

0mmA50mmB100mmC150mmD200mmE250mmF300mmG350mmH400mmI450mmJ500mmK550mmL600mmM650mmN700mmO750mmP

A1

11500mm10450mm9400mm8350mm7300mm6250mm5200mm4150mm3100mm250mm100mm

1

PROPOSED SUBDIVISION of
LOT 4 D.P. 553816
16 MACPHERSON STREET, WARRIEWOOD

NARRABEEN CREEK
REHABILITATION WORKS
DEVELOPMENT APPLICATION

MONA VALE ROAD

PITWATER ROAD

MACPHERSON STREET

SITE OF WORKS

WARRIEWOOD BEACH

LOCALITY PLAN

NOT TO SCALE

DRAWING No.

DRAWING TITLE

REV.

048-22C-CK-0001

COVER SHEET, LOCALITY PLAN & INDEX

D

048-22C-CK-0003

GENERAL LEGEND

D

048-22C-CK-0101

NARRABEEN CREEK PLAN, LONGITUDINAL SECTION & TYPICAL CROSS SECTION

D

048-22C-CK-0741

NARRABEEN CREEK CROSS SECTIONS

D

048-22C-CK-0771

DRAINAGE DETAILS

D

048-22C-CK-0901

SEDIMENT & EROSION CONTROL PLAN

D

048-22C-CK-0902

SEDIMENT & EROSION CONTROL DETAILS

D

1. ROCK USED IN THE SCOUR PROTECTION SHALL CONSIST OF MATERIAL WHICH COMPLIES WITH THESE NOTES AND THE DRAWINGS. THESE REQUIREMENTS APPLY TO BOTH IMPORTED ROCK AND IN-SITU ROCK WHICH IS REUSED.

2. INDIVIDUAL ROCKS SHALL BE FREE FROM CRACKS, CLEAVAGE PLANES, SEAMS AND DEFECTS WHICH WOULD RESULT IN THE BREAKDOWN OF ROCK IN SERVICE

3. ROCK UNITS SHALL BE EITHER SEDIMENTARY ROCK ONLY OR IGNEOUS ROCK ONLY AND, AS A MINIMUM, SHALL SATISFY THE FOLLOWING CRITERIA:

• ROCK SHALL BE BOTH ROUGH AND ANGULAR

• ROCK SHALL HAVE A MINIMUM DRY DENSITY OF 2200 kg/m³

• IGNEOUS ROCK SHALL NOT HAVE MORE THAN 10% (BY VOLUME) OLIVINE MATERIAL AND SHALL EXHIBIT NO ZONES OF SECONDARY ALTERATION SUCH AS CHLORITISTAION

• SEDIMENTARY ROCK SHALL HAVE A SODIUM SULPHATE SOUNDNESS WEIGHT LOSS NOT EXCEEDING 25%

4. ROCK SHALL HAVE A SATURATED POINT LOAD STRENGTH INDEX (15SO) NO LESS THAN 5.0MPa FOR IGNEOUS ROCK AND 1.5MPa FOR SEDIMENTARY ROCK

5. THE RATIO OF THE MAXIMUM DIMENSION TO THE MINIMUM DIMENSION, MEASURED AT RIGHT ANGLES TO THE MAXIMUM DIMENSION, SHALL NOT EXCEED 2.5x

6. THE ROCK UNITS SHALL BE PLACED SUCH THAT THE SPECIFIED REQUIREMENTS FOR SIZE, FINISHED SURFACE SIDE SLOPES, TOP AND TOE LEVELS AND DENSITY REQUIREMENTS ARE SATISFIED. IN ADDITION, ROCKS SHALL BE WEDGED AND LOCKED TOGETHER SUCH THAT THEY ARE NOT FREE TO MOVE. ROCK UNITS SHALL NOT BE ROLLED OF DROPPED IN TO POSITION, THEY SHALL BE PLACED.

7. THE METHOD OF ROCK PLACEMENT SHALL BE SUCH AS TO MINIMISE ITS BREAKDOWN ON HANDLING AND THE PRODUCTION OF FINES.

8. A NON-WOVEN SHALL BE PLACED UNDERNEATH AND BEHIND ALL ROCK ARMOUR AND EXTEND 0.5m ABOVE THE EXTENT OF THE WORKS, OR AS OTHERWISE SHOWN ON THE DRAWINGS. THE GEOTEXTILE IS TO BE LAID ON A HEAVILY TRIMMED BATTER THAT IS FREE OF HOLLOWES OR SHARP OBJECTS

9. GEOTEXTILE LAYERS SHALL EITHER OVERLAP ONE ANOTHER BY 1000mm OR BE SEWN TOGETHER (WITH A NON-BIODEGRADABLE THREAD) WITH AN OVERLAP OF 100mm

10. ROCK AND SUB-ARMOUR SHALL BE PLACED UPON THE GEOTEXTILE IN A LAYER NO LESS THAN 150mm THICK U.N.O. ON DRAWINGS

11. ROCK ARMOUR SHALL BE SELECTIVELY HAND PLACED UPON THE SUB-ARMOUR TO ENSURE A SNUG FIT SUCH THAT INDIVIDUAL ROCKS ARE NOT FREE TO MOVE. THE PLACING OF ANY ARMOUR ROCK SHALL BE COMPLETED IN SUCH A MANNER AS TO MINIMISE THE DISTURBANCE OR DISLODGEEMENT OF THE SUB-ARMOUR.

12. THE ARMOUR ROCK AND SUB-ARMOUR ROCK SHALL BE PLACED TO THE CONSTRUCTION TOLERANCES SHOWN ON THE DRAWINGS

13. AT LEAST FOURTEEN (14) DAYS PRIOR TO THE SUPPLY OF ANY ROCK, THE CONTRACTOR SHALL PROVIDE DOCUMENTATION TO DEMONSTRATE THAT THE ROCK TO BE SUPPLIED COMPLIES WITH THE REQUIREMENTS OF THIS SPECIFICATION

ROCK SCOUR PROTECTION

1. EXCAVATED MATERIAL NOT MEETING THE SPECIFICATIONS FOR FILL MATERIAL SHALL BE DISPOSED OFF SITE IN AN APPROPRIATE MANNER

2. WHERE EARTHWORKS ARE REQUIRED IN THE VICINITY OF EXISTING SERVICES, THE CONTRACTOR SHALL SUPPORT ALL SERVICES DURING THE WORKS

3. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, DO ALL THINGS NECESSARY TO DIVERT ANY WATER INTERFERING WITH THE PROCESS OF WORKS, KEEP THE EXCAVATIONS AND TRENCHES FREE FROM WATER WHILE THE WORKS ARE IN PROGRESS AND PREVENT ANY DAMAGE TO THE WORKS BY WATER DUE TO FLOODS OR OTHER CAUSES. THE CONTRACTOR SHALL HAVE PUMPING EQUIPMENT FOR KEEPING THE EXCAVATION OR TRENCHES CONSTANTLY DEWATERED DURING THE TIMES THE WORKS ARE IN PROGRESS. ANY WORK OR MATERIAL DAMAGED BY WATER SHALL BE MADE GOOD BY THE CONTRACTOR.

4. WHERE DIRECTED BY THE SUPERINTENDENT THE BOTTOM OF TRENCHES OR EXCAVATIONS SHALL BE COMPACTED PRIOR TO THE PLACING OF ANY BEDDING OR CONCRETE MATERIALS. SHOULD, IN THE OPINION OF THE SUPERINTENDENT, THE FOUNDATION MATERIAL BE INCAPABLE OF EFFECTIVE COMPACTION, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROPRIATE MATERIAL

EXCAVATIONS

1. ALL TOPSOIL TO BE STRIPPED AND STOCKPILED FOR FUTURE USE. STRIPPED SURFACES ARE TO BE ROLLED AND INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO CONTINUING WORKS. DEPTH OF TOPSOIL STRIPPING TO BE BETWEEN 125mm AND 200mm (TO BE CONFIRMED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION)

2. WHERE ROCK IS EXPOSED DURING EXCAVATION, THE CONTRACTOR SHALL CEASE EXCAVATION AT THIS LOCATION AND CONTACT THE SUPERINTENDENT WHO WILL THEN ADVISE ON THE LEVEL TO WHICH THE EXCAVATION IS TAKEN

FILL

1. FOUNDATION MATERIAL DEEMED BY THE SUPERINTENDENT AS UNSUITABLE TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS LIST BELOW

2. UNLESS OTHERWISE APPROVED OR SPECIFIED, ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING:-

• FREE FROM ORGANIC & PERISHABLE MATTER

• MAXIMUM PARTICLE SIZE 75mm

• PLASTICITY INDEX BETWEEN 2% AND 20%

• CBR > 10

3. SELECT FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200MM LOOSE THICK LAYERS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (±2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289E3.1 (LATEST EDITION) OF NOT LESS THAN THE STANDARD DRY DENSITY ON ACCORDANCE WITH AS1289E3.1 (LATEST EDITION) SHOWN ON THE DRAWING

4. COMPACTION CONTROL TESTING SHALL BE CARRIED OUT BY & AT THE COST OF THE CONTRACTOR TO CONFORM WITH LEVEL 1 AS DEFINED IN AS3798 (LATEST EDITION)

5. REPLACEMENT SUBGRADE MATERIAL MAY COMPRISE GRANULAR FILL MATERIAL & SHOULD HAVE A CBR OF AT LEAST 10% REPLACEMENT. SUBGRADE SHALL BE PLACED ON PROOF ROLLED SUBGRADE IN HORIZONTAL LAYERS OF 200mm TO 250mm MAXIMUM LOOSE THICKNESS DEPENDING ON THE SIZE OF EQUIPMENT) AND COMPACTED TO A MINIMUM DRY DENSITY OF (MIDDR) OF 98% STANDARD, AT MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT

6. WHERE EXCAVATED MATERIAL IS TO BE USED FOR FILLING, THE MATERIAL SHALL BE INSPECTED & APPROVED BY THE SUPERINTENDENT PRIOR TO USE.

EARTH WORKS

1. THE CONTRACTOR SHALL PROVIDE PROPER FENCING, GUARDING & LIGHTING AND OBSERVATION OF ALL EARTHWORKS, TEMPORARY ROADWAYS, FOOTWAYS, GUARDS & FENCES AS MAY BE RENDERED NECESSARY FOR THE ACCOMMODATION AND PROTECTION OF PEDESTRIANS, VEHICLES, ANIMALS & THE PUBLIC

2. ALL EARTHWORKS SHALL BE CARRIED OUT IN THE LOCATIONS SHOWN AND TO THE LEVELS, WIDTHS AND BATTER SLOPES INDICATED ON THE DRAWINGS

26.05.23

ISSUED FOR DEVELOPMENT CONSENT

S.Y.

N.M.

18.05.23

ISSUED FOR DEVELOPMENT CONSENT

L.Mc.

K.S.

04.05.23

ISSUED FOR DEVELOPMENT APPLICATION

L.Mc.

N.M.

14.04.23

ISSUED FOR DEVELOPMENT APPLICATION

L.Mc.

L.Mc.

REV.

DATE

AMENDMENT DESCRIPTION

DES.

DRN.

APPROVED COMPANY

100 YEARS

APPROVED COMPANY

100 YEARS

APPROVED COMPANY

100 YEARS

DIAL 1100

BEFORE YOU GO

Authorised for issue by:

Principal:

L.G.A.

Scale:

Datum:

IPM PROPERTIES

NORTHERN BEACHES COUNCIL

AS SHOWN

AHD

PROPOSED SUBDIVISION OF
LOT 4 D.P. 553816
16 MACPHERSON STREET, WARRIEWOOD

QR CODE

CRAIG & RHODES
TAKE THE LEAD

ASN 77 050 209 991 ACN 050 209 991
Suite 7.01, Level 7, 3 Rider Boulevard,
Rhodes, NSW, 2138
PO Box 3220, Rhodes NSW 2138
Tel: (02) 9665-1855
reception@crrhodes.com.au
www.craigandrhodes.com.au
© Craig & Rhodes Pty Ltd

Drawing Title

COVER SHEET,
LOCALITY PLAN
& INDEX

C&R Ref.

048-22

Drawing Ref.

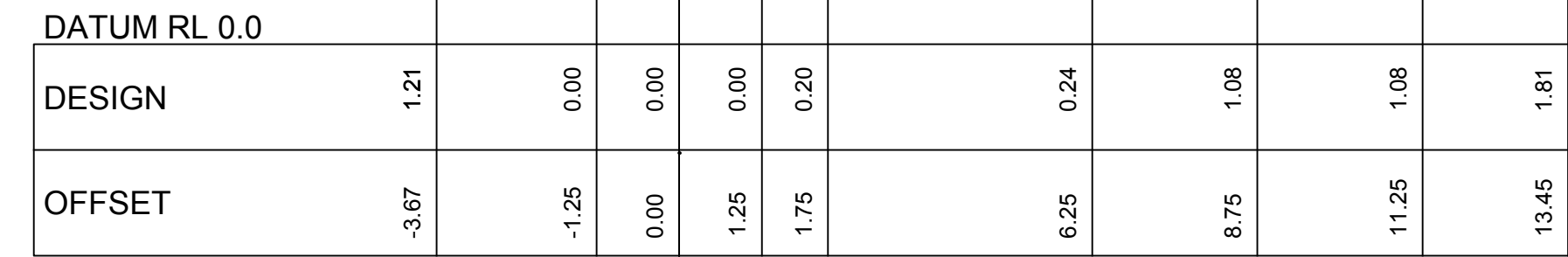
048-22C-CK-0001

Revision

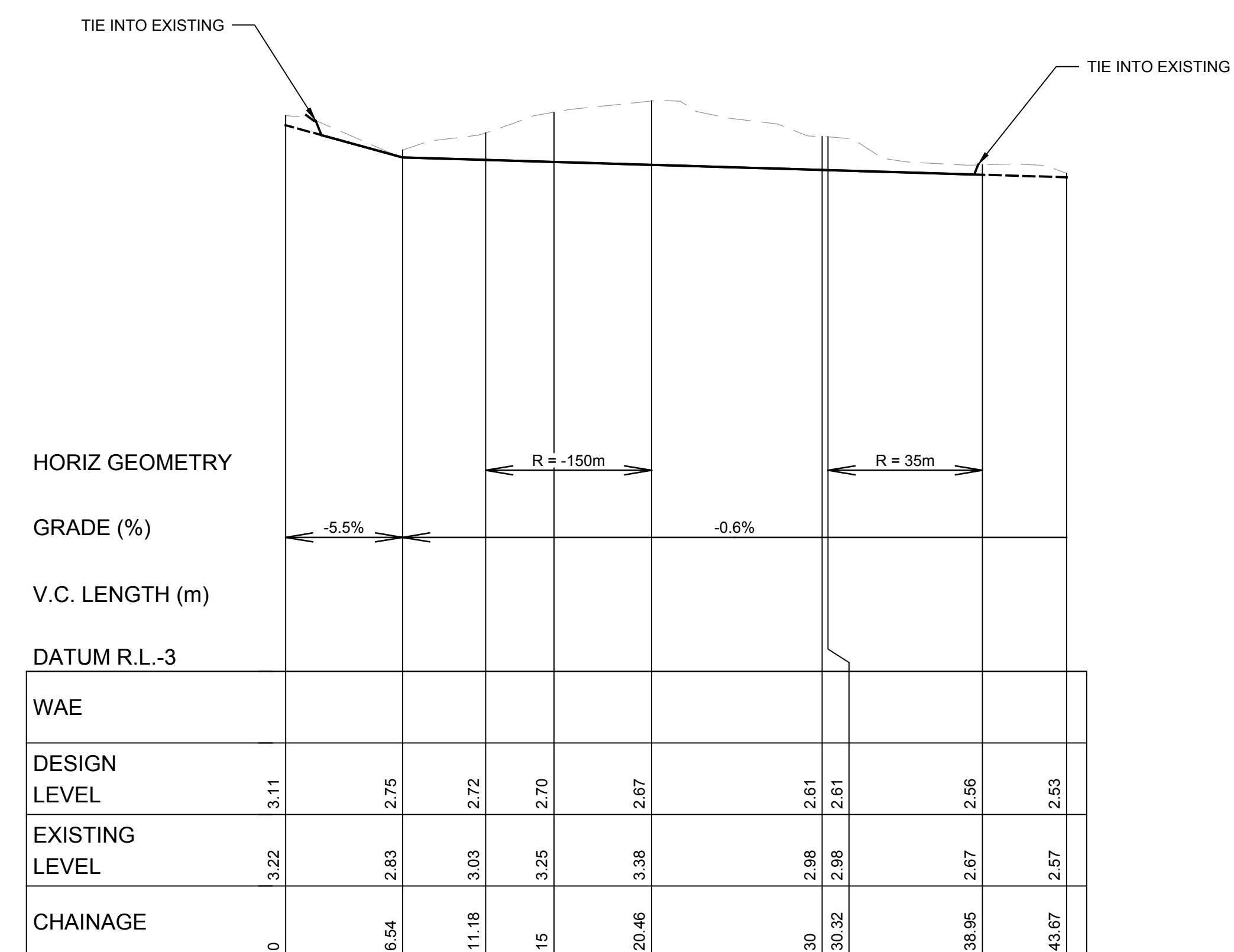
D

DEVELOPMENT APPLICATION

048-22C-CK-0001

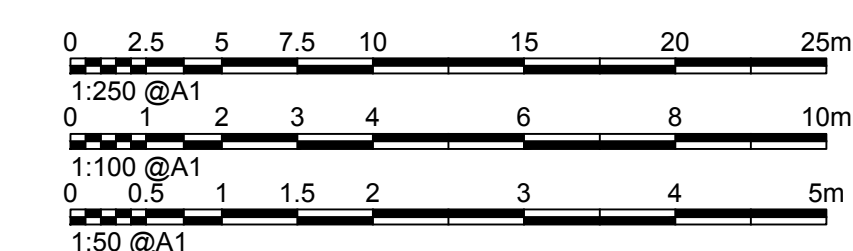


NARRABEEN CREEK - TYPICAL CROSS SECTION



NARRABEEN CREEK - LONGITUDINAL SECTION

1. REFER TO DRG. No. 0003 FOR LEGEND & ABBREVIATIONS
2. REFER TO NORTHERN BEACHES COUNCIL FOR STANDARD DETAILS & DRAWINGS.



DEVELOPMENT APPLICATION

D	26.05.23	ISSUED FOR DEVELOPMENT CONSENT	S.Y.	N.M.
C	18.05.23	ISSUED FOR DEVELOPMENT CONSENT	L.Mc.	K.S.
B	04.05.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	N.M.
A	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	L.Mc.
REV.	DATE	AMENDMENT DESCRIPTION	DES.	DRN.

Authorised for issue by:

Signature: _____

Principal:
IPM PROPERTIES
L.G.A.
NORTHERN BEACHES COUNCIL

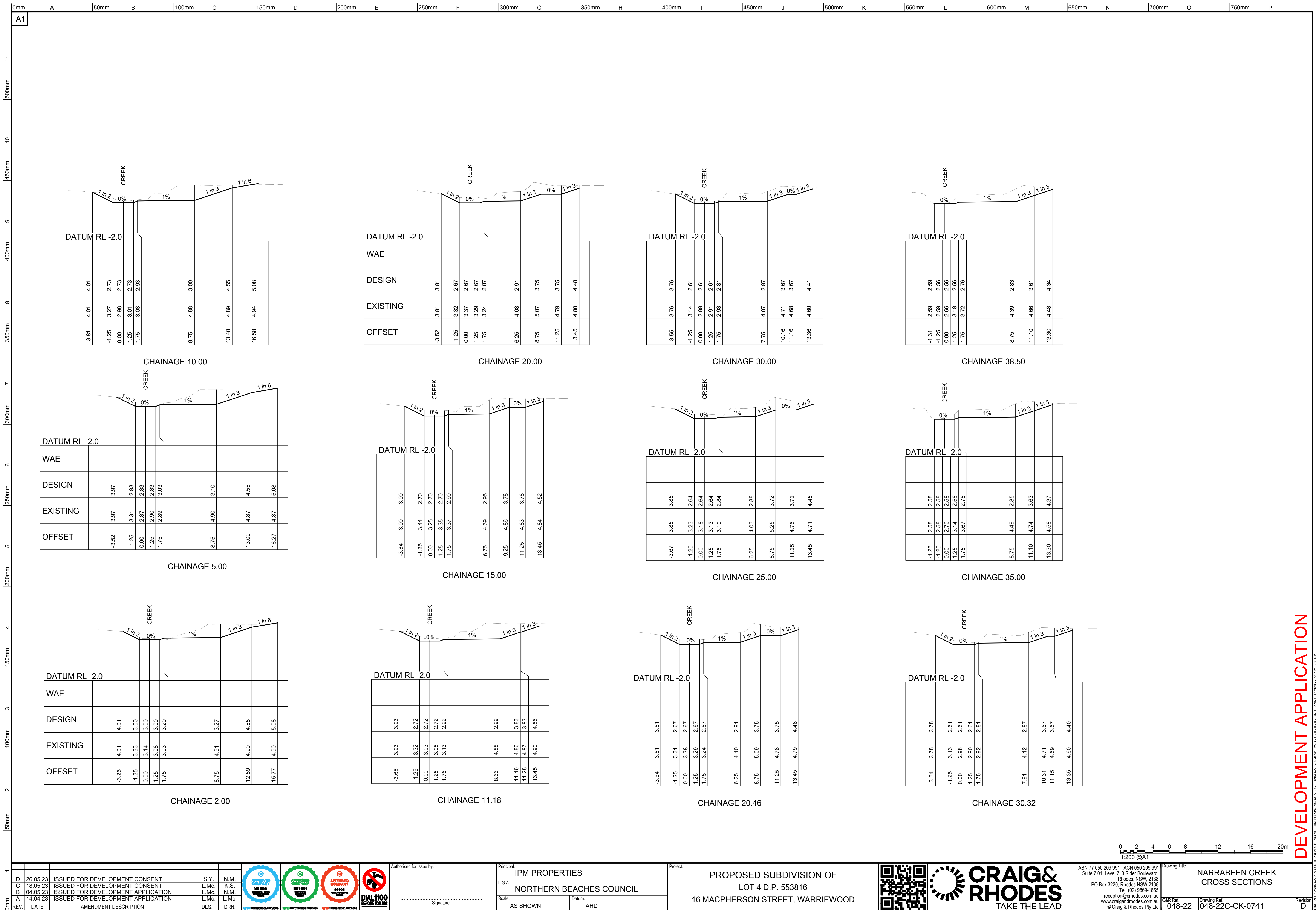
Scale: AS SHOWN Datum: AHD

Project:
**PROPOSED SUBDIVISION OF
LOT 4 D.P. 553816**
16 MACPHERSON STREET, WARRIEWOOD

CRAIG & RHODES
 TAKE THE LEAD
ABN 77 050 209 991 ACN 050 209 991
Suite 7.01, Level 7, 3 Rider Boulevard,
Rhodes NSW 2138
PO Box 3220, Rhodes NSW 2138
Tel. (02) 9869-1855
reception@crtrhodes.com.au
www.craigandrhodes.com.au
© Craig & Rhodes Pty Ltd

Drawing Title
**NARRABEEN CREEK PLAN,
LONGITUDINAL SECTION &
TYPICAL CROSS SECTION**

C&R Ref: 048-22 Drawing Ref: 048-22C-CK-0101 Revisior: D



This figure is a technical drawing titled "DRAINAGE DETAILS" showing three cross-sectional details of drainage structures: "LOW FLOW CHANNEL DETAIL A", "STANDARD ARMOUR DETAIL C", and "STORMWATER OUTLET DETAIL B".

DETAIL A: LOW FLOW CHANNEL

- The diagram shows a creek bed with riparian planting on either side.
- A dashed line indicates the "FSL" (Full Surface Level).
- "LOW FLOW CHANNEL ROCKS" are shown in the center.
- "JUTE MESH PEGGED IN PLACE" is indicated on the right bank.
- Below the rocks, "ROCK SUB-ARMOUR" is shown.
- "GEOTEXTILE A34 BIDIM" is shown at the base.
- A note states: "ROCKS TO BE LAID IN A CLOSED VOID SURFACE WITH VOIDS PACKED TIGHTLY WITH COBBLES AND GRAVEL, SOIL AND THE SURFACE PLANTED OUT WITH SEDGES AND RUSHES".

DETAIL C: STANDARD ARMOUR

- The diagram shows a cross-section of rock armour.
- "ROCK ARMOUR" is labeled above the rocks.
- "ROCK SUB-ARMOUR" is shown below the main layer of rocks.
- "GEOTEXTILE A34 BIDIM" is shown at the base.
- Dimensions indicate a total height of 400mm and a rock layer thickness of 200mm.

DETAIL B: STORMWATER OUTLET

- The diagram shows a stormwater outlet structure adjacent to "NARRABEEN CREEK".
- "STACKED ROCK HEADWALL SANDSTONE BOULDERS (D90= 300-500mm)" form the headwall.
- An arrow indicates the direction of "FLOW".
- "ROCK BED ARMOUR REFER TO DETAIL No.3" is shown at the base of the outlet.
- "ROCKS TO BE LAID IN A CLOSED VOID SURFACE WITH VOIDS PACKED TIGHTLY WITH COBBLES AND GRAVEL, SOIL AND THE SURFACE PLANTED OUT WITH SEDGES AND RUSHES" is noted for the area around the outlet.
- "GEOTEXTILE A34 BIDIM" is shown at the base.

NOTES:

- NOTE: STORMWATER OUTLETS TO BE ORIENTATED IN THE DIRECTION OF NATURAL FLOW OF THE RECEIVING WATER COURSE AND NOT OBSTRUCTING FLOW FROM UPSTREAM. OUTLETS TO BE INSTALLED IN ACCORDANCE WITH NSW OFFICE OF WATER REQUIREMENTS
- NOTE: ROCK SIZES AND DEPTH ARE SHOWN AS INDICATIVE ONLY TO BE CONFIRMED IN DESIGNED DURING DETAIL DESIGN.

REVISIONS:

REV.	DATE	AMENDMENT DESCRIPTION	DES.	DRN.
D	26.05.23	ISSUED FOR DEVELOPMENT CONSENT	S.Y.	N.M.
C	18.05.23	ISSUED FOR DEVELOPMENT CONSENT	L.Mc.	K.S.
B	04.05.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	N.M.
A	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	L.Mc.

APPROVED COMPANY LOGOS:

- APPROVED COMPANY (Blue)
- APPROVED COMPANY (Green)
- APPROVED COMPANY (Red)
- DIAL 1100 BEFORE YOU DIG

Principal: IPM PROPERTIES
L.G.A.: NORTHERN BEACHES COUNCIL

Scale: AS SHOWN
Datum: AHD

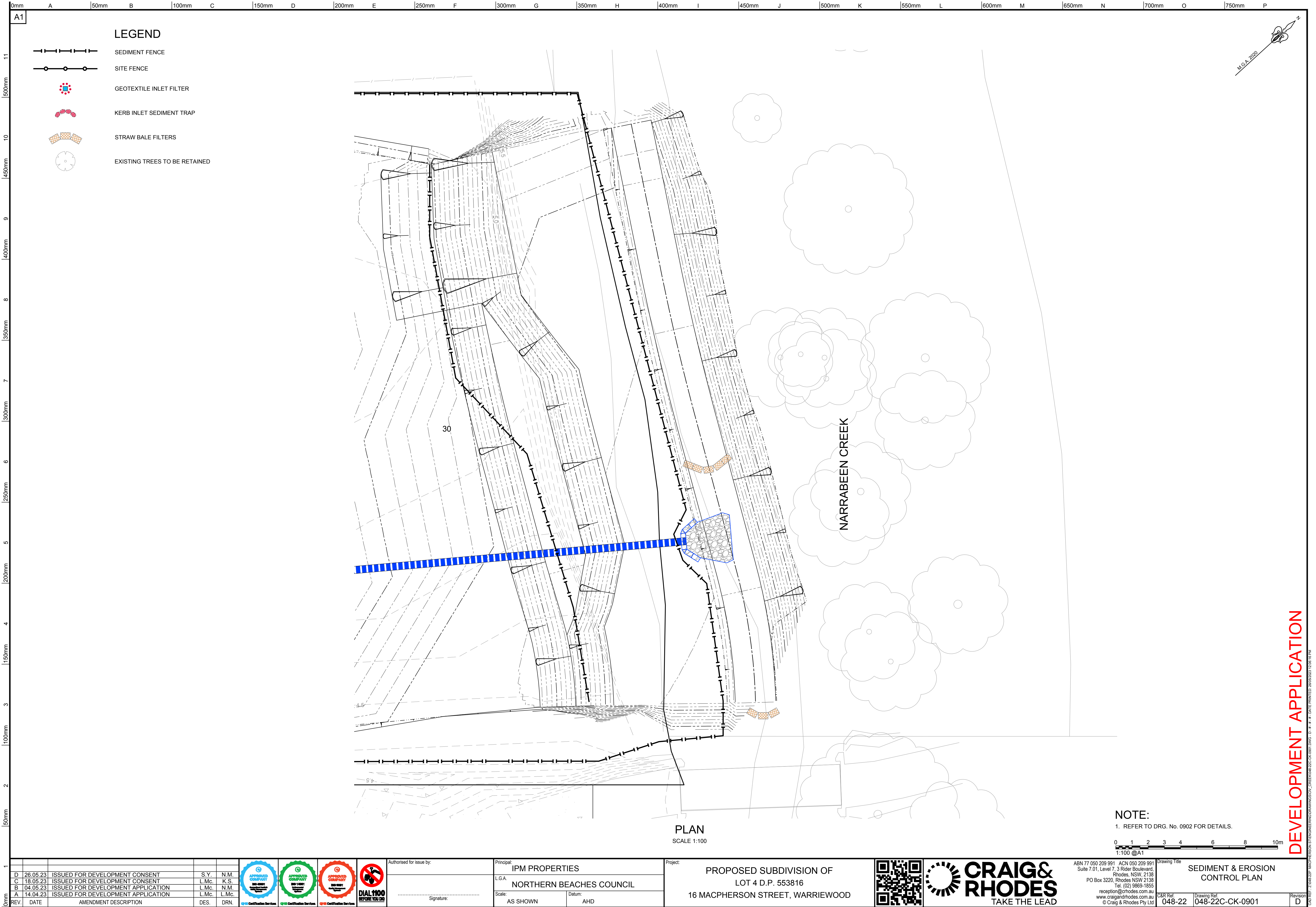
Project: PROPOSED SUBDIVISION OF LOT 4 D.P. 553816
16 MACPHERSON STREET, WARRIEWOOD

CRAIG & RHODES TAKE THE LEAD

ABN 77 050 209 991 ACN 050 209 991
Suite 7.01, Level 7, 3 Rider Boulevard,
Rhodes, NSW, 2138
PO Box 3220, Rhodes NSW 2138
Tel. (02) 9869-1855
reception@crrhodes.com.au
www.craigandrhodes.com.au
© Craig & Rhodes Pty Ltd

Drawing Title: DRAINAGE DETAILS
C&R Ref: 048-22
Drawing Ref: 048-22C-CK-0771

DEVELOPMENT APPLICATION



A1

11
500mm
10
450mm
9
400mm
8
350mm
7
300mm
6
250mm
5
200mm
4
150mm
3
100mm
2
50mm
1

LEGEND

SEDIMENT FENCE

SITE FENCE

GEOTEXTILE INLET FILTER

KERB INLET SEDIMENT TRAP

STRAW BALE FILTERS

EXISTING TREES TO BE RETAINED

NOTE:
1. REFER TO DRG. No. 0902 FOR DETAILS.

1

0mm

REV.	DATE	AMENDMENT DESCRIPTION	DES.	DRN.
D	26.05.23	ISSUED FOR DEVELOPMENT CONSENT	S.Y.	N.M.
C	18.05.23	ISSUED FOR DEVELOPMENT CONSENT	L.Mc.	K.S.
B	04.05.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	N.M.
A	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	L.Mc.	L.Mc.

APPROVED COMPANY

180 959111

180 959111

180 959111

APPROVED COMPANY

180 959111

180 959111

180 959111

APPROVED COMPANY

180 959111

180 959111

180 959111

DIAL 1100

BEFORE YOU GO

Authorised for issue by:

Signature:

Principal:

IPM PROPERTIES

L.G.A.

NORTHERN BEACHES COUNCIL

Scale:

AS SHOWN

Datum:

AHD

Project:

PROPOSED SUBDIVISION OF

LOT 4 D.P. 553816

16 MACPHERSON STREET, WARRIEWOOD

CRAIG & RHODES

TAKE THE LEAD

ABN 77 050 209 991 ACN 050 209 991
Suite 7.01, Level 7, 3 Rider Boulevard,
Rhodes NSW 2138
PO Box 3220, Rhodes NSW 2138
Tel: (02) 9665-1855
reception@crrhodes.com.au
www.craigandrhodes.com.au
© Craig & Rhodes Pty Ltd

Drawing Title

SEDIMENT & EROSION
CONTROL PLAN

C&R Ref.

048-22

Drawing Ref.

048-22C-CK-0901

Revision

D

DEVELOPMENT APPLICATION

C:\Users\ADMIN\Documents\DRAWINGS\048-22C-CK-0901_0901_10.dwg - DATE PRINTED: 20/05/2023 12:05:18 PM

DEVELOPMENT APPLICATION