

SHEET No. SHEET NAME

INFORMATION	
L000	TITLE SHEET
L010	SURVEY PLAN
PROPOSED PLANS	
L100	GENERAL ARRANGEMENT PLAN
LANDSCAPE PLAN	
L200	LANDSCAPE PLAN 01
L201	LANDSCAPE PLAN 02
L202	LANDSCAPE PLAN 03
L203	LANDSCAPE PLAN 04
L204	LANDSCAPE PLAN 05
SETOUT PLAN	
L300	SETOUT PLAN 01
L301	SETOUT PLAN 02
L302	SETOUT PLAN 03
SECTIONS AND ELEVATIONS	
L400	SECTION 01
L401	SECTION 02
L402	SECTIONS 03
L403	SECTIONS 04
L404	ELEVATIONS
CONSTRUCTION MANAGEMENT PLAN	
L700	CONSTRUCTION MANAGEMENT PLAN
LANDSCAPE DETAILS	
L801	DETAILS 01
L802	DETAILS 02

- GENERAL NOTES:
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE LANDSCAPE TECHNICAL SPECIFICATION AND ALL CONSULT MARINE ENGINEERING DRAWINGS.
 - CHECK AND VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF ANY WORK. THE PURCHASE OR ORDERING OF ANY MATERIALS, FITTINGS, PLANT, SERVICES OR EQUIPMENT AND PREPARATION OF SHOP DRAWINGS AND/OR THE FABRICATION OF ANY COMPONENTS.
 - DO NOT SCALE DRAWINGS - REFER TO FIGURED DIMENSIONS ONLY.
 - ANY DISCREPANCIES SHALL BE REFERRED IMMEDIATELY TO THE SUPERINTENDENT FOR CLARIFICATION.
 - ALL EXISTING VEGETATION TO BE RETAINED SHALL BE PROTECTED FOR THE DURATION OF WORKS. EXCAVATION IN ROOT ZONES OF EXISTING TREES SHALL BE HAND DUG/AIR SPADE AND SUPERVISED BY A QUALIFIED ARBORIST.
 - REFER TO CIVIL ENGINEER'S DOCUMENTATION FOR PAVEMENT AND ALIGNMENT LEVELS.
 - REFER ENGINEER'S DOCUMENTATION FOR ALL STRUCTURAL DESIGN AND DOCUMENTATION.
 - CONTRACTOR TO LIAISE WITH RELEVANT STAKEHOLDERS AS REQUIRED FOR APPROVALS.
 - REFER TO GEOTECHNICAL REPORT FOR EXISTING GROUND CONDITIONS PRIOR TO DRILLING OR DIGGING
 - CONTRACTOR TO ENSURE BLOCKS ARE INSTALLED IN COURSES THAT ARE LEVEL WITHIN SPECIFIED TOLERANCES (TBC)
 - THE BEACH PROFILE IS NOT SHOWN FOR CLARITY. ANY BEACH SAND THAT IS EXCAVATED TO CONSTRUCT NEW STRUCTURES AT THE INDICATED LEVELS MUST BE RESTORED TO MATCH THE EXISTING BEACH LEVELS.
 - CONTRACTOR TO ENSURE SANDSTONE LOGS ARE LAID NATURAL FACE UP TO MINIMISE POTENTIAL SURFACE DELAMINATION WHICH CAN BE CAUSED BY INVERTING THE NATURAL SEDIMENTARY STRUCTURE.
 - ALL CONTRACTORS MUST BE AWARE OF THE TPZ BOUNDARIES AND THE IMPORTANCE OF PRESERVING THEM DURING THE CONSTRUCTION PROCESS. ANY EXCAVATION WORK THAT MUST OCCUR WITHIN THE TPZ SHOULD BE CAREFULLY PLANNED AND EXECUTED TO AVOID DAMAGING TREE ROOTS AND COMPROMISING TREE HEALTH. REFER PROJECT ARBORIST REPORT.
 - ALL WORK WITHIN TPZ TO BE HAND-DUG ONLY, EXTENT OF THE EXISTING ROOTS TO BE INSPECTED ON SITE.
 - MINIMISE DEMOLITION OF BEDROCK, APPROVAL NEEDED WHEN REQUIRED
 - CONTRACTOR TO MINIMISE EXPOSED MORTAR/CONCRETE BEDDING - ALL CONCRETE/MORTAR TO INCLUDE COLOURED OXIDE 'CCS DESERT SAND' WITH SAMPLE PANELS TO BE APPROVED BY SUPERINTENDENT PRIOR TO ORDERING



LOCATION - PROJECT SITE

NOTES

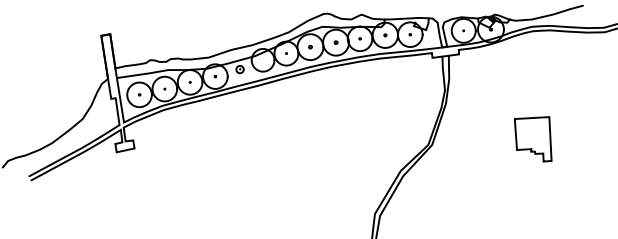
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KEY PLAN



ISSUE	DATE	AMENDMENT	DRN	APRVD
D1	26.10.22	ISSUE FOR DA	AW	ST
D2	01.03.23	DRAFT FOR TENDER	AW	WW
D3	18.09.23	100% FOR TENDER	EM	MW
D4	07.11.23	100% FOR TENDER	EM	MW
D5	21.02.24	100% FOR TENDER	MW	MW
D6	01.11.24	DA RFI	MW	MW

OCULUS

level 1 / 5 wilson street, p.o. box 307, newtown, nsw 2042
p 02.9557.5533 australia@oculus.info
SYDNEY MELBOURNE WASHINGTON

PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100 % SUBMISSION
FOR TENDER

DRAWING SCALE
SCALE 1:2000 @ A1
20 0 20 40 100m



DRAWING
COVER SHEET

PROJECT N°
S21-037

DRAWING N°
L000

SHEET SIZE
A1

ISSUE
D6

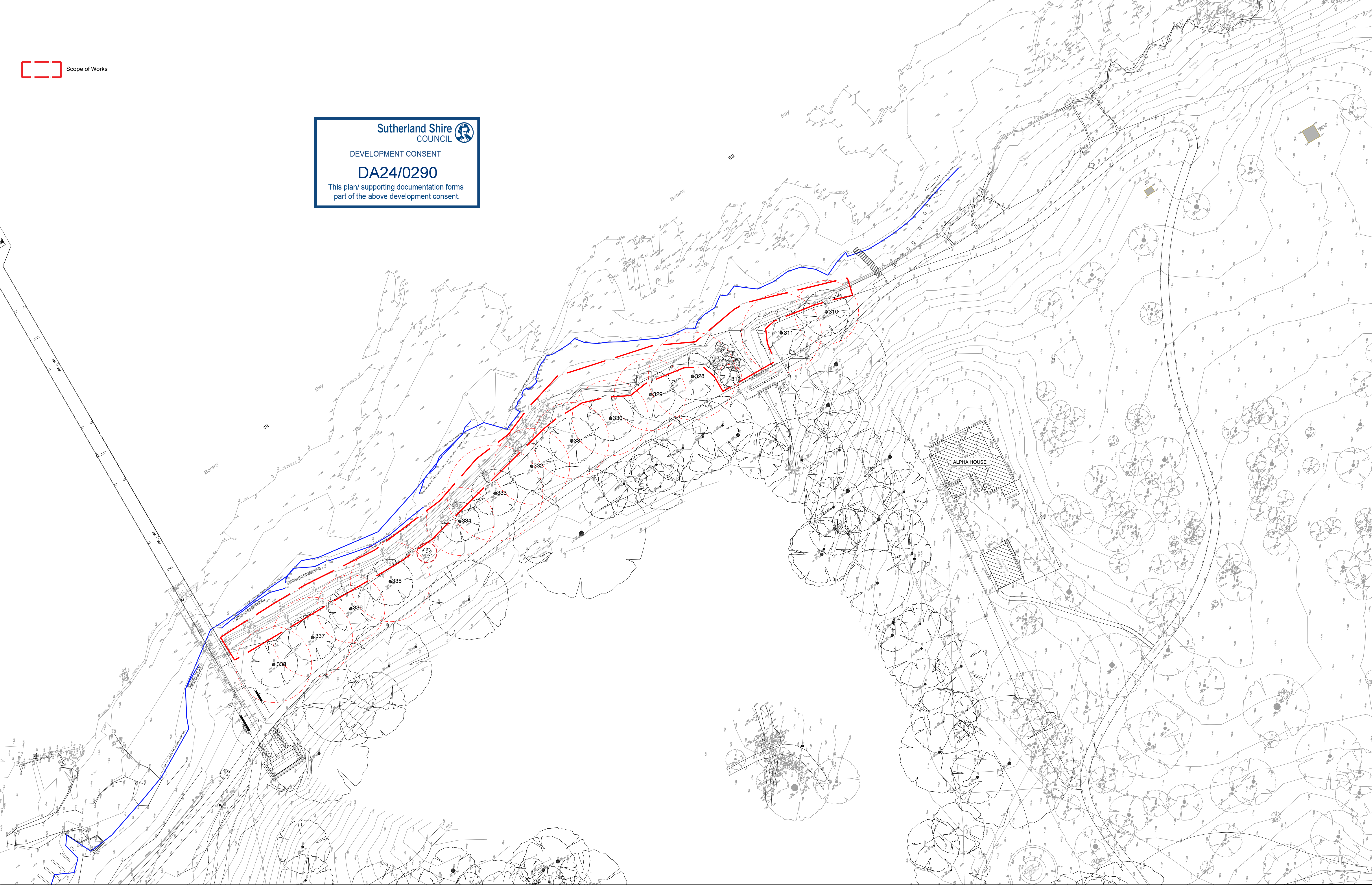
Scope of Works

Sutherland Shire
COUNCIL

DEVELOPMENT CONSENT

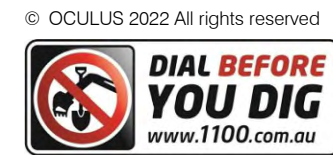
DA24/0290

This plan/ supporting documentation forms
part of the above development consent.



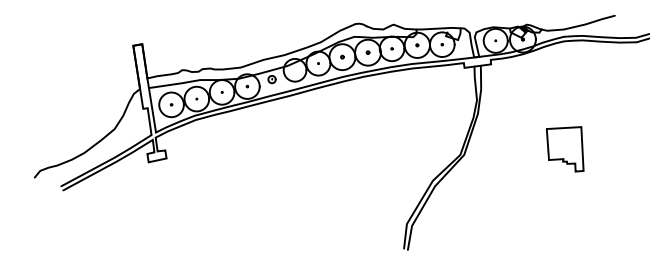
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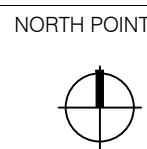
PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE
SCALE 1:500 @ A1
15 0 5 10 30m



DRAWING
SURVEY PLAN

PROJECT N°
S21-037

DRAWING N°
L010

SHEET SIZE
A1

ISSUE
D5

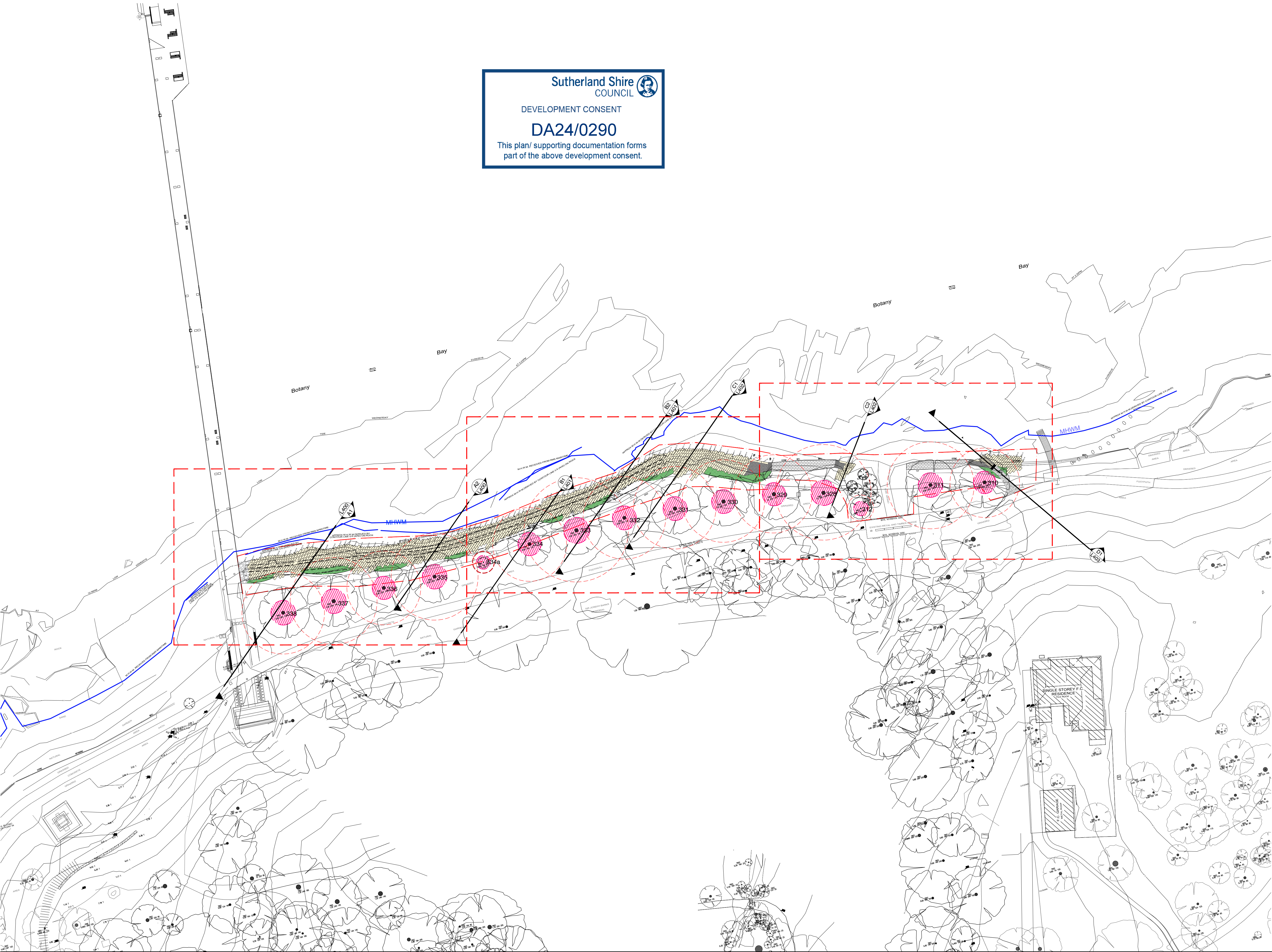
Sutherland Shire
COUNCIL

DEVELOPMENT CONSENT

DA24/0290

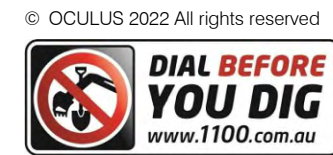
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- LEGEND
- EXISTING TREE TO BE RETAINED
- EXTENT OF WORKS
- STACKED SANDSTONE BLOCK 500mm HIGH
RANDOM COLOUR
- SANDSTONE SEAT CLUSTER
- EXISTING REVETMENT WALL TO BE RETAINED
- PROPOSED INSITU CONCRETE FOOTPATH
- MAJOR CONTOUR
- EXISTING RETAINING SANDBAG LINE
- MEAN HIGH WATER MARK
- CHAINAGE LINES AND SECTIONS
REFER TO ENGINEERS DRAWINGS
- PROPOSED CONCRETE STAIRS
- TPZ
- SRZ



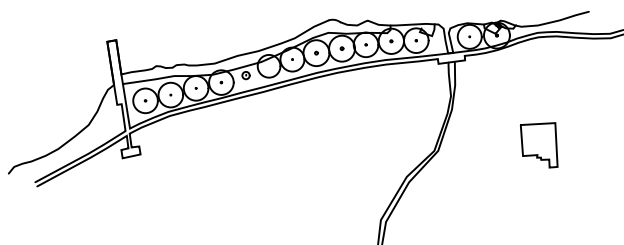
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KEY PLAN



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D4	21.02.24	100% FOR TENDER	MW	MW
D5	08.10.24	DA RFI	MW	MW

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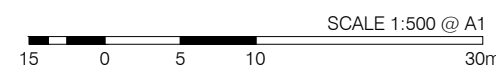
PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE



NORTH POINT



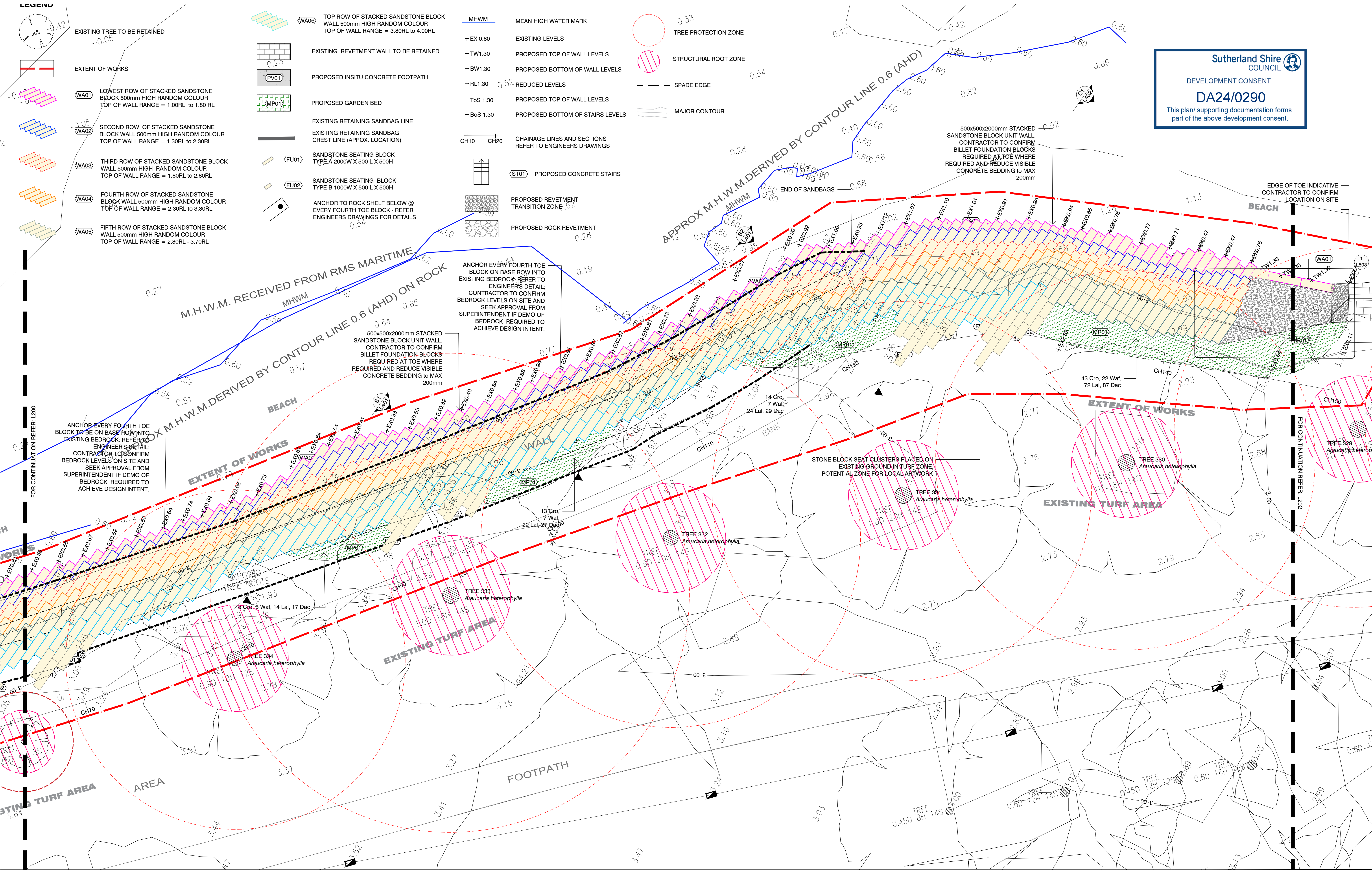
DRAWING
GENERAL ARRANGEMENT
SITE PLAN

PROJECT №
S21-037

DRAWING №
L100

SHEET SIZE
A1

ISSUE
D5



NOTES

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KEY PLAN

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D4	07.11.23	100% FOR TENDER	EM	MW
D5	21.02.24	100% FOR TENDER	MW	MW
D6	08.10.24	DA RFI	MW	MW

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SYDNEY MELBOURNE WASHINGTON

PROJECT

KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT

NSW Government
National Parks & Wildlife Service

ENGINEER

Consult Marine

STATUS

100% SUBMISSION
FOR TENDER

DRAWING SCALE

SCALE 1:100 @ A1
1 0 1 2 5m

NORTH POINT

DRAWING

GENERAL ARRANGEMENT PLAN
SHEET 2 OF 3

PROJECT No

S21-037

DRAWING No

L201

SHEET SIZE

A1

ISSUE

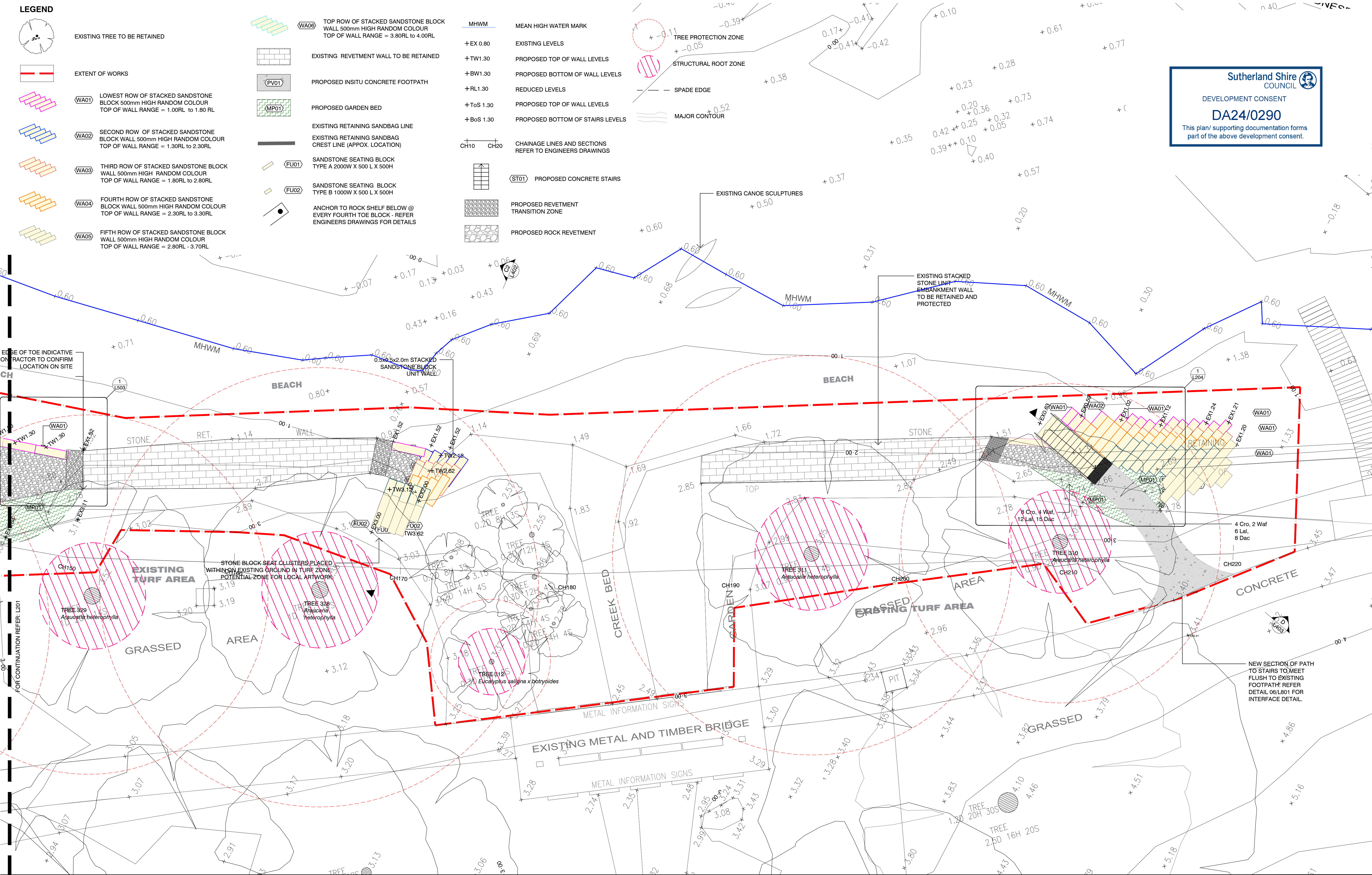
D6

Sutherland Shire COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms part of the above development consent.



Sutherland Shire COUNCIL

DEVELOPMENT CONSENT

DA24/0290

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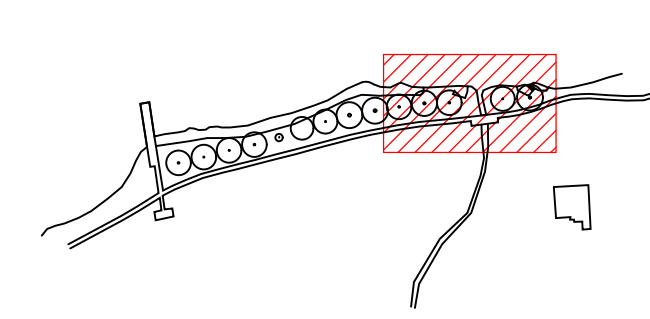
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FILE PATH: P:\SYDNEY\S21-037 KAMAY FORESHORE NPWS\08 DOCUMENTATION\01 CAD DRAWINGS\02 SHEET SETS\OC_ S21-037_300_GENERAL ARRANGEMENT PLAN.DWG; DATE PLOTTED: 28/10/2024; PLOTTED BY: WILL WHITFIELD

KEY PLAN



ISSUE	DATE	AMENDMENT	DRN	APRVD
D1	04.04.22	ISSUE FOR INFORMATION	SL	RB
D2	01.03.23	DRAFT FOR TENDER	AW	WW
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D4	07.11.23	100% FOR TENDER	EM	MW
D5	21.02.24	100% FOR TENDER	MW	MW
D6	08.10.24	DA RFI	MW	MW

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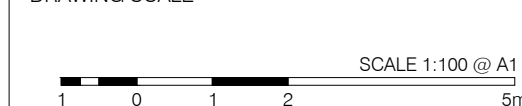
PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% FOR SUBMISSION
FOR TENDER

DRAWING SCALE



NORTH POINT



DRAWING
GENERAL ARRANGEMENT PLAN
SHEET 3 OF 3

PROJECT N°
S21-037

DRAWING N°
L202

SHEET SIZE
A1

ISSUE
D6

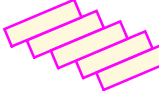
LEGEND



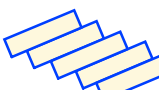
EXISTING TREE TO BE RETAINED



EXTENT OF WORKS



WA01 LOWEST ROW OF STACKED SANDSTONE BLOCK 500mm HIGH RANDOM COLOUR TOP OF WALL RANGE = 1.00RL TO 1.80 RL



WA02 SECOND ROW OF STACKED SANDSTONE BLOCK WALL 500mm HIGH RANDOM COLOUR TOP OF WALL RANGE = 1.30RL TO 2.30RL



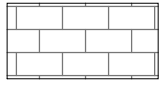
WA03 THIRD ROW OF STACKED SANDSTONE BLOCK WALL 500mm HIGH RANDOM COLOUR TOP OF WALL RANGE = 1.80RL TO 2.80RL



WA04 FOURTH ROW OF STACKED SANDSTONE BLOCK WALL 500mm HIGH RANDOM COLOUR TOP OF WALL RANGE = 2.30RL TO 3.30RL



WA05 FIFTH ROW OF STACKED SANDSTONE BLOCK WALL 500mm HIGH RANDOM COLOUR TOP OF WALL RANGE = 2.80RL - 3.70RL



EXISTING REVELTMENT WALL TO BE RETAINED



PV01 PROPOSED INSITU CONCRETE FOOTPATH



MP01 PROPOSED GARDEN BED



EXISTING RETAINING SANDBAG LINE



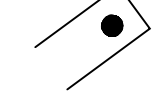
EXISTING RETAINING SANDBAG CREST LINE (APPOX. LOCATION)



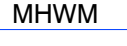
FU01 SANDSTONE SEATING BLOCK TYPE A 2000W X 500 L X 500H



FU02 SANDSTONE SEATING BLOCK TYPE B 1000W X 500 L X 500H



ANCHOR TO ROCK SHELF BELOW @ EVERY FOURTH TOE BLOCK - REFER ENGINEERS DRAWINGS FOR DETAILS



MHWM MEAN HIGH WATER MARK

+EX 0.80 EXISTING LEVELS

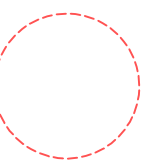
+TW1.30 PROPOSED TOP OF WALL LEVELS

+BW1.30 PROPOSED BOTTOM OF WALL LEVELS

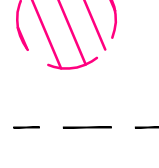
+RL1.30 REDUCED LEVELS

+ToS 1.30 PROPOSED TOP OF WALL LEVELS

+BoS 1.30 PROPOSED BOTTOM OF STAIRS LEVELS



TREE PROTECTION ZONE



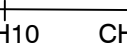
STRUCTURAL ROOT ZONE



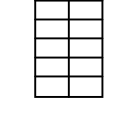
SPADE EDGE



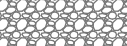
MAJOR CONTOUR



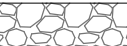
CH10 CH20 CHAINAGE LINES AND SECTIONS REFER TO ENGINEERS DRAWINGS



ST01 PROPOSED CONCRETE STAIRS



PROPOSED REVELTMENT TRANSITION ZONE



PROPOSED ROCK REVELTMENT



Sutherland Shire COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms part of the above development consent.

The main site plan illustrates the proposed retaining wall and stairs at Kamay Botany Bay National Park. The wall is composed of five rows of stacked sandstone blocks (WA01-WA05) and is anchored to the rock shelf below. A concrete footpath (PV01) and a garden bed (MP01) are also shown. The plan includes various level markers (e.g., +EX 0.80, +TW1.30) and chainage lines (CH10, CH20). Trees 311 and 310 are identified, along with their structural root zones. A new section of path is proposed to meet the existing footpath. The plan also shows existing walls to remain and be protected during works, and a transition zone refer section 04.05/L801 and engineer drawings slope to match existing wall.

NOTES

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KEY PLAN

ISSUE	DATE	AMENDMENT	DRN	APRVD
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D2	01.03.23	DESIGN DEVELOPMENT	AW	WW
D3	18.08.23	100% FOR TENDER	EM	MW
D4	07.11.23	100% FOR TENDER	EM	MW
D5	21.02.24	100% FOR TENDER	MW	MW
D6	08.10.24	DA RFI	MW	MW

OCULUS

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p 02.9557.5533 australia@oculus.info
SYDNEY MELBOURNE WASHINGTON

PROJECT
KAMAY REVELTMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE
SCALE 1:50 @ A1
0.5 0 0.5 1 2.5m

DRAWING
STAIRS
DETAILED PLAN

PROJECT N°
S21-037

DRAWING N°
L204

SHEET SIZE
A1

ISSUE
D6

FILE PATH:P:\SYDNEY\S21-037 KAMAY FORESHORE NP\WS\08 DOCUMENTATION\01 CAD DRAWINGS\02 SHEET SETS\OC_S21-037_300_GENERAL ARRANGEMENT PLAN.DWG; DATE PLOTTED:28/10/2024; PLOTTED BY:WILL WHITFIELD

NOTE: BLEACHERS, STAIRS AND RAMPS TO
EXTEND BELOW MEAN SAND LEVEL. EXISTING
ROCK LEVELS AT THE TOE WILL VARY.
CONTRACTOR TO ENSURE BLOCKS ARE
INSTALLED IN COURSES THAT ARE LEVEL
WITHIN SPECIFIED TOLERANCES (TBC)



NOTES

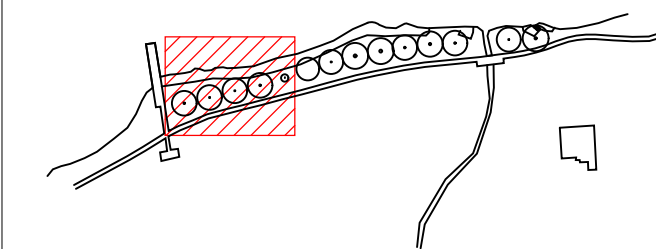
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O C U L U S

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SYDNEY **MELBOURNE** **WASHINGTON**

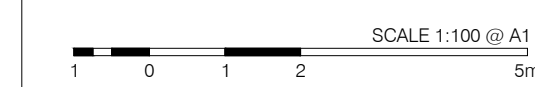
PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE



NORTH POINT



DRAWING
SETOUT PLAN
SHEET 1 OF 3

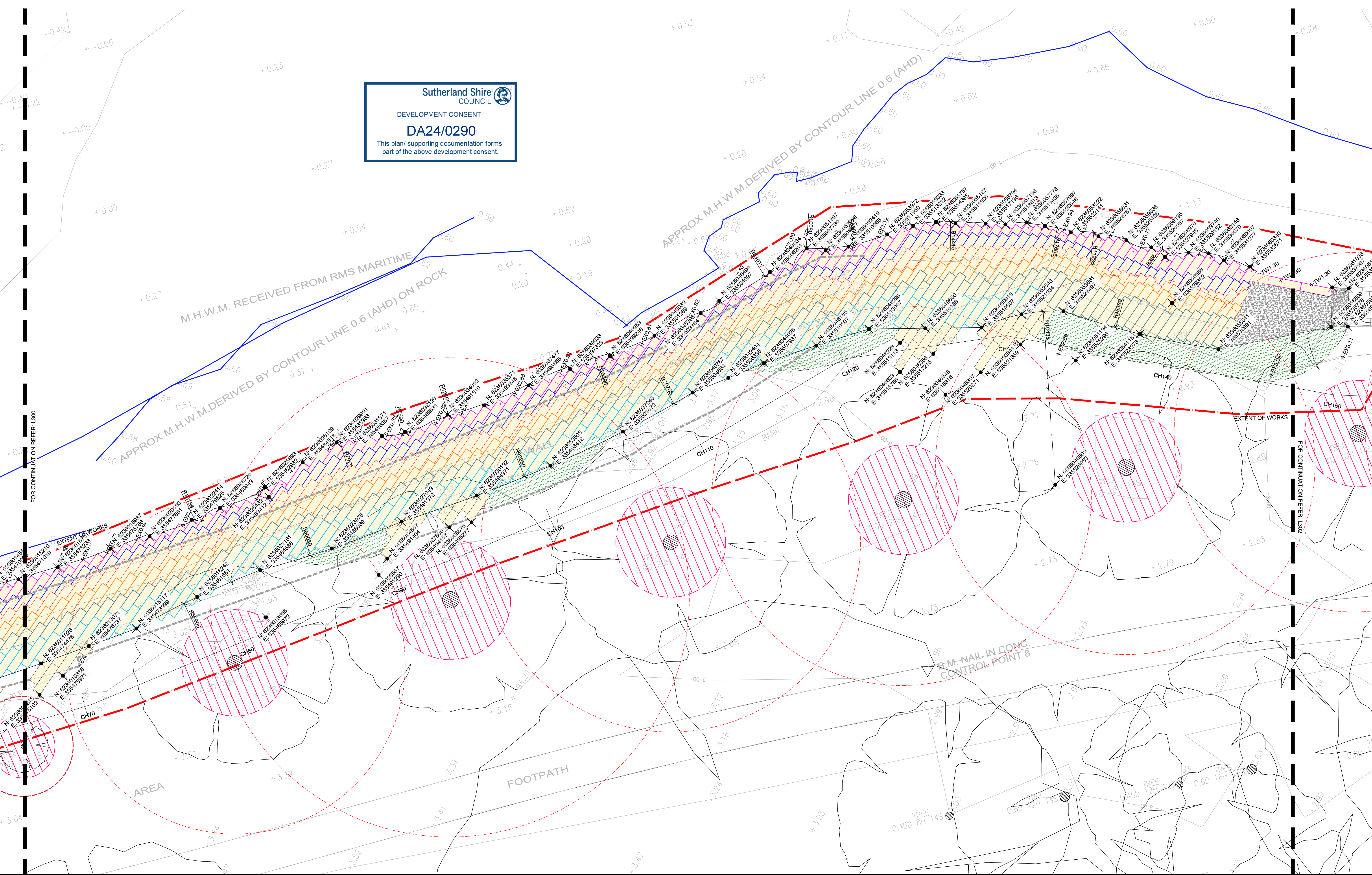
PROJECT №
S21-037

DRAWING №
L300

SHEET SIZE
A1

ISSUE
D5

FILE PATH:P:\SYDNEY\S21-037 KAMAY FORESHORE NPWS\08 DOCUMENTATION\01 CAD DRAWINGS\02 SHEET SETS\OC S21-037_400 SETOUT.DWG; DATE PLOTTED:7/11/2023; PLOTTED BY:WILL WHITFIELD



NOTES

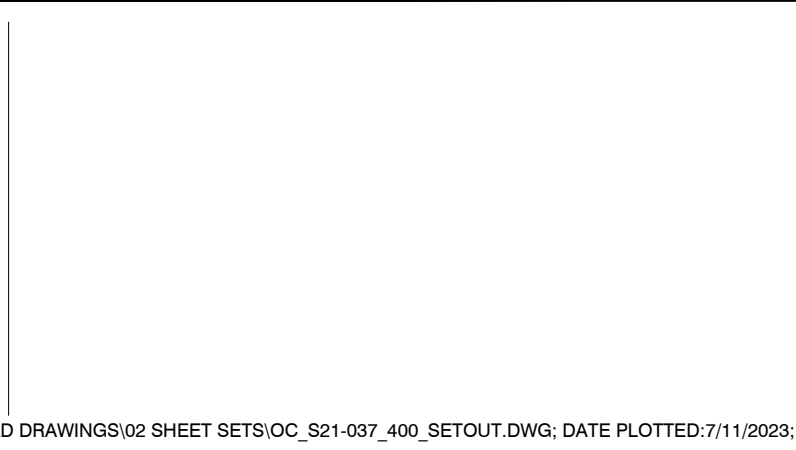
THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL LANDSCAPE SCHEDULES AND TECHNICAL SPECIFICATION AND OTHER CONSULTANTS DRAWINGS. CHECK AND VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF ANY WORK. DO NOT SCALE DRAWINGS - REFER TO FIGURED DIMENSIONS ONLY. INFORM OCULUS OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION.

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ISSUE	DATE	AMENDMENT	DRN	APRVD
D1	04.04.22	ISSUE FOR INFORMATION	SL	RB
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D3	18.09.23	100% FOR TENDER	EM	MW
D4	07.11.23	100% FOR TENDER	EM	MW

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PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE

SCALE 1:100 @ A1
1 0 1 2 5m

NORTH POINT

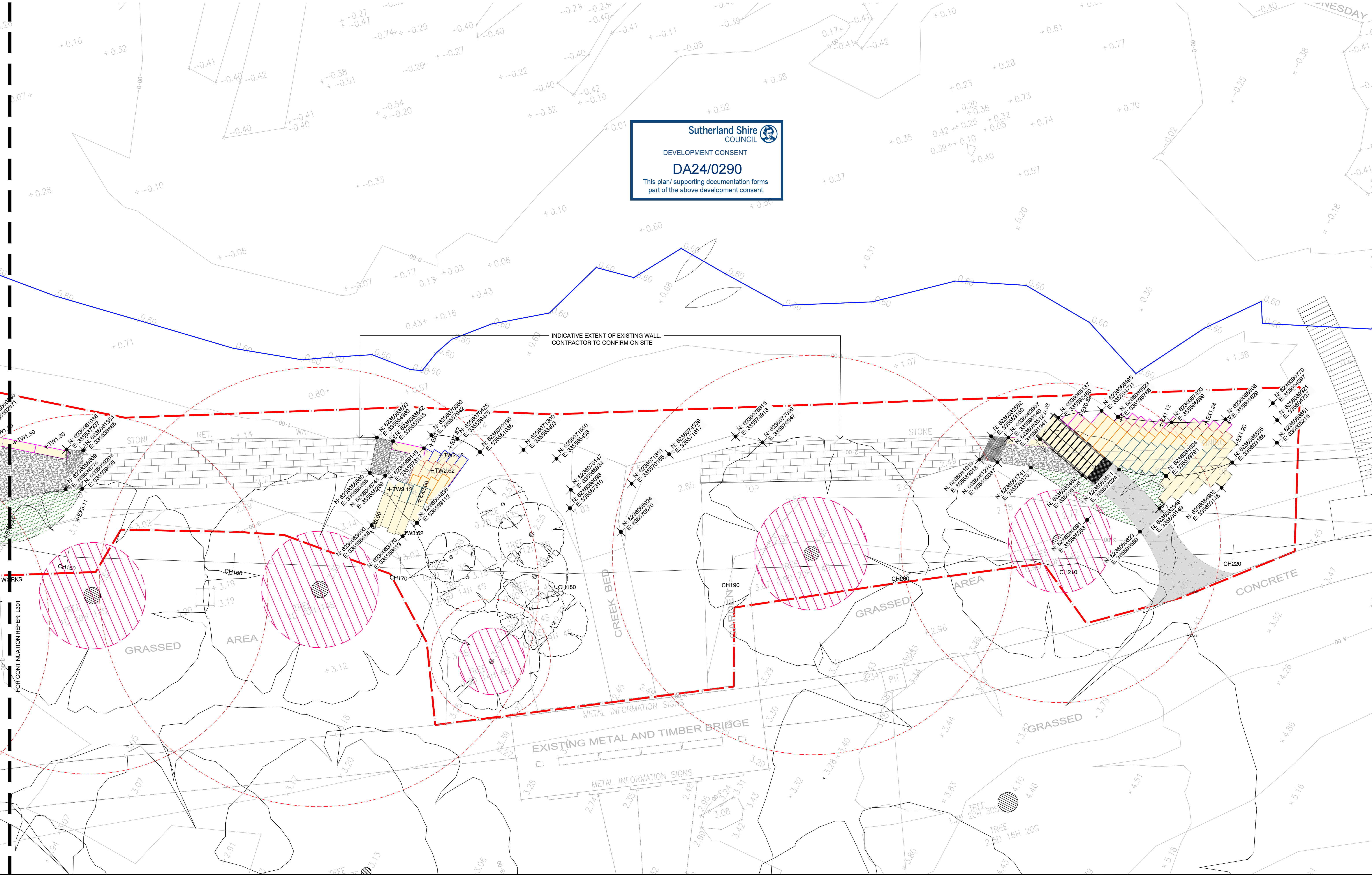
DRAWING
SETOUT PLAN
SHEET 2 OF 3

PROJECT N°
S21-037

DRAWING N°
L301

SHEET SIZE
A1

ISSUE
D4



NOTES

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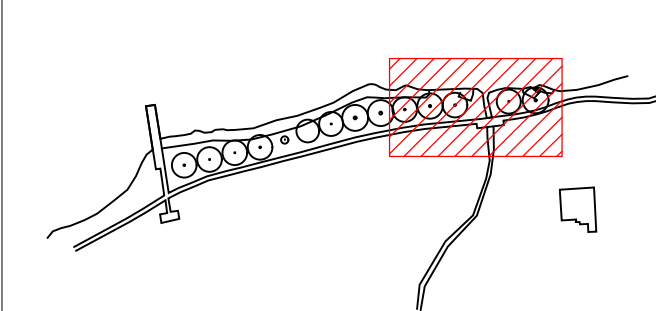
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KEY PLAN



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D4	07.11.23	100% FOR TENDER	EM	MW

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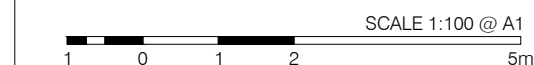
PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE



NORTH POINT



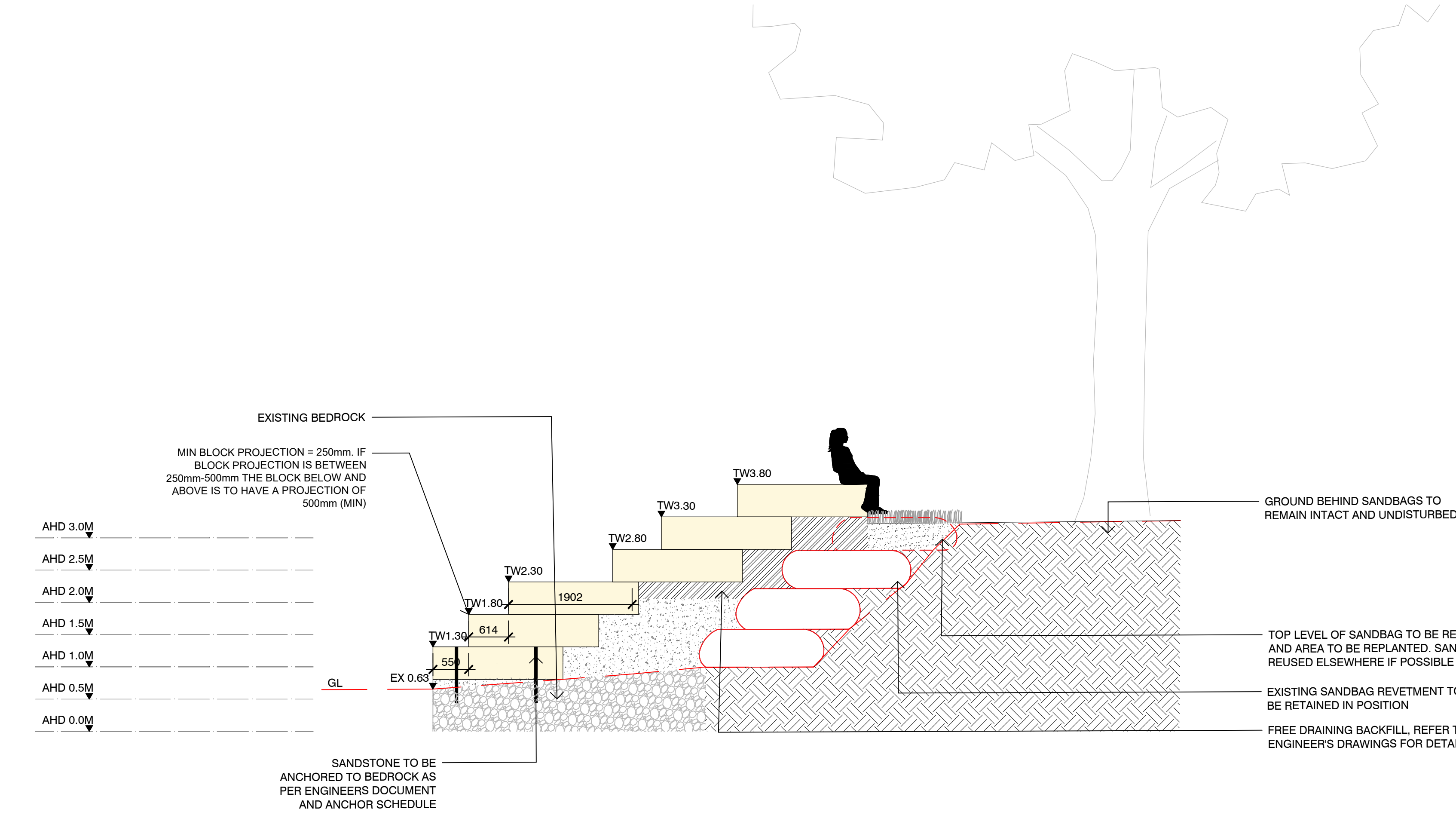
DRAWING
SETOUT PLAN
SHEET 3 OF 3

PROJECT No
S21-037

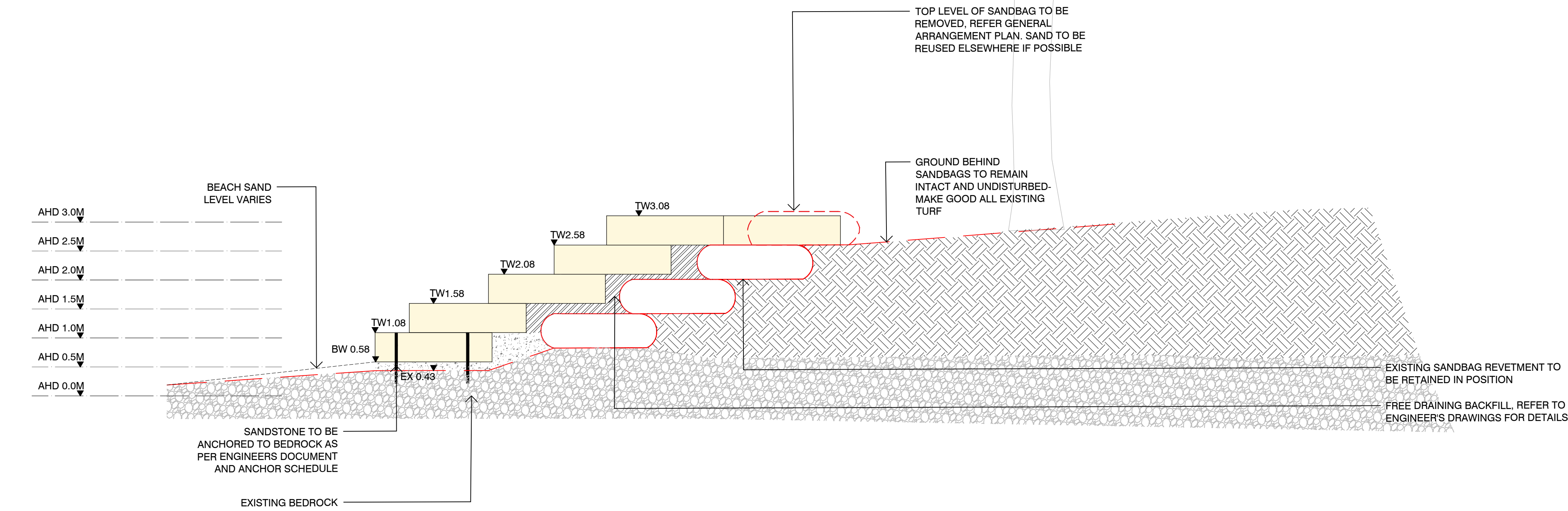
DRAWING No
L302

SHEET SIZE
A1

ISSUE
D4



1 SECTION A1
L400 1:50



2 SECTION A2
L400 1:50

- NOTE:
- BLEACHERS, STAIRS AND RAMPS TO EXTEND BELOW MEAN SAND LEVEL.
 - EXISTING BEDROCK LEVELS AT THE TOE WILL VARY.
 - CONTRACTOR TO ENSURE BLOCKS ARE INSTALLED IN COURSES THAT ARE LEVEL WITHIN SPECIFIED TOLERANCES (TBC)
 - BLOCKS TO EXTEND BELOW MEAN SAND LEVEL. EXISTING ROCK LEVELS AT THE TOE WILL VARY.
 - ALL LANDSCAPE SECTIONS TO BE READ IN CONJUNCTION WITH ENGINEER DRAWINGS, REFER TO EACH SECTION FOR SPECIFIC CHAINAGE BY ENGINEERS.
 - CONTRACTOR TO ENSURE BLOCKS ARE INSTALLED IN COURSES THAT ARE LEVEL WITHIN SPECIFIED TOLERANCES (TBC)

Sutherland Shire
COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms
part of the above development consent.

NOTES

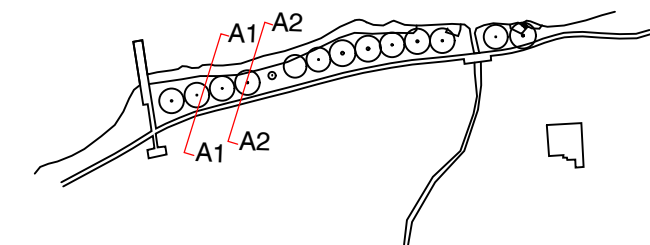
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D4	07.11.23	100 % TENDER	EM	MW
D5	21.02.24	100 % TENDER	MW	MW
D6	01.11.24	DA RFI	MW	MW

O C U L U S

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SYDNEY MELBOURNE WASHINGTON

PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER

DRAWING SCALE
SCALE 1:50 @ A1
0.5 0 0.5 1 2.5m

NORTH POINT

DRAWING
SECTIONS 01

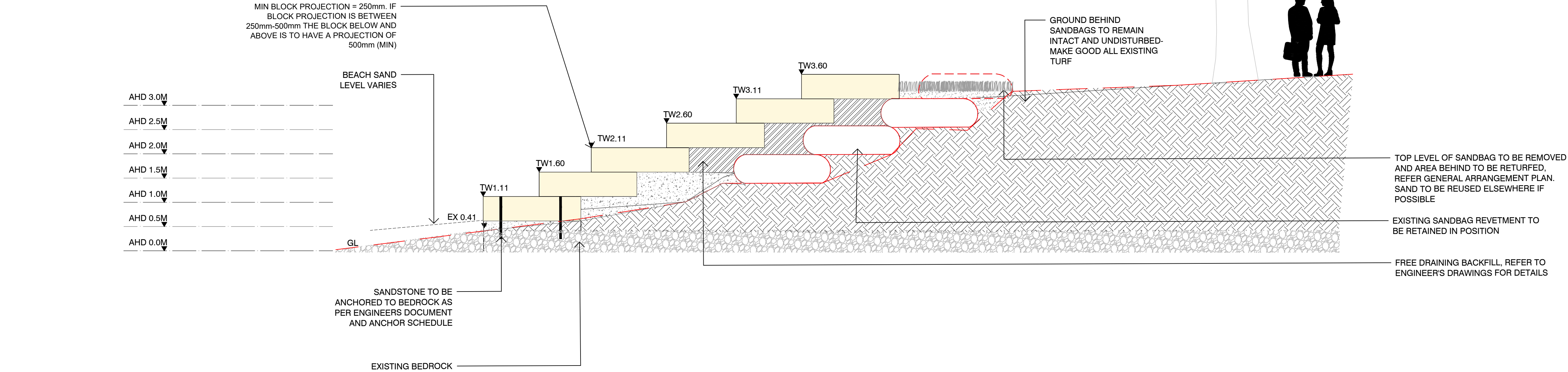
PROJECT №
S21-037

DRAWING №
L-400

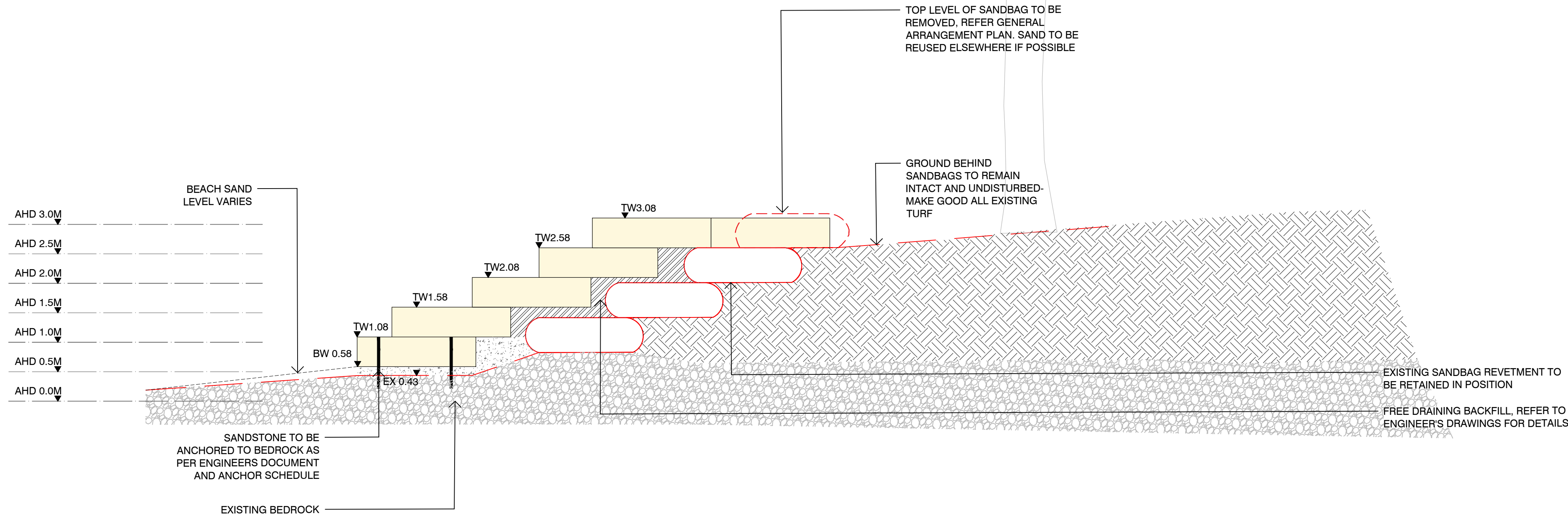
SHEET SIZE
A1

ISSUE
D6

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1 SECTION B1
L401 1:50



2 SECTION B2
L401 1:50

Sutherland Shire COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms part of the above development consent.

NOTES

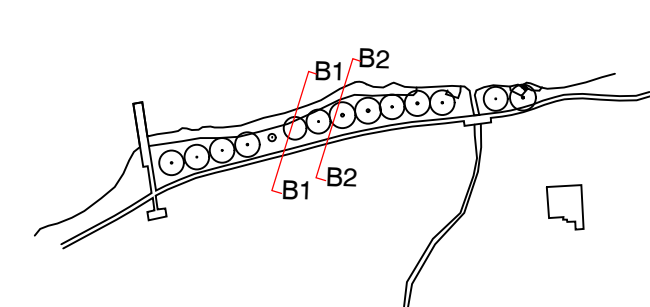
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D4	07.11.23	100 % TENDER	EM	MW
D5	21.02.24	100 % TENDER	MW	MW
D6	01.11.24	DA RFI	MW	MW

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PROJECT

KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT

NSW Government
National Parks & Wildlife Service

ENGINEER

Consult Marine

STATUS

100% SUBMISSION
FOR TENDER

DRAWING SCALE

SCALE 1:50 @ A1
0.5 0 0.5 1 2.5m

NORTH POINT

DRAWING

SECTIONS 02

PROJECT №

S21-037

DRAWING №

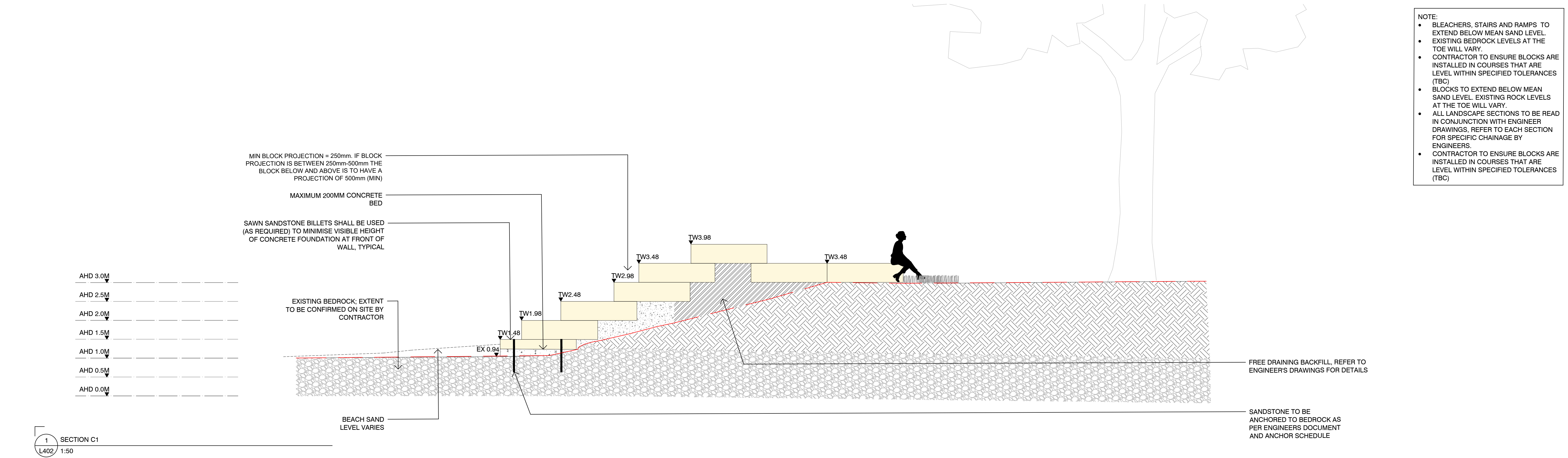
L-401

SHEET SIZE

A1

ISSUE

D6



NOTES

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KEY PLAN

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D3	18.09.23	100% FOR TENDER	EM	MW
D4	07.11.23	100 % FOR TENDER	EM	MW
D5	01.11.24	DA RFI	MW	MW

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PROJECT

KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT

NSW Government
National Parks & Wildlife Service

ENGINEER

Consult Marine

STATUS

100% SUBMISSION
FOR TENDER

DRAWING SCALE

0.5 0 0.5 1 2.5m

NORTH POINT

DRAWING

SECTIONS 03

PROJECT N^o

S21-037

DRAWING N^o

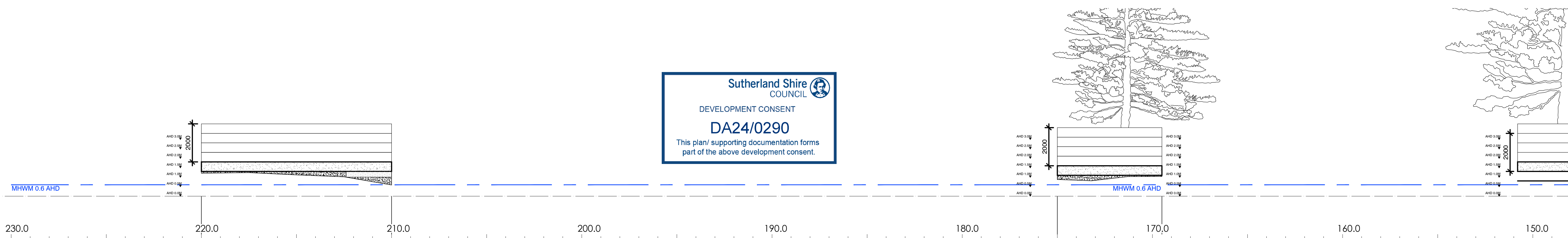
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SHEET SIZE

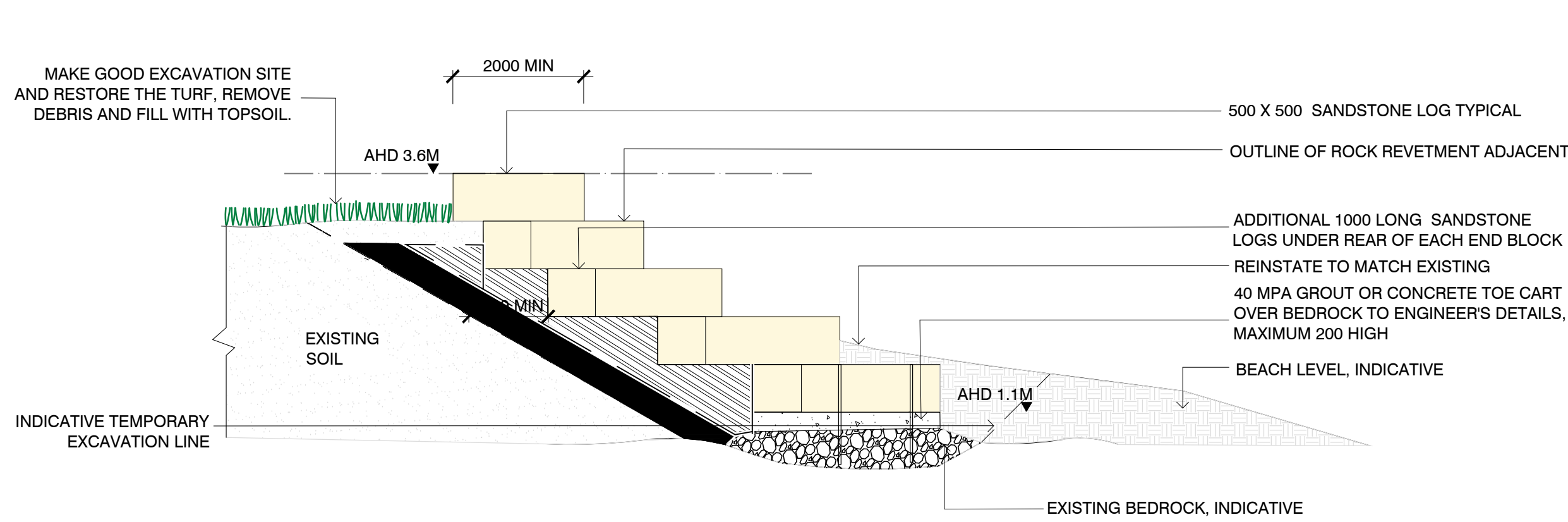
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ISSUE

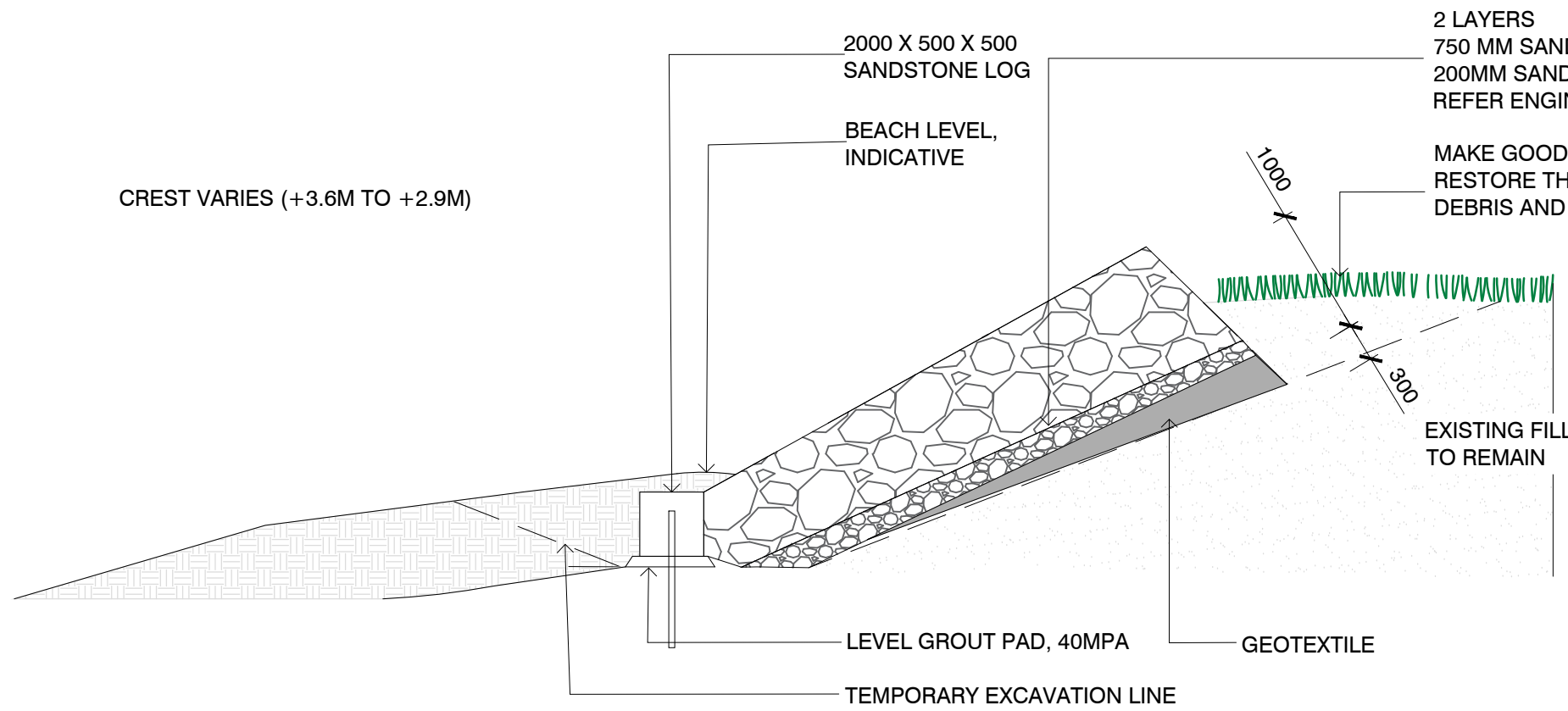
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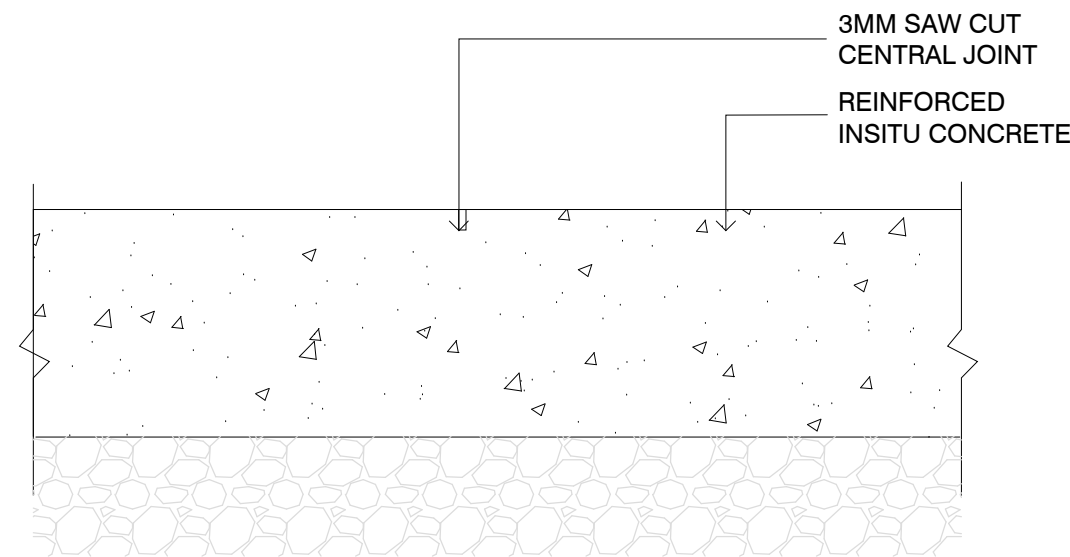
NOTE: ALL LANDSCAPE DETAILS TO BE READ IN CONJUNCTION WITH ENGINEER DRAWINGS



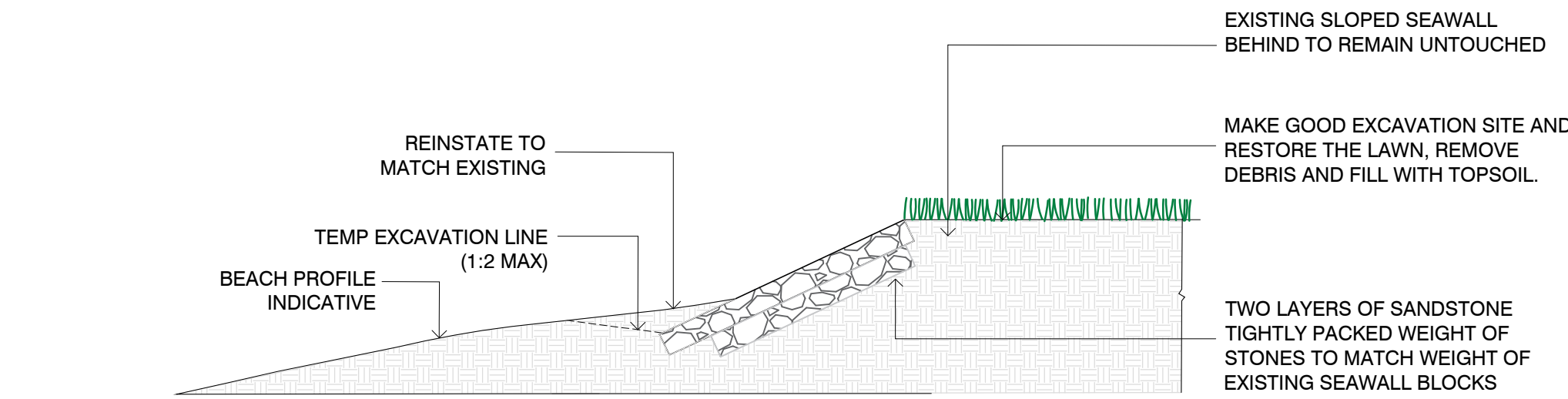
01 SANDSTONE BLOCK WALL END DETAIL
SECTION - 1:50 @ A1



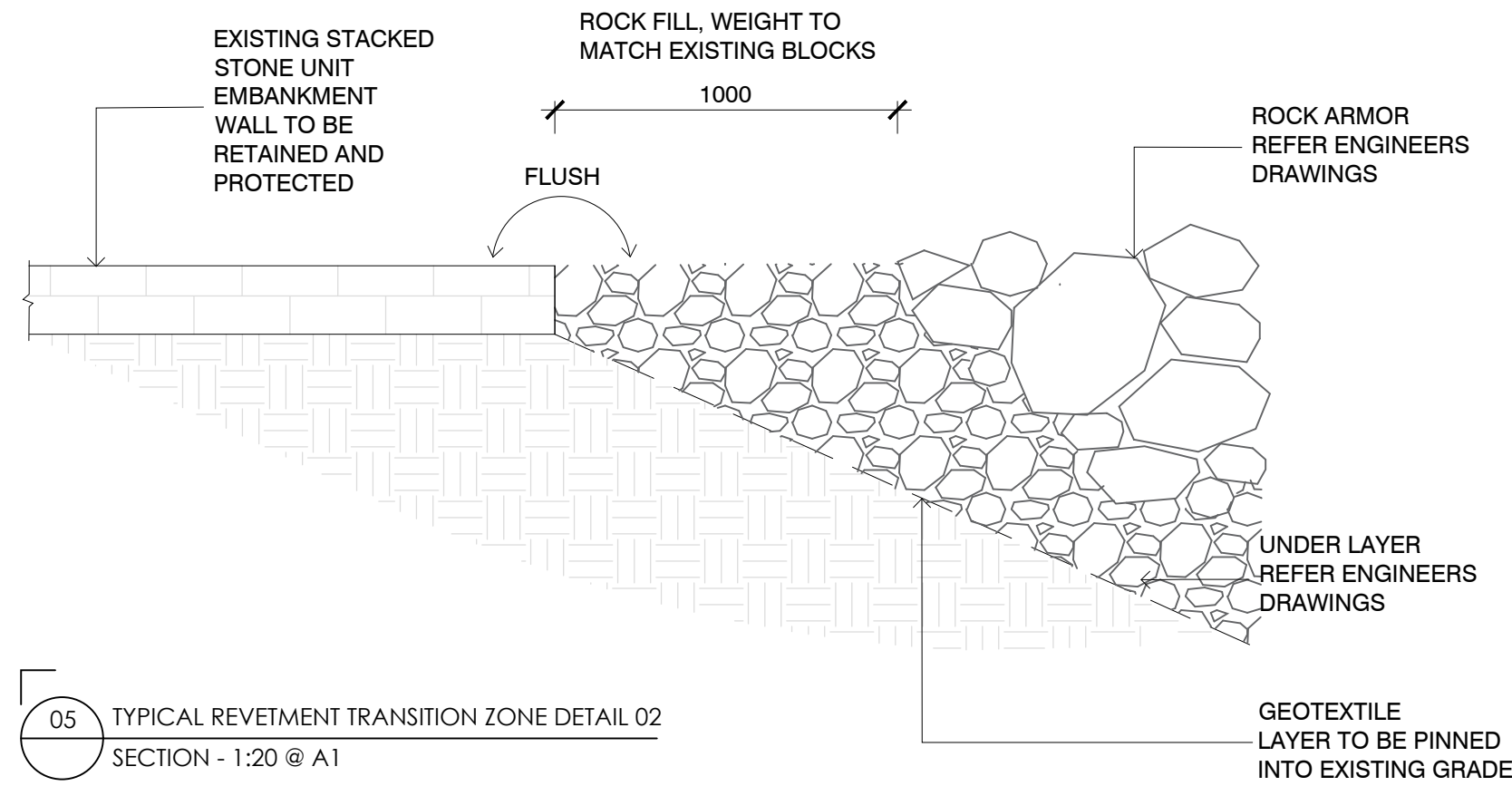
02 TYPICAL TRANSITION ZONE DETAIL
SECTION - 1:50 @ A1



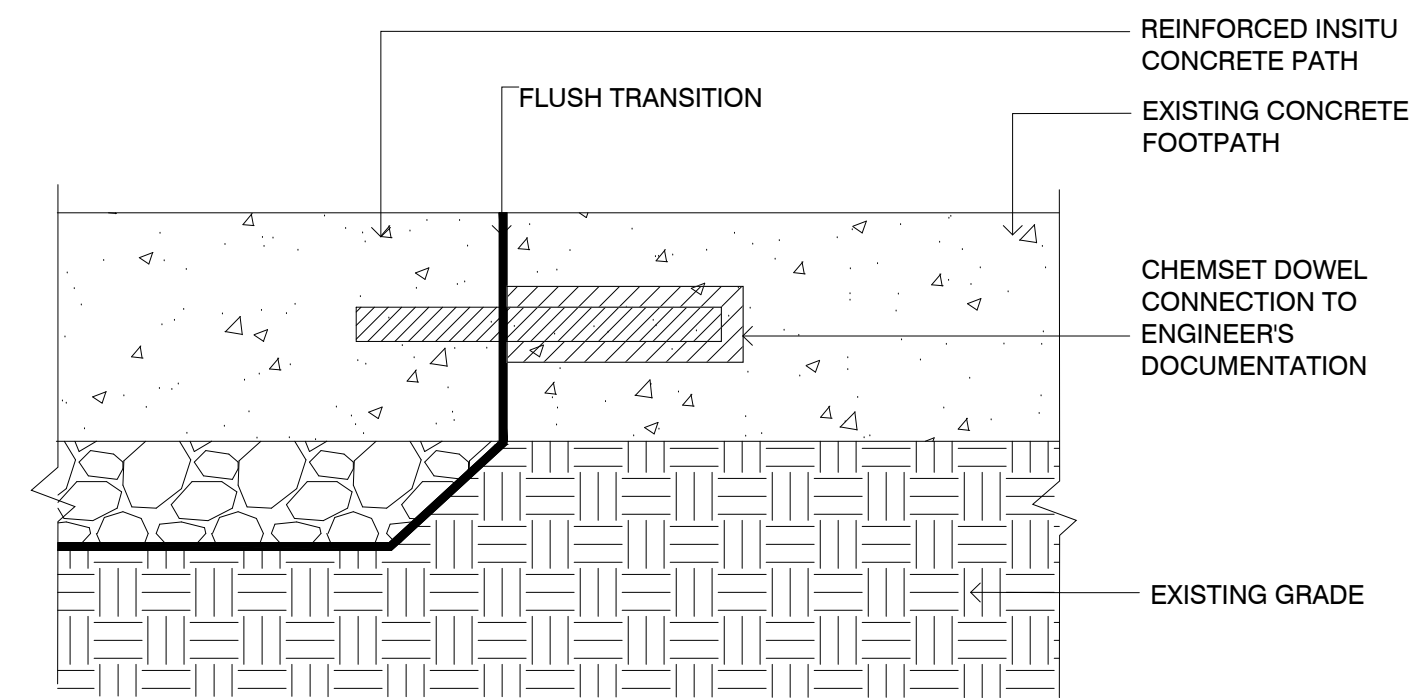
03 SAW CUT CONTROL JOINT
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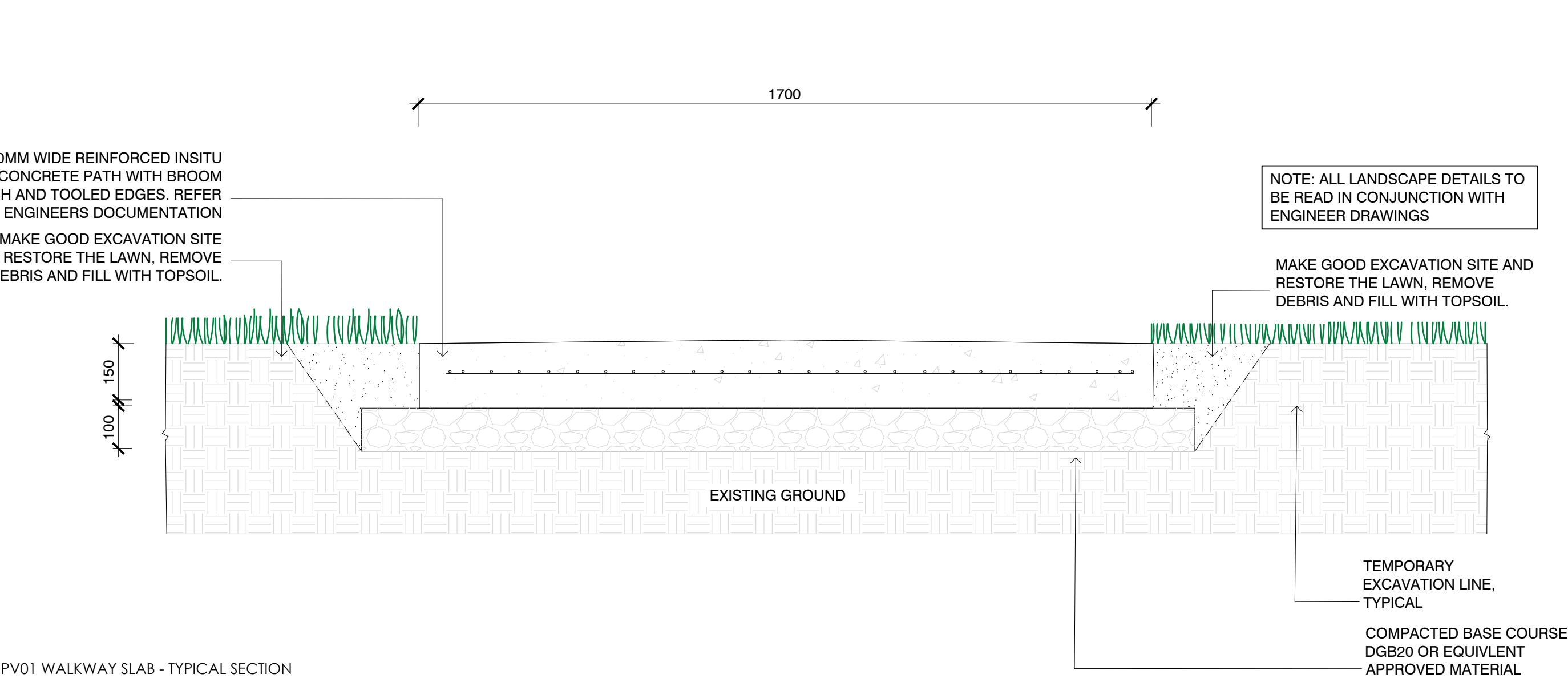
04 TYPICAL REVETMENT TRANSITION ZONE DETAIL 01
SECTION - 1:50 @ A1



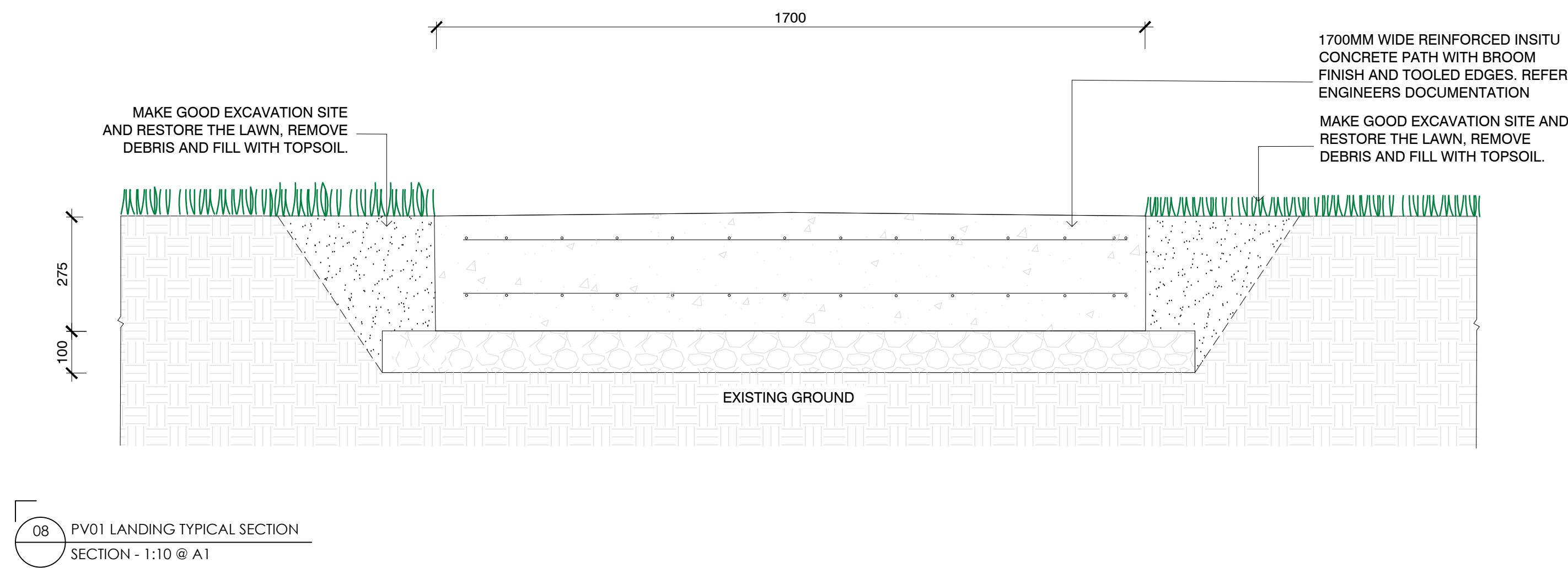
05 TYPICAL REVETMENT TRANSITION ZONE DETAIL 02
SECTION - 1:20 @ A1



06 FOOTPATH CONNECTION DETAIL
SECTION - 1:5 @ A1



07 PV01 WALKWAY SLAB - TYPICAL SECTION
SECTION - 1:10 @ A1



08 PV01 LANDING TYPICAL SECTION
SECTION - 1:10 @ A1

NOTES

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KEY PLAN

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D1	02.03.23	DRAFT FOR TENDER	AW	WW
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SYDNEY MELBOURNE WASHINGTON

PROJECT
KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park
CLIENT
NSW Government
National Parks & Wildlife Service
ENGINEER
Consult Marine

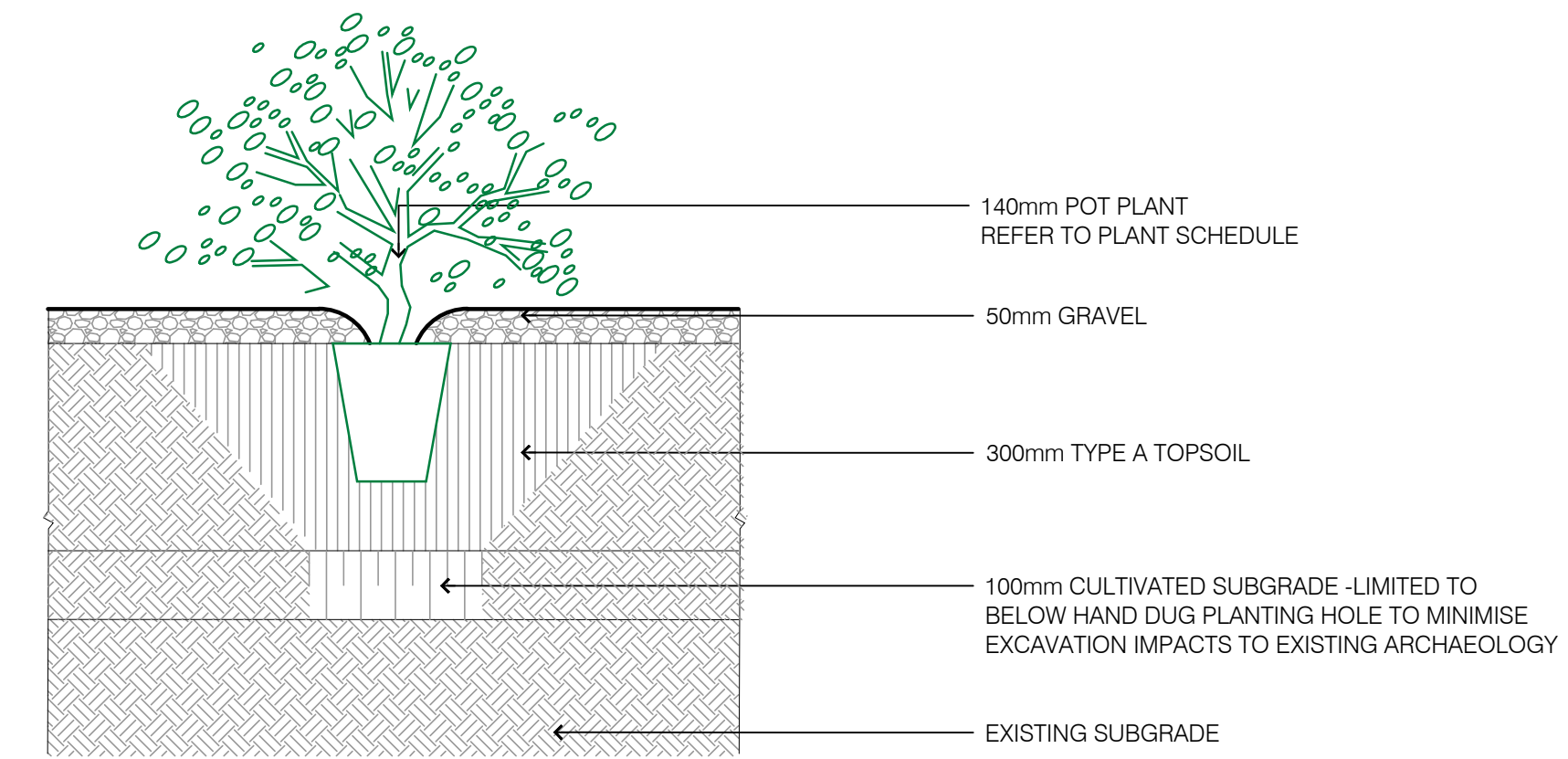
STATUS
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FOR TENDER

DRAWING SCALE
AS SHOWN

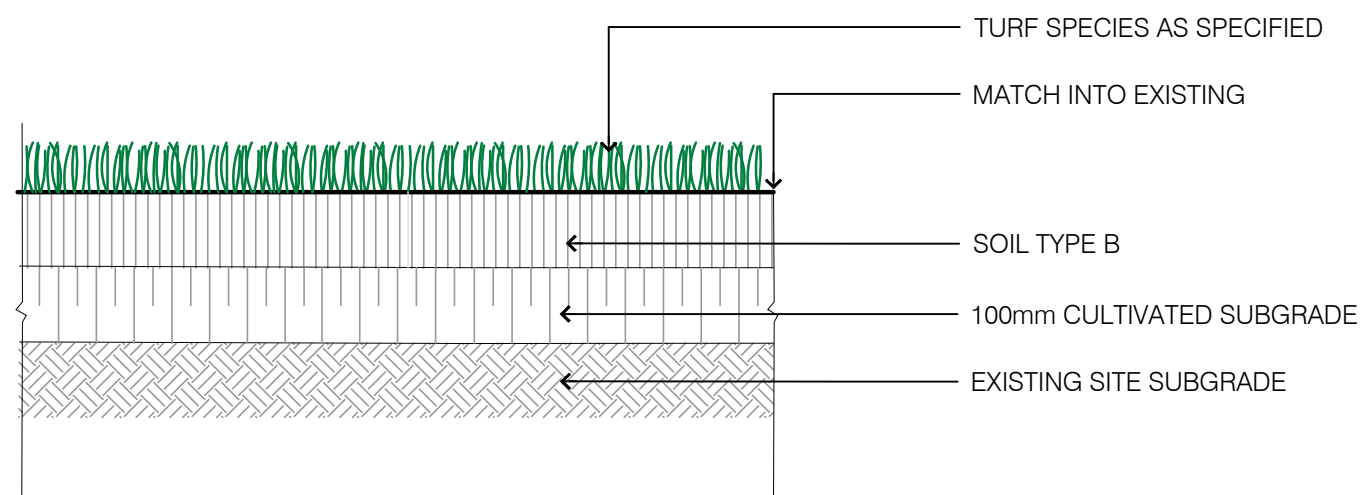
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LANDSCAPE DETAILS

PROJECT №
S21-037
DRAWING №
L801

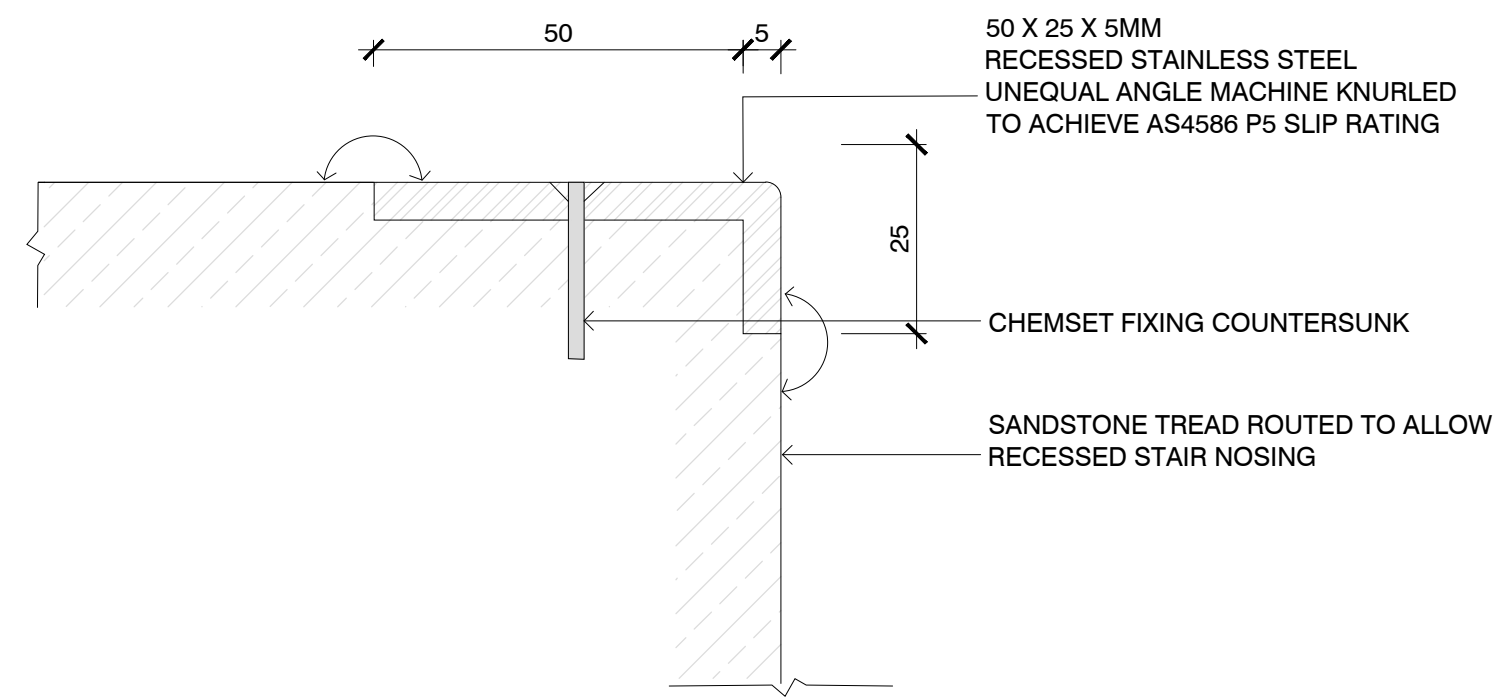
SHEET SIZE
A1
ISSUE
D4



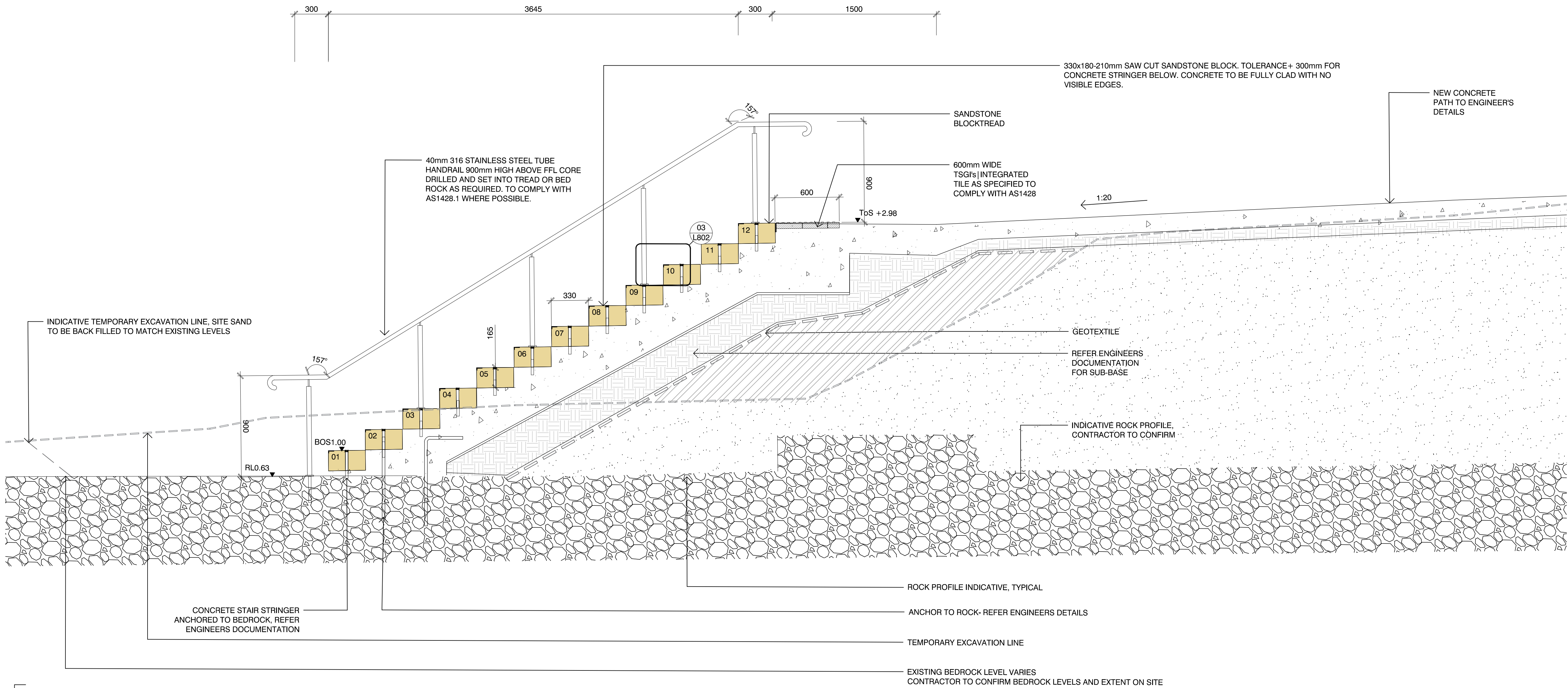
01 TYPICAL PLANTING DETAIL ON EXISTING GRADE
SECTION - 1:10 @ A1



02 TYPICAL LAWN DETAIL
SECTION - 1:10 @ A1



03 VN-01 STAIR NOSING DETAIL
SECTION - 1:2 @ A1



04 STAIR DETAIL
SECTION - 1:20 @ A1

NOTES

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Kamay Botany Bay National Park

CLIENT

NSW Government
National Parks & Wildlife Service

ENGINEER

Consult Marine

STATUS

100% SUBMISSION
FOR TENDER

DRAWING SCALE

AS SHOWN

NORTH POINT



DRAWING

LANDSCAPE DETAILS

PROJECT N°

S21-037

DRAWING N°

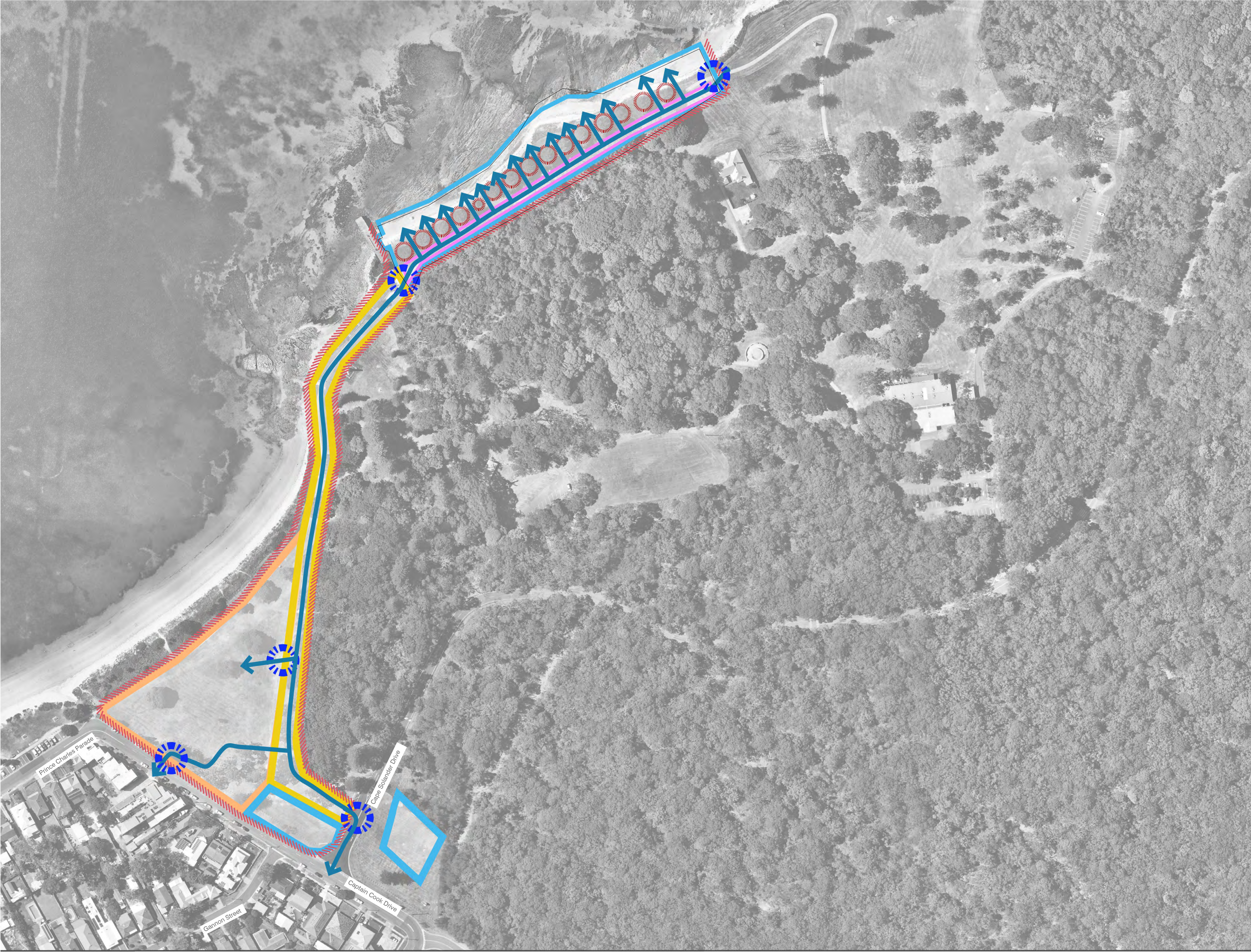
L802

SHEET SIZE

A1

ISSUE

D4



Legend

- Extended shared haul road for seawall project access
- TfNSW Wharf project storage and administration area
- Seawall extent of works and main access area
- Extended work compound area for stone storage and vehicle movements
- Indicative *Araucaria* TPZs
- Temporary Fencing
- Vehicle Entry Point
- Vehicle Access Route
- Backup Secondary Route Only

Sutherland Shire
COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms
part of the above development consent.

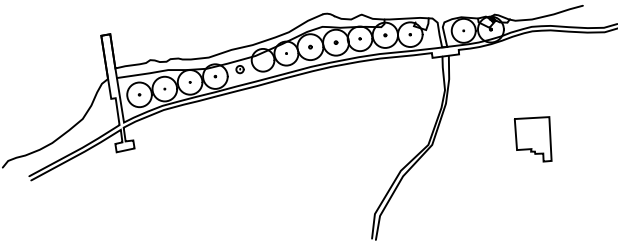
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D6	01.11.24	DA RFI	WW	MW

OCULUS

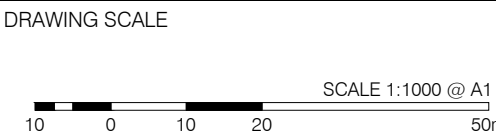
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SYDNEY MELBOURNE WASHINGTON

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KAMAY REVETMENT WALL WORKS
Kamay Botany Bay National Park

CLIENT
NSW Government
National Parks & Wildlife Service

ENGINEER
Consult Marine

STATUS
100% SUBMISSION
FOR TENDER



DRAWING
CONSTRUCTION
MANAGEMENT PLAN

PROJECT N°
S21-037

DRAWING N°
L700

SHEET SIZE
A1

ISSUE
D6

KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND SHIRE, NSW

DRAWING LIST

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DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms
part of the above development consent.



LOCALITY PLAN
N.T.S.

REVISED FOR CO-ORDINATION.
ISSUED FOR D.A.

AMENDMENTS

NOT FOR CONSTRUCTION

07.09.2023 B J.C.O.
28.07.2023 A J.C.O.
DATE ISSUE BY



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TO BE PRINTED IN COLOUR

PROJECT
KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND

DESIGNED M.S.B. DRAWN P.B. CHECKED J.C.O. DATE DEC. 2021 SIZE A1

DRAWING TITLE
TITLE SHEET, LOCALITY PLAN
AND DRAWING LIST

PROJECT No. 0258-00 DRAWING No. 001 ISSUE B

GENERAL NOTES

Design Criteria:

- Maximum vertical live load (on or within 4m behind wall):
 - Uniformly Distributed Load: 5kPa, or
 - Point Load: 4.5kN.
 - N.B. A 4.5kN Point Load is approximately equivalent to a wheel load from a light vehicle of GVM ≤ 1.8t.
- Structure Classification: Class B to AS4678-2002
- Design Working Life: 50 years with periodic inspection and maintenance.
- Sea Level Rise: 0.4m allowance.
- Design Waves (Breaking):
 - 1:1yr Swell Wave (North): Hb = 0.8m, Ts = 15s
 - 1:1yr Wind Wave (WNW): Hb = 1.3m, Ts = 3.5s
 - 1:200yr Swell Wave (North): Hb = 1.3m, Ts = 15s
 - 1:200yr Wind Wave (WNW): Hb = 1.6m, Ts = 3.5s

Units:

- All dimensions are in millimetres, UNO (unless noted otherwise).
- All levels are in metres to A.H.D. (Australian Height Datum).
- 0.0m A.H.D. approximates to Mean Sea Level (RL 0.925m Chart Datum).
- Do not scale from drawings. The Contractor shall submit a written RFI where doubt exists regarding design intent.

General:

- These drawings shall be read in conjunction with the contract documentation issued by the Principal (including Architectural Drawings).
- The Contractor shall comply with the design intent shown on the Architectural drawings regarding set-out, general layout, finished lines and levels and surface finishes.
- The Contractor shall comply with the Principal's design directives, including instructions regarding design co-ordination and interpretation.
- Any conflicts in contract documentation shall be referred to the Principal for review and decision before proceeding with the work.
- The Architect's setting out dimensions shall be verified by the Contractor on site.
- All work shown on the drawing is new, to be supplied and installed by the Contractor, unless noted as existing.
- All materials shall be new materials.
- All demolished (and excess) materials shall be lawfully disposed of by the Contractor unless noted otherwise on the drawings.
- Carry out demolition work (including partial demolition) in accordance with AS 2601, making due allowance for the condition of existing structures.
- During the construction works, structures shall be maintained in a stable condition at all times.
- All temporary works shall be designed and certified by the Contractor.
- The Contractor shall provide written evidence that the materials used comply with the Specification herein.
- The Contractor shall be responsible for securing the site (and any storage areas) from unauthorised entry throughout the duration of the works.
- The Contractor shall preserve existing infrastructure to remain, including all existing walls, sandbags, services, bridges, pavement, kerbs, paths, stormwater assets, etc.
- Existing services are not shown on the drawings. The Contractor shall inform themselves and carry out their own investigations to locate existing services prior to commencement of work. N.B. A potable water pipe runs parallel to the seawall at the northern end of the site and was struck during the geotechnical investigation.

General: (Continued)

- All works shall be carried out in accordance with these specifications, or an approved equivalent National Parks and Wildlife Services (NPWS) NSW Specification, as directed by the Principal.
- The Contractor's main work area is shown on the Architectural drawings. Additional area for storage of materials, and the like, may or may not be allocated at the Principal's discretion.
- No work is to be carried out on adjoining property without prior permission being granted by the owner.
- The Contractor shall provide a Dilapidation Report of the site and adjacent structures prior to commencing on site, and to the satisfaction of the Principal.
- Site restoration shall be to the satisfaction of the Principal.
- All new works shall make a smooth transition with existing works.
- Reinstate existing sign-posts and other existing assets (e.g. outdoor furniture) in their pre-existing location upon completion of work, unless otherwise directed by the Principal.

Work Health & Safety and Environmental Controls:

- It is the Contractor's responsibility to ensure all works are carried out in accordance with the applicable workplace health & safety WHS legislation.
- Unless otherwise notified by the Principal, all demolition debris shall be completely removed from site including the surrounding rock shelves and existing seabed.
- The Contractor shall comply with all licences, permits and approvals, obtained or relevant to the works.
- Prior to commencement of work, the Contractor shall furnish a CEMP (Construction Environmental Management Plan) for review by the Principal.
- Works shall be constructed in accordance with the approved version of the Contractor's CEMP (Construction Environmental Management Plan).
- Provisions shall be made to prevent pedestrian entry to the worksite with appropriate signage, barricading, and fencing where appropriate.
- Prior to commencing works the Contractor will be required to prepare appropriate safe work procedures and permits required by current NSW WHS legislation and additional requirements under the contract.
- High risk work items identified in the project Safety In Design review that will require specific risk assessment, SWMS and implementation of management and physical control measures include:
 - Working in or near water, including working in the tidal zone with potential exposure to wave impact during inclement weather, and
 - Demolition work, and
 - Work in areas in which there is movement of powered mobile plant, and
 - Work near live services.

Earthworks:

- All earthworks shall be conducted strictly in accordance with the requirements of the CEMP and direction of the Archaeologist.
- The Contractor shall prepare and submit an Erosion and Sediment Control Plan a minimum of 4 weeks prior to starting work on site.
- No earthworks shall be undertaken until erosion and sediment control devices have been erected or constructed to the satisfaction of the Principal.
- The Contractor's responsibility is to ensure all soil and erosion control devices are maintained.
- Temporary construction batters shall be determined by the Contractor.
- The temporary batter adopted during construction will depend on actual conditions encountered within the cut.
- Shoring: Provide temporary shoring for vertical cut depths ≥ 1.2m
- All excess excavation material shall be lawfully disposed of by the Contractor.
- The Contractor shall divert any water interfering with the progress of works, and, keep the excavations free from water while the works are in progress, and, prevent any damage to the works by water due to flooding or the like.
- Any work or material damaged by water, while works are in progress, shall be made good by the Contractor.
- Where doubt exists regarding the suitability of the foundation, the Contractor shall propose a method to achieve an adequate foundation.

Concrete Pavements:

- Concrete pavements are of slab-on-ground construction over a compacted granular subbase, and not otherwise supported by rock or on piles.
- Connection to existing pavements shall be butt ended, in accordance with details shown on the drawings (i.e. dowels, foam joint filler, backing rod and sealant are required).
- Prepare the subgrade by stripping any existing topsoil, overly wet, soft or deleterious material.
- An appropriately experienced person shall inspect the subgrade and provide written acceptance; prior to placement of pavement materials.
- Any areas considered to be unacceptable shall be treated as follows:
 - Remove the unsuitable material to an appropriate depth and replace with compacted suitable material.
 - Other methods subject to agreement by the Principal.
- Replacement subgrade material shall be placed and compacted in layers not exceeding 150mm and re-inspected.
- Imported granular subbase shall comply with Transport for New South Wales (TfNSW) QA Specification 3051 for Class 2 - 20mm Densely Graded Base (Class 2 DGB20) for Traffic Category D.
- Pavement layers shall be compacted in accordance with the specification herein.

Compaction:

- Maintain 85% (or greater) of the laboratory optimum moisture content during spreading, trimming and compaction.
- The optimum moisture content shall not be exceeded during compaction.
- Pavement materials shall be compacted in accordance with TfNSW R54.
- Pavement materials shall be compacted in accordance with the schedule below.

Compaction Schedule for Pavement Layers

Pavement Layer	Minimum Characteristic Relative Compaction
Subgrade	98%
Subbase (Class 2 DGB20)	100%
Fill adjacent to pavement	95%

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Concrete:

All concrete work shall be carried out in accordance with the requirements of AS3600 and those set-out herein:

Concrete Quality Schedule:

Element	Exposure Classification		F'c (MPa)	Binder (kg/m³)	SCMs Included in Binder	Max W/C Ratio	Pigment
	AS3600	BS6349					
Blinding	B2	XS2/3	32	≥360	20-40% Fly Ash	≤0.5	Nil
Pavements	B2	XS1	40	≥360	20-40% Fly Ash	≤0.45	Nil
Stair	C1	XS3	40	≥380	25-40% Fly Ash	≤0.4	Nil
Footings, Mass concrete fill	C2	XS2/3	40	≥360	25-40% Fly Ash	≤0.45	CCS Desert Sand (1x)

Reinforcement Cover Schedule:

Reinforcement Material	Element	Minimum Clear Cover
Stainless Steel	Pavement (excluding stair and landing)	40mm
Stainless Steel	U.N.O.	50mm

Insitu Concrete Curing Schedule:

Concrete Age	Curing Requirement	Notes
Day 0 - Day 7	Wet curing	Use potable water and continuously cure for 7 days.
Day 8	Wet or Sealed curing	Continue wet curing until Day 14, Or; Alternatively, apply a curing compound conforming to AS 3799 and TfNSW QA Spec B80.

- Cover: Refer to cover schedule above.
- Aggregates shall comply with AS2758.1 for Exposure Classification “C”.
- Aggregate grading shall be to AS2758.1, or TfNSW B80.
- Density of hardened concrete ≥ 2350kg/m3
- Aggregates shall be non-reactive to AAR after 10 days, tested by RTA T363 (i.e.: Naturally occurring fine aggregate < 0.15% expansion after 10 days, Other aggregates < 0.1% expansion after 10 days).

Concrete: (Continued)

- Fly Ash shall be fine grade to AS 3582.1
- Binder shall consist of GP/SL cement to AS3972, combined with Fly Ash in the proportion specified in the table above.
- Ternary blended cements are not permitted. An exception may be granted where conformance with the proportioning requirements of TfNSW 3211 is achieved for insitu concrete in exposure classification C2.
- Silica Fume (i.e. Amorphous Silica) is not permitted.
- Pigment shall be added in accordance with the concrete quality schedule. A dosage rate of “1x” = 1 pre-formulated bag per m3 of concrete. Pigments shall be sourced from Concrete Colour Systems.
- The Contractor shall implement quality control measures to ensure that each of the concrete mixes remain consistent in appearance over the duration of the project.
- Concrete shall be mixed with potable water only.
- Slump shall be determined by the Contractor to suit their proposed construction methodology.
- Concrete with a proposed slump of 200mm, or greater, shall be quality control checked and measured for "slump flow spread" in accordance with ASTM C1611 and in conformance with TfNSW B80.
- Addition of accelerator or retarder is permitted, corrosion inhibitor is not permitted.
- Construction joint surfaces shall be prepared thusly:
 - Visible edges shall be straight and neatly formed over a minimum depth of 15mm.
 - Provide a rough surface with coarse aggregate protruding, but firmly fixed within the matrix.
 - Clean the surface, remove laitance, and moisten with potable water prior to the next concrete pour.
- All formed surfaces to have a Class 3 finish to AS3610.
- The Contractor shall design and certify formwork & falsework to AS3610.
- Do not place the concrete if ambient air temperature is ≤5°C or ≥35°C
- Mechanical vibrators shall be used to compact concrete.
- Prior to placement of concrete with trafficable surfaces, wind breaks of a minimum height of 1m shall be erected around the perimeter of the concrete pour. Wind breaks are not required where 3s gust speed is 20km/hr or less.
- Aliphatic alcohol (an evaporation retarder) is to be applied to the surface of fresh concrete slabs and stairs, immediately after the completion of bull-floating. Re-apply in a fine uniform spray following each finishing operation thereafter. Application shall be strictly in accordance with: CCAA 2005, "Avoiding Early Cracking", page 3
- Top face of all free-edges shall be finished with an edging tool to have an R5mm fillet, unless noted otherwise by the Architect.
- All trafficable surfaces shall be finished in accordance with the Architect's requirements.
- As-built slip resistance of trafficable surfaces shall be P5 to AS4586, unless noted otherwise by the Architect.
- Curing of insitu concrete shall be in accordance with the concrete curing schedule herein.
- The Contractor shall implement measures to protect fresh concrete from thermal cracking during the initial five-day period (120 hours) after placement.
- The maximum permissible temperature difference between the concrete surface and core is 28 degrees Celsius.
- The maximum permissible temperature of any portion of concrete shall be no greater than 70 degrees Celsius.
- Strip times for formwork shall be no earlier than 7 days.

Concrete Mix Design:

- The Contractor shall propose concrete mix designs that comply with the specification (herein) and the design intent.
- Mix designs shall be submitted (with all required supporting documentation) to the Principal for review and acceptance at least four weeks prior to placement of concrete.
- Mix designs shall be submitted with a mix design report showing all relevant information required to assess conformance with the specifications herein. Test certificates for aggregates shall be included so that suitability for Exposure Class C can be determined. Accelerated mortar bar expansion test results (To TfNSW T363) shall be included.

Concrete Trial Mix

- A trial mix program shall be implemented to develop the mix design for concrete used for footings.
- It is permissible to undertake initial concrete trial mixes under laboratory conditions and then refine the final mix design at the proposed concrete batching plant.
- The actual materials proposed for use shall be used during the trial mix program.
- The trial mix program shall conform to the specification requirements herein.
- It is a project aim to match the appearance of the footing concrete as closely as possible to the existing bedrock at site.
- The trial mix program shall demonstrate, to the satisfaction of the Principal, that the specification requirements (including desired aesthetics of cured materials) are able to be acceptably met in practice. Test panel samples will be required to demonstrate thus.
- At least one test panel sample, of plan dimensions 1.2m x 1.2m, shall be produced per combination of mix variation proposed by the Contractor. The test panel shall display a formed finish, using the materials proposed for use during construction.
- Test panel samples shall remain on display for at least a four-week period, and able to be viewed by the Principal, or Principal's representative, during normal office hours over the full duration of the sample period.

Reinforcement - Stainless Steel:

- All reinforcement shall be stainless steel, unless noted otherwise.
- Stainless steel reinforcement shall be 500 grade deformed bar in accordance with BS 6744.
- Dowels shall be minimum 500 grade round bar, manufactured from one of the approved stainless steel alloys.
- Alloys for deformed bar stainless steel reinforcement and round bar stainless steel dowels shall be:
 - Duplex grade 2304 (EN 1.4362 to BS EN 10088-1 or equivalent), or,
 - Duplex grade 2205 (EN 1.4462).
- Site welding stainless steel reinforcement is not permitted.
- Heating reinforcement is not permitted.
- Tie reinforcement at alternate intersections with stainless steel tie wire.
- Tie wire shall match the reinforcement bar material.
- Support reinforcement on approved bar chairs placed at a maximum of 1000mm centres, to maintain position and cover as shown.
- Joints in mesh shall ensure that at least two cross-bars are lapped.
- Bar bending shall be carried out around a pin of diameter ≥ 5x rebar diameter unless otherwise noted.
- Development lengths and cog lengths shall be in accordance with AS3600 for full stress development. Refer to the table below:

Reinforcement Bar - Lap and Cog Length Schedule:

Bar Diameter Ø (mm)	Lap Length for Tension Anchorage (mm)	90° Cog Length (mm)	Minimum Internal Bar Bending Radius (mm)
10	320	160	25
12	400	180	30
16	500	210	40

Reinforcement Key:

- D = Deformed bar.
- Ø = Round bar
- SS = stainless steel
- 12 = 12mm diameter
- 300 = 300mm maximum spacing, measured centre-to-centre.
- B1 = Bottom layer of reinforcement, placed first.
- T2 = Top layer of reinforcement, placed second.
- Example: “T1: D12-300 SS” = In the first layer placed in the top, reinforcement shall be 12mm diameter stainless steel deformed bar placed at maximum 300mm centres.

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DESIGNED M.S.B. DRAWN P.B. CHECKED J.C.O. DATE DEC. 2021 SIZE A1

DRAWING TITLE
GENERAL NOTES SHEET 2

PROJECT No.
0258-00

DRAWING No.
012

ISSUE
B

Sandstone Quality:

- All sandstone shall be from an approved source and shall be free of cracks, cleavage planes, fissures, soft beds and veins, sand balls, quartz pebbles, pockets of foreign material or other defects liable to affect durability or structural soundness for its intended use.
- Pre-approved sources are Appin or Cattai quarries in NSW.
- Sandstone material properties shall comply with the requirements of the schedule below.

Schedule of Stone Material Properties:

Material Property		Test Procedure	Structural Element	
			Armour and Underlayer	Blocks, Billets & Stair Treads
Strength (One: UCS or Is50)	Crushing Resistance (UCS)	AS4133.4.2.1	15	25
	Point Load Strength (Is50)	AS4133.4.1	1	1.5
Durability (All)	Sodium Sulfate Loss	AS1141.24	<25%	<10%
	Wet/Dry Strength Variation	AS1141.22	<50%	<25%
	Density	AS1141.6.1	≥2,200kg/m³	≥2,200kg/m³

Sandstone Blockwork:

- Stone shall comply with the material properties set-out in the 'Schedule of Stone Material Properties' herein.
- Stones shall be generally rectangular and be of a similar colour to match adjacent stonework, as far as practical.
- Sandstone shall be finished in accordance with the Architect's specifications.
- Under no circumstances shall sandstone facing exhibit cracking, pitting or cavities.
- Before use, high pressure water blast stonework to clean off spoil, deleterious or organic material.
- The work shall be carried out by an experienced craftsman such that, the completed work is built to meet the appearance and tolerances specified by the Architect.
- All exposed surfaces of sandstone throughout the works shall be coated in protective coating prior to or following installation.
- The sandstone protective coating shall finish clear and have warranty for 15 years of performance.
- The Contractor shall submit its proposed coating product to the Principal for review and approval prior to installation. A pre-approved product for stairs and blocks is "Stain Proof 40SK Consolidator & Water Repellent".

Mortar:

- Vertical joints in blockwork shall be dry-jointed. A nominal gap of 0mm to 3mm is required at the narrowest part of each joint.
- The bottom course of blockwork shall be bedded with mortar onto either a mass concrete foundation (or bedrock), as shown on the drawings and in accordance with the specification notes herein.
- Horizontal (bed) joints between blocks may be dry-jointed, or, bedded with mortar complying with this specification - Contractor's choice.
- If bed joints are mortared, then all of the following requirements shall be met:
 - Contractor shall adjust the block geometry to suit their construction technique and conform with the Architect's design intent.
 - Joint finish shall be recessed such that the mortar bed is concealed and not visible to pedestrians.
 - Mortar shall conform with all specification requirements herein.
- Nominal joint thickness shall be 20mm for mortared bed joints.
- All mortar shall be coloured with pigment in accordance with the schedule below.
- Materials used shall conform to the requirements of the Concrete Specification herein.
- Water thickener shall be cellulose-based and suitable for the proposed application.
- A mortar trial mix program, including display of a sample of the proposed mix, shall be completed by the Contractor, in accordance with the requirements set-out in the "Mortar Trial Mix" notes herein.
- Pointed bed joint finishes shall be recessed and concealed (as described above) and shall be tapered.
- Pointed bed joint finishes shall remain consistent throughout the structure.
- Desired plasticity of the mortar mixture is such that a smooth surface can be achieved with the back of a trowel, and, a sharp vertical is left when cut with a trowel.
- Discard unused mortar 90 minutes after final mixing. This working window may need to be reduced according to weather conditions.
- Do not re-temper mortar (by adding water) after final mixing.
- An AS3700 compliant M4 mortar mix shall be used, in accordance with the schedule below.
- The schedule displays mix proportions by volume, assuming a dense-packed condition.

Schedule of Mortar Mixes for Bedding Joint

Mix Option	Cement	Lime	Sand	Water Thickener	Pigment
A	1	0.5	4.5	Optional	CCS Desert Sand (1 bag per m³)
B	1	0	4	Required	
C	1	0 to 0.25	3	Optional	

Mortar Trial Mix

- A trial mix program shall be implemented for mortar.
- The Contractor's proposed mortar mix shall be displayed as a test bed, whereby a sandstone block is bedded (with the sample mortar) onto a formed and stripped sample block of footing concrete.
- The footing concrete shall conform to the requirements of this specification. An additional concrete test panel (from the concrete trial mix program) shall be constructed for this purpose.
- The displayed sample mortar test bed layer shall be a nominal 20mm thick.
- The sandstone block shall be of minimum face dimensions 300mm wide x 150mm high.
- The mortar test bed sample shall remain on display for at least a four-week period, and able to be viewed by the Principal, or Principal's representative, during normal office hours over the full duration of the sample period.

Structural Grout

- Structural grout shall be of minimum characteristic compressive strength of f_c = 50MPa.
- The grout shall be shrinkage compensated. Alternatively, the grout may be reinforced (Contractor to propose a design) to control cracking.
- The grout shall contain fine aggregate suited for use in Exposure Classification C (to AS2758.1).
- The grout shall be approved for use by the manufacturer for the proposed pour dimensions and application.
- Grout shall be stored, mixed, placed and cured strictly in accordance with the manufacturers written recommendations.
- First-principles mix designs may be accepted, however the Contractor shall demonstrate, to the satisfaction of the Principal, that the requirements of this specification are met (or exceeded) by the proposed grout mix design.

Revetment Rock Armour - Sandstone:

- Rock armour shall be sandstone only.
- Stone shall comply with the material properties set-out in the 'Schedule of Stone Material Properties' herein.
- Nominal rock size is specified as D50 (mm), refer to schedules on drawings for dimensions.
- Grading shall be as follows:
 - D15 = 0.7*D50, i.e. no greater than 15% of rocks shall be less than 0.7*D50 (mm) cubic diameter, and
 - D85 = 1.3*D50, i.e. no greater than 15% of rocks shall be larger than 1.3*D50 (mm) cubic diameter.
- Rock shall be rough and angular.
- The ratio of the maximum dimension to the minimum dimension, measured at right angles to the maximum dimension shall not exceed 2.5.
- The armour stone shall be placed such that the specified requirements for diameter, finished side slopes, crest and toe levels, layer thicknesses and density requirements, are satisfied.
- Rocks shall be wedged and locked together such that they are not free to move.
- Armour stone shall not be rolled or dropped into position, it shall be placed.
- The method of rock placement shall be developed to achieve the following requirements:
 - Minimise breakdown on handling and production of fines.
 - Minimise the segregation of various grades of rock.
 - Restrict water contamination.
- Place revetment armour rock prior to undertaking adjacent concrete pavement work.

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GENERAL NOTES SHEET 3

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013

ISSUE
B

- Rock underlayer shall be sandstone only.
- Stone shall comply with the material properties set-out in the 'Schedule of Stone Material Properties' herein.
- nominal rock size is 100-200 mm average dimension.
- rock shall be rough and angular.
- the ratio of the maximum dimension to the minimum dimension, measured at right angles to the maximum dimension shall not exceed 2.5.
- Underlayer rock shall be compacted using the mechanical interlock method.
- Compaction shall use static or vibrating compaction plant. Track rolling with an excavator is an acceptable method.
- Compaction shall be in layers proportional to the stone size and capacity of the roller.
- Unless noted otherwise, uncompacted layer thicknesses shall be in accordance with the table below:

Maximum thickness of uncompacted layer (mm)	Maximum rock size (mm)	Minimum equivalent mass of roller (t)
150	75	2.5
300	150	5
400	200	10
600	300	15

- Railway Ballast:**

- Imported railway ballast shall be clean basalt aggregate, supplied washed.
- Railway ballast shall be supplied in accordance with the requirements AS2578.7.
- Compaction of railway ballast shall be completed in layers no thicker than 150mm.
- Each layer shall be compacted mechanically by hand held ramming equipment until no further reduction in volume or vertical displacement occurs. This includes rutting, yielding, permanent deformation, signs of distress or instability.

- Geotextile filter material shall be Texcel 400R by Geofabrics Australasia Pty Ltd
- Geotextile shall be laid on a continuous bed free of voids and free of sharp objects to prevent tearing.
- Geotextile elements may be joined by either overlapping or sewing.
- Overlap widths to be no less than 500mm in any direction.
- For sewing, 100 mm overlap is sufficient using a non-biodegradable thread.

- All stainless steelwork shall be fabricated from one of the following alloys (or an approved alternative deemed by the Superintendent to be equivalent or better):
 - o Austenitic grade 316 (1.4436), or,
 - o Austenitic grade 316L (1.4432), or,
 - o Duplex grade 2304 (1.4362), or,
 - o Duplex grade 2205 (EN 1.4462).
- Austenitic "L" grades may be selected to reduce the risk of intergranular corrosion as a result of welding.
- Stainless steel to be submerged in seawater shall be Duplex grade material, as noted above.
- Minimum mechanical properties: 0.2% proof strength $\geq$ 195MPa (longitudinal tension & compression), and, Tensile Strength $\geq$ 485MPa.
- Equipment used to fabricate stainless steels shall not have been previously used with other steels. Meticulous care is required in workshops to avoid contamination from other alloys, or detritus, or welding slag, etc.
- Stainless steel surfaces shall have finishes as specified by the Architect.
- Upon completion of fabrication, strengthen the passive film of the stainless steel surface by pickling welds and passivating all surfaces in accordance with ASTM A380.
- Following installation at site, thoroughly clean all stainless steel surfaces with warm, soapy water; followed by a thorough rinse with potable water.
- All welding shall be in accordance with AS1554 - Part 6.
- Autogenous welding is not permitted. Use an electrode or filler metal in accordance with AS1554.6-2012 Table 4.6.1
- Welds shall be Category 1B, Surface Treatment II(a), in accordance with AS1554.6-2012.

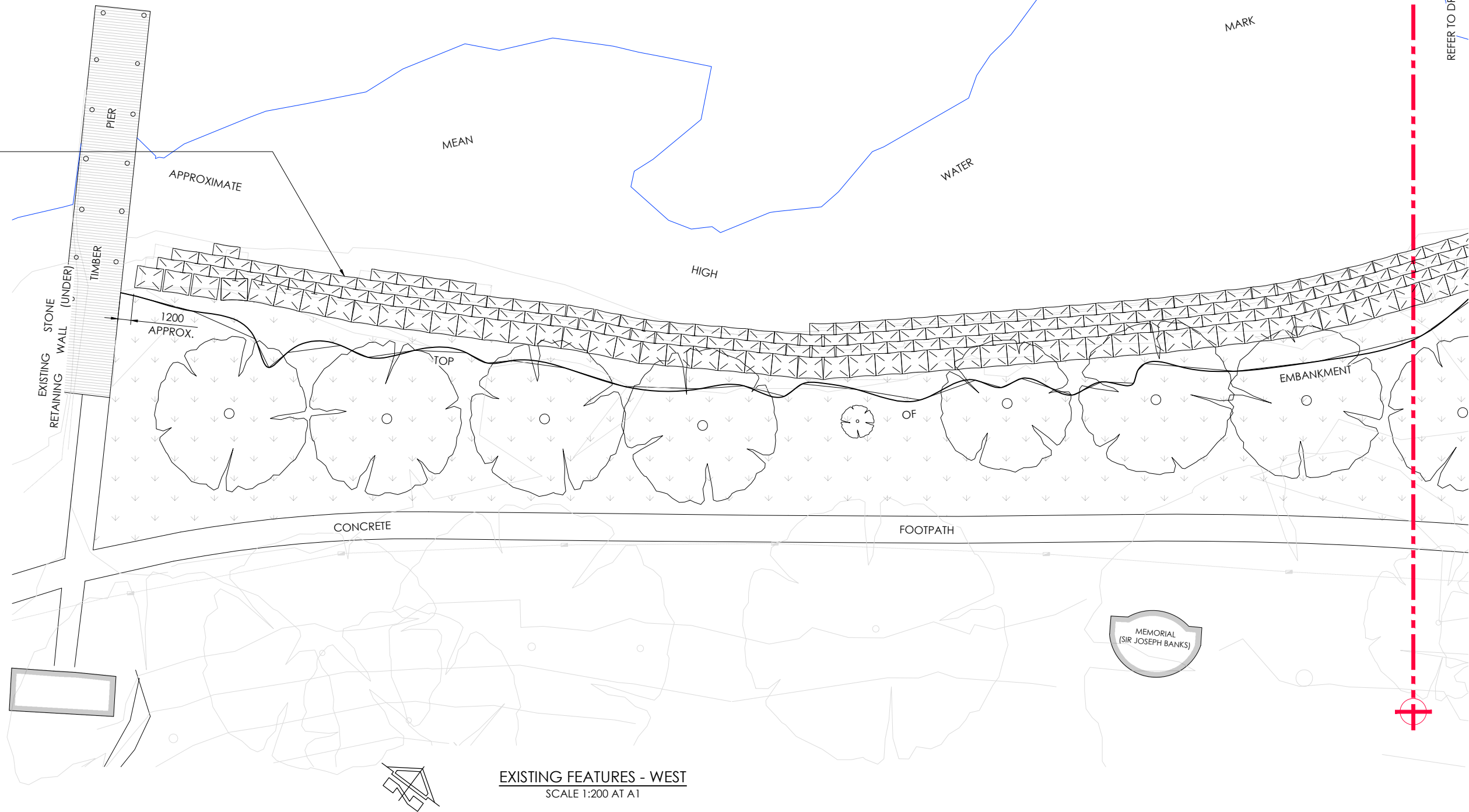
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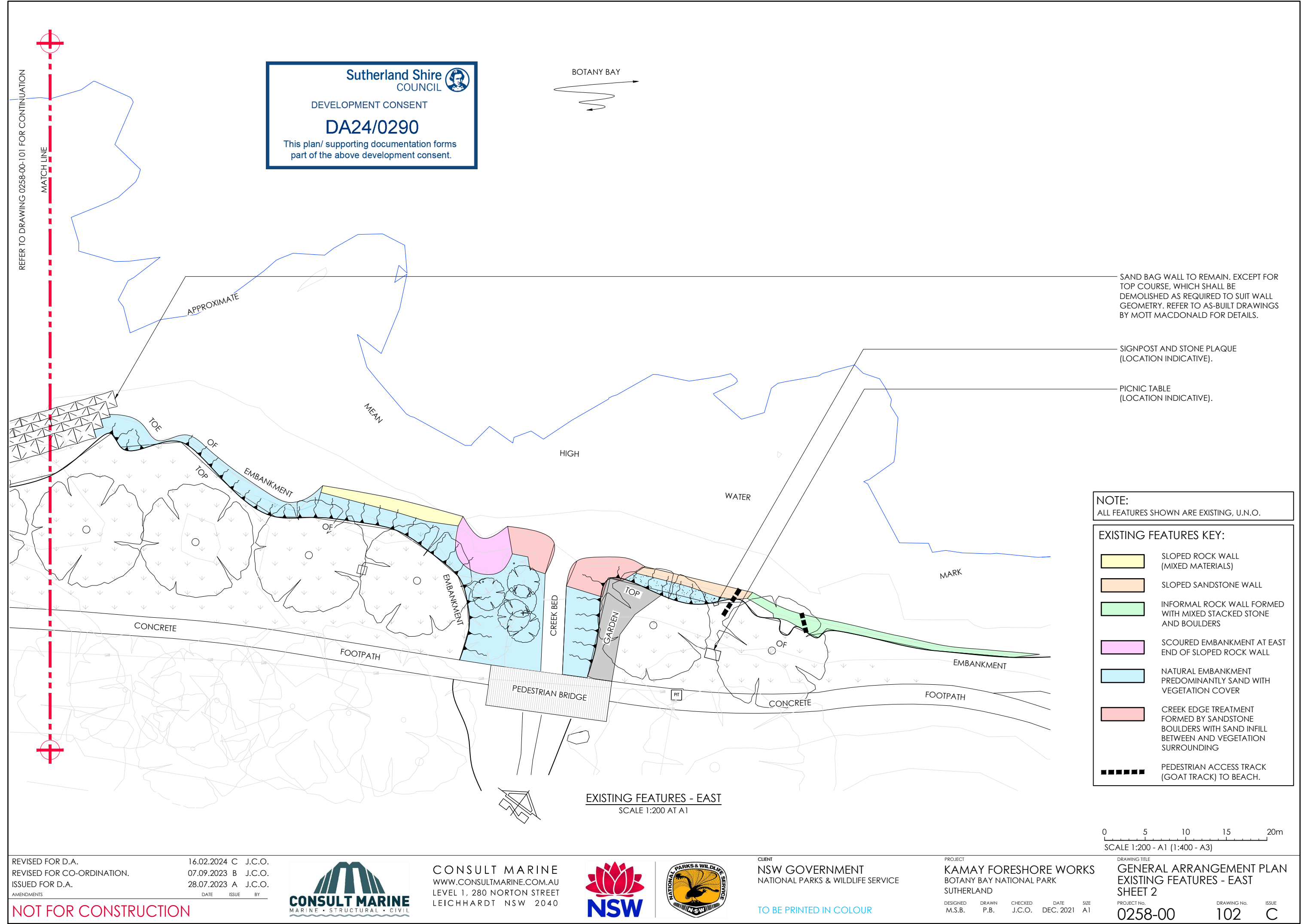
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SAND BAG WALL TO REMAIN. EXCEPT FOR
TOP COURSE, WHICH SHALL BE
DEMOLISHED AS REQUIRED TO SUIT WALL
GEOMETRY. REFER TO AS-BUILT DRAWINGS
BY MOTT MACDONALD FOR DETAILS.



NOTE:
ALL FEATURES SHOWN ARE EXISTING, U.N.O.

EXISTING FEATURES - WEST
SCALE 1:200 AT A1



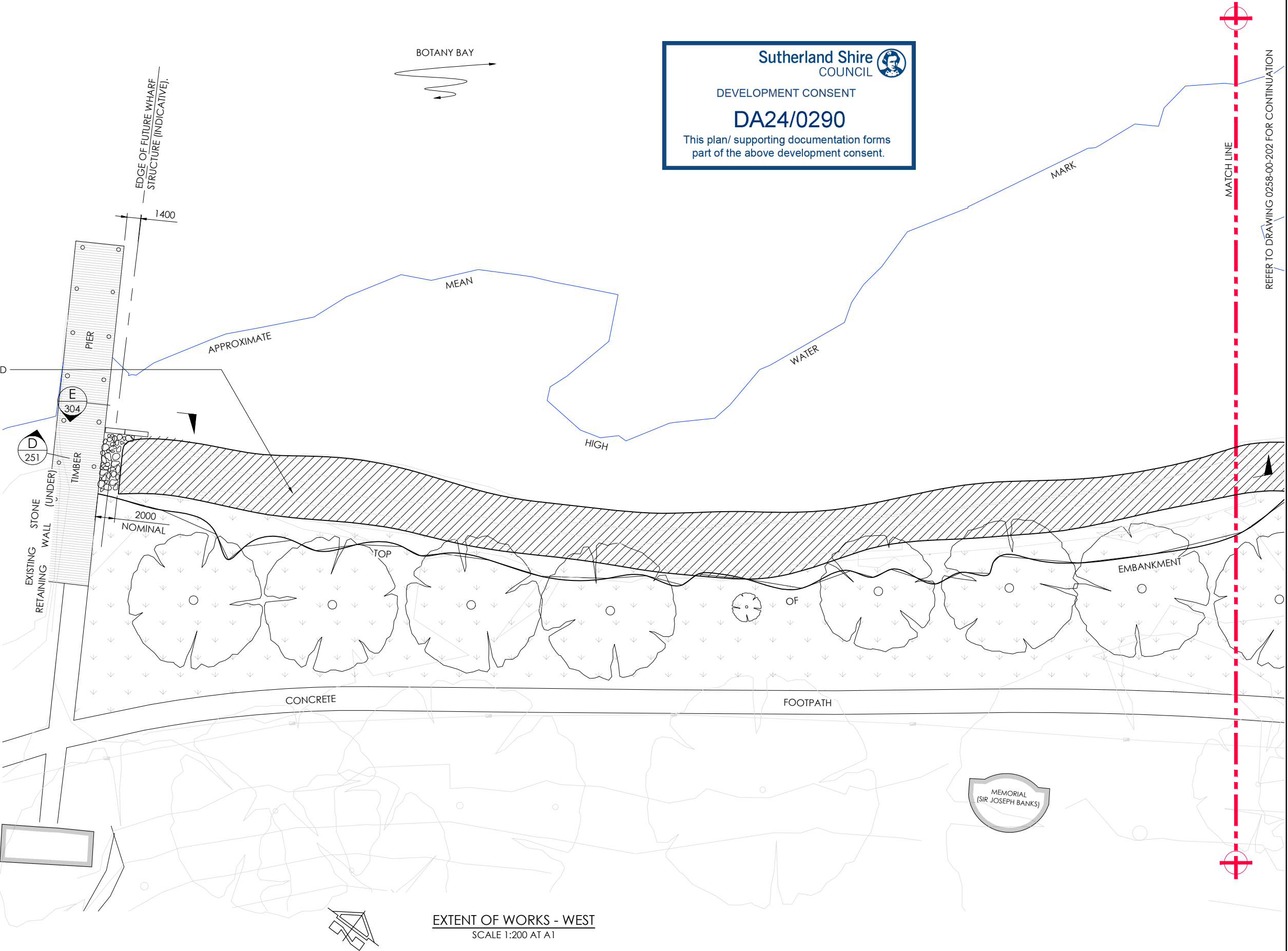
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SANDSTONE BLOCKS STACKED IN A STAGGERED ORDER TO ALIGN WITH ROCK SHELF AND IN ACCORDANCE WITH LANDSCAPE ARCHITECTS SET-OUT AND DESIGN INTENT, AND THE STRUCTURAL DESIGN INTENT SHOWN HERE-IN.



FEATURES KEY:

SANDSTONE REVETMENT
TRANSITION TO EXISTING
STRUCTURES

INDICATIVE EXTENT OF
SANDSTONE BLOCKWORK WALL,
REFER TO LANDSCAPE
ARCHITECTS DOCUMENTATION.

REVISED FOR D.A.
REVISED FOR CO-ORDINATION.
ISSUED FOR D.A.

16.02.2024 C J.C.O.
07.09.2023 B J.C.O.
28.07.2023 A J.C.O.

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PROJECT
KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND

DESIGNED M.S.B.
DRAWN P.B.
CHECKED J.C.O.
DATE DEC. 2021
SIZE A1

DRAWING TITLE
GENERAL ARRANGEMENT PLAN
EXTENT OF WORKS - WEST
SHEET 1

PROJECT No.
0258-00

DRAWING No.
201

ISSUE
C

MATCH LINE



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APPROXIMATE

MEAN

HIGH

WATER

MARK

CONCRETE

FOOTPATH

CREEK BED

PEDESTRIAN BRIDGE

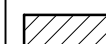
EXTENT OF WORKS - EAST
SCALE 1:200 AT A1

SANDSTONE BLOCKS STACKED IN A STAGGERED ORDER TO ALIGN WITH ROCK SHELF AND IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTS SET-OUT AND DESIGN INTENT, AND THE STRUCTURAL DESIGN INTENT SHOWN HEREIN.

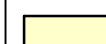
FEATURES KEY:



SANDSTONE REVETMENT TRANSITION TO EXISTING STRUCTURES



INDICATIVE EXTENT OF
SANDSTONE BLOCKWORK WALL,
REFER TO LANDSCAPE
ARCHITECTS DOCUMENTATION.



EXISTING SLOPED ROCK WALL
(MIXED MATERIALS)



EXISTING SLOPED SANDSTONE
WALL

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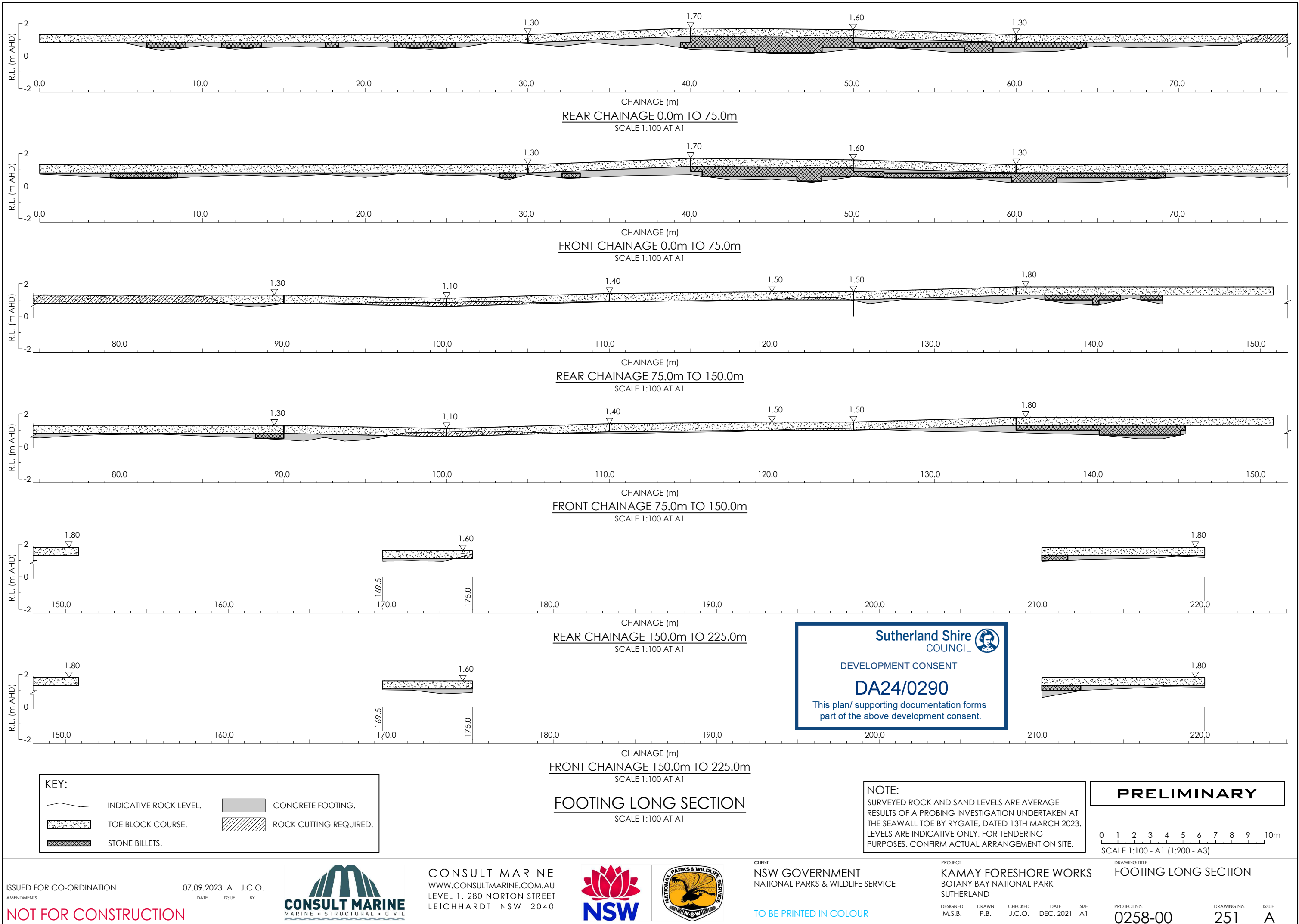
DESIGNED	DRAWN	CHECKED	DATE	SIZE
M.S.B.	P.B.	J.C.O.	DEC. 2021	A1

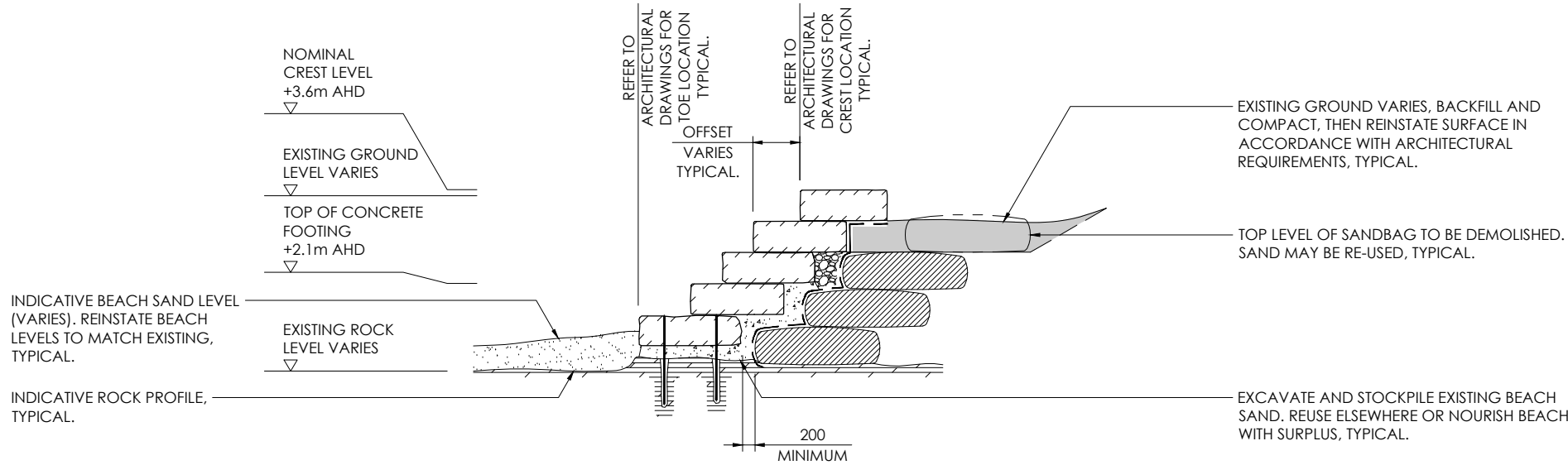
DRAWING TITLE

GENERAL ARRANGEMENT PLAN
EXTENT OF WORKS - EAST
SHEET 2

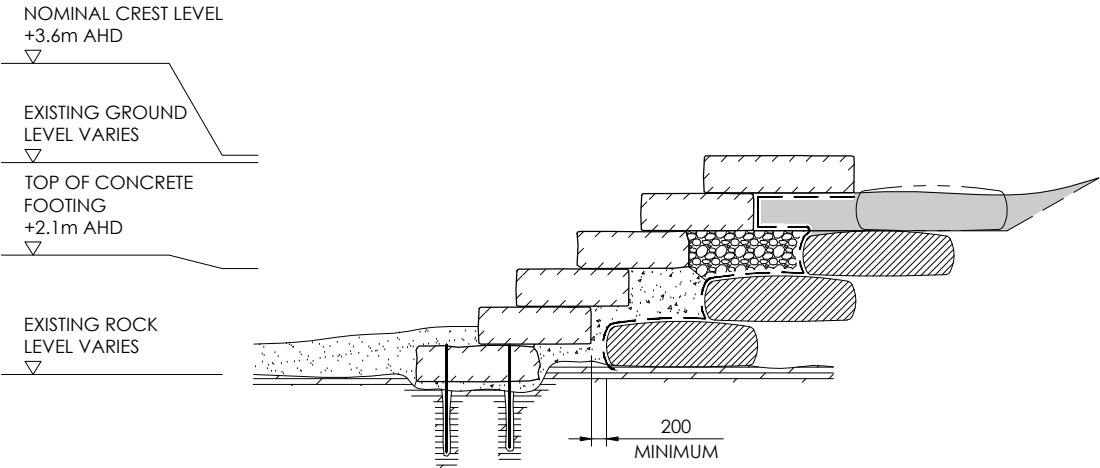
PROJECT No.
0258-00

DRAWING No. 202



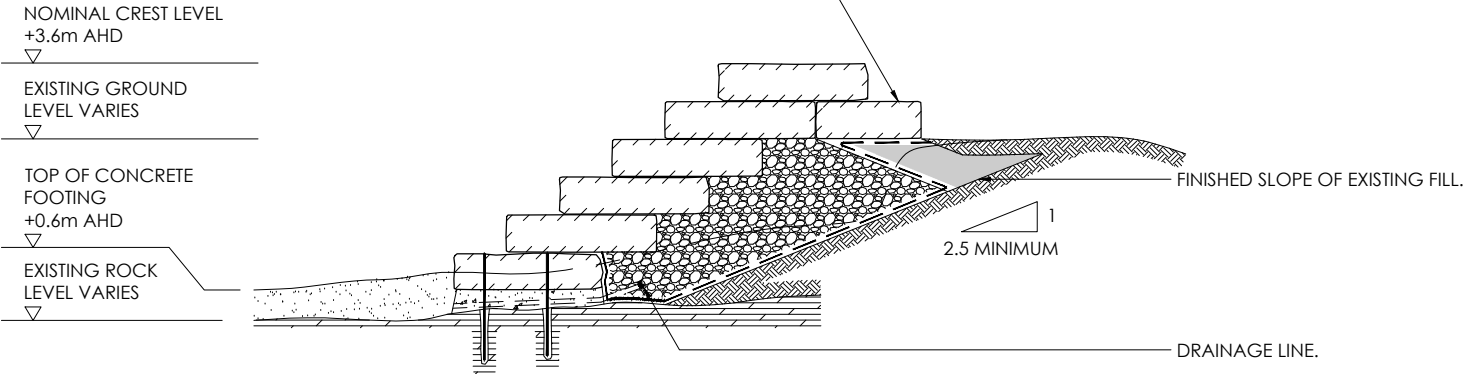


WALL TYPE 1 - (APPROX. CH 0.0 TO CH 95.0)
(SECTION PERPENDICULAR TO SHORELINE)
SCALE 1:50 AT A1



WALL TYPE 2 - (APPROX. CH 95.0 TO CH 115.0)
(SECTION PERPENDICULAR TO SHORELINE)
SCALE 1:50 AT A1

SHOULDER BLOCK REQUIRED FOR WALL TYPE 3A ONLY.



WALL TYPE 3/3A - (APPROX. CH 135.0 TO CH 145.0)
(SECTION PERPENDICULAR TO SHORELINE)
SCALE 1:50 AT A1

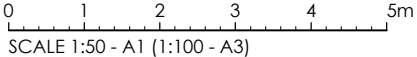
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DEVELOPMENT CONSENT
DA24/0290
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MEMBER SCHEDULE		
ITEM	DETAILS	COMMENT
SANDSTONE BLOCKS	SANDSTONE LOGS OF NOMINAL DIMENSIONS 500 x 500 x 2000. THE CONTRACTOR SHALL VARY DIMENSIONS AS REQUIRED TO SATISFY ARCHITECTURAL AND STRUCTURAL DESIGN INTENT.	REFER TO SPECIFICATION REQUIREMENTS IN GENERAL NOTES DRAWINGS 0258-00-011 TO 014.
ROCK ARMOUR	SANDSTONE, TWO LAYERS D50 = 650mm	
UNDERLAYER	100-200mm SANDSTONE, QUARRY RUN (RIPPED).	
GEOTEXTILE	TEXCEL 400R	
DRAINAGE MATERIAL	OPTION 1: Ø60 RAIL BALLAST IN ACCORDANCE WITH AS2758.7. OPTION 2: Ø20 DRAINAGE AGGREGATE IN ACCORDANCE WITH AS2758.1, AND FULLY WRAP ALL FACES OF DRAINAGE MATERIAL IN GEOTEXTILE.	REQUIRED EVERYWHERE CONCRETE TOE HAS DRAINAGE MATERIAL AT LANDWARD SIDE.
MASS CONCRETE	f _c = 40MPa	
DRAINAGE LINES	Ø50 POLYPIPE AT 1500 CENTRES. FALL SEAWARD AT MINIMUM 2.5% GRADE	
ANCHOR	REFER TO ANCHOR SCHEDULE ON DRAWING 0258-00-302	

DESIGN CO-ORDINATION SCHEDULE			
STRUCTURAL DRAWING SET		ARCHITECTURAL DRAWING SET	
WALL TYPE	DRAWING	SECTION	DRAWING
1	301	A-A (B-B SIMILAR)	L400
2	301	C-C	L401
3/3A	301	E-E (D-D SIMILAR)	L402

LEGEND:	
MARK	DESCRIPTION
	INDICATIVE ROCK PROFILE
	BEACH SAND. EXISTING LEVELS VARY (UP TO R.L. 1.9m AHD) AND ARE SHOWN INDICATIVELY. REINSTATE ALL BEACH EXCAVATIONS TO MATCH EXISTING BEACH LEVELS AT TOE.
	EXISTING SAND-FILLED GEO-BAG TO REMAIN (U.N.O.)
	GEOFABRIC
	MASS CONCRETE
	DRAINAGE LAYER
	DRAINAGE LINES CONNECTED TO Ø65 AG-PIPE IN SOCK.
	SANDSTONE LOG. DRAWING LENGTHS VARY DUE TO VARIANCE IN OFFSET ANGLE.
	ANCHORS - REFER TO ANCHOR SCHEDULE ON DRAWING 0258-00-302.
	COMPACTED BACKFILL USE EXISTING STOCKPILED MATERIAL OR, CLEAN, IMPORTED FILL.

- NOTES:
- REFER TO ARCHITECTURAL DRAWINGS FOR SET-OUT, GENERAL LAYOUT, FINISHED LINES & LEVELS AND SURFACE FINISHES.
 - REFER TO THE 'MEMBER SCHEDULE' FOR FURTHER DESCRIPTION OF WORK ITEMS IN THE LEGEND.
 - REFER TO THE 'GENERAL NOTES' DRAWINGS FOR TECHNICAL SPECIFICATIONS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR TREATMENT OF REINSTATED AREAS BEHIND WALL.
 - REFER TO THE 'BOUNDARY CONDITIONS OF STRUCTURAL DESIGN INTENT' FOR STRUCTURAL REQUIREMENTS (SEE DRAWING 0258-00-302).



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ISSUED FOR D.A.

07.09.2023 B J.C.O.
28.07.2023 A J.C.O.
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SUTHERLAND

DRAWING TITLE
SEAWALL SECTIONS

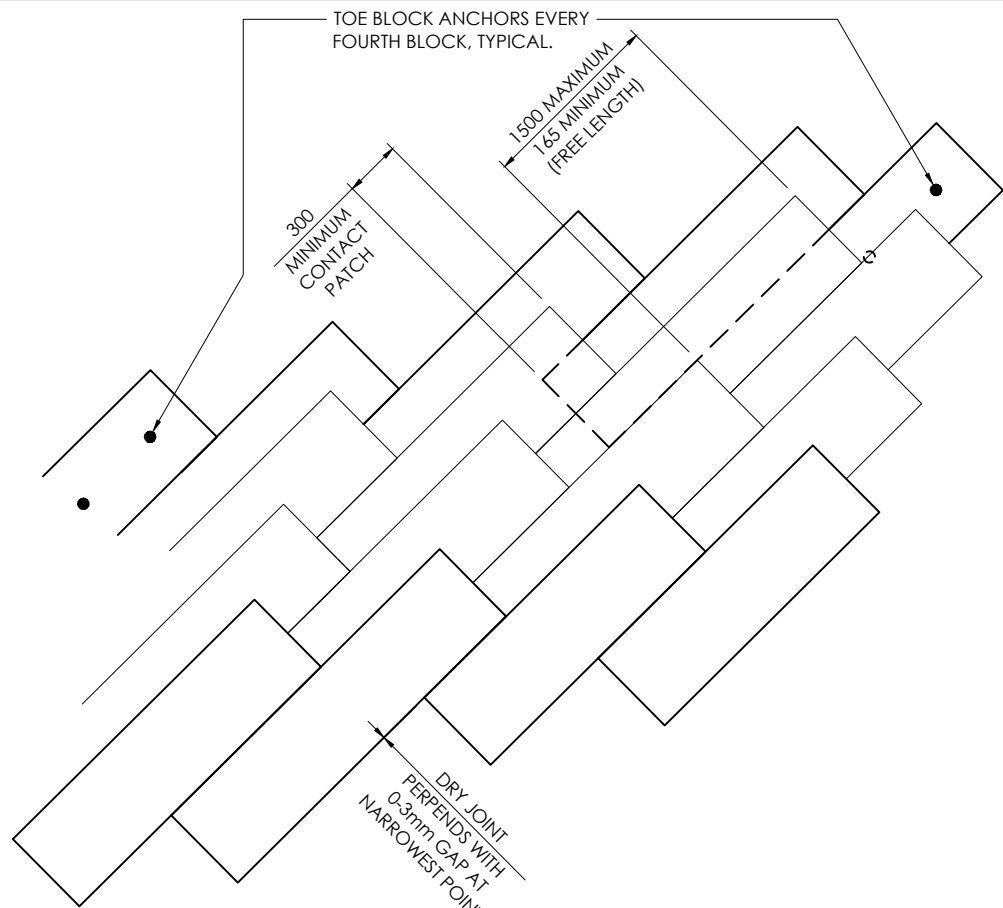
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PROJECT No.
0258-00

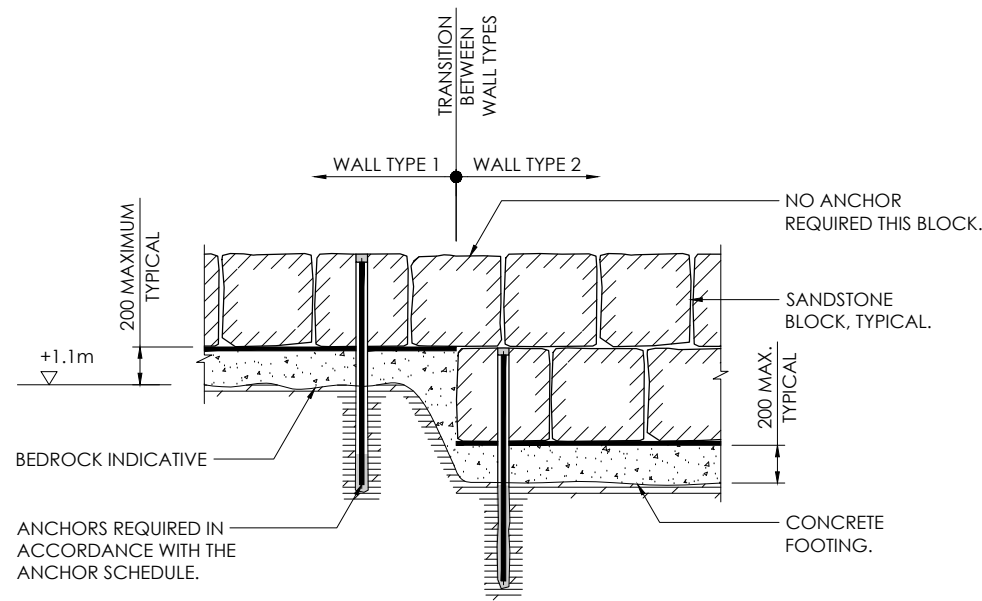
DRAWING No.
301

ISSUE
B

NOT FOR CONSTRUCTION



BLOCK PLACEMENT BOUNDARY CONDITIONS PLAN
SCALE 1:20 AT A1



TOE TRANSITION - ELEVATION
SCALE 1:20 AT A1

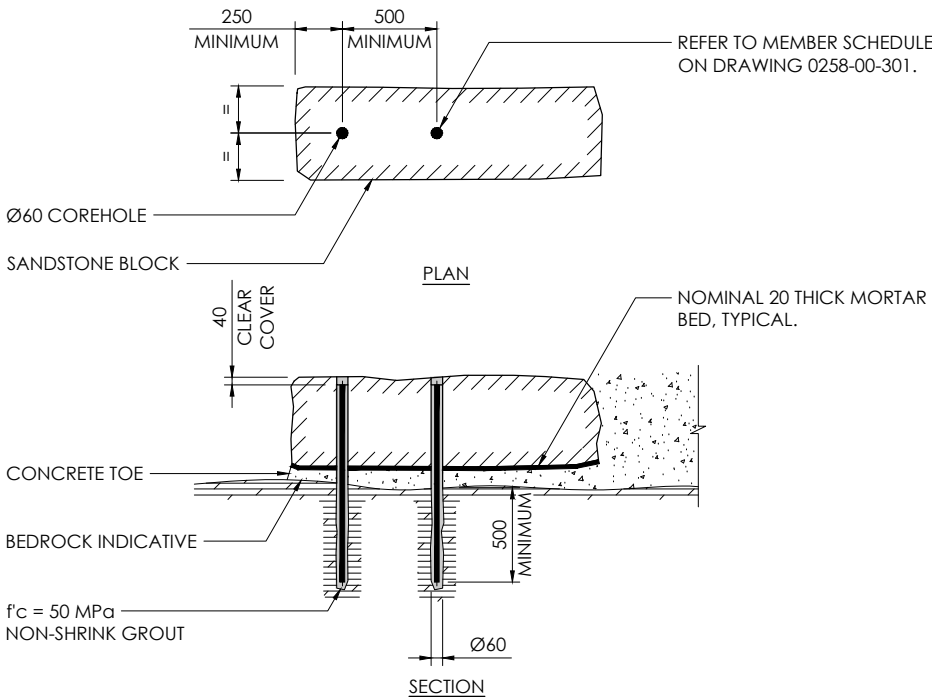
ANCHOR SCHEDULE					
CASE		ANCHOR SPECIFICATION			
ELEMENT	FOUNDED OVER	No.	LONGITUDINAL SPACING (mm)	EMBEDMENT (mm)	Ø (mm)
TOE BLOCK COURSE (REFER TO DRAWING 0258-00-251)	MASS CONCRETE FOOTING + MORTAR BEDDING	2	2000	500 INTO ROCK	16
	STONE BILLETS	1	500		
BILLET	MASS CONCRETE FOOTING + MORTAR BEDDING	NIL REQUIRED PROVIDED THAT BOUNDARY CONDITIONS SHOWN ON DRAWING 0258-00-304 ARE COMPLIED WITH.			
	STONE BILLETS				

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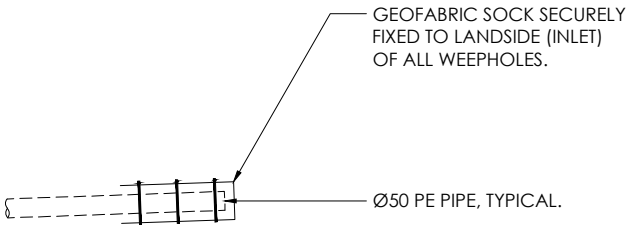
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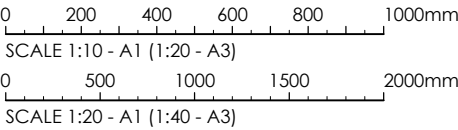
TOE BLOCK ANCHOR DETAIL
SCALE 1:20 AT A1

BOUNDARY CONDITIONS OF STRUCTURAL DESIGN INTENT

- CONCRETE FOOTINGS SHALL BE PLACED ON ROCK. THE ROCK SURFACE SHALL BE CLEARED OF ALL LOOSE MATERIAL + DETRITUS PRIOR TO PLACEMENT OF CONCRETE.
- MAXIMUM HEIGHT OF MASS CONCRETE TOE SHALL NOT EXCEED 200mm WHERE VISIBLE (I.E. AT FRONT OF WALL).
- WHERE EXISTING SITE CONDITIONS REQUIRE A FOOTING OF DEPTH >200mm, THE FOOTING SHALL INCORPORATE SANDSTONE BILLETS IN ACCORDANCE WITH DETAILS SHOWN ON DRAWING 0258-00-304.
- BLOCKS SHALL HAVE STAINLESS STEEL DEFORMED BAR ANCHORS IN ACCORDANCE WITH THE ANCHOR SCHEDULE.
- END BLOCKS (IN EACH DIRECTION) IN THE LOWEST COURSE OF MAIN WALL SHALL BE ANCHORED TO ROCK. MINIMUM 2 ANCHORS PER BLOCK.
- BLOCKWORK WALLS SHALL BE CONSTRUCTED BETWEEN ANGLES OF 20 DEGREES AND 70 DEGREES FROM HORIZONTAL, I.E. BETWEEN SLOPES OF 1:3 AND 3:1 (VERTICAL : HORIZONTAL).
- SANDSTONE BLOCKWORK SHALL BE PLACED IN A STRETCHER-BOND PATTERN I.E. DO NOT ALIGN PERPENDS WITHIN ADJACENT COURES.
- LAP LENGTHS OF ADJACENT LAYERS OF BLOCKWORK SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET 0258-00-302.
- FREE BLOCKS, OR BLOCKS USED IN THE TOP LAYER OF COURSEWORK, SHALL HAVE A MINIMUM LENGTH OF 1,600mm.
- FREE BLOCKS (OR TOP COURSE BLOCKS) OF LENGTH <1,600mm SHALL BE ANCHORED TO THE COURSE BELOW WITH AT LEAST ONE D16 STAINLESS STEEL ANCHOR CHEMSET MINIMUM 300mm DEEP.
- THE UPPER COURSE OF EXISTING SAND BAG WALL SHALL BE DEMOLISHED AND REMOVED. FILL WITHIN THE SANDBAGS SHALL BE REUSED IF DEEMED SUITABLE FOR REUSE BY THE PRINCIPAL, OR OTHERWISE DISPOSED LAWFULLY.
- ROCK-ARMoured TRANSITIONS SHALL BE CONSTRUCTED AT THE ENDS OF NEW AND EXISTING WALLS TO PREVENT SIDE-SCOUR AND RESIST LATERAL LOADS.
- SOIL/FILL SLOPES (EXISTING VIRGIN OR REUSED) SHALL NOT EXCEED 1V : 2.5H.
- ARMOUR LAYER SLOPE SHALL NOT EXCEED 1V : 1.8H.
- ADJUST THE THICKNESS OF THE UNDERLAYER TO ACHIEVE A DIFFERENCE (I.E. INCREASE) IN SLOPE BETWEEN CORE (SOIL/FILL) AND ROCK ARMOUR LAYER.
- DRAINAGE AGGREGATE LAYERS SHALL BE AT LEAST 300mm THICK.
- ALL PERPENDS SHALL BE DRY-JOINTED WITH A NOMINAL 0-3mm GAP AT THE NARROWEST POINT. TAPER IN THE GAP IS PERMISSIBLE DUE TO BLOCK GEOMETRY AND SET-OUT GEOMETRY.
- THE ARCHITECTURAL DESIGN INTENT IS FOR BED JOINTS (OTHER THAN THE FOUNDATION) TO BE DRY-JOINTED. TO IMPROVE CONTRACTIBILITY HOWEVER, BED JOINTS MAY BE MORTAR POINTED, PROVIDED THAT THE MORTAR IS CONCEALED AND NOT VISIBLE TO PEDESTRIANS, AND THE STRUCTURAL BOUNDARY CONDITIONS SHOWN HEREIN ARE COMPLIED WITH.
- SANDSTONE BLOCKS SHALL BE SEALED TO REDUCE INGRESS OF MOISTURE AND SALTS AND IMPROVE DURABILITY.
- SANDSTONE USED IN AREAS SUBJECT TO HIGH PEDESTRIAN TRAFFIC (E.G. STAIR GOINGS) SHALL HAVE A STONE HARDENER AND SEALER APPLIED SUCH THAT THEY RETAIN THEIR AS-BUILT GEOMETRY OVER THEIR DESIGN LIFE.



DETAIL X WEEPHOLE DETAIL
1:10 AT A1



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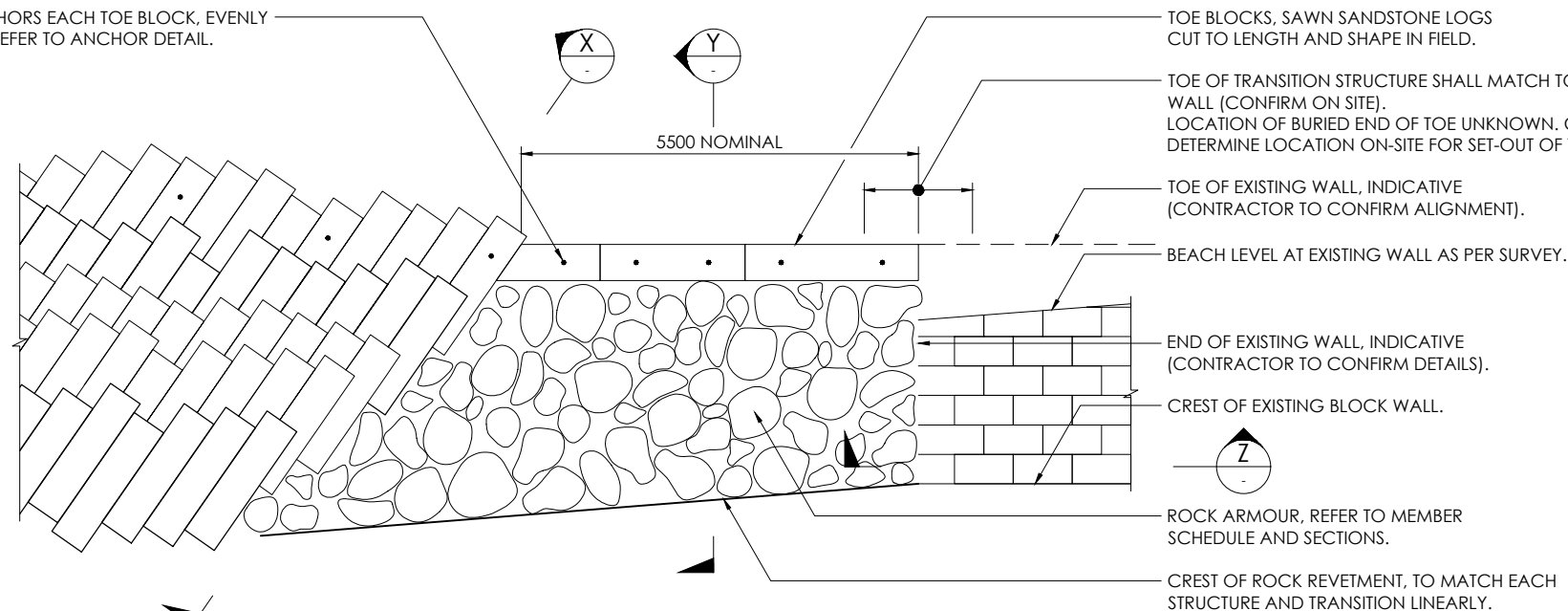
PROJECT
KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND

DESIGNED M.S.B. DRAWN P.B. CHECKED J.C.O. DATE DEC. 2021 SIZE A1

DRAWING TITLE
SEAWALL DETAILS

PROJECT No. 0258-00 DRAWING No. 302 ISSUE C

TWO ANCHORS EACH TOE BLOCK, EVENLY SPACED. REFER TO ANCHOR DETAIL.

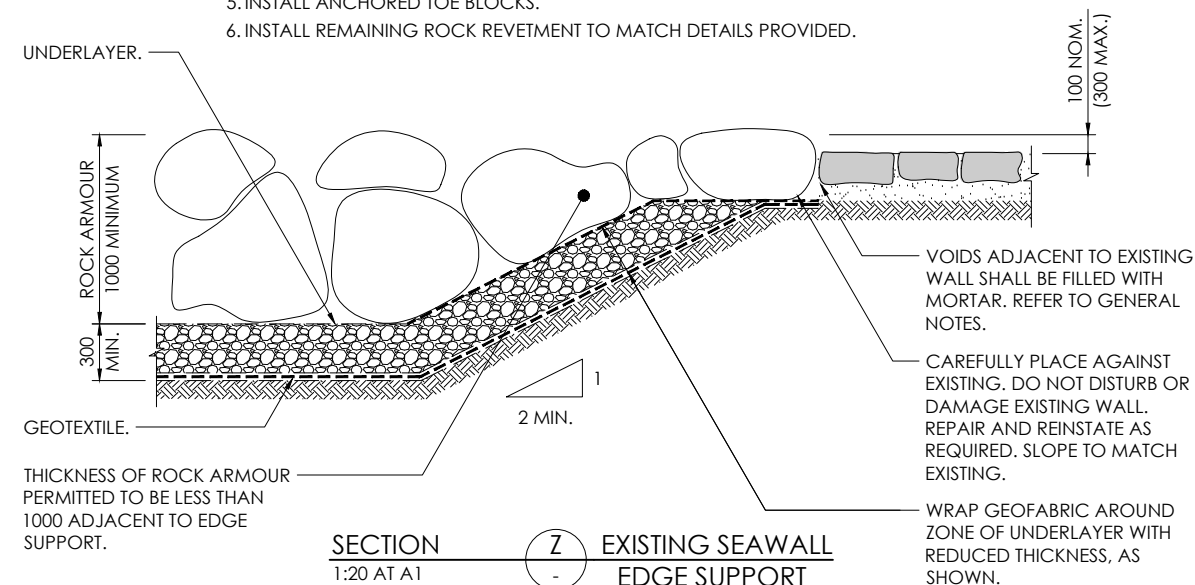


DETAIL 1:50 AT A1
1 202
TRANSITION PLAN DETAIL
(EXTENT OF FINISHED BEACH SAND NOT SHOWN FOR CLARITY, TOE OF ALL WALLS TO BE COVERED WHEN EXISTING BEACH IS REINSTATED)

NOTE:
EXISTING SLOPED BLOCK WALL TO REMAIN. VISIBLE EXTENT SHOWN ONLY. BURIED EXTENT TO BE UNCOVERED CAREFULLY TO AVOID DAMAGE.

TRANSITION METHODOLOGY:

1. CONTRACTOR TO CAREFULLY EXCAVATE AND DETERMINE DETAILS OF EXISTING BURIED SLOPED BLOCK WALLS.
2. DETERMINE FINAL GEOMETRY OF TRANSITION AND SUBMIT TO PRINCIPAL FOR APPROVAL PRIOR TO PROCEEDING. TOE ALIGNMENT SHALL BE A STRAIGHT LINE BETWEEN THE TOE POSITION OF EACH STRUCTURE UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
3. CAREFULLY EXPOSE EXISTING EDGE AND PLACE SLOPED BLOCKS ADJACENT.
4. INFILL REMAINING VOIDS IN EXISTING.
5. INSTALL ANCHORED TOE BLOCKS.
6. INSTALL REMAINING ROCK REVETMENT TO MATCH DETAILS PROVIDED.



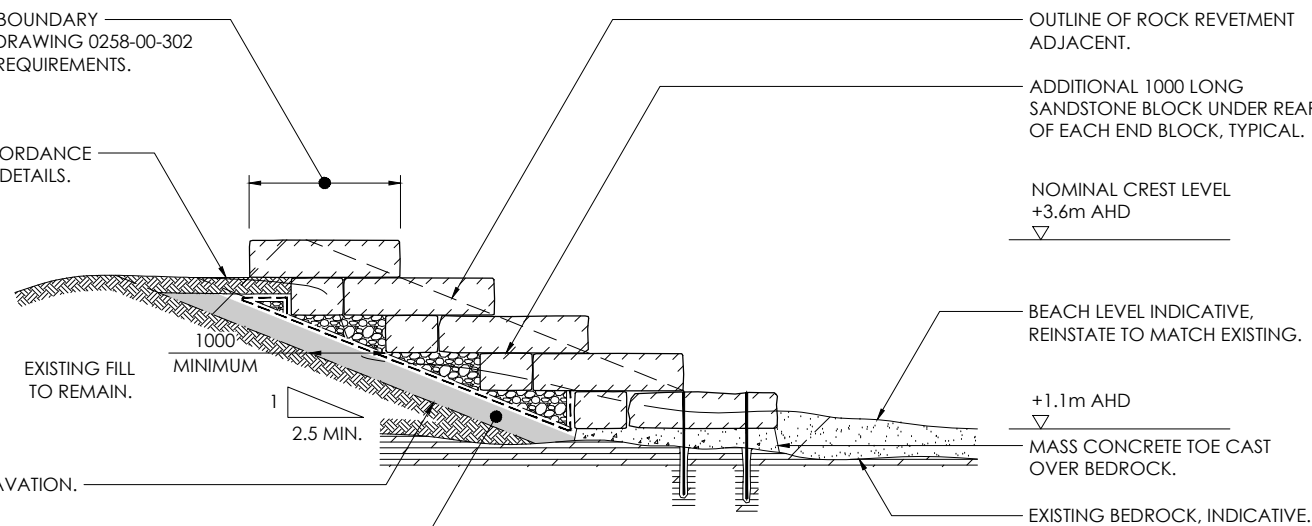
SECTION 1:20 AT A1
Z
EXISTING SEAWALL
EDGE SUPPORT
DETAIL

REFER TO DESIGN BOUNDARY CONDITIONS ON DRAWING 0258-00-302 FOR STRUCTURAL REQUIREMENTS.

REINSTATE IN ACCORDANCE WITH ARCHITECTS DETAILS.

TEMPORARY EXCAVATION.

COMPACTED FILL.



SECTION 1:50 AT A1
X
WALL END DETAIL
(REQUIRED ALL ENDS OF BLOCK WALL)

SANDSTONE BLOCK, TYPICAL.

BEACH LEVEL INDICATIVE, REINSTATE TO MATCH EXISTING.

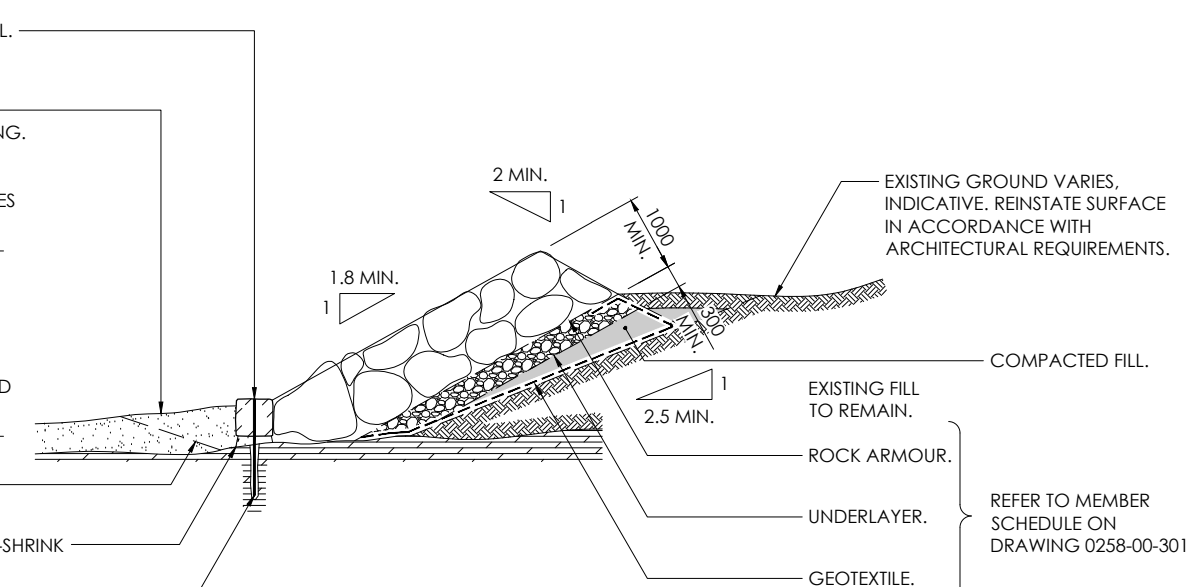
NOMINAL CREST VARIES (+2.9 TO 3.6m AHD)

TOP OF LEVELLING PAD +1.0m AHD

TEMPORARY EXCAVATION.

MASS CONCRETE, OR, NON-SHRINK GROUT LEVELLING PAD.

MINIMUM 2 ANCHORS PER TOE BLOCK, REFER TO ANCHOR DETAIL, DRAWING 0258-00-302.



SECTION 1:50 AT A1
Y
TYPICAL REVETMENT

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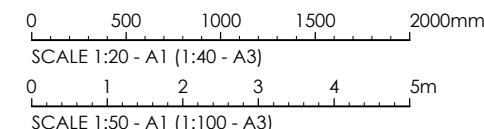
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REFER TO:

- GENERAL NOTES ON DRAWINGS 0258-00-011 TO 014
- LEGEND ON DRAWING 0258-00-301
- MEMBER SCHEDULE ON DRAWING 0258-00-301
- BOUNDARY CONDITIONS OF STRUCTURAL DESIGN INTENT ON DRAWING 0258-00-302



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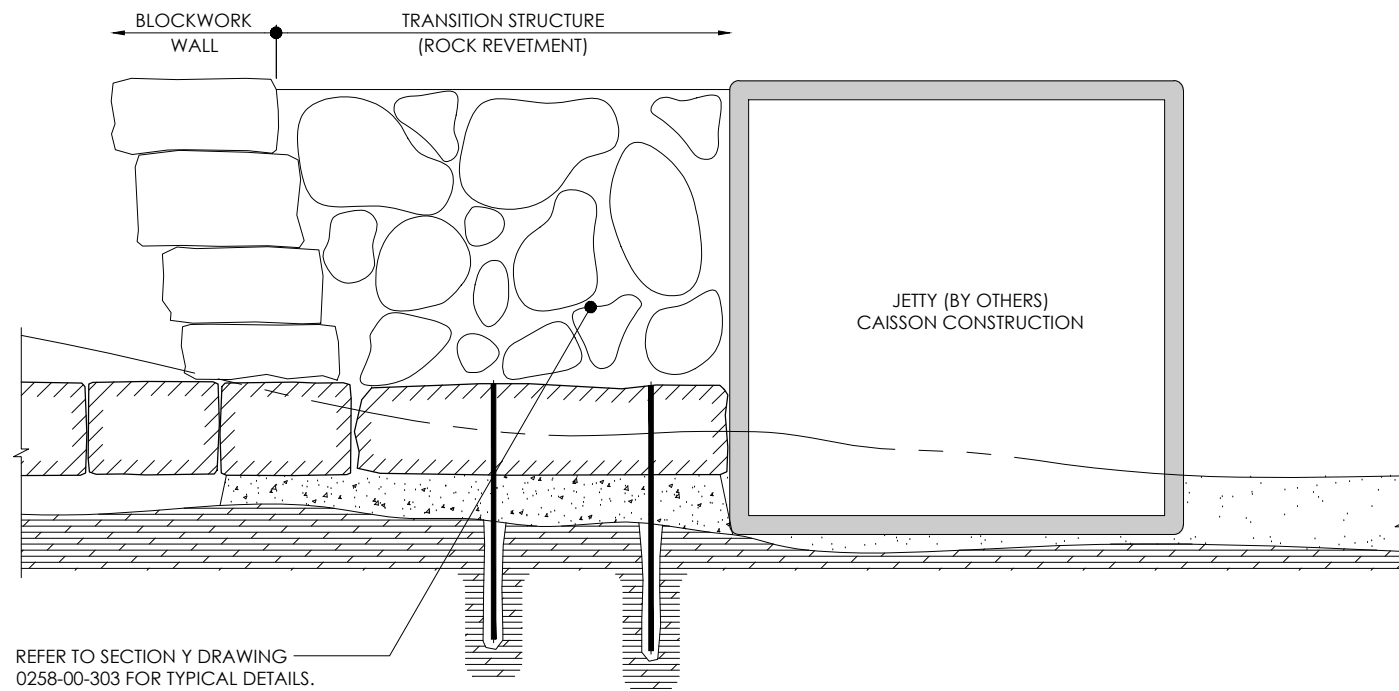
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DRAWING TITLE
TRANSITION DETAILS

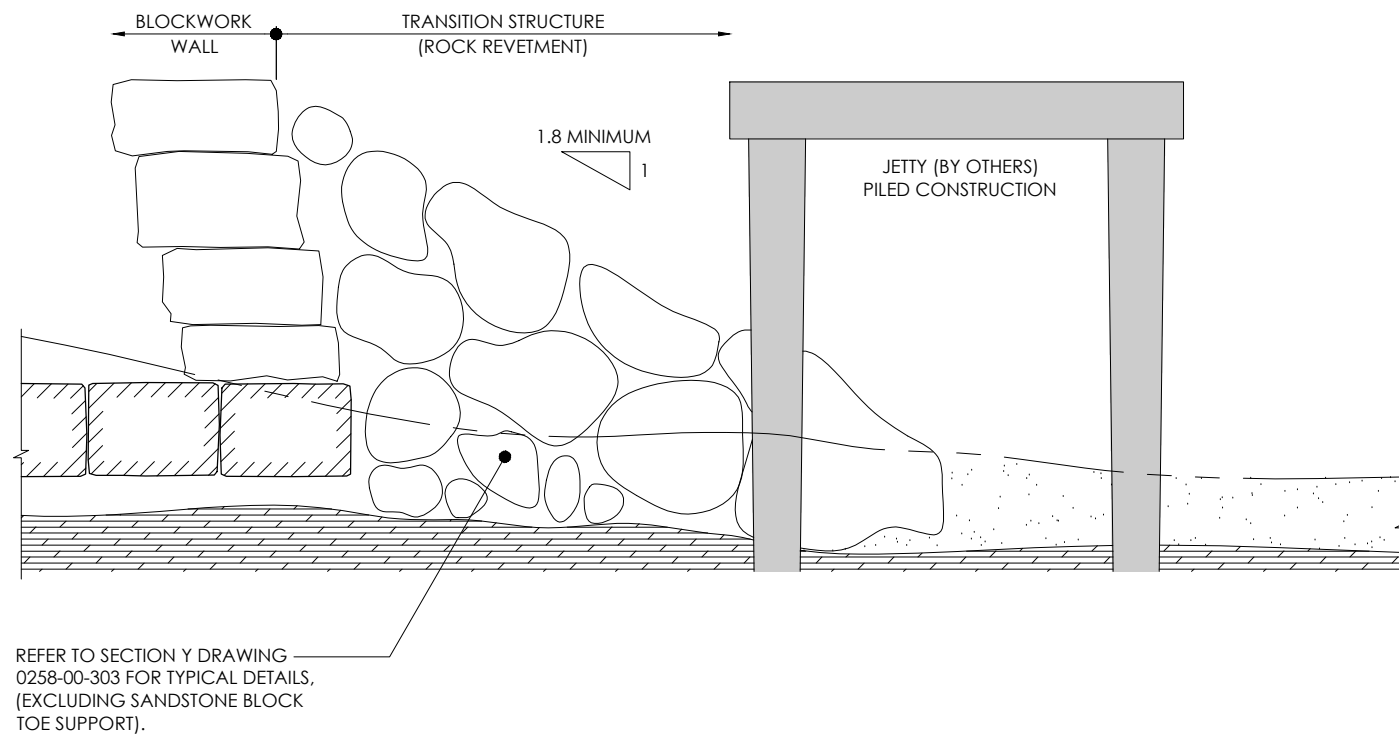
PROJECT No.
0258-00

DRAWING No.
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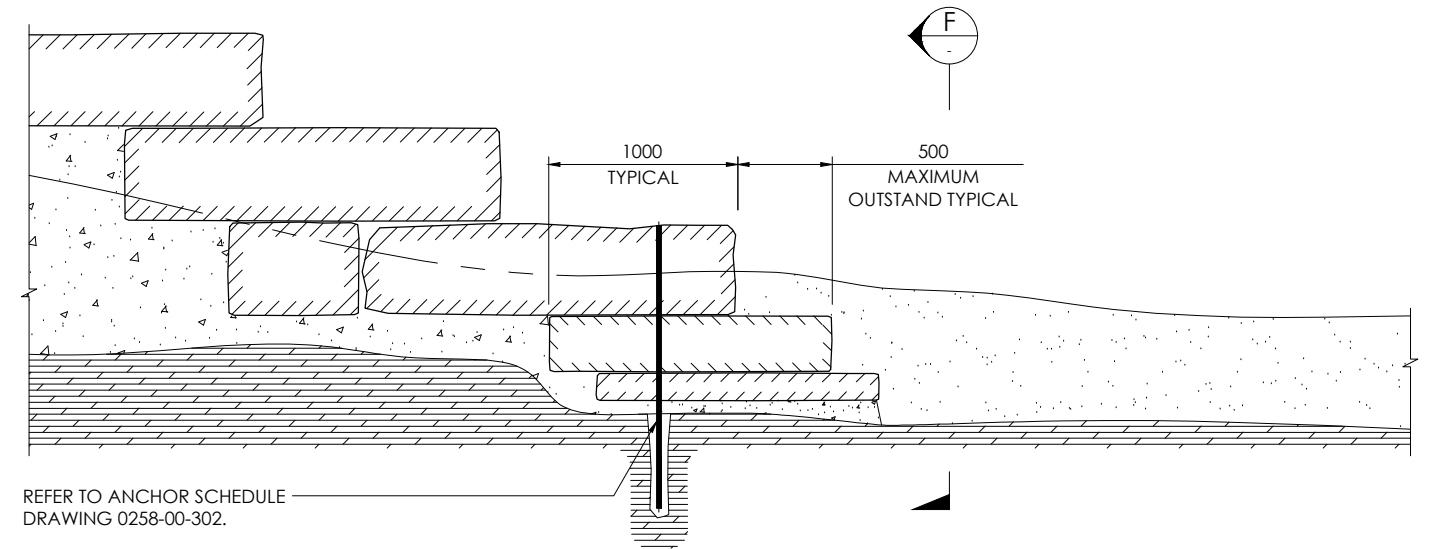
ISSUE
C



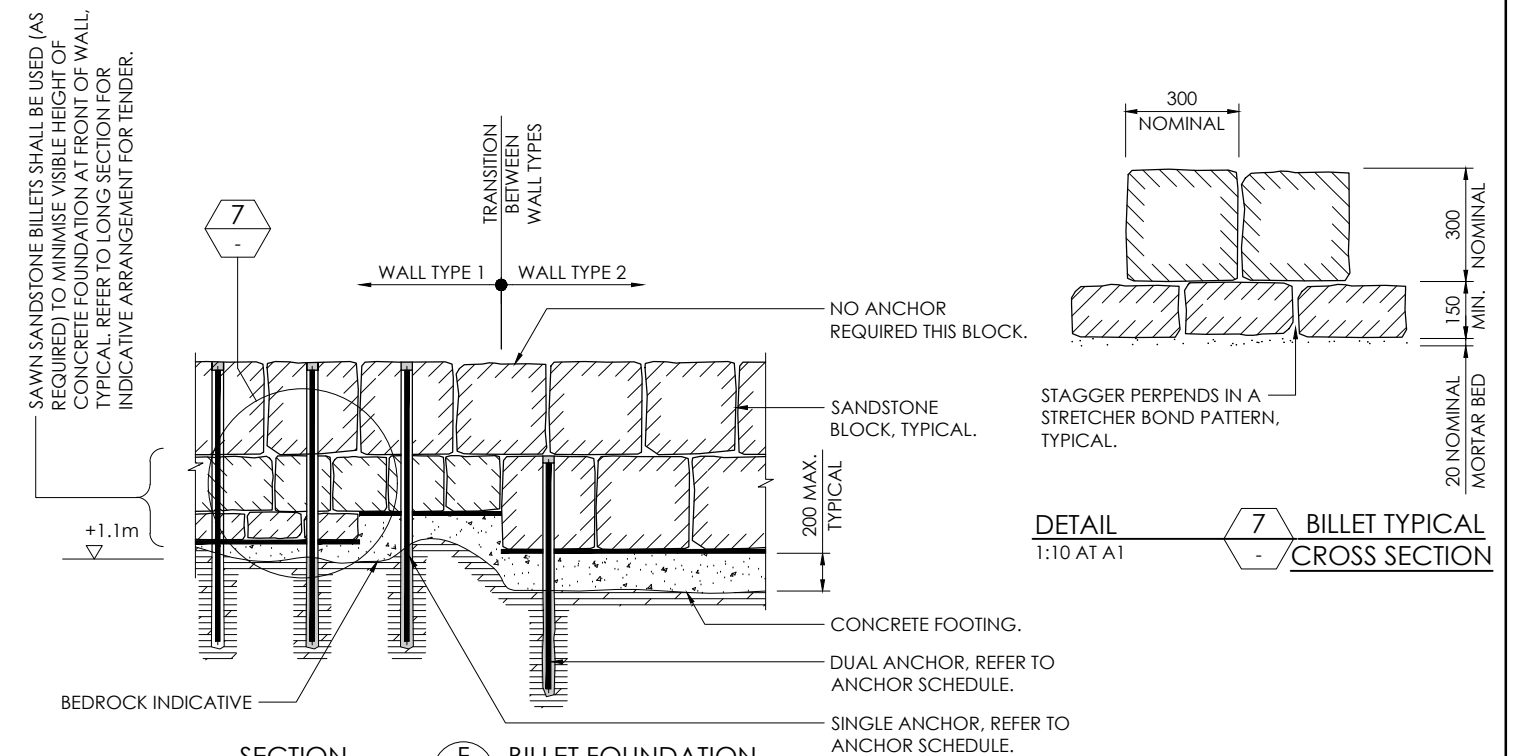
SECTION E
1:20 AT A1
201
TRANSITION DETAIL AT JETTY
(CAISSON CONSTRUCTION)



SECTION E
1:20 AT A1
201
TRANSITION DETAIL AT JETTY
(PILED CONSTRUCTION)



BILLET PLACEMENT BOUNDARY CONDITIONS
SCALE 1:20 AT A1



SECTION F
1:20 AT A1
201
BILLET FOUNDATION

DETAIL 7
1:10 AT A1
BILLET TYPICAL CROSS SECTION

NOTE:
WHERE GEOMETRY PERMITS SANDSTONE BLOCKS MAY BE USED INSTEAD OF SANDSTONE BILLETS
AND BLOCK LENGTH MAY BE REDUCED TO 1m PROVIDED THAT DUAL ANCHORS ARE INSTALLED PER BLOCK
OR
BLOCK ORIENTATION MAY BE ALTERED TO BE PERPENDICULAR TO THE WALL, PROVIDED THAT DUAL ANCHORS ARE INSTALLED PER BLOCK.

0 500 1000 1500 2000mm
SCALE 1:20 - A1 (1:40 - A3)

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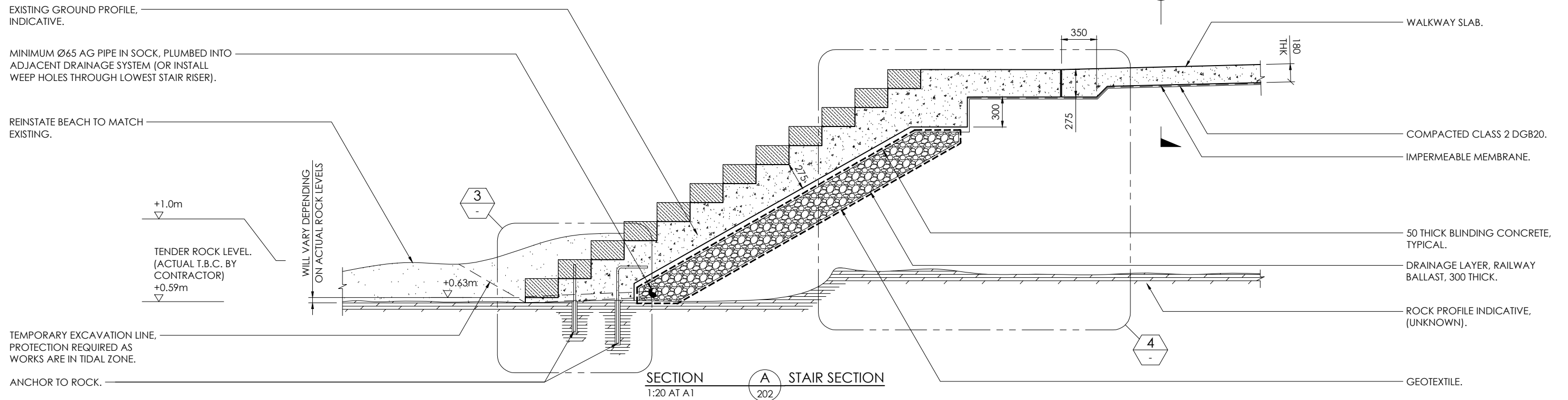
PROJECT
KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND

DESIGNED M.S.B. DRAWN P.B. CHECKED J.C.O. DATE DEC. 2021 SIZE A1

DRAWING TITLE
MISCELLANEOUS DETAILS

PROJECT No.
0258-00

DRAWING No.
304
ISSUE
A



NOTE:
THE CONTRACTOR SHALL INCLUDE ALLOWANCE FOR TEMPORARY WORKS TO PROTECT THE TOE OF STAIRS FROM WAVE AND SAND INUNDATION DURING CONCRETING WORKS. CONCRETE POUR SHALL BE COMPLETED IN THE DRY. CONSTRUCTION WORK SHALL BE EXECUTED SUCH THAT CONCRETE PLACEMENT COMMENCES BEFORE LOW TIDE.

SANDSTONE TREAD, REFER TO ARCHITECT'S DETAIL.

STONE HARDENER AND SEALER APPLIED TO GOINGS AND RISERS, TYPICAL.

STONE PLUG.

NOSING TO ARCHITECTS DETAIL.

10 NOMINAL

10

40

EPOXY MORTAR.

STONE STAIR TREAD TO ARCHITECTS SPECIFICATIONS.

BOND BREAKER COATING TO SOFFIT OF TREAD, TYPICAL.

MORTAR BEDDING LAYER.

SIKA PRO POLYURETHANE FLEXIBLE SEALANT.

HILTI HIT-RE500 V3.

D10 STAINLESS STEEL.

Ø12

100 MINIMUM

150

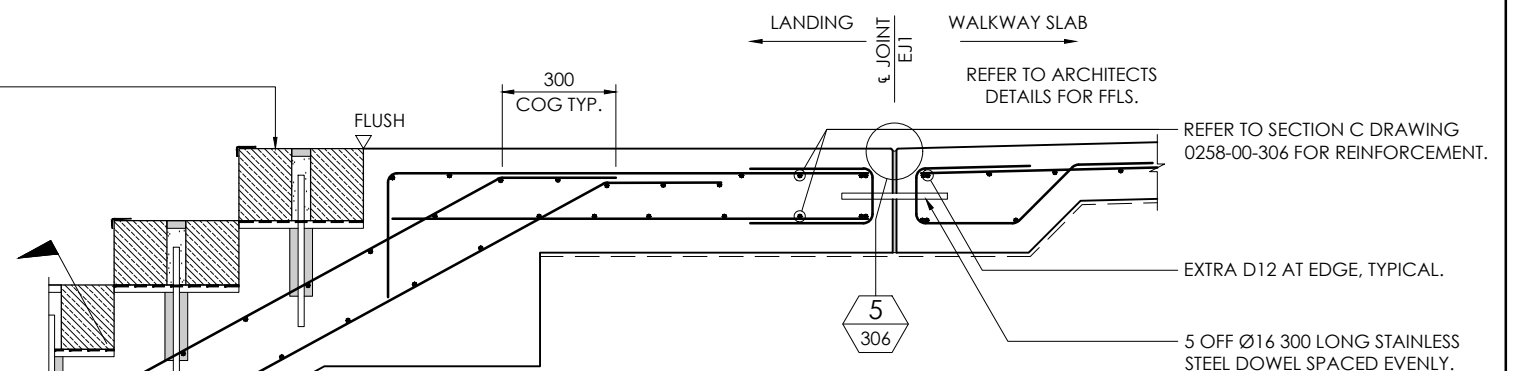
100

DETAIL 6 STONE STAIR TREAD 1:10 AT A1

EMBED ANCHORS 300 INTO ROCK AT LOWER STEP.

4 x D16 STAINLESS STEEL L BARS, EVENLY SPACED, CHEMSET 400 MINIMUM INTO SANDSTONE WITH HILTI RE-500V3 OR EQUIVALENT.

DETAIL 3 STAIR TOE 1:10 AT A1



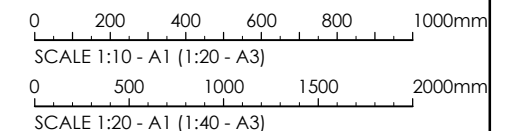
Sutherland Shire COUNCIL

DEVELOPMENT CONSENT

DA24/0290

This plan/ supporting documentation forms part of the above development consent.

REFER TO:
GENERAL NOTES ON DRAWINGS
0258-00-011 TO 014.



REVISED FOR D.A.
REVISED FOR CO-ORDINATION.
ISSUED FOR D.A.

16.02.2024 C J.C.O.
07.09.2023 B J.C.O.
28.07.2023 A J.C.O.

AMENDMENTS DATE ISSUE BY

NOT FOR CONSTRUCTION



CONSULT MARINE
WWW.CONSULTMARINE.COM.AU
LEVEL 1, 280 NORTON STREET
LEICHHARDT NSW 2040



CLIENT
NSW GOVERNMENT
NATIONAL PARKS & WILDLIFE SERVICE

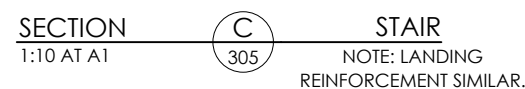
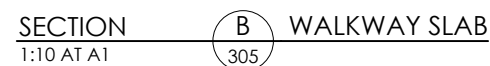
TO BE PRINTED IN COLOUR

PROJECT
KAMAY FORESHORE WORKS
BOTANY BAY NATIONAL PARK
SUTHERLAND

DESIGNED M.S.B. DRAWN P.B. CHECKED J.C.O. DATE DEC. 2021 SIZE A1

DRAWING TITLE
STAIR
SECTIONS AND DETAILS

PROJECT No. 0258-00 DRAWING No. 305 ISSUE C

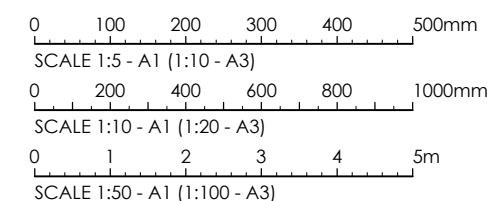
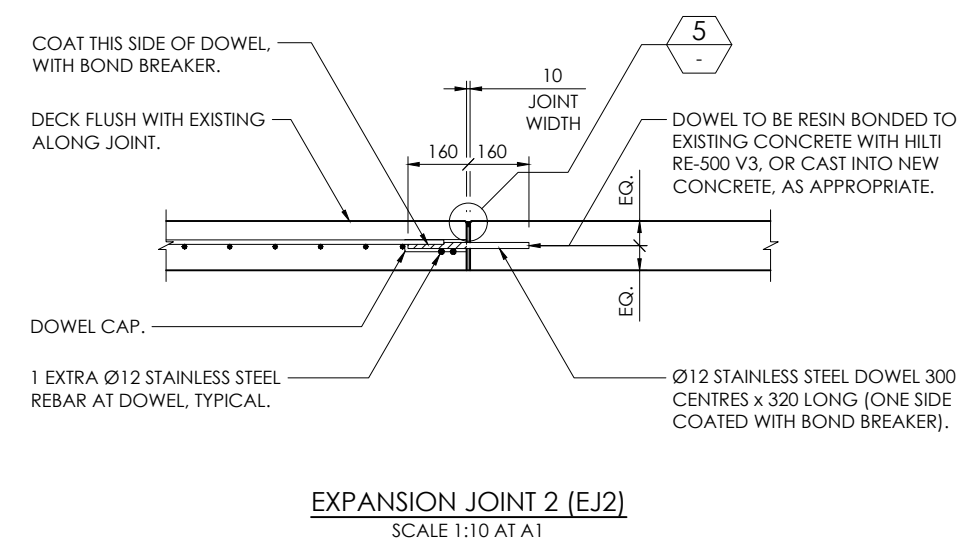
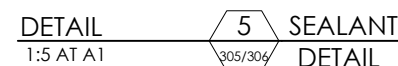
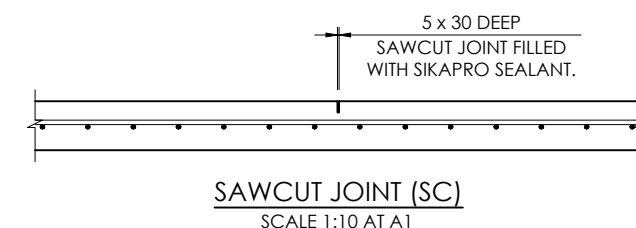
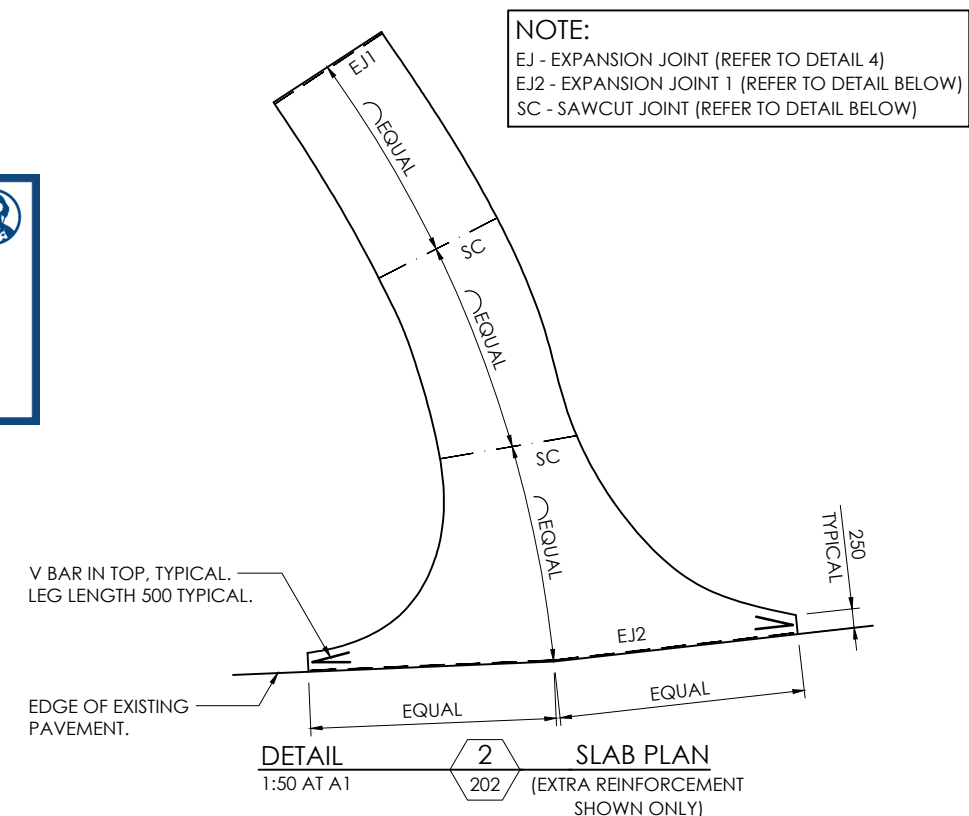


Sutherland Shire
COUNCIL

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PROJECT No.	DRAWING No.	ISSUE
0258-00	306	C

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