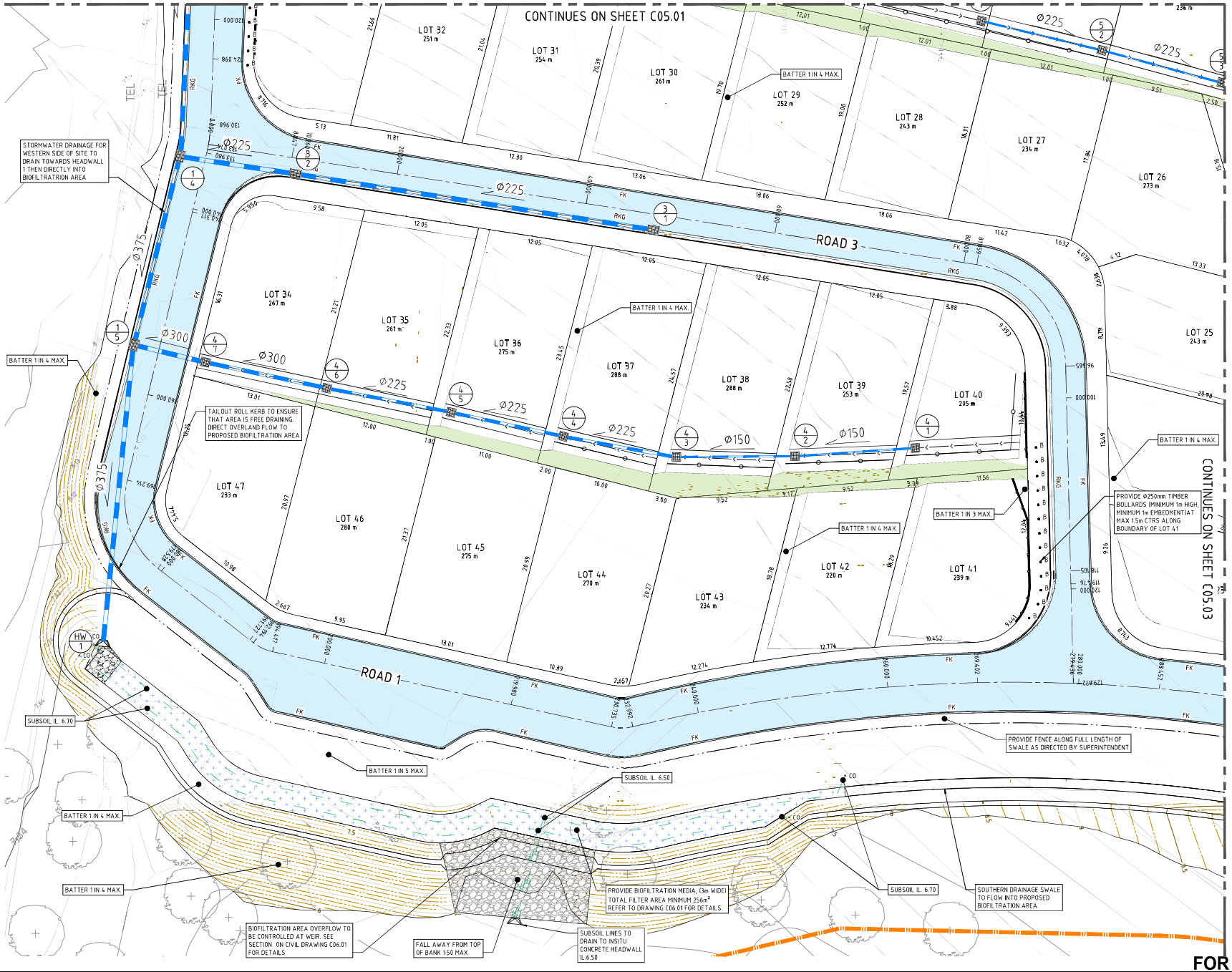


DRAWN: J.LEWIS
DESIGNED: B.BROWN
JOB MANAGER: B.BROWN
VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	REISSUED FOR TENDER	BB	AB	BB	19.02.21
C	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:200@A1 0 2 4 6 8 10m

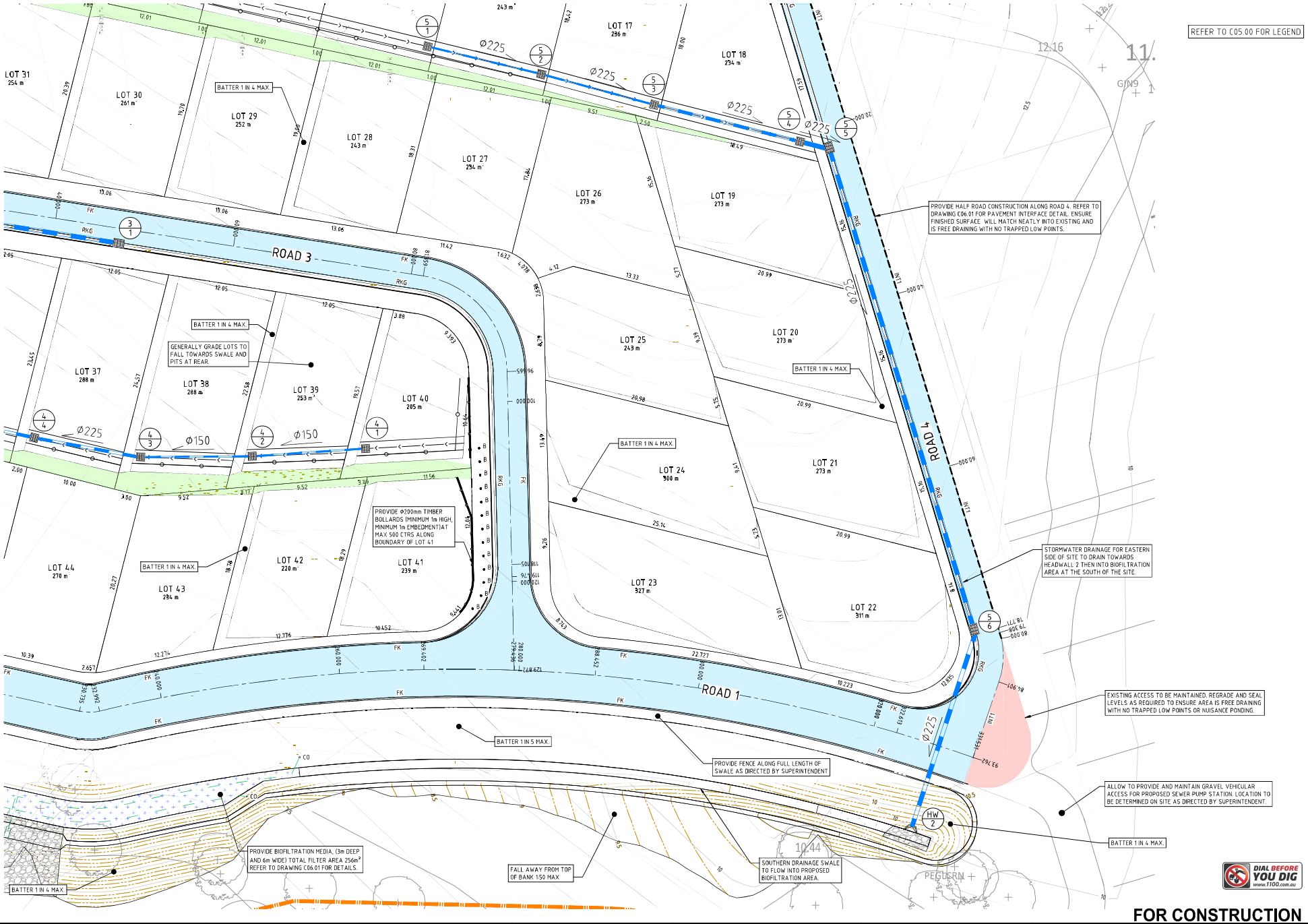
NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
INSET B CIVIL WORKS PLAN

JOB NUMBER: NL080035
DRAWING NUMBER: C05.02
REVISION: C
DRAWING SHEET SIZE = A1

DIAL BEFORE YOU DIG www.1100.com.au



DRAWN: J.LEWIS DESIGNED: B.BROWN JOB MANAGER: B.BROWN VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	REISSUED FOR TENDER	BB	AB	BB	19.02.21
C	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:200@A1 0 2 4 6 8 10m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

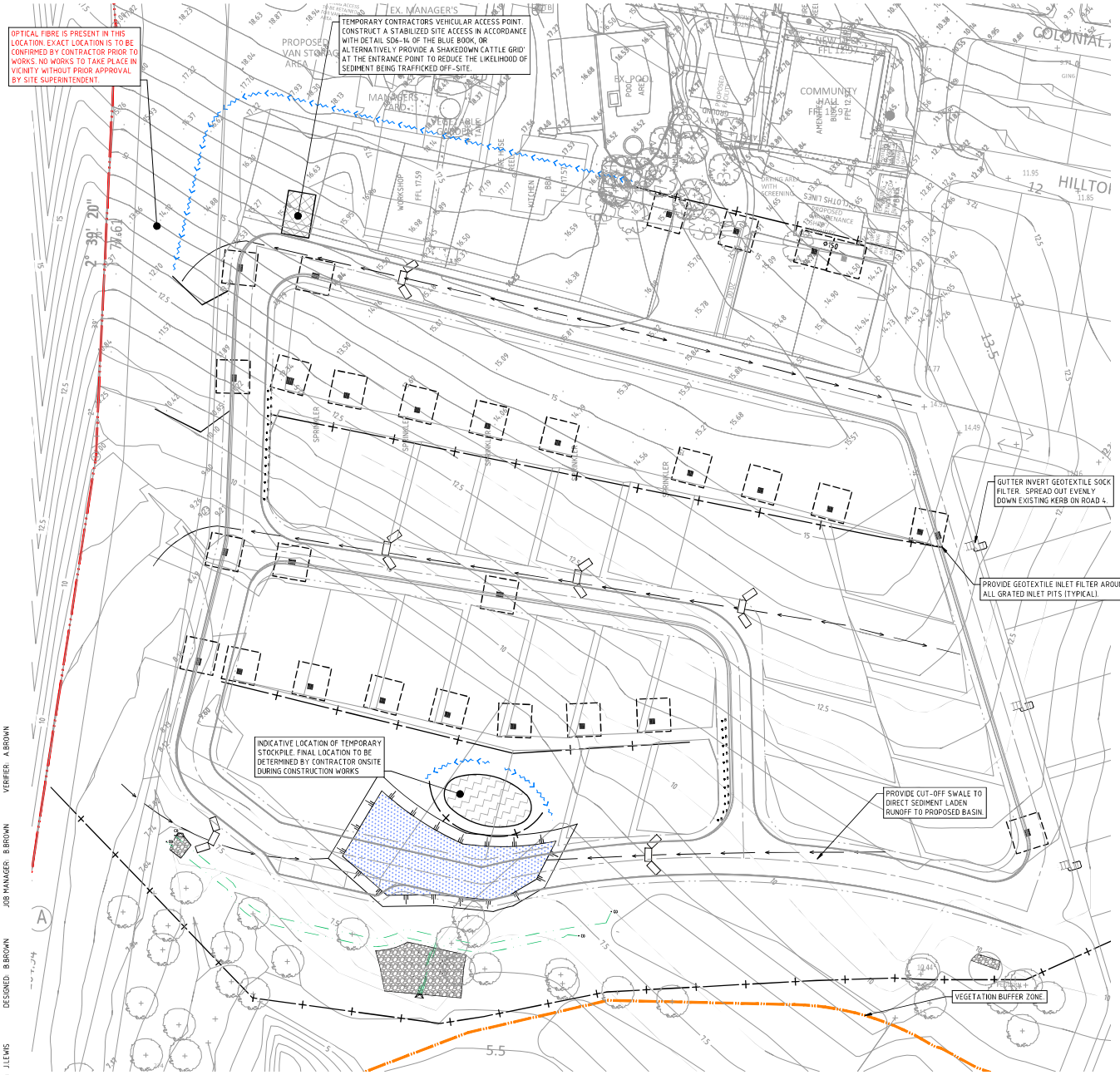
DRAWING TITLE: CIVIL ENGINEERING PACKAGE
INSET C CIVIL WORKS PLAN

JOB NUMBER: NL080035

DRAWING NUMBER: C05.03

REVISION: C

DRAWING SHEET SIZE = A1



CONSTRUCTION SEQUENCE

1. INSTALL SEDIMENT FENCING AND CUT DRAINS TO MEET THE REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLAN AND ARMIDALE REGIONAL COUNCIL'S REQUIREMENTS.
2. CONSTRUCT STABILISED SITE ACCESS.
3. REDIRECT CLEAN WATER AROUND THE CONSTRUCTION SITE.
4. INSTALL SEDIMENT CONTROL PROTECTION MEASURES AT NATURAL AND MAN-MADE DRAINAGE STRUCTURES. MAINTAIN UNTIL ALL THE DISTURBED AREAS ARE STABILISED.
5. CLEAR AND STRIP THE WORK AREAS. MINIMISE THE DAMAGE TO GRASS AND LOW GROUND COVER OF NON-DISTURBED AREAS.
6. ANY DISTURBED AREAS, OTHER THAN ROAD PAVEMENT AREAS, SHALL BE COVERED WITH SITE TOPSOIL AND SEEDED WITHIN 7 DAYS OF COMPLETION OF BULK LEVELS.
7. APPLY PERMANENT STABILISATION TO SITE (LANDSCAPING).

NOTE

1. THE CONTRACTOR SHALL PROVIDE BARRIER/PERSON PROOF FENCE TO THE SITE/THEIR COMPOUND TO ENSURE THE SITE IS MADE SAFE TO THE PUBLIC FOR THE DURATION OF CONSTRUCTION.
2. THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN ON THIS PLAN ARE GENERAL SITE MEASURES. ADDITIONAL MEASURES MAY BE REQUIRED AROUND INDIVIDUAL BUILDING ZONES DEPENDENT ON THE SEQUENCE OF CONSTRUCTION.

SEDIMENT BASIN CALCULATION

CONSTRAINT	VALUE
CATCHMENT AREA (ha)	2.5
SOIL LANDSCAPE	MEGAN (TABLE C4 OF THE BLUE BOOK)
K = SOIL ERODIBILITY (K-FACTOR)	0.048
R = RAINFALL EROSIVITY (R-FACTOR)	4500
S = 2 YEAR, 6 HOUR STORM INTENSITY	14.3 mm/hr
LS = SLOPE LENGTH/GRADIENT	2.04 (50m SLOPE @ 10% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	573
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	HIGH
RAINFALL DEPTH (mm) 5-DAY, 75%ILE	33.2
SETTLING ZONE VOLUME (m^3)	415
SEDIMENT STORAGE VOLUME (m^3)	157
TOTAL BASIN VOLUME (m^3)	572

LEGEND

- PROPOSED BOUNDARY LINE
- DENOTES VEGETATION BUFFER ZONE
- EXISTING CONTOURS
- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER
- CLEAN WATER SWALE
- DIRTY WATER SWALE
- DIRTY WATER SWALE CHECK DAM
- GUTTER INVERT GEOTEXTILE SOCK FILTER
- STABILISED SITE ACCESS
- STOCKPILE
- SEDIMENT BASIN

SOIL AND WATER MANAGEMENT

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS, NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
2. THE CONTRACTOR MUST NOTIFY COUNCIL WITHIN 5 WORKING DAYS OF THE INITIAL EROSION CONTROL MEASURES BEING INSTALLED AND CHECK/MAINTAIN THE INSTALLED CONTROL MEASURES DAILY.
3. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
4. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
5. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
6. ALL TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
7. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED THROUGH THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
8. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
9. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
10. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE). NOTABLY, ENSURE STOCKPILES DO NOT EXCEED 2.0M HIGH. IF MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS, THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC OR ORGANIC).
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST. WHERE COUNCIL CONSIDERES THAT THE DUST IS NOT ADEQUATELY CONTROLLED, THE CONTRACTOR MUST INVESTIGATE OTHER DUST MITIGATION MEASURES SUCH AS DUST SUPPRESSANTS. THE CONTRACTOR MUST ENSURE THE CHEMICAL BASED DUST SUPPRESSANT DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
12. SHOULD ANY SEDIMENT LADEN WATER LEAVE THE SITE, THE INCIDENT MUST BE REPORTED TO COUNCIL WITHIN 2 HOURS OF THE SITE MANAGER BECOMING AWARE OF THE INCIDENT.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A WEEKLY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
14. MEASURES USED TO CONTROL WIND EROSION MUST BE APPROPRIATE FOR THE LOCATION AND PREVENT SOIL EROSION AT ALL TIMES, INCLUDING WORK HOURS, WEEKENDS, PUBLIC HOLIDAYS AND DURING ANY OTHER SHUTDOWN PERIODS.
15. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALISED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
16. PRIORITY MUST BE GIVEN TO THE PREVENTION, OR AT LEAST MINIMISATION, OF SOIL EROSION, RATHER THAN THE TRAPPING OF DISPLACED SEDIMENT. SUCH A CLAUSE SHALL NOT REDUCE THE RESPONSIBILITY OF A CONTRACTOR TO APPLY AND MAINTAIN, AT ALL TIMES, ALL NECESSARY SEDIMENT CONTROL MEASURES.

DRAWN: J.LEWIS DESIGNED: B.BROWN JOB MANAGER: B.BROWN VERIFIER: A.BROWN

DIAL BEFORE YOU DIG www.1100.com.au

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

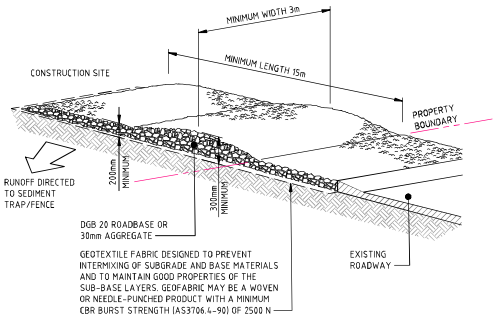
SCALE 1:400@A1 0 4 8 12 16 20m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
EROSION AND SEDIMENT CONTROL PLAN

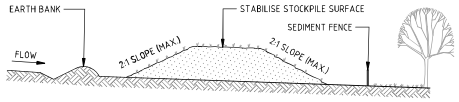
JOB NUMBER: NL080035
DRAWING NUMBER: C02.01
REVISION: B
DRAWING SHEET SIZE = A1



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

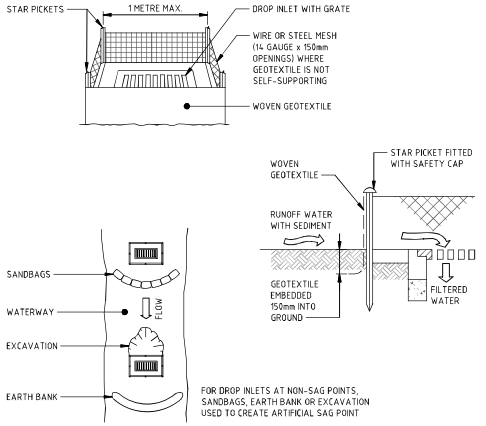
STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

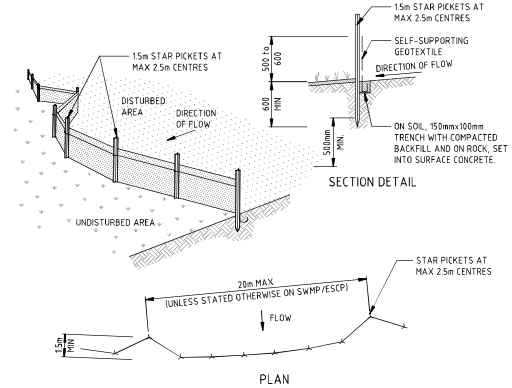
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

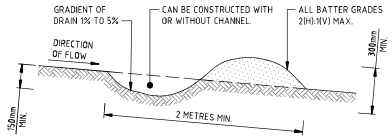
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

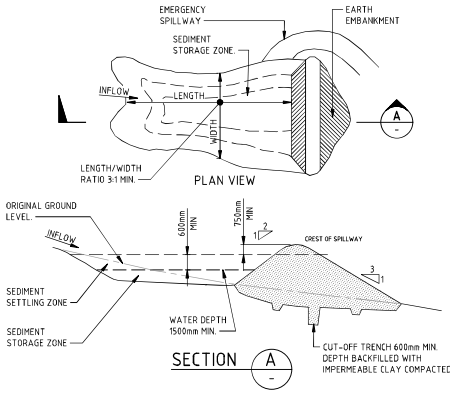


CONSTRUCTION NOTES

1. TO BE USED FOR BOTH CLEAN WATER AND DIRTY WATER SWALES
2. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
3. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
4. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
5. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
6. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
7. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

EARTH BANK - LOW FLOW (SD 5-5)

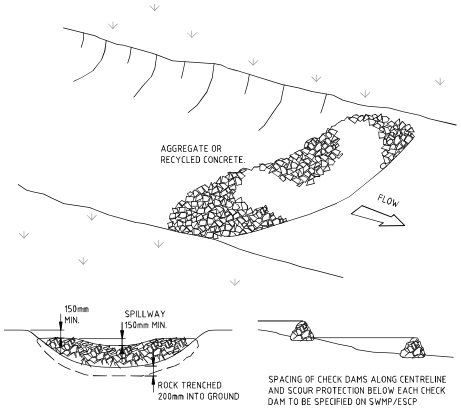


CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

EARTH BASIN - WET (SD 6-4)



CONSTRUCTION NOTES

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANDBAGS AND STAKED STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100mm ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY, THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150mm LOWER THAN THE OUTER EDGES.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

DIRTY WATER SWALE CHECK DAM (SD 5-4)

DRAWN: J.LEWIS
DESIGNED: B.BROWN
JOB MANAGER: B.BROWN
VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:10 @ A1 — 0.0 0.1 0.2 0.3 0.4 0.5m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
EROSION AND SEDIMENT CONTROL DETAILS

JOB NUMBER: NL080035
DRAWING NUMBER: C02.10
REVISION: B
DRAWING SHEET SIZE = A1

LEGEND

- DENOTES VEGETATION BUFFER ZONE
- PROPOSED LOT BOUNDARY LINES
- Ø150 STORMWATER PIPE
- 1/2 STORMWATER PIT TAG LINE ID / STRUCTURE No
- PROPOSED STORMWATER PIT - SEE CIVIL DRAWING C06.02 FOR DETAIL
- DRAINAGE SWALE
- UPSTREAM CUTOFF SWALE
- DENOTES PROPOSED BIOFILTRATION AREA
- DENOTES PROPOSED ROAD PAVEMENT - SEE CIVIL DRAWING C06.01 FOR TYPICAL DETAIL
- DENOTES EXTENT OF EARTH RE-INFORCED RETAINING SYSTEM INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS - REFER TO CIVIL DRAWING C06.01 FOR TYPICAL DETAIL
- DENOTES PROPOSED ROCK SCOUR PROTECTION FOR HEADWALL OUTLET.
- DENOTES PROPOSED FENCE AS SPECIFIED BY THE SITE SUPERINTENDENT. OFFSET 900mm FROM TOP OF WALL REFER TO DRAWING ON C06.01 FOR DETAILS
- DENOTES PROPOSED 900mm MAX RETAINING WALL. REFER TO DRAWING C06.02 FOR DETAILS. FINAL EXTENT TO BE DETERMINED ON SITE BY SUPERINTENDENT.
- RKG DENOTES MODIFIED RT KERB (CHCC) IN ACCORDANCE WITH COFFS HARBOUR CITY COUNCIL STANDARD DRAWING: (RTA AND CHCC MODIFIED KERBS).
- FK DENOTES PROPOSED FLUSH KERB - SEE CIVIL DRAWING C06.01 FOR DETAIL
- INT1 DENOTES PROPOSED PAVEMENT INTERFACE - SEE CIVIL DRAWING C06.01 FOR DETAIL
- DESIGN CONTOURS
- EXISTING CONTOURS
- LIMIT OF WORKS LIMIT OF WORKS
- B PROPOSED BOLLARD
- CO SUBSOIL DRAINAGE CLEAROUT
- SUBSOIL DRAINAGE LINE

REFER TO STORMWATER LONGITUDINAL SECTIONS ON DRAWINGS C05.10, C05.11, FOR STORMWATER PIPE CLASS.

DIAL BEFORE YOU DIG www.1100.com.au

DRAWN: J.LEWIS DESIGNED: B.BROWN JOB MANAGER: B.BROWN VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	REISSUED FOR TENDER	BB	AB	BB	19.02.21
C	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:400@A1 0 4 8 12 16 20m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
CIVIL WORKS SITE PLAN

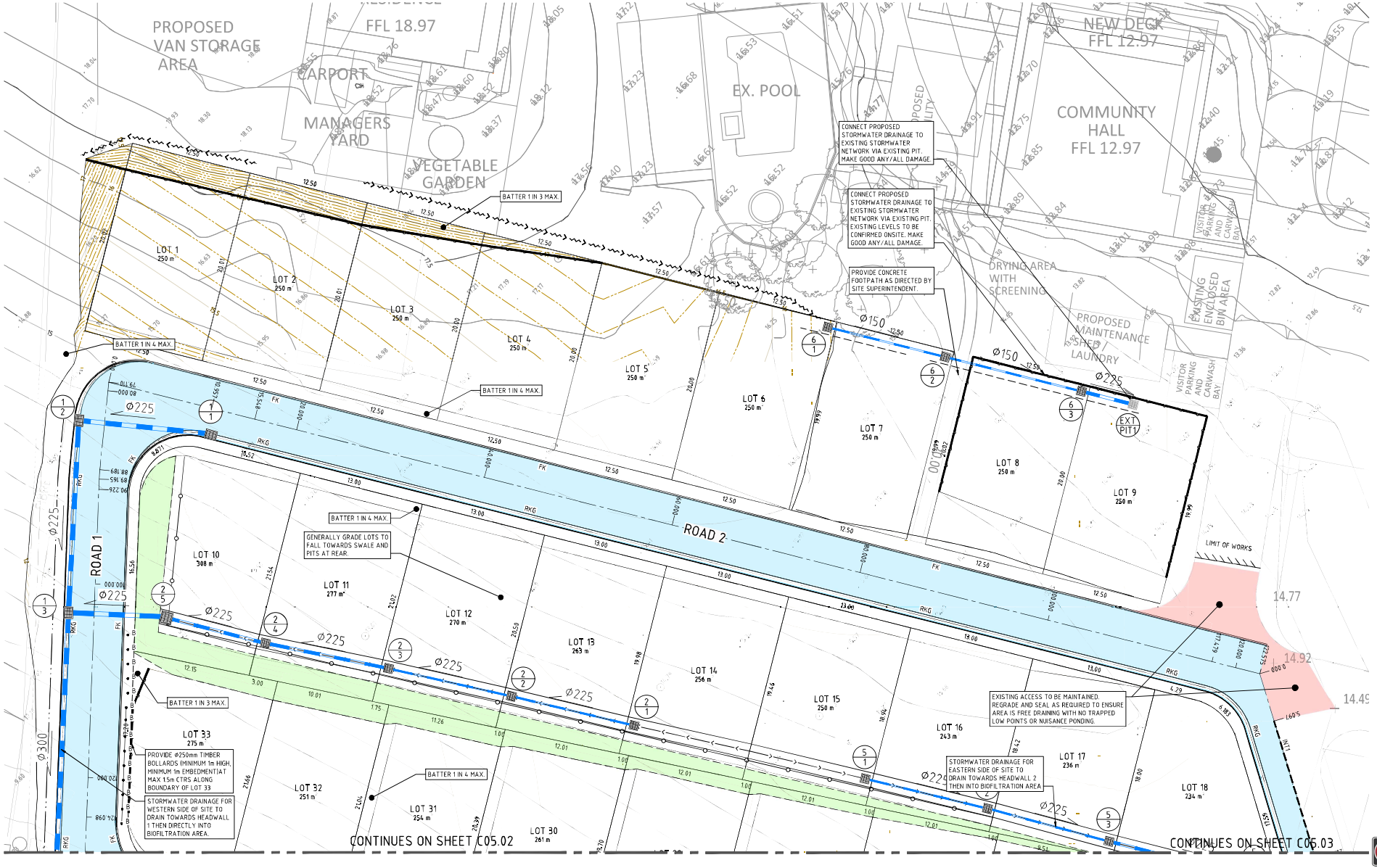
JOB NUMBER: NL080035

DRAWING NUMBER: C05.00

REVISION: C

DRAWING SHEET SIZE = A1

REFER TO C05.00 FOR LEGEND



DRAWN: J.LEWIS DESIGNED: B.BROWN JOB MANAGER: B.BROWN VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	REISSUED FOR TENDER	BB	AB	BB	19.02.21
C	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21

CLIENT: THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:200@A1 0 2 4 6 8 10m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
INSET A CIVIL WORKS PLAN

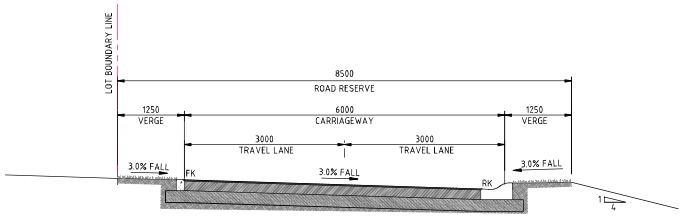
JOB NUMBER: NL080035

DRAWING NUMBER: C05.01

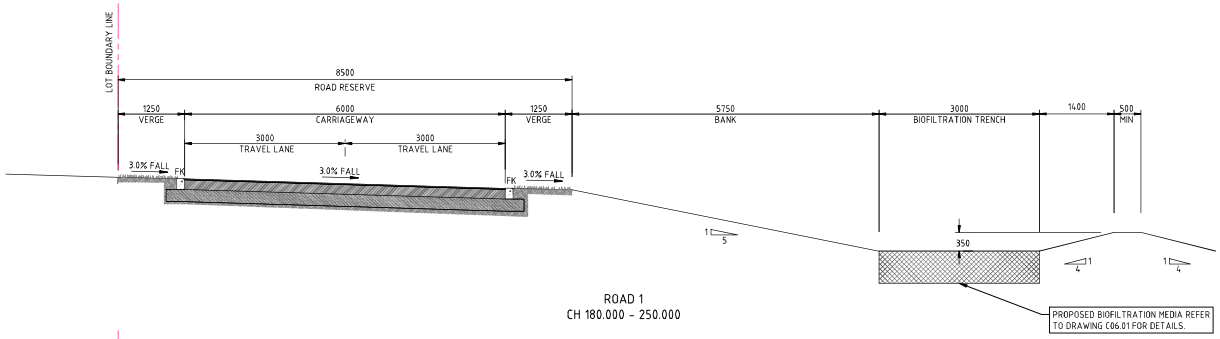
REVISION: C

DRAWING SHEET SIZE = A1

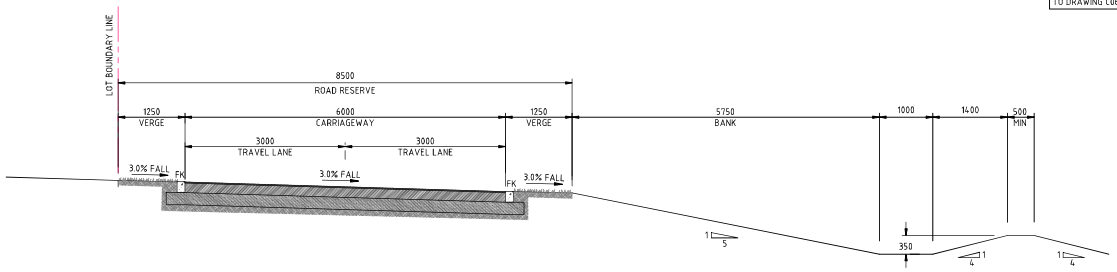
DIAL BEFORE YOU DIG www.1100.com.au



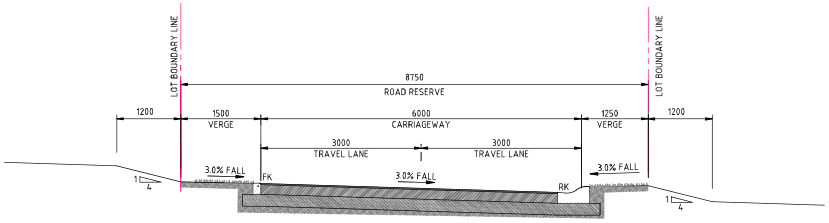
ROAD 1
CH 90.000 - 180.000



ROAD 1
CH 180.000 - 250.000



ROAD 1
CH 250.000 - 330.000



ROAD 2
CH 0.000 - 122.575

DRAWN: J.LEWIS
DESIGNED: B.BROWN
JOB MANAGER: B.BROWN
VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21
C	REISSUED FOR CONSTRUCTION	BB	AB	BB	07.06.21

CLIENT
THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:50 @ A1 0.0 0.5 1.0 1.5 2.0 2.5m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT
THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

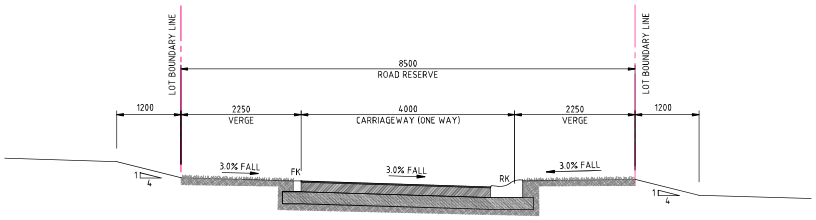
TYPICAL ROAD CROSS SECTIONS - SHEET 1

JOB NUMBER
NL080035

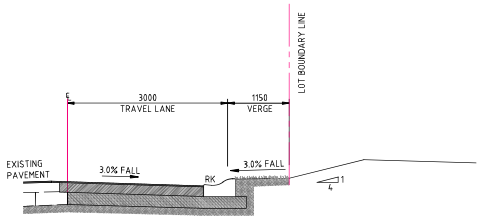
DRAWING NUMBER
C04.05

REVISION
C

DRAWING SHEET SIZE = A1



ROAD 3
CH 0.000 - 129.872



ROAD 4
CH 0.000- 93.762

DRAWN: J.LEWIS
DESIGNED: B.BROWN
JOB MANAGER: B.BROWN
VERIFIER: A.BROWN

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JL		BB	15.05.20
A	ISSUED FOR TENDER	JL	AB	BB	28.08.20
B	ISSUED FOR CONSTRUCTION	JL	AB	BB	30.03.21
C	REISSUED FOR CONSTRUCTION	BB	AB	BB	07.06.21

CLIENT
THE PINES WOOLGOOLGA

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

SCALE 1:50 @A1 0.0 0.5 1.0 1.5 2.0 2.5m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT
THE PINES
8 HEARNES LAKE ROAD
WOOLGOOLGA, NSW 2456

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

TYPICAL ROAD CROSS SECTIONS - SHEET 2

JOB NUMBER
NL080035

DRAWING NUMBER
C04.06

REVISION
C

DRAWING SHEET SIZE = A1