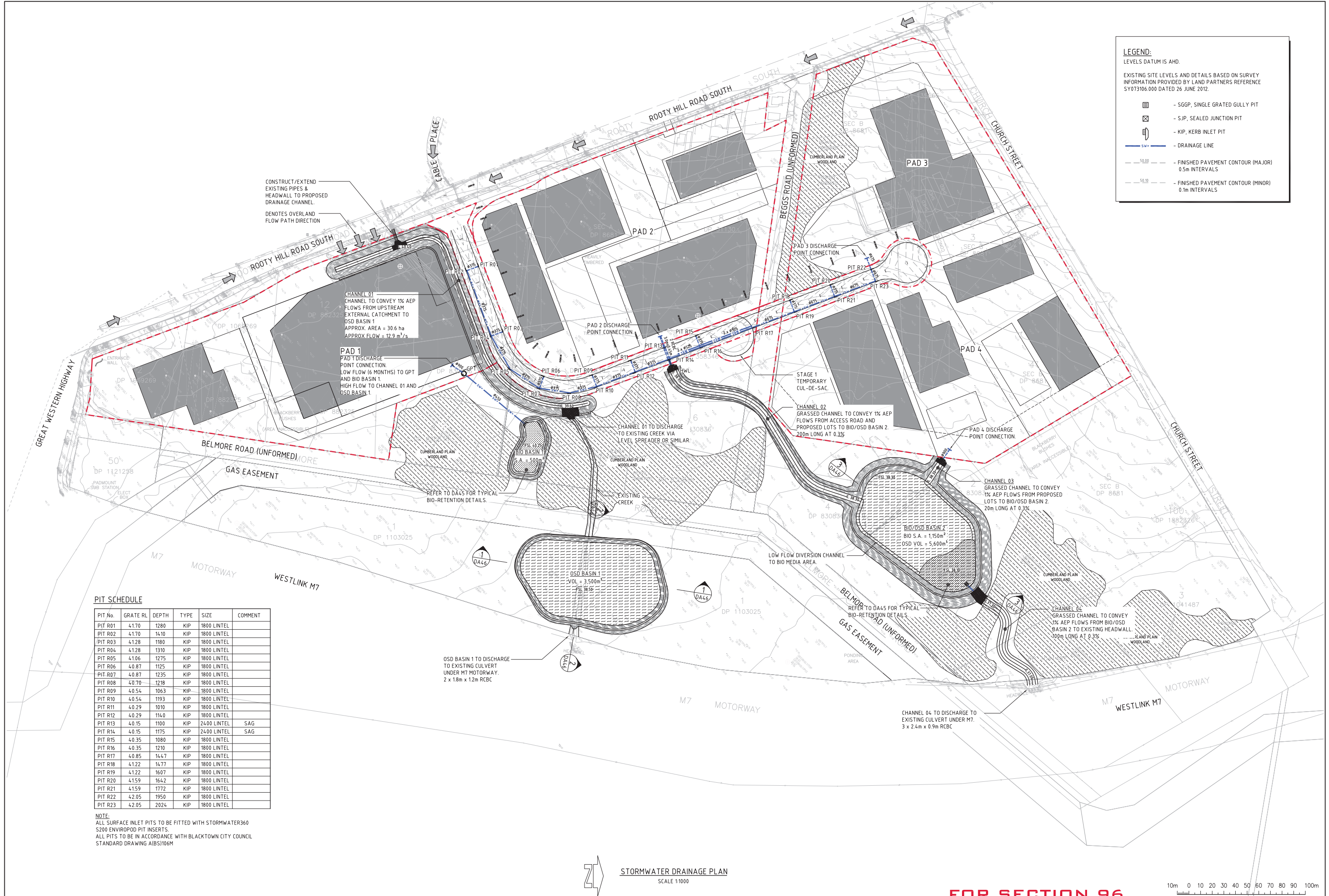


**LEGEND:**  
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS REFERENCE SY073106.000 DATED 26 JUNE 2012.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS



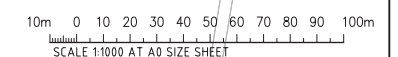
**PIT SCHEDULE**

PIT No.	GRATE RL	DEPTH	TYPE	SIZE	COMMENT
PIT R01	4.170	1280	KIP	1800 LINTEL	
PIT R02	4.170	14.10	KIP	1800 LINTEL	
PIT R03	4.128	1180	KIP	1800 LINTEL	
PIT R04	4.128	1310	KIP	1800 LINTEL	
PIT R05	4.106	1275	KIP	1800 LINTEL	
PIT R06	4.087	1125	KIP	1800 LINTEL	
PIT R07	4.087	1235	KIP	1800 LINTEL	
PIT R08	4.070	1218	KIP	1800 LINTEL	
PIT R09	4.054	1063	KIP	1800 LINTEL	
PIT R10	4.054	1193	KIP	1800 LINTEL	
PIT R11	4.029	1010	KIP	1800 LINTEL	
PIT R12	4.029	1140	KIP	1800 LINTEL	
PIT R13	4.015	1100	KIP	2400 LINTEL	SAG
PIT R14	4.015	1175	KIP	2400 LINTEL	SAG
PIT R15	4.035	1080	KIP	1800 LINTEL	
PIT R16	4.035	1210	KIP	1800 LINTEL	
PIT R17	4.085	1447	KIP	1800 LINTEL	
PIT R18	4.122	1477	KIP	1800 LINTEL	
PIT R19	4.122	1607	KIP	1800 LINTEL	
PIT R20	4.159	1642	KIP	1800 LINTEL	
PIT R21	4.159	1772	KIP	1800 LINTEL	
PIT R22	4.205	1950	KIP	1800 LINTEL	
PIT R23	4.205	2024	KIP	1800 LINTEL	

**NOTE:**  
ALL SURFACE INLET PITS TO BE FITTED WITH STORMWATER360 S200 ENVIROPOD PIT INSERTS.  
ALL PITS TO BE IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL STANDARD DRAWING A(BS)106M

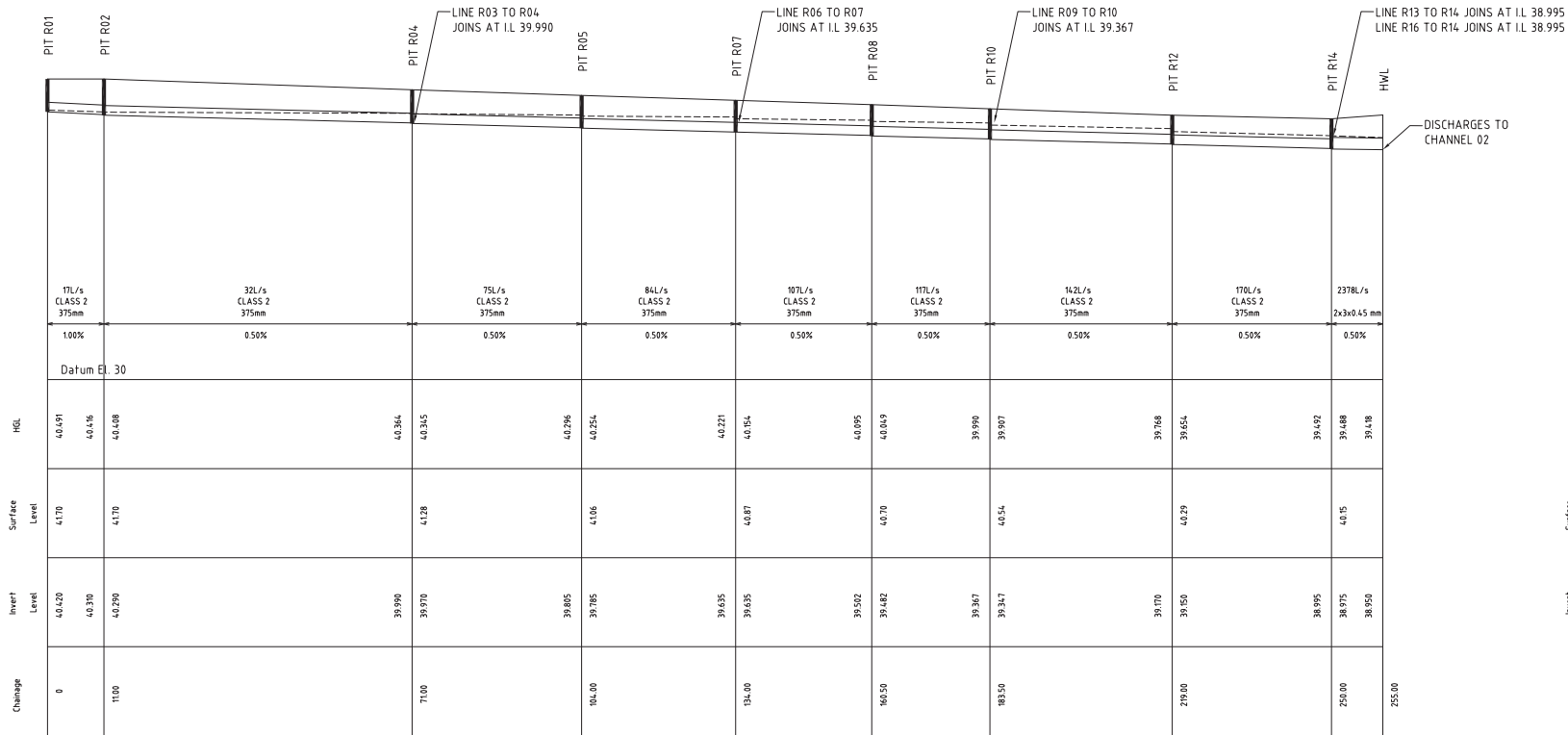
**STORMWATER DRAINAGE PLAN**  
SCALE 1:1000

**FOR SECTION 96**

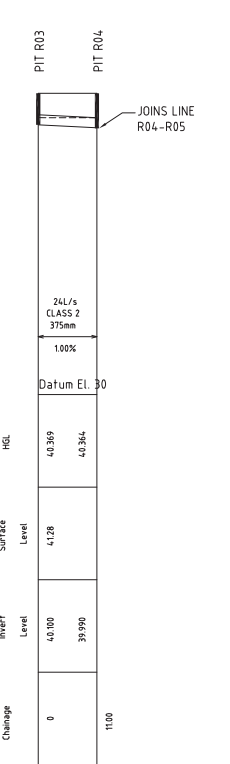


ISSUED FOR SECTION 96 FOR INFORMATION ONLY FOR INFORMATION ONLY AMENDMENTS		21/01/15 30/03/15 19/03/15 DATE	C B A ISSUE	AMENDMENTS	DATE	ISSUE	ARCHITECT	CLIENT WESTERN SYDNEY PARKLANDS TRUST LEVEL 1, 10 VALENTE AVENUE PARRAMATTA NSW 2150	PROJECT EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS	DESIGNED M.W.	DRAWN X.C.	DATE MAR 2015	CHECKED DATE	SCALE A0	CAD REF: 12693.00-DA40	PROJECT TITLE EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS	CLIENT Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Wahia Bay, Sydney NSW 2000 Tel: (02) 9551-7889 Fax: (02) 9541-3721 email: mail@costinroe.com.au	DRAWING TITLE STORMWATER DRAINAGE PLAN	ISSUE C
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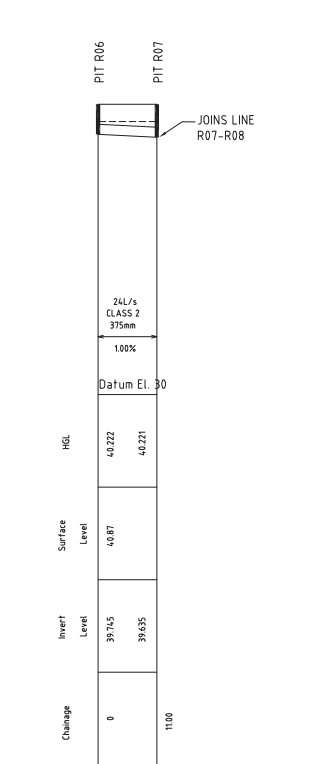




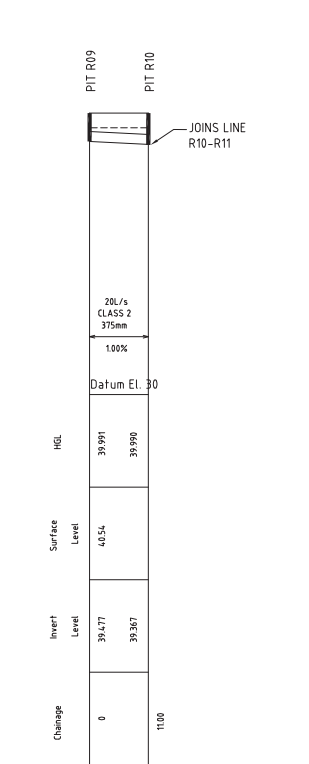
LONG SECTION - PIT R01 TO HEADWALL  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



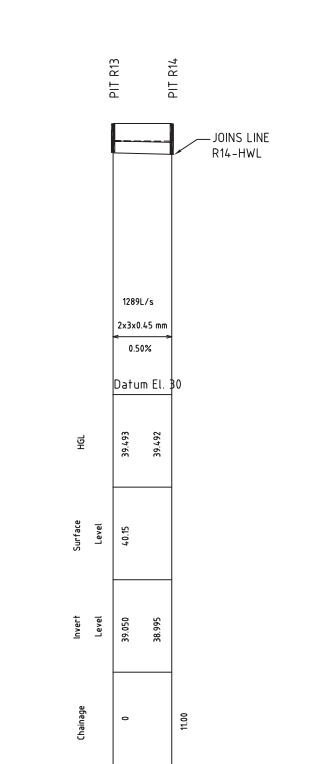
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SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



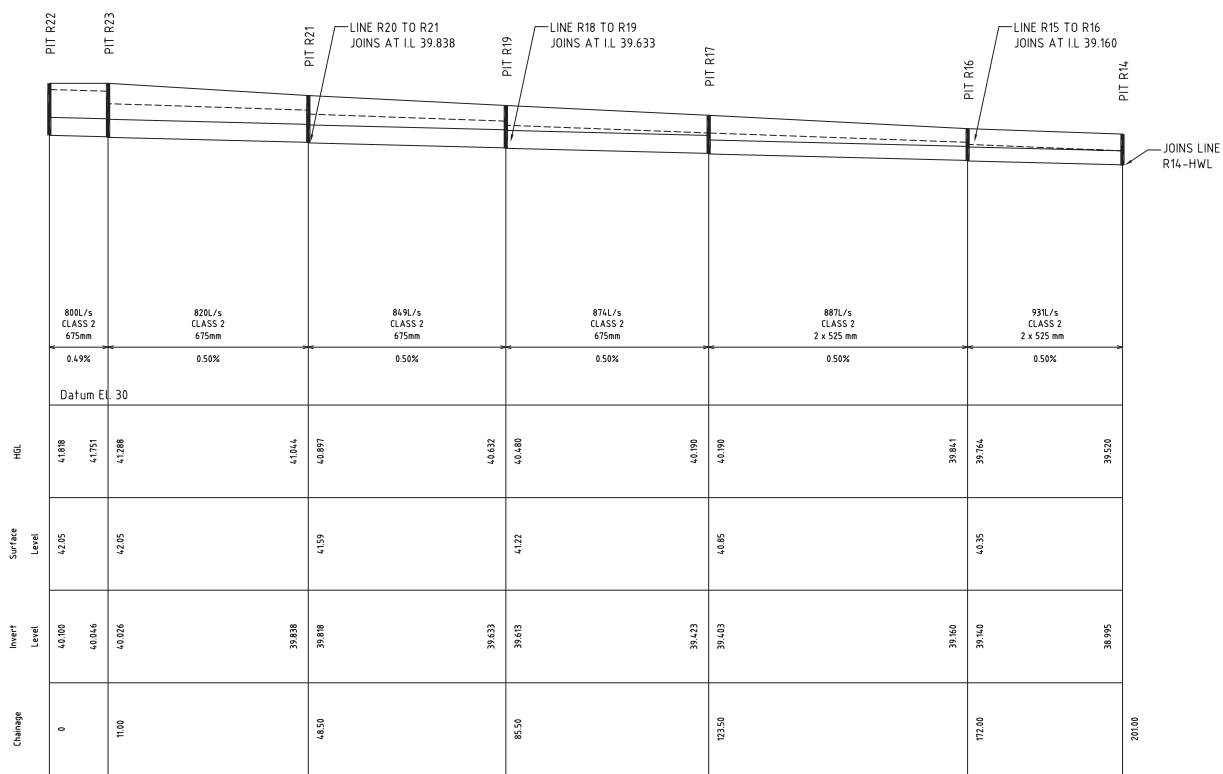
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SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



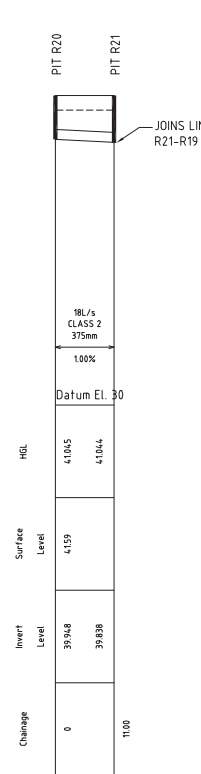
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1:100 VERTICAL



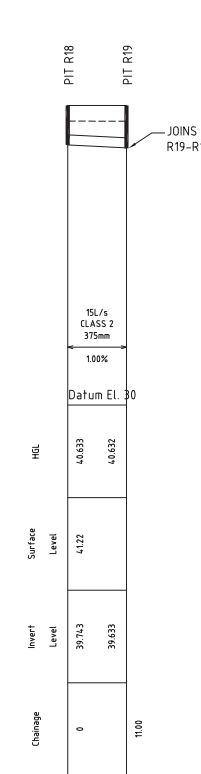
LONG SECTION - PIT R13 TO PIT R14  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



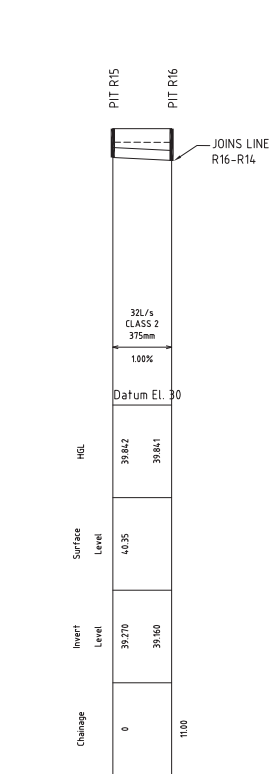
LONG SECTION - PIT R22 TO PIT R14  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



LONG SECTION - PIT R20 TO PIT R21  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



LONG SECTION - PIT R18 TO PIT R19  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL



LONG SECTION - PIT R15 TO PIT R16  
SCALE 1:500 HORIZONTAL  
1:100 VERTICAL

NOTE:  
H.G.L & FLOWRATE SHOWN FOR Q20 A.R.I STORM EVENT



FOR SECTION 96

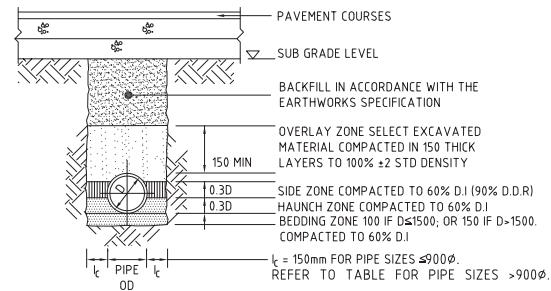
BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
19	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
75	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725

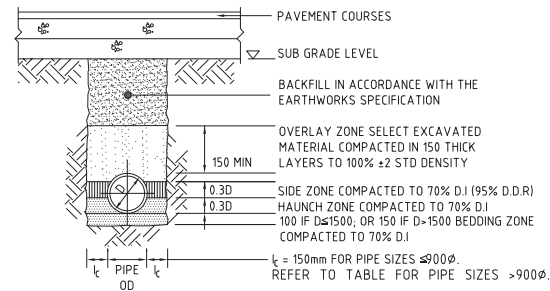
SIDE ZONE WIDTH	
PIPE SIZE	t (mm)
≤900φ	150
1050φ	175
1200φ	200
1350φ	225
1500φ	250
1650φ	275
1800φ	300

REFER TO ENGINEER FOR TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800φ



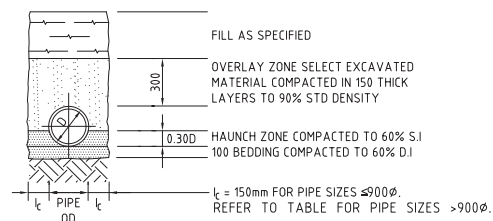
**TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT**

D ≤ 1350, MAX FILL = 4.0m  
D > 1350, MAX FILL = 3.0m

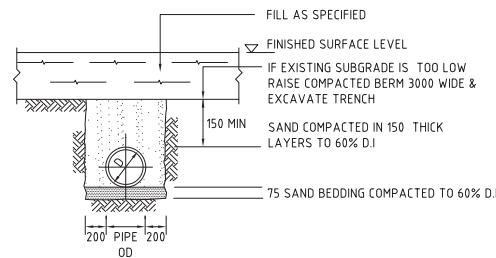


**TYPE HS3 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT**

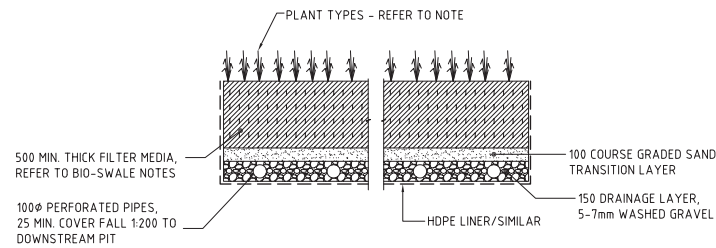
D ≤ 1050, MAX FILL = 6.0m  
D > 1050, MAX FILL = 4.80m



**TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS**

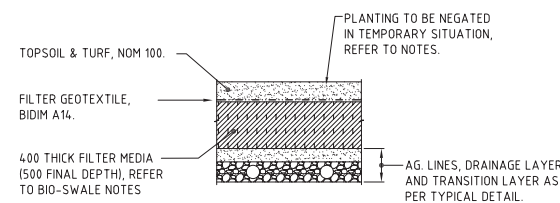


**SUPPORT TO uPVC PIPES**



**TYPICAL BIO-RETENTION DETAIL**

SCALE 1:20



**TEMPORARY BIO-RETENTION PROTECTION DETAIL**

SCALE 1:20  
TEMPORARY CONSTRUCTION REQUIREMENT DETAIL - REFER TO NOTES FOR IMPLEMENTATION PERIODS.

**BIO-RETENTION NOTES:**

FILTER MEDIA TO BE LOAMY SAND WITH A PERMEABILITY NOT LESS THAN 200mm/hr. FILTER MEDIA TO BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS, AND IS TO NOT BE HYDROPHOBIC.

FILTER MEDIA TO HAVE THE FOLLOWING COMPOSITION RANGE:

CLAY & SILT (<0.05mm)	≤3%
VERY FINE SAND (0.05-0.15mm)	5-30%
FINE SAND (0.15-0.25mm)	10-30%
MEDIUM TO COARSE SAND (0.25-1.00mm)	40-60%
COARSE SAND (1.0-2.0mm)	7-10%
FINE GRAVEL (2.0-3.4mm)	≤3%

FILTER MEDIA THAT DOES NOT MEET THE FOLLOWING CRITERIA SHALL BE REJECTED:

- ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 1% TO 3% (W/W) AND TO BE NO GREATER THAN 5%(W/W).
- PH TO BE BETWEEN 5.5 AND 7.5
- PHOSPHOROUS CONTENT TO BE NO GREATER THAN 35mg/kg

FILTER MEDIA TO BE ASSESSED BY QUALIFIED HORTICULTURALIST TO ENSURE CAPABILITY OF SUPPORTING PLANT LIFE.

DRAINAGE LAYER TO BE CLEAN GRAVEL 5-7mm.

PLANTS TO BE IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL WSD HANDBOOK PART 5 - VEGETATION SELECTION GUIDE, WITH A MINIMUM OF SIX DIFFERENT SPECIES.

PROVIDE 100mm TOPSOIL AND TEMPORARY EROSION PROTECTION (JUTEMASTER OR EQUIV) TO SWALE BATTER SLOPES AND ADJACENT LANDSCAPED AREAS. NOTE THAT NO TOPSOIL IS TO BE PLACED OVER FILTRATION MEDIA. PROVIDE SILT FENCE TO TOP OF BANK UNTIL SUCH TIME AS THIS STABILISING AND VEGETATION HAS BEEN COMPLETED.

BIO-RETENTION TO BE PARTIALLY INSTALLED, FOLLOWING COMPLETION OF THE ROAD, WITH THE TOP 75-100mm OF FILTER MEDIA REPLACED WITH A FINE TO COARSE SAND UNDERLAIN WITH A GEOTEXTILE LAYER (REFER TO DETAIL). FOLLOWING COMPLETION OF THE UPSTREAM DEVELOPMENT AND SITE STABILISATION, THE SAND IS TO BE REMOVED, REPLACED WITH FILTER MATERIAL AND PLANTED OUT. REFER TO TEMPORARY BIO-BASIN DETAIL

PRIOR TO PLANTING, THE TOP 100mm OF THE BIORETENTION FILTER MEDIA IS TO BE AMELIORATED WITH APPROPRIATE ORGANIC MATTER, FERTILISER AND TRACE ELEMENTS TO AID PLANT ESTABLISHMENT AS PER THE TABLE BELOW:

CONSTITUENT	QUANTITY (kg/m2 OF FILTER AREA)
GRANULATED POLY TRY MANURE FINES	50
SUPERPHOSPHATE	2
MAGNESIUM SULPHATE	3
POTASSIUM SULPHATE	2
TRACE ELEMENT MIX	1
FERTILISER NPK (16.4.14)	4
LIME	20

**FOR SECTION 96**

200mm 0 500 1000 1500 2000mm  
SCALE 1:20 AT A0 SIZE SHEET

ISSUED FOR SECTION 96	21.07.15	B
FOR INFORMATION ONLY	30.03.15	A
AMENDMENTS	DATE	ISSUE

ARCHITECT	CLIENT

PROJECT
EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS
DESIGNED: M.W.    DRAWN: X.C.    DATE: MAR 2015    CHECKED: J.A.D.    SIZE: AS SHOWN    SCALE: AS SHOWN    CAD REF: 12693.00-DA45

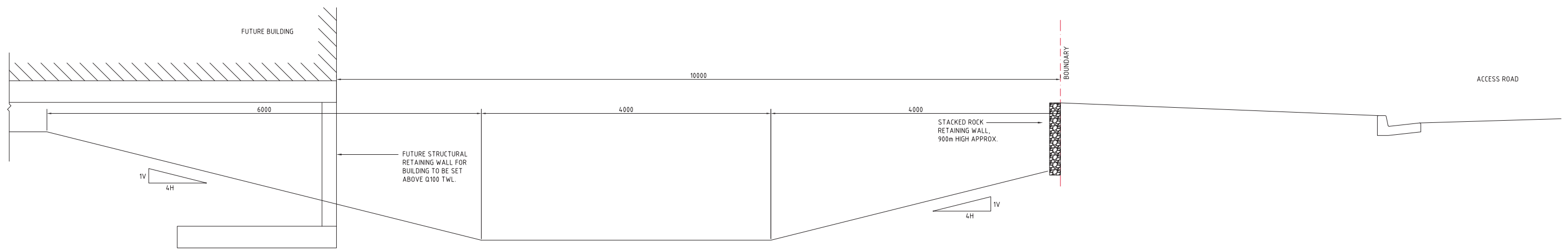
PROJECT
EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS
DESIGNED: M.W.    DRAWN: X.C.    DATE: MAR 2015    CHECKED: J.A.D.    SIZE: AS SHOWN    SCALE: AS SHOWN    CAD REF: 12693.00-DA45

CLIENT
Western Sydney Parklands Trust WESTERN SYDNEY PARKLANDS TRUST LEVEL 7, 10 VALENTE AVENUE PARRAMATTA NSW 2150

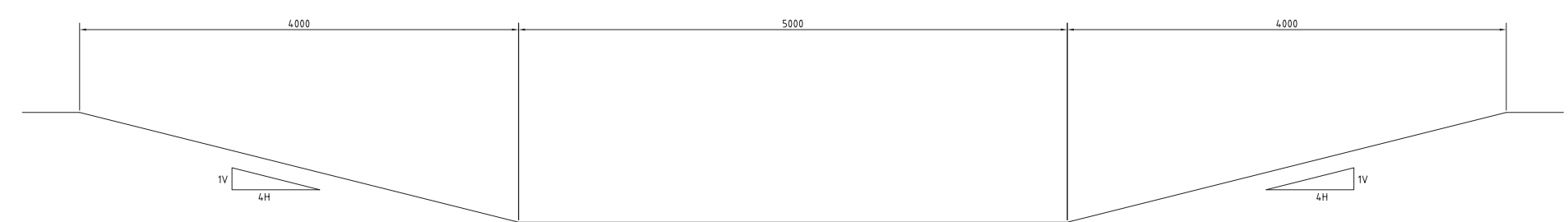
CONSULTANT
Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Wahbi Bay, Sydney NSW 2000 Tel: (02) 9551-7899 Fax: (02) 9541-3721 email: mail@costinroe.com.au

DRAWING TITLE
STORMWATER DRAINAGE DETAILS - SHEET 1
Value in Engineering and Management

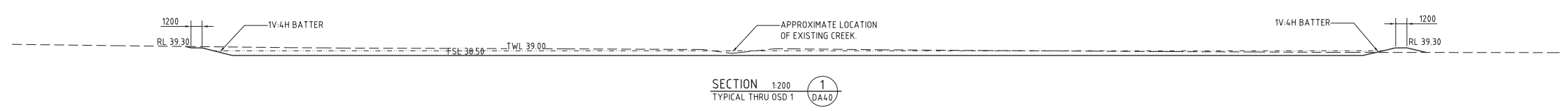
DRAWING No	ISSUE
C012693.00-DA45	B



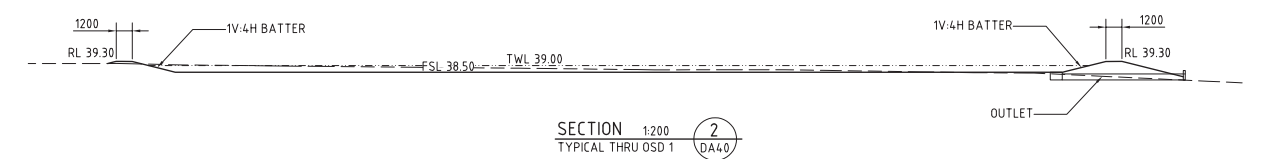
TYPICAL CHANNEL 01 SECTION  
SCALE 1:20



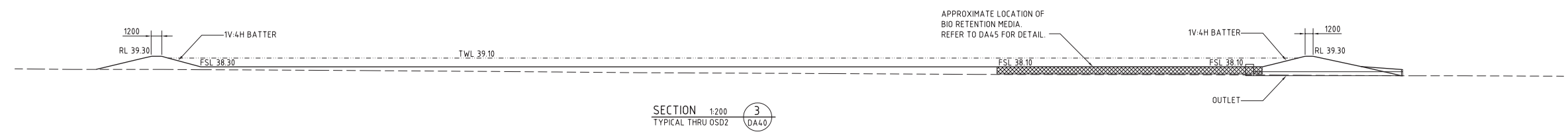
TYPICAL CHANNEL 02 & 03 SECTION  
SCALE 1:20



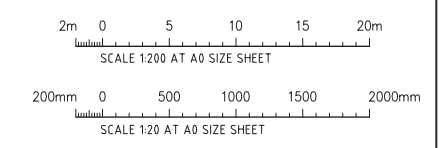
SECTION 1:200  
TYPICAL THRU OSD 1  
DA4.0



SECTION 2:200  
TYPICAL THRU OSD 1  
DA4.0



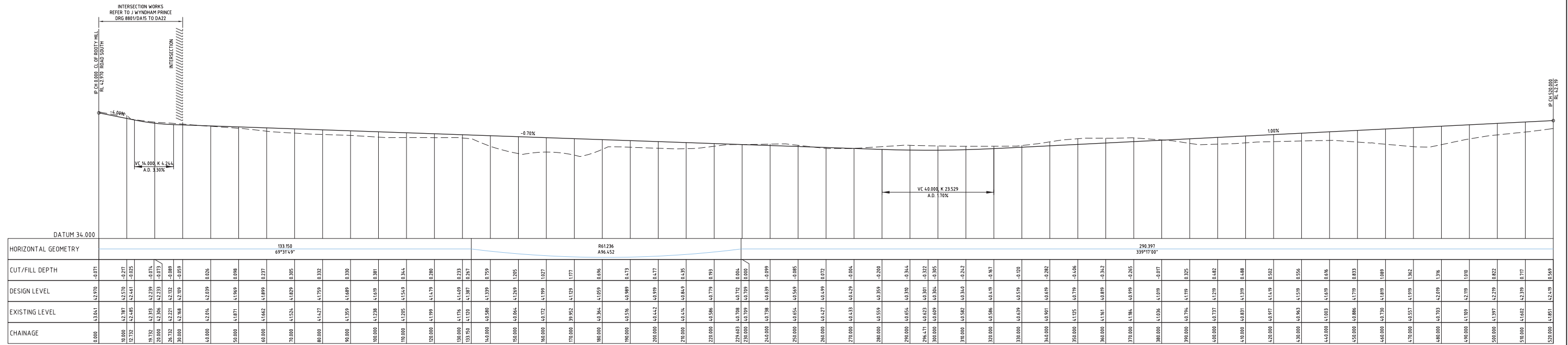
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TYPICAL THRU OSD 2  
DA4.0



**FOR SECTION 96**

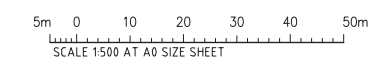
ISSUED FOR SECTION 96 FOR INFORMATION ONLY		21.07.15 30.03.15	B A	AMENDMENTS		DATE	ISSUE	AMENDMENTS	DATE	ISSUE	ARCHITECT	CLIENT NSW Western Sydney Parklands Trust WESTERN SYDNEY PARKLANDS TRUST LEVEL 7, 10 VALENTINE AVE PARRAMATTA NSW 2150	PROJECT EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS	DESIGNED M.W.	DRAWN X.C.	DATE MAR 2015	CHECKED	SCALE AS SHOWN	CAD REF: 12693.00-DA46	Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Wahbi Bay, Sydney NSW 2000 Tel: (02) 8551-7889 Fax: (02) 9541-3721 email: mail@costinroe.com.au	CostinRoe Consulting Value in Engineering and Management	DRAWING TITLE STORMWATER DRAINAGE DETAILS - SHEET 2	DRAWING No C012693.00-DA46	ISSUE B
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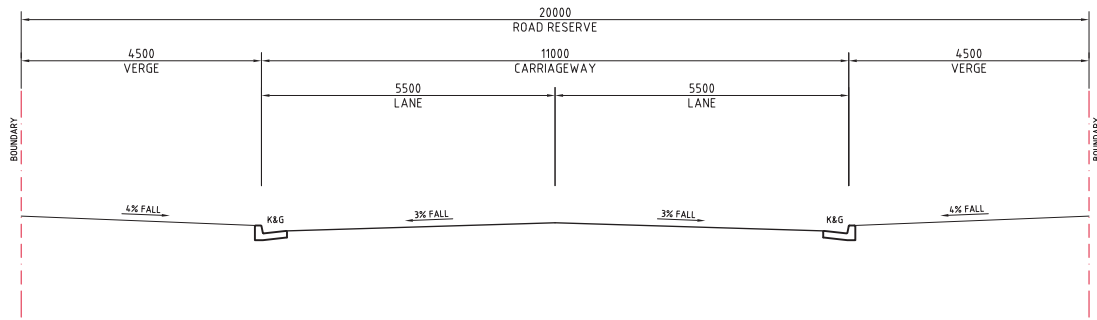


LONGITUDINAL SECTION - ROAD 01 CL  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100

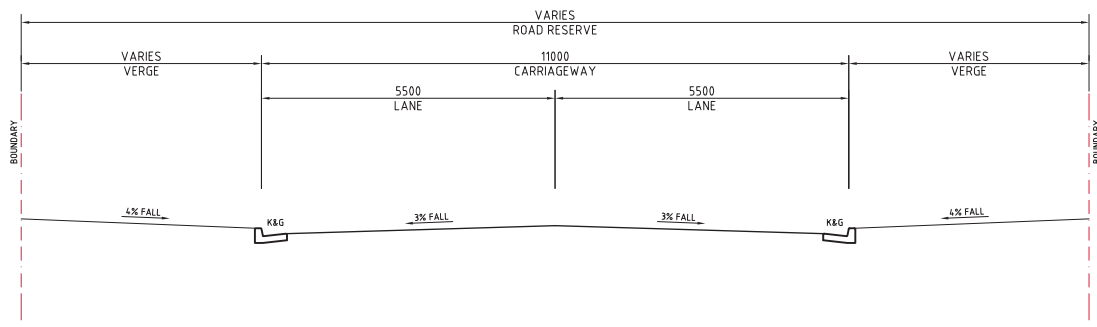
FOR SECTION 96



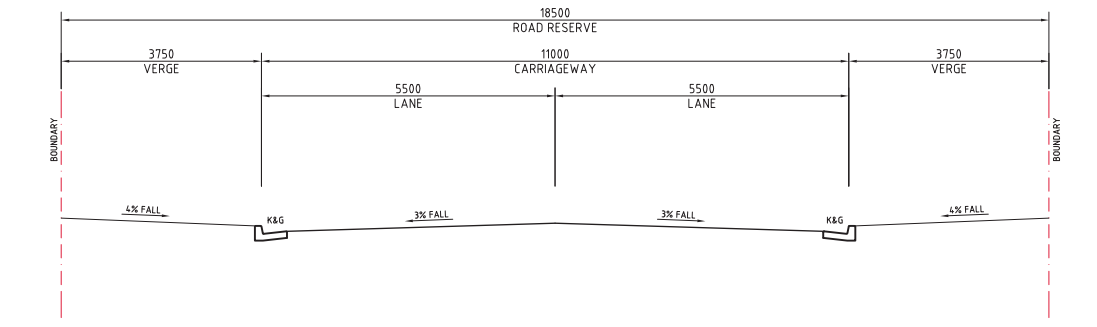
ISSUED FOR SECTION 96 FOR INFORMATION ONLY		21.07.15 30.03.15	B A	AMENDMENTS		DATE	ISSUE	AMENDMENTS		DATE	ISSUE	ARCHITECT	CLIENT NSW Western Sydney Parklands Trust WESTERN SYDNEY PARKLANDS TRUST LEVEL 7, 10 VALENTE AVENUE PARRAMATTA NSW 2150	PROJECT EASTERN CREEK BUSINESS HUB WESTERN SYDNEY PARKLANDS	DESIGNED M.W.	DRAWN X.C.	DATE MAR 2015	CHECKED	SIZE A0	SCALE	CAD REF: 12693.00-DA51	Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 9 Windmill Street Wahia Bay, Sydney NSW 2000 Tel: (02) 8551-7889 Fax: (02) 8541-3721 email: mail@costinroe.com.au	CostinRoe Consulting Value in Engineering and Management	DRAWING TITLE ROAD 1 LONGITUDINAL SECTION	DRAWING No C012693.00-DA51	ISSUE B
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ACCESS ROAD  
CHAINAGE 30.000 TO 133.150  
SCALE 1:50



ACCESS ROAD  
CHAINAGE 133.150 TO 229.603  
SCALE 1:50



ACCESS ROAD  
CHAINAGE 229.603 TO 520.000  
SCALE 1:50

**FOR SECTION 96**

AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
ISSUED FOR SECTION 96	21.07.15	B			
FOR INFORMATION ONLY	30.03.15	A			

ARCHITECT

CLIENT  

 WESTERN SYDNEY PARKLANDS TRUST  
 LEVEL 7, 10 VALENTINE AVE  
 PARRAMATTA NSW 2150

PROJECT  
 EASTERN CREEK BUSINESS HUB  
 WESTERN SYDNEY PARKLANDS

Costin Roe Consulting Pty Ltd.  
 Consulting Engineers  
 Level 1, 8 Windmill Street  
 Walsh Bay, Sydney NSW 2000  
 Tel: (02) 9551-7899 Fax: (02) 9541-3721  
 email: mail@costinroe.com.au

Value in Engineering and Management

DRAWING TITLE ROAD TYPICAL CROSS SECTIONS	DRAWING No C012693.00-DA55	ISSUE B
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