

CIVIL ENGINEERING DRAWINGS

TWEED VALLEY HOSPITAL DEVELOPMENT

STAGE 1 - EARLY AND ENABLING WORKS

DRAWING No.

DESCRIPTION

20 10748 C001	DRAWING REGISTER AND CONSTRUCTION NOTES
20 10748 C005	SOIL AND WATER MANAGEMENT PLAN
20 10748 C006	SOIL AND WATER MANAGEMENT DETAILS
20 10748 C007	SOIL AND WATER MANAGEMENT CALCULATIONS
20 10748 C011	GENERAL EARTHWORKS PLAN
20 10748 C030	CONCEPT STORMWATER MANAGEMENT PLAN
20 10748 C055	RETAINING WALL DETAILS
20 10748 C056	RETAINING WALL DETAILS

GENERAL NOTES

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.
- G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.
- G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.
- G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS. CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.
- G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTION OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD, REFERENCE: GE18/144, DATED AUGUST 2018.
- G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.
- G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.
- G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.
- G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.
- G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.
- G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.
- G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

SITEWORKS NOTES

- S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E11' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.
- S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD REFERENCE: GE18/144, DATED AUGUST 2018 MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILED BELOW FOR (ALL REQUIREMENTS ARE TO BE VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER):
- | | |
|--|----------|
| • LANDSCAPED AREAS | 95% STD. |
| • FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL; | |
| - FINE CRUSHED ROCK | 98% STD. |
| - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT | 98% STD. |
| • BUILDING BASECOURSE | 98% MOD |
| • FILL UNDER ROAD PAVEMENTS; | |
| - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL | 98% STD. |
| - UP TO FINISHED SUBGRADE LEVEL | 98% STD. |
| • ROAD PAVEMENT MATERIALS; | |
| - SUB BASE | 98% MOD. |
| - BASE COURSE | 98% MOD. |
- THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.
- S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.
- S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.
- S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.
- S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT
- S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.
- S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.
- S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS.
- S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
- A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011
- B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011
- S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 15 METRES THE CONTRACTOR MUST:
- A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

STORMWATER DRAINAGE NOTES

- SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SYPHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.
- SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 2 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR Ø225mm OR SMALLER.
- SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.
- SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.
- SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY BONACCI GROUP.
- SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
- SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
- SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.
- SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

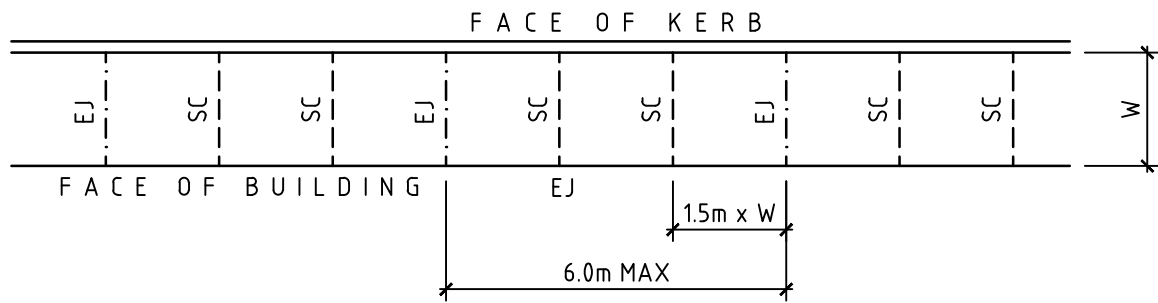
KERBING NOTES

- K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O.
- K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.
- K3 EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.
- K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.
- K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
- K6 IN THE REPLACEMENT OF KERBS:-
- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
 - EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

JOINTING NOTES

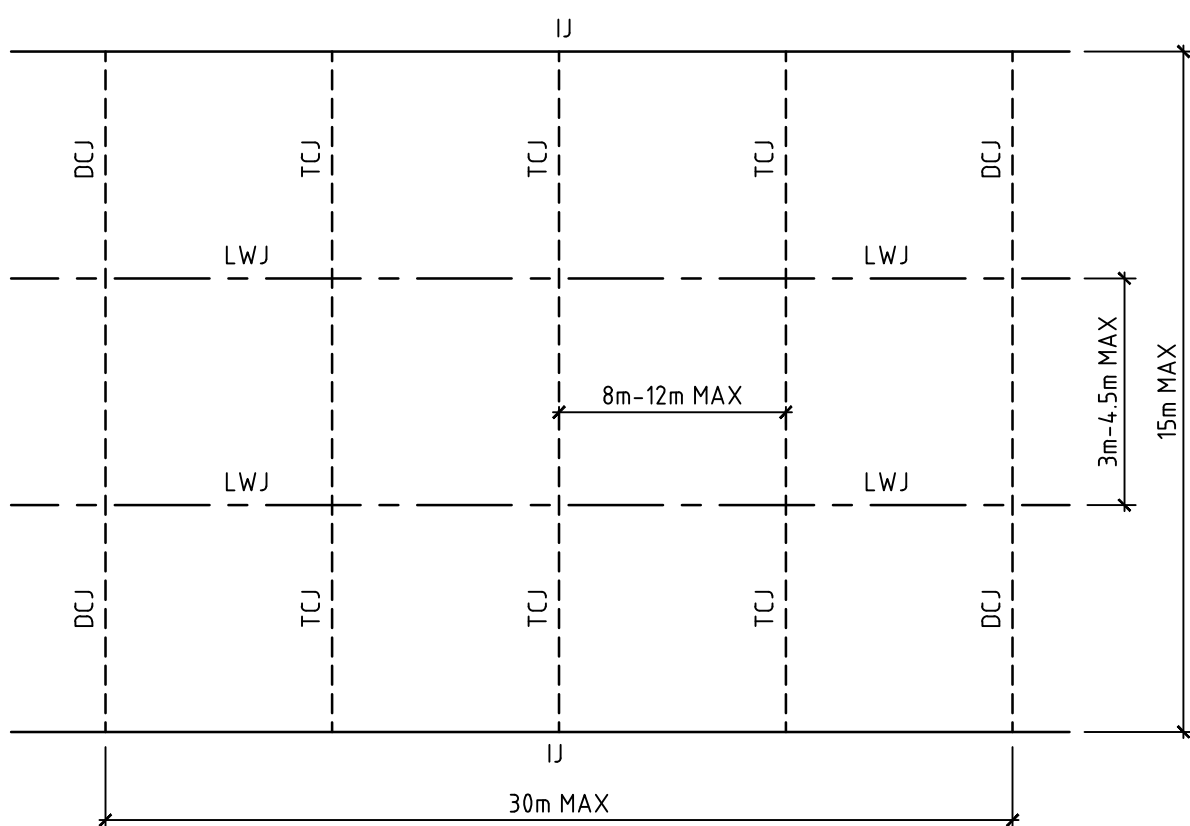
PEDESTRIAN FOOTPATH JOINTS

- J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.
- J2 SAWCUT JOINTS (SC) ARE TO BE LOCATED AT A MAX 15m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED.
- J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.
- J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS
- J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).



VEHICULAR PAVEMENT JOINTS

- J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.
- J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJ's SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.
- J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 8m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.
- J9 TRANSVERSE DOWELLED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.
- J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.
- J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTRROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 PAVEMENT DESIGN FOR LIGHT TRAFFIC
- J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.).



COPYRIGHT
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

All rights reserved.

P4	ISSUED FOR EARLY AND ENABLING WORKS	16.10.18	PN	-
P3	ISSUED FOR EARLY WORKS DA	04.10.18	PN	-
P2	ISSUED FOR EARLY WORKS DA	06.09.18	PA	-
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-

Rev	Description	Date	By	App	Rev	Description	Date	By	App
-----	-------------	------	----	-----	-----	-------------	------	----	-----



Project Name	TWEED VALLEY HOSPITAL DEVELOPMENT, KINGSCLIFF, NSW
Drawing Title	DRAWING REGISTER AND CONSTRUCTION NOTES

DEVELOPMENT APPLICATION

Designed	CS	Project Director Approved	Date	North
Drawn	PA			
Scale	-			
Date	03.09.18	Project Ref	Drawing No	Rev
Sheet	A1	20 10748 01	C001	P4

File: C:\Jobs\107480\1 Civil\Issued\DWG\107480-C005-CAD\PA.dwg Plotter: 19.10.18 at 11:32 AM By: Cameron Stanford



LEGEND

- SITE BOUNDARY
- SEDIMENT FENCE
- TEMPORARY SHAKER RAMP FOR ENTRY/EXIT
- SEDIMENT BASIN (LOCATION TBC ON-SITE)
- TEMPORARY STOCKPILE (LOCATION TBC ON-SITE)
- OVERLAND FLOW
- RW RETAINING WALL
- Ex S EXISTING SEWER
- Ex OH EXISTING OVERHEAD LINES
- Ex T EXISTING TELSTRA
- Ex SW EXISTING STORMWATER
- Ex W EXISTING WATER

COPYRIGHT
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

All rights reserved.

P4	ISSUED FOR EARLY AND ENABLING WORKS	16.10.18	PN	-
P3	ISSUED FOR EARLY WORKS DA	04.10.18	PN	-
P2	ISSUED FOR EARLY WORKS DA	06.10.18	PA	-
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-

Rev	Description	Date	By	App	Rev	Description	Date	By	App



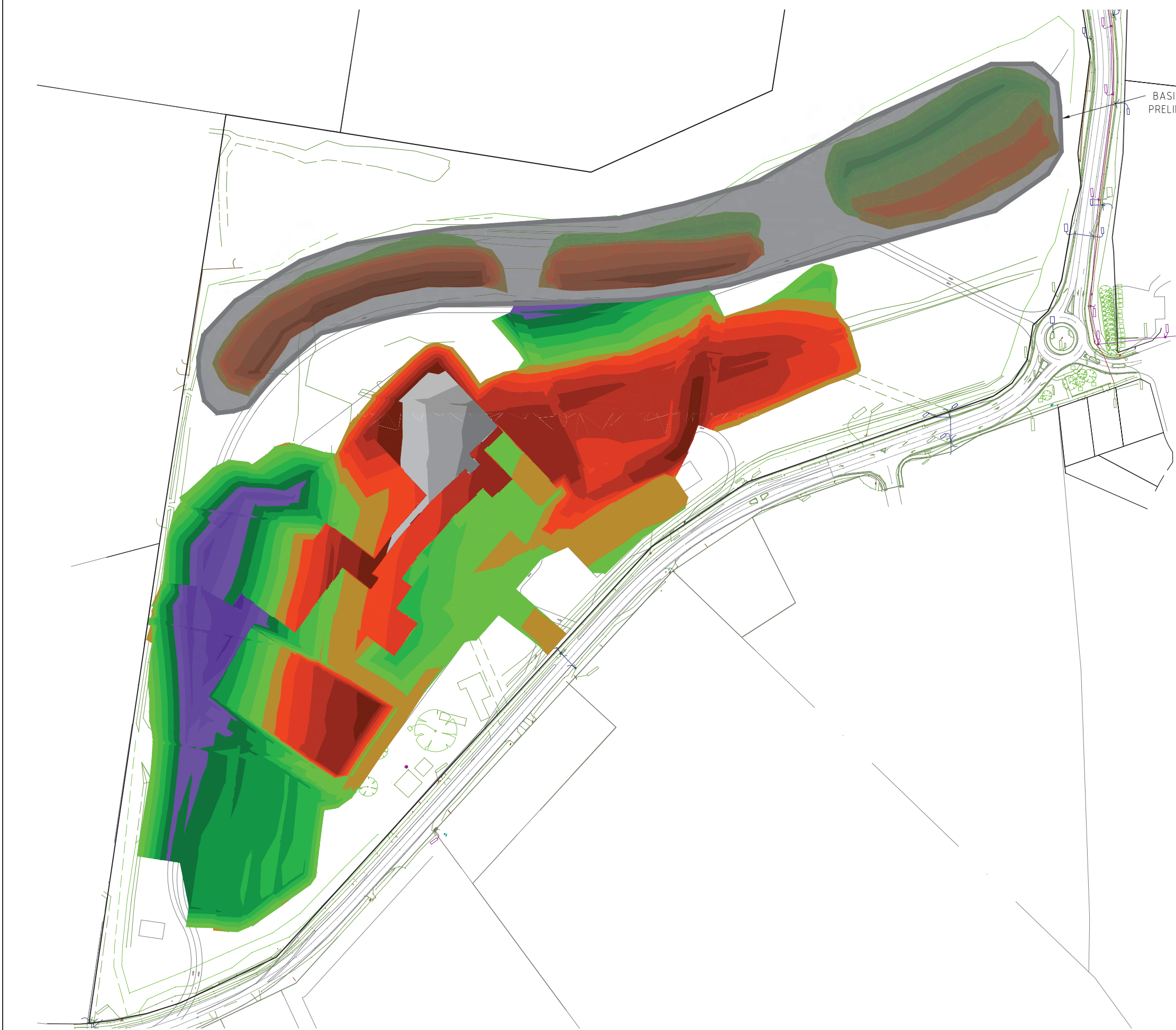
BONACCI
BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, KINGSCLIFF,
NSW**

Drawing Title
**SOIL AND WATER MANAGEMENT
PLAN**

DEVELOPMENT APPLICATION			
Designed	PA	Project Director Approved	Date
Drawn	PA		North
Scale	1:1250		
Date	03.09.18		
Sheet	A1		
Project Ref		Drawing No	Rev
20 10748 01		C005	P4

File: G:\001074801_Civil\Issued\Draw\107480-C011-CAD\PA.dwg, Plotted: 19/10/18 at 11:39 AM By: Cameron Stanford



BASINS CONSTRUCTED UNDER
PRELIMINARY WORKS

- NOTE**
1. VOLUMES ARE APPROXIMATE ONLY, WHICH ARE IN PLACE AND DO NOT INCORPORATE BULKING FACTORS AND OVER EXCAVATION
 2. LEVELS PROVIDED ARE PRELIMINARY AND MIGHT CHANGE AS DESIGN PROGRESSES.
 3. GROUND WATER SEEPAGE MAY OCCUR IN EXCAVATED AREAS. DE-WATERING MAY BE REQUIRED IN THIS INSTANCE.
 4. RE USE OF THE EXCAVATED ROCK FOR ROAD BASE AND OTHER PURPOSES

EARTHWORKS QUANTITIES

BASINS
CUT VOLUME = 28,451m³
FILL VOLUME = 8,450m³
NET (CUT) = 20,001m³

EARTHWORKS QUANTITIES

REMAINDER OF WORKS
CUT VOLUME = 111,361m³
FILL VOLUME = 110,203m³
NET (CUT) = 1,158m³

EARTHWORKS QUANTITIES

TOTAL
CUT VOLUME = 139,812m³
FILL VOLUME = 118,653m³
NET (CUT) = 21,159m³

Levels Table

No.	From Level	To Level	Colour
1	-8.762	-8.000	
2	-8.000	-7.000	
3	-7.000	-6.000	
4	-6.000	-5.000	
5	-5.000	-4.000	
6	-4.000	-3.000	
7	-3.000	-2.000	
8	-2.000	-1.000	
9	-1.000	0.000	
10	0.000	1.000	
11	1.000	2.000	
12	2.000	3.000	
13	3.000	4.000	
14	4.000	5.000	
15	5.000	6.000	
16	6.000	7.000	
17	7.000	8.000	
18	8.000	8.520	

COPYRIGHT
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

All rights reserved.

P4	ISSUED FOR EARLY AND ENABLING WORKS	16/10/18	PN	-
P3	ISSUED FOR EARLY WORKS DA	04/10/18	PN	-
P2	ISSUED FOR EARLY WORKS DA	06/09/18	PA	-
P1	ISSUED FOR EARLY WORKS DA	03/09/18	PA	-

Rev	Description	Date	By	App	Rev	Description	Date	By	App


25 0 10 20 30 40 50m
PLAN SCALE 1:1250 A1 SHEET

BONACCI
BONACCI GROUP Pty Ltd
ABN 42 080 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 9247 8400 Fax: +61 2 9247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, KINGSCLIFF,
NSW**

Drawing Title
**GENERAL EARTHWORKS
PLAN**

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved		Date	
Drawn	PA				
Scale	1:1250	Project Ref	Drawing No	Rev	
Date	03.09.18	20 10748 01	C011	P4	
Sheet	A1				

File: G:\Jobs\10748\01 - Civil\Issued\DWG\10748C-C030-CA0P04.dwg Plotter: 19.10.18 at 11:34 AM By: Cameron Stanford



COPYRIGHT					All rights reserved.				
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.									
P4	ISSUED FOR EARLY AND ENABLING WORKS	16.10.18	PN	-					
P3	ISSUED FOR EARLY WORKS DA	04.10.18	PN	-					
P2	ISSUED FOR EARLY WORKS DA	06.09.18	PA	-					
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-					
Rev	Description	Date	By	App	Rev	Description	Date	By	App

BONACCI

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 6247 8400 Fax: +61 2 6247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, KINGSCLIFF,
NSW**

Drawing Title
**CONCEPT STORMWATER
MANAGEMENT PLAN**

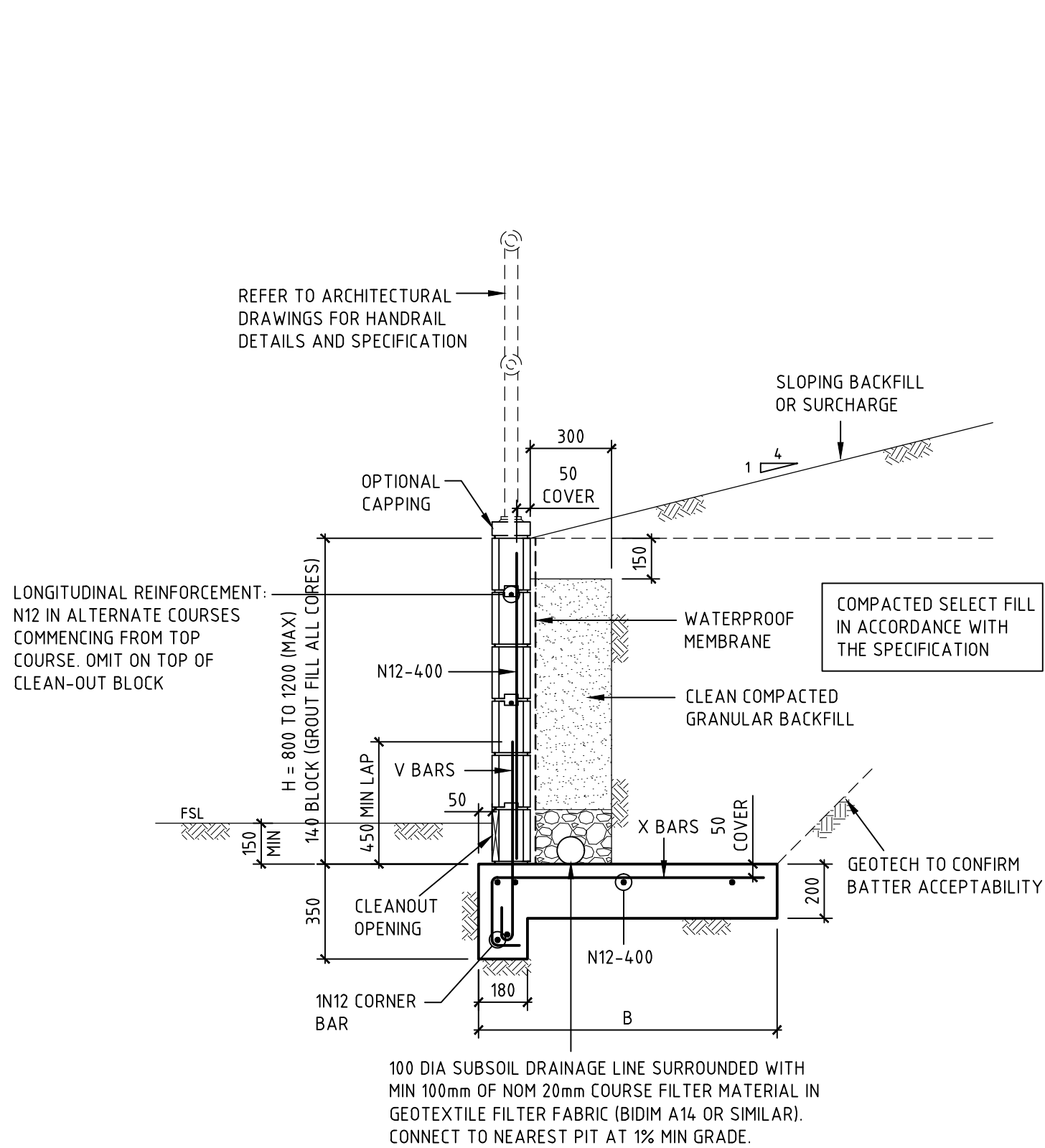
DEVELOPMENT APPLICATION

Designed PA
Drawn PA
Scale 1:1250
Date 03.09.18
Sheet A1

Project Director Approved
Date
Project Ref
Drawing No
Rev

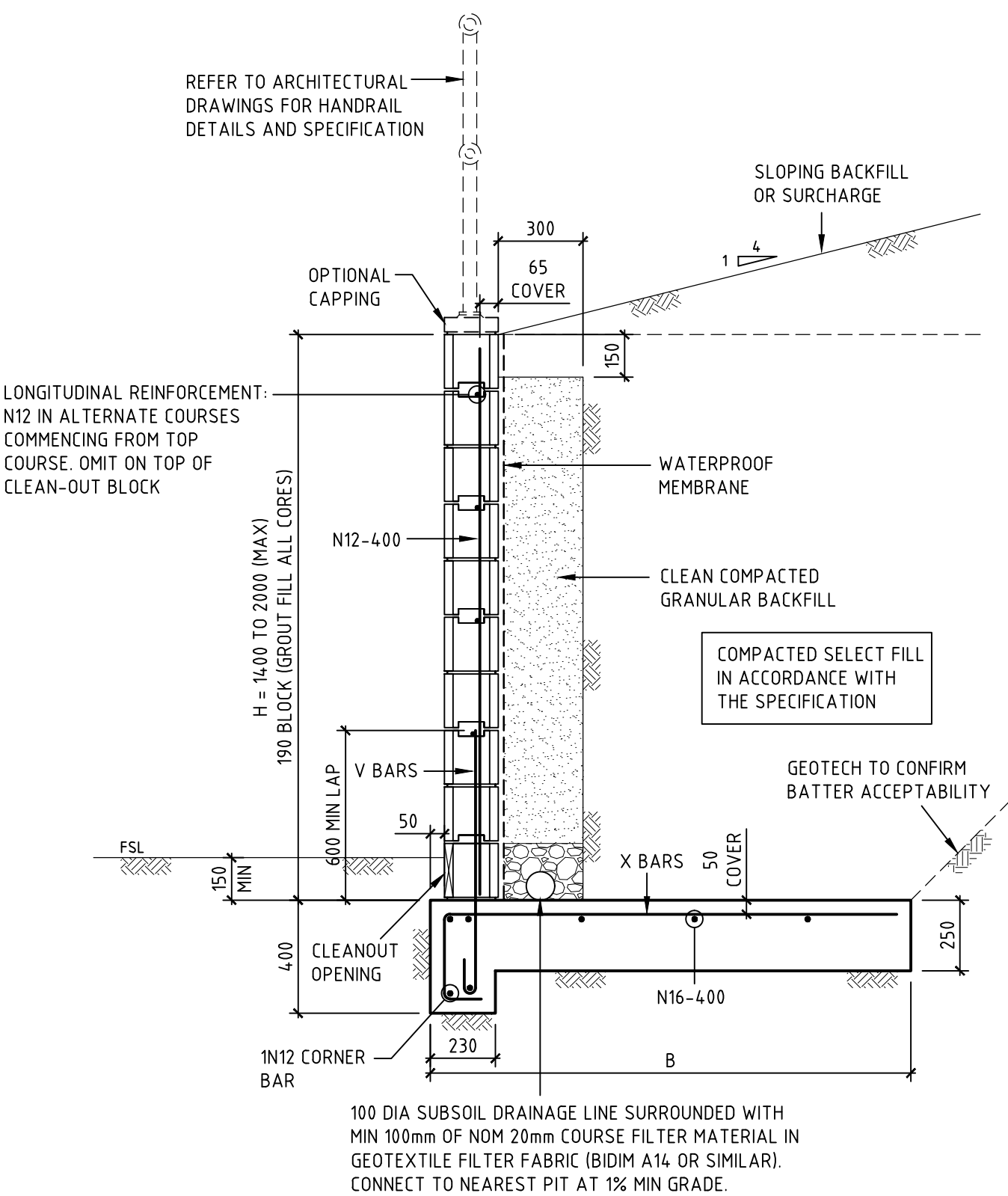
20 10748 01
C030
P4

File: G:\Jobs\10748\01_Civil\Issues\Drawings\10748C-C055-CAD\PI1.dwg Plotter: 16.10.18 at 12:25 PM By: Cameron Stanford



BLOCK RETAINING WALL (MAX 1200 HIGH)
SCALE 1:20

NOTE: DESIGNER TO CHECK THE NEED FOR SHEAR KEY



BLOCK RETAINING WALL (MAX 2000 HIGH)
SCALE 1:20

BLOCK RETAINING WALL BASE TYPE 1

WALL HEIGHT			REINFORCEMENT		BASE DIMENSIONS		
TOTAL HEIGHT (mm) H	HEIGHT OF BLOCKWORK			X-BARS AND V-BARS	K-BARS	WIDTH, B (mm) WITH FOLLOWING BACKFILL CONDITIONS	
	150 SERIES	200 SERIES	300 SERIES			LEVEL	MAX 1:4 SLOPE
800	800	-	-	N12-400	-	800	1000
1000	1000	-	-	N12-400	-	1000	1200
1200	1200	-	-	N12-400	-	1100	1500
1400	-	1400	-	N12-400	-	1300	1700
1600	-	1600	-	N16-400	-	1400	2000
1800	-	1800	-	N16-400	-	1600	2200
2000	-	2000	-	N16-200	-	1700	2500
2200	-	1400	800	N16-400	N16-400	1900	2800
2400	-	1600	800	N16-400	N16-400	2000	3100
2600	-	1600	1000	N20-400	N20-400	2200	3300
2800	-	1800	1000	N20-400	N20-400	2400	3600
3000	-	2000	1000	N16-200	N16-200	2600	3900
3200	-	2000	1200	N20-200	N16-200	2800	4200
3400	-	2000	1400	N20-200	N16-200	2900	4500

COPYRIGHT
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

All rights reserved.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

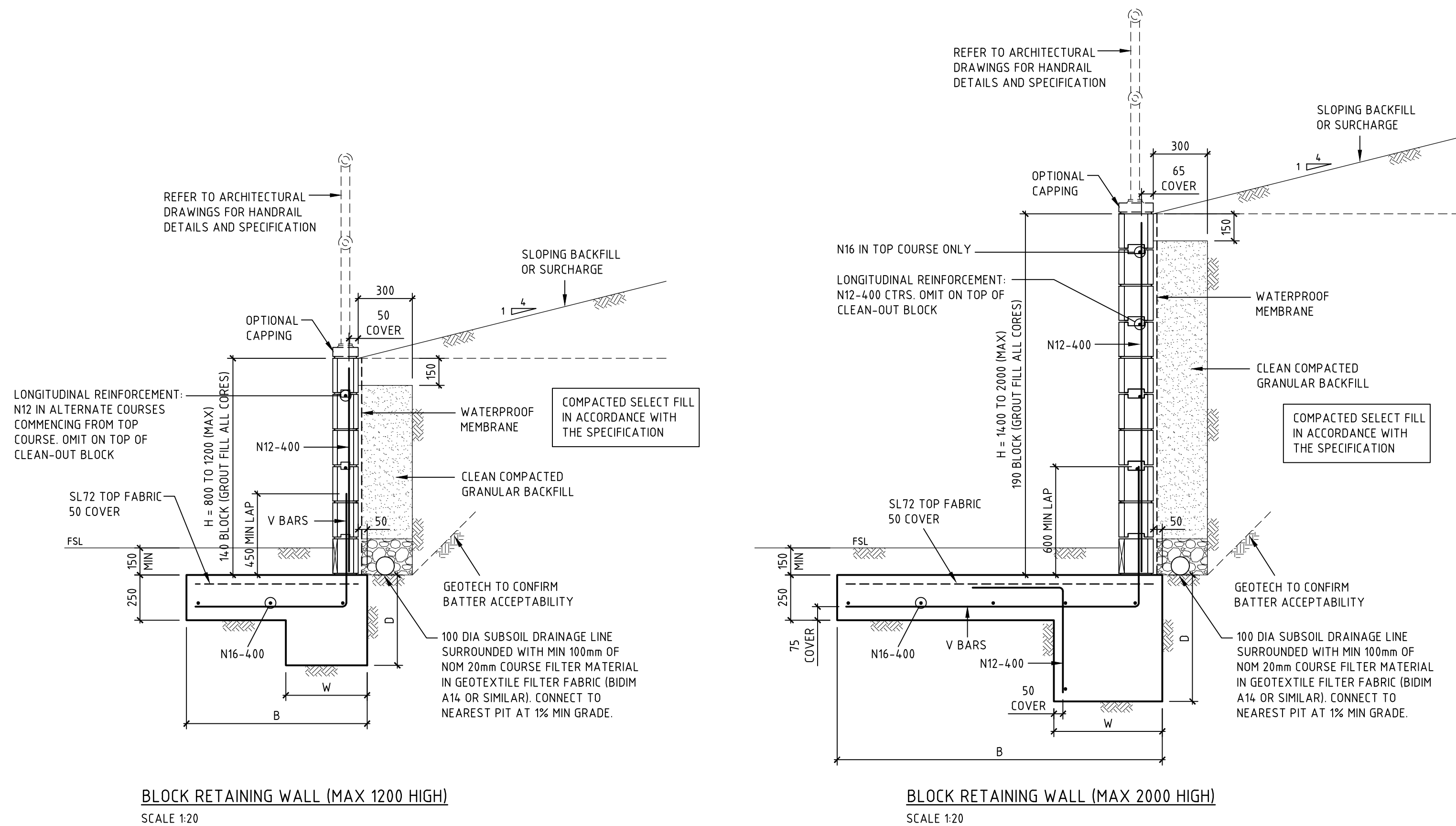
BONACCI
BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 6247 8400 Fax: +61 2 6247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, KINGSCLIFF,
NSW**

Drawing Title
**RETAINING WALL
DETAIL**

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date	North
Drawn	PA			
Scale	-	Project Ref	Drawing No	Rev
Date	03.09.18	20 10748 01	C055	P1
Sheet	A1			



BLOCK RETAINING WALL BASE TYPE 2										
WALL HEIGHT				REINFORCEMENT		BASE DIMENSIONS				
TOTAL HEIGHT (mm) H	HEIGHT OF BLOCKWORK			X-BARS AND V-BARS	K-BARS	HEEL WIDTH (mm) W	LEVEL BACKFILL		MAX 1:4 SLOPING BACKFILL	
	150 SERIES	200 SERIES	300 SERIES				BASE WIDTH (mm) B	HEEL DEPTH (mm) D	BASE WIDTH (mm) B	HEEL DEPTH (mm) D
800	800	-	-	N12-400	-	450	600	500	800	500
1000	1000	-	-	N12-400	-	450	800	500	1000	500
1200	1200	-	-	N12-400	-	450	1000	500	1200	600
1400	-	1400	-	N16-400	-	450	1200	500	1400	600
1600	-	1600	-	N16-400	-	450	1400	600	1600	700
1800	-	1800	-	N16-400	-	450	1600	700	1800	800
2000	-	2000	-	N16-200	-	600	1800	700	2000	800
2200	-	1400	800	N16-400	N16-400	600	2000	800	2200	900
2400	-	1600	800	N16-400	N16-400	600	2200	900	2400	1000
2600	-	1600	1000	N20-400	N20-400	900	2400	900	2600	1000
2800	-	1800	1000	N20-400	N20-400	900	2600	900	2800	1100
3000	-	2000	1000	N16-200	N16-200	900	2800	1000	3000	1200
3200	-	2000	1200	N20-200	N16-200	900	3000	1100	3200	1300
3400	-	2000	1400	N20-200	N16-200	900	3200	1200	3400	1500

COPYRIGHT
These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

All rights reserved.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

These drawings, plans and specifications and the copyright therein are the property of the Bonacci Group and must not be used, reproduced or copied wholly or in part without the written permission of the Bonacci Group.

BONACCI

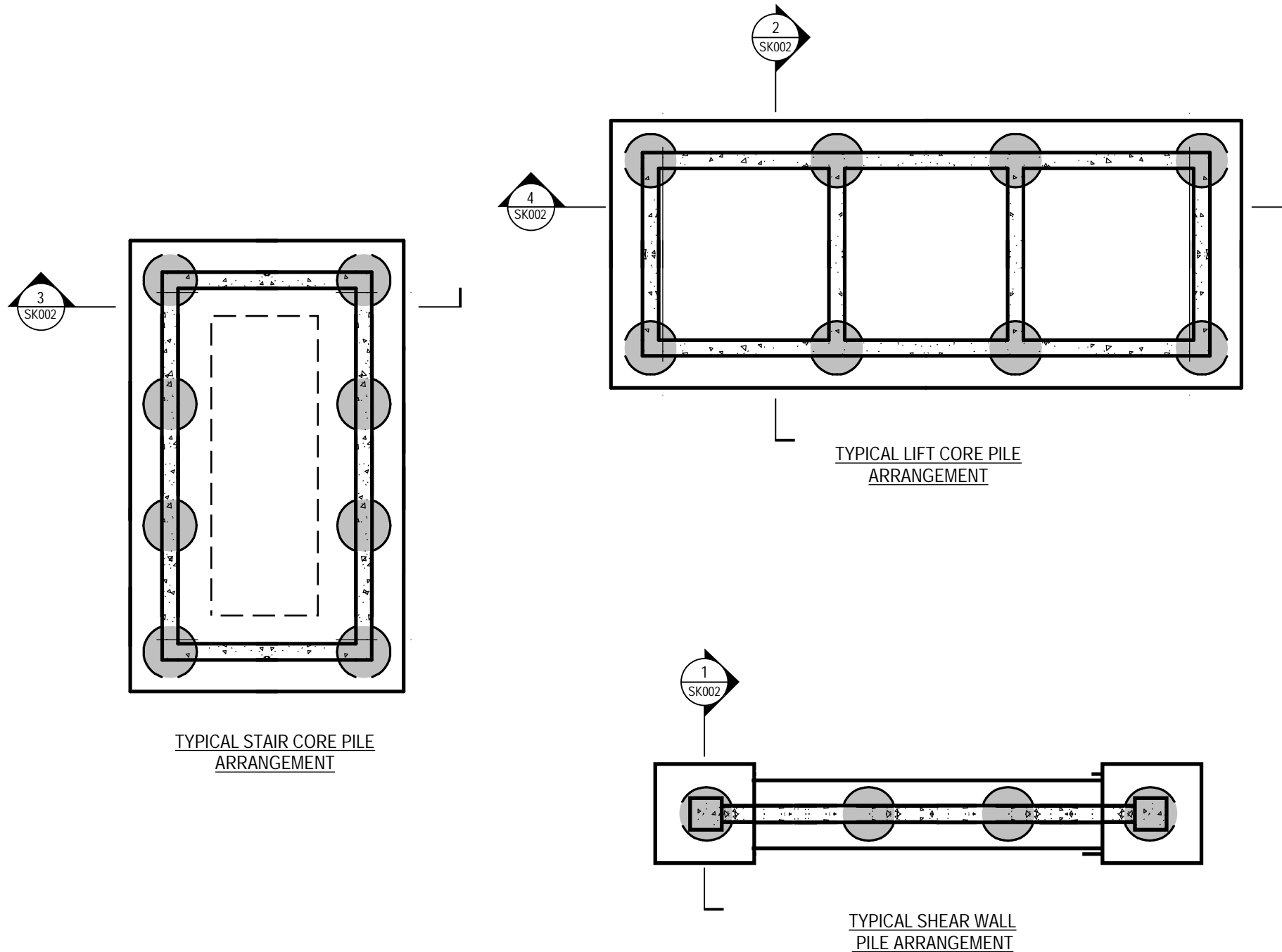
BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, KINGSCLIFF,
NSW**

Drawing Title
**RETAINING WALL
DETAIL**

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date	North
Drawn	PN			
Scale	-	Project Ref	Drawing No	Rev
Date	03.09.18	20 10748 01	C056	P1
Sheet	A1			



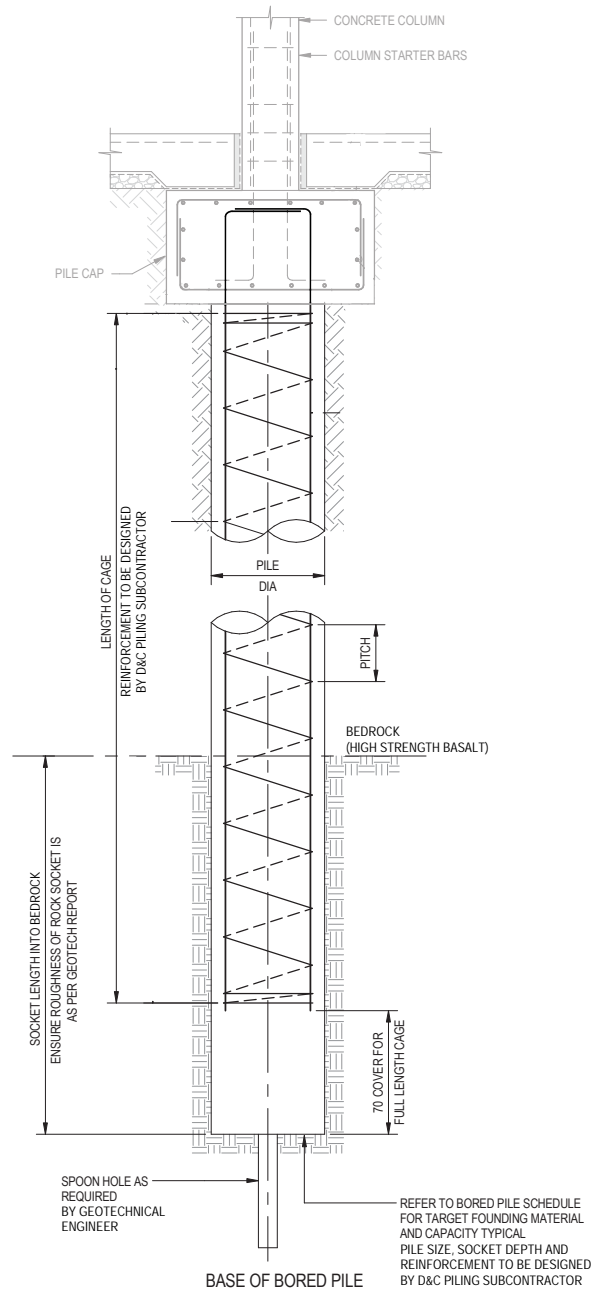
BORED PILE SCHEDULE			
PILE	NO OF SUSPENDED SLABS SUPPORTED	ULTIMATE LIMIT STATE VERTICAL LOAD (kN)	NOMINAL DIAMETER (mm)
P1	3	3600	1000
P2	4	4800	1000
P3	5	6000	1000
P4	6	7200	1000
P5	7	8400	1000
P6	8	9600	1000
P7	9	10800	1000

NOTES

1. PILES TO BE DESIGNED BY D&C PILING SUBCONTRACTOR IN ACCORDANCE WITH AS2159
2. SUBJECT TO FINAL DESIGN, PILE DIAMETERS MAY VARY FROM 600MM TO 1200MM
3. PILES UNDER CORES, LIFT SHAFTS AND SHEAR WALLS TO BE DESIGNED TO RESIST THE LATERAL LOADS NOMINATED ON THE STRUCTURAL DRAWINGS

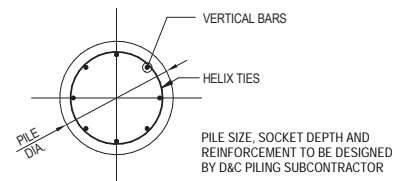
BORED PILES

- BP1 REFER TO THE GEOTECHNICAL REPORT FOR A DESCRIPTION OF THE ANTICIPATED SITE CONDITIONS. THE PILING CONTRACTOR IS TO STUDY THE REPORT AND MAKE HIS OWN EVALUATION OF THE SITE CONDITIONS. ANY ADDITIONAL COSTS INCURRED SHALL BE BORNE BY THE PILING CONTRACTOR.
- BP2 THE BORED PILES ARE PROPORTIONED FOR THE SCHEDULED LOADS WITH ALLOWABLE SOCKET SKIN FRICTION AND END BEARING CAPACITY AS INDICATED IN THE REPORT. THE DEPTHS AND LENGTHS NOMINATED IN THE SCHEDULE ARE INDICATIVE ONLY. THEY MAY NEED TO BE VARIED DEPENDING ON THE SITE CONDITIONS ENCOUNTERED. THE PILING CONTRACTOR NEEDS TO INCORPORATE ANY DESIGN CHANGES REQUIRED.
- BP3 THE BORED PILES SHALL BE INSTALLED TO A MAXIMUM TOLERANCE OF $\pm 75\text{mm}$ FROM THAT REQUIRED IN PLAN AND INCLINED AT NOT MORE THAN 1 IN 75 FROM THE VERTICAL OR SPECIFIED RAKE.
- BP4 ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS 2159.
- BP5 THE BORED PILES SHALL BE LOCATED CONCENTRIC WITH THE COLUMNS AND WALLS UNLESS NOTED OTHERWISE.
- BP6 DRILL AND INSTALL THE BORED PILES IN THE LOCATIONS SHOWN ON THE DRAWINGS AND THE ABOVE REQUIREMENTS.
- BP7 BEFORE ANY CONCRETE IS POURED, ALL ROCK SOCKETS SHALL BE DEWATERED AND INSPECTED BY THE GEOTECHNICAL ENGINEER, WHO SHALL BE EMPLOYED BY THE BUILDER, TO VERIFY THE SOIL PARAMETERS. THE SOCKET BASE AND WALLS MUST BE CLEAN AND FREE FROM CLAY.
- BP8 IF THE CONCRETE NEEDS TO BE TREMIED, SUPER PLASTICIZER MUST BE ADDED TO THE MIX AND THE CONCRETE GRADE INCREASED BY 30% . REFER TO THE SPECIFICATIONS FOR THE INSPECTION OF THE HOLE PRIOR TO CONCRETING.
- BP9 THE PILING CONTRACTOR SHALL ALLOW FOR THE COST INTEGRITY TESTING OF ALL BORED PILES.
- BP10 ANY ALTERNATIVE DESIGN SHALL MEET THE ABOVE REQUIREMENTS AND THE SCHEDULED LOADS. THE PILING CONTRACTOR SHALL OBTAIN CERTIFICATION FOR THE CALCULATIONS OF THE ALTERNATIVE SYSTEM. THE DETAILS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PERFORMANCE OF THE ALTERNATIVE BORED PILES.

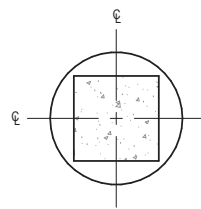


BORED PILE DETAIL

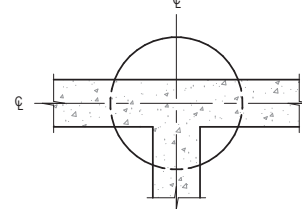
SECTION 1
SK001



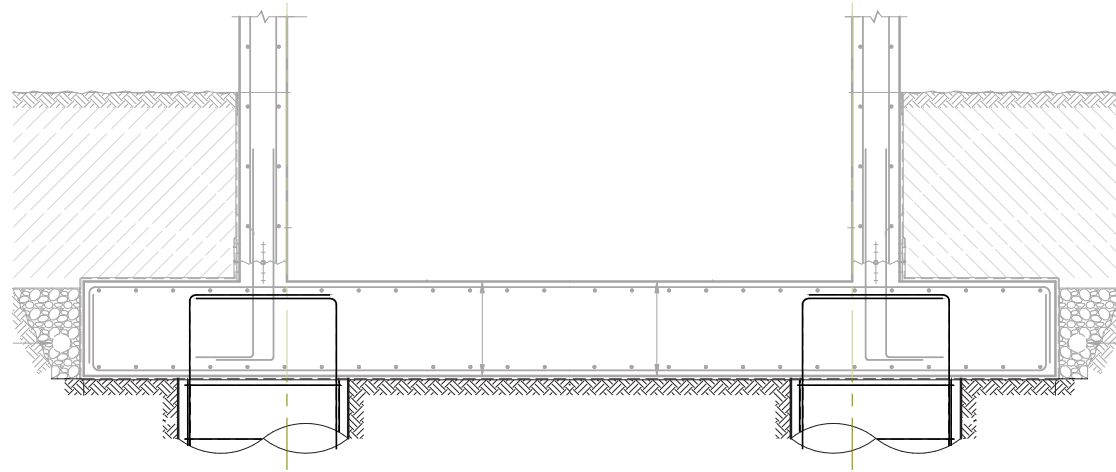
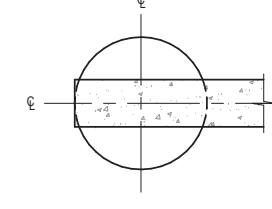
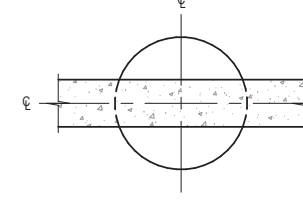
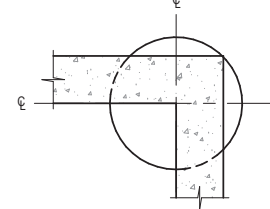
BORED PILE SECTION



TYPICAL PILE LOCATIONS AT COLUMNS
ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN

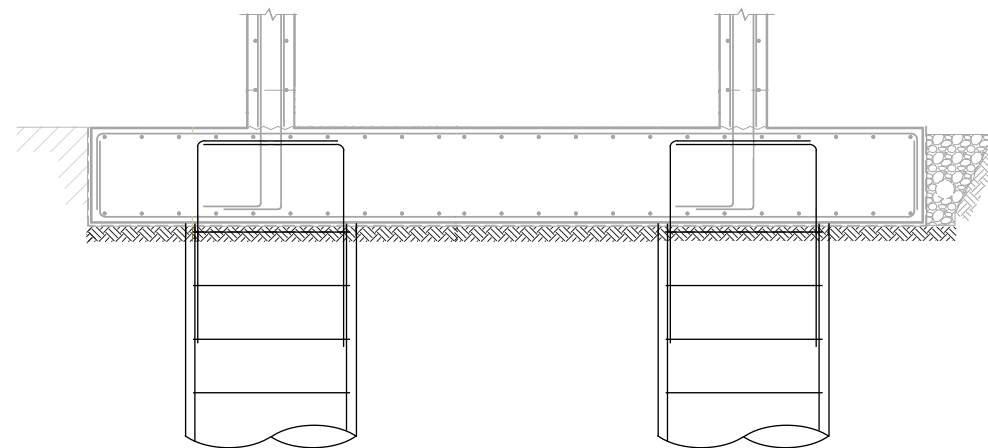


TYPICAL PILE LOCATIONS AT COLUMNS/WALLS
ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN



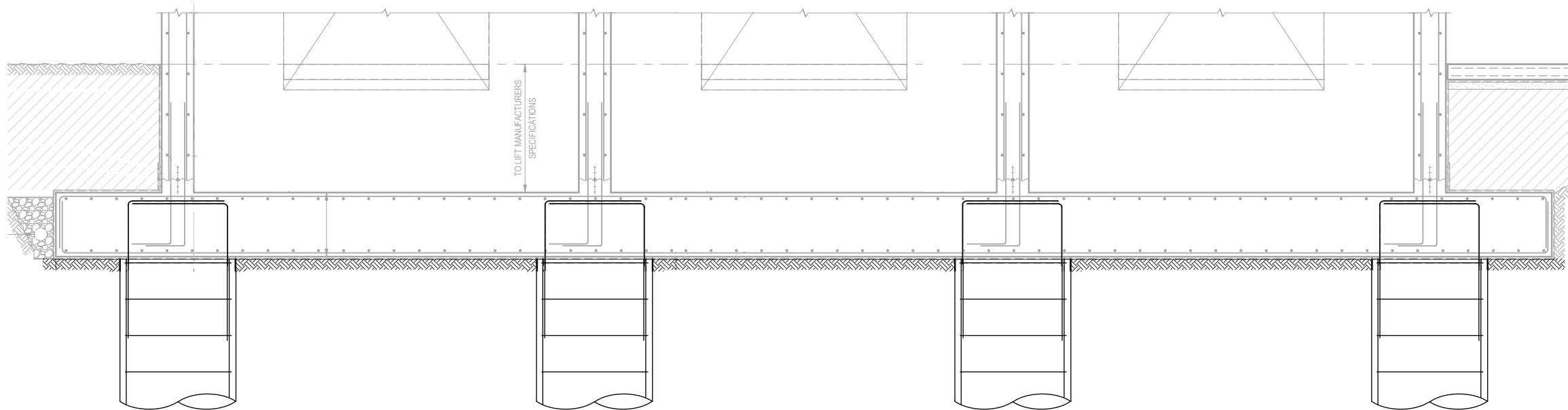
TYPICAL SECTION THROUGH LIFT PIT BASE

SECTION 2
SK001



TYPICAL SECTION THROUGH STAIR CORE BASE

SECTION 3
SK001



TYPICAL LONG SECTION THROUGH LIFT PIT BASE

SECTION 4
SK001



BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name	TWEED VALLEY HOSPITAL	Drawn	TU	Date	08/08/2018
Drawing Title	PILING DETAILS SHEET 2	Project Ref	10748	Sketch No	SK002
				REV	1

HYDRAULIC SERVICES DRAWINGS

[illegible]

SCALE: 1 : 1000

NOT FOR CONSTRUCTION