

E 5670 D 2700 C 7400 B 5690 A

ROOF AHD 38065 EGRESS LADDER HATCH LEVEL 02 AHD 32065 FT04 LEVEL 01 AHD 27565 CARPARK LEVEL 00 AHD 23065

2 SECTION 02 A10\_0000 SCALE 1:100

Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. 35D 8937

granted on the 2 0 FEB 2019

Signed ......

Orawing Status
ISSUED FOR TENDER FOR INFORMATION

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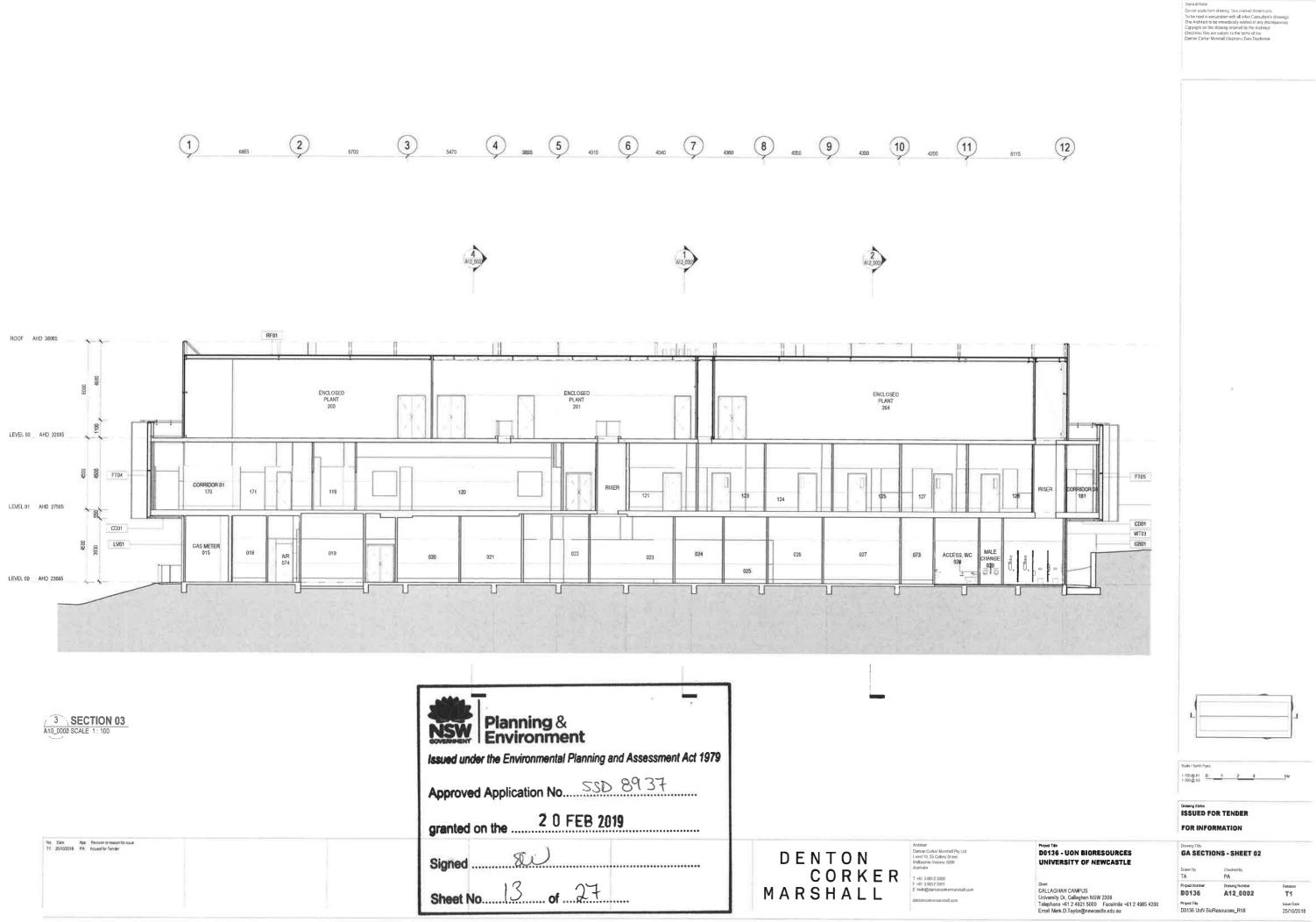
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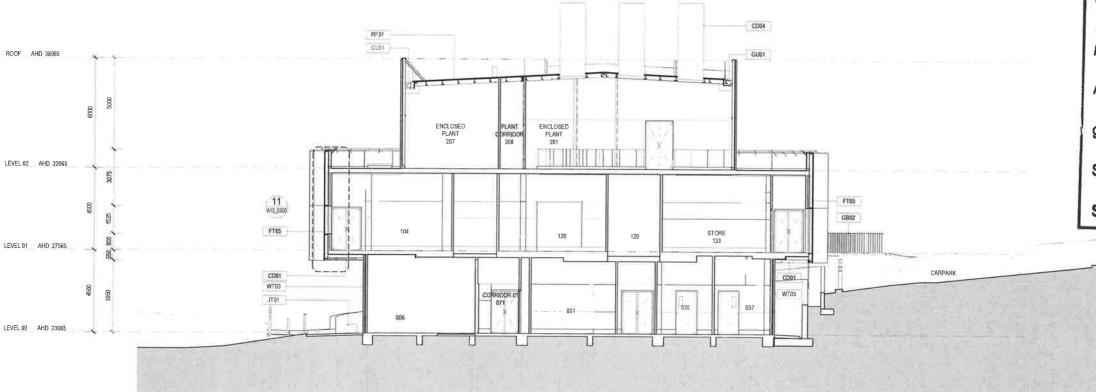
Proped Title
D0136 - UON BIORESOURCES UNIVERSITY OF NEWCASTLE

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GA SECTIONS - SHEET 01

Drawing Number
A12\_0001 T1 D0136 Project File D0136 UpN BioResources\_R18





NSW Planning & Environment Issued under the Environmental Planning and Assessment Act 1979 Approved Application No. SSD 8937 granted on the 2 0 FEB 2019

Sheet No. 14 of 27

4 SECTION 04 A10\_0000 SCALE 1:100

Drawing Status
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Project File D0136 UoN BioResources\_R18

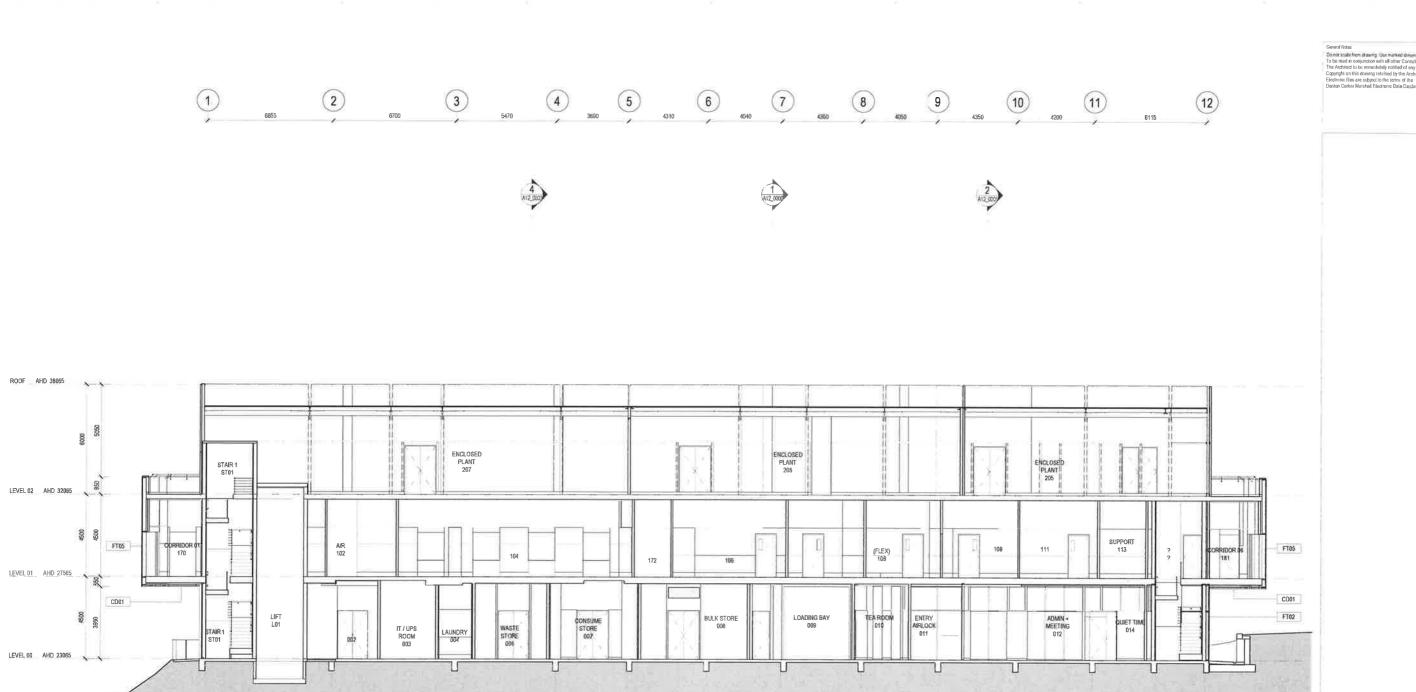
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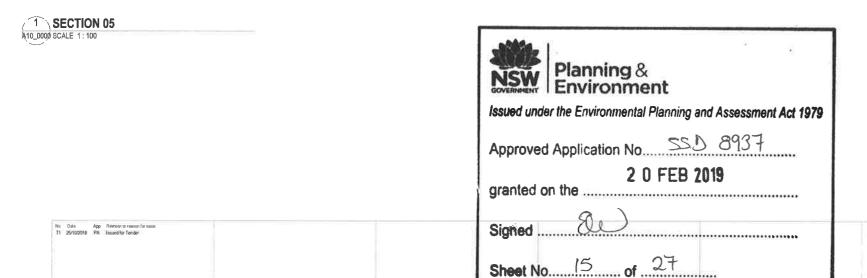
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MARSHALL

Project Title
D0138 - UON BIORESOURCES UNIVERSITY OF NEWCASTLE

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Drawing Title
GA SECTIONS - SHEET 03 Drawing Number A12\_0003 T1 D0136





ROOF \_\_ AHD 38065

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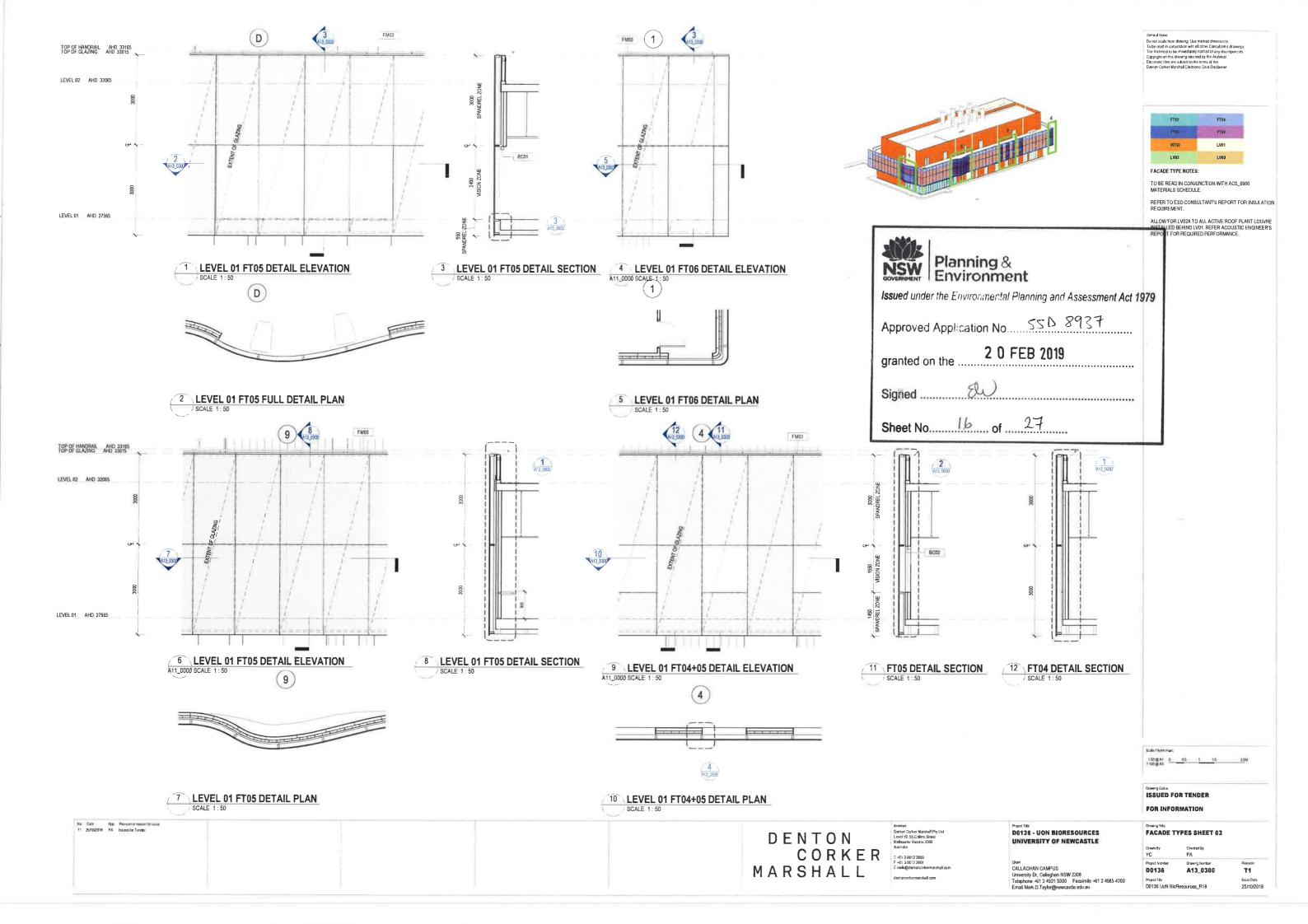
Project Title
D0136 - UON BIORESOURCES UNIVERSITY OF NEWCASTLE

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Drawing Status
ISSUED FOR TENDER FOR INFORMATION

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GA SECTIONS - SHEET 04

Drawing Number A12\_0004 Revision T1 D0136

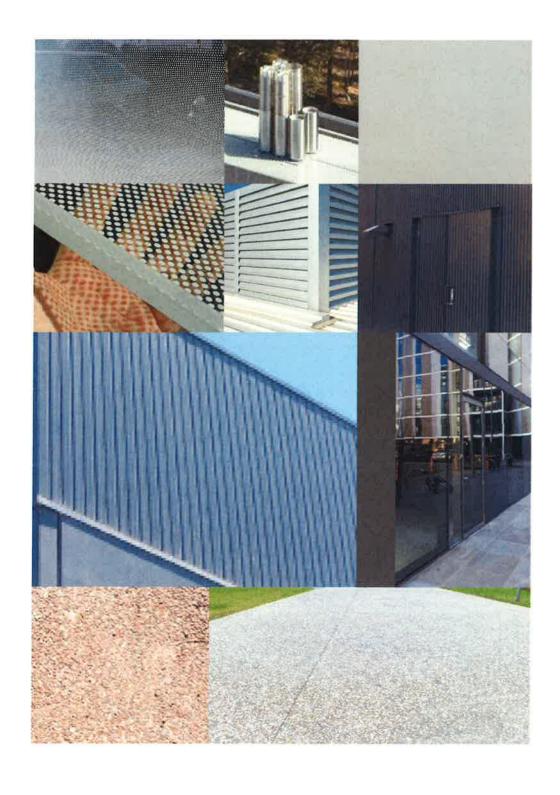


## **Uon Bioresources facility**

## DESIGN PRINCIPLES - EXTERNAL MATERIAL SCHEDULE

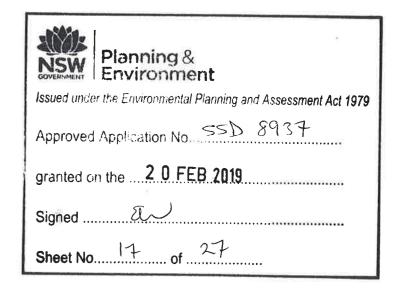


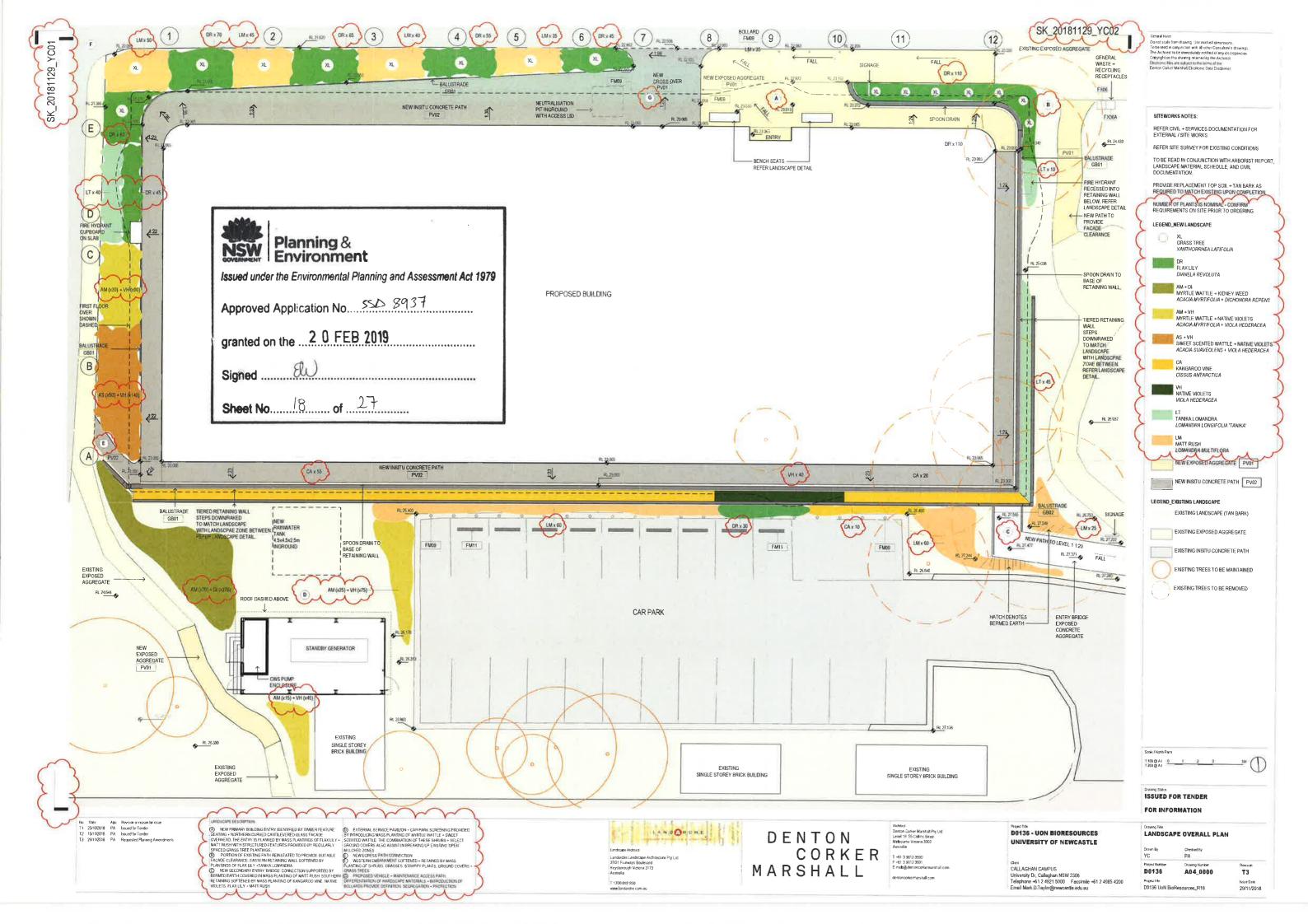
architecture + urban design



		Т	
FT04/05/06	CD04	RF	01
FT04/05/06	LV02	LV	01
WT03		СДОЗ	FT02
PV01	P\	/02	

WATERIAL 1	MTOO	VERTICAL ORDER PANEL IN COLORDON MONUMENT
	WT03	VERTICAL SPEED PANEL IN COLORBOND MONUMENT
MATERIAL 2		
	FT02	ALUMINIUM FRAMED UNITISED WINDOW WALL SYSTEM WITH STRUCTURALLY GLAZED DOUBLE GLAZED VISION PANELS
	FT04/05/06	STRUCTURALLY GLAZED SINGLE/DOUBLE GLAZED ALUMINIUM FRAMED UNITISED UNITS WITH GRADUATED WHITE FRIT
MATERIAL 3		
	RF01	COLORBOND METAL ROOF IN SHALE GREY
MATERIAL 4		
	LV01	LOUVRE CLAD ELLENBOROUGH SERIES VERTICAL LOUVRE IN MONUMENT
	LV02	LOUVRE CLAD HUDSON SERIES ACOUSTIC LOUVRE IN MONUMENT
MATERIAL 5		
W	CD03	SOLID ALUMINIUM FLAT SHEET IN MONUMENT
	CD04	STAINLESS STEEL SHEATH FOR ROOF STACK
MATERIAL 6		
	PV01	EXPOSED AGGREGATE
	PV02	INSITU CONCRETE PAVING





## DENTON CORKER MARSHALL



# D0136 UoN Bioresources Facility Landscape Materials Schedule

CODE	NAME	COMMON NAME	DETAILS	DETAILS				
			HEIGHT AND SPREAD	NOMINAL PLANTS PER M2	IMAGE	SIZE POT	NOMINAL NUMBER	
	MATERIALS							
TREES				· ·				
XL	Xanthorrhea Latifolia	Grass Tree	3.0m x 3.0m	N/A		40cm	1	
SHRUBS						al and a second		
AM	Acacia myrtifolia	Myrtle Wattle	1.2m x 1.0m			20CM	14	
AS	Acacia suaveolens	Sweet scented wattle	1.5m x1.5m			20CM	5	
GRASSES/STRA								
LM	Lomandra multiflora	Matt Rush	0.8m x 0.8m  Planning 8 Environmental	ent Planning and Assessment Act 19	4	14CM	31!	
	ANDSCAPE MATERIALS SCH	EDULE/Schedule	Approved Application No.  granted on the	SS D 8937 FEB 2019			3 0	

## DENTON CORKER MARSHALL



## D0136 UoN Bioresources Facility Landscape Materials Schedule

CODE	NAME	COMMON NAME	DETAILS	DETAILS				
			HEIGHT AND SPREAD	NOMINAL PLANTS PER M2	IMAGE	SIZE POT	NOMINAL NUMBER	
LT	Lomandra longifolia "Tanika"	Tanika Lomandra	0.7m x 0.7m			14CM		
DR	Dianella revoluta	Flax Lily	0.5m x 0.5m		6	14CM	48	
GROUND COVE	RS/CLIMBERS	***************************************	*		•		· ·	
VH	Viola hederacea	Native Violets	0.5m x 0.5m		6	14CM	39	
DI	Dichondra repens	Kidney Weed	0.3m x 0.3m		8	14CM	27	

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Approved Application No. 550 8937				
granted on the 2 0 FEB 2019				
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Sheet No. 20 of 27				

ASC\_0002(T2) - LANDSCAPE MATERIALS SCHEDULE/Schedule

## DENTON CORKER MARSHALL



# D0136 UoN Bioresources Facility Landscape Materials Schedule

CODE	NAME	COMMON NAME	DETAILS				
			HEIGHT AND SPREAD	NOMINAL PLANTS PER M2	IMAGE	SIZE POT	NOMINAL NUMBER
CA	Cissus Antarctica	Kangaroo Vine	0.3 x 4.0m	2		14CM	85

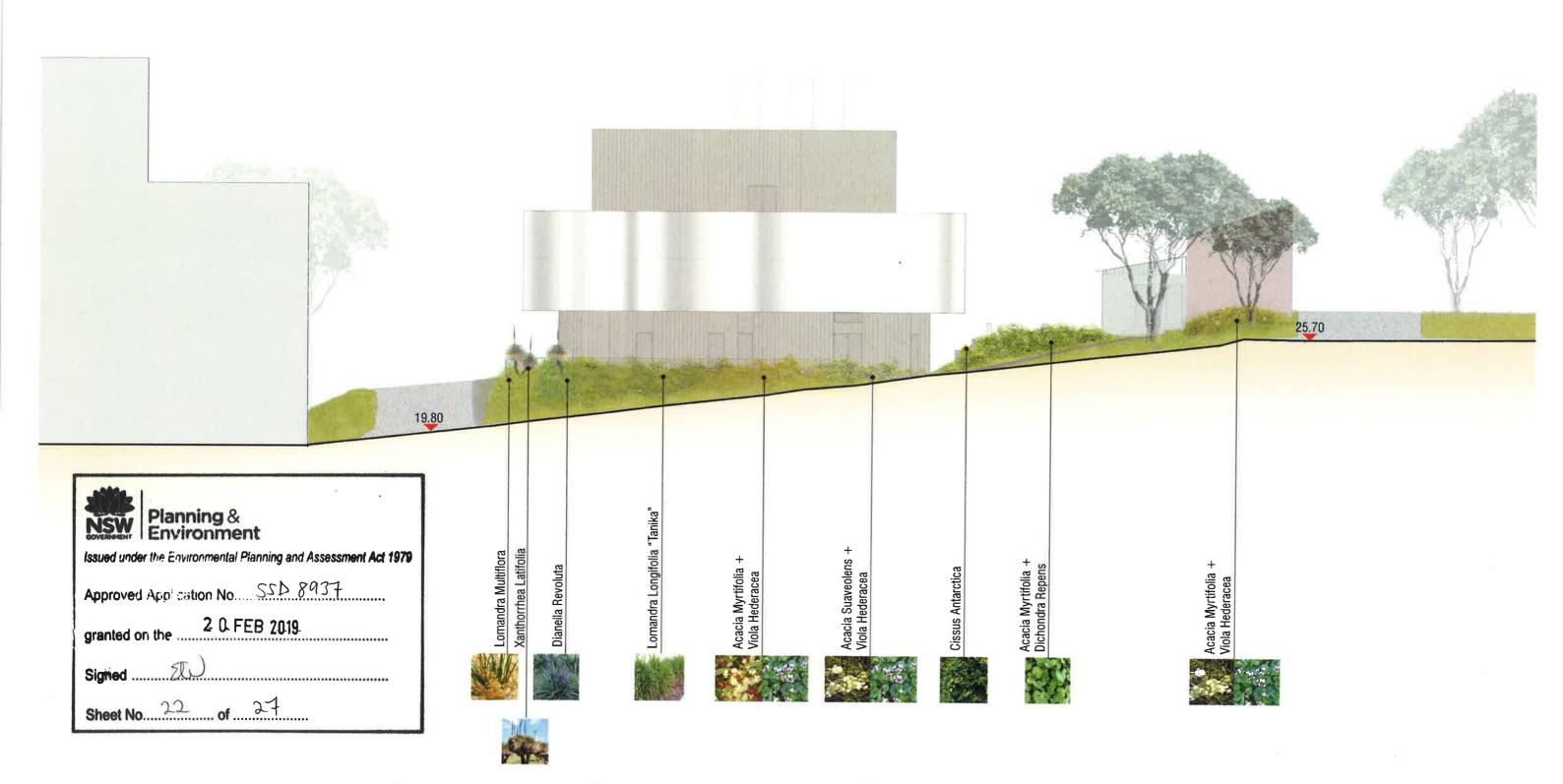
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Planning & Environment	,
Issued under the Environmental Planning and Assessment	Act 1979
Approved Application No. 55 D 8937	
granted on the2 0 FEB 2019	
Signed	
Sheet Noof 27	

MEDICAL SCIENCES
WEST MEDICAL SCIENCES
UNEST MEDICAL SCIENCES
WEST EMBANKMENT PLANTING

CARPARK + SERVICE PAVILION + SCIENCES LANE
RETAINING PLANTING
SCREENING PLANTING

LANEWAY GARDEN BED



PROJ# D0136 PLANNING NTS @ A3 REV# P01 20.11.2018



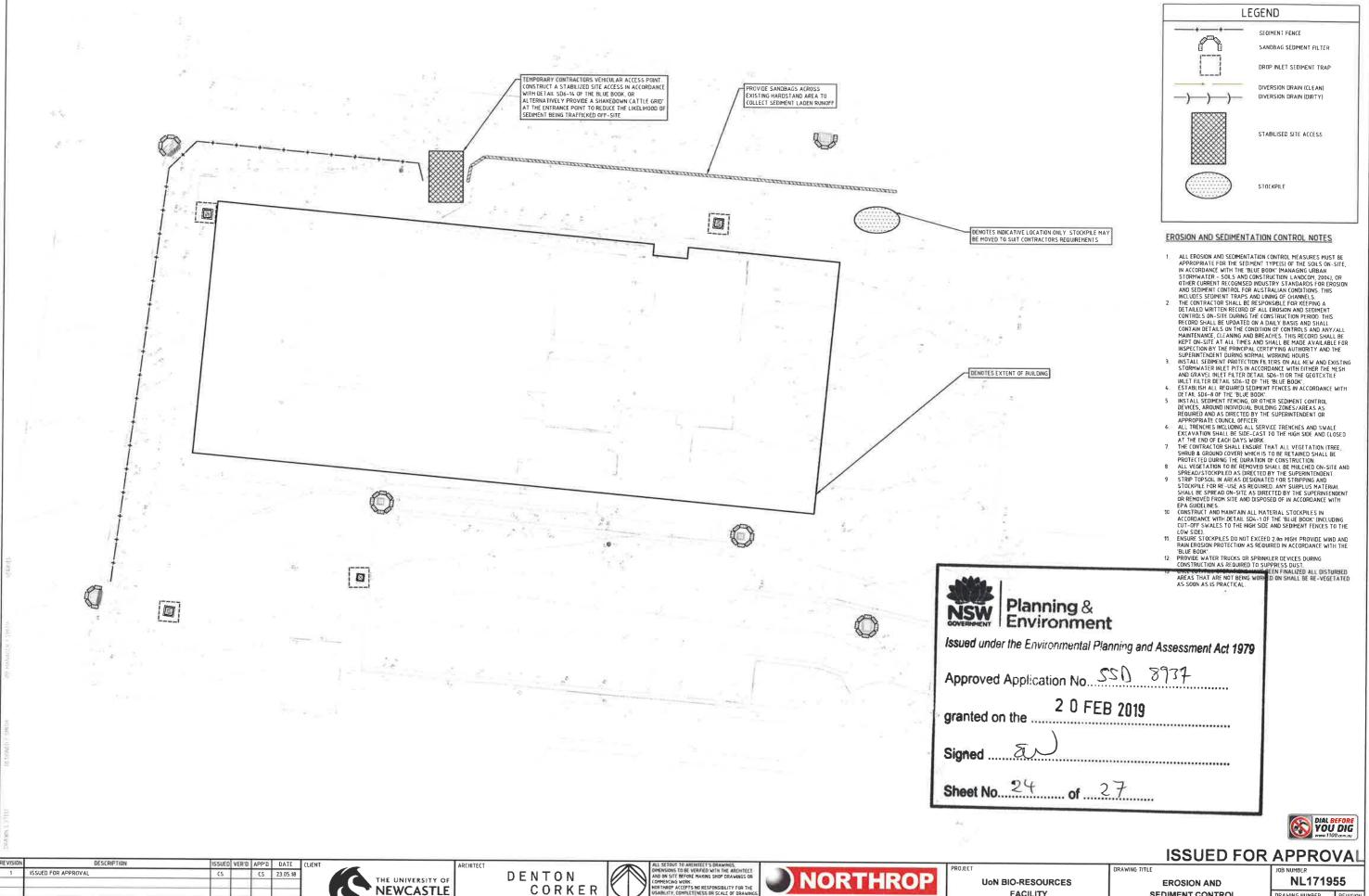
DENTON CORKER MARSHALL BIORESOURCES FACILITY CALLAGHAN\_NEWCASTLE UNIVERSITY OF NEWCASTLE CALLAGHAN CAMPUS PLANNING SK\_20181129\_YC01 LANDSCAPE CROSS SECTION - WEST FOR INFORMATION ONLY

EXISTING/NEW LANDSCAPE WITH NORTH RETAINING PLANTING BUILDING ENTRY + LOADING BAY NORTH EMBANKMENT PLANTING **FOOTPATH** RING ROAD **EXPOSED AGGREGATE FOOTPATH BIOLOGICAL** SCIENCES Planning & Environment Issued under the Environmental Planning and Assessment Act 1979 Approved Application No. 550 8937 granted on the ..... 2.0 FEB 2018 Signed ..... Sheet No. 23 of 27 23.90 19.80 Lomandra Multiflora Lomandra Multiflora Dianella Revoluta Dianella Revoluta

PROJ# D0136 PLANNING NTS @ A3 REV# P01 20<sub>4</sub>11.2018



DENTON CORKER MARSHALL BIORESOURCES FACILITY CALLAGHAN\_NEWCASTLE UNIVERSITY OF NEWCASTLE CALLAGHAN CAMPUS PLANNING SK\_20181129\_YC02 LANDSCAPE CROSS SECTION - NORTH FOR INFORMATION ONLY



CORKER Ne □ □ a i t e Súlb © 215 Pa⊡mi Hog Charriedo (in NSW 2290 P.O. Bo (180, Charrato (in NSW 2290 P.) (02) 1923 1777 Fa (102) ⊕3 1577 Email ne' ⊎a'ha'n cultholi lama " ABN 81 09 1183 100 MARSHALL

AUSTRALIA

**FACILITY** 

SEDIMENT CONTROL PLAN

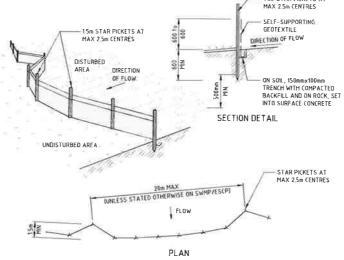
C10 DRAWING SHEET SIZE + A1

- CONSTRUCTION NOTES

  1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.

  2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- 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
- S. 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)



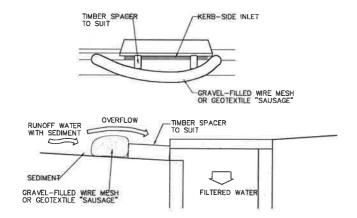
- CONSTRUCTION NOTES

  1. 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 SHALL ENDUGH 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 'SOMIN DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- 3 DRIVE 15 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
- 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)



- MESH AND GRAVEL INLET FILTER CONSTRUCTION NOTES:

  1 FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL

  2 FORM AN ELIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE

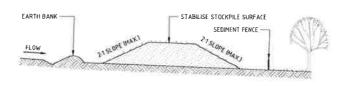
  3 PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
- MAIN I AIN I HE UPENING WITH SPACER BLOCKS.
  FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER
  SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE
  PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS
  BETWEEN

MESH AND GRAVEL INLET FILTER

ISSUED VER'D APP'D DATE

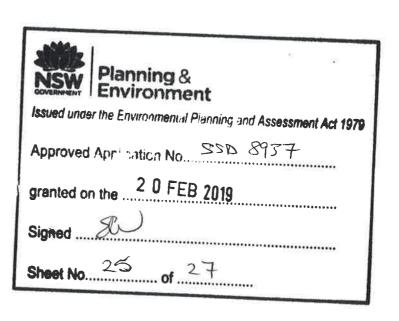
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SCALE NT.S



- PLACE STOCKPILES MORE THAN 2m (PREFERABLY Sm.) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS
- CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
- 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)





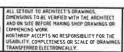
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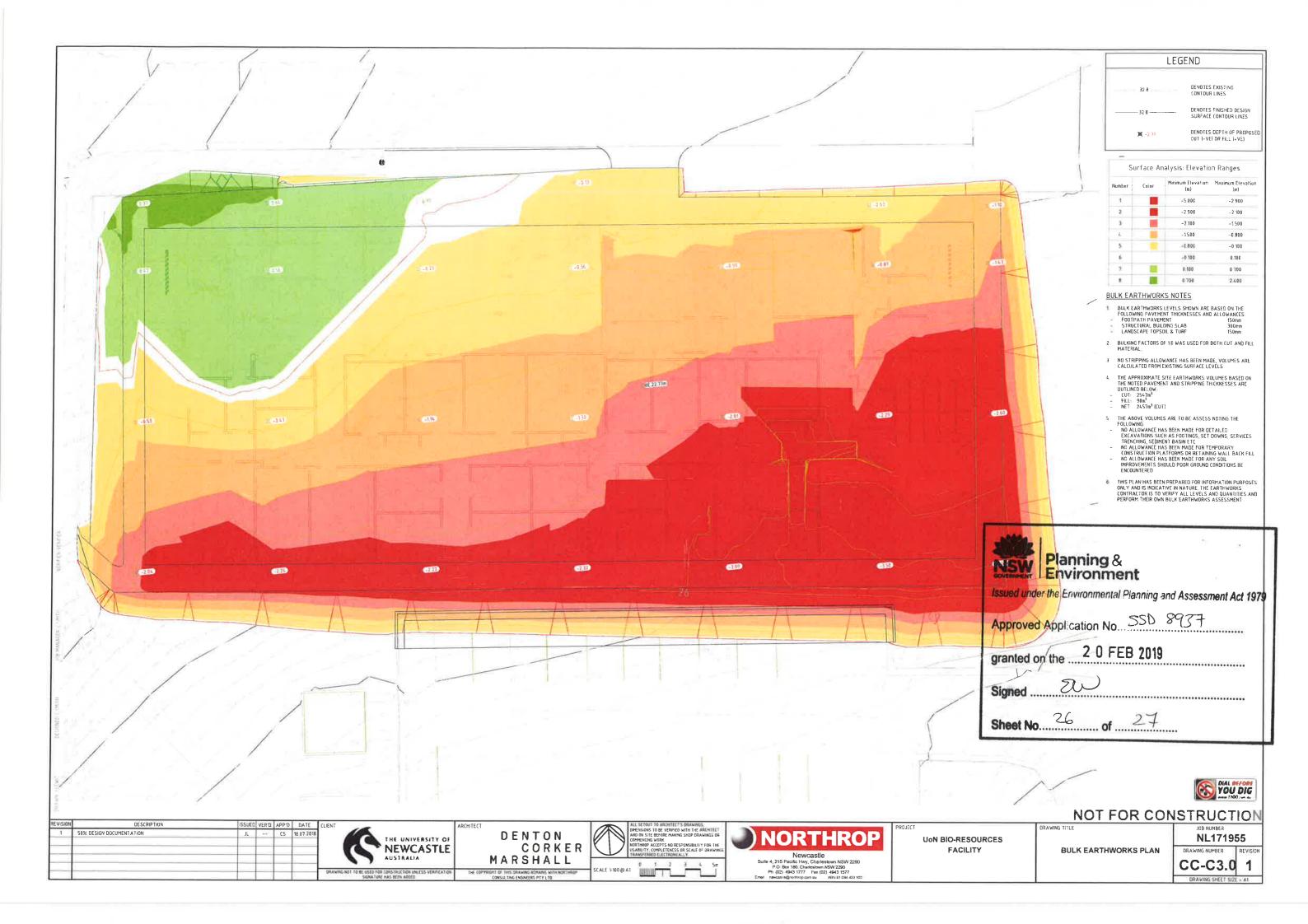


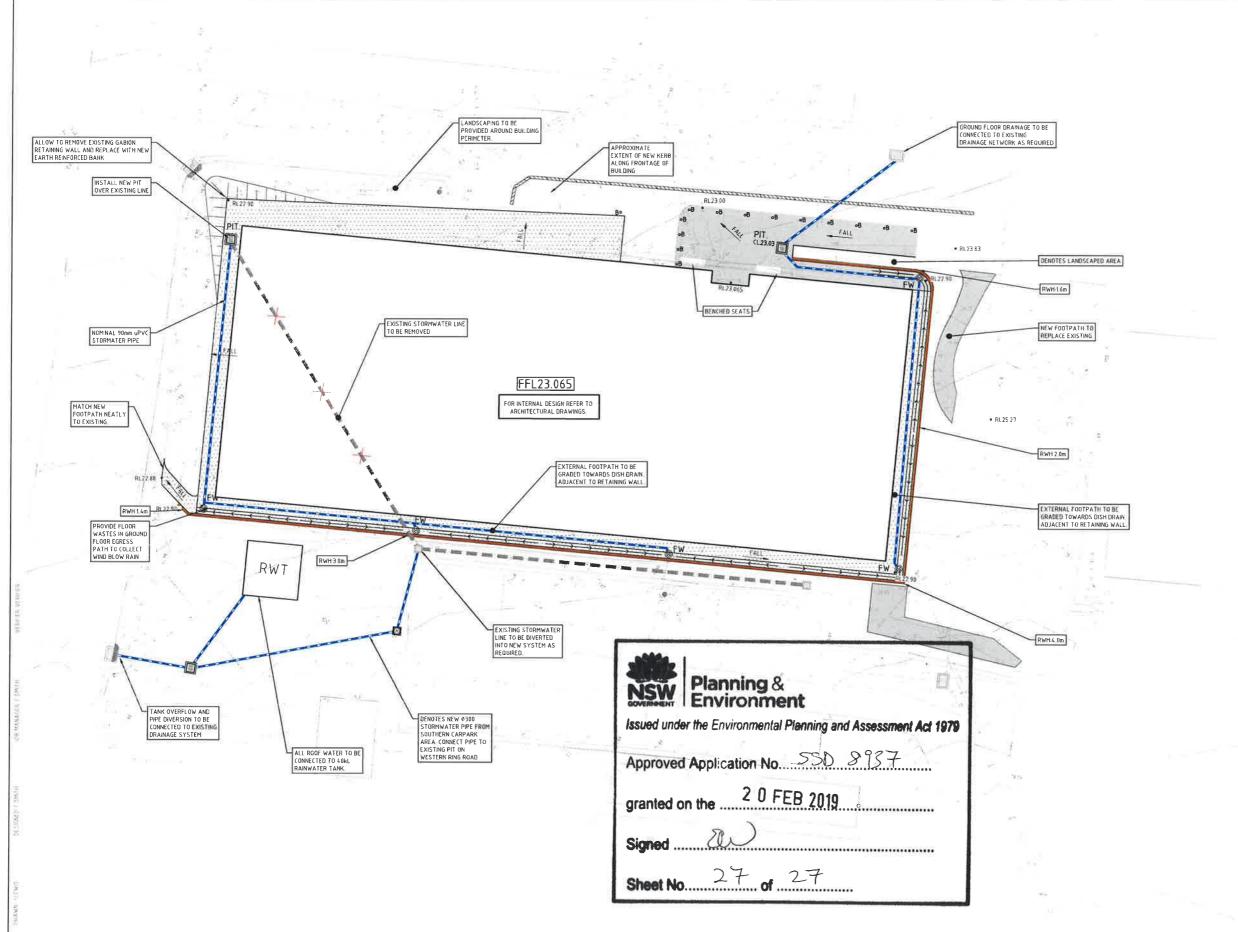
**UoN BIO-RESOURCES** FACILITY

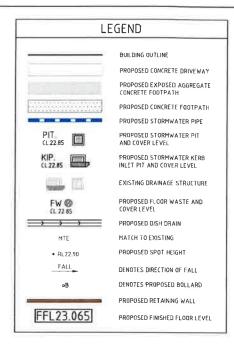
**EROSION AND** SEDIMENT CONTROL

NL171955 **DETAILS** 

C11







### STORMWATER MANAGEMENT PHILOSOPHY

NORTHROP CONSULTING ENGINEERS HAVE PREPARED A STORMWATER DRAINAGE DESIGN FOR THE PROPOSED BIORESOURCES DEVELOPMENT, WHICH INCLUDES THE CONSTRUCTION OF A NEW 2 STOREY BUILDING CONTAINING LABORATORIES AND ASSOCIATED PLANT AND STORAGE SPACES, THIS DESIGN HAS BEEN GENERALLY CONDUCTED IN ACCORDANCE WITH NEWCASTLE CITY COUNCIL (NCC) DCP (2012).

CURRENTLY THE SITE SUPPORTS EXISTING GLASSHOUSE BUILDINGS AND CURRENTLY THE SITE SUPPORTS EXISTING GLASSHOUSE BUILDINGS AND SUBROLUNDING PAYEMENTS, WITH SOME LANDSCAPE AREAS PRESENT AROUND THE PERMETER. THE SITE IS APPROXIMATELY 90% IMPERVIOUS, WITH NO EXISTING STORMWATER DRAINAGE CONTROL FACILITIES NOTED. AS SUCH, ALL STORM EVENTS DISCHARGE FREELY TO THE SITES EXISTING STORMWATER DRAINAGE SYSTEM PRIOR TO ENTERING THE UPPER REARIES OF BOWNMBAH CREEK (LOCATED ON THE PROPERTY) AND ULTIMATELY HEXHAM SWAMP.

THE PHILOSOPHY OF STORMWATER MANAGEMENT ON-SITE IS SUMMARISED AS

- RUNDFF FROM NEW ROOF AREAS WILL BE COLLECTED AND DIVERTED TO A NEW 40KL BELDW GROUND RAINWATER TANK LOCATED TO THE SOUTH OF THE PROPOSED BUILDING THE PROPOSED RAINWATER TANK HAVE BEEN SIZED IN ACCORDANCE WITH NCC STORNWATER AND WATER EFFICIENCY DEVELOPMENT TECHNICAL MANUAL (UPDATED 2015) AND DCP (2012)
- GROUND FLOOR PAVED AREAS ARE GENERALLY COVERED BY THE OVERLYING BUILDING AND RODS STORMWATER RUNGEF FROM THESE AREAS WILL BE COLLECTED BY A PROPOSED PIT AND PIPE NETWORKS AND DISCHARGED TO THE EXISTING DASITE DRAINAGE SYSTEM

### CALCULATIONS

REQUIRED STORAGE WAS CALCULATED AT A RATE OF 25MM PER M2 OF SITE AREA IIN ACCORDANCE WITH NCC DCP (2012) AND A 75% IMPERVIOUS SITE AREA)

40M3 OF STORAGE WILL BE PROVIDE THROUGH THE INSTALLATION OF ROOF WATER TANKS, WHICH EXCEEDS COUNCIL'S MINIMUM STORAGE

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**UoN BIO-RESOURCES** FACILITY

**CONCEPT STORMWATER** MANAGEMENT PLAN

NL171955 DRAWING NUMBER C20 1