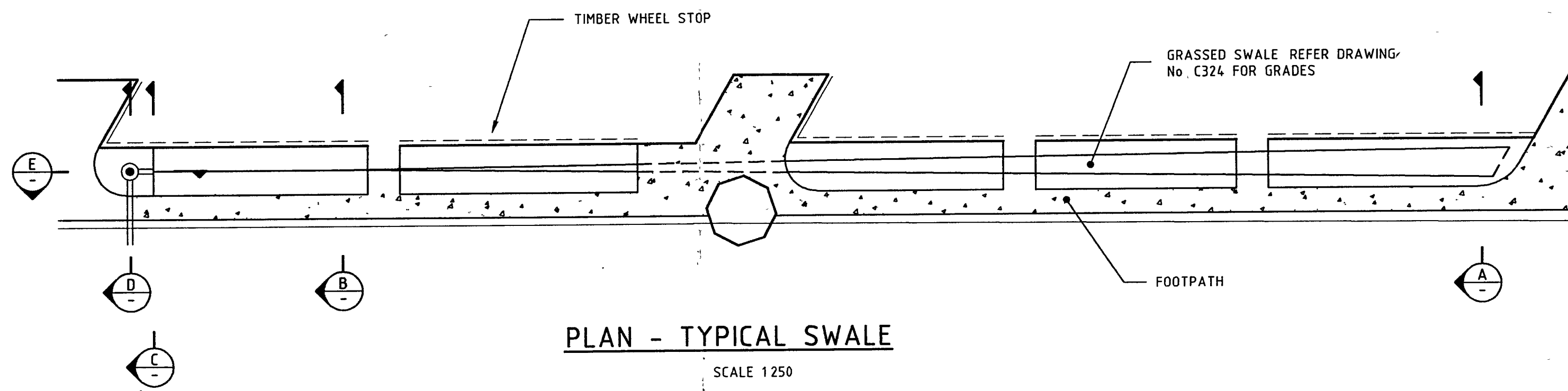




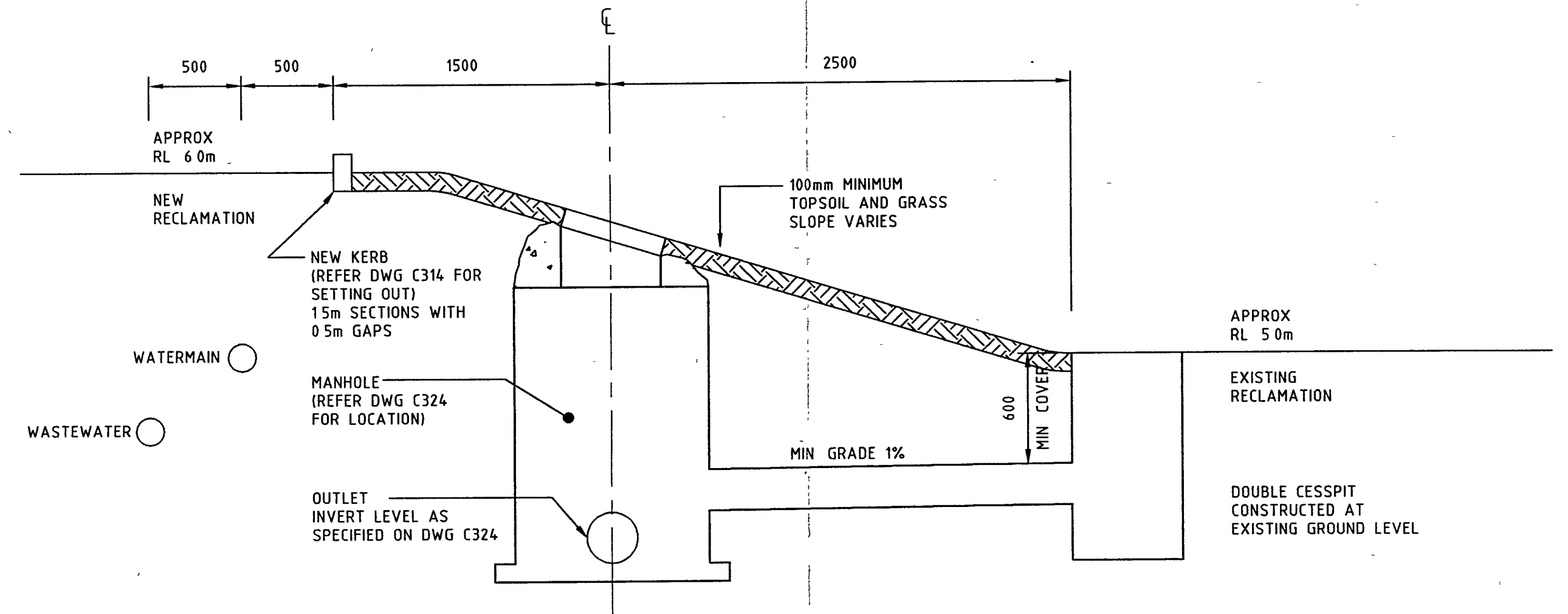
APPENDIX 3

Third Party Background Information

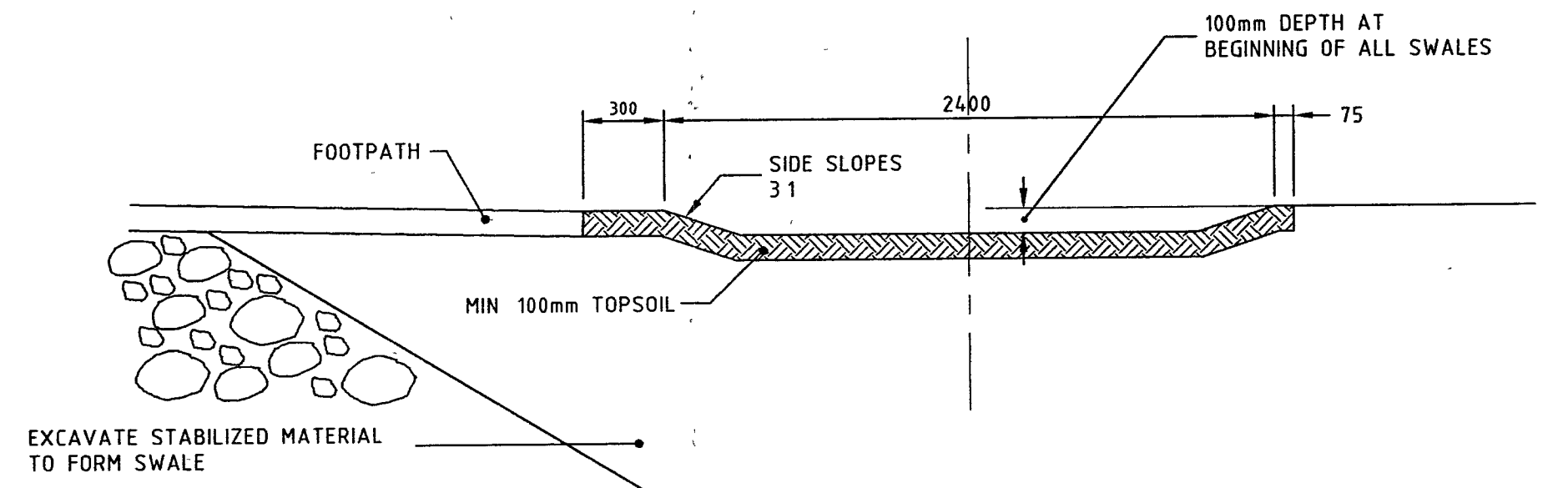


PLAN - TYPICAL SWALE

SCALE 1:250

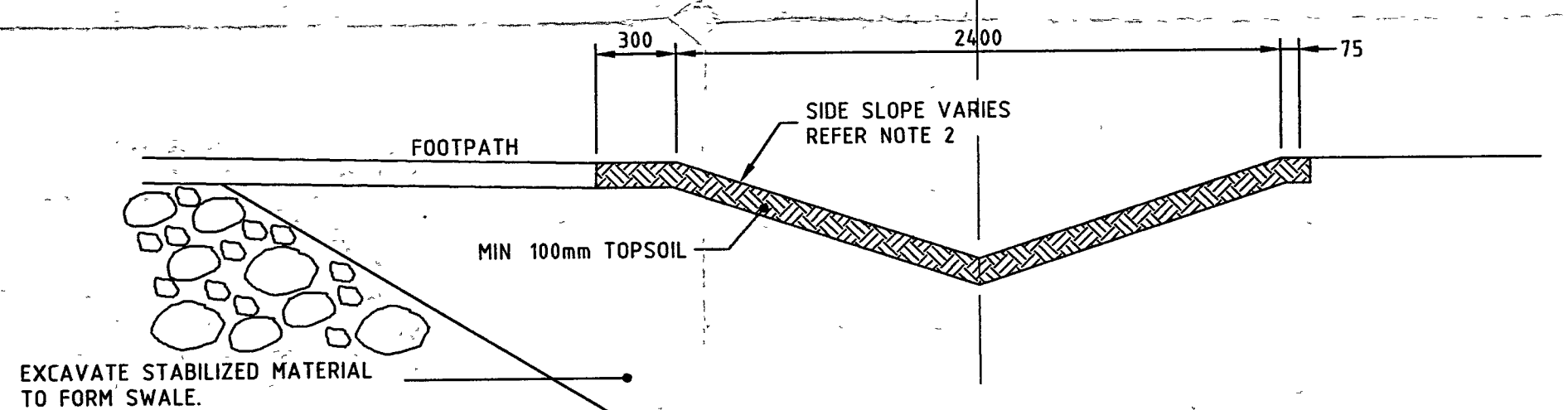


ORIGINAL/NEW RECLAMATION BOUNDARY - TYPICAL DETAIL CROSS SECTION



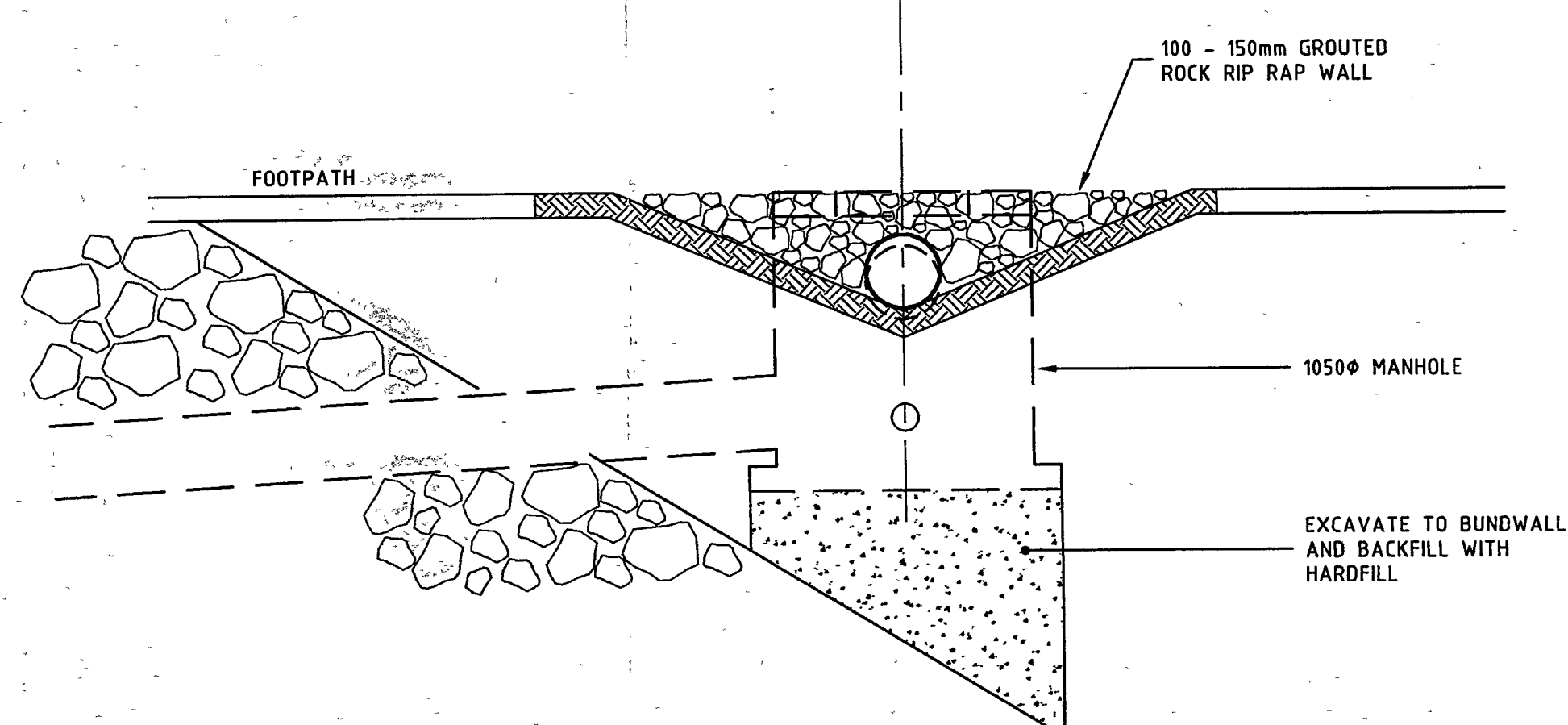
A-A SECTION - TYPICAL TRAPEZOIDAL SECTION

SCALE 1:25



B-B SECTION - TYPICAL VEE SECTION

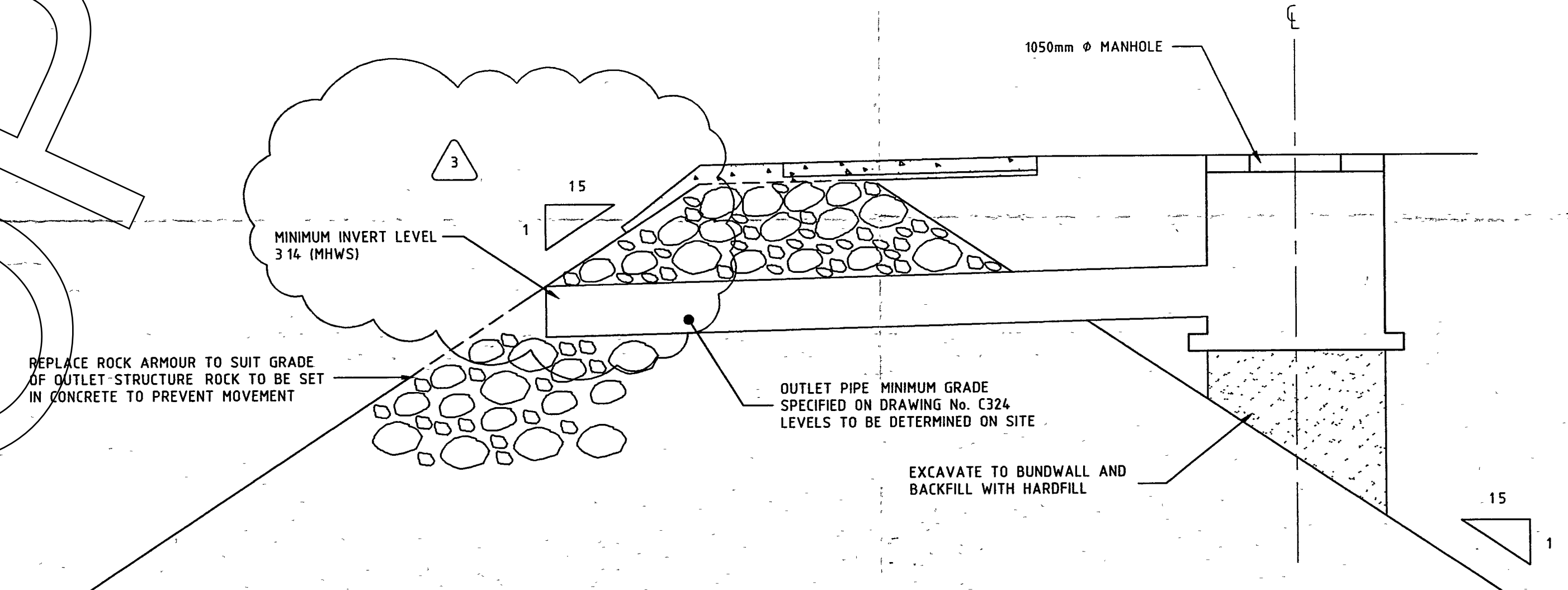
SCALE 1:25



C-C SECTION - SWALE OUTLET

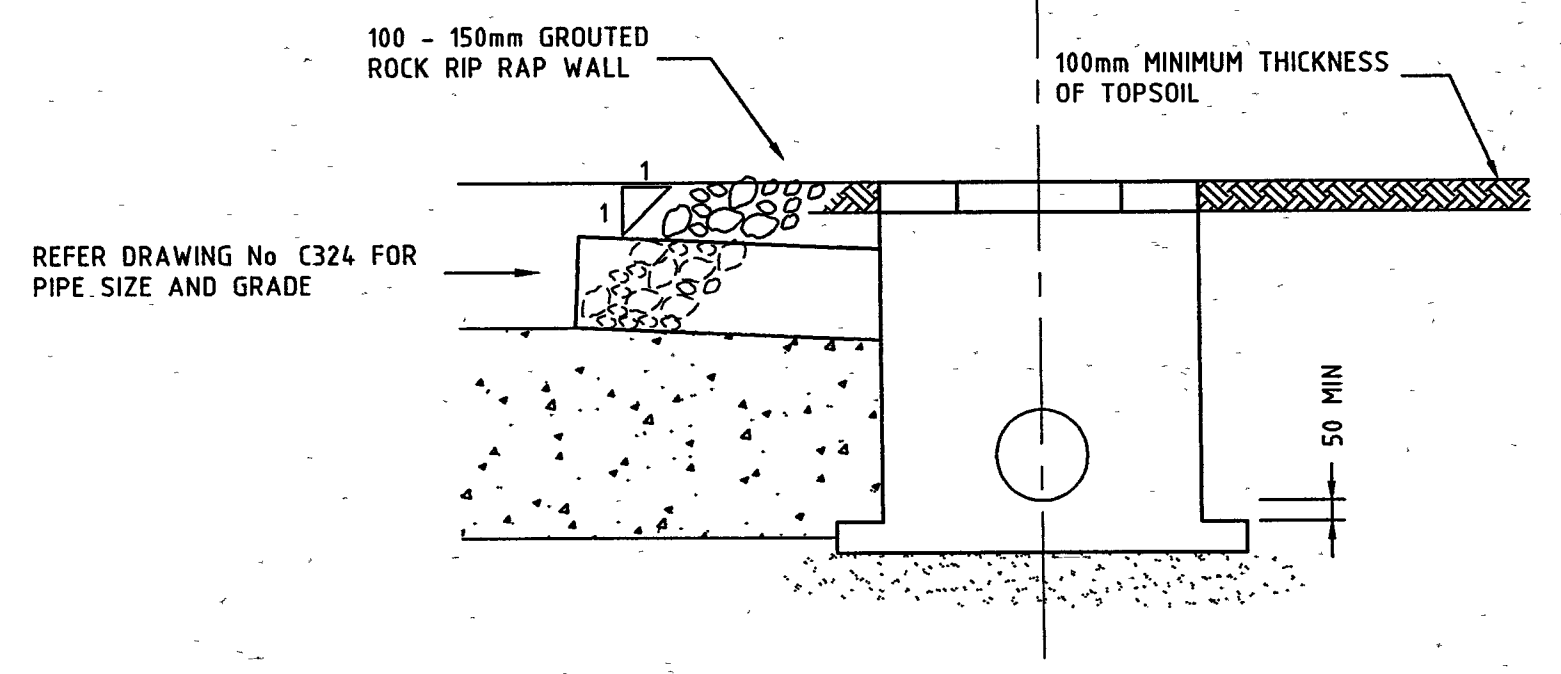
SCALE 1:25

COPY



D-D SECTION - STORMWATER OUTLET

SCALE 1:25



E-E SECTION - STORMWATER OUTLET

SCALE 1:25

NOTES:

- SWALE CROSS SECTION IS TRAPEZOIDAL WITH CONSTANT SIDE SLOPES INITIALLY AS THE SWALE DEPTH INCREASES, THE CROSS SECTION WILL BECOME VEE SHAPED. THE SIDE SLOPES OF THE VEE SHAPED CROSS SECTION WILL INCREASE AS THE SWALE DEPTH INCREASES

AS BUILT

Tue Dec 23 14:46:18 1997

| | | | |
|-----|--|-------|----------|
| No. | Revision | Appd. | Date |
| 3 | AS BUILT | TJH | 28-12-97 |
| 2 | ORIGINAL/NEW RECLAMATION BOUNDARY-DETAIL ADDED | TJH | 3-4-97 |
| 1 | ISSUED FOR CONSENT APPLICATION | TJH | 21-1-97 |
| 0 | ISSUED FOR CONSTRUCTION | TJH | 11-11-96 |

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 Consulting Engineers
 Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunel.

| | | | | | |
|------------|-----|---------------------------|------------|-----------------|----------|
| Designed | TJH | Approved for Construction | G HADFIELD | Scale as drawn | AS SHOWN |
| Drawn | TJH | Traced | PON | Reduced Drawing | 1/2 SIZE |
| Dwg Check | RAF | Date | 3-4-97 | | |
| Drng Check | KWN | | | | |

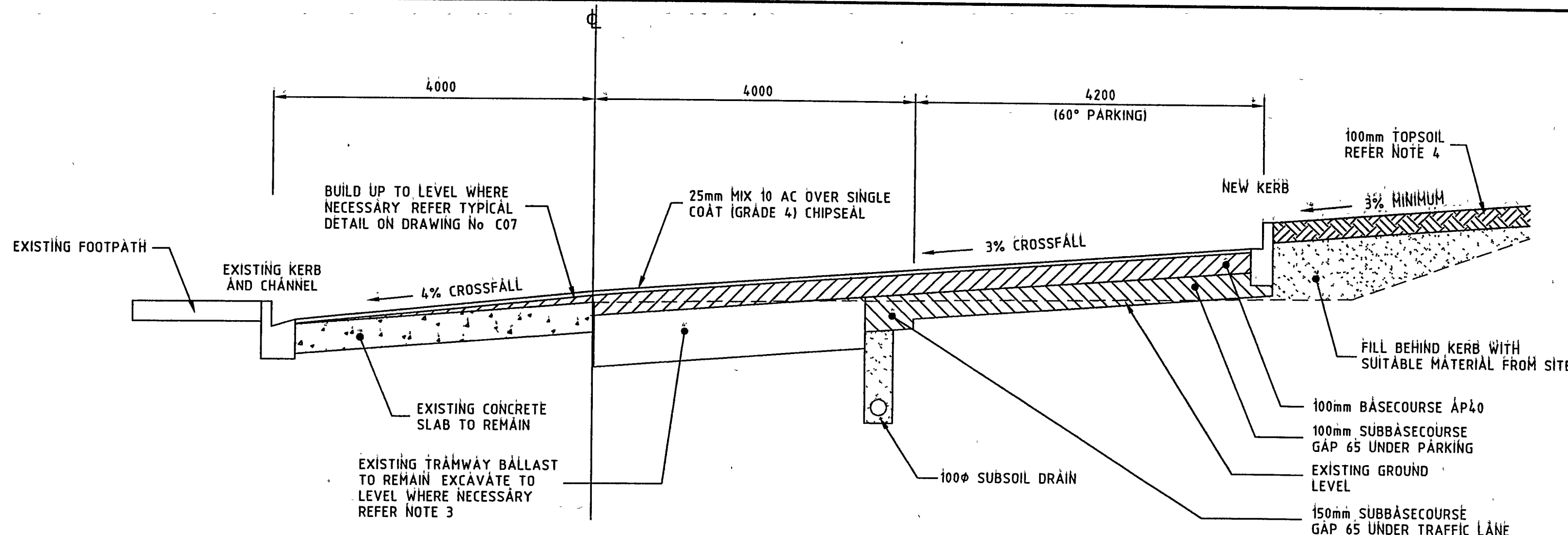
FLETCHER CONSTRUCTION
 NEW ZEALAND & SOUTH PACIFIC
 ENGINEERING

BAYSWATER MARINA CARPARK
 CIVIL

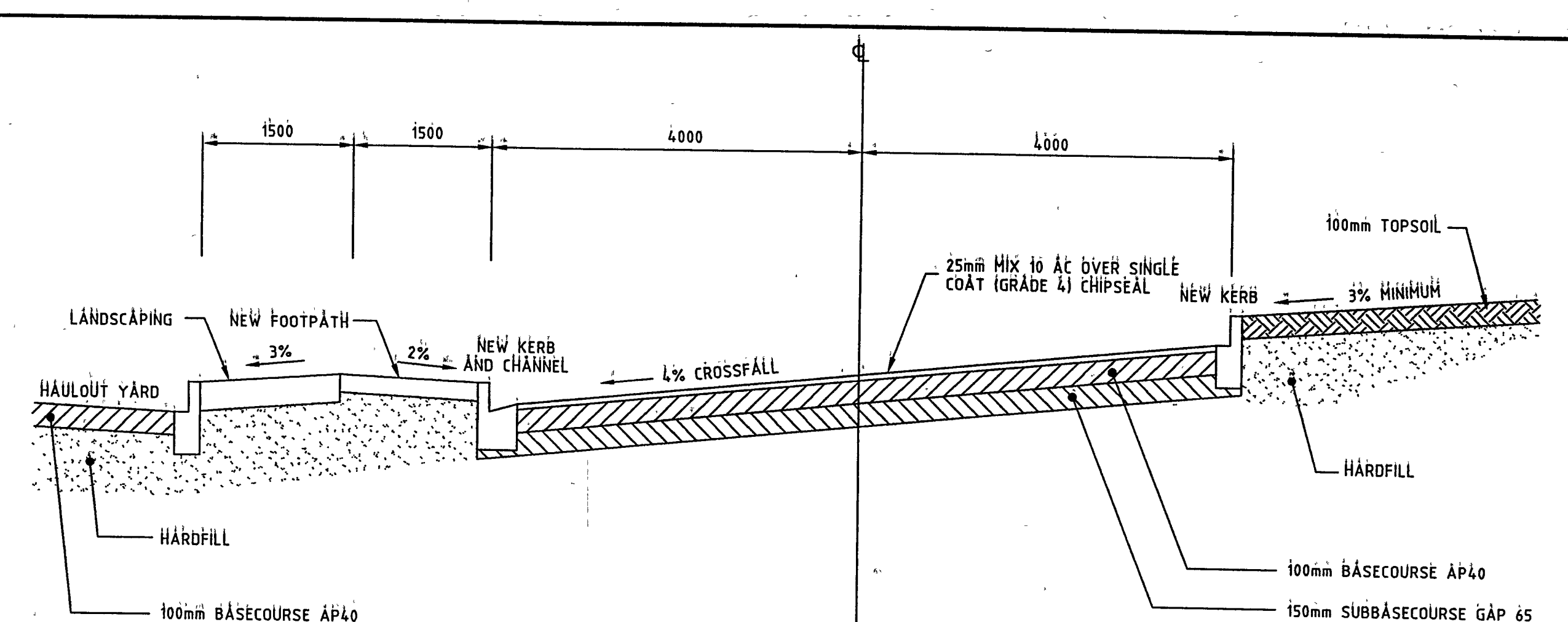
STORMWATER DETAILS

| | |
|---------|---------|
| Job No. | 2003910 |
| Dwg No. | C323 |
| Rev. | 3 |

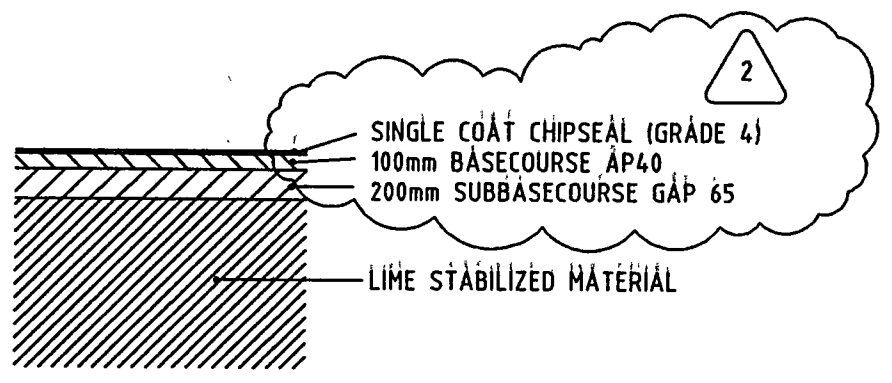
Beca Carter Hollings & Ferner CAD DRG No. 3910C323



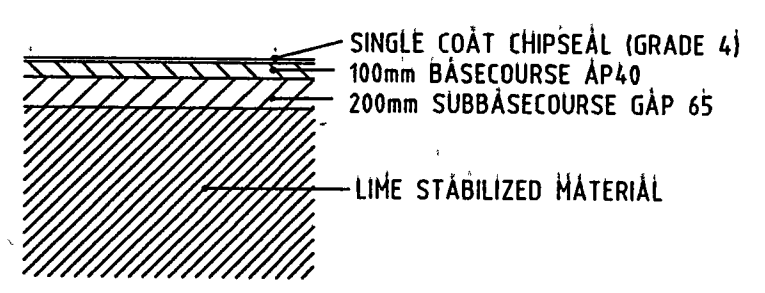
A SECTION
C314 SCALE: HORIZONTAL 150, VERTICAL 120



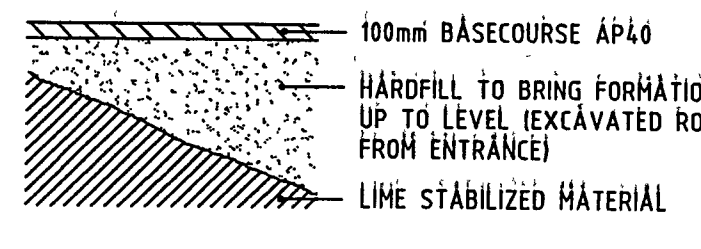
B SECTION
C314 SCALE: HORIZONTAL 150, VERTICAL 120



TYPE 2
ACCESS ROAD ON RECLAMATION



TYPE 3
PARKING AREAS ON RECLAMATION



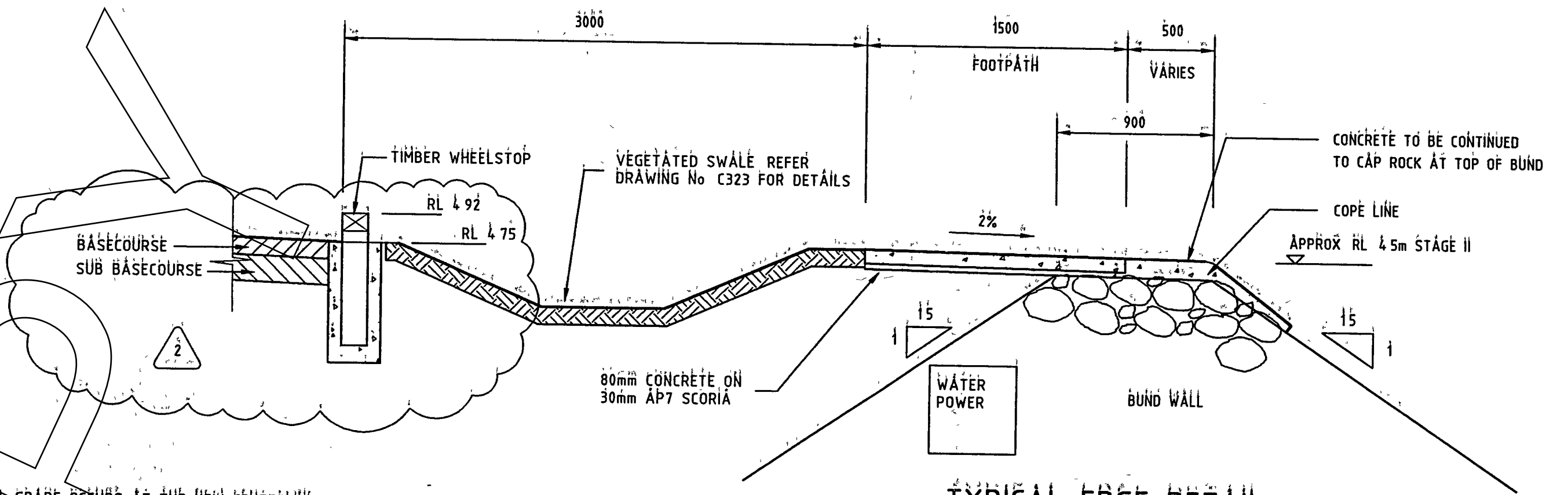
TYPE 4
HARDSTAND AREA

PAVEMENT CONSTRUCTION

SCALE 150

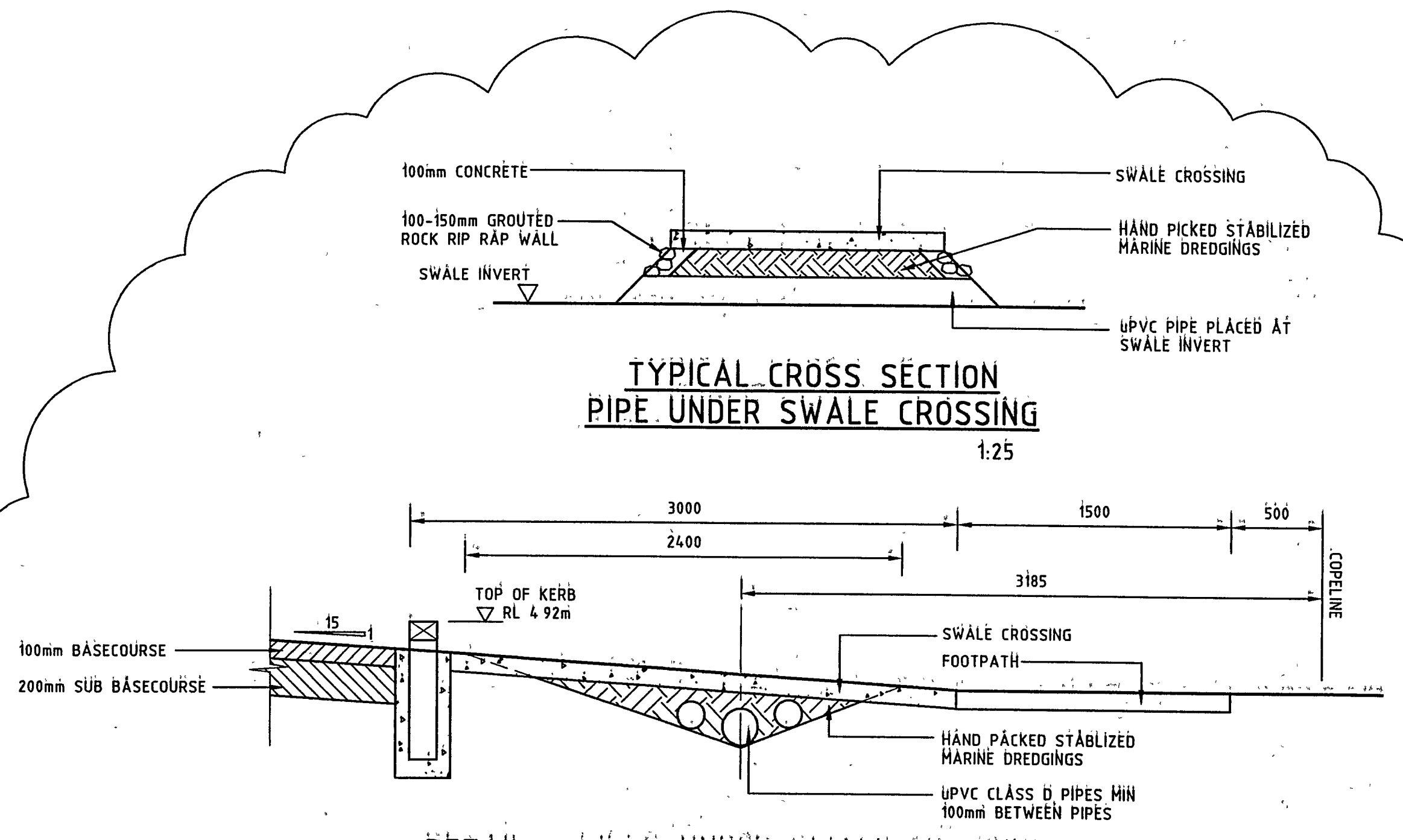
NOTES:

- CHANGE IN CROSSFALL GRADE OCCURS AT THE NEW CENTRELINE IN ALL CASES
- PAVEMENT DESIGN ON EXISTING LAND BASED ON ASSUMED CBR OF 7. CONTRACTOR TO DETERMINE SUBGRADE CBR ON SITE AND ADVISE THE ENGINEER WHO MAY CHANGE THE PAVEMENT DESIGN ACCORDINGLY. PAVEMENT DESIGN ON RECLAMATION TO BE REVIEWED AT TIME OF CONSTRUCTION WHEN CBR OF RECLAMATION CAN BE DETERMINED
- EXISTING TRAMWAY BALLAST TO BE EXCAVATED TO ALLOW 100mm THICKNESS OF BASECOURSE
- TOPSOIL AND GRASS TO BE PLACED BETWEEN THE NEW KERB AND EXISTING RETAINING WALL
- TACKCOAT TO BE APPLIED TO TOP OF CONCRETE SLABS PRIOR TO PLACING OF BASECOURSE
- ALL ROAD AND PARKING AREAS ON THE NEW RECLAMATION ARE TO BE CHIPSEALED INITIALLY. 12 MONTHS AFTER SEALING, AN ASSESSMENT OF RECLAMATION SETTLEMENT AND LEVELS WILL BE MADE AND AN APPROPRIATE TIME FOR SEALING THESE AREAS WITH 25mm MIX 10 ASPHALTIC CONCRETE DETERMINED



TYPICAL EDGE DETAIL

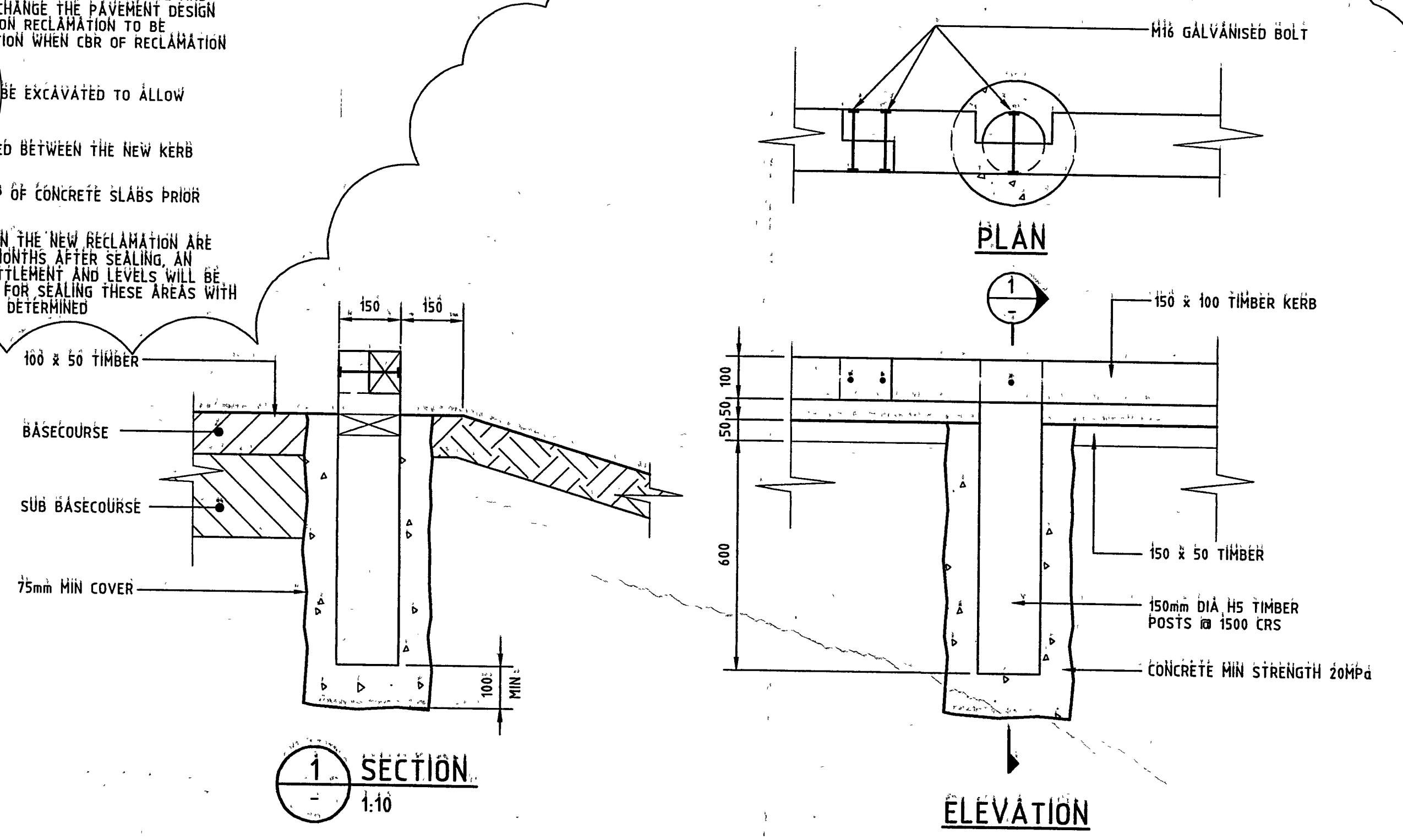
SCALE 1:25



**TYPICAL CROSS SECTION
PIPE UNDER SWALE CROSSING**

1:25

NOTE:
SWALE CROSSING TO BE
-100mm CONCRETE WITH SINGLE LAYER 665 MESH FOR PEDESTRAIN CROSSINGS
-100mm CONCRETE WITH DOUBLE LAYER 665 MESH FOR RUBBISH SLABS
ALL PIPES TO BE LAID AT SAME GRADE AS SWALE
ONE PIPE TO BE LOCATED AT SWALE INVERT IN ALL CASES



1 SECTION

1:10

TIMBER KERB DETAIL

1:10

ELEVATION

NOTE:
SPlicing OF KERB BEAM NOT TO BE COINCIDENT WITH THE LOCATION OF POST

| | | | |
|-----|---|------|----------|
| 2 | AS BUILT | TJH | 28.12.97 |
| 1 | EDGE DETAIL AMENDED, WHEELSTOP AND SLAB DETAILS ADDED | TJH | 3.4.97 |
| 0 | ISSUED FOR CONSTRUCTION | TJH | 11.11.96 |
| No. | Revision | Appd | Date |

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Consulting Engineers
Auckland, Wellington, Christchurch, New Plymouth, Tauranga, Melbourne, Sydney, Port Moresby, Jakarta, Singapore, Brunei.

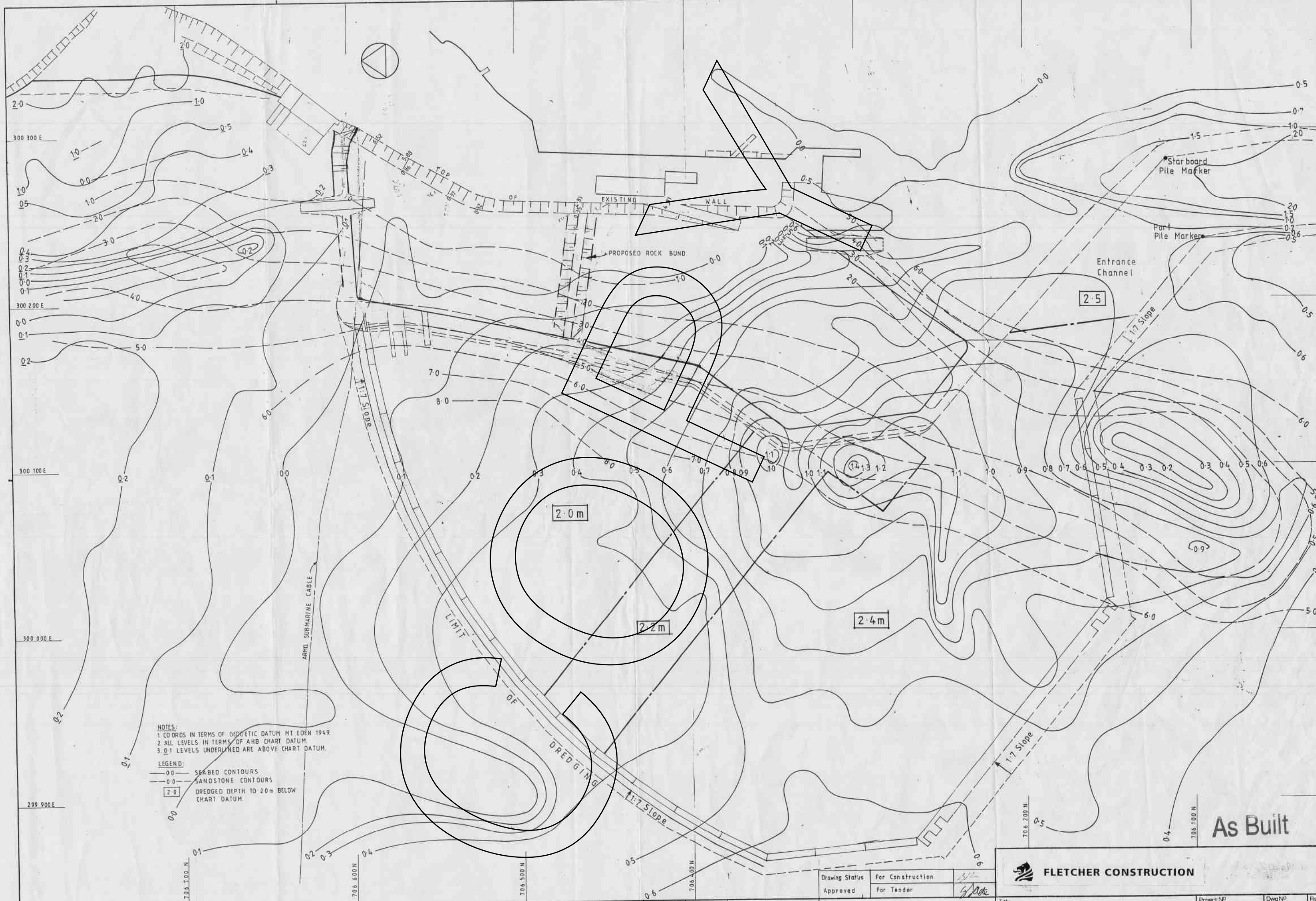
| | | | | |
|-------------|-----|---------------------------|--------------|--------------------------|
| Designed | TJH | Approved for Construction | G J HADFIELD | Scale as shown |
| Drawn | TJH | Traced | PON | Reduced Drawing 1/2 SIZE |
| Desig Check | RAF | Date | 11.11.1996 | |
| Drng Check | KWN | | | |

FLETCHER CONSTRUCTION
NEW ZEALAND & SOUTH PACIFIC ENGINEERING

BAYSWATER MARINA CARPARK
CIVIL

DETAILS
Job No. 2003910
Rev. C315

AS BUILT



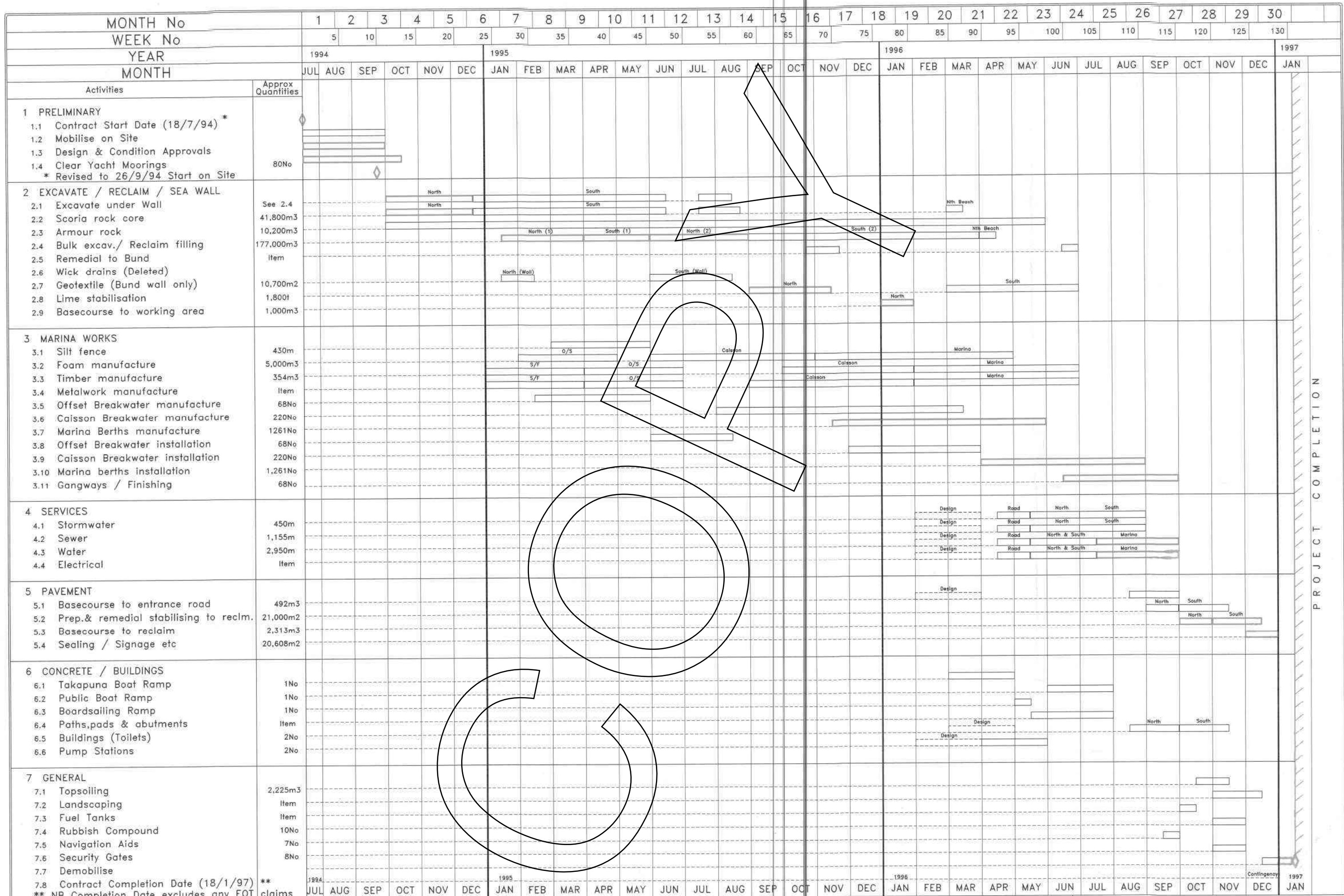
NOTES:
 1. COORDS IN TERMS OF GEODETIC DATUM MT EDEN 1949.
 2. ALL LEVELS IN TERMS OF AHB CHART DATUM.
 3. 0.1 LEVELS UNDERLINED ARE ABOVE CHART DATUM.

LEGEND:
 - - - SEA BED CONTOURS
 - - - SANDSTONE CONTOURS
 [2.0] DREDGED DEPTH TO 2.0m BELOW CHART DATUM.

As Built



| | | | | | | | | | | | | |
|----------------|---|------------------|--|---------------------------------------|----------|------|-----------------|-----------------------------|--|-------------------|----------------|----------|
| Revision | A | FOR CONSTRUCTION | Copyright This drawing (including copyright) and the content is the property of WILKINS & DAVIES MARINA DESIGN LTD. Any unauthorised employment or reproduction is forbidden. | Reference Dwg PREVIOUS WED No 1123 | Designed | D.C. | Scale 1:1000 | Project BAYSWATER MARINA | Title SEABED AND SANDSTONE CONTOURS AND DREDGE DEPTH PLAN STAGE I | Project NP BW2 | Dwg NP 12.0 | Rev A |
| | | | | | Drawn | J.D. | | | | | | |
| Drawing Status | | | For Construction | | Approved | | For Tender | | | | | |





PROJECT COMPLETION

DATE : 12/02/96
 REFERENCE : BWM6
 DRAWER : A.D.
 CHECKED : B.D.
 REVISED : BWM5 (19/10/95)

LEGEND :
 CRITICAL ACTIVITY
 LESS CRITICAL ACTIVITY

CONSTRUCTION PROGRAMME for BAYSWATER MARINA PROJECT





SHOAL BAY

FLOATING BREAKWATER

BOTTOM OF TOE BATTER
OUTSIDE OF TOE
INSIDE OF TOE
TOP EDGE OF BUND

706 914.00
300 202.00

SHEET 6 OF 6

SHEET 5 OF 6

SHEET 4 OF 6

SHEET 3 OF 6

SHEET 2 OF 6

706 264.20
300 126.83

706 233.21
300 167.96

706 342.90
300 119.94

706 395.92
300 159.90

1
DP50556

3
DP50556

2
DP50556

NGATARINGA BAY

- NOTES
1. LEVELS ARE IN TERMS OF CHART DATUM SUBTRACT 1.74 TO BE IN TERMS OF LANDS & SURVEY DATUM M631 S054463 RL15.345
 2. CONTOURS ARE AT 1.00 METRE INTERVALS

MSL * 9762 7.10.97

COMPUTED BY ME REFERENCE 3/09 DATE 3 OCT 1997 FAX # 4802512 DESCRIPTION SUBDIVISION

SHEET 1 OF 6

BAYSWATER MARINA - RECLAMATION BUND SURVEY

BAYSWATER MARINA

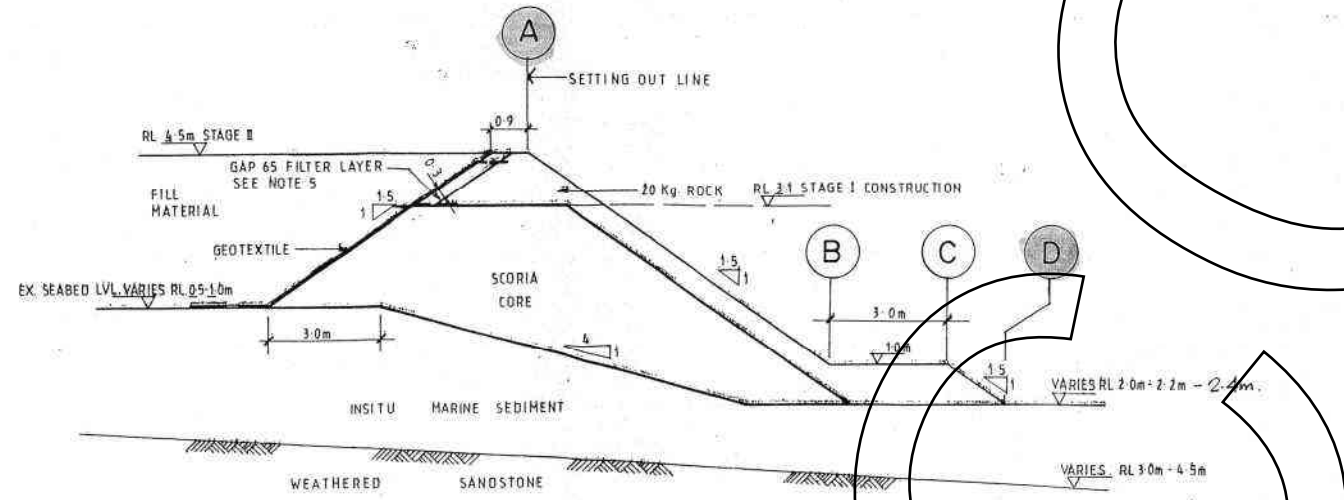
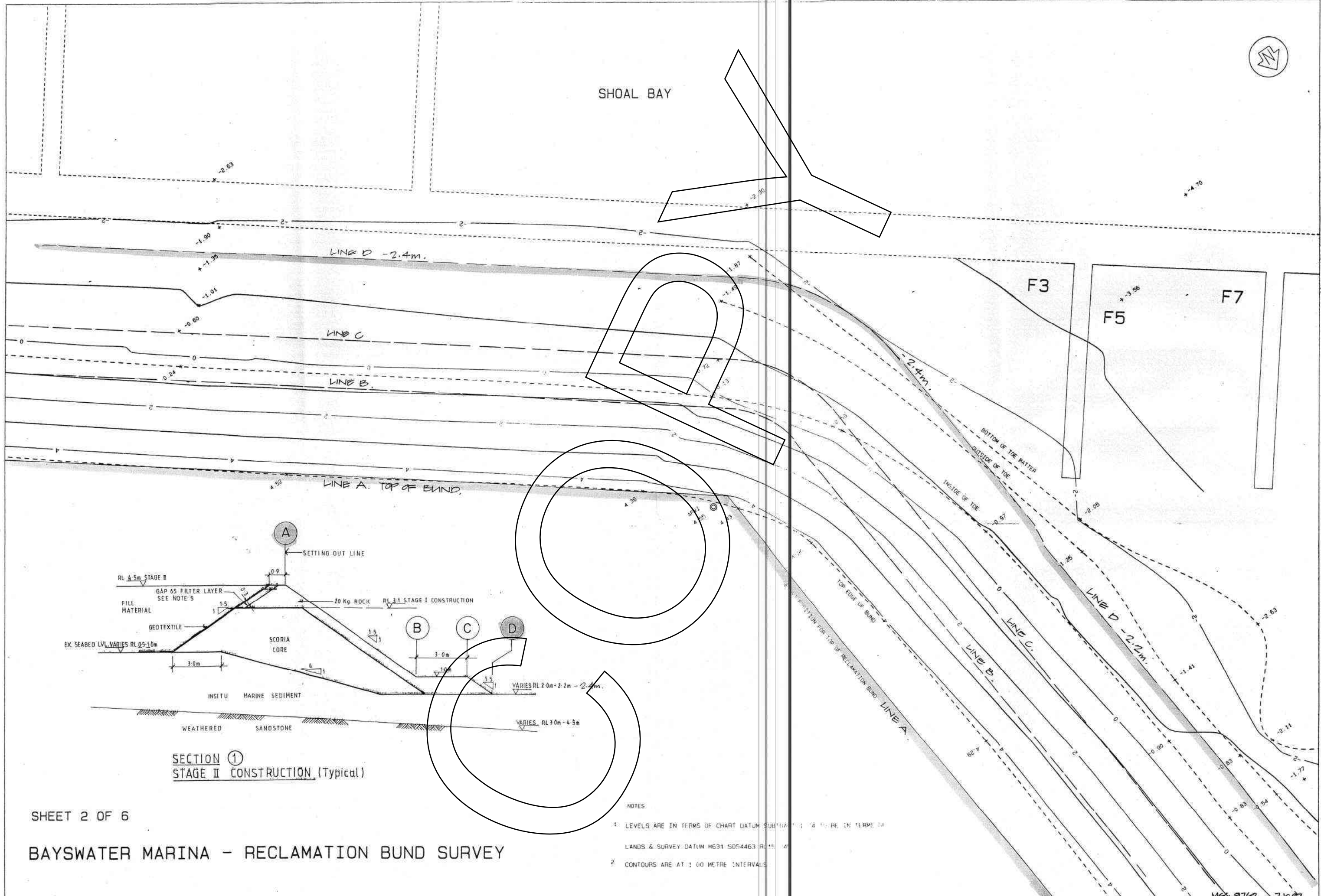
ORIGIN: 706155 750 N 300206 000 E
SCALE: 1:500 ROTATION: 04°

PREPARED BY HAMPSON & ASSOC LTD
PO BOX 14073 BIRKENHEAD WA 4805546

SKI



SHOAL BAY



SECTION 1
STAGE II CONSTRUCTION (Typical)

- NOTES
- 1. LEVELS ARE IN TERMS OF CHART DATUM SUBSTANTIAL TO THE TIDE, IN TERMS OF
 - LANDS & SURVEY DATUM M631 5054463 RL 1.5
 - 2. CONTOURS ARE AT 1.00 METRE INTERVALS

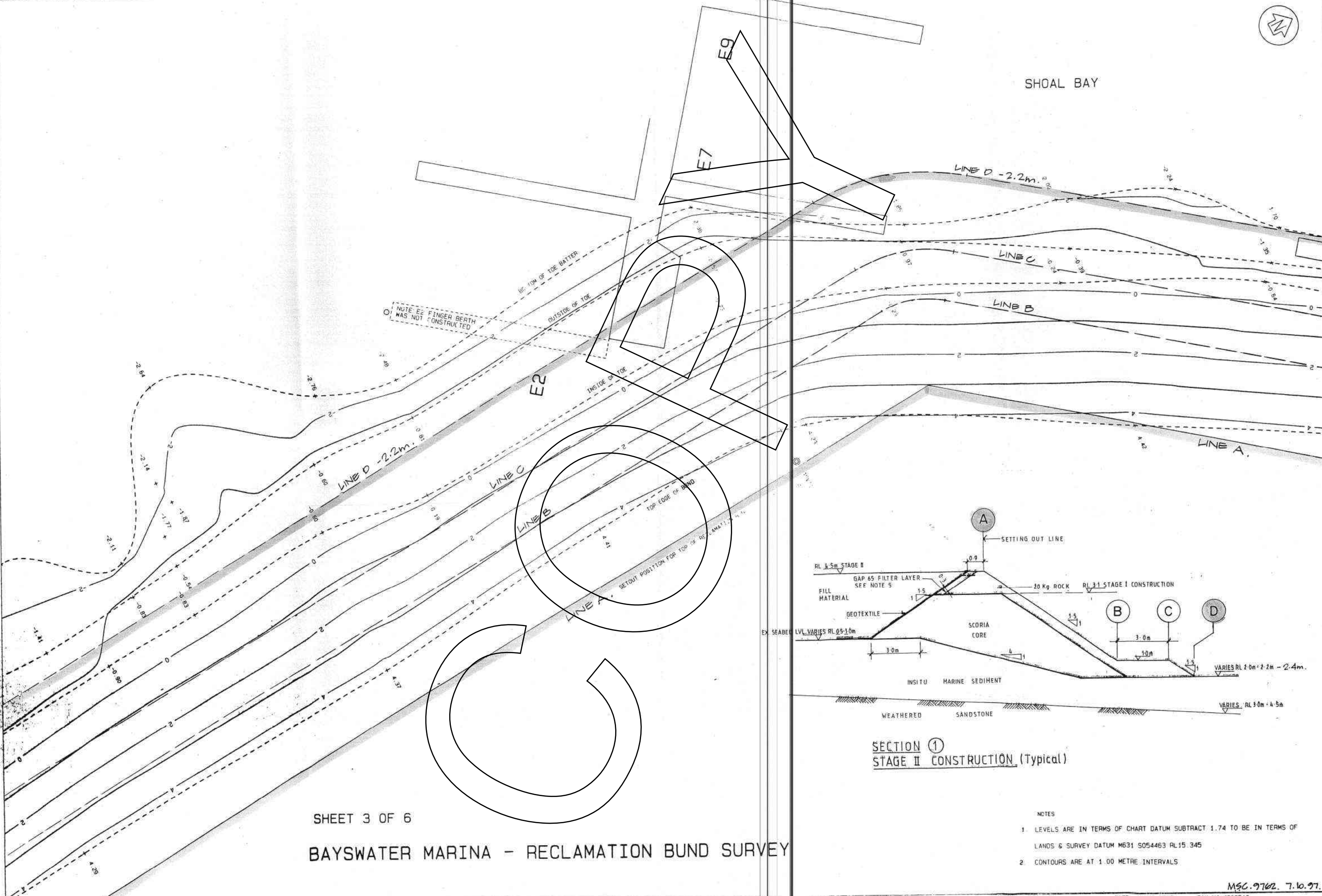
SHEET 2 OF 6

BAYSWATER MARINA - RECLAMATION BUND SURVEY

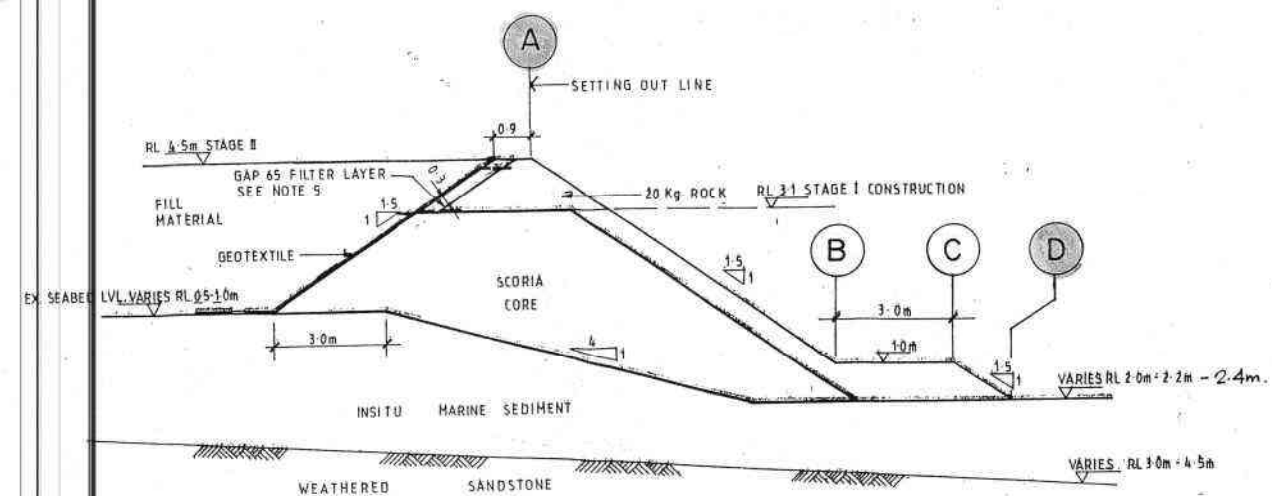
SK2



SHOAL BAY



NOTE: E2 FINGER BERTH WAS NOT CONSTRUCTED



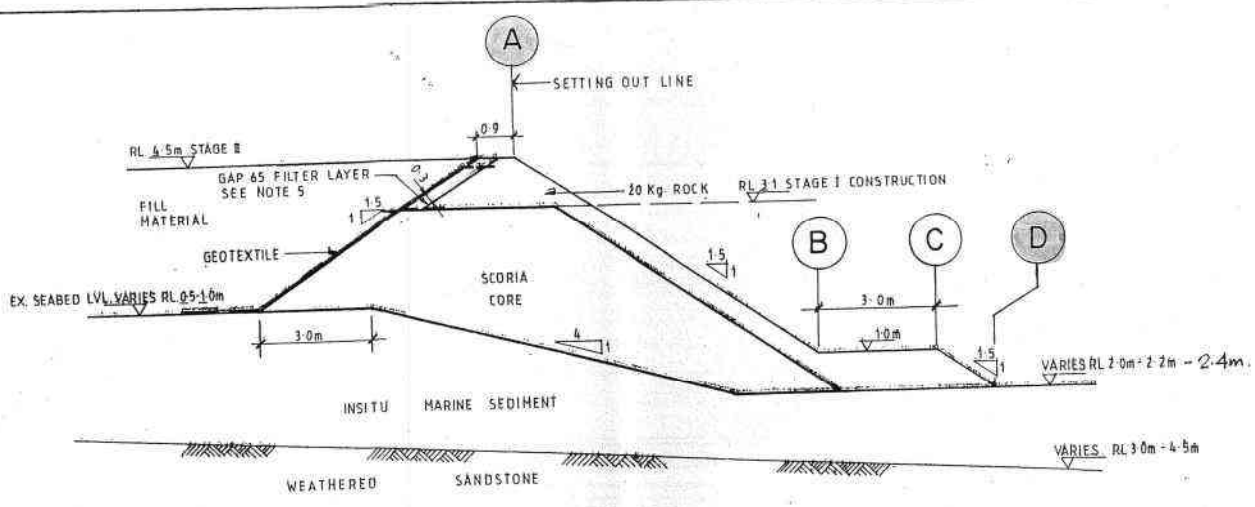
SECTION ① STAGE II CONSTRUCTION (Typical)

- NOTES
- LEVELS ARE IN TERMS OF CHART DATUM SUBTRACT 1.74 TO BE IN TERMS OF LANDS & SURVEY DATUM M631 S054463 RL15 345
 - CONTOURS ARE AT 1.00 METRE INTERVALS

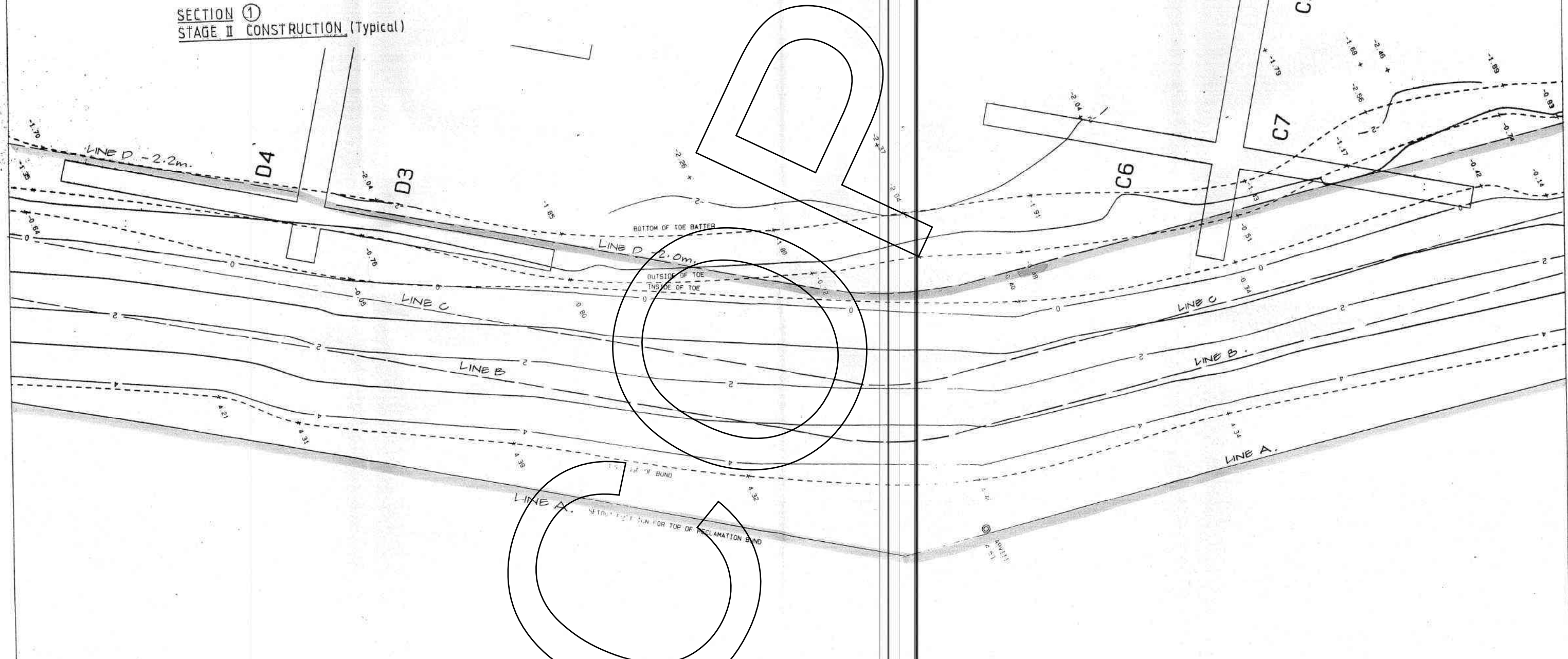
SHEET 3 OF 6
BAYSWATER MARINA - RECLAMATION BUND SURVEY

BAYSWATER MARINA

SK3



SHOAL BAY



SHEET 4 OF 6

BAYSWATER MARINA - RECLAMATION BUND SURVEY

- NOTES
- LEVELS ARE IN TERMS OF CHART DATUM SUBTRACT 1.74 TO BE IN TERMS OF LANDS & SURVEY DATUM M631 S054463 RL15.345
 - CONTOURS ARE AT 1.00 METRE INTERVALS

ORIGIN: 706349.841 N 300150.100 E
SCALE 1:100 ROTATION: 64°

PREPARED BY: HAMPSON & ASSOC LTD.
PO BOX 34073 BIRKENHEAD Ph4805546

BAYSWATER MARINA

COMPUTED BY: ME
REFERENCE: 3/09

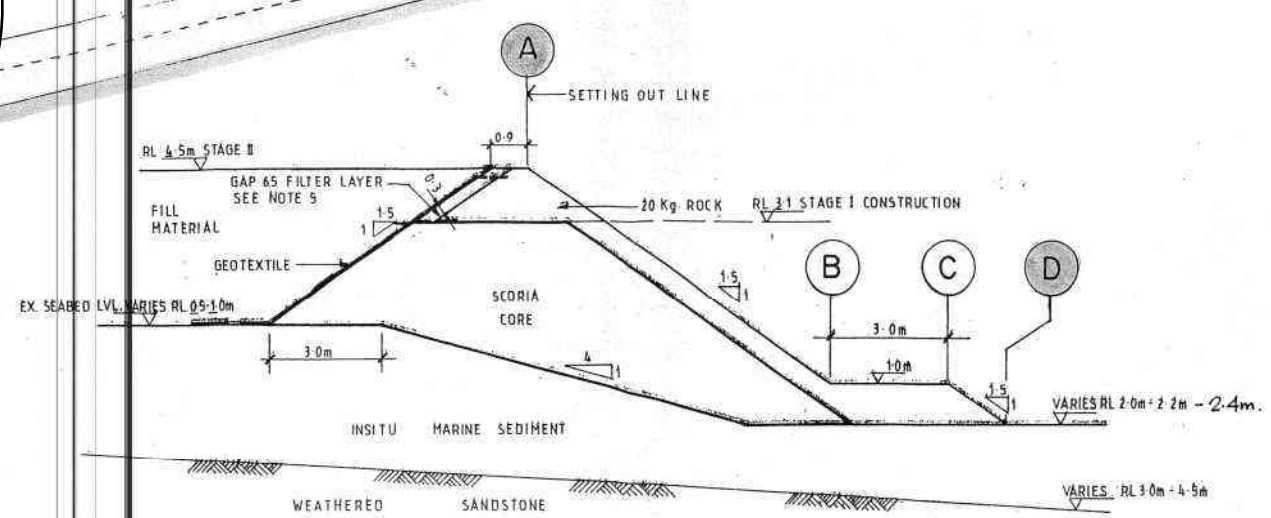
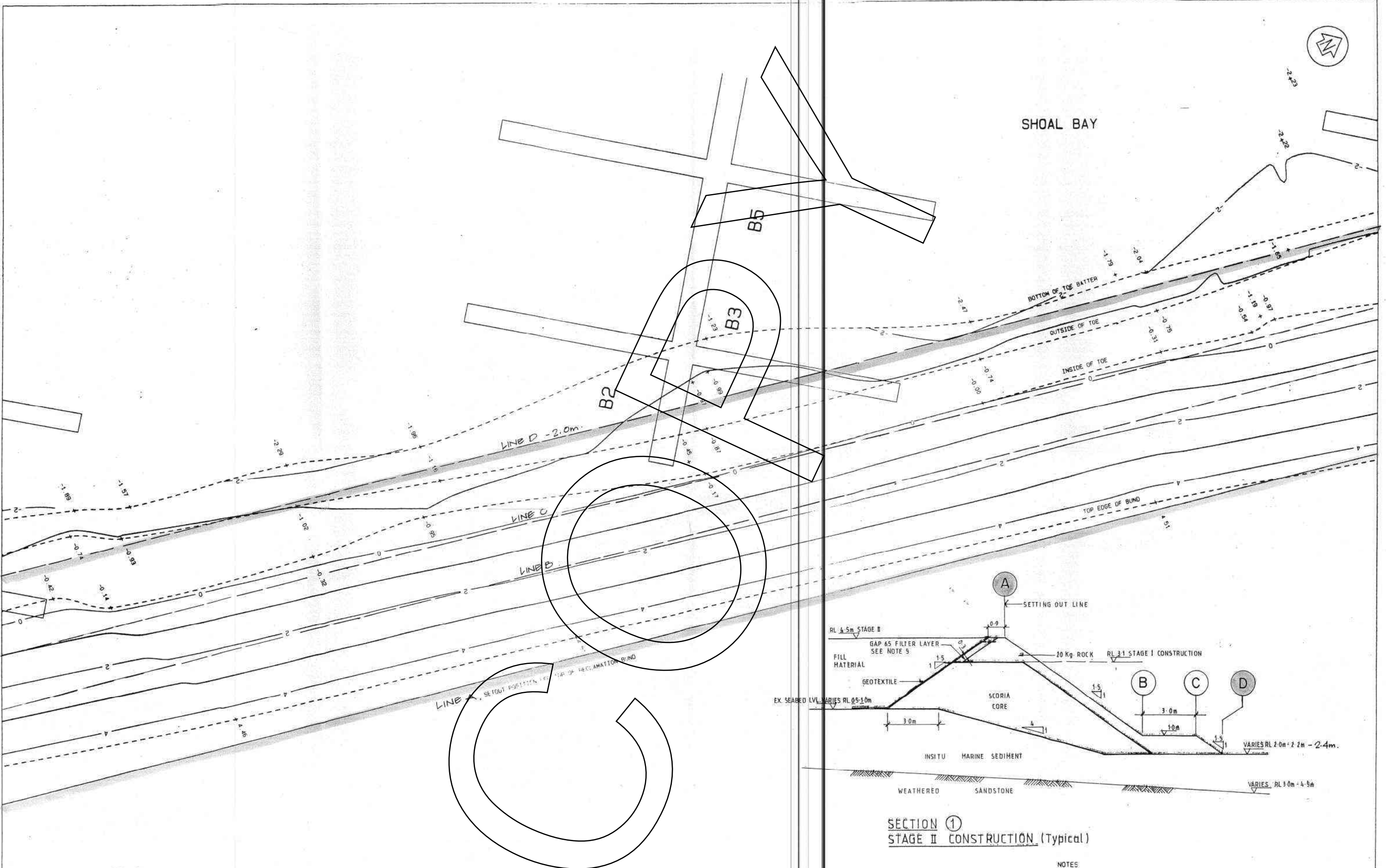
DATE: 6 OCT 1997
DESCRIPTION: SUBDIVISION

MSC. 9762. 7.10.97.

SK4



SHOAL BAY



SECTION ①
STAGE II CONSTRUCTION (Typical)

NOTES

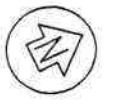
1. LEVELS ARE IN TERMS OF CHART DATUM SUBTRACT 1.74 TO BE IN TERMS OF LANDS & SURVEY DATUM M631 5054463 RL15.345
2. CONTOURS ARE AT 1.00 METRE INTERVALS

SHEET 5 OF 6

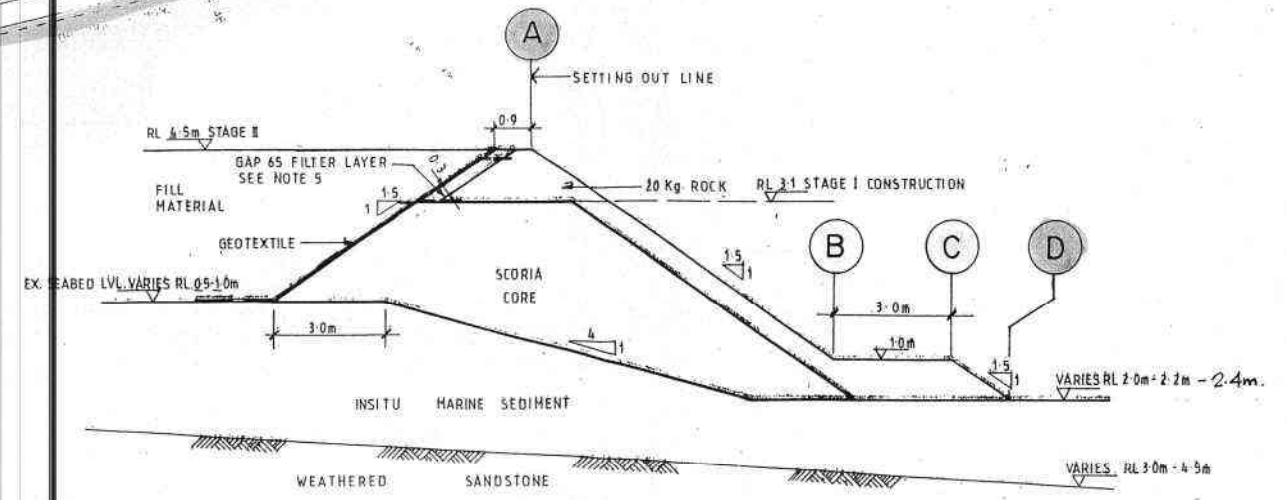
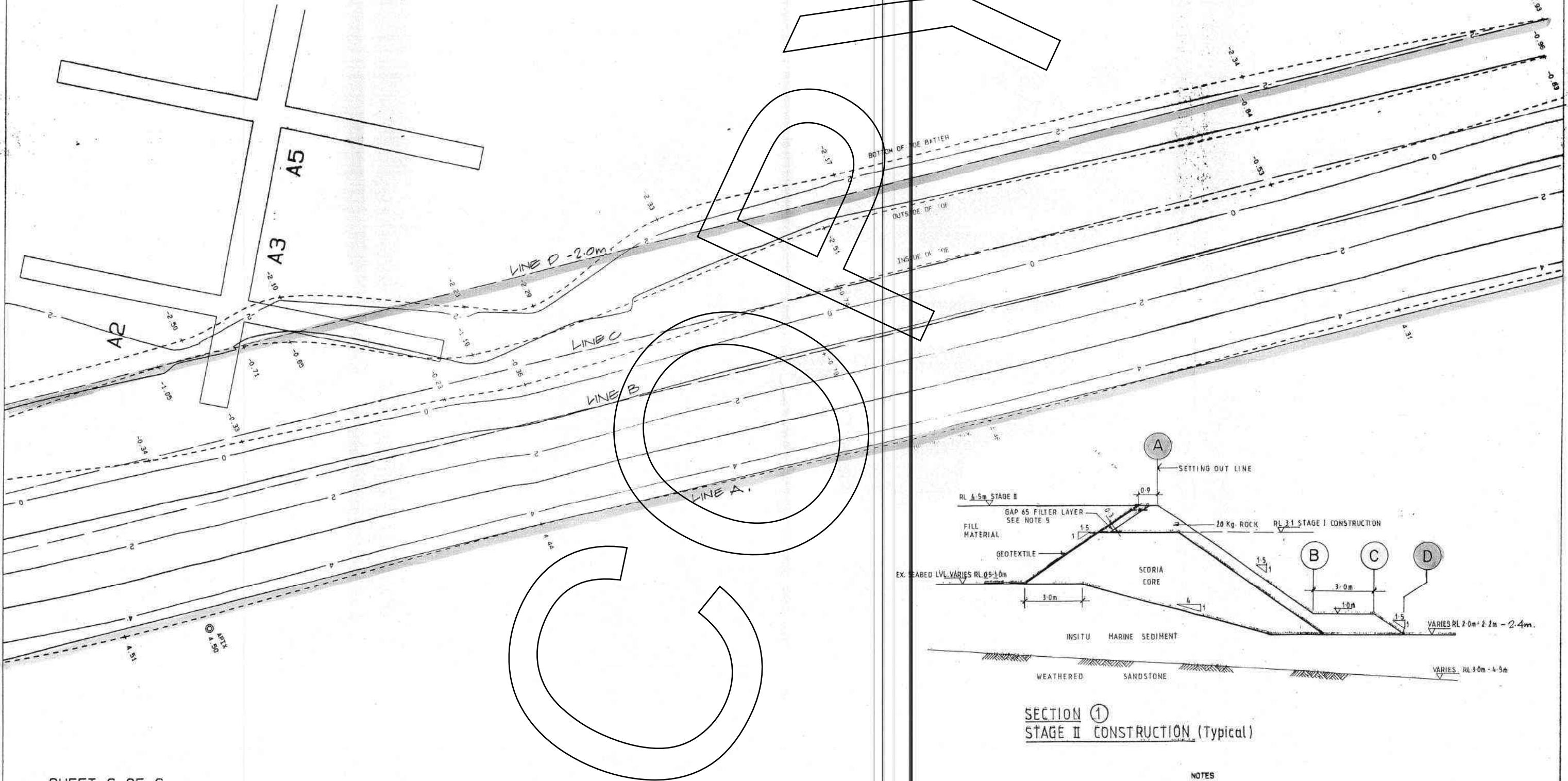
BAYSWATER MARINA - RECLAMATION BUND SURVEY

SK5

FLOATING BREAKWATER



SHOAL BAY



SECTION ①
STAGE II CONSTRUCTION (Typical)

- NOTES
1. LEVELS ARE IN TERMS OF CHART DATUM SUBTRACT 1.74 TO BE IN TERMS OF LANDS & SURVEY DATUM M631 9054463 RL15.345
 2. CONTOURS ARE AT 1.00 METRE INTERVALS

SHEET 6 OF 6

BAYSWATER MARINA - RECLAMATION BUND SURVEY

ORIGIN: 706494.656 N 300191.319 E
SCALE 1: 100 ROTATION: 64°

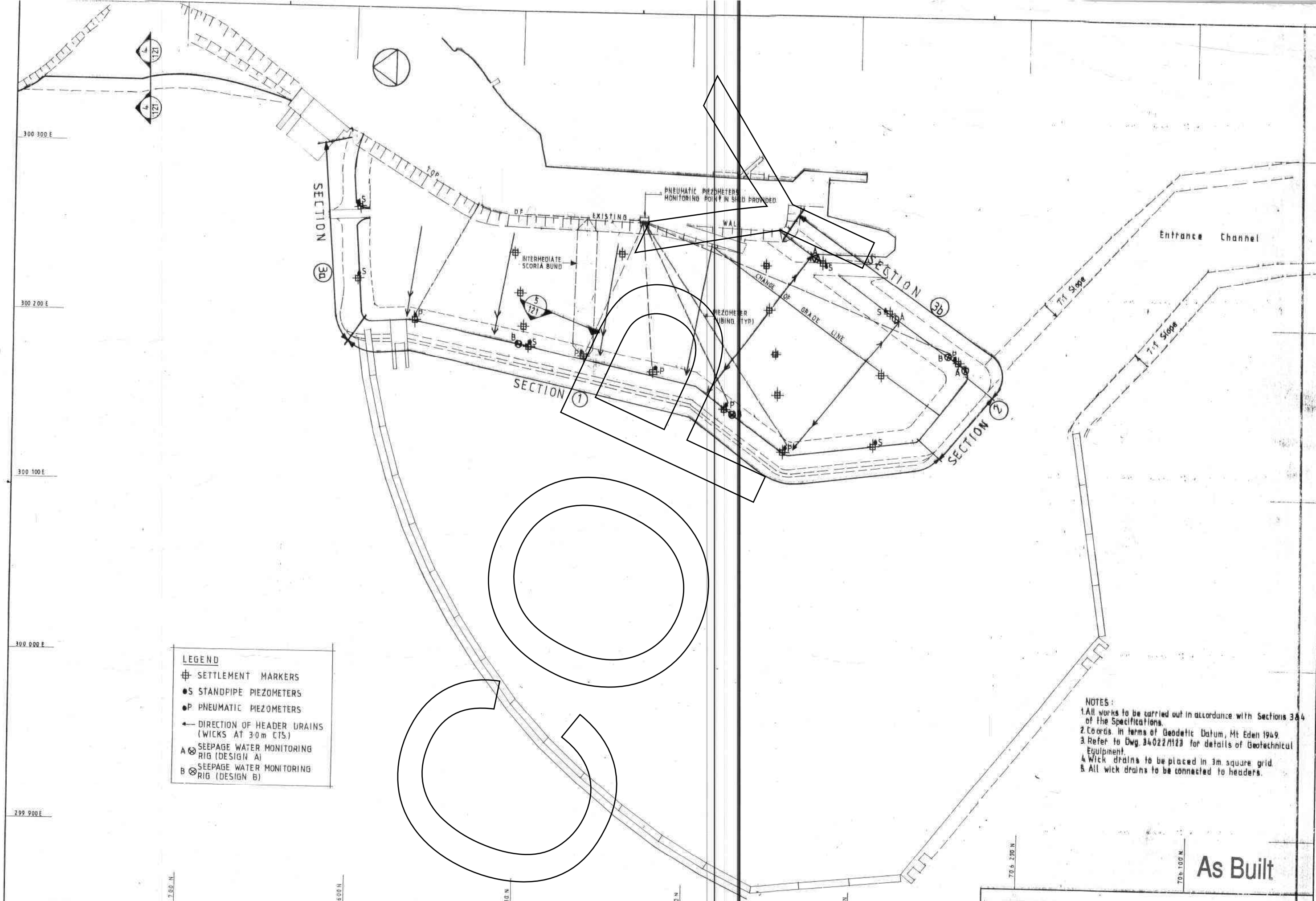
PREPARED BY: HAMPSON & ASSOC. LTD
PO BOX: 34073 BIRKENHEAD PH4805546

BAYSWATER MARINA

COMPUTED BY: ME REFERENCE: 3709
DATE: 6 OCT 1997 DESCRIPTION: SUBDIVISION

MSC. 2762 7-10-97

SKG



LEGEND

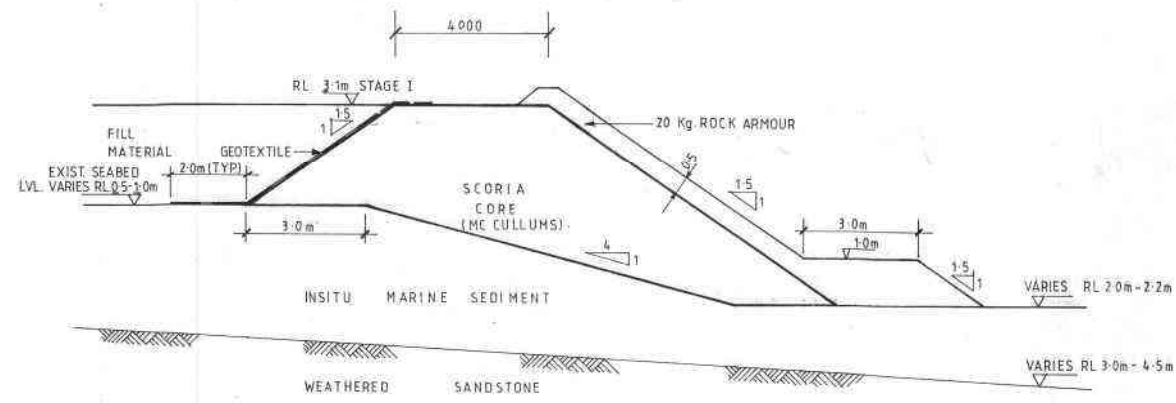
- ⊕ SETTLEMENT MARKERS
- S STANDPIPE PIEZOMETERS
- P PNEUMATIC PIEZOMETERS
- ← DIRECTION OF HEADER DRAINS (WICKS AT 3.0m CTS.)
- A ⊗ SEEPAGE WATER MONITORING RIG (DESIGN A)
- B ⊗ SEEPAGE WATER MONITORING RIG (DESIGN B)

- NOTES:**
1. All works to be carried out in accordance with Sections 3 & 4 of the Specifications.
 2. Coords. in terms of Geodetic Datum, Mt Eden 1949.
 3. Refer to Dwg. 34022/1123 for details of Geotechnical Equipment.
 4. Wick drains to be placed in 3m square grid.
 5. All wick drains to be connected to headers.

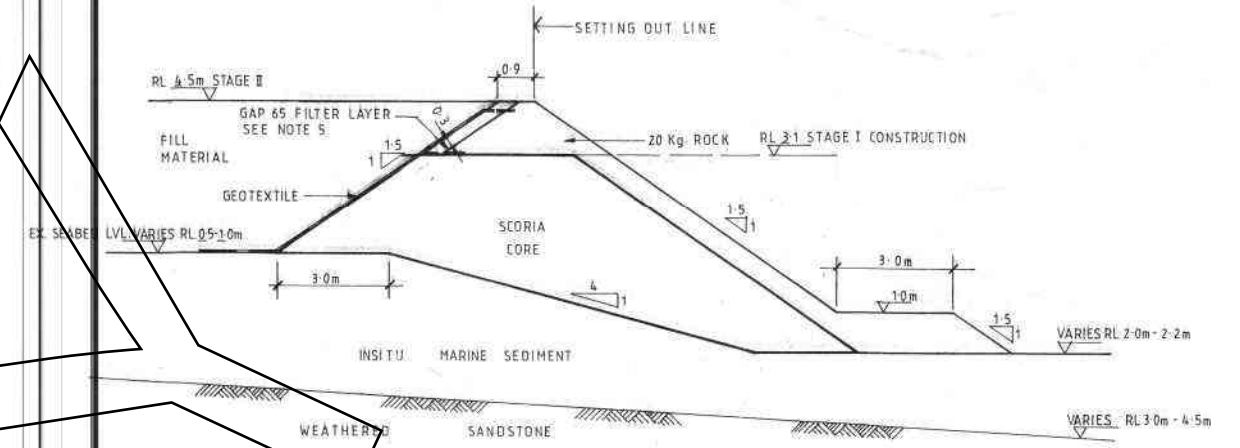
As Built



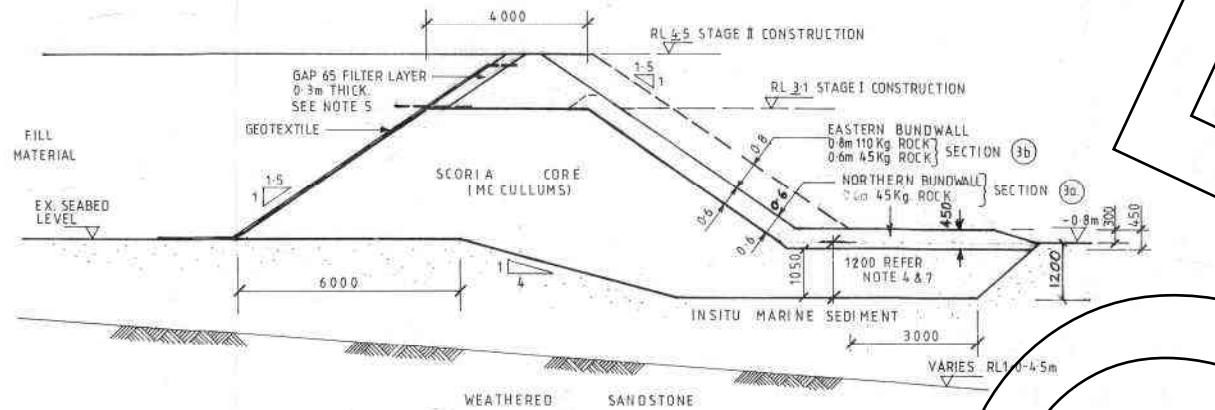
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|---|---|--|--|--|-----------------------|
| Drawing Status: Approved: _____ For Construction: _____ For Tender: _____ | | Project No: _____ Title: BAYSWATER MARINA NORTH HAVEN / W.D. J.V | | Project No: B.W. Dwg No: 122 Rev: B | |
| Revision: B Description: FOR CONSTRUCTION Date: 19-6-98 By: MS-894 Checked: [Signature] Date: _____ | Copyright: _____ This drawing (including copyright) and the content is the property of WILKINS & DAVIES MARINA DESIGN LTD. Any unauthorised employment or reproduction is forbidden. | Reference Dwg: BW 121 BW 123 WAS W&D No 1122 | Designer: D.E. Drawn: J.D. Approved: _____ Date: JUNE 89 | Scale: 1:1000 | Fletcher Construction |



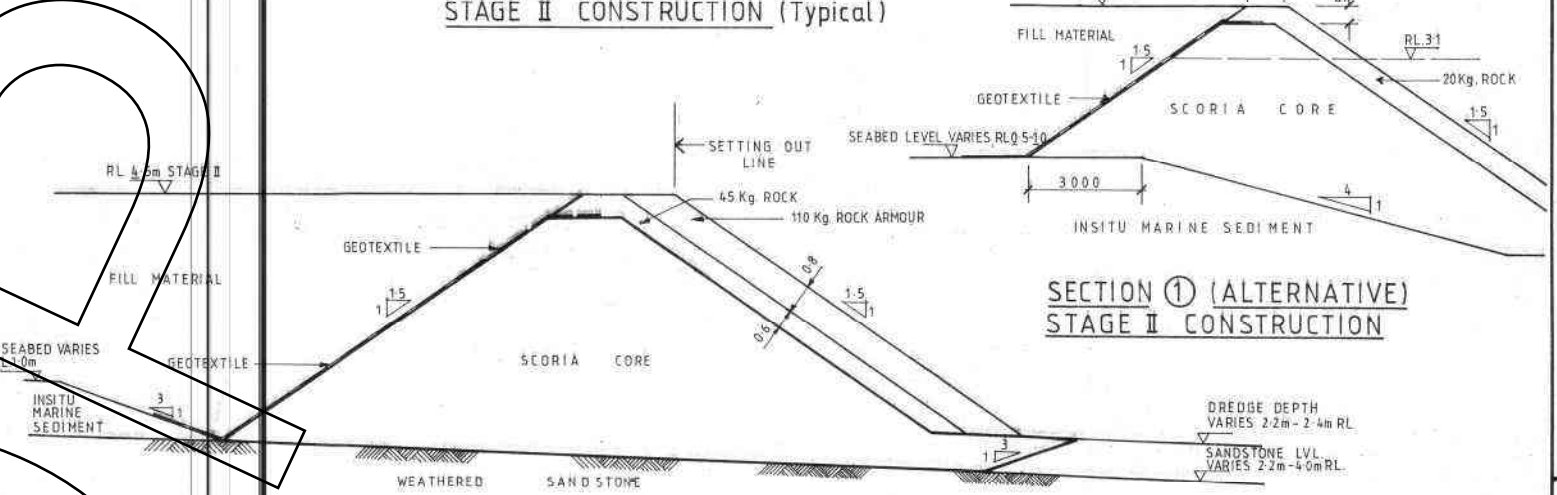
SECTION ①
STAGE I CONSTRUCTION (Typical)



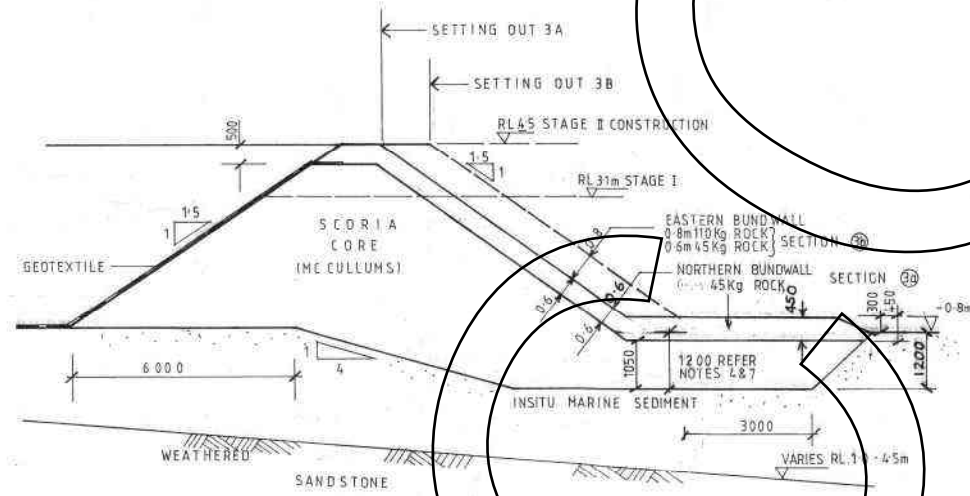
SECTION ①
STAGE II CONSTRUCTION (Typical)



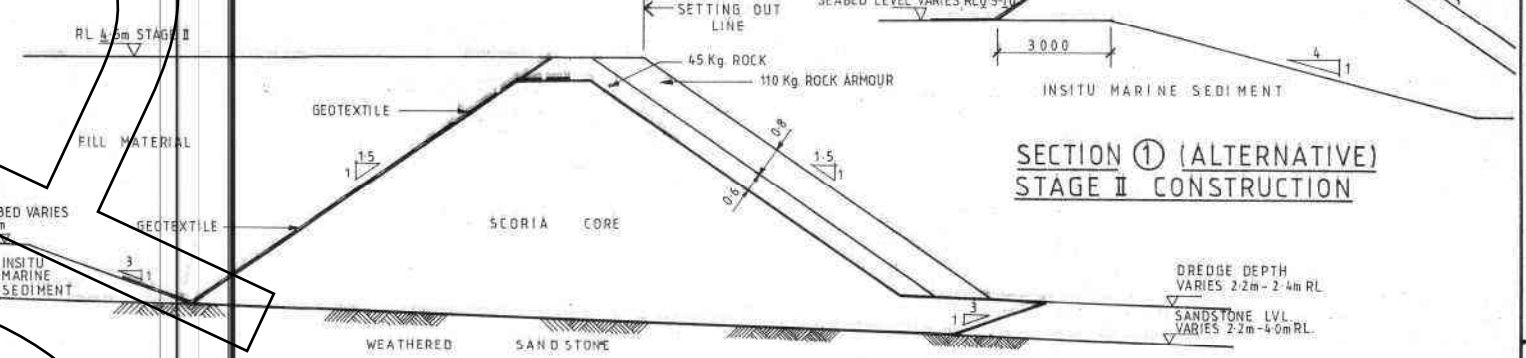
SECTION ③a & ③b
BUNDWALL CONSTRUCTION



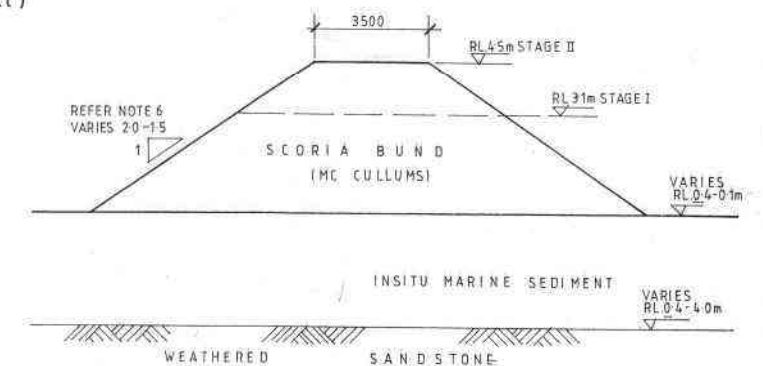
SECTION ① (ALTERNATIVE)
STAGE II CONSTRUCTION



SECTION ③a & ③b
BUNDWALL CONSTRUCTION (ALTERNATIVE)



SECTION ②
STAGE II CONSTRUCTION (Typical)



SECTION ④
NORTHERN RECLAMATION BUND WALL



SECTION ⑤
INTERMEDIATE WALL

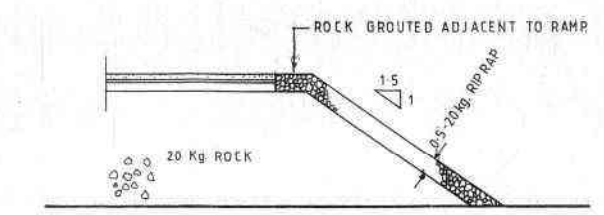
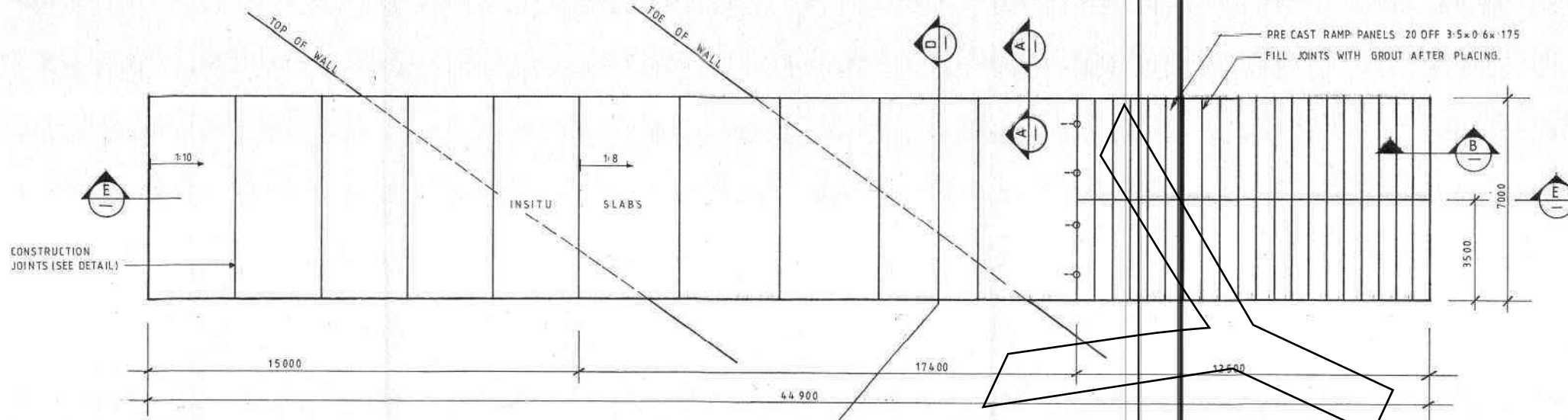
As Built

NOTES

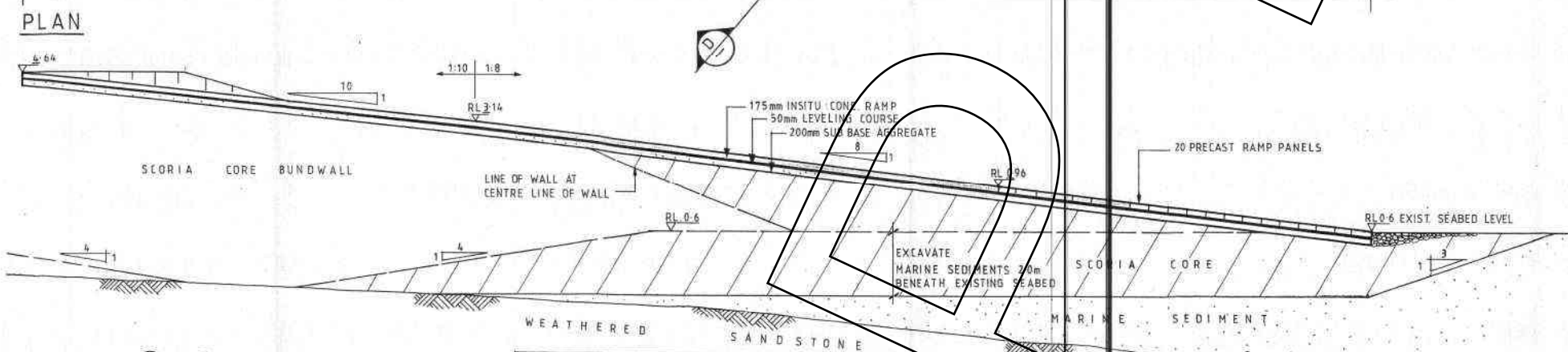
1. ALL LEVELS IN TERMS OF AHB CHART DATUM.
2. ALL LEVELS SHOWN RL45 ARE ABOVE CHART DATUM. ALL LEVELS SHOWN RL30 ARE BELOW CHART DATUM.
3. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH SECTION 3 OF THE SPECIFICATION.
4. REFER SECTIONS ③a & ③b EXCAVATE A MINIMUM DEPTH OF 1.2m INTO MARINE SEDIMENTS OR TO WEATHERED SANDSTONE LEVEL IF THIS IS HIGHER.
5. SCORIA MAY BE USED FOR CORE MATERIAL AS AN OPTION WITH NO GAP 65.
6. INTERMEDIATE BUND WALL SLOPE TO BE 1:1.5 WHEN FOUNDED ON SANDSTONE OR 1:2 WHEN FOUNDED ON MARINE SEDIMENTS. NO EXCAVATION BENEATH INTERMEDIATE BUND IS REQUIRED.
7. 3.0m WIDE TOE NOT REQD. IF ROCK IS WITHIN 1.2m OF SURFACE.

| | | | | | | | | | | | | | | | | | |
|---|--|----------------|--|----------|--|----------|--|------------------|--|-------------------------|--|------------|--|--------|--|-----|--|
| Copyright* | | Reference Dwg# | | Designed | | Scale | | Project | | Title | | Project No | | Dwg No | | Rev | |
| 2-9-14 | | 34 022 /1122 | | D.C | | 1:100 | | BAYSWATER MARINA | | BUNDWALL CROSS SECTIONS | | BW | | 1121 | | C | |
| This drawing (including copyright) and the content is the property of WILKINS & DAVIES MARINA DESIGN LTD. Any unauthorised employment or reproduction is forbidden. | | | | Drawn | | | | | | | | | | | | | |
| 2-9-14 | | | | J.D | | | | | | | | | | | | | |
| Sig | | Date | | Checked | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | Date | | JUNE '89 | | | | | | | | | | | |



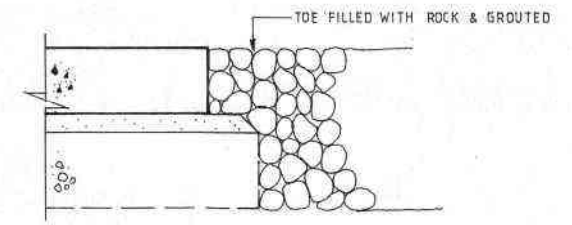


SECTION A-A (TYP)
SCALE 1:100

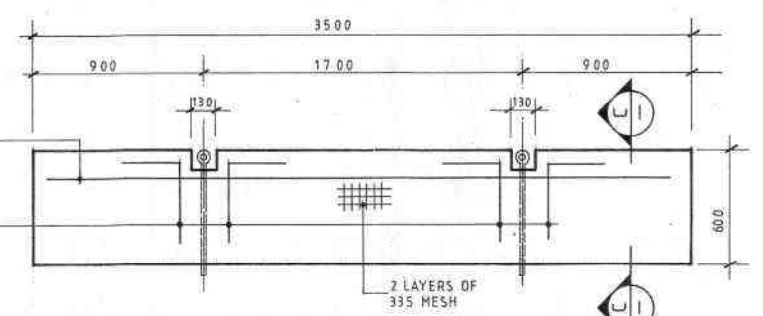


SECTION E-E
SCALE 1:100

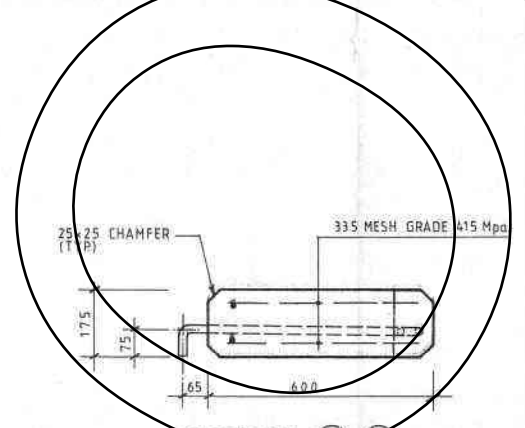
NOTE
 DENOTES AREA TO BE FILLED WITH SCORIA OVER & ABOVE FOR THE BUNDWALL CORE



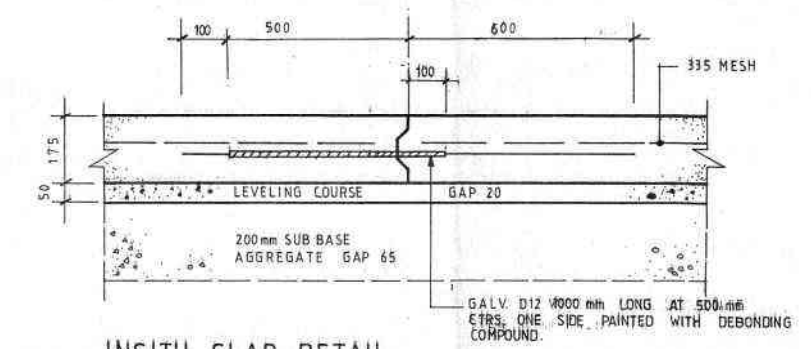
SECTION B-B
SCALE 1:10



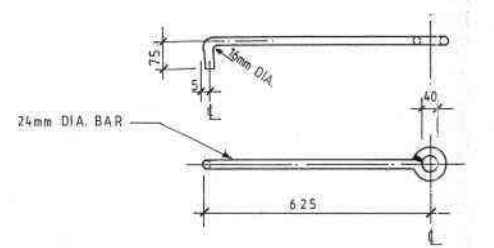
PLAN OF PRECAST PANEL
SCALE 1:20



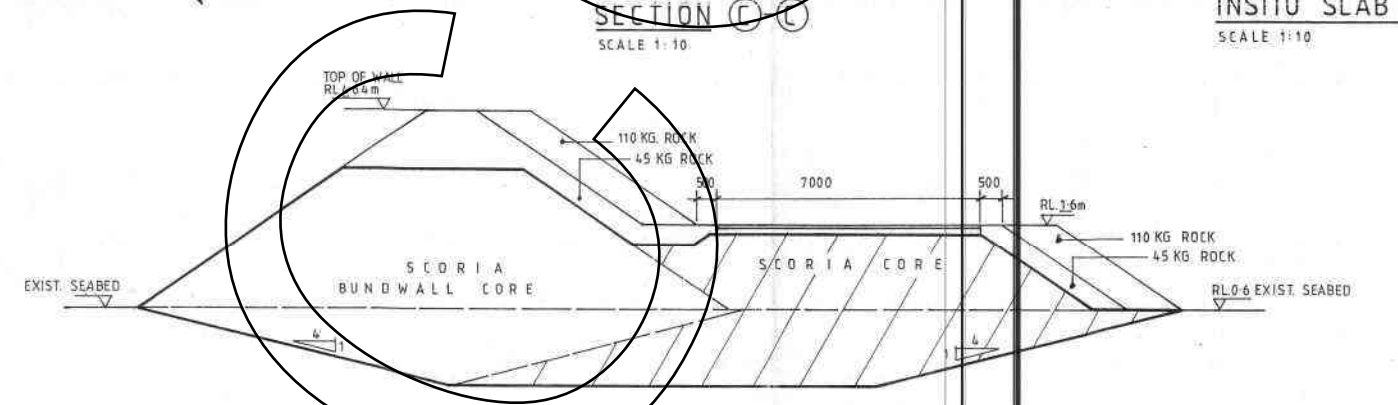
SECTION C-C
SCALE 1:10



INSITU SLAB DETAIL
SCALE 1:10



GALV. STEEL HOOK & EYE
SCALE 1:10 (2 REQUIRED PER PLANK)



SECTION D-D
SCALE 1:100

- NOTES**
- CONC. SURFACE TO BE ROUGHENED BY RAKING ACROSS THE SLOPE TO FORM GROOVES ON A REGULAR PATTERN.
 - CONC. STRENGTH $f'c = 35$ MPA.
 - ALL MESH TO BE 335, STEEL $f_y = 415$ OTHER REINFORCING BARS $f_y = 275$ MPA.
 - ALL METALWORK TO BE HOT DIPPED GALV.
 - COVER TO REINFORCING TO BE 40mm.
 - PRECAST PANELS TO BE LIFTED WITH SPREADER BEAM SO THAT LOAD IS EVENLY SHARED.
 - PRECAST PANELS TO BE STACKED WITH TIMBER PACKERS, DIRECTLY UNDER THE HOOK & EYE.
 - ALL LEVELS IN TERMS OF AHB CHART DATUM.
 - ALL WORKS SHALL BE IN ACCORDANCE WITH SECTION 5 OF THE SPECIFICATION.

| | | |
|----------|-----|------|
| Revision | Sig | Date |
| | | |

Copyright*
 This drawing (including copyright) and the content is the property of WILKINS & DAVIES MARINA DESIGN LTD. Any unauthorised employment or reproduction is forbidden.

Reference Dwgs

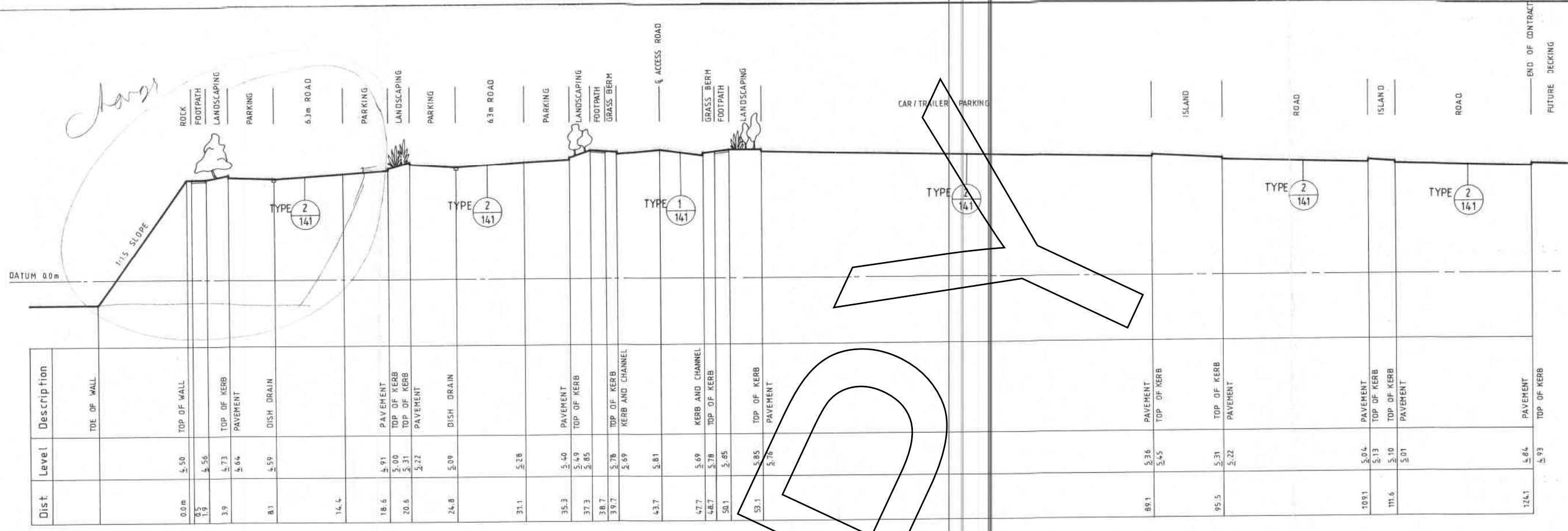
Designed D.C.
 Drawn J.D.
 Checked
 Date MAY 89

Scales
 AS SHOWN

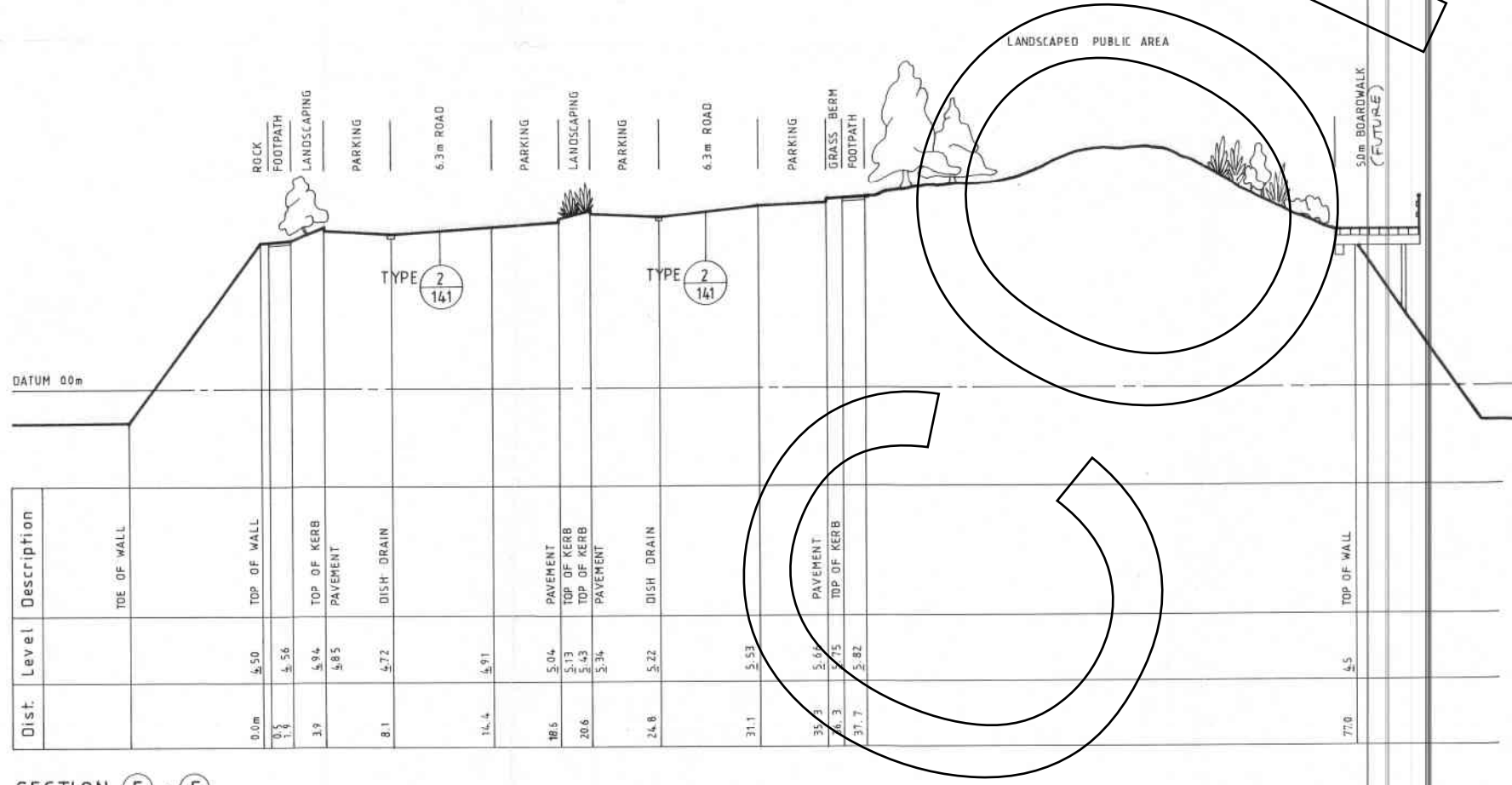
| | | |
|-----------------------------|------------------|-------|
| Drawing Status | For Construction | |
| Approved | For Tender | Wilde |
| Project BAYSWATER MARINA | | |

FLETCHER CONSTRUCTION As Built

| | | | |
|---------------------------|--------------------|---------------|-----|
| Title PUBLIC BOAT RAMP | Project No 4 BW | Dwg No 170 | Rev |
|---------------------------|--------------------|---------------|-----|



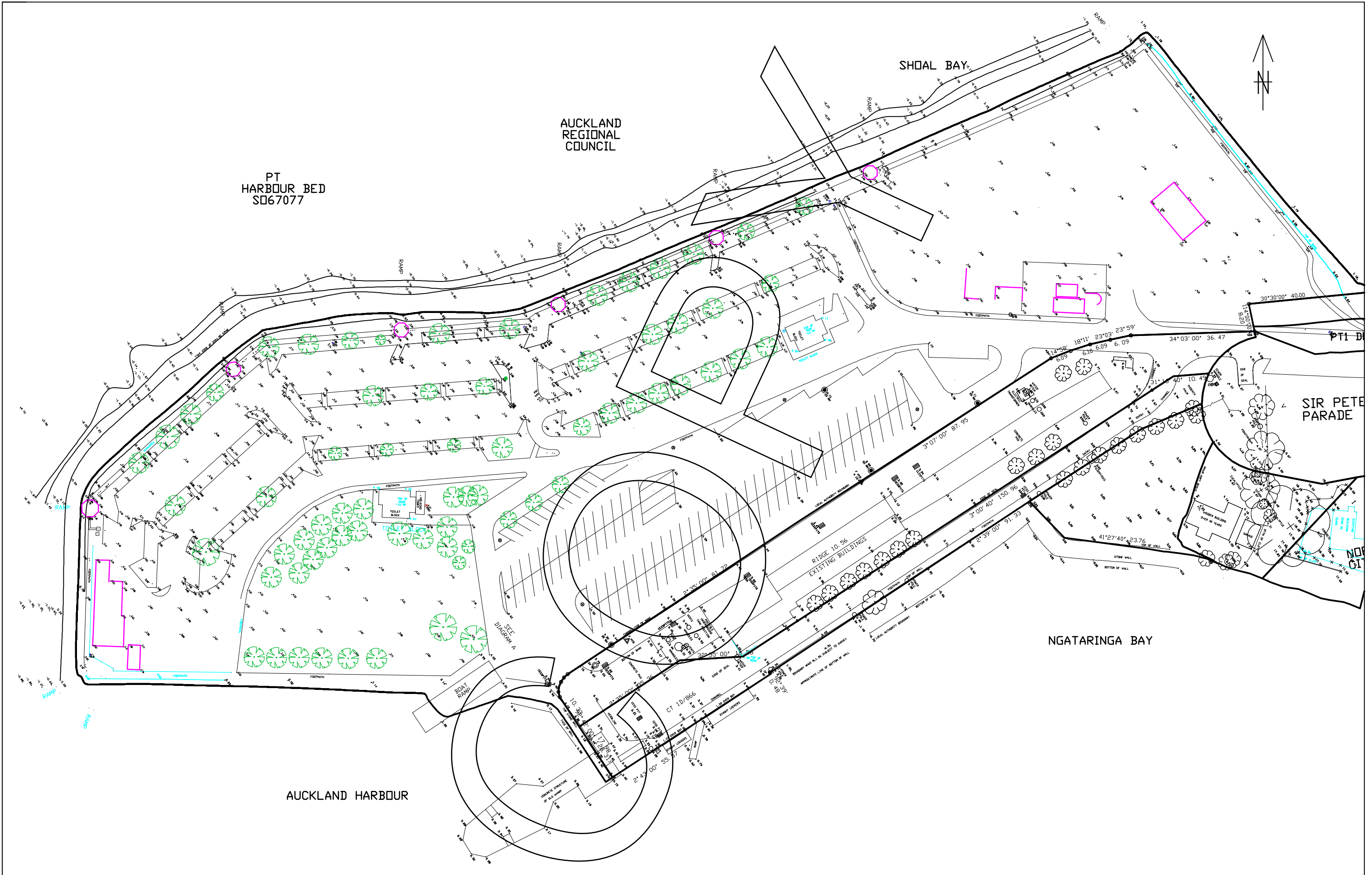
SECTION D - D
MARINA PARKING - CAR/ TRAILER PARKING



SECTION E - E
MARINA PARKING - SOUTH END

NOTE:
1. LEVELS IN TERMS OF AHB CHART DATUM
2. CROSS SECTIONS SHOW POSSIBLE DESIGN PROFILES.
FINAL DESIGN REQUIRED AFTER FORMATION OF
RECLAMATION AND SETTLEMENT HAS OCCURRED

| | | | |
|----------------------------|--|--|----------------|
| BAYSWATER MARINA | | SCALE: vert: 1:100 horiz: 1:200 | |
| RECLAMATION CROSS-SECTIONS | | FLETCHER CONSTRUCTION NEW ZEALAND & SOUTH PACIFIC | |
| SHEET 2 OF 2 | | DESIGN: D.M.C. | SHEET No. OF |
| | | DRAWN: J.P.M. | DWG No. BW 142 |
| | | CHECKED: | |
| | | ISSUE: | |



HAMPSON & ASSOCIATES Ltd
 Land & Engineering Surveyors
 PO Box 302229 North Harbour
 Ph.(09) 414 0325 Fax (09) 414 0329
 Email surveyors@hampson.co.nz

Client:
 EMPIRE NOMINEES Ltd

Notes:
 GEODETIC DATUM 2000
 AUCKLAND VERTICAL DATUM

| | | |
|-------------|--------|------------------|
| Drawn ES | Signed | Date 20/12/13 |
| Designed | Signed | Date |
| Verified | Signed | Date |
| Approved | Signed | Date |

Drawing Title:
 BAYSWATER MARINA

| | |
|-------------|-----------------------|
| Project No. | 6211 |
| Scale | 1:500@A1 1:1000@A3 |
| Drawing No. | Rev. |
| C01 | 0 |



APPENDIX 4

Laboratory Test Results

Please reply to: W.E. Campton

Page 1 of 5

KGA Geotechnical Limited
PO Box 302 361
North Harbour Mail Centre
Auckland 0751

Job Number: 61786#L
BGL Registration Number: 2562
Checked by: WEC

Attention: **PAUL HARDCASTLE**

28th June 2018

HYDROMETER PARTICLE-SIZE DISTRIBUTION TESTING

Dear Sir,

Re: *BAYSWATER MARITIME VILLAGE*
Report Number: 61786#L/HYD

The following report presents the results of hydrometer particle-size distribution testing of 60mm diameter push-tube soil samples delivered to this laboratory on the 26th of June 2018. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

Water Content: NZS4402:1986:Test 2.1
Wet Sieve Test: NZS4402:1986:Test 2.8.1
Hydrometer Test: NZS4402:1986:Test 2.8.4

| Borehole Number | Sample Number | Depth (m) | Hydrometer Grading (% of Dry Mass) | | | |
|-----------------|---------------|-------------|------------------------------------|----------------------|-----------------------------------|------------------------------|
| | | | GRAVEL (2 – <9.50mm) | SAND (0.06 – 2mm) | SILT FRACTION (0.002 – 0.06mm) | CLAY FRACTION (< 0.002mm) |
| MH5 | TUBE | 4.50 – 5.00 | 2 | 25 | 38 | 35 |
| MH6 | TUBE | 8.10 – 8.70 | 0 | 76 | 15 | 9 |
| MH7 | TUBE | 6.00 – 6.25 | 1 | 24 | 36 | 39 |

The whole soil was used for sample MH6 8.10 – 8.70m. The hydrometer tests for samples MH5 4.50 – 5.00m and MH7 6.00 – 6.25m were carried out on the soil fraction that passed a 9.50mm sieve (only several shells were retained on this sieve for each sample). NZS4402:1986:Test 2.8.4 uses a 2.00mm sieve as the separation point for obtaining the hydrometer sample, therefore the use of the whole soil and soil fraction passing a 9.50mm sieve represents a departure from the test standard.

As the organic content of the soil was very low, peroxide pretreatment was not carried out. A solid density of 2.65t/m³ was assumed for these hydrometer tests, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.8.1: wet sieve & Test 2.8.4: hydrometer, the 'percentages passing' and 'percentages fine than' are reported to nearest 1%.

Please note that the test results relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report, please contact the undersigned at your convenience.

Yours faithfully,



Justin Franklin

**Signatory (Assistant Laboratory Manager)
Babbage Geotechnical Laboratory**



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

| | | |
|--------------|-----|-----------|
| Tested By: | WEC | 27-Jun-18 |
| Compiled By: | WEC | 28-Jun-18 |
| Checked By: | JF | 28-Jun-18 |

BH No: MH5

Sample No: TUBE

Depth: 4.50 - 5.00m

| Particle Size (mm) | % Finer Than |
|--------------------|--------------|
| 4.75 | 100 |
| 2.00 | 98 |
| 0.600 | 97 |
| 0.212 | 96 |
| 0.063 | 74 |
| 0.049 | 71 |
| 0.036 | 65 |
| 0.025 | 61 |
| 0.018 | 57 |
| 0.013 | 53 |
| 0.0095 | 52 |
| 0.0068 | 47 |
| 0.0048 | 44 |
| 0.0034 | 41 |
| 0.0025 | 36 |
| 0.0014 | 34 |

Water Content (%): 56.1

Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.0

HYDROMETER ANALYSIS (% of dry mass)

TOTAL

| | | | | | |
|----------------|----------|-------------|---|----------|---|
| GRAVEL: | (Medium) | < 9.5 - 6mm | 0 | 2 | % |
| | (Fine) | 6 - 2mm | 2 | | |

| | | | | | |
|--------------|----------|--------------|----|-----------|---|
| SAND: | (Coarse) | 2.0 - 0.6mm | 1 | 25 | % |
| | (Medium) | 0.6 - 0.2mm | 2 | | |
| | (Fine) | 0.2 - 0.06mm | 22 | | |

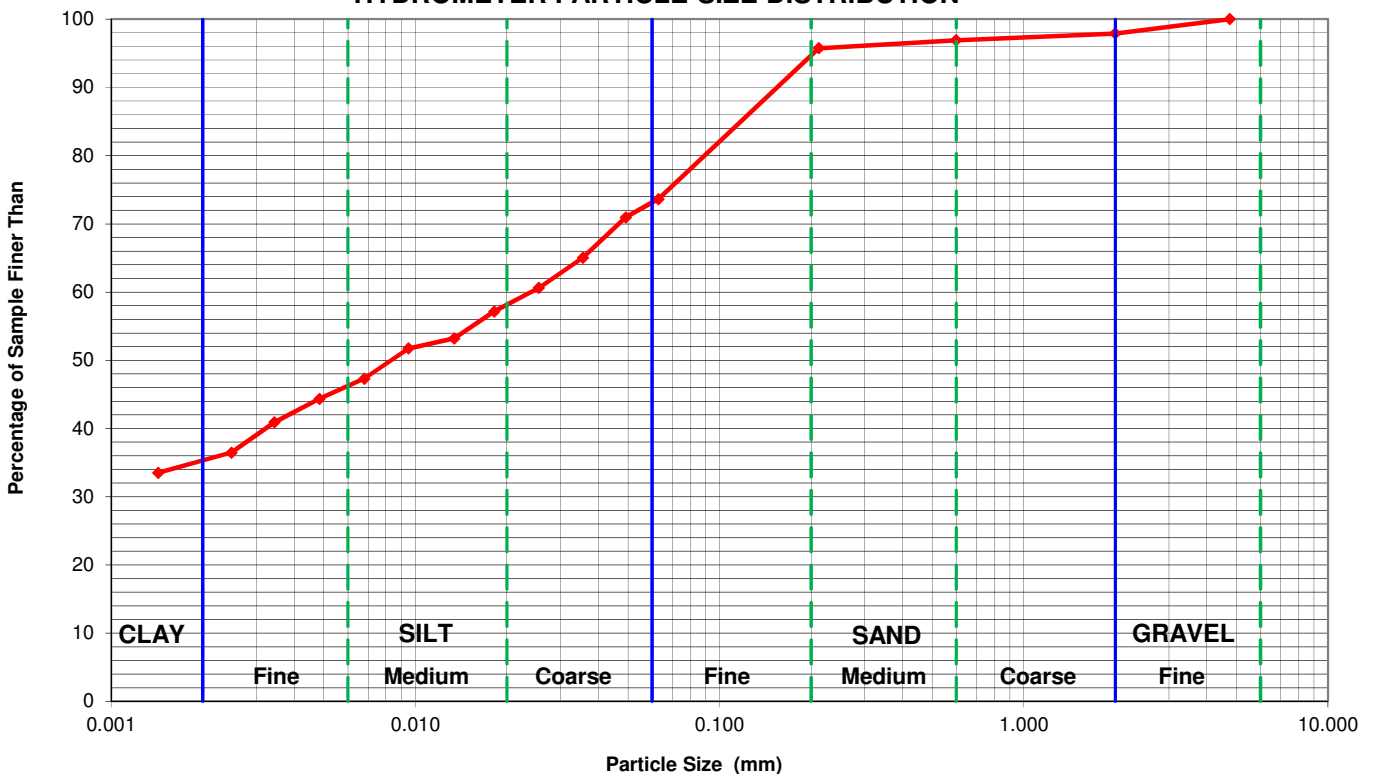
| | | | | | |
|-----------------------|----------|-----------------|----|-----------|---|
| SILT FRACTION: | (Coarse) | 0.06 - 0.02mm | 15 | 38 | % |
| | (Medium) | 0.02 - 0.006mm | 12 | | |
| | (Fine) | 0.006 - 0.002mm | 11 | | |

| | | | | | |
|-----------------------|-----------|--|--|-----------|---|
| CLAY FRACTION: | < 0.002mm | | | 35 | % |
|-----------------------|-----------|--|--|-----------|---|

100%

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / SOIL FRACTION PASSING A 9.50mm SIEVE

HYDROMETER PARTICLE-SIZE DISTRIBUTION



Project: **BAYSWATER MARITIME VILLAGE**

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

| | | |
|---------------------|-----|-----------|
| Tested By: | WEC | 27-Jun-18 |
| Compiled By: | WEC | 28-Jun-18 |
| Checked By: | JF | 28-Jun-18 |

BH No: MH6

Sample No: TUBE

Depth: 8.10 - 8.70m

| Particle Size (mm) | % Finer Than |
|--------------------|--------------|
| 0.600 | 100 |
| 0.300 | 99 |
| 0.212 | 95 |
| 0.150 | 78 |
| 0.090 | 35 |
| 0.063 | 24 |
| 0.048 | 22 |
| 0.035 | 19 |
| 0.025 | 17 |
| 0.018 | 16 |
| 0.013 | 14 |
| 0.0096 | 13 |
| 0.0067 | 13 |
| 0.0049 | 12 |
| 0.0035 | 11 |
| 0.0025 | 10 |
| 0.0014 | 8 |

Water Content (%): 32.3

Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.0

HYDROMETER ANALYSIS (% of dry mass)

TOTAL

| | | | | | |
|----------------|----------|-------------|---|----------|----------|
| GRAVEL: | (Medium) | < 9.5 - 6mm | 0 | 0 | % |
| | (Fine) | 6 - 2mm | 0 | | |

| | | | | | |
|--------------|----------|--------------|----|-----------|----------|
| SAND: | (Coarse) | 2.0 - 0.6mm | 0 | 76 | % |
| | (Medium) | 0.6 - 0.2mm | 8 | | |
| | (Fine) | 0.2 - 0.06mm | 68 | | |

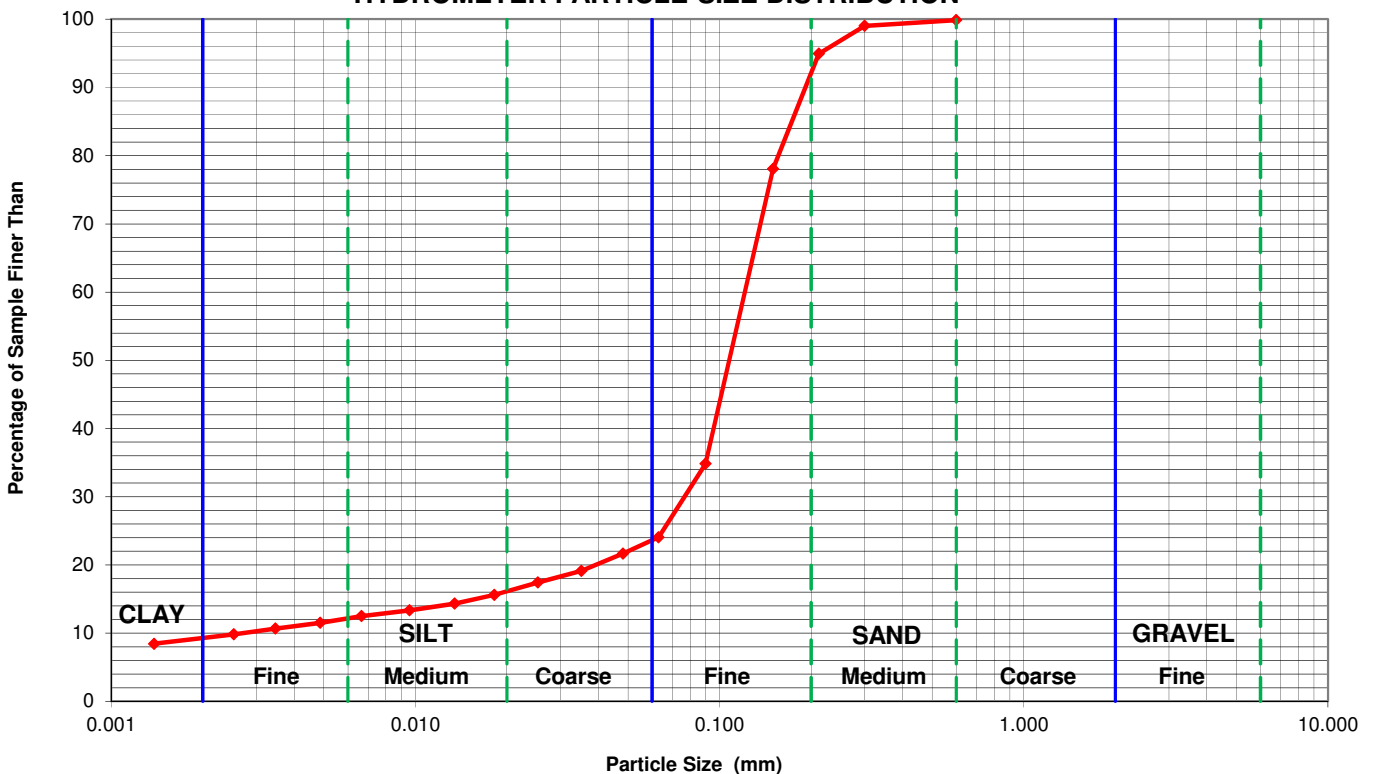
| | | | | | |
|-----------------------|----------|-----------------|---|-----------|----------|
| SILT FRACTION: | (Coarse) | 0.06 - 0.02mm | 8 | 15 | % |
| | (Medium) | 0.02 - 0.006mm | 4 | | |
| | (Fine) | 0.006 - 0.002mm | 3 | | |

| | | | |
|-----------------------|-----------|----------|----------|
| CLAY FRACTION: | < 0.002mm | 9 | % |
|-----------------------|-----------|----------|----------|

100%

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / SOIL FRACTION PASSING A 9.50mm SIEVE

HYDROMETER PARTICLE-SIZE DISTRIBUTION



PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

| | | |
|--------------|-----|-----------|
| Tested By: | WEC | 27-Jun-18 |
| Compiled By: | WEC | 28-Jun-18 |
| Checked By: | JF | 28-Jun-18 |

BH No: MH7

Sample No: TUBE

Depth: 6.00 - 6.25m

| Particle Size (mm) | % Finer Than |
|--------------------|--------------|
| 4.75 | 100 |
| 2.00 | 99 |
| 0.600 | 99 |
| 0.212 | 98 |
| 0.063 | 75 |
| 0.049 | 74 |
| 0.035 | 68 |
| 0.025 | 65 |
| 0.018 | 62 |
| 0.013 | 58 |
| 0.0095 | 55 |
| 0.0068 | 51 |
| 0.0048 | 48 |
| 0.0034 | 45 |
| 0.0025 | 41 |
| 0.0014 | 37 |

Water Content (%): 65.5

Sample History: Natural / Air Dried / Oven Dried / Unknown

pH of sedimentation suspension: 8.0

HYDROMETER ANALYSIS (% of dry mass)

TOTAL

| | | | | | |
|----------------|----------|-------------|---|----------|----------|
| GRAVEL: | (Medium) | < 9.5 - 6mm | 0 | 1 | % |
| | (Fine) | 6 - 2mm | 1 | | |

| | | | | | |
|--------------|----------|--------------|----|-----------|----------|
| SAND: | (Coarse) | 2.0 - 0.6mm | 0 | 24 | % |
| | (Medium) | 0.6 - 0.2mm | 2 | | |
| | (Fine) | 0.2 - 0.06mm | 22 | | |

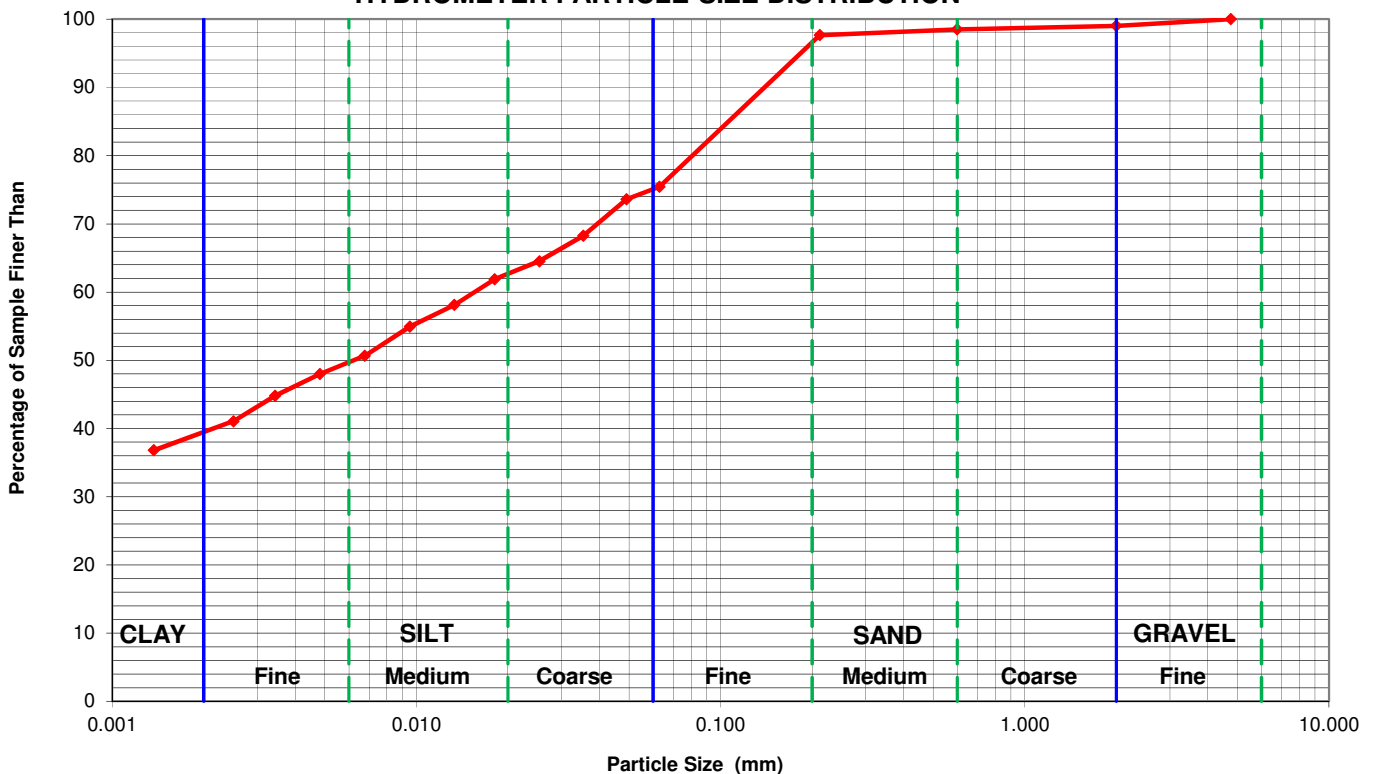
| | | | | | |
|-----------------------|----------|-----------------|----|-----------|----------|
| SILT FRACTION: | (Coarse) | 0.06 - 0.02mm | 13 | 36 | % |
| | (Medium) | 0.02 - 0.006mm | 12 | | |
| | (Fine) | 0.006 - 0.002mm | 11 | | |

| | | | | | |
|-----------------------|-----------|--|--|-----------|----------|
| CLAY FRACTION: | < 0.002mm | | | 39 | % |
|-----------------------|-----------|--|--|-----------|----------|

100%

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / SOIL FRACTION PASSING A 9.50mm SIEVE

HYDROMETER PARTICLE-SIZE DISTRIBUTION



Please reply to: W.E. Campton

Page 1 of 3

KGA Geotechnical Limited
PO Box 302 361
North Harbour Mail Centre
Auckland 0751

Job Number: 61786#L
BGL Registration Number: 2562
Checked by: WEC

Attention: **PAUL HARDCASTLE**

28th June 2018

ATTERBERG LIMITS TESTING

Dear Sir,

Re: BAYSWATER MARITIME VILLAGE
Report Number: 61786#L/AL

The following report presents the results of Atterberg Limits testing of 60mm diameter push-tube soil samples delivered to this laboratory on the 26th of June 2018. Test results are summarised below, with page 3 showing where the samples plot on the Unified Soil Classification System (Casagrande) Chart. Test standards used were:

Water Content: NZS4402:1986:Test 2.1
Liquid Limit: NZS4402:1986:Test 2.2
Plastic Limit: NZS4402:1986:Test 2.3
Plasticity Index: NZS4402:1986:Test 2.4

| Borehole Number | Sample Number | Depth (m) | Water Content (%) | Liquid Limit | Plastic Limit | Plasticity Index |
|-----------------|---------------|-------------|-------------------|--------------|---------------|------------------|
| MH5 | TUBE | 4.50 – 5.00 | 56.1 | 75 | 25 | 50 |
| MH7 | TUBE | 6.00 – 6.25 | 65.5 | 77 | 26 | 51 |

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.2: liquid limit and test 2.3: plastic limit are reported to the nearest whole number.

The whole soil was used for all water content tests (the soils were in a natural state), and for the plastic limit and liquid limit tests. The soil was wet up and dried where required for the plastic limit and liquid limit tests.

Please note that the test results relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report, please contact the undersigned at your convenience.

Yours faithfully,



Justin Franklin
Signatory (Assistant Laboratory Manager)
Babbage Geotechnical Laboratory



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full & with written approval from BGL.

