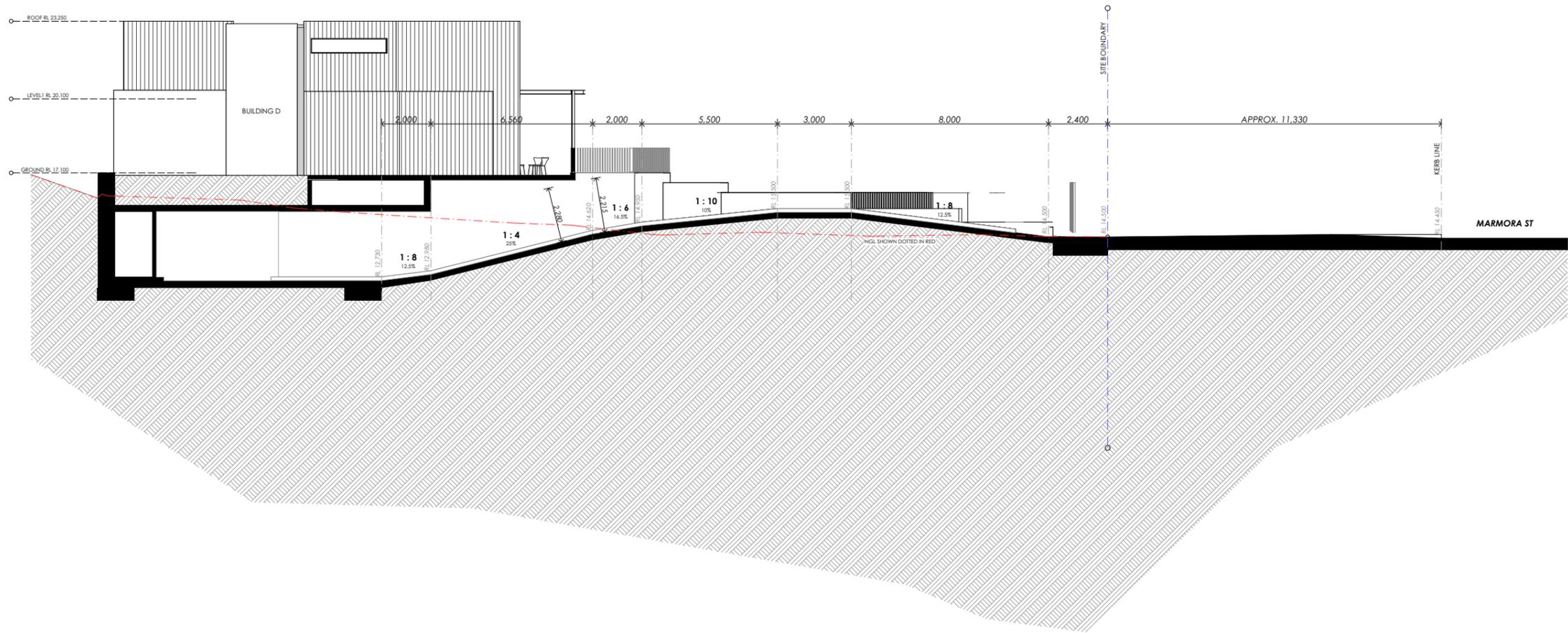
DRAWING NO.  
A-0222

ISSUE  
B

ARCHITECT  
benson mccormack  
abn: 76 129 130 285  
studio: 5, 505 balmain rd illyfield NSW  
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SECTION 96AA



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PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
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SCALE  
1:200 @ A3

PROJECT NO.  
**1353A**

DRAWING  
**DRIVEWAY SECTION**

DRAWING NO.  
**A-1600**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
abn: 76 129 130 285  
studio: 5, 505 balmain rd lilyfield NSW  
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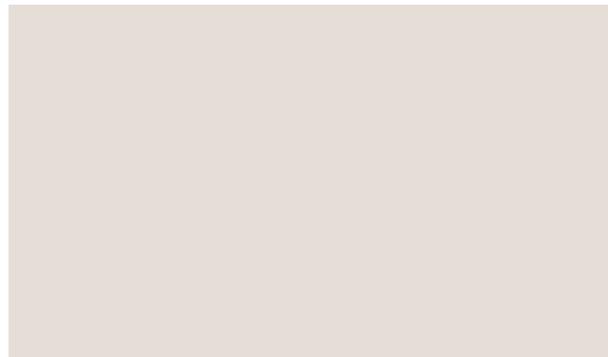
# SECTION 96AA

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**WALLS**



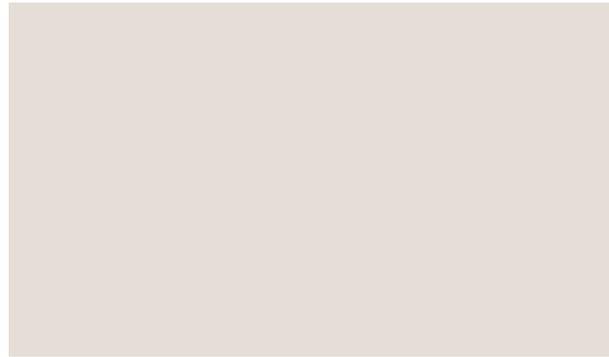
**STONE FACING TO PORTALS**  
SANDSTONE WALL CLADDING



**RENDERED MASONRY 01**  
PAINT FINISH SIM/EQ TO DULUX 'SHOJI WHITE' MATT



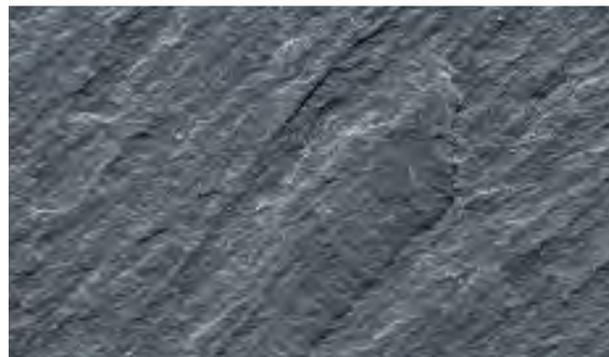
**RENDERED MASONRY 02**  
PAINT FINISH SIM/EQ TO DULUX 'OOLONG' MATT



**WEATHERBOARD CLADDING 01**  
PAINT FINISH SIM/EQ TO DULUX 'SHOJI WHITE' MATT



**WEATHERBOARD CLADDING 02**  
PAINT FINISH SIM/EQ TO DULUX 'NIGHT SKY'



**FLAT STONE FACING**  
SLATE WALL TILE CLADDING

**ROOF**



**SHEET METAL ROOFING**  
POWDERCOAT FINISH SIM/EQ TO DULUX 'NIGHT SKY'



**SOFFIT**  
INNOWOOD DECKING SYSTEM IN 'SPOTTED GUM'

**WALL OPENINGS**

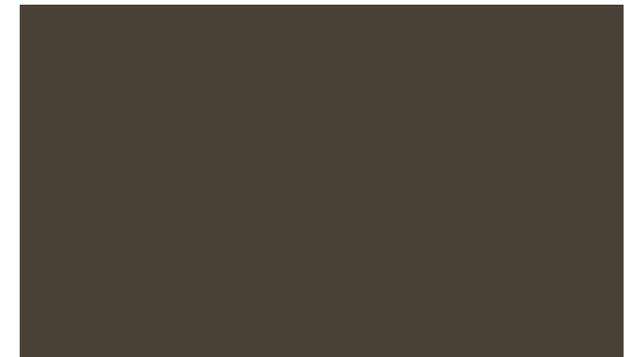


**ALUMINIUM WINDOW FRAME**  
POWDERCOATED FINISH SIM/EQ TO DULUX 'ANOTEC DARK GREY'

**SCREEN**



**LANDSCAPE FENCING**  
TIMBER, COLOUR SIM/EQ TO MERBAU



**LOUVRE / PERGOLA**  
POWDERCOATED FINISH SIM/EQ TO DULUX 'BRONZE PEARL'

**ARTICULATION**



**EXPOSED STEEL CHANNEL**  
POWDERCOATED FINISH SIM/EQ TO DULUX 'GHETTO BLACK'

**MARMORA**



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PROJECT DETAILS  
**Marmora**  
18 Marmora Street  
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SCALE  
NTS

PROJECT NO.  
**1353A**

DRAWING  
**MATERIALS & FINISHES**

DRAWING NO.  
**A-1612**

ISSUE  
**B**

ARCHITECT  
**benson mccormack**  
atno: 74 129 130 285  
studio: 5, 505 balmain rd lilyfield NSW  
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# PROPOSED HOUSING DEVELOPMENT

## 18 MARMORA STREET, HARBORD, NSW

### CIVIL DRAWINGS

PROJECT No. 111927

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**DIAL 1100**  
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**WARNING**  
 BEWARE OF UNDERGROUND SERVICES  
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN

#### EARTHWORKS

E1 THE CONTRACTOR SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING VICROADS AND AUSTRALIAN STANDARDS AUSTRALIAN STANDARDS AS 1289 TESTING SOILS FOR ENGINEERING PURPOSES AS 3798 GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS VICROADS SPECIFICATION - SECTION 201 SITE CLEARING

E2 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT ALL CONTROL AND COMPLIANCE EXAMINATION AND TESTING OF MATERIALS AND WORK UNLESS OTHERWISE SPECIFIED. ALL TESTS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE APPROPRIATE AUSTRALIAN STANDARD TEST METHOD. WHERE THERE IS NO RELEVANT AUSTRALIAN STANDARD TEST METHOD THEN THE CURRENT APPROPRIATE VICROADS TEST METHOD OR OTHER SPECIFIED TEST METHOD SHALL BE USED. ALL TESTS SHALL BE CONDUCTED BY EXPERIENCED TESTING OFFICERS IN A LABORATORY ACCREDITED BY THE NATIONAL ASSOCIATION OF TESTING AUTHORITIES (NATA)

E3 DETERMINATION OF THE NATURE AND QUANTITY(IES) OF THE EXISTING SITE MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHERE INCLUDED IN THE DOCUMENTS, GEOTECHNICAL REPORTS ARE INCLUDED FOR INFORMATION ONLY. INTERPRETATION OF THE REPORTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED IN THE CONTRACT SUM FOR EXCAVATION IN ALL MATERIAL. NO ADDITIONAL PAVEMENT SHALL BE MADE FOR EXCAVATION IN ROCK NOR ANY HARD OR SOFT MATERIAL. USE OF ON-SITE MATERIAL WITHIN THE WORKS SHALL ONLY BE PERMITTED WHERE THE MATERIAL EITHER I. IS SPECIALLY STATED WITHIN THE DOCUMENTS AS BEING USED IN THE WORKS, OR II. IS PERMITTED BY THE SUPERINTENDENT. IMPORTED FILL SHALL BE APPROVED MATERIALS COMPRISING GRANULAR IGNEOUS WEATHERED ROCK OR QUARRY WASTE (SUCH AS RIMS DGS40 OR EQUIVALENT), SANDY CLAY OR WEATHERED SEDIMENTARY ROCK. THE FILL MATERIAL MUST BE A MINIMUM PARTICLE SIZE AFTER COMPACTION SHALL NOT EXCEED 40MM, NOT LESS THAN 50% OF THE MATERIAL SHALL BE FINER THAN 75 MICRON AND IT SHALL HAVE A LIQUID LIMIT NOT EXCEEDING 35%. GRANULAR MATERIAL SHALL BE WELL GRADED. UNSUITABLE MATERIAL SHALL MEAN ANY MATERIAL WHICH CONTAINS VEGETABLE MATTER, ROOTS, STUMPS AND OR ANY OTHER PERISHABLE, FOREIGN OR DELETERIOUS MATTER, OR CONTAINS CLAY HAVING A LIQUID LIMIT EXCEEDING 80% AND OR A PLASTICITY INDEX EXCEEDING 50% OR CONTAINS ROCK, GRAVEL OR OTHER PIECES WHOSE LEAST DIMENSION EXCEEDS 100MM, OR IS SILTY MATERIAL OR IS OTHERWISE CONSIDERED AS BEING UNSUITABLE.

E4 WHEN A SURFACE IS UNABLE TO SUPPORT CONSTRUCTION EQUIPMENT OR IT IS NOT POSSIBLE TO COMPACT THE OVERLYING MATERIALS BECAUSE OF HIGH MOISTURE CONTENT, THEN ONE OR MORE OF THE FOLLOWING ALTERNATIVE ACTIONS MAY BE TAKEN. (I) ALLOW THE MATERIAL TO DRY TO A MOISTURE CONTENT WHICH ALLOW IT TO BE COMPACTED AND ALLOW THE PLACEMENT AND COMPACTION OF OVERLYING MATERIAL. (II) SCARIFY THE MATERIAL TO A DEPTH OF 200MM AND WORK AS NECESSARY TO ACCELERATE DRYING. RECOMPACT AS SPECIFIED WHEN MOISTURE CONTENT APPROXIMATES OPTIMUM. (III) EXCAVATE AND REPLACE THE SOFT MATERIAL. THE ACTION TO BE ADOPTED SHALL BE AT THE CONTRACTOR'S DISCRETION AND EXPENSE, BUT SHALL BE ADVISED TO THE SUPERINTENDENT BEFORE ACTION COMMENCES. IF THE CONTRACTOR ELECTS PURSUANT TO (I) ABOVE TO ALLOW THE MATERIAL TO DRY, RESULTING DELAYS, IF ANY, SHALL NOT CONSTITUTE GROUNDS FOR AN EXTENSION OF CONTRACT PERIOD OR DATE OF PRACTICAL COMPLETION.

E5 THE FINISHED SUBGRADE SHALL NOT BE DISTURBED BY TRAFFIC OR OTHER OPERATIONS, AND SHALL BE PROTECTED AND MAINTAINED BY THE CONTRACTOR UNTIL THE FIRST LAYER OF FILL OR SUB-BASE IS PLACED THEREON. THE SUBGRADE SHALL BE KEPT DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES. THE CONTRACTOR SHALL PLAN AND CARRY OUT THE WHOLE OF THE WORKS TO MINIMISE THE EFFECTS OF RUN-OFF AND EROSION ON THE SITE AND ON DOWNSTREAM AREAS. HE SHALL AVOID UNNECESSARY GROUND DISTURBANCE AND PROVIDE AS NECESSARY FOR THE PROPER CONTROL OF STORMWATER RUN-OFF AT EVERY STAGE OF THE WORKS.

E6 PRIOR TO THE COMMENCEMENT OF EARTHWORKS TOPSOIL IS TO BE STRIPPED WITHIN THE LIMITS OF THE EARTHWORKS AND FROM ANY AREAS TO BE COVERED BY PAVING, STRUCTURES OR FILL. AND ALL AREAS WHICH ARE TO SUPPORT PAVEMENTS, EMBANKMENTS, STRUCTURES AND THE LIKE OR FILLING UNDER SUCH WORKS, SHALL BE STRIPPED CLEAR OF ALL TREES, LOGS, STUMPS, SCRUB, GRASS, ROOT GROWTH, CULTIVATED SOIL, WET OR SPONGY NATURAL SOIL, DECAYED VEGETABLE MATTER AND ANY OTHER DELETERIOUS SUBSTANCE. THE CONTRACTOR SHALL BREAK UP AND REMOVE ALL ASPHALT AND CONCRETE MATERIAL UPON WHICH FILL OR PAVEMENT SHALL BE PLACED. ALL MATERIAL WITHIN THE LIMIT OF THE EARTHWORKS SHALL BE WHOLLY REMOVED. FILL ALL HOLES WITH APPROVED MATERIAL IN MAXIMUM 150MM COMPACTED THICKNESS LAYERS COMPACTED TO THE DENSITY TO THE ADJOINING UNDISTURBED SOIL AND TO THE APPROVAL OF THE SUPERINTENDENT.

E7 MOISTURE CONDITION THE NATURAL SUBGRADE TO WITHIN THE RANGE 97% TO 103% OF STANDARD OPTIMUM MOISTURE CONTENT AND COMPACT TO ACHIEVE A MINIMUM STANDARD DRY DENSITY RATIO TO A MINIMUM DEPTH OF 200MM. IF THE AREA SHOULD BE TYPED AND SCARIFIED FULL DEPTH TO FACILITATE THIS PROCESS. SOFT, WEAK OR UNSTABLE AREAS EXPOSED BY THE COMPACTION PROCESS, OR DURING TEST ROLLING, AND WHICH DO NOT RESPOND TO FURTHER COMPACTION OR MOISTURE CONDITIONING SHALL BE EXCAVATED AND REPLACED. THE CONTRACTOR SHALL BE DEEMED TO HAVE ASSESSED THE EXTENT OF UNSTABLE AREAS AND SHALL BE DEEMED TO HAVE INCLUDED IN THE CONTRACT SUM FOR ALL ACTIVITIES REQUIRED FOR UNSTABLE AREA RECTIFICATION INCLUDING THE DELIVERY, PLACING AND COMPACTING OF APPROVED MATERIAL AS WELL AS THE EXCAVATION AND DISPOSAL OF REPLACED MATERIAL.

E8 EXCAVATION TO THE LINES, LEVELS AND GRADES AS REQUIRED FOR UNDERGROUND SERVICES SPECIFIED IN THE RELEVANT SERVICES SECTIONS, INCLUDING DRAINAGE, HYDRAULIC, ELECTRICAL AND THE LIKE. UNLESS OTHERWISE SPECIFIED MAKE THE TRENCHES STRAIGHT BETWEEN MANHOLES, INSPECTION POINTS, JUNCTIONS AND THE LIKE, WITH VERTICAL SIDES AND UNIFORM GRADES. DEPTH SHALL BE AS REQUIRED BY THE RELEVANT SERVICES AND ITS BEDDING. CUT BACK ROOTS ENCOUNTERED IN TRENCHES TO LESS THAN 600MM CLEAR OF THE RELEVANT SERVICE. REMOVE SUCH OTHER OBSTRUCTIONS INCLUDING ROOTS, STUMPS, BOLLERS AND THE LIKE WHICH MAY, IN THE OPINION OF THE SUPERINTENDENT, INTERFERE WITH THE PROPER FUNCTIONING OF THE SERVICE. LAY AND BED SERVICES IN ACCORDANCE WITH THE RELEVANT SERVICES SPECIFICATION SECTION.

E9 BACKFILL AND COMPACT SERVICE TRENCHES AS SOON AS POSSIBLE AFTER APPROVAL OF LAID AND BEDDED SERVICE. COMPACT BACKFILL IN PIPE TRENCHES SO THAT THE PIPE IS BUTTRESSED BY THE WALLS OF THE TRENCH.

E10 WHERE FILLING IS DESIGNATED BY THE CONTRACT OR IS SHOWN ON THE DRAWINGS AS STRUCTURAL OR CONTROLLED FILL THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT GEOTECHNICAL TESTING AUTHORITY TO SUPERVISE SUBGRADE PREPARATION, FILL PLACEMENT, COMPACTION AND TO UNDERTAKE SAMPLING AND TESTING AND REPORTING TO SATISFY THE REQUIREMENTS OF THIS SPECIFICATION AND THOSE OF AS 2870 AND AS 3798, FOR CONTROLLED FILL.

E11 NO FILL SHALL BE PLACED OVER LAYERS NOT TESTED AND HAVING SATISFACTORY RESULTS. WHERE EXCAVATED MATERIAL IS NOT SUITABLE FOR FILLING, FILL MATERIAL AS SPECIFIED IN THIS SPECIFICATION SECTION. IMPORTED FILL SHALL BE USED. SUITABLE MATERIAL EXCAVATED FROM THE SITE MAY BE USED AS FILL ONLY WHERE APPROVED IN WRITING BY THE SUPERINTENDENT, OR WHERE SHOWN ON THE DRAWINGS. COMPACT IMPORTED BULK FILL IN LAYERS OF 150MM MAXIMUM COMPACTED DEPTH AND AT OPTIMUM MOISTURE CONTENT. THE CONTRACTOR SHALL CARRY OUT TESTING AT A FREQUENCY WHICH IS SUFFICIENT TO ENSURE THAT THE MATERIALS AND WORK SUPPLIED UNDER THE CONTRACT COMPLIES WITH THE SPECIFIED REQUIREMENTS AND CONFORMING TO THE "MINIMUM FREQUENCY OF TESTING FOR MATERIAL DESCRIPTIONS" TABLE AND "GUIDELINES FOR MINIMUM FREQUENCY OF FIELD DENSITY TEST", TABLE OF AS 3798.

E12 UNLESS OTHERWISE PERMITTED, NO FILLING SHALL BE PLACED AGAINST ANY STRUCTURES, WING WALLS OR RETAINING WALLS WITHIN FOURTEEN DAYS OF CASTING. STRUT WALLS AS NECESSARY TO PREVENT MOVEMENT DURING PLACING AND COMPACTION. PLACE AND COMPACT FILLING OVER AND AROUND PIPES, CULVERTS, BRIDGES AND OTHER STRUCTURES SO AS TO AVOID UNBALANCED LOADING OR MOVEMENT. UNLESS OTHERWISE DETAILED BACKFILL AT STRUCTURES SHALL BE FILLED AS FOLLOWS: WHERE THE GAP BETWEEN THE STRUCTURE AND UNDISTURBED GROUND EXCEEDS 2M, BACKFILL THE ZONE WITHIN 2M OF THE STRUCTURE WITH CLASS 3 FINE CRUSHED ROCK AND BACKFILL IN THE ZONE BEYOND 2M OF THE STRUCTURE WITH SELECT FILL TO THE APPROVAL OF THE SUPERINTENDENT OR CLASS 3 FINE CRUSHED ROCK. UNLESS OTHERWISE DETAILED, MATERIAL WITHIN 300MM OF WEEPHOLES SHALL BE AN APPROVED GRANULAR FILTER MEDIUM OF COARSE SAND OR CRUSHED STONE WRAPPED AND SURROUNDED WITH AN APPROVED GEOTEXTILE SEPARATION LAYER.

E13 HORIZONTAL NO POINT SHALL BE GREATER THAN + OR - 100MM FROM THE DESIGN LOCATION. VERTICAL SUBGRADE LEVEL -0, -25MM PAVEMENT DESIGN SUBGRADE LEVEL -0, -25MM OTHER -0, -50MM STRAIGHTNESS (EXCLUDES ROCK) MAXIMUM 20MM DEPARTURE FROM 3M STRAIGHT EDGE LAID - PARALLEL TO ROAD CENTRE LINE - NORMAL TO INTENDED CONTOURS

E14 AREAS UPON WHICH FILLS ARE TO BE CONSTRUCTED, ALL LAYERS OF FILLING, AND MATERIALS LESS THAN 150MM BELOW PERMANENT SUBGRADE LEVEL IN CUTTINGS, SHALL BE COMPACTED SO AS TO BE CAPABLE OF WITHSTANDING TEST ROLLING WITHOUT VISIBLE DEFORMATION OR SPRINGING, WITH A PNEUMATIC TYRED ROLLER OR HIGHWAY TRUCK BALLASTED TO COMPLY WITH THE FOLLOWING: PNEUMATIC TYRED - NOT LESS THAN 3 T PER TYRE WITH TYRES INFLATED TO 550 KPA. HIGHWAY TRUCK - WITH REAR AXLE OR AXLES LOADED TO NOT LESS THAN 8 T EACH WITH TYRES INFLATED TO 550 KPA. TEST ROLLING SHALL BE CARRIED OUT IMMEDIATELY BEFORE OVERLYING LAYERS ARE PLACED. WHERE TEST ROLLING IS REQUIRED AT SOME LATER DATE, THE SURFACE SHALL BE MOISTURE CONDITIONED AS REQUIRED AND GIVEN NOT LESS THAN FOUR COVERAGES OF THE TEST ROLLER BEFORE TEST ROLLING COMMENCES.

E15 THE WORK SHALL NOT BE ACCEPTED AS COMPLETE UNLESS ALL TEST RESULTS ARE PROVIDED TO THE SUPERINTENDENT. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL PROPERTY AND QUALITY TEST RESULTS TO THE SUPERINTENDENT.

#### CIVIL

C1 THE CONTRACTOR SHALL LIAISE DIRECTLY WITH ALL SERVICE AUTHORITIES INVOLVED AND SHALL COMPLY WITH ALL THEIR REGULATIONS AND REQUIREMENTS.

C2 ALL LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM, UNLESS STATED OTHERWISE. ALL COORDINATES SHOWN ARE TO AUSTRALIAN MAP GRID, UNLESS STATED OTHERWISE.

C3 SERVICE INFORMATION SHOWN IS BASED ON PLANS SUPPLIED AND IS APPROXIMATE ONLY. ACTUAL LOCATION CAN ONLY BE DETERMINED BY EXCAVATION. THE CONTRACTOR SHALL LIAISE WITH SERVICE AUTHORITIES FOR SERVICE LOCATIONS. THE CONTRACTOR SHALL PROTECT ALL SERVICES AND SHALL RECTIFY ANY DAMAGE AT HIS EXPENSE.

C4 ALL WORKS IN PUBLIC LANDS SHALL BE TO THE APPROVAL AND SATISFACTION OF THE RELEVANT AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND OBTAINING RELEVANT AUTHORITY WRITTEN APPROVAL OF THE WORKS.

C5 EXISTING SURFACE CONTOURS SHOWN ARE INTERPOLATED FROM SPOT HEIGHTS AND ARE APPROXIMATE ONLY.

C6 UNLESS OTHERWISE NOTED ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 77MM UNDER ALL PAVEMENT AND BUILDING AREAS.

C7 PRIOR TO PLACEMENT OF ANY FILLS, PAVEMENT OR BUILDINGS, THE EXPOSED SUB-GRADE SHALL BE COMPACTED TO THE SPECIFIED STANDARD MAXIMUM DRY DENSITY FOR THE DEPTH SPECIFIED. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH APPROVED FILL AND COMPACTED AS SPECIFIED. SUBGRADE SHALL BE PROOF ROLLED, AS SPECIFIED.

C8 ALL FILL REQUIRED SHALL BE APPROVED FILL MATERIAL AND SHALL BE COMPACTED IN 150MM MAXIMUM COMPACTED THICKNESS LAYERS TO THE DENSITIES SPECIFIED, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

C9 THE CONTRACTOR SHALL KEEP THE SITE WELL DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES.

C10 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. (FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY ONLY.) WHERE FINISHED SURFACE SPOT LEVELS ARE NOT SHOWN THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN FREELY, AND TO MATCH THE LEVELS OF ADJACENT SURFACES OR STRUCTURES.

C11 DOWNPIPES SHALL BE CONNECTED TO PITS OR STORMWATER PIPES WITH EARTHENWARE OR SEWER CLASS PVC PIPES (DIAMETER AS INDICATED BY DOWNPIPE SIZE ON ARCHITECTURAL OR ENGINEERING DRAWINGS) AT A MINIMUM GRADE OF 1:100, MINIMUM 300MM COVER, UNLESS OTHERWISE SHOWN.

C12 ALL CONCRETE STORMWATER PIPES SHALL BE CLASS 2 WITH RUBBER RING JOINTS IN ACCORDANCE WITH A S 4058, OR A S 4139.

C13 ALL PVC STORMWATER PIPES SHALL BE SEWER GRADE IN ACCORDANCE WITH A S 1260.

C14 ALL DIMENSIONS AND SET OUTS SHOWN ARE EITHER TO FACE OF BUILDING, GRID LINES OR FACE OF KERB INVERT (LINE OF KERB), UNLESS SHOWN OTHERWISE.

C15 CONTRACTOR SHALL BE ISSUED AN ELECTRONIC COPY OF THE CIVIL DETAIL PLANS IN AUTOCAD DWG FORMAT FOR SET OUT PURPOSES. ALL DIMENSIONS SHOWN ON PLAN SHALL OVER RIDE SET OUT POINTS SELECTED FROM ELECTRONIC FILE PROVIDED.

C16 ALL CUT BATTERS TO BE 1V IN H UNLESS OTHERWISE NOTED.

C17 ALL SURFACE DAMAGED DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE SUPERINTENDENT.

C18 SAWCUT EXISTING KERB/KERB & CHANNEL AND PAVING WHERE NEW WORKS ARE TO MATCH EXISTING WORKS.

C19 BUILDING AND SITE MAINTENANCE PROGRAM IS TO INCORPORATE REGULAR FLUSHING OF ALL STORMWATER PITS, PIPES, DOWNPIPES, SUB-SOIL DRAINS AND ASSOCIATED FITTINGS TO AVOID BLOCKAGES WITHIN THE SYSTEM.

C20 A DETAIL LEVEL AND FEATURE SURVEY HAS BEEN UNDERTAKEN FOR THIS SITE BY: KIPROVICH & ASSOCIATES PTY LTD REF NO. 07\_113A DATE: 07/05/2002

#### DRAWING INDEX

109865-00-MIE000	COVER SHEET, GENERAL NOTES & INDEX
109865-00-MIE100	STORMWATER MANAGEMENT PLAN
109865-00-MIE150	OSD TANK 2 AND DETAILS
109865-00-MIE151	OSD TANK 3 AND DETAILS

#### STORMWATER DRAINAGE

D1 ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING AUSTRALIAN STANDARDS: AS 1260 UNPLASTICISED PVC (UPVC) PIPES AND FITTINGS FOR SEWERAGE APPLICATIONS AS 1597 PRECAST REINFORCED CONCRETE BOX CULVERTS PART 1 - SMALL CULVERTS (NOT EXCEEDING 1200MM WIDTH AND 900MM DEPTH) AS 1631 CAST IRON NON-PRESSURE PIPES AND PIPE FITTINGS AS 1680 GALVANISED COATINGS AS 1657 SAA CODE FOR FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS AS 2032 CODE OF PRACTICE FOR INSTALLATION OF UPVC PIPE SYSTEMS AS 2439 PERFORATED PLASTICS DRAINAGE AND EFFLUENT PIPE FITTINGS PART 1 - PERFORATED DRAINAGE PIPE AND ASSOCIATED FITTINGS AS 3500.3 NATIONAL PLUMBING AND DRAINAGE CODE, PART 3, STORMWATER DRAINAGE AS 3725 LOADS ON BURIED CONCRETE PIPES AS 3696 METAL ACCESS COVERS, ROAD GRATES AND FRAMES AS 4058 PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS 4139 FIBRE REINFORCED CONCRETE PIPES AND FITTINGS

D2 THE CONTRACTOR SHALL COMPLY WITH THE 'MINES (TRENCHES) REGULATIONS 1982' FOR ALL SHORING, SUPPORT OF TRENCHES, QUALIFICATIONS OF PERSONNEL AND NOTIFICATION TO THE RESPONSIBLE AUTHORITY.

D3 TRENCHES MUST BE KEPT CLEAR OF WATER AT ALL TIMES AND TIMBERED WHERE NECESSARY TO PREVENT COLLAPSE.

D4 SUITABLE SAFETY BARRIERS SHALL BE PROVIDED AROUND THE EXCAVATION AT ALL TIMES. THE BARRIERS SHALL BE SUITABLY DEFINED BY APPROVED LIGHTING DURING THE APPROPRIATE LIGHT UP TIME FOR THE AREA.

D5 PIPES SHALL BEAR EVENLY ON THE BED PREPARED AS SPECIFIED ABOVE AND LAID WITH THE SOCKETS POINTED UPGRADE. ALL PIPES SHALL BE LAID IN STRAIGHT LINES, TO TRUE INVERT LEVELS AND GRADES AS SHOWN ON PLANS. EACH PIPE SHALL BE SEPARATELY BONED BETWEEN ACCURATELY ESTABLISHED GRADE POINTS. THE CONTRACTOR SHALL ADHERE TO THE DRAWINGS AND SHALL NOT BE PERMITTED TO VARY THE LINE, LEVELS OR LOCATION OF THE DRAIN WITHOUT THE SUPERINTENDENT'S WRITTEN APPROVAL.

D6 ALL PIPE JOINTING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS FOR THE TYPE OF PIPE BEING USED.

D7 WHERE ANY PIPE IS CUT INTO A LARGER PIPE, SUCH CONNECTION SHALL BE NEATLY MADE AND NO PART OF THE PIPE OR DOWNPIPE SHALL BE ALLOWED TO PROJECT. ANY CUT-IN JUNCTION SHALL BE MADE IN THE TOP HALF OF THE LARGER PIPE. SUCH JUNCTION TO CONCRETE PIPES SHALL BE SURROUNDED WITH A HEAT COLLAR OF CEMENT MORTAR AS DIRECTED OR AS DETAILED ON THE DRAWINGS. JUNCTIONS BETWEEN PVC PIPES SHALL USE PROPRIETY FITTINGS INTENDED FOR THE PURPOSE.

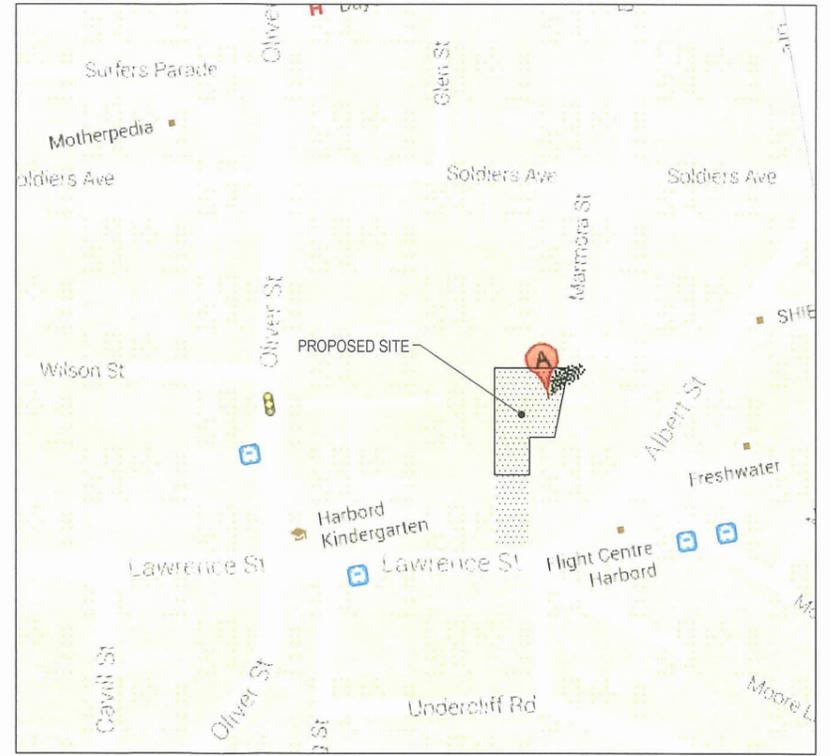
D8 THE ENDS OF PIPES WHICH CONNECT WITH SIDE ENTRY, JUNCTION OR OTHER PITS SHALL BE NEATLY CUT TO FIT THE INNER FACE OF THE CONCRETE. WHERE UPVC PIPES ENTER LEAVE PITS A RUBBER RING JOINT MANHOLE COUPLING SHALL BE CAST INTO THE PIT WALL. BEDDING, HAUNCH AND OVERLAY MATERIALS SHALL CONFORM TO THE DETAILS SHOWN ON THE DRAWINGS.

D9 ALL PITS AND ENDWALLS SHALL BE CONSTRUCTED IN THE POSITIONS AND TO THE LEVELS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE SUPERINTENDENT. PIT COVERS SHALL BE PLACED IN ACCORDANCE WITH THE DETAIL SITE PLANS AND PIT SCHEDULE (IF PROVIDED) IN REGARD TO TYPE, SIZE, LOCATION AND LEVEL. THE BASE OF EACH PIT SHALL BE INFILLED AND SHAPED WITH CONCRETE OR CEMENT MORTAR TO PROVIDE A SMOOTH FLOW PATH.

D10 ALL DOWNPIPES SHALL BE CONNECTED TO AT THE END OF A PIPE OR ELBOW AND WHICH THEY SHALL ENTER CENTRALLY. WHERE PVC DOWNPIPES AND UNDERGROUND DRAINAGE ARE USED, THE DOWNPIPES SHALL BE CONNECTED TO THE UNDERGROUND DRAINS WITH SUITABLE STANDARD FITTINGS, BENDS ETC AND WITH SOLVENT JOINTS. THE CONTRACTOR SHALL LAY AND GRADE DRAINS FROM DOWNPIPES TO COMPLY WITH THE REQUIREMENTS FOR PIPE MATERIAL AND COVER REQUIRED BY AS3500.3. WHERE THE REQUIREMENTS OF AS3500.3 CANNOT BE MET THE CONTRACTOR SHALL REFER THE MATTER TO THE SUPERINTENDENT.

D11 SUPPLY APPARATUS AND MATERIALS NECESSARY FOR, AND CARRY OUT THE TESTS REQUIRED BY THE SPECIFICATION OR REGULATORY AUTHORITIES, IN THE PRESENCE OF THE SUPERINTENDENT AND THE RELEVANT AUTHORITY. LEAVE PIPE JOINTS EXPOSED TO ENABLE OBSERVATION DURING THE TESTS. ENSURE PVC SOLVENT CEMENT JOINTS HAVE BEEN CURED FOR AT LEAST 24 HOURS BEFORE TESTING.

D12 THE CONTRACTOR SHALL PRESSURE TEST WITH WATER, ALL STORMWATER PIPEWORK IN OR UNDER THE STRUCTURE, IN ACCORDANCE WITH AS 3500.3.



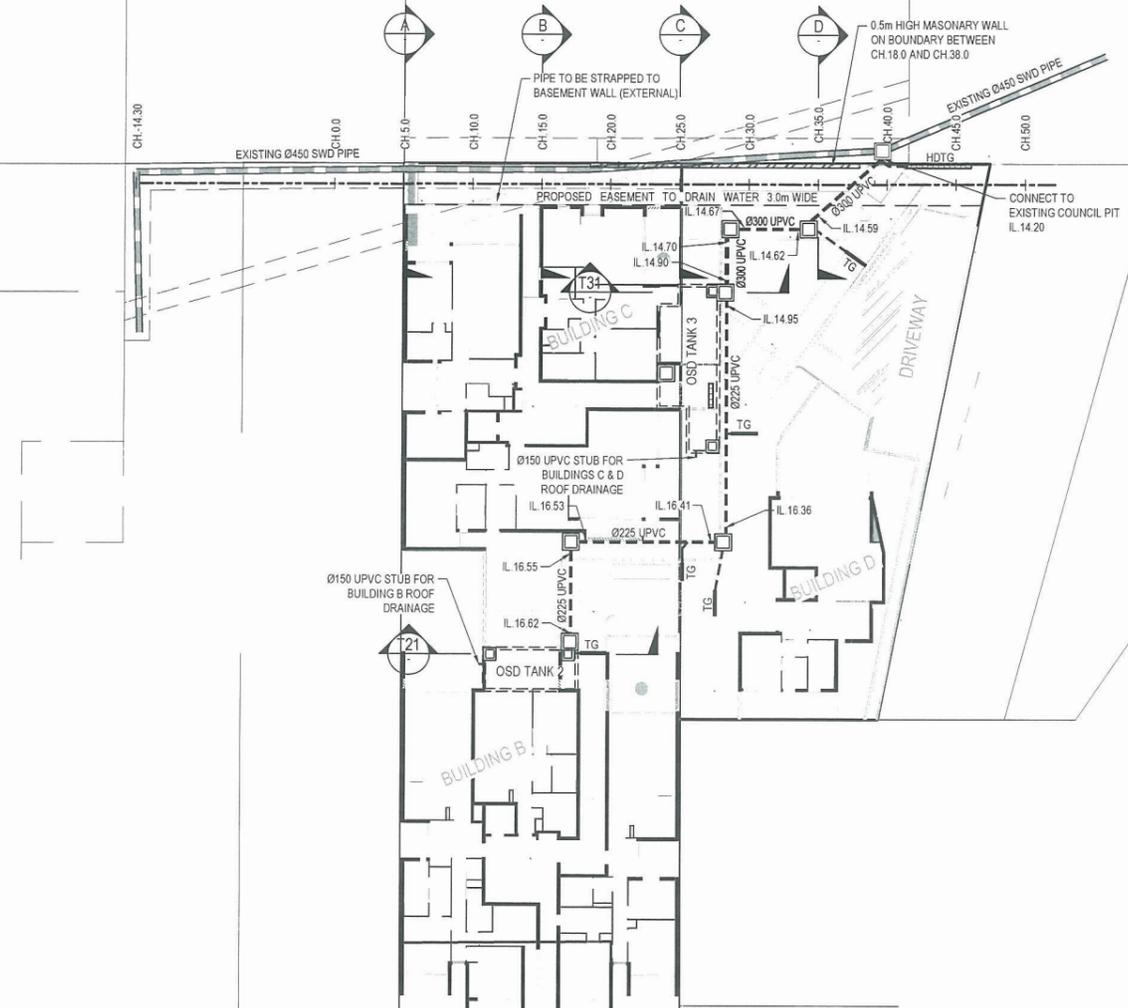
LOCALITY PLAN  
NOT TO SCALE

**THIS PLAN TO BE READ IN CONJUNCTION WITH MOD2014/0117 WARRINGAH COUNCIL**

REV	DESCRIPTION	BY	APP	DATE
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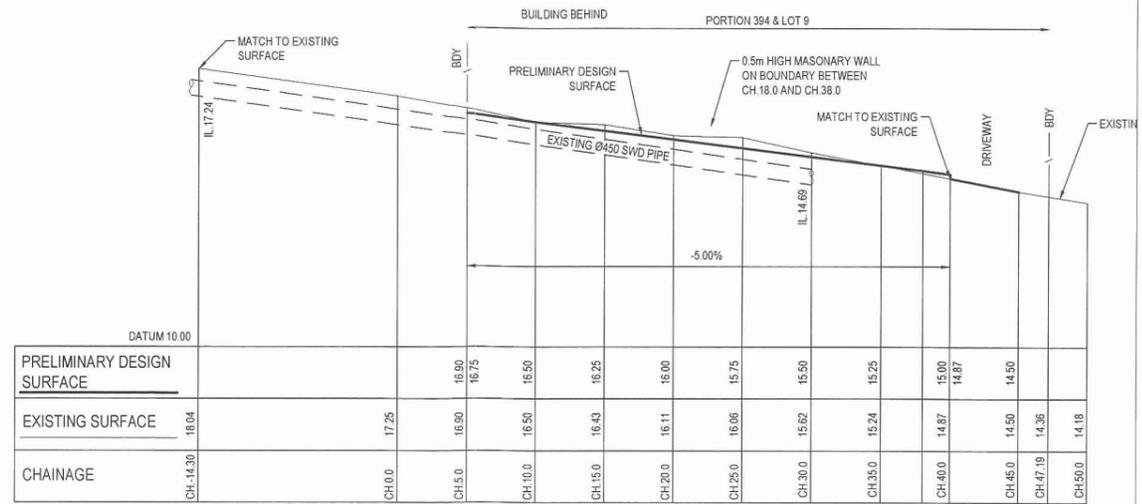
	Level 4 99 Clarence Street Sydney NSW 2000 Telephone (02) 9599 3000 Fax (02) 9519 1500 www.mein-yardt.com.au A.C11. 051 427 531 © Copyright	CLIENT: MOORGATE PROPERTY PROJECT: HARBORD 18 MARMORA STREET HARBORD, NSW TITLE: COVER SHEET, GENERAL NOTES & INDEX	NORTH 
	DESIGNED: MAC DRAWN: QD APPROVED: MAC SCALE @ A1: 1:250	STATUS: FOR DA APPROVAL NOT FOR CONSTRUCTION PROJECT ID: 111927-00-MIE000 DRAWING ID: 00	

MARMORA STREET

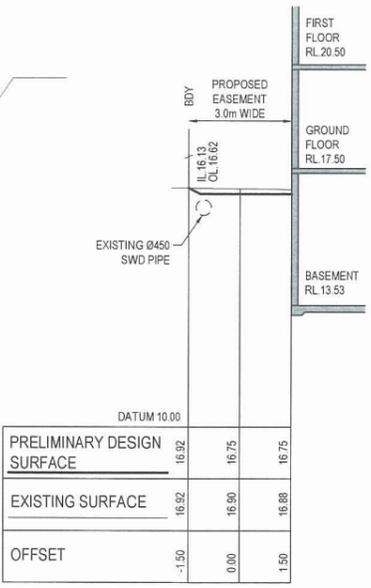


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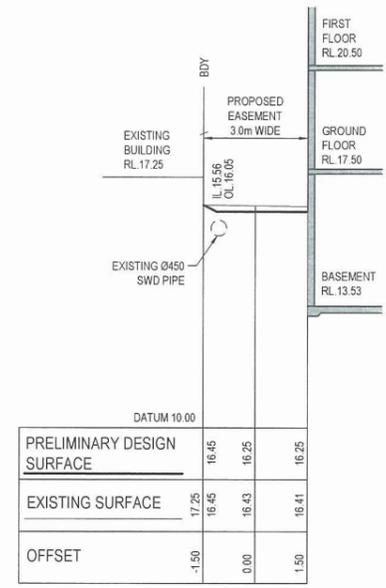
- PIPE ROUTE TO BE COORDINATED WITH BASEMENT LAYOUT TO ARCHITECT'S APPROVAL
- SUBSOIL DRAINS TO BE INSTALLED AT ALL DEEP SOIL PLANTING AND CONNECTED TO NEAREST STORMWATER PIPE OR PIT & COORDINATED WITH LANDSCAPE ARCHITECT.



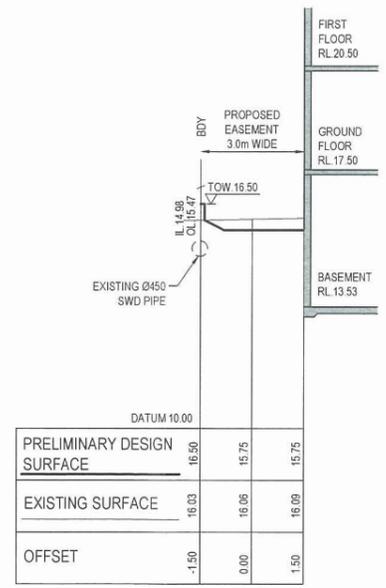
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H 1:250, V 1:100



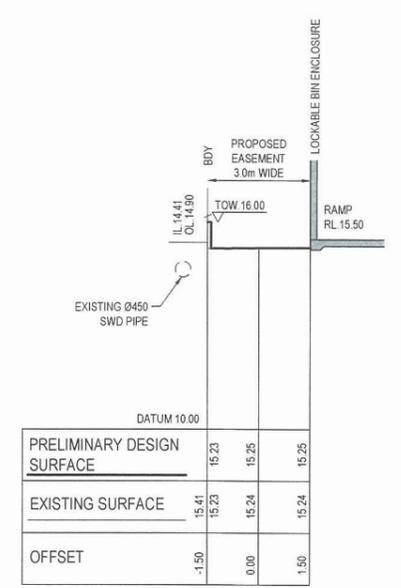
CROSS SECTION A-A, CH.5.0  
H 1:100, V 1:100



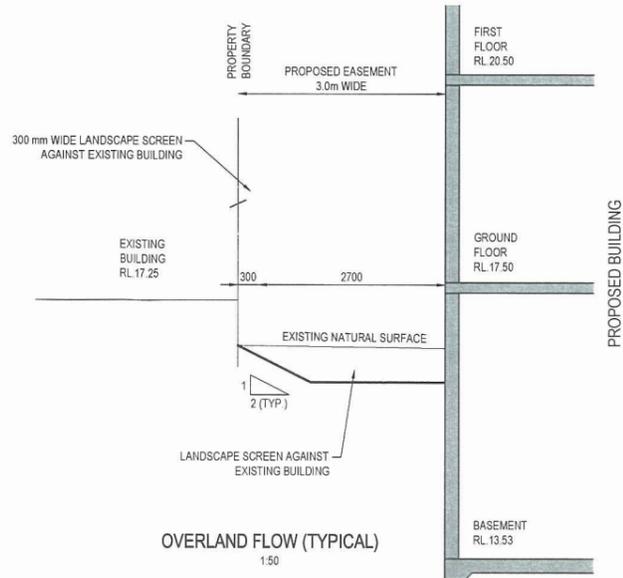
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H 1:100, V 1:100



CROSS SECTION C-C, CH.25.0  
H 1:100, V 1:100



CROSS SECTION D-D, CH.35.0  
H 1:100, V 1:100



OVERLAND FLOW (TYPICAL)  
1:50

**THIS PLAN TO BE READ IN CONJUNCTION WITH**

**MOD2014/0117**

**WARRINGAH COUNCIL**

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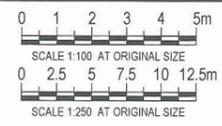
**WARNING**  
BEWARE OF UNDERGROUND SERVICES. THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

**LEGEND**

- x 17.50 PROPOSED SPOT LEVEL
- 600x600 GRATED PIT WITH 'HEEL GUARD' COVER (LOCKABLE)
- 900x900 GRATED PIT WITH 'HEEL GUARD' COVER (LOCKABLE)
- EXISTING PIT
- TG PROPOSED 150 WIDE TRENCH GRATE WITH HEEL GUARD COVER
- HDTG PROPOSED 300 WIDE HEAVY DUTY TRENCH GRATE (ACO S 300 OR EQUIVALENT)
- IK PROPOSED INTEGRAL KERB
- DP PROPOSED DOWNPIPE
- IO PROPOSED INSPECTION OPENING
- Ø225 UPVC PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE AND PIT

LAWRENCE STORMWATER MANAGEMENT PLAN

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	CS	MAC	17/03/14
01	ISSUED FOR DA APPROVAL	CS	MAC	10/04/14



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CLIENT: MOORGATE PROPERTY

DESIGNED: MAC  
DRAWN: QD  
APPROVED: MAC  
SCALE: @ A1  
1:250

STATUS: FOR DA APPROVAL  
NOT FOR CONSTRUCTION

PROJECT: HARBORD 18 MARMORA STREET HARBORD, NSW

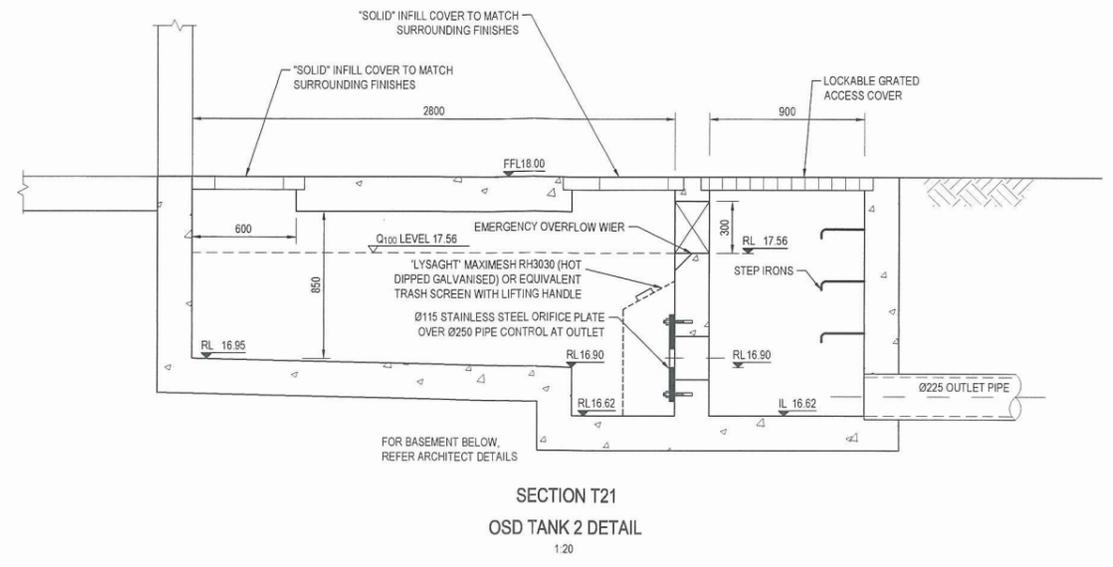
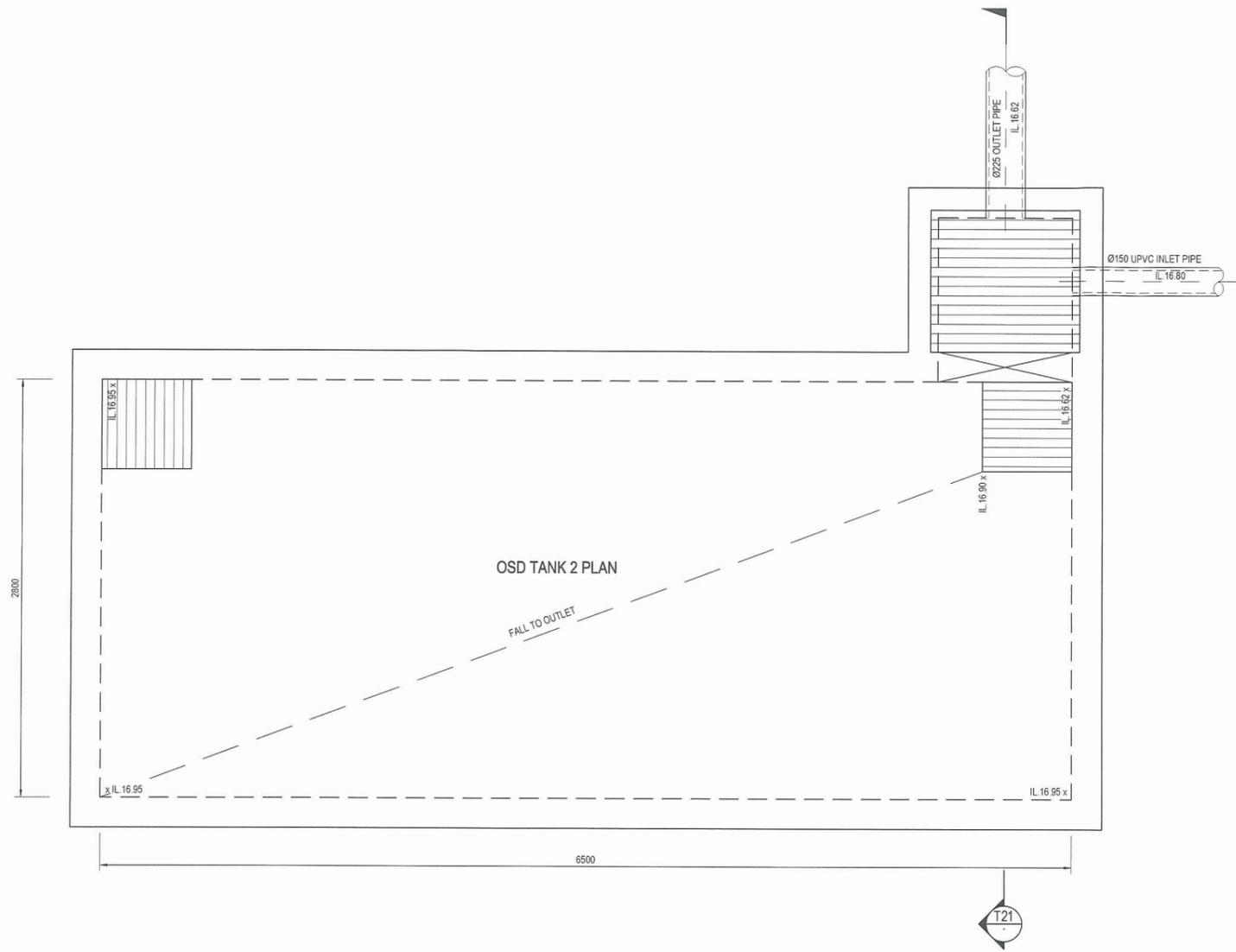
TITLE: STORMWATER MANAGEMENT PLAN

PROJECT No: 111927-00-MIE100

DRAWING No: 01

REVISION: 01

DWG FILE: C:\warringah\p2014\001\stormwater\stormwater\management\plan\lawr... MHPLOT TIME: 28 Apr 2014 10:57am



**THIS PLAN TO BE READ IN CONJUNCTION WITH  
 MOD2014/0117  
 WARRINGAH COUNCIL**

**OSD TANK 2 DESIGN PARAMETERS**

- CATCHMENT AREA (BUILDING B ROOF AND SURROUNDING) = 650 m<sup>2</sup>
- 100 YEAR OSD TANK STORAGE VOLUME = 12.0 m<sup>3</sup>
- MAX OSD TANK DISCHARGE RATE = 27 L/s
- ORIFICE PLATE = Ø115 mm

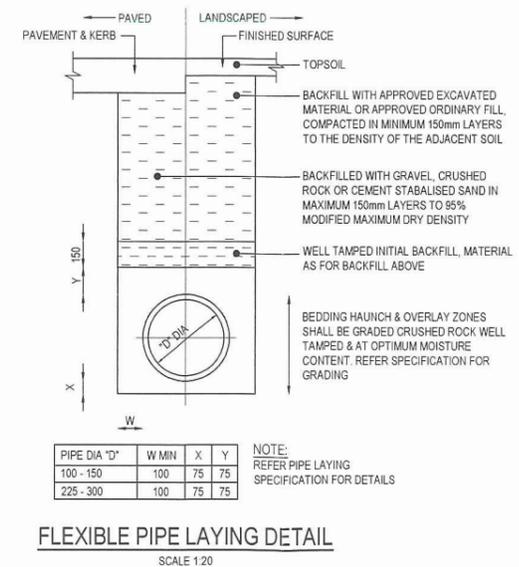
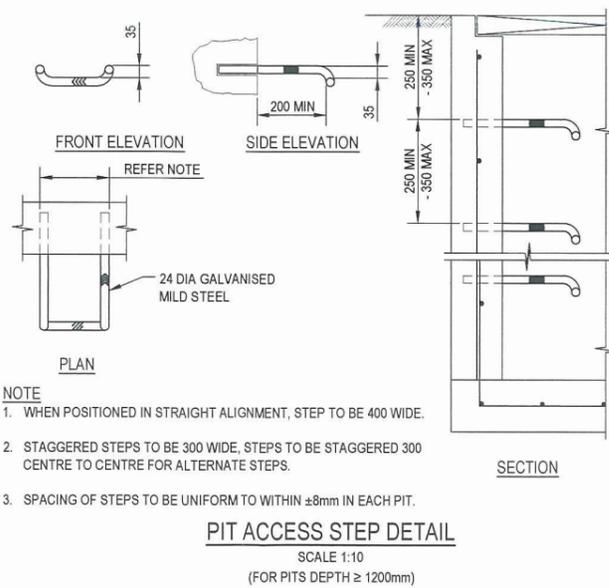
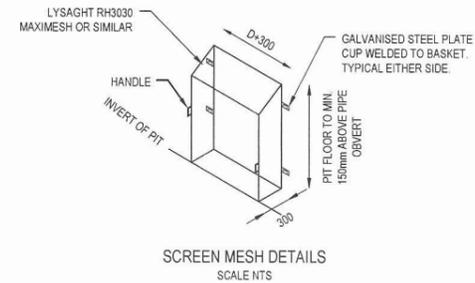
**OSD TANK 3 DESIGN PARAMETERS**

- CATCHMENT AREA (BUILDING C & D ROOF AND SURROUNDING) = 1063 m<sup>2</sup>
- 100 YEAR OSD TANK STORAGE VOLUME = 43.5 m<sup>3</sup>
- MAX OSD TANK DISCHARGE RATE = 32 L/s
- ORIFICE PLATE = Ø100 mm

**LANDSCAPE AREA (BYPASS FLOW)**

- CATCHMENT AREA = 340 m<sup>2</sup>
- MAX 100 YEAR DISCHARGE = 23 L/s

PREDEVELOPMENT 5 YEAR FLOW = 88 L/s  
 POST DEVELOPMENT 100 YEAR FLOW = 84 L/s



- TRENCH NOTES:**
- OVERLAY MATERIAL - MATERIAL PROPERTIES AND COMPACTION SHALL BE AS FOR THE SIDE ZONE.
  - SIDE SUPPORT COMPACTION - THE TRENCH WALLS SHALL HAVE A DENSITY AND STIFFNESS NOT LESS THAN THOSE OF THE ADJACENT COMPACTED FILL FOR A MINIMUM WIDTH 2500 EACH SIDE OF THE TRENCH AND TO A MINIMUM HEIGHT OF 700 ABOVE THE BOTTOM OF THE PIPE.
  - WORKING LOADS ARE THOSE DUE TO FILL MATERIAL AND STANDARD HIGHWAY VEHICLES AS PER AS 3725. CONSTRUCTION LOADS HAVE NOT BEEN ALLOWED FOR.
  - DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
  - ALL BEDDING, HAUNCH, SIDE ZONE & OVERLAY ZONE SHALL CONSIST OF COURSE GRADED SAND.
  - BACKFILL SHALL CONSIST OF GRANULAR OR SANDY FILL WHERE UNDER THE ZONE OF INFLUENCE OF PAVEMENTS, STRUCTURES, AND WITHIN PLAYING FIELD OR GENERAL FILL COMPACTED TO 95% SMDD WHERE UNDER LANDSCAPED AREAS.
- REFERENCED DOCUMENTS -**
- AUSTRALIAN STANDARDS AS 3725-1989 LOADS ON BURIED CONCRETE PIPES
  - RTA QA MODEL SPECIFICATION PART R11 STORMWATER DRAINAGE

DWG FILE: X:\111927-18 Marmora Street\Hubord\ASB\ASB\_MIE150\_3\_21\H111927-00-MIE150\_3\_21\H111927-00-MIE150\_3\_21\DWG\WATER DETAILS.dwg - MH PLOT TIME: 16 Apr 2014 4:55pm

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL		MAC	10/04/14



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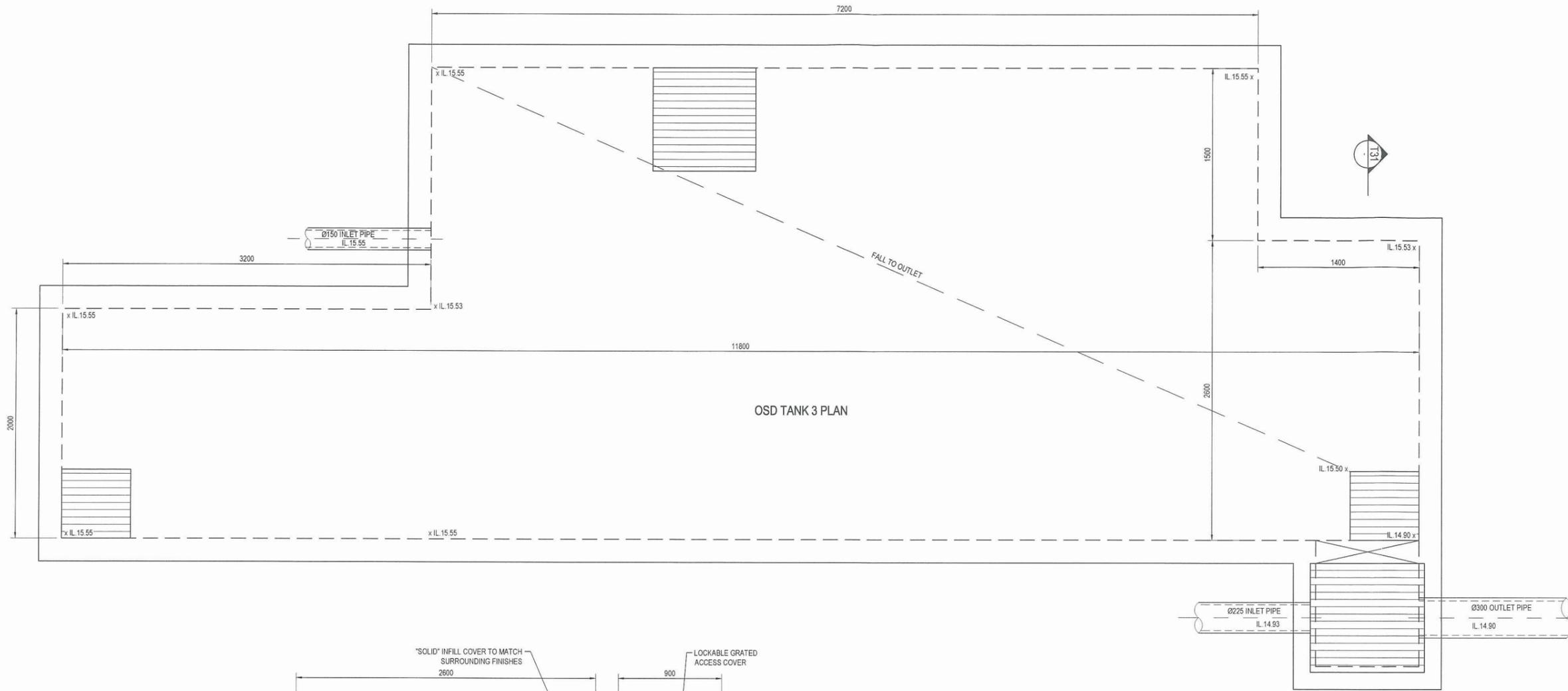
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STATUS: FOR DA APPROVAL  
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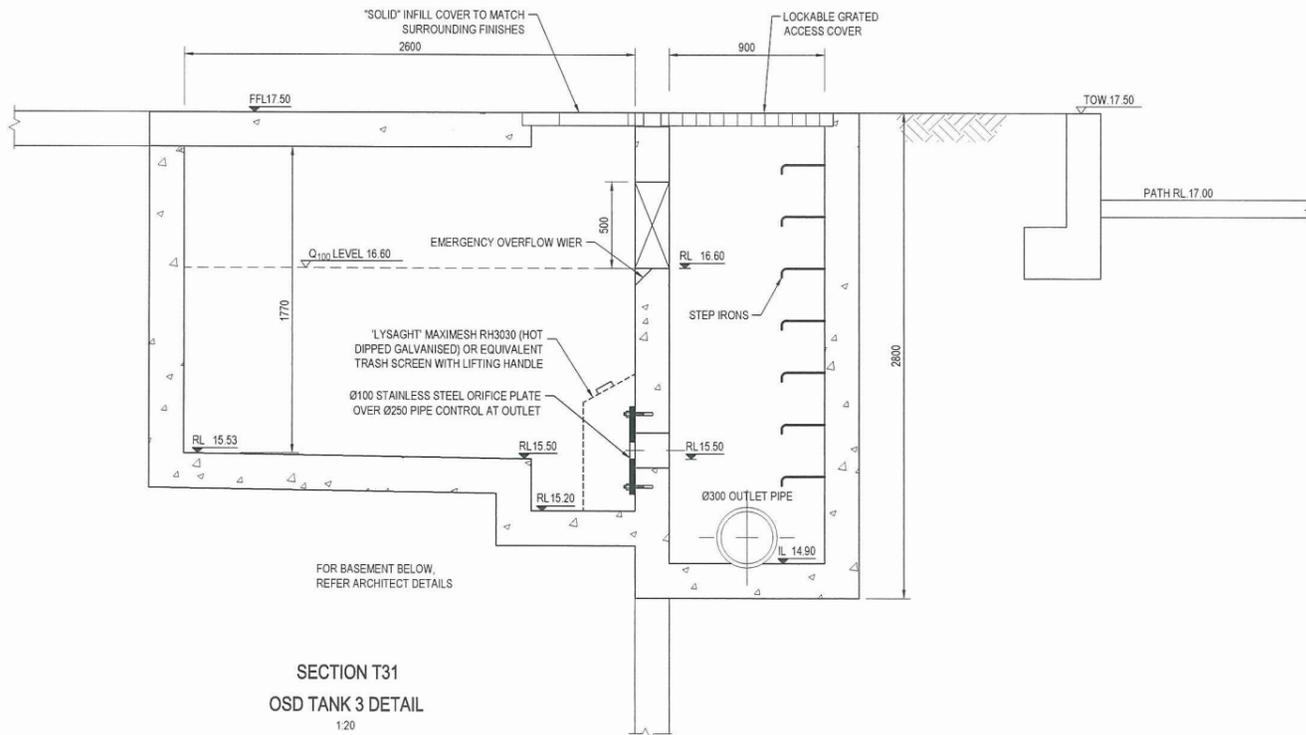
PROJECT: HARBORD  
 18 MARMORA STREET  
 HARBORD, NSW

TITLE: OSD TANK 2 AND DETAILS

PROJECT ID: 111927-00-MIE150  
 DRAWING ID: 00



OSD TANK 3 PLAN



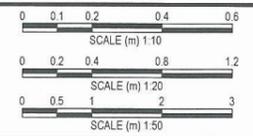
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OSD TANK 3 DETAIL  
1:20

**THIS PLAN TO BE READ IN  
CONJUNCTION WITH  
MOD2014/0117  
WARRINGAH COUNCIL**

- OSD TANK 2 DESIGN PARAMETERS**
- CATCHMENT AREA (BUILDING B ROOF AND SURROUNDING) = 650 m<sup>2</sup>
  - 100 YEAR OSD TANK STORAGE VOLUME = 12.0 m<sup>3</sup>
  - MAX OSD TANK DISCHARGE RATE = 27 L/s
  - ORIFICE PLATE = Ø115 mm
- OSD TANK 3 DESIGN PARAMETERS**
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  - 100 YEAR OSD TANK STORAGE VOLUME = 43.5 m<sup>3</sup>
  - MAX OSD TANK DISCHARGE RATE = 32 L/s
  - ORIFICE PLATE = Ø100 mm
- LANDSCAPE AREA (BYPASS FLOW)**
- CATCHMENT AREA = 340 m<sup>2</sup>
  - MAX 100 YEAR DISCHARGE = 23 L/s
- PREDEVELOPMENT 5 YEAR FLOW = 88 L/s  
 • POST DEVELOPMENT 100 YEAR FLOW = 84 L/s

DWG FILE: X:\111927-18 Marmora Street Harbour Details\3 UNIT MIE151\_3\_2 UNIT MIE151\_1207\00\MIE151\_01 STORMWATER DETAILS.dwg - MHPLOT TIME: 16 Apr 2014 4:55pm

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	GD	MAC	10/04/14



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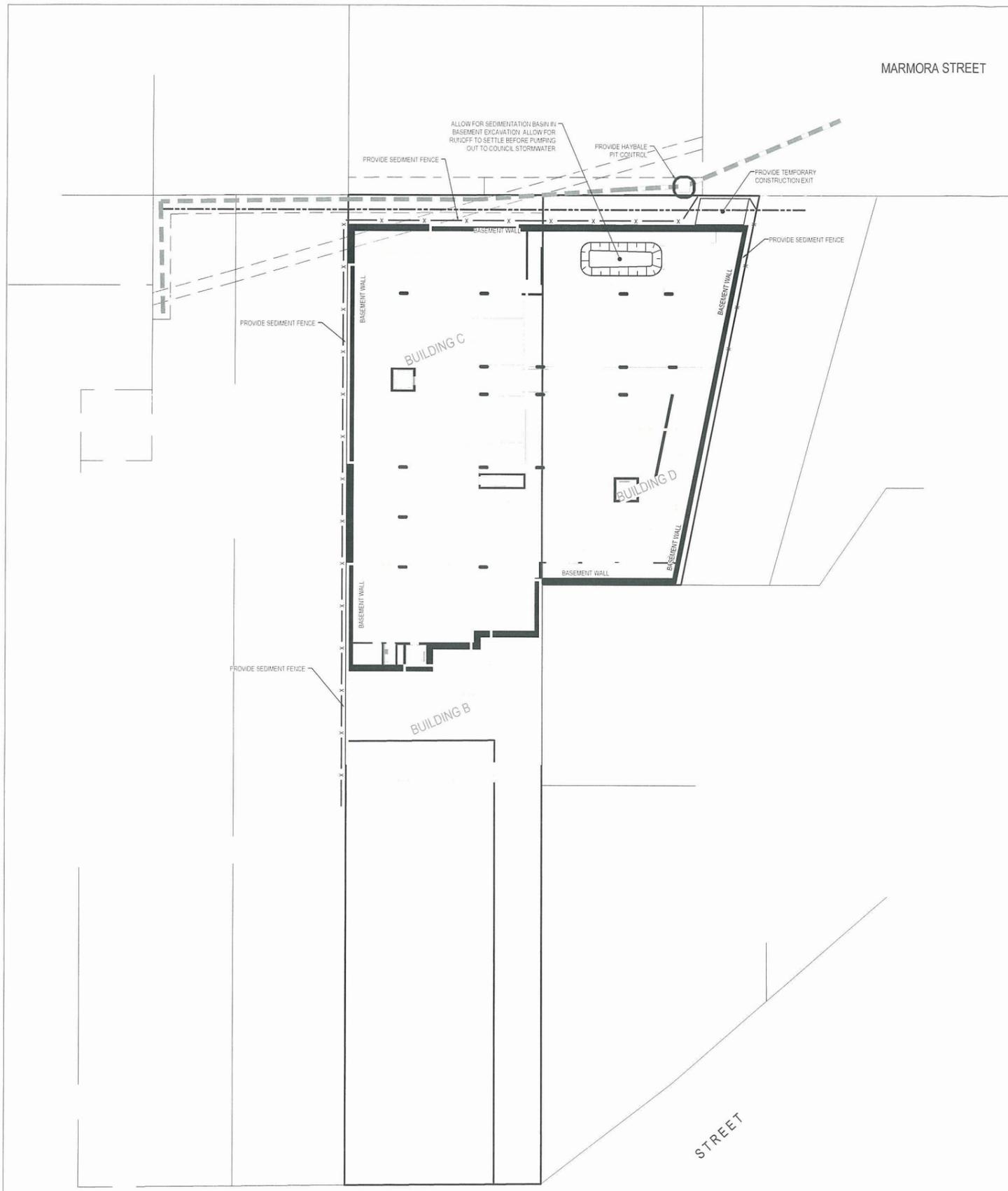
DESIGNED: MAC    DRAWN: QD    APPROVED: MAC    SCALE: AS SHOWN

STATUS: FOR DA APPROVAL  
NOT FOR CONSTRUCTION

PROJECT: HARBORD  
18 MARMORA STREET  
HARBORD, NSW

TITLE: OSD TANK 3 AND DETAILS

PROJECT No: 111927-00-MIE151    DRAWING No: 00



MARMORA STREET

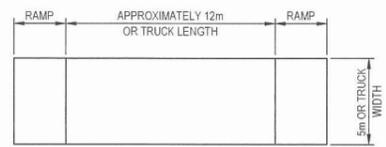
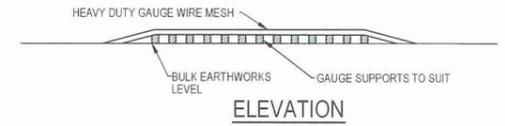
LAWRENCE

EROSION AND SEDIMENT CONTROL PLAN

**LEGEND**

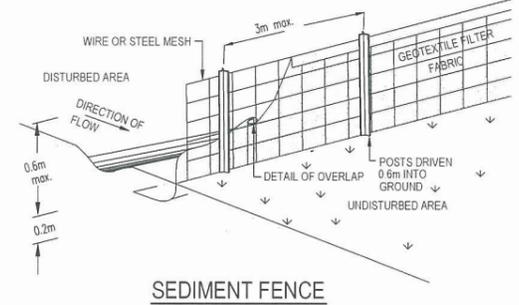
- HAYBALE FILTER (SD 6-7)
- SEDIMENT FENCE (SD 6-8)
- TEMPORARY CONSTRUCTION EXIT

- EROSION AND SEDIMENT CONTROLS**
- ES1 ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS
  - (A) APPLICABLE - POLLUTION CONTROL MANUAL FOR URBAN STORMWATER
  - (B) DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT MANUAL - "URBAN EROSION & SEDIMENT CONTROL"
  - (C) NSW PROTECTION OF THE ENVIRONMENT ACT 1997
  - ES2 THE CONTRACTOR SHALL PREPARE EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES FOR THE WHOLE OF THE WORKS. SHOULD THE CONTRACTOR STAGE THESE WORKS THEN THE DESIGN MAY REQUIRE TO BE MODIFIED. VARIATION TO THESE DETAILS MAY REQUIRE TO BE APPROVED BY THE RELEVANT AUTHORITIES. THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE IMPLEMENTED AND ADOPTED TO MEET THE VARYING SITUATIONS AS WORK ON SITE PROGRESSES
  - ES3 MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY AS APPROPRIATE (IE PRIVATE / PUBLIC LAND)
  - ES4 AS STORMWATER PITS ARE CONSTRUCTED PREVENT SITE RUNOFF ENTERING. ERECT SILT FENCES AROUND PITS
  - ES5 MINIMISE THE AREA OF SITE DISTURBED AT ANY ONE TIME
  - ES6 PROTECT ALL STOCKPILES OF MATERIALS FROM SCOUR AND EROSION. DO NOT STOCKPILE LOOSE MATERIAL IN ROADWAYS, NEAR DRAINAGE PITS OR IN WATERCOURSES.
  - ES7 ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PUT BACK IN PLACE AT THE END OF EACH WORKING DAY, AND MODIFIED TO BEST SUIT SITE CONDITIONS
  - ES8 CONTROL WATER FROM UPSTREAM OF THE SITE SO THAT IT DOES NOT ENTER THE DISTURBED SITE
  - ES9 ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE VIA THE AGREED TEMPORARY CONSTRUCTION ENTRY/EXIT
  - ES10 ALL VEHICLES ASSOCIATED WITH CIVIL WORKS SHALL BE CLEANED AND INSPECTED BY THE CONTRACTOR BEFORE LEAVING THE SITE
  - ES11 MAINTAIN ALL STORMWATER PIPES AND PITS CLEAR OF DEBRIS AND SEDIMENT. THE CONTRACTOR SHALL INSPECT STORMWATER SYSTEM AND CLEAN OUT AFTER EACH STORM EVENT AND / OR WHEN DIRECTED
  - ES12 THE CONTRACTOR SHALL CLEAN OUT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH STORM EVENT
  - ES13 SETTLEMENT OF DISPERSED FINES IN WET BASIN. AFTER EVERY STORM EVENT THE COLLECTED RUNOFF IS TO BE TREATED WITH AN APPROVED FLOCCULANT TO REDUCE THE SUSPENDED SOLIDS TO LESS THAN 50mg/L AND PUMPED TO AN APPROVED OUTLET AS DIRECTED BY THE SUPERINTENDENT

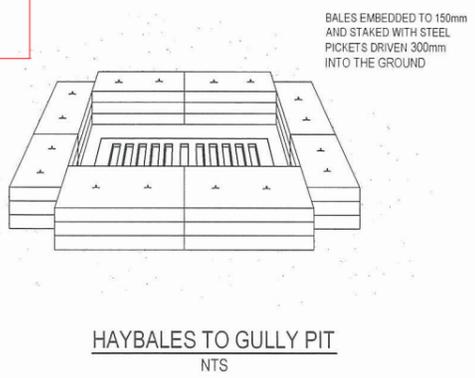


**TEMPORARY CONSTRUCTION EXIT (WASH DOWN DETAIL)**

SCALE 1:200  
 THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY



**THIS PLAN TO BE READ IN CONJUNCTION WITH MOD2014/0117 WARRINGAH COUNCIL**



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**WARNING**  
 BEWARE OF UNDERGROUND SERVICES. THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

REV	DESCRIPTION	BY	APP	DATE
NO	ISSUED FOR DA APPROVAL	QD	MAC	30/04/14



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**MEINHARDT**  
 INFRASTRUCTURE & ENVIRONMENT

CLIENT: MOORGATE PROPERTY  
 DESIGNED: MAC DRAWN: QD APPROVED: MAC SCALE @ A1: 1:250  
 STATUS: FOR DA APPROVAL NOT FOR CONSTRUCTION

PROJECT: HARBORD 18 MARMORA STREET HARBORD, NSW  
 TITLE: EROSION AND SEDIMENT CONTROL PLAN PROJECT No: 111927-00-MIE010 DRAWING No: 00  
 NORTH

DWG FILE: X:\111927\_18 Marmora Street\chocorobBIB05\_2\MEI\111927-00-MIE010-EROSION AND SEDIMENT CONTROL PLAN.dwg - IMPLOT TIME: 30 Apr 2014 2:35pm