MORTONS urbansolutions

Our Reference: 41901-04 [ID 1014252]
Council Reference: OPW/2024/523

Civil Engineering
Project Coordination

mortons@urbansolutions.net.au
www.urbansolutions.net.au

MUS Pty Ltd t/as:
Mortons - Urban Solutions
ABN: 39 116 375 065

8 August 2024

Council of the City of Gold Coast
PO Box 5042
GCMC Qld 9726

Attention: **Mr Wasim Ahmed**
Email: mail@goldcoast.qld.gov.au; **wahmed@goldcoast.qld.gov.au**

Dear Wasim

Re: Response to Information Request for Development Application over Lots 188 and 189 RP173728 at 79 Courtney Drive, Upper Coomera

On behalf of our Client *HB Land Qld Pty Ltd* we make the following response to Council's Information Request, dated 4 June 2024 for the Development Application as allowed by s13.2 and s 13.3 of the Development Assessment Rules for the *Planning Act (2016)*.

OPERATIONAL WORKS

Item 1 Retaining Wall Heights

The applicant is requested to demonstrate that the proposed retaining wall heights comply with Condition No. 22 of COM/2019/82.

We have reviewed this plan and can confirm that it complies with the heights, we note that there were a couple of heights missing from our plan and we have added some additional heights. Please see attached updated plans 41901-04-060 Rev B to 062 Rev B for your approval.

Item 2 Earthworks for Driveway Access

As per Condition No. 32 of COM/2019/82, the applicant needs to design and construction earthworks for Lot No. 226, 243 and 248 to achieve driveway access grades. The construction of earthworks must comply with the below requirements and drawings listed below:

Drawing Title	Author	Date	Drawing No.	Ver
Driveway Grading Plan	Mortons Urban Solutions	09/11/2022	41901-ALL-SK004	A
Driveway Grading Typical Sections	Mortons Urban Solutions	13/02/2023	41901-ALL-SK005	C

and include in particular:

i The maximum gradient of the earthworks in the 5.5 metre setback areas for access to the lots listed above must not exceed the grades shown on the above listed drawings.

ii The earthworks must provide a minimum 4.0m wide formation area (to allow a 3.0 driveway) for access and must align with the proposed VXO location for the lots listed above, as shown on the above listed drawings.

Please see attached Drawings 41901-ALL-SK004 and 41901-ALL-SK005 **(Attachment 1)**, this condition relates to 3 lots (226, 243 and 248) we note that these were addressed during the ROL approval process and have not been changed.

Item 3 Kerb Returns

Kerb returns at all standard residential access and collector street intersections are required to have a 6 metre maximum radius. The applicant is requested to demonstrate that this requirement has been complied with.

Please refer to drawing updated plans 41901-04-400 Rev A which show the kerb returns of 6m, all other intersections have been approved as part of the Stage 2 works (OPW/2024/1202).

Item 4 Design Checklist for Bio-Retention Basin

The works do not satisfy A02 & AO8.1 of the works for infrastructure code. More specifically, the application does not comply with the Land Development Guidelines Cl 4.5.5.5 which requires the submission of design checklists from the Water Sensitive Urban Design - Technical Design Guidelines for Southeast Queensland (c.l. 3.7) and certification from a suitably qualified person.

Please refer to the Biome's Certification dated 7th August 2024 that provide certification in accordance with Condition 50 of COM/2019/82 which include the design assessment checklists in accordance with above. **(Attachment 2)**,

Item 5 Portable Long Service Leave Levy

*In accordance with section 77(2) of the **Building and Construction Industry (Portable Long Service Leave) Act 1991,** Council cannot issue a development permit for Operation al Works unless it has sighted -*

a) *An approved form issued by the Authority that clearly shows –*

   i) *That the levy or the first instalment of the levy has been paid; or*

   ii) *That an exemption from payment of the levy exists in relation to the work; or*

   iii) *That an exemption from immediate payment of the levy exists in relation to the work; or*

b) *Written advice from the Authority stating something mentioned in paragraph (a).*

Please see attached a copy of the Notification and Payment confirmation for QLeave (S384239) paid in July 2024. **(Attachment 3)**

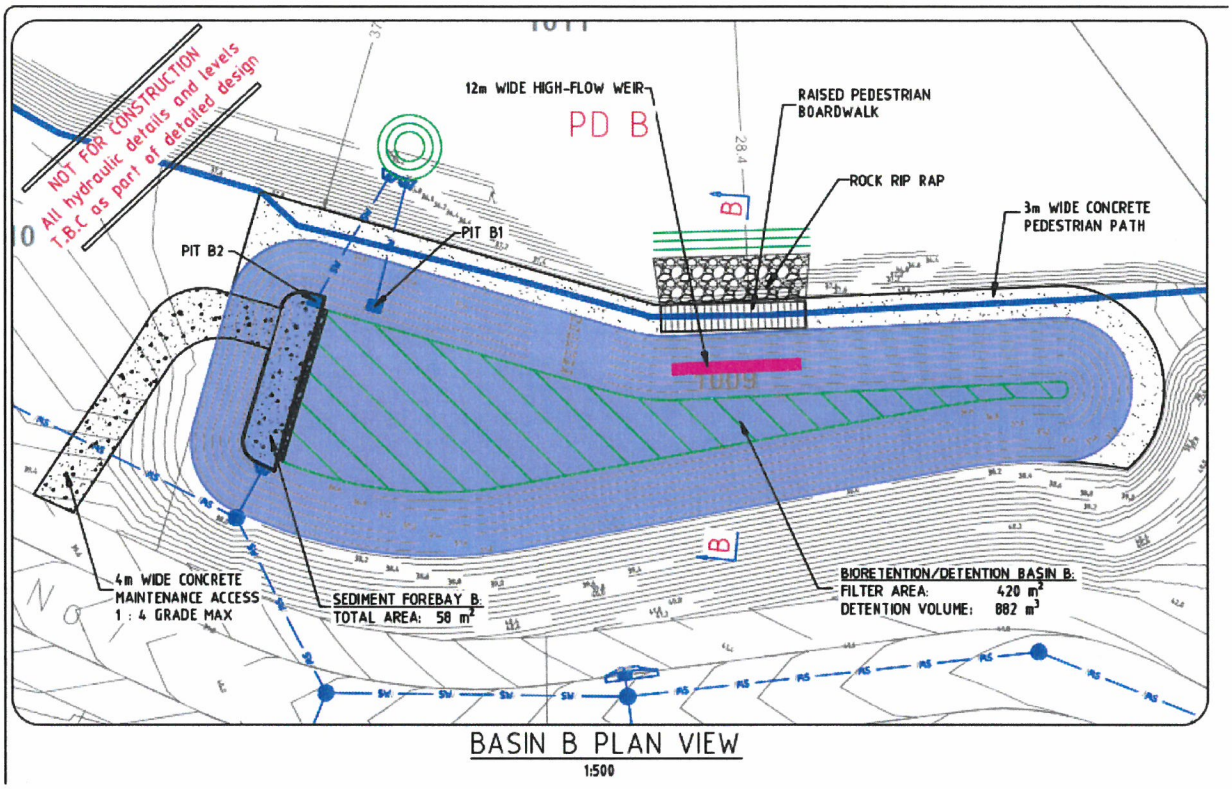
OPEN SPACE ASSESSMENT

Item 6 Maintenance Access to Lot 1009

a. *Proposed maintenance access to bio retention basin (Lot 1009) is located within the adjacent recreation park (Lot 1010). Park lot 1010 is for recreation purposes. The maintenance access for the adjacent drainage reserve detracts from the recreational usability of the Lot 1010.*

b. *The applicant is requested to formulate an alternate design solution where infrastructure for the drainage reserve is contained wholly within the designated drainage reserve lot and not within the recreation park.*

The maintenance access track has always been shown outside drainage reserve and was always included in the park calculations. It is noted that the overall park dedication requirements for the site exceeds the minimum requirements by 707m^2. The ROL Approval (COM/2019/82) gives approval of Biome's Stormwater Management plan (dated November 2020) where the maintenance access track is located within lot 1010 as shown below. Please refer to snip below.



WATER AND WASTE

Item 7 Works for Infrastructure Code

PO4 – Water Supply Reticulation Design

a. *Council acknowledges that the proposed water main shall follow a 1.3m alignment from the private lot boundaries. It remains unclear how much clearance is proposed between the water and sewer services.*
Amend the drawing to note the minimum clearances that are to be maintained between the proposed water and sewer services in accordance with Table 5.5 of WSA03 – Water Supply Code of Australia.

Please refer to updated plans 41901-04-700 Rev B that now include this note.

PO5 – Sewerage Reticulation Design

b. *The Sewer reticulation profiles drawing '41901-04-530', sheet 01, Revision A notes that custom benching is required for sewer structure 12/07 (1200mm dia. MH). Provide to Council a detail demonstrating the custom benching, ensuring consistency with SEQ-SEW-1304-1.*

Please refer to Drawing No 41901-04-510 Rev B showing a detail of this benching in accordance with SEQ-SEW-1304-1. We have included an option for if the pumpstation is operational and one option if the pump station is not operational.

c. *Sewer structures 10/07 and 11/07 are proposed within a basin access track which will be subjected to vehicular loading. Amend the drawings package to ensure that class D (trafficable) MH lids are proposed for all structures located within trafficable locations.*

Please refer to drawing no 41901-04-530 Rev B Showing these lids to be a type D.

d. *Gravity sewerage pipework between structures 10/07 and 11/07 crosses beneath the Stage 4 concrete basin weir. To ensure the longevity and protection of the sewerage pipework, amend the drawings to include a section of enveloper sleeving beneath the weir and demonstrate how much vertical clearance will be provided between the top of enveloper and underside of weir.*

Please refer to drawing no 41901-04-530 Rev B that show a 300mm enveloper across the weir extending one meter either side. The Vertical clearance is also provided.

e. *Sewer structure 01/11 is situated downstream of approximately 80 meters of DN150 pipework at 1 in 10.3 grade (9.7%). Confirm that the proposed Type J1 maintenance structure is appropriate with consideration to the incoming grade and anticipated flow velocity.*

Please refer to drawing no 41901-04-531 Rev B show that this is now a manhole at this location.

TRANSPORT AND TRAFFIC BRANCH

Additional Observations on Proposed Signage & Line Marking Drawings

1. *The give-way sign / lines at the T-Intersection of Road 07 / Road 10 may not be strictly needed under AS AS1742.2/MUTCD Part 2 guidance but given the slight offset of the eastern leg I don't object if the designer wishes to keep them in this instance.*

2. *Likewise, there is no need for the Give Way to be signed/marked at Road 07/Road 11, unless they envisage an offset leg in a future stage there too.*

3. *The two proposed wildlife signs are quite a lot here – these size in B-size are 1400mm wide and 2.4m in height. I understand wildlife signage was conditioned as part of these approvals, but perhaps in a low-speed urban environment we can either remove one of these, or at the very least reduce these to the smaller A-size.*

Drawing 41901-04-420 Rev B has been updated to reflect a size A signage. As noted all other signage remains the same.

We note that we provided a full set of drawings that include all of the revved up drawings as mentioned above. Please see **Attachment 4** for MUS drawings 41901-04-000 to 41901-04-710 for your approval.

In accordance with s13.2 of the DA Rules, we advise that we are providing a response to all the information requested and request that Council as the Assessment Manager continue to proceed with assessment of the application.

If you have any queries in relation to this matter, please telephone Ursula Weeks of our office on (07) 5571 1099.

Yours faithfully

John Harrison
Mortons – Urban Solutions

Encl.
Attachment 1: 41901-ALL-SK004 and 41901-ALL-SK005
Attachment 2: QLeave Notification and Payment Confirmation
Attachment 3: QLeave Notification and Payment Confirmation
Attachment 4: MUS drawings 41901-04-000 to 710 and Transmittal

c.c. HB QLD Pty Ltd



PROJECT NAME

COURTNEY DR UPPER COOMERA

SKETCH

RP DESCRIPTION
LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 12.5 25 37.5 50 62.5m
Scale 1:1250 - A1 (1:2500 - A3)

ISSUES	DATE	
TENDER		
COUNCIL		
CONSTRUCTION		

PRE	DATE	AMENDMENT
A	09.11.22	ISSUE FOR INFORMATION

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ASSOCIATED CONSULTANTS

BIOME

zone Planning Group

DRAWING TITLE

DRIVEWAY GRADING PLAN

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

MUS Pty Ltd T/As:
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Southport QLD 4215

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Suite 9, 19 Short St
Southport QLD 4215

DESIGNED	RCB	DRAWN	RCB
APPROVED	RPEQ	DATE	09.11.22

DRAWING NUMBER: 41901-ALL-SK004
AMEND.: A

F:\Autocad Client\419 - HB Land\01 - Courtney Drive\Overall\Sketch\36001-ALL-SK004-05.dwg, 14/11/2022 3:32:58 PM, A3, 1:2

Our Ref: BC-22178
Your Ref: COM/2019/82

07 August 2024

City of Gold Coast
PO Box 5042
GOLD COAST MC QLD 9729

To whom it may concern,

RE: CONDITION 50 (b) – CERTIFICATION OF WORKS-HYDRAULICS & WATER QUALITY RESIDENTIAL DEVELOPMENT
77-99 COURTNEY DRIVE, UPPER COOMERA (STAGE 2)

This letter has been submitted to satisfy Condition 50(b) of the Decision Notice for Stage 2 of the residential development at 77-99 Courtney Drive, Upper Coomera. This condition requires the following:

50 Certification of works – Hydraulics & Water Quality

Provide Council with certificate4s prepared by qualified expert(s) from the discipline(s) listed below, confirming as follows:

The submitted engineering drawings accurately reflect the stormwater management devices and drainage layout contained within the approved stormwater management plan (being 'Stormwater Management & Hydraulic Impact Assessment, 77-99 Courtney Drive, Upper Coomera' by BIOME Consulting dated November 2020 – reference: BC-16090) for each relevant stage.

The following documents, make up the supporting information reviewed as part of this certification for Stage 4 of the development:

1. The Stage 04 Operational Works Drawings by Mortons Urban Solutions (No. 41901-04-A drawings 660-665); and
2. Basin Design Checklist (from *Water Sensitive Urban Design Technical Design Guidelines for South East Queensland*) – Included as Attachment A; and
3. Technical Design Calculation Summary Checklist for all stages (from *Water by Design Bioretention Technical Design Guidelines)* – Included as Attachment B.

Upon review of the documentation I, Brad Comley (RPEQ 17706), certify that the engineering drawings by Mortons Urban Solutions as listed above for Stage 4 of the development accurately reflect the stormwater devices and drainage layout contained within the approved stormwater management plan by BIOME Consulting dated November 2020 (reference BC-16090). If you would like clarification of any of the information included within this certification, please contact the undersigned.

Yours faithfully

BRAD COMLEY
MSc, BAppSc MEngPrac, NER, RPEQ
Enc.: Attachment A - Basin Design Checklist
Attachment B - Technical Design Calculation Summary Checklist

Attachment A

Design Assessment Checklists

(Water Sensitive Urban Design Technical Design Guidelines for South East Queensland)

BIOME Consulting Pty Ltd
PO Box 3469, Australia Fair
Southport QLD 4215

M: 0415 935 222 **E:** brad@BIOMEconsulting.com.au **ABN:** 86 166 087 476

Asset ID:	**Basin B (Stage 4)**	**DA No.**	COM/2019/82
Basin Location:	**Courtney Drive, Upper Coomera**		
Hydraulics:	Minor Flood (m^3/s): < 1.39	Major Flood (m^3/s): 1.65	
Area:	Catchment Area (ha): 5.07	Bioretention Area (m^2): 420	

TREATMENT	**Y**	**N**
Treatment performance verified from curves?	Y	
BIORETENTION MEDIA AND UNDERDRAINAGE	**Y**	**N**
Design documents bioretention area and extended detention depth as defined by treatment performance requirements.	Y	
Overall flow conveyance system sufficient for design flood event?	Y	
Where required, bypass sufficient for conveyance of design flood event?	N/A	
Where required scour protection provided at inflow point to bioretention?	Y	
Bioretention media specification includes details of filter media, drainage layer and transition layer (if required)?	Y	
Design saturated hydraulic conductivity included in specification?	Y	
Transition layer provided where drainage layer consists of gravel (rather than course sand)?	Y	
Perforated pipe capacity > infiltration capacity of filter media?	Y	
Selected filter media hydraulic conductivity > 10 x hydraulic conductivity of surrounding soil?	TBC	
Liner provided if selected filer media hydraulic conductivity < 10 x hydraulic conductivity of surrounding soil?		N
Maximum spacing of collection pipes < 1.5m?	2.5 m	
Collection pipes extended to surface to allow inspection and flushing?	Y	
*Maximum upstream flood conveyance complies with QUDM?	N/A	
*Overflow pit has set down of at least 50 mm below kerb invert? (where conventional gully/lintel used downstream of bioretention then no overflow pit required)	N/A	
BASIN	**Y**	**N**
Bioretention area and extended detention depth documented to satisfy treatment requirements?	Y	
Overflow pit crest set at top of extended detention?	Y	
Maximum ponding depth will not impact on public safety?		N
Maintenance access provided to surface of bioretention system (for larger systems)?	Y	
Protection from coarse sediments provided (where required) with a sediment forebay?	Y	
Protection from gross pollutants provided (where required)?	N/A	
LANDSCAPE	**Y**	**N**
Plant species selected can tolerate extended dry periods, periodic inundation and design velocities?	Y	
Bioretention design and plant species selected integrate with surrounding landscape or built environment design?	Y	
*Planting design conforms with acceptable sight line and safety requirements?	N/A	
COMMENTS	**Y**	**N**

Attachment B

Technical Design Calculation Summary Checklists

(Water by Design Bioretention Technical Design Guidelines)

BIOME Consulting Pty Ltd
PO Box 3469, Australia Fair
Southport QLD 4215

M: 0415 935 222 **E:** brad@BIOMEconsulting.com.au **ABN:** 86 166 087 476

Item	Description	Detail			
ID	Basin ID (Stage)	Basin A (Stage 2)	Basin B (Stage 4)	Basin C (Stage 1)	Basin D (Stage 1)
1.Treatment					
a)	Catchment Area	5.63 ha	5.07 ha	2.19 ha	1.69 ha
b)	Filter media area (excluding batters)	580 m^2	420 m^2	175 m^2	140 m^2
c)	Confirm water quality performance meets the design objectives	Yes			
d)	Confirm hydrological performance meets relevant frequent flow objectives	N/A	N/A	N/A	N/A
2. Design Inflows					
a)	Minor design storm entering system	1 in 2 yr ARI	1 in 2 yr ARI	1 in 2 yr ARI	1 in 2 yr ARI
b)	Minor storm peak flow rate	1.55 m^3/s	1.39 m^3/s	0.59 m^3/s	0.47 m^3/s
c)	Major design storm entering system	1 in 100 yr ARI	1 in 100 yr ARI	1 in 100 yr ARI	1 in 100 yr ARI
d)	Major storm peak flow rate	4.35 m^3/s	1.65 m^3/s	1.49 m^3/s	1.30 m^3/s
a)	Bioretention drainage profile type	Type 3	Type 3	Type 3	Type 3
b)	Minimum drainage layer depth	300 mm	300 mm	300 mm	300 mm
c)	Maximum drainage layer depth	300 mm	300 mm	300 mm	300 mm
d)	Transition layer depth	100 mm	100 mm	100 mm	100 mm
e)	Saturated zone depth for Type 1 bioretention systems	N/A	N/A	N/A	N/A
f)	Filter media layer depth	700 mm	700 mm	500 mm	500 mm
g)	Extended detention depth	300 mm	300 mm	250 mm	300 mm
h)	Freeboard to top of embankment	>300 mm	>300 mm	200 mm	200 mm
i)	Maximum water level depth above extended detention for major storm event	814 mm	847 mm	178 mm	381 mm
j)	Total system profile depth [3(c)+3(d)+3(f)+3(g)+3(i)]	2,214 mm	2,247 mm	1,328 mm	1,581 mm
k)	Layer type (i)Permeable (ii)Impermeable (iii)None to base	Permeable	Permeable	Permeable	Permeable
l)	AASS/PASS assessed and appropriately managed	N/A	N/A	N/A	N/A
m)	Presence of dispersive soils and appropriately managed	N/A	N/A	N/A	N/A
4. Design Levels					
a)	Outlet invert level	43.40 m AHD	35.30 m AHD	43.20 m AHD	56.00 m AHD
b)	Overflow pit invert level	43.40 m AHD	35.30 m AHD	43.20 m AHD	56.00 m AHD
c)	Minimum drainage layer level	43.40 m AHD	35.30 m AHD	43.20 m AHD	56.00 m AHD
d)	Filter media surface level	44.50 m AHD	36.40 m AHD	44.20 m AHD	57.00 m AHD
e)	Overflow pit crest level	45.30 m AHD	36.70 m AHD	44.45 m AHD	57.30 m AHD
f)	Overflow weir level	45.60 m AHD	37.45 m AHD	44.60 m AHD	57.60 m AHD
g)	Maximum design water level	45.62 m AHD	37.55 m AHD	44.68 m AHD	57.68 m AHD
h)	Top of embankment/batter level	46.00 m AHD	37.90 m AHD	44.80 m AHD	58.00 m AHD
i)	Inlet/inflow invert level	44.65 m AHD	36.50 m AHD	44.30 m AHD	57.10 m AHD
j)	Total level difference [4(h)-(4(c)]	2.60 m	2.60 m	1.60 m	2.00 m
k)	Highest astronomical tide level	N/A	N/A	N/A	N/A
l)	Ground water level	N/A	N/A	N/A	N/A
5. Layout					
a)	Maximum filter media length	29 m	32 m	23 m	21 m

b)	Maximum filter media width	15 m	15 m	12 m	8 m
c)	Maximum batter slope	1:4	1:4	1:4	1:4
d)	Maximum wall height	N/A	N/A	N/A	N/A
e)	Provision for services	N/A	N/A	N/A	N/A
f)	Maintenance access provided	Yes	Yes	Yes	Yes
g)	Flood storage volume above extended detention	1,418 m^3	1,093 m^3	129 m^3	96 m^3
6. Inlet Design					
a)	Inlet/inflow type (i)pipe (ii)channel (iii) sheet flow (iv)other	(i)	(i)	(i)	(i)
b)	Diversion/surcharge type	N/A	N/A	Upstream splitter in pit to divert low flows to bioretention	N/A
c)	Coarse sediment removal (i)forebay (ii)inlet pond (iii)swale (iv) other	(i)	(i)	(i)	(i)
d)	Coarse sediment removal area	36 + 40 m^2	58 m^2	24 m^2	20 m^2
e)	Coarse sediment removal depth	0.2 m	0.2 m	0.2 m	0.2 m
f)	Coarse sediment clean-out frequency	0.18 /year	0.42 /year	0.22 /year	0.20 /year
g)	Flow distribution				
h)	Confirm scour protection at inflow locations	Yes	Yes	Yes	Yes
i)	Minor storm flow velocity over filter	0.63 m/s	0.69 m/s	0.48 m/s	0.68 m/s
j)	Major storm flow velocity over filter	0.73 m/s	0.29 m/s	0.97 m/s	0.37 m/s
7. Underdrainage (outlet design)					
a)	Filer media saturated hydraulic conductivity	200 mm/hr	200 mm/hr	200 mm/hr	200 mm/hr
b)	Maximum filter infiltration capacity	0.024 m^3/s	0.017 m^3/s	0.016 m^3/s	0.012 m^3/s
c)	Underdrain capacity	0.027 m^3/s	0.031 m^3/s	0.038 m^3/s	0.038 m^3/s
8. Overflow design (outlet design)					
a)	Overflow pit type	3 x 900mm x 600mm Riser with dome top over 1050mm dia Manholes	2 x 900mm x 600mm Riser with dome top	1 x 900mm x 600mm Riser with dome top	1 x 900mm x 600mm Riser with dome top
b)	Overflow pit dimensions	900mm x 600mm	900mm x 600mm	900mm x 600mm	900mm x 600mm
c)	Overflow weir length	15 m	12 m	5 m	7 m
d)	Overflow pit capacity (taking into account blockage factor)	3 x 0.82 m^3/s	2 x 0.82 m^3/s	0.82 m^3/s	0.82 m^3/s
e)	Overflow pit plus overflow weir capacity (taking into account blockage factor)	4.46 m^3/s	2.27 m^3/s	1.10 m^3/s	1.21 m^3/s
f)	Outlet pipe size	4 x 525s, 1 x 600 mm	2 x 450 mm	1 x 375 mm	1 x 375 mm
g)	Appropriate outlet scour protection provided	Yes – Rock Apron downstream	Yes – Rock Apron downstream	N/A – discharges to pipe network	Yes – Rock Apron downstream
9. Vegetation Design					
a)	Planting style (i)small scale urban (ii)med-large scale urban (iii) bushland	(ii)	(iI)	(i)	(i)

b)	Trees and shrubs to be included (yes/no)	Yes	Yes	No	No
c)	Species diversity (number of species)	6	6	6	6
d)	Species selection	Refer to approved landscape	Refer to approved landscape	Refer to approved landscape	Refer to approved landscape
e)	Planting density	6 plants/m^2	6 plants/m^2	6 plants/m^2	6 plants/m^2
f)	Mulch type and depth	Refer to approved landscape	Refer to approved landscape	Refer to approved landscape	Refer to approved landscape

QLeave PORTABLE LONG SERVICE LEAVE

notification and payment CONFIRMATION

This form is issued in accordance with the *Building and Construction Industry (Portable Long Service Leave) Act 1991* s77(2). Form BCI 14v1.

Confirmation date: 23/07/2024

BUILDING AND CONSTRUCTION WORK DETAILS

QLeave levy number: S384239 Date notified: 17/07/2024

Building and construction work description: CIVIL CONSTRUCTION RESIDENTIAL

Lot no.: Plan no.:

Building and construction work address: STG 4, 79-99 COURTNEY DR

Suburb: UPPER COOMERA Postcode: 4209

Internal job reference number (if applicable): 079UPC-04

Notified cost of work (GST exclusive): $ 2,400,000

Total levy paid: $ 13800.00

Exempted cost of work (GST exclusive): $

Start date: 15/09/2024 Finish date: 30/06/2025

Council: GOLD

Certifier:

Owner: HB QLD PTY LTD

Principal contractor: UNKNOWN

QLeave has issued this form to confirm that notification and payment has been received. Under s.77 of the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, all obligations have been met.

BUILDING AND CONSTRUCTION WORK COMPLETED

When your building and construction work reaches practical completion, you are invited to submit your final costs and completion date to QLeave. To provide QLeave with these details, please complete the **Finalisation form** available at www.qleave.qld.gov.au.

CONTACT QLEAVE

Unit 1, 62 Crockford Street, Northgate Qld 4013 | PO Box 348, Archerfield BC Qld 4108
Freecall 1300 QLEAVE | **Email** levies@qleave.qld.gov.au | **Web** www.qleave.qld.gov.au

QLeave is collecting the information on this form for the purposes of administering the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, as required by that Act. QLeave may give some or all of this information to various other Government departments or agencies as required or permitted by law.

DATA TRANSMITTAL

MORTONS urbansolutions
Civil Engineering
Project Coordination
ABN: 39 116 375 065 Tel: (07) 55711099

PROJECT NAME: Courtney Drive - Stage 4 OPW
JOB NO: 41901-04

DAY	16	30	08
MONTH	04	04	08
YEAR	24	24	24

DISTRIBUTION	No. OF COPIES A1/A3/Electronic		
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Council		0/0/1	0/0/1

FILE NO.	DESCRIPTION	AMENDMENT		
	GENERAL			
41901-04-000	COVER SHEET		A	C
41901-04-003	SAFETY IN DESIGN		A	A
41901-04-004	RISK MATRIX & NOTES		A	A
41901-04-005	ROAD HIERARCHY & STAGING PLAN		A	A
	EARTHWORKS			
	RETAINING WALL & DETAIL GRADING			
41901-04-060	PLAN SHEET 01		A	B
41901-04-061	PLAN SHEET 02		A	B
41901-04-062	PLAN SHEET 03		A	B
41901-04-070	DETAILS SHEET 01		A	B
	PADMOUNT SECTIONS			
41901-04-075	SHEET 01		A	B
	FINAL SURFACE & SEDIMENT AND EROSION CONTROL			
41901-04-080	PLAN SHEET 01		A	A
41901-04-081	PLAN SHEET 02		A	A
	COMBINED SERVICES			
41901-04-090	PLAN SHEET 01		A	A
	ROADS			
	ROADSWORKS			
41901-04-100	PLAN SHEET 01		A	A
41901-04-120	DETAILS SHEET 01		A	A
	LONGITUDINAL SECTIONS			
41901-04-200	SHEET 01		A	A
41901-04-201	SHEET 02		A	A
	CROSS SECTIONS			
41901-04-300	SHEET 01		A	A
41901-04-301	SHEET 02		A	A
41901-04-302	SHEET 03		A	A
	INTERSECTION GRADING			
41901-04-400	DETAILS SHEET 01		A	A
	JOINTING DETAILS			
41901-04-410	DETAILS SHEET 01		A	A
	LINEMARKING & SIGNAGE			
41901-04-420	PLAN SHEET 01		A	B
	SEWER			
	RETICULATION			
41901-04-500	PLAN SHEET 01		A	B
41901-04-501	PLAN SHEET 02		A	A
41901-04-510	DETAILS SHEET 01		A	B
	PROFILES			
41901-04-530	SHEET 01		A	B
41901-04-531	SHEET 02		A	B
	HOUSE CONNECTION PROFILES			
41901-04-550	SHEET 01		A	A
	DRAINAGE			
	STORMWATER			
41901-04-600	PLAN SHEET 01	A	A	A
41901-04-601	PLAN SHEET 02	A	A	A
	PROFILES			
41901-04-620	SHEET 01	A	A	A
41901-04-621	SHEET 02	A	A	A
41901-04-622	SHEET 03	A	A	A
	PET DETAILS & TYPICAL DETAILS			
41901-04-640	OUTLETS & TYPICAL DETAILS SHEET 01	A	A	A
41901-04-650	PIT DETAILS SHEET 01	A	A	A
41901-04-651	PIT DETAILS SHEET 02	A	A	A
	BASINS & CULVERTS			
41901-04-660	BASIN PLAN SHEET 01	A	A	A
41901-04-661	FOREBAY DETAILS SHEET 01	A	A	A
41901-04-662	SECTIONS SHEET 01	A	A	A
41901-04-663	SECTIONS SHEET 02	A	A	A
41901-04-665	DETAILS SHEET 01	A	A	A

DATA TRANSMITTAL

MORTONS urbansolutions
Civil Engineering
Project Coordination
ABN: 39 116 375 065 Tel: (07) 55711099

PROJECT NAME: **Courtney Drive - Stage 4 OPW**
JOB NO: **41901-04**

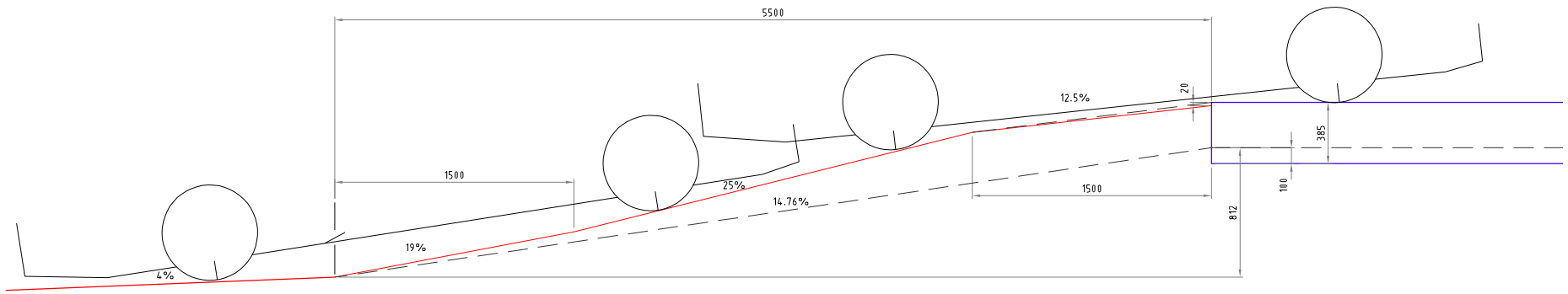
	CATCHMENT														
41901-04-670	PLAN SHEET 01	A	A	B											
	CALCULATION TABLES														
41901-04-680	MINOR SHEET 01	A	A	A											
41901-04-681	MAJOR SHEET 02	A	A	A											
	WATER RETICULATION														
41901-04-700	PLAN SHEET 01		A	B											
41901-04-710	WATER RETICULATION DETAILS		A	A											
TYPE: C - CIVILCAD A - AUTOCAD P - PLOT H - PHOTOCOPY OF APPROVED DWG D - Pdfs		D	D	D											
REASON: Z - COUNCIL R - REVISION A - APPROVAL C - CONSTRUCTION S - AS REQUESTED T - TENDER P - PRELIMINARY X - INFORMATION		X	Z/A	Z/A											

PLEASE CHECK THAT YOU HAVE RECEIVED ALL DOCUMENTS AS LISTED ABOVE.

I hereby acknowledge receipt of the documents as detailed above.
Signed: _____ Date: / /
Company: _____

DISCLAIMER

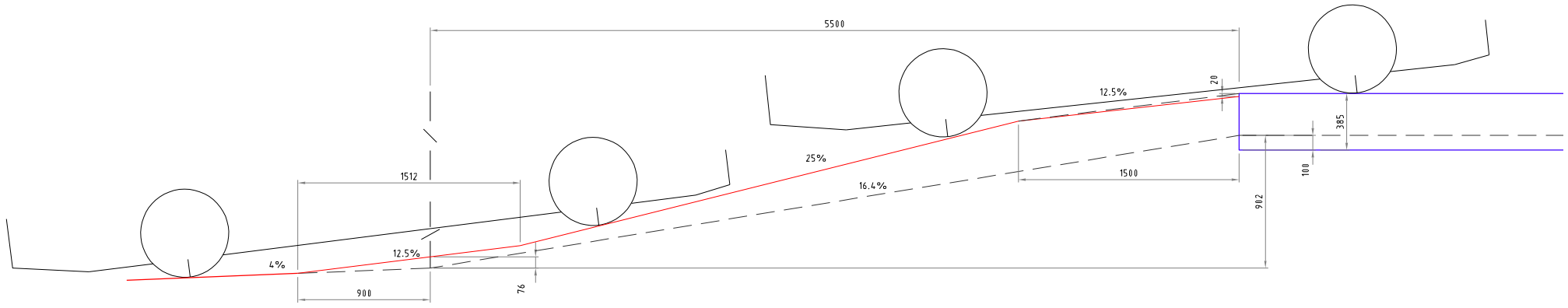
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TYPICAL MAXIMUM DESIGN 14.76% - WITH MAX. 385mm WAFFLE POD

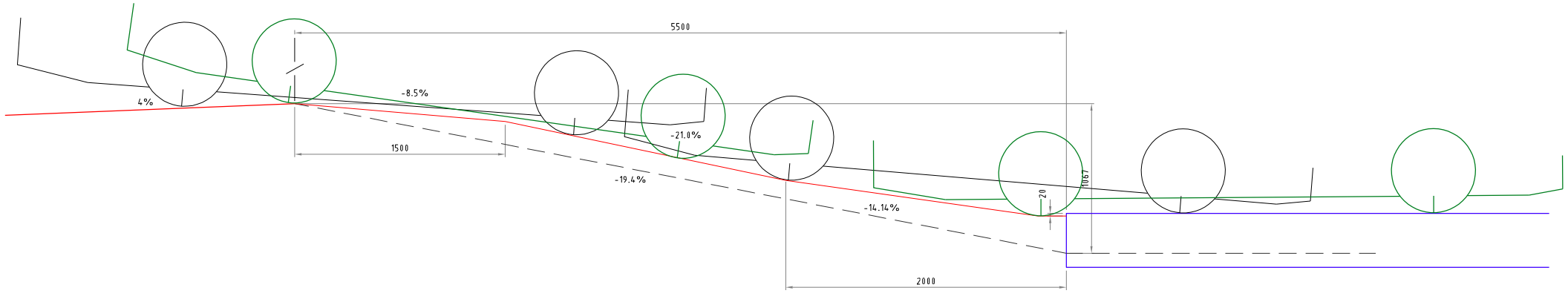
5.5m GARAGE SETBACK - EXCLUDING POSTIE STRIP

(LOTS 165, 199)



TYPICAL MAXIMUM DESIGN 16.4% - WITH MAX. 350mm WAFFLE POD

5.5m GARAGE SETBACK - INCLUDING POSTIE STRIP



TYPICAL MAXIMUM DESIGN -21.14% - WITH MAX. 350mm WAFFLE POD

LOT 292 5.5m GARAGE SETBACK - EXCLUDING POSTIE STRIP

(LOTS 160, 168, 220, 226, 248, 292)

-12.5 -12.4 -1.0 -16.2 -4.1 -19.4

PROJECT NAME

COURTNEY DR UPPER COOMERA

SKETCH

RP DESCRIPTION
LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

ISSUES	DATE	
TENDER		
COUNCIL		
CONSTRUCTION		

PRE	DATE	AMENDMENT
C	13.02.23	ADD DETAIL TO SECTION
B	08.02.23	REVERSE VEHICLE DIRECTION
A	09.11.22	ISSUE FOR INFORMATION

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ASSOCIATED CONSULTANTS

BIOME

zone Planning Group

DRAWING TITLE

DRIVEWAY GRADING
TYPICAL SECTIONS

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Urban & Regional Planning
Civil Engineering
Project Coordination
MUS Pty Ltd T/As
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Suite 9, 19 Short St
Southport QLD 4215

DESIGNED	RCB	DRAWN	RCB
APPROVED		RPEQ	DATE 09.11.22

DRAWING NUMBER 41901-ALL-SK005 | AMEND. C

COURTNEY DRIVE

OPERATIONAL WORKS
STAGE 04
No. 41901-04

MORTONS urbansolutions
Civil Engineering
Project Coordination

SCHEDULE OF DRAWINGS

NUMBER	REV. NO.	TITLE
GENERAL		
41901-04-000	C	COVERT SHEET
41901-04-003	A	SAFETY IN DESIGN
41901-04-004	A	RISK MATRIX & NOTES
41901-04-005	A	ROAD HIERARCHY & STAGING PLAN
EARTHWORKS: RETAINING WALL & DETAIL GRADING		
41901-04-060	B	PLAN SHEET 01
41901-04-061	B	PLAN SHEET 02
41901-04-062	B	PLAN SHEET 03
41901-04-070	B	DETAILS SHEET 01
EARTHWORKS: PADMOUNT SECTIONS		
41901-04-075	B	SHEET 01
EARTHWORKS: FINAL SURFACE & SEDIMENT AND EROSION CONTROL		
41901-04-080	A	PLAN SHEET 01
41901-04-081	A	PLAN SHEET 02
EARTHWORKS: COMBINED SERVICES		
41901-04-090	A	PLAN SHEET 01
ROADS: ROADWORKS		
41901-04-100	A	PLAN SHEET 01
41901-04-120	A	DETAILS SHEET 01
ROADS: LONGITUDINAL SECTIONS		
41901-04-200	A	SHEET 01
41901-04-201	A	SHEET 02
ROADS: CROSS SECTIONS		
41901-04-300	A	SHEET 01
41901-04-301	A	SHEET 02
41901-04-302	A	SHEET 03
ROADS: INTERSECTION GRADING		
41901-04-400	A	DETAILS SHEET 01
ROADS: JOINTING DETAILS		
41901-04-410	A	DETAILS SHEET 01
ROADS: LINEMARKING AND SIGNAGE		
41901-04-420	B	PLAN SHEET 01
SEWER: SEWER RETICULATION		
41901-04-500	B	PLAN SHEET 01
41901-04-501	A	PLAN SHEET 02
41901-04-510	B	DETAILS SHEET 01

NUMBER	REV. NO.	TITLE
SEWER: PROFILES		
41901-04-530	B	PROFILES SHEET 01
41901-04-531	B	PROFILES SHEET 02
SEWER: HOUSE CONNECTION PROFILES		
41901-04-550	A	PROFILES SHEET 01
DRAINAGE: STORMWATER		
41901-04-600	A	PLAN SHEET 01
41901-04-601	A	PLAN SHEET 02
DRAINAGE: PROFILES		
41901-04-620	A	PROFILES SHEET 01
41901-04-621	A	PROFILES SHEET 02
41901-04-622	A	PROFILES SHEET 03
DRAINAGE: PIT DETAILS & TYPICAL DETAILS		
41901-04-640	A	OUTLETS & TYPICAL DETAILS SHEET 01
41901-04-650	A	PIT DETAILS SHEET 01
41901-04-651	A	PIT DETAILS SHEET 02
DRAINAGE: BASINS & CULVERTS		
41901-04-660	A	BASIN PLAN SHEET 01
41901-04-661	A	FOREBAY DETAILS SHEET 01
41901-04-662	A	SECTIONS SHEET 01
41901-04-663	A	SECTIONS SHEET 02
41901-04-665	A	DETAILS SHEET 01
DRAINAGE: CATCHMENT		
41901-04-670	A	PLAN SHEET 01
DRAINAGE: CALCULATION TABLES		
41901-04-680	A	MINOR SHEET 01
41901-04-681	A	MAJOR SHEET 02
WATER: WATER RETICULATION		
41901-04-700	B	PLAN SHEET 01
41901-04-710	A	WATER RETICULATION DETAILS

COMPASS ASSURANCE ISO 9001 QUALITY

CLIENT

HB Land

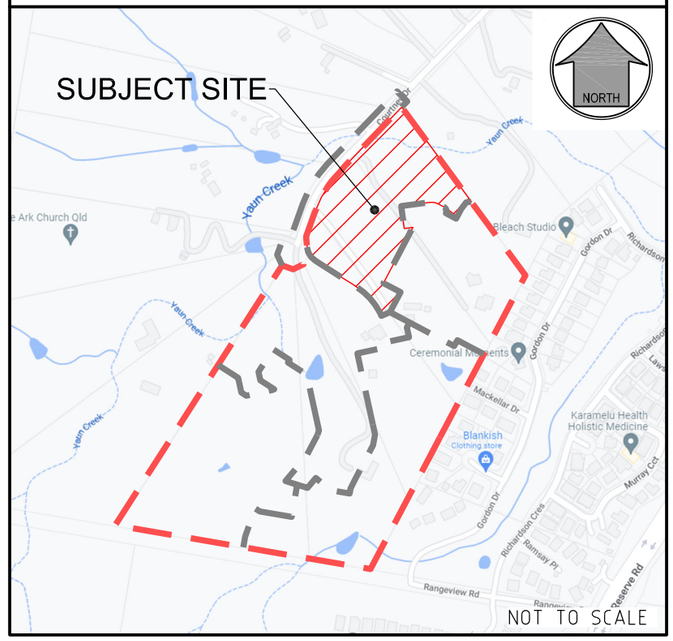
SUB-CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT+BENNETT

LOCALITY PLAN



R. P. DESCRIPTION
LOT 188, 189 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

DRAWING NUMBER	AMEND.
41901-04-000	C

F:\Autocad Client\419 - HB Land\01 - Courtney Drive\Precinct-Stage 04\Engineering Drawings\Current\41901-04-000.dwg, COVERT SHEET, 8/09/2024 12:54:41 PM, 1:2

DESIGN ITEM	POTENTIAL HAZARD	PHASE	THOSE AT RISK	PRE-TREATMENT RISK ASSESSMENT				TREATMENT OPTIONS	- ADOPTED TREATMENT - REASON - BY WHOM	RESIDUAL RISK ASSESSMENT				ONGOING RESPONSIBILITY
				SEVERITY	LIKELIHOOD (RISK)	Risk Product	RISK RATING			SEVERITY	LIKELIHOOD (RISK)	Risk Product	RISK RATING	
Road Design	Traffic Speed	Operational	Public	Death	Possible	15	Significant	- Design compliance with Local Council requirements, Queensland Streets and appropriate sections of Austroads. - Lot layout to consider natural slow points in road layout. - Consideration of slow points within Local street network.	Town Planners and Council to ensure original layout reduces risk (i.e. minimise long straight roads). Designer to consider inclusion of slow points in consultation with Council and prepare design in accordance with applicable standards.	Permanent Disability	Rare	4	Low	Closed
Road Design	Unclear priorities at intersections or slow points	Operational	Public	Death	Unlikely	10	High	- Design compliance with Local Council requirements, Queensland Streets and appropriate sections of Austroads. - Linemarking to be provided in accordance with MUTCD and Council's approval.	Designer to incorporate linemarking in accordance with MUTCD and Council's requirements to assist in minimising confusion at intersections and slow points.	Permanent Disability	Rare	4	Low	Closed
Traffic Management	Accidents at the interface between public and work site	Construction	Contractor & Public	Permanent Disability	Unlikely	8	Moderate	- Traffic Management Plan to be prepared by suitable qualified consultant. - TMP to consider temporary lighting, signals, barriers/separation and other traffic management measures.	Contractor to prepare site specific TMP incorporating appropriate measures to minimise risk at interface of work site and public roads.	Permanent Disability	Rare	4	Low	On Going: Contractor to monitor until end of Construction Phase
Public Access	Public wandering onto work site	Construction	Contractor & Public	Death	Unlikely	10	High	- Appropriate signage to be installed at public interface - Fencing to discourage accidental access to site	Contractor to prepare site specific Construction Management Plan to minimise risk of public access to the site.	Death	Rare	5	Moderate	On Going: Contractor to monitor until end of Construction Phase
Existing Services	Working on or near existing services - Electrocution, disrupt critical services, explosion	Construction	Contractor, Public & Asset Owner	Permanent Disability	Unlikely	8	Moderate	- Design to consider existing services and include appropriate clearances or protection measures. - Dial Before You Dig to be performed prior to design commencing. - Developer provide survey of any critical existing infrastructure prior to design. - Design drawings to show known services. - Connection point to be detailed in accordance with the relevant standard.	Contractor to physically locate and confirm service location information. Dial Before You Dig logo to be added to drawings. Connection details design and annotated on drawings in accordance with Water Authority requirements.	Permanent Disability	Rare	4	Low	On Going: Contractor to monitor until end of Construction Phase
Retaining Walls	Falling	Construction, operational, maintenance and demolition	Contractor, Public & Asset Owner	Medical Treatment	Possible	9	High	- Minimise the height if retaining walls. - Minimise the number of locations.	Batters designed in all locations practical. Heights of wall minimised by civil designer. Safety fencing requirements included on drawings.	Medical Treatment	Unlikely	6	Moderate	On Going: Contractor to monitor until end of Construction Phase
Earthworks Surface	Working on steep Batters	Construction and maintenance	Contractor & Asset Owner	Medical Treatment	Possible	9	High	- Minimise the height of batters. - Minimise the number of locations. - Extend services up batters where possible to reduce future works on batter slopes.	Batters designed to minimum practical height in all locations practical. Services to be constructed up the batters to ensure future batter stability.	Medical Treatment	Rare	3	Low	On Going: Contractor to monitor until end of Construction Phase and Asset Owner to continue monitoring for future maintenance.
Deep excavation	Falling or collapse	Construction, Maintenance and demolition	Public, Client, Supervisors, Contractors	Permanent Disability	Possible	12	High	- Minimise depth of structure. - Bench deep trenches appropriately to minimise trench collapse risk. - Design in accordance with relevant standard. - Minimise the number of structures.	Structures designed in accordance with local authority requirements. Utilise RIGS sewer to reduce the number of access points. Graded pipelines as shallow as practical to reduce depth. Contractor to manage open excavations during construction in accordance with their Management Plans.	Permanent Disability	Rare	4	Low	On Going: Contractor to Monitor until end of Construction Phase
Stormwater and Sewer	Falling and Trench Collapse	Construction and Maintenance	Contractor & Asset Owner	Death	Unlikely	10	High	- Minimise depth of drainage lines. - Design in accordance with relevant standard.	Infrastructure designed in accordance with local authority requirements. Graded pipelines as shallow as practical to reduce depth.	Death	Rare	5	Moderate	On going: Contractor to Monitor until end of Pipe line construction completed.
Stormwater Inlets	Drowning	Operational	Public	Death	Unlikely	10	High	- Design to minimise stormwater inlets within public areas. - Install inlet grates on stormwater inlets where required.	Risk assessment of stormwater inlets undertaken in accordance with QUDM requirements and stormwater inlet grates have been specified where required.	Death	Rare	5	Moderate	Closed
Temporary Stormwater Construction Sediment Ponds	Drowning	Construction and Maintenance	Public, Contractors & Council	Death	Possible	15	Significant	- Site fencing and warning signs to be installed. - Minimise depth - Design access and egress in accordance with QUDM and Asset Owner requirements.	Notes annotated on civil drawings for contractor to provide fencing and signage. Designed in accordance Qudm for access and egress. Depth minimised.	Death	Rare	5	Moderate	Monitor until end of Construction of Sediment Basins
Permanent Stormwater Basin Infrastructure	Drowning	Maintenance and demolition	Public	Death	Possible	15	Significant	- Site fencing and warning signs to be installed. - Minimise depth - Design access and egress in accordance with QUDM and Asset Owner requirements.	Notes annotated on civil drawings for contractor to provide fencing and signage. Designed in accordance Qudm for access and egress. Depth minimised.	Death	Rare	5	Moderate	Monitor until end of Construction of Sediment Basins

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

SAFETY IN DESIGN

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

MUS Pty Ltd T/As:
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Tel 07 5571 1099

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Southport QLD 4215

Gold Coast Office
Suite 9, 19 Short St
Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-003 REV A

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Likelihood	Minor / Insignificant (1)	First Aid Treatment (2)	Medical Treatment (3)	Permanent Disability (4)	Death (5)
Almost Certain (5)	Moderate	High	Significant	Significant	Significant
Likely (4)	Low	Moderate	High	Significant	Significant
Possible (3)	Low	Moderate	High	High	Significant
Unlikely (2)	Low	Low	Moderate	Moderate	High
Rare (1)	Low	Low	Low	Low	Moderate

Consequence

Level of Risk
Significant 15 to 25
High 9 to 14
Moderate 5 to 8
Low 1 to 4

NOTES:

1. THIS SID REGISTER IN NO WAY RELIEVES THE PRINCIPAL, CONTRACTOR, ASSET OWNER OR ANY OTHER PARTY OF THEIR OWN OBLIGATIONS UNDER THE WORKPLACE HEALTH AND SAFETY ACT AND THEIR DUTY OF CARE. THIS IS PROVIDED AS INFORMATION FOR PARTIES TO ASSIST IN MEETING THEIR OWN OBLIGATIONS AND IS BY NO MEANS A COMPLETE LIST. THIS SID REGISTER OR THE NOTES AND DETAILS INCLUDED WITHIN THE DESIGN DRAWINGS DO NOT RELIEVE THE PRINCIPAL CONTRACTOR OF ANY OBLIGATION UNDER ALL RELEVANT LEGISLATION OR GUIDELINE.
2. ALL CONTRACTORS AND ASSET OWNERS REMAIN RESPONSIBLE IN THE PREPARATION OF THEIR OWN SAFETY MANAGEMENT PLANS AND SUITABLE SAFE WORK METHOD STATEMENTS.
3. THIS SID REGISTER IDENTIFIES ATYPICAL FEATURES OF THE DESIGN. COMMON/TYPICAL FEATURES OF THIS DESIGN ARE NOT INCLUDED IN THIS SID REGISTER.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

RISK MATRIX
& NOTES

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER	REV
41901-04-004	A

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GENERAL

1. CONTRACT SPECIFICATIONS
   ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATION.
2. SETOUT
   SURVEY SETOUT INFORMATION HAS BEEN ESTABLISHED ON SITE BY THE PRINCIPAL'S SURVEYOR TO ENABLE THE CONTRACTOR TO ACCURATELY SETOUT THE WORKS TO THE CO-ORDINATES SHOWN. SETOUT INFORMATION SHALL NOT BE OBTAINED BY SCALING FROM THESE DRAWINGS.
3. DATUM
   LEVELS SHOWN ARE TO A.H.D.
4. TRENCH SPOIL
   ALL MATERIALS ARISING FROM ROADS & SERVICES ARE TO BE COMPACTED TO FUTURE STAGES, TO LEVEL 1. IF NO SPOIL AREA IS AVAILABLE THESE MATERIALS SHALL BE TRUCKED TO A LICENSED TIP. THESE WORKS FORM PART OF THE CONTRACTED WORKS.
5. CHECK ELECTRONIC SETOUT
   CONTRACTOR IS RESPONSIBLE TO ENSURE ANY ELECTRONIC DATA FILES MATCH THE DRAWINGS.
6. PRE START
   a. ERECT SITE SIGNAGE. CONSTRUCT ENTRY & EXIT POINT AS INDICATED.
   b. CONSTRUCT VEHICLE WASHDOWN AREA & ASSOCIATED SILT MANAGEMENT DEVICES.
   c. CONSTRUCT SITE OFFICE & STORAGE COMPOUND AREA.
   d. INSTALL EROSION & SEDIMENT CONTROL DEVICES AS PER THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN.
   e. ERECT TEMPORARY TREE PROTECTION FENCING IN ACCORDANCE WITH THE APPROVED VEGETATION MANAGEMENT PLAN & AUTHORITIES APPROVAL CONDITIONS (IF REQUIRED).
7. HEALTH & SAFETY
   ALL WORKS UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE WORKPLACE HEALTH & SAFETY LEGISLATION.
8. STOCKPILING
   STOCKPILING OF ANY SURPLUS MATERIAL IS NOT PERMITTED

PROJECT SPECIFIC REPORTS

THE CONTRACTOR MUST FOLLOW THE RECOMMENDATIONS & PROCEDURES OUTLINED IN THE FOLLOWING REPORTS AT ALL TIMES:

a) GEOTECHNICAL INVESTIGATION REPORTS (INCLUDING ANY ACID SULPHATE OR DISPERSIVE SOIL REPORTING)
b) VEGETATION & FAUNA MANAGEMENT PLANS
c) OTHER MANAGEMENT PLANS NOMINATED IN THE CONTRACT, AUTHORITIES APPROVAL CONDITIONS OR BY THE SUPERINTENDENT.

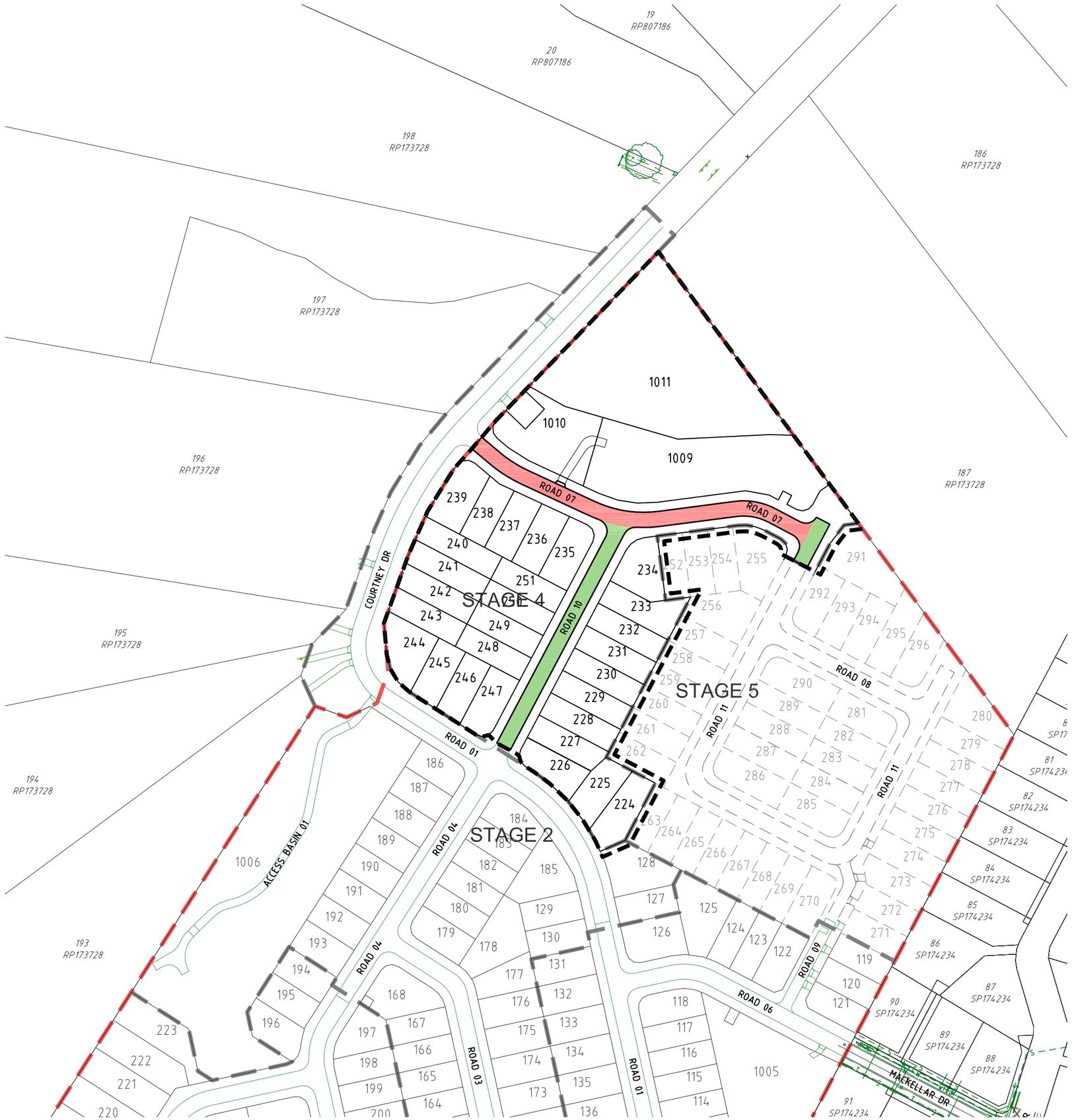
LEGEND

- RESIDENTIAL ACCESS STREET (7.5m CARRIAGEWAY)
- RESIDENTIAL COLLECTOR STREET (7.5m CARRIAGEWAY)

REFER 120 DRAWINGS SERIES FOR TYPICAL SECTIONS

- EXISTING PROPERTY LINE
- EXISTING KERB (INVERT)
- FUTURE PROPERTY LINE
- FUTURE KERB (INVERT)
- PROPOSED PROPERTY LINE
- PROPOSED KERB (INVERT)
- SITE BOUNDARY
- STAGE BOUNDARY
- LIMIT OF WORKS BOUNDARY

DIAL BEFORE YOU DIG www.1100.com.au



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 10 20 30 40 50m
Scale 1:1000 - A1 (1:2000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

ROAD HIERARCHY, STAGING PLAN AND GENERAL NOTES

MORTONS urbansolutions
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Civil Engineering
Project Coordination
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Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-005 | REV A

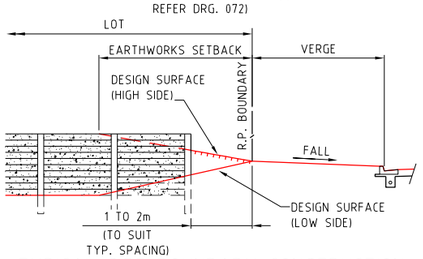
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GENERAL

1. CONTRACT SPECIFICATIONS
   ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATION.
2. SETOUT
   SURVEY SETOUT INFORMATION HAS BEEN ESTABLISHED ON SITE BY THE PRINCIPAL'S SURVEYOR TO ENABLE THE CONTRACTOR TO ACCURATELY SETOUT THE WORKS TO THE CO-ORDINATES SHOWN. SETOUT INFORMATION SHALL NOT BE OBTAINED BY SCALING FROM THESE DRAWINGS.
3. DATUM
   LEVELS SHOWN ARE TO A.H.D.
4. EXISTING SERVICES - EXTERNAL WORKS
   THE LOCATIONS OF ALL EXISTING SERVICES WITHIN THE WORK AREA SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE RELEVANT AUTHORITIES & TO ENSURE THAT THE EXISTING SERVICES ARE NOT DAMAGED OR DISTURBED IN ANY WAY BY THE CONTRACT WORKS.
5. ALL MATERIALS ARISING FROM RETAINING WALL CONSTRUCTION ARE TO BE COMPACTED TO FUTURE STAGES, TO LEVEL 1 OR IF DIRECTED BY THE SUPERINTENDENT SHALL BE TRUCKED TO A LICENSED TIP.

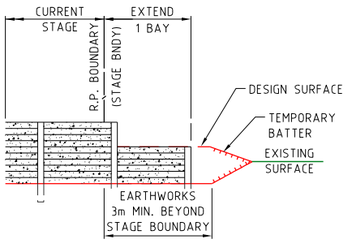
LEGEND

- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- 1.0 EXISTING CONTOURS
- EXISTING RETAINING WALL
- EXISTING BOULDER WALL
- FUTURE KERB (INVERT)
- FUTURE PROPERTY LINE
- 1.0 FUTURE CONTOURS
- FUTURE RETAINING WALL
- FUTURE BOULDER WALL
- PROPOSED KERB (INVERT)
- PROPOSED PROPERTY LINE
- 1.0 DESIGN CONTOURS
- PROPOSED SINGLE TIER RETAINING WALL
- PROPOSED TWO TIER RETAINING WALL
- PROPOSED BOULDER WALL
- PL50.4 NOMINAL LOT PAD LEVEL
- RH1.0 INDICATIVE WALL HEIGHT
- DETAIL PAD FALL DIRECTION (CONTRACTOR TO ENSURE LOTS FALL TO ROAD AT 1:150 MIN. REFER DRG. 072)



TYPICAL SIDE BOUNDARY CONSTRUCTION

SCALE 1:100 - A1 (1:200 - A3)

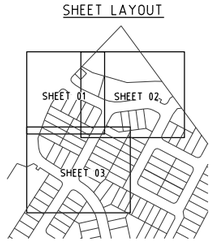


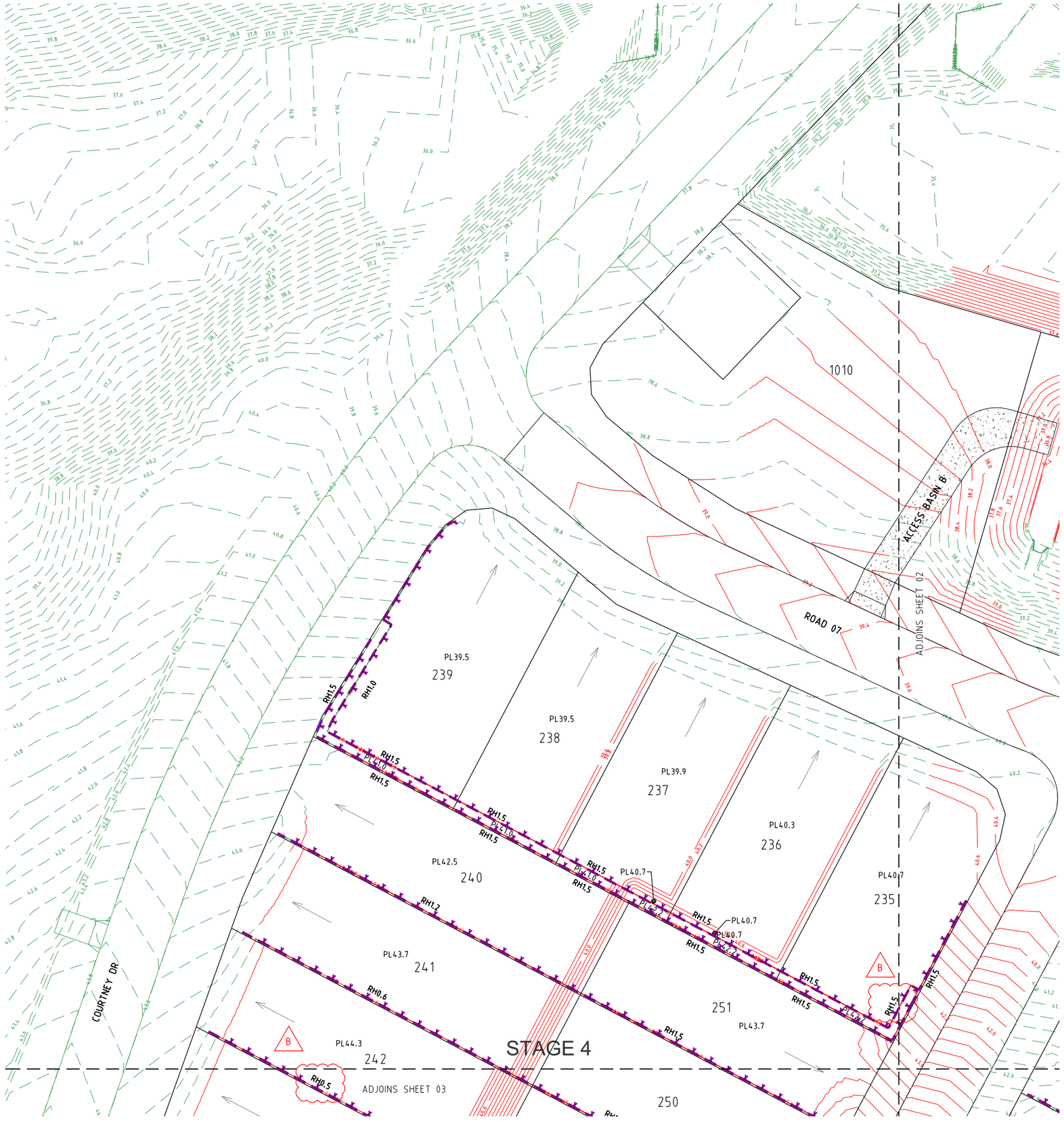
TYPICAL STAGE BOUNDARY CONSTRUCTION

SCALE 1:100 - A1 (1:200 - A3)

DIAL BEFORE YOU DIG www.1100.com.au

SHEET LAYOUT





PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2.5 5 7.5 10 12.5m
Scale 1:250 - A1 (1:500 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	RETAINING HEIGHTS ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

RETAINING WALL
AND DETAIL GRADING PLAN
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-060 REV B

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2.5 5 7.5 10 12.5m

Scale 1:250 - A1 (1:500 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	RETAINING HEIGHTS ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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DRAWING TITLE

RETAINING WALL
AND DETAIL GRADING PLAN
SHEET 02

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER	REV
41901-04-061	B

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2.5 5 7.5 10 12.5m
Scale 1:250 - A1 (1:500 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	RETAINING HEIGHTS ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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Robin Russell & ASSOCIATES PTY. LTD.
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DRAWING TITLE

RETAINING WALL
AND DETAIL GRADING PLAN
SHEET 02

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

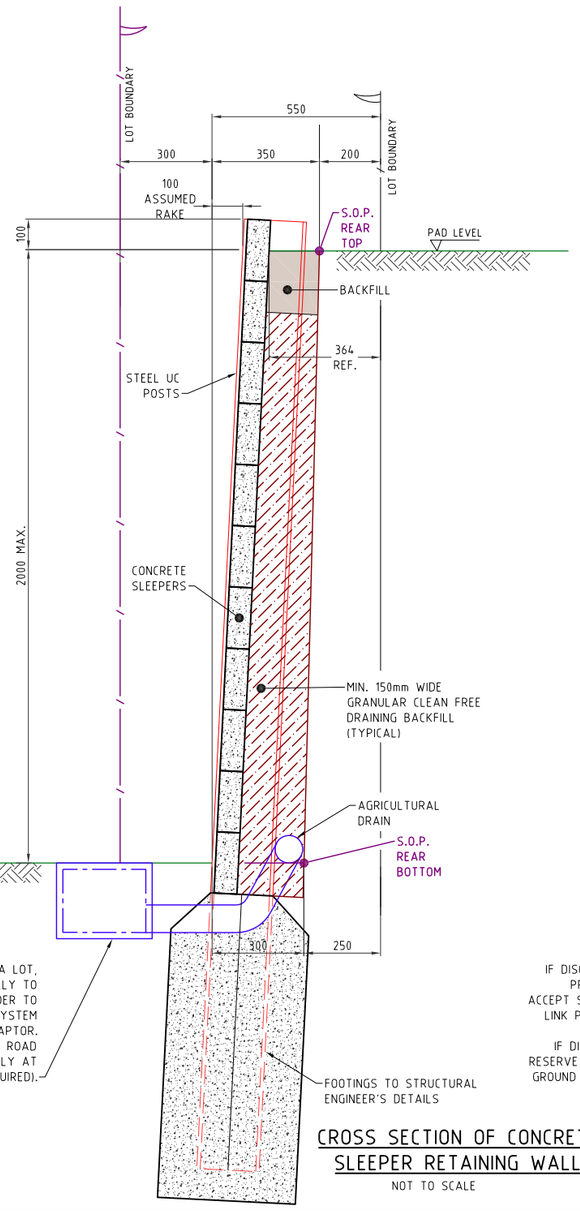
DRAWING NUMBER	REV
41901-04-062	B

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NOTES:

1. RETAINING WALL DETAILS ARE INDICATIVE ONLY.
2. CONTRACTOR TO ARRANGE FOR DESIGN & CONSTRUCTION OF WALLS BY RPEQ STRUCTURAL ENGINEER. CONTRACTOR TO PROVIDE STRUCTURAL CERTIFICATION OF DESIGN & FINAL CONSTRUCTION.
3. ALLOW FOR 5KPa LOADING TO WALLS EXCEPT ADJACENT TO ROADS WHICH REQUIRE A 10kPa LOADING.
4. CONTRACTOR TO CONFIRM LOCATION OF LOT BOUNDARY PRIOR TO COMMENCING WALL CONSTRUCTION.
5. THE BUILDING ON THE HIGHER SIDE OF THE RETAINING WALL MUST MAINTAIN AN OFFSET OR APPROPRIATE FOUNDATION STRUCTURES (EG. PIERS) IN ORDER TO ENSURE THE ENTIRE DEPTH OF THE RETAINING WALL IS FREE FROM THE ZONE OF INFLUENCE OF THE BUILDING/OVERBURDEN LOAD UNLESS OTHERWISE SPECIFIED BY STRUCTURAL ENGINEER.
6. STRUCTURAL ENGINEER TO DESIGN SLAB & PIER.
7. AGRICULTURAL DRAIN TO DISCHARGE TO 300x300mm STORMWATER PIT. HOUSE BUILDER TO CONNECT 300x300mm STORMWATER PIT TO ROOFWATER SYSTEM.
8. RETAINING WALL DESIGN TO ALLOW FOR ALL SERVICES (ADJACENT OR BELOW) & HAVE NO IMPACT.
9. SANDSTONE & PROPRIETARY RETAINING WALLS TO BE DESIGNED & CONSTRUCTED TO HAVE VERTICAL FACE UNLESS OTHERWISE AGREED BY THE SUPERINTENDENT.
10. ANY WALL GREATER THAN 0.9M HIGH TO INSTALL A FALL BARRIER AT THE TOP OF WALL. THE FALL BARRIER IS TO BE MAINTAINED UNTIL THE END OF THE MAINTENANCE PERIOD OR THE ASSOCIATED LOT IS SOLD BY THE DEVELOPER.
11. REFER TO LANDSCAPE ARCHITECT FOR RETAINING WALL COLOUR & FINISH.
12. SETBACKS- REFER TABLE
13. WHERE RETAINING WALLS ARE LOCATED WITHIN 2m OF A PMT SITE THE RETAINING WALL IS TO BE DESIGNED & CONSTRUCTED TO ALLOW EXCAVATION OF THE FULL PMT SITE TO A DEPTH OF 1.3m.
14. FENCE BRACKETS TO BE INSTALLATION POSTS. NO BRACKETS 5m FROM FRONT BOUNDARY.
15. ALL FOOTINGS MUST BE A MINIMUM OF 200mm FROM PROPERTY BOUNDARY.

B

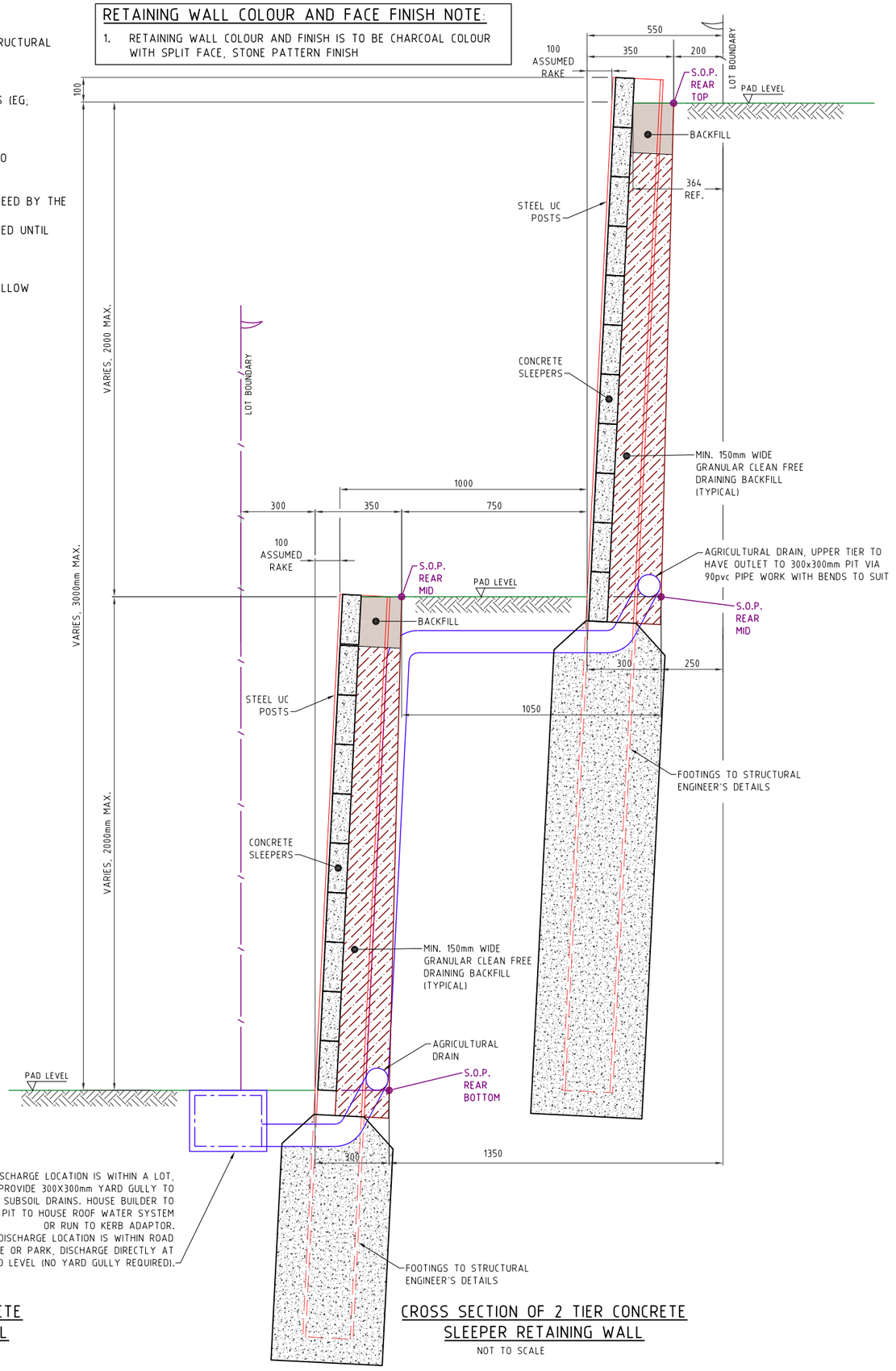


CROSS SECTION OF CONCRETE SLEEPER RETAINING WALL

NOT TO SCALE

RETAINING WALL COLOUR AND FACE FINISH NOTE:

1. RETAINING WALL COLOUR AND FINISH IS TO BE CHARCOAL COLOUR WITH SPLIT FACE, STONE PATTERN FINISH



CROSS SECTION OF 2 TIER CONCRETE SLEEPER RETAINING WALL

NOT TO SCALE

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
B	07-08-24	NOTE REMOVED	BL
A	27-04-24	COUNCIL ISSUE	BL

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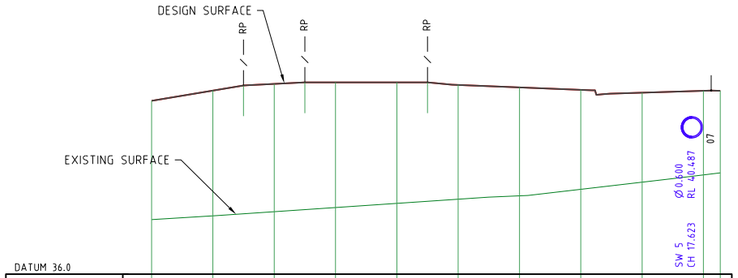
RETAINING WALL DETAILS SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER: 41901-04-070
REV: B

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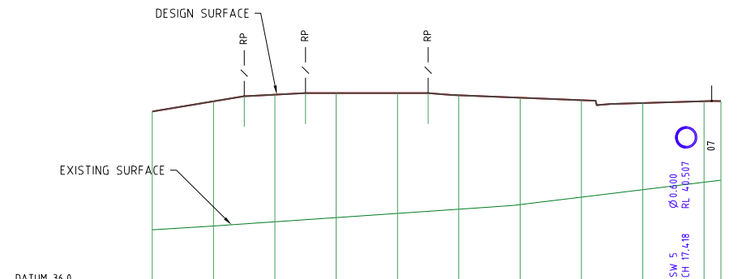


DATUM 36.0

FINISHED SURFACE	41.65		41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.169	42.089	42.009	41.916	41.976	41.976			
EXISTING SURFACE	37.779		37.899	38.035		38.171		38.308		38.444	38.555	38.766	38.998	39.235	39.301			
CHAINAGE	0	2		3.00	4	5.00	6		8	9.00	10	12	14	16	18	18.55		

LONGITUDINAL SECTION 5A

Horizontal scale 1:100 Vertical scale 1:100

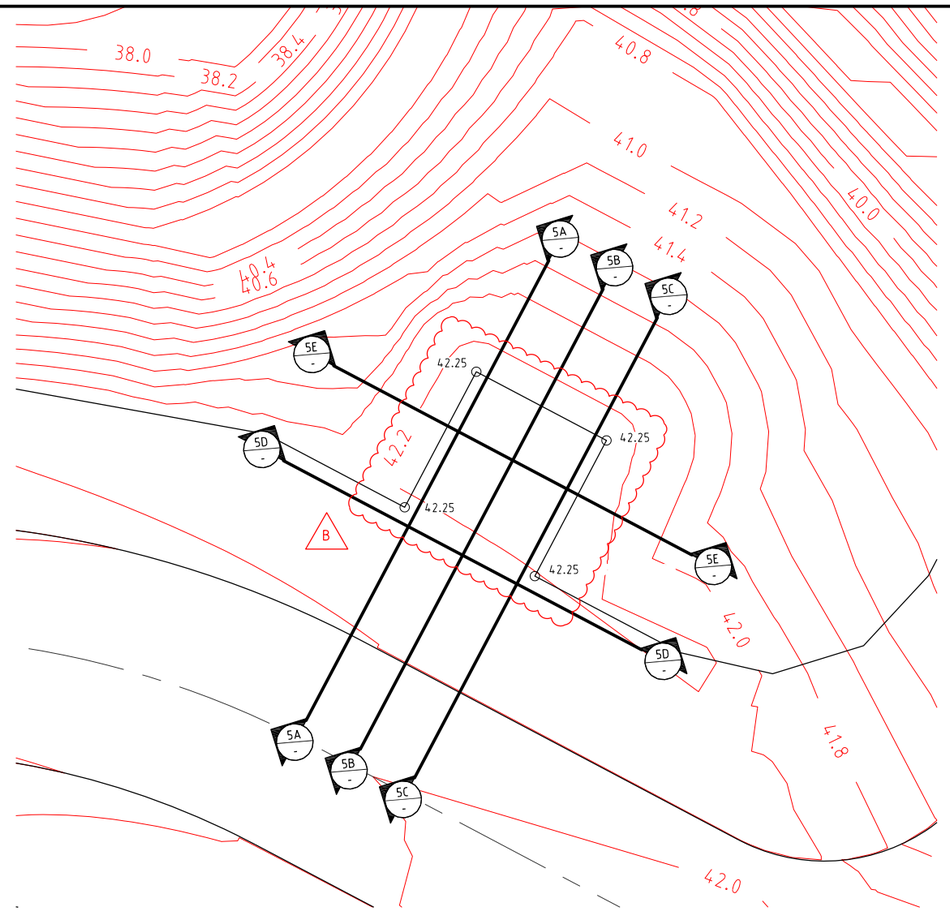


DATUM 36.0

FINISHED SURFACE	41.65		41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.18	42.1	42.02	41.928	41.988	41.99			
EXISTING SURFACE	37.797		37.919	38.056		38.192		38.329		38.465	38.618	38.861	39.104	39.346	39.413			
CHAINAGE	0	2		3.00	4	5.00	6		8	9.00	10	12	14	16	18	18.55		

LONGITUDINAL SECTION 5B

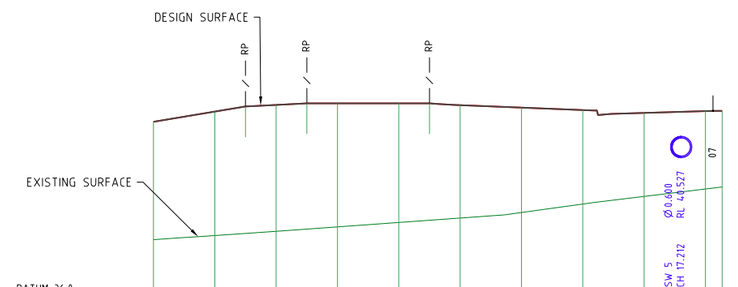
Horizontal scale 1:100 Vertical scale 1:100



PLAN

LEGEND

- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- PROPOSED RETAINING WALL
- 1.0 DESIGN CONTOURS

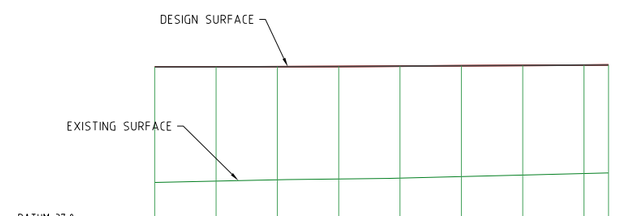


DATUM 36.0

FINISHED SURFACE	41.65		41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.192	42.112	42.032	41.94	42	42.004			
EXISTING SURFACE	37.804		37.94	38.077		38.221		38.366		38.51	38.691	38.967	39.216	39.458	39.525			
CHAINAGE	0	2		3.00	4	5.00	6		8	9.00	10	12	14	16	18	18.55		

LONGITUDINAL SECTION 5C

Horizontal scale 1:100 Vertical scale 1:100

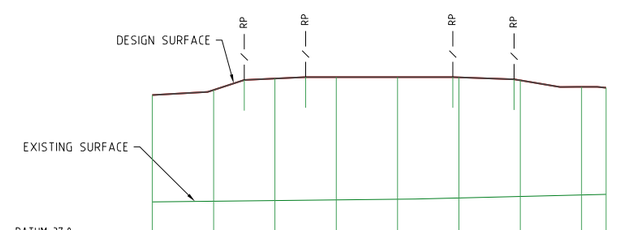


DATUM 37.0

FINISHED SURFACE	42.141	42.141	42.144	42.152	42.164	42.176	42.188	42.2	42.205						
EXISTING SURFACE	38.372	38.416	38.46	38.485	38.511	38.561	38.611	38.661	38.682						
CHAINAGE	0	2	4	6	8	10	12	14	14.8						

LONGITUDINAL SECTION 5D

Horizontal scale 1:100 Vertical scale 1:100



DATUM 37.0

FINISHED SURFACE	41.666	41.831	42.156	42.203	42.25	42.25	42.25	42.253	42.127	41.932	41.902				
EXISTING SURFACE	38.183	38.204	38.225	38.246	38.267	38.308	38.358	38.408	38.428						
CHAINAGE	0	2	3.00	4	5.00	6	8	9.80	12.80	14	14.8				

LONGITUDINAL SECTION 5E

Horizontal scale 1:100 Vertical scale 1:100

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 1 2 3 4 5m

Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	LEVELS ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

PADMOUNT SECTIONS
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER	REV
41901-04-075	B

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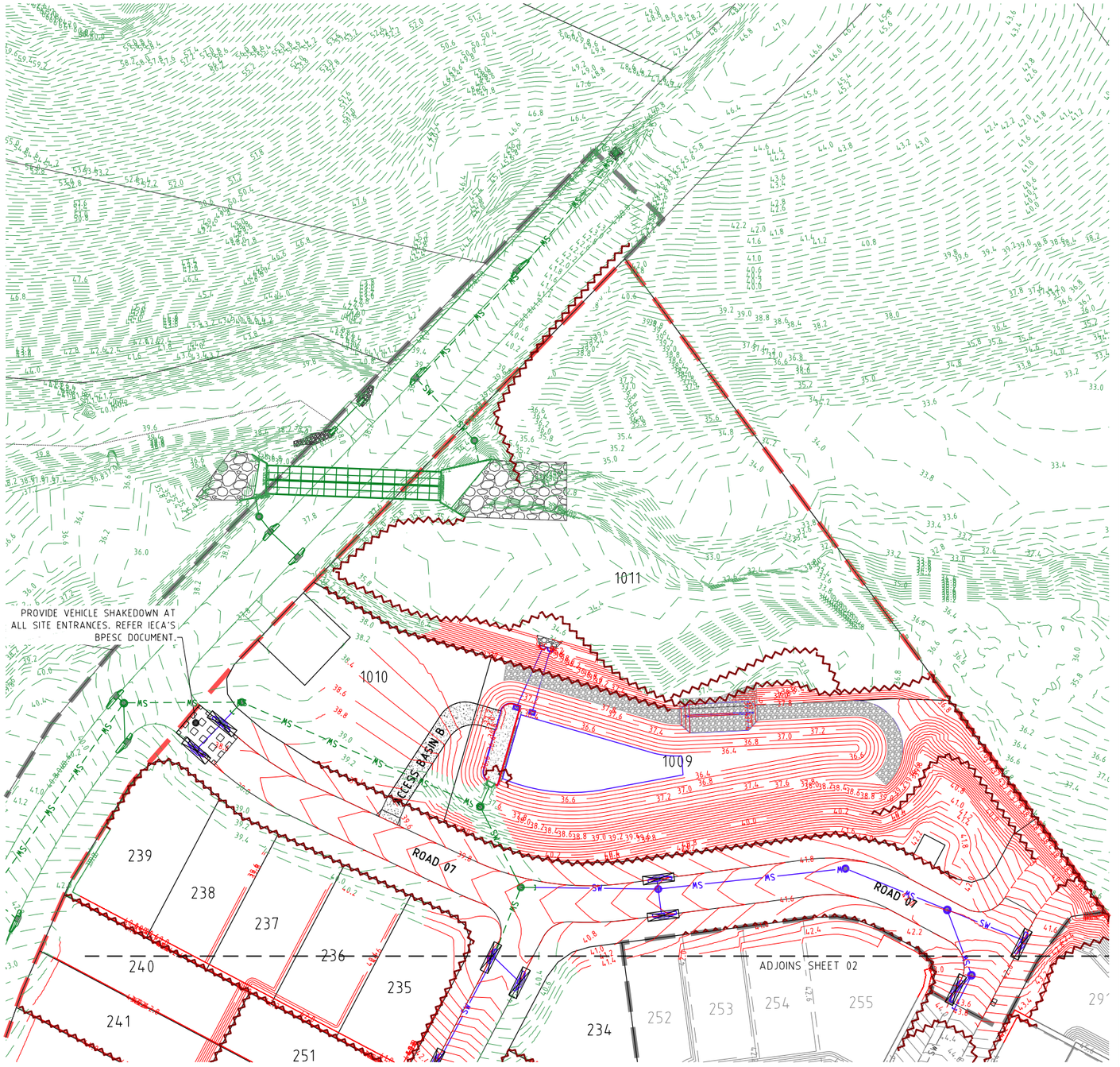
SEDIMENT AND EROSION

1. THE EROSION & SEDIMENT CONTROL DEVICES SHOWN ON THESE DRAWINGS ARE INDICATIVE & PROVIDED FOR SUBMISSION TO LOCAL AUTHORITY ONLY. NOTWITHSTANDING THE EROSION & CONTROL DEVICES SHOW ON THESE DRAWINGS, THE CONTRACTOR MUST PREPARE & FOLLOW A SITE SPECIFIC EROSION & SEDIMENT CONTROL PLAN TO MEET ALL LOCAL & STATE GOVERNMENT LEGISLATION INCLUDING BUT NOT LIMITED TO:
   a. ENVIRONMENTAL PROTECTION ACT WITH SPECIFIC REFERENCE TO PARTS S440G & S319
   b. STATE PLANNING POLICY

   PRESCRIBED WATER CONTAMINANTS (AS DEFINED IN THE ENVIRONMENTAL PROTECTION ACT 1994) MUST NOT BE RELEASED FROM THE SITE OR TO WATERS WITHIN THE SITE, OR BE LIKELY TO BE RELEASED SHOULD RAINFALL OCCUR, UNLESS ALL REASONABLE & PRACTICABLE MEASURES ARE TAKEN TO PREVENT OR MINIMISE THE RELEASE & CONCENTRATION OF CONTAMINATION. THE ESC PLAN MUST BE DESIGNED, IMPLEMENTED & MAINTAINED IN ACCORDANCE WITH "BEST PRACTICE EROSION & SEDIMENT CONTROL" PUBLISHED BY THE INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIAN CHAPTER) (IECA, 2008).
2. TO COMPLY WITH THE REQUIREMENTS OF THE EP ACT & BEST PRACTICE DESIGN, THE SEDIMENT BASINS ON THE SITE MUST BE DESIGNED & IMPLEMENTED TO ACHIEVE THE FOLLOWING:
   SEDIMENT BASINS ARE TO BE DESIGNED, IMPLEMENTED & MAINTAINED TO A STANDARD WHICH WOULD ACHIEVE AT LEAST 80% OF THE AVERAGE ANNUAL RUNOFF VOLUME OF THE CONTRIBUTING CATCHMENT TREATED (I.E. 80% HYDROLOGIC EFFECTIVENESS) TO 50MG/L TSS OR LESS & PH IN THE RANGE 6.5-8.5

   THIS WILL REQUIRE THE INSTALLATION & OPERATION OF A HIGH-EFFICIENCY SEDIMENT BASIN(S) DESIGNED IN ACCORDANCE WITH THE SPECIFICATIONS CONTAINED IN THE "BEST PRACTICE EROSION & SEDIMENT CONTROL – APPENDIX B SEDIMENT BASIN DESIGN & OPERATION" PUBLISHED BY THE INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIAN CHAPTER) (IECA, 2016, DRAFT)
3. THE EROSION & SEDIMENT CONTROL PLAN MUST BE PREPARED & CERTIFIED BY A CERTIFIED PROFESSIONAL IN EROSION & SEDIMENT CONTROL & FOLLOW THE REQUIREMENTS OUTLINED IN IECA'S BEST PRACTICE EROSION & SEDIMENT CONTROL DOCUMENT & THE QUEENSLAND URBAN DRAINAGE MANUAL.
4. PRIOR TO THE COMMENCEMENT OF WORKS ONSITE THE CONTRACTOR MUST MAKE THEMSELVES AWARE OF ALL PREVIOUS GEOTECHNICAL REPORTS & DETERMINE THE DISPERSIVE CHARACTERISTICS OF THE SOIL (INCLUDING PERFORMING ANY SOIL TESTS IF REQUIRED). THE RESULTS OF THIS REVIEW & ANY TESTS MUST BE INCLUDED IN THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN. A COPY OF ALL TEST RESULTS MUST BE PROVIDED TO THE SUPERINTENDENT.
5. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION & DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION (INCLUDING THE MAINTENANCE PERIOD). NOTWITHSTANDING THE CONTROL MEASURES OR FINISHED EARTHWORKS DESIGN SHOWN ON THESE DRAWINGS, THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ADDITIONAL OR ALTERNATIVE EROSION & SEDIMENT CONTROL MEASURES TO MINIMISE SEDIMENT ACROSS OR LEAVING THE SITE.
6. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS (INCLUDING WEEKENDS & PUBLIC HOLIDAYS) & AT ALL TIMES REMAINS RESPONSIBLE TO:
   a) CLEAN & REPAIR CONTROL DEVICES WHENEVER THE ACCUMULATED SEDIMENT REDUCES THEIR CAPACITY BY 50%.
   b) MAINTAIN POSITIVE GRADES OF ALL PERIMETER BANKS & SWALES TO AN OUTLET.
   c) PROTECT ANY DOWNSTREAM CONSTRUCTION.
   d) CONTROLLING DUST.
   e) MEASURES HAVE BEEN INSTALLED IN ACCORDANCE WITH DETAILS OUTLINED IN THEIR EROSION & SEDIMENT CONTROL PLAN & AS DIRECTED BY THE SUPERINTENDENT.
7. THE CONTRACTOR'S PLAN SHALL ALLOW FOR SUITABLE ACCESS TO ALLOW MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES. NO ADDITIONAL VEGETATION CLEARING IS PERMITTED FOR GAINING ACCESS UNLESS APPROVED BY THE SUPERINTENDENT.
8. THE CONTRACTOR MAY REQUEST APPROVAL FROM THE SUPERINTENDENT TO REUSE THE STOCKPILED MULCH FOR STABILISING BATTERS ONLY IN LOCATIONS WHERE THE APPROVED LANDSCAPE OPW DESIGN REQUIRES MULCH ULTIMATELY.
9. CONSTRUCTION STOCKPILING
   a) TOPSOIL SHALL BE STRIPPED & STOCKPILED IN LOCATIONS NOMINATED ON THE CONSTRUCTION DRAWINGS OR IN LOCATIONS AGREED WITH THE SUPERINTENDENT.
   b) ADDITIONAL VEGETATION CLEARING IS NOT PERMITTED TO FACILITATE THE STOCKPILING OF MATERIALS UNLESS SHOWN ON THE APPROVED VEGETATION MANAGEMENT PLAN.
   c) ANY STOCKPILE SITE MUST BE CLEAR OF ADJACENT PROPERTY BOUNDARIES SO AS NOT TO CAUSE A NUISANCE TO ADJOINING PROPERTIES.
   d) NO STOCKPILES ARE TO BE LOCATED WITHIN THE TREE PROTECTION ZONE OF VEGETATION.
   e) A TEMPORARY SILT FENCE IS TO BE ERECTED APPROXIMATELY 5m FROM TOE OF BATTER ON LOW SIDE OF STOCKPILING.
10. NOTWITHSTANDING THE DETAILS SHOWN IN THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN, DURING CONSTRUCTION THE CONTRACTOR MUST:
    a) SIZE ALL TEMPORARY SEDIMENT BASINS APPROPRIATELY TO TREAT THE UPSTREAM CATCHMENT. NOTE THAT THE PERMANENT BIO BASINS SHOWN ON THESE DRAWINGS ARE SIZED FOR THE ULTIMATE CATCHMENT NOT FOR THE CONSTRUCTION PHASE.
    b) PLACE A ROCK BUND AROUND ALL HEADWALLS DURING CONSTRUCTION.
    c) PROVIDE KERB INLET PROTECTION TO ALL GULLIES.
    c) PLACE A MINIMUM 1.0m WIDE TURF STRIP BEHIND ALL KERBS & IN A HERRINGBONE LAYOUT WITHIN THE ROAD VERGE.
    d) MAINTENANCE (INCLUDING FLOCCULATION IF REQUIRED & PUMP OUT) OF ALL CONSTRUCTION SEDIMENT BASINS (WHETHER EXISTING OR NEW).
    e) CLEAN OUT OF ALL GROSS POLLUTANT TRAPS, SEDIMENT FOREBAYS & ALL OTHER PERMANENT SEDIMENT CONTROL DEVICES AT BOTH ON & OFF MAINTENANCE.
11. CONTRACTOR TO CONFIRM THE EXTENTS OF REQUIRED GRASSING TREATMENTS WITH THE SUPERINTENDENT AT LEAST 7 DAYS PRIOR TO FINAL TRIMMING.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT GRASSING STRIKE RATES ARE ACHIEVED AT THE ON & OFF MAINTENANCE INSPECTIONS IN ACCORDANCE WITH COUNCIL REQUIREMENTS. THIS INCLUDES THE SUPPLY & INSTALLATION OF ANY REQUIRED CHEMICAL/FERTILISER AMELIORATION TO ACHIEVE THE SPECIFIED GRASS STRIKE RATES.
13. GEOFABRIC LINING OF CHANNELS & CHECK DAMS MAY BE REQUIRED SUBJECT TO THE SITE CONDITIONS.
14. BATTERS WITHIN PUBLIC OPEN SPACE TO BE VEGETATED IN ACCORDANCE WITH APPROVED OPEN SPACE MANAGEMENT PLAN & LANDSCAPING OPW. CONTRACT DOCUMENTATION WILL SPECIFY WHETHER THIS IS THE CIVIL CONTRACTOR OR THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO SUPPLY & INSTALL. THE CIVIL CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUITABLE ACCESS FOR THE LANDSCAPE CONTRACTOR TO PERFORM THEIR WORKS.
15. MAINTENANCE PERIOD (PRE TO POST CONSTRUCTION)
    a) ALL PROTECTION MEASURES ARE TO BE INSPECTED & MAINTAINED REGULARLY
    b) REPAIRS ARE TO BE EFFECTED IMMEDIATELY.
    c) SILT AFTER RAIN IS TO BE CLEANED FROM STREETS & ALLOTMENTS IMMEDIATELY & CORRECTIVE ACTION TAKEN TO AVOID A RE-OCCURRENCE.
    d) AT OFF-MAINTENANCE & ONLY WHEN DIRECTED BY COUNCIL, REMOVE & DISPOSE OFFSITE ALL TEMPORARY EROSION & SEDIMENT CONTROL DEVICES.
16. EROSION & SEDIMENT CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR HOLDS ALL LIABILITY.

NOTE:
SEDIMENT AND EROSION CONTROL MEASURES SHOWN RELATE TO THE FINISHED SURFACE ONLY AND ARE CONCEPTUAL ONLY. THE CONTRACTOR IS TO PREPARE A SITE SPECIFIC CONSTRUCTION AND MAINTENANCE PHASE SEDIMENT AND EROSION CONTROL PLAN.

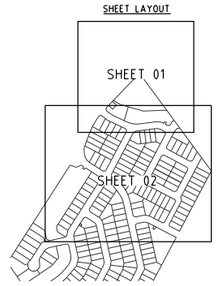


LEGEND

- EXISTING PROPERTY LINE
- EXISTING KERB (INVERT)
- SW EXISTING STORMWATER
- 1.0 EXISTING CONTOURS
- FUTURE PROPERTY LINE
- FUTURE KERB (INVERT)
- SW FUTURE STORMWATER
- 1.0 FUTURE CONTOURS
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED PROPERTY LINE
- PROPOSED KERB (INVERT)
- SW PROPOSED STORMWATER
- 1.0 DESIGN CONTOURS
- MANHOLE
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SEDIMENT FENCE
- SCOUR PROTECTION
- TEMPORARY SEDIMENT BASIN
- STORMWATER INLET FILTER
- ROCK CHECK DAM
- VEHICLE SHAKEDOWN (AT ALL SITE ENTRANCES MIN.)
- TEMPORARY SWALE
- SAND BAGS
- TREES

PROVIDE SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE INTERNATIONAL EROSION CONTROL ASSOCIATION BPESC DOCUMENT.

SHEET LAYOUT



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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

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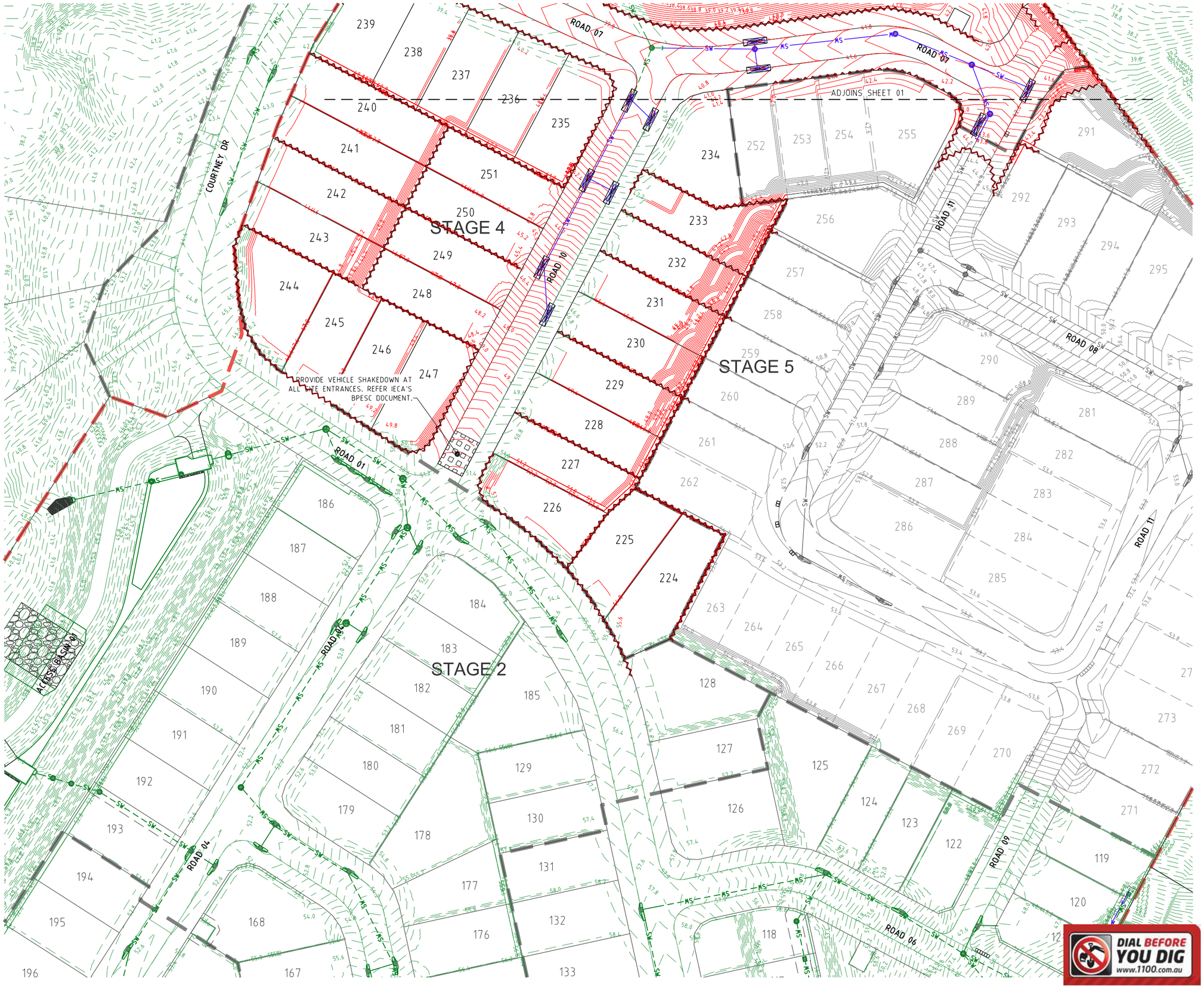
FINAL SURFACE AND SEDIMENT AND EROSION PLAN
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-080
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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
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FINAL SURFACE AND SEDIMENT AND EROSION PLAN
SHEET 02

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-081
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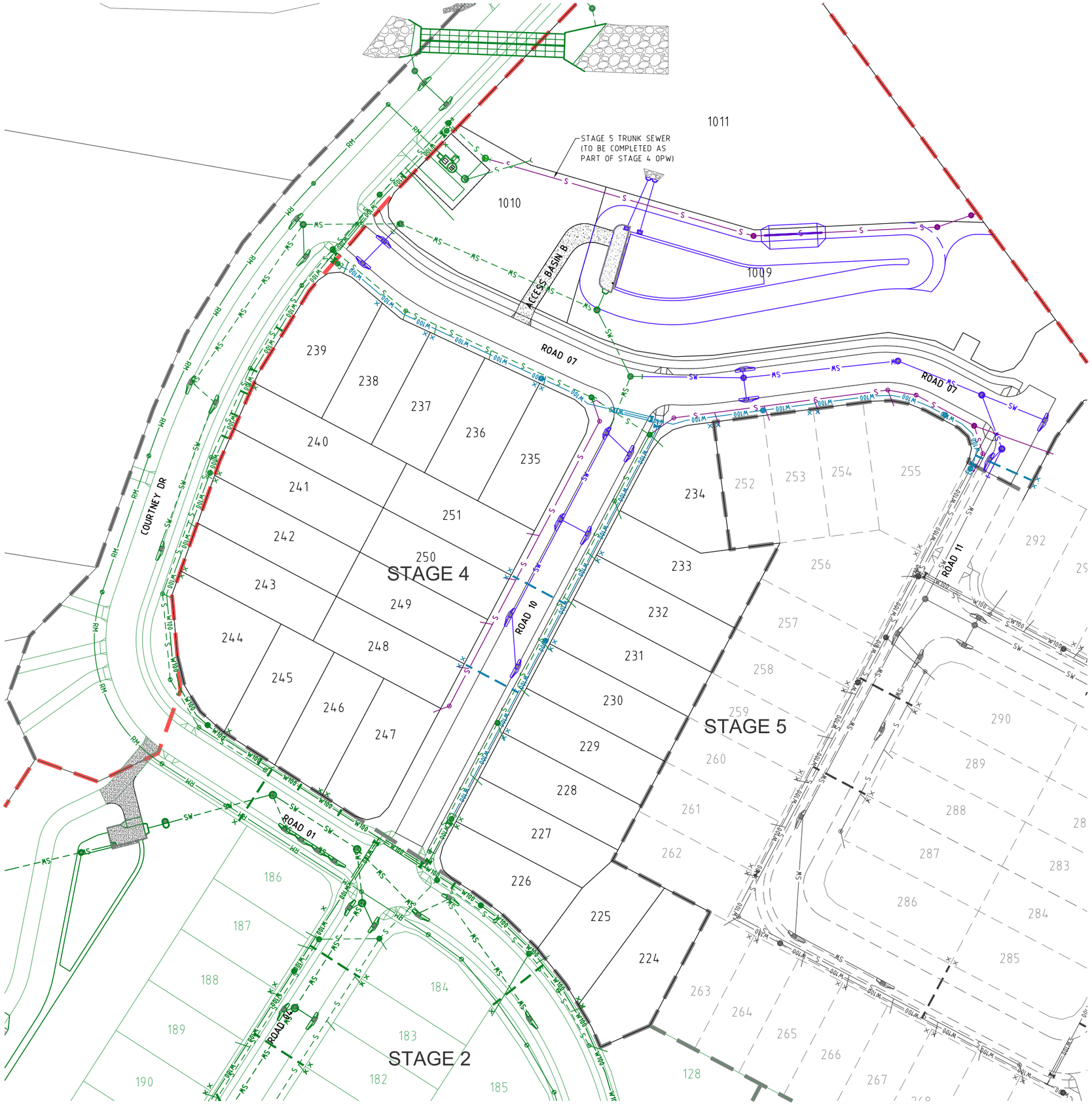
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CONSTRUCTION SERVICES

1. CONSTRUCTION OF SEWER/ROOFWATER/STORMWATER/SERVICES
   EXCAVATED MATERIAL TO BE PLACED ON HIGH SIDE OF TRENCH & TO PROTECT PIPE WORK & DIRECT SURFACE MATERIAL AWAY FROM EXCAVATIONS. TOPSOIL & GRASS SEED AREAS IN ALLOTMENTS IMMEDIATELY AFTER COMPLETING THE SEWER & ROOFWATER DRAINAGE CONSTRUCTION. DEPRESS GROUND AROUND TEMPORARY FIELD INLETS TO CREATE SILT POND.
2. TRIP HAZARD
   MANHOLES OR STRUCTURES INSTALLED IN THE ROAD, FOOTPATH OR VERGE MUST MATCH NEATLY WITH NO TRIP HAZARD.
3. EXISTING SERVICES - EXTERNAL WORKS
   THE LOCATIONS OF ALL EXISTING SERVICES WITHIN THE WORK AREA SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE RELEVANT AUTHORITIES & TO ENSURE THAT THE EXISTING SERVICES ARE NOT DAMAGED OR DISTURBED IN ANY WAY BY THE CONTRACT WORKS.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING KERB (INVERT)
- EXISTING FOOTPATH
- RM — EXISTING RISING MAIN
- S — EXISTING SEWER
- SW — EXISTING STORMWATER
- RW — EXISTING ROOFWATER
- SS — EXISTING SUBSOIL
- W100 — EXISTING WATER
- W150 — EXISTING WATER
- W200 — EXISTING WATER
- W225 — EXISTING WATER
- W250 — EXISTING WATER
- W300 — EXISTING WATER
- EXISTING WATER CONDUIT
- PROPOSED PROPERTY LINE
- PROPOSED KERB (INVERT)
- PROPOSED FOOTPATH
- RM — PROPOSED RISING MAIN
- S — PROPOSED SEWER
- SW — PROPOSED STORMWATER
- RW — PROPOSED ROOFWATER
- SS — PROPOSED SUBSOIL
- W100 — PROPOSED WATER
- W150 — PROPOSED WATER
- W200 — PROPOSED WATER
- W225 — PROPOSED WATER
- W250 — PROPOSED WATER
- W300 — PROPOSED WATER
- PROPOSED WATER CONDUIT
- FUTURE PROPERTY LINE
- FUTURE KERB (INVERT)
- FUTURE FOOTPATH
- RM — FUTURE RISING MAIN
- S — FUTURE SEWER
- SW — FUTURE STORMWATER
- RW — FUTURE ROOFWATER
- SS — FUTURE SUBSOIL
- W100 — FUTURE WATER
- W150 — FUTURE WATER
- W200 — FUTURE WATER
- W225 — FUTURE WATER
- W250 — FUTURE WATER
- W300 — FUTURE WATER
- FUTURE WATER CONDUIT
- SITE BOUNDARY
- STAGE BOUNDARY



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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

COMBINED SERVICES PLAN
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-090
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ROADWORKS

1. PAVEMENT DEPTHS

a. THE DESIGN PAVEMENT DEPTHS ALLOWED IN EARTHWORKS CALCULATIONS ARE BASED ON THE AUTHORITY'S MINIMUM PAVEMENT BOX.

b. THE PAVEMENT DEPTHS GIVEN ARE NOMINAL DESIGN DEPTHS ONLY & MAY BE VARIED AFTER SUB-GRADE TESTS ARE TAKEN. THE CONTRACTOR IS TO PROVIDE THE SUPERINTENDENT A SUBGRADE C.B.R. REPORT PREPARED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER. IN PROJECTS EXPECTING LIME STABILISED SUBGRADE, THE CONTRACTOR MUST PROVIDE LIME DEMAND TEST RESULTS WITH THE CBR REPORT.

c. THE SUPERINTENDENT WILL COORDINATE THE AUTHORITIES APPROVAL OF THE PAVEMENT DESIGN.

d. REFER TO DWG. 120 FOR TYPICAL ROAD SECTIONS.

e. TESTING
ALL COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. TESTING AUTHORITY. ALL SITE FILLING SHALL BE TESTED AT LEVEL 1 REQUIREMENTS.

f. SUBSOIL DRAINS
SUBSOIL DRAINS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S SPECIFICATIONS. SUBSOIL DRAINS SHALL BE PLACED UNDER ALL KERB STRUCTURES & ARE TO BE CONSTRUCTED TO A DEPTH GREATER THAN THAT OF THE INVERT OF THE DEEPEST SERVICE CROSSING.

g. MITRE DRAINS
MITRE DRAINS ARE TO BE CONSTRUCTED ALONG THE CUT/FILL INTERFACE & SAG/LOW POINTS OF ALL ROADS. CONTRACTOR TO REQUEST DIRECTION FROM SUPERINTENDENT WHETHER TO INSTALL MITRE DRAIN AT ROCK ENCOUNTERED IN SUBGRADE. ALL MITRE DRAINS MUST BE FREE DRAINING & TIE INTO THE ADJACENT SUBSOIL DRAINS.

h. ROCK
THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR RATES.

i. TURF
1.0m TURF STRIP TO BE INSTALLED BEHIND THE BACK OF ALL KERBS. A PERPENDICULAR TURF STRIP AT MAXIMUM 10m INCREMENTS MUST BE INSTALLED TO FULL VERGE WIDTH FOR SEDIMENT & EROSION CONTROL PURPOSES.

7. KERBS
ALL KERBS TO BE CONSTRUCTED IN ACCORDANCE WITH AUTHORITY STANDARDS. FOR ALL KERB TYPES REFER TO DWG 120.

8. PAVEMENT TIE-IN
PAVEMENT TIE-IN TO BE IN ACCORDANCE WITH DWG. 120

LEGEND

- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING FOOTPATH
- EXISTING PROPERTY LINE
- FUTURE KERB
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED CONCRETE
- 41.065 CENTRELINE CHAINAGE
- REFER TO DRG. 120 FOR KERB TYPES — B1 BARRIER KERB & CHANNEL



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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

ROADWORKS
PLAN
SHEET 01

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APPROVED		RPEQ 4706	DATE 27-04-24

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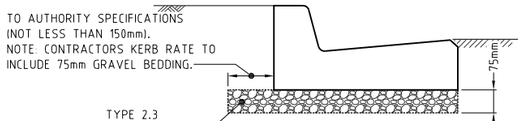
SCHEDULE OF PAVEMENT DEPTHS

ROAD NAME	SURFACING	BASE	SUB-BASE	LOWER SUB-BASE	CLASSIFICATION	DESA OR VPD	DESIGN GUIDE
ROAD 07	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL COLLECTOR ST	751-3000	GCCC TABLE 2.11
ROAD 10	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL ACCESS ST	401-750	GCCC TABLE 2.11
ROAD 11	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL ACCESS ST	401-750	GCCC TABLE 2.11

NOTE: THE PAVEMENT DEPTHS ARE GIVEN AS A GUIDE ONLY AND FINAL PAVEMENT DESIGN WILL BE DETERMINED AFTER CBR TESTING IS UNDERTAKEN, AND COUNCIL HAVE APPROVED THE DESIGN. PLEASE NOTE CBR10 IS MAXIMUM INSITU CBR VALUE.

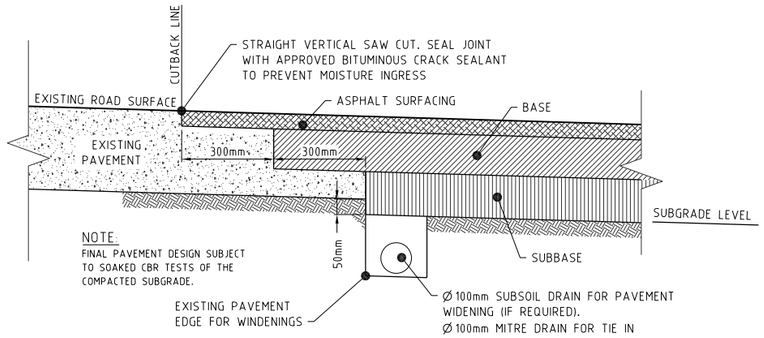
SCHEDULE OF KERB TYPES

KERB TYPE	IMAGE	REFERENCE
B1		IPWEA DWG. RS-080 NOTE: SUBSOIL DRAINS TO BE PLACED UNDER ALL KERBS.



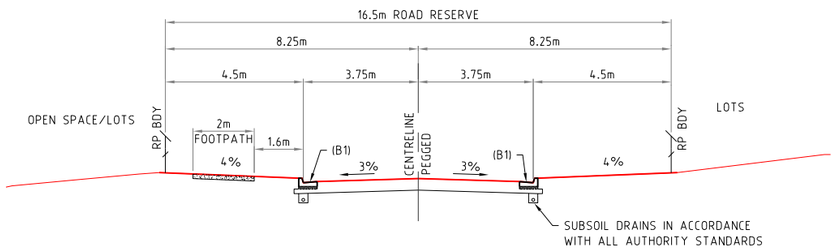
TYPICAL BEDDING DETAIL

SCALE 1:10 - A1 (1:20 - A3)



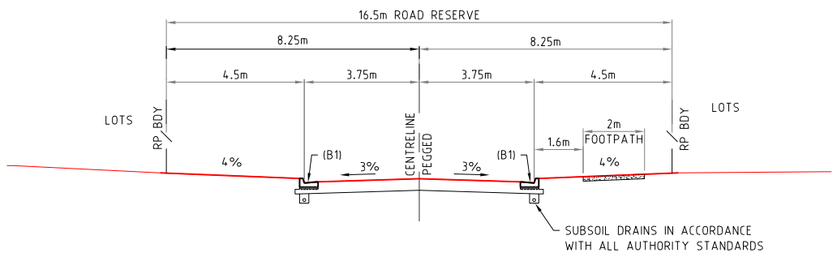
PAVEMENT WIDENING AND TIE-IN DETAIL

NOT TO SCALE



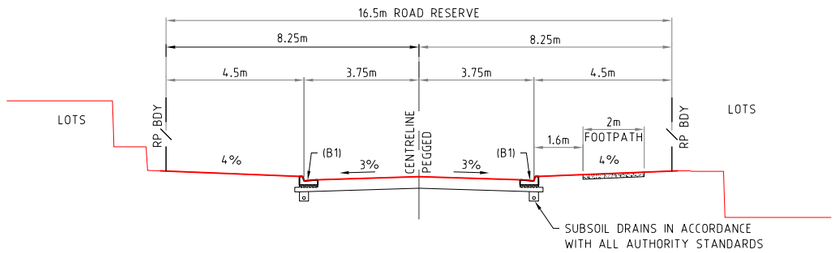
TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 07

SCALE 1:100 - A1 (1:200 - A3)



TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 10

SCALE 1:100 - A1 (1:200 - A3)



TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 11

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 0.1 0.2 0.3 0.4 0.5m
Scale 1:10 - A1 (1:20 - A3)

0 1 2 3 4 5m
Scale 1:100 - A1 (1:200 - A3)

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DRAWING TITLE

ROADWORKS
DETAILS
SHEET 01

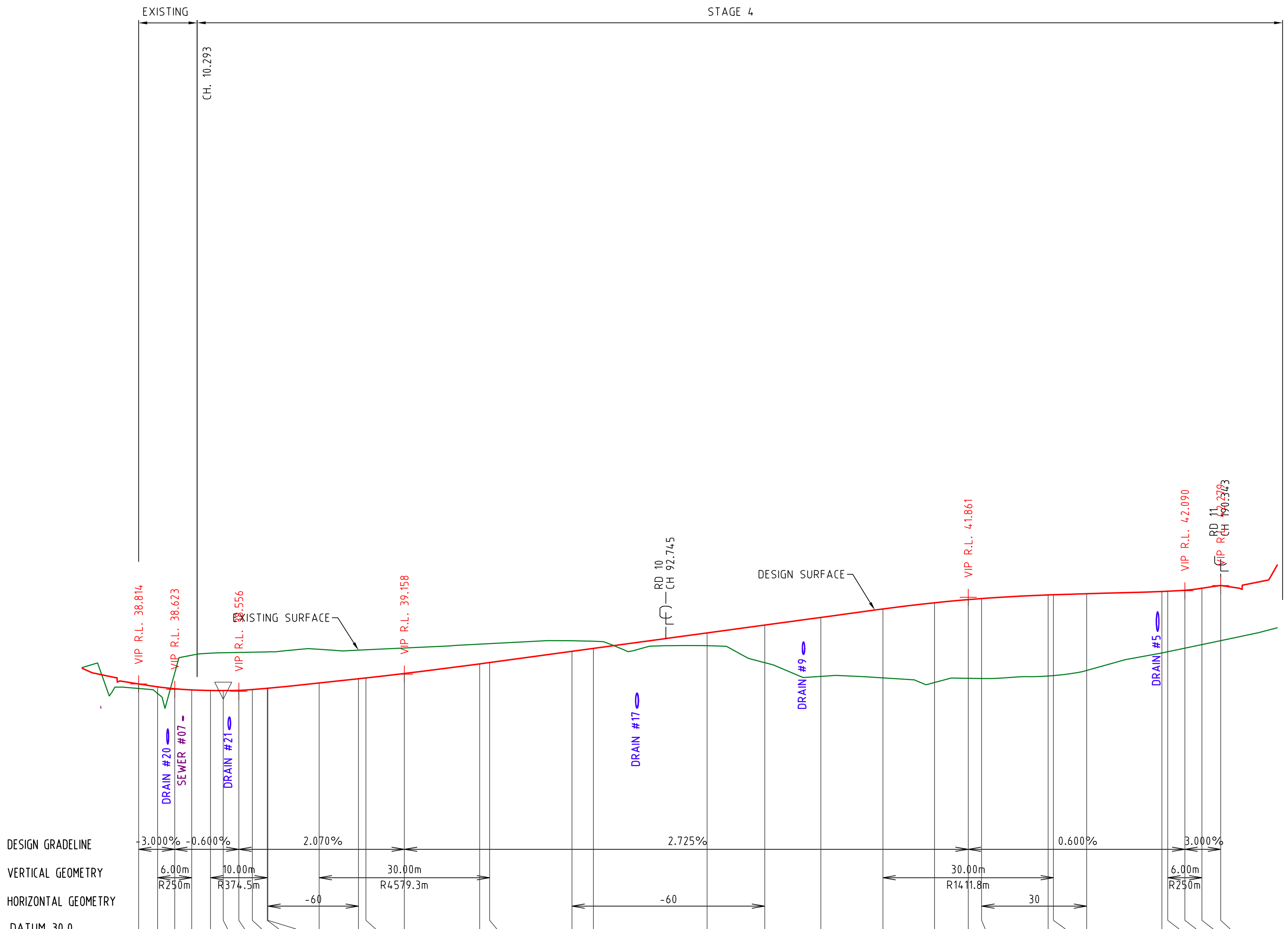
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APPROVED		RPEQ 4706	DATE 27-04-24

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CHAINAGE	CONTROL LINE LEVELS	EXISTING SURFACE	DEPTH
0	38.814	38.654	-0.16
3.344	38.713	38.478	-0.236
6.344	38.641	39.192	0.551
9.344	38.605	39.827	1.222
12.639	38.586	39.895	1.309
14.886	38.579	39.911	1.332
17.639	38.589	39.922	1.333
20	38.614	39.931	1.317
22.639	38.659	39.942	1.283
22.728	38.661	39.942	1.281
31.753	38.848	40.034	1.186
38.685	38.997	40.003	1.006
40	39.026	40.015	0.989
46.753	39.183	40.078	0.895
60	39.52	40.214	0.694
61.753	39.567	40.232	0.665
76.227	39.961	40.333	0.371
80	40.064	40.316	0.252
100	40.609	40.159	-0.45
110.133	40.885	39.562	-1.323
120	41.154	39.081	-2.074
130.929	41.452	39.029	-2.423
140	41.67	38.863	-2.807
145.929	41.781	39.013	-2.768
148.296	41.819	39.007	-2.811
160	41.945	39.092	-2.853
160.929	41.951	39.107	-2.844
166.766	41.986	39.288	-2.698
180	42.065	39.905	-2.161
181.043	42.072	39.948	-2.123
184.043	42.108	40.074	-2.034
187.043	42.18	40.2	-1.98
190.343	42.279	40.338	-1.941

LONGITUDINAL SECTION ROAD 07

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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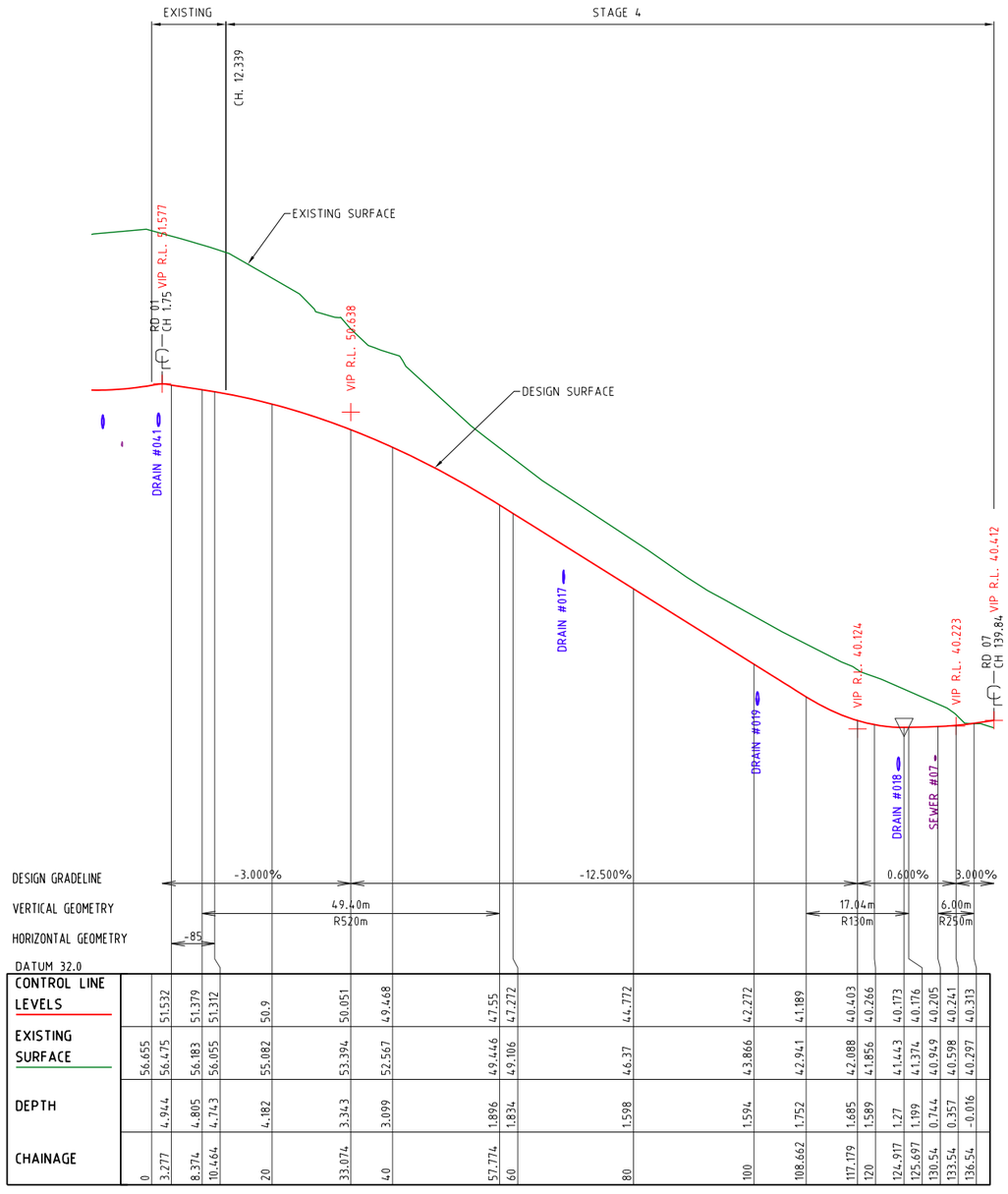
DRAWING TITLE

LONGITUDINAL SECTIONS
ROAD 07

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination
MUS Pty Ltd T/As:
Mortons-Urban Solutions
ABN: 39 116 375 065
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Tel 07 5571 1099
Postal Address
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Southport QLD 4215
Gold Coast Office
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Southport QLD 4215

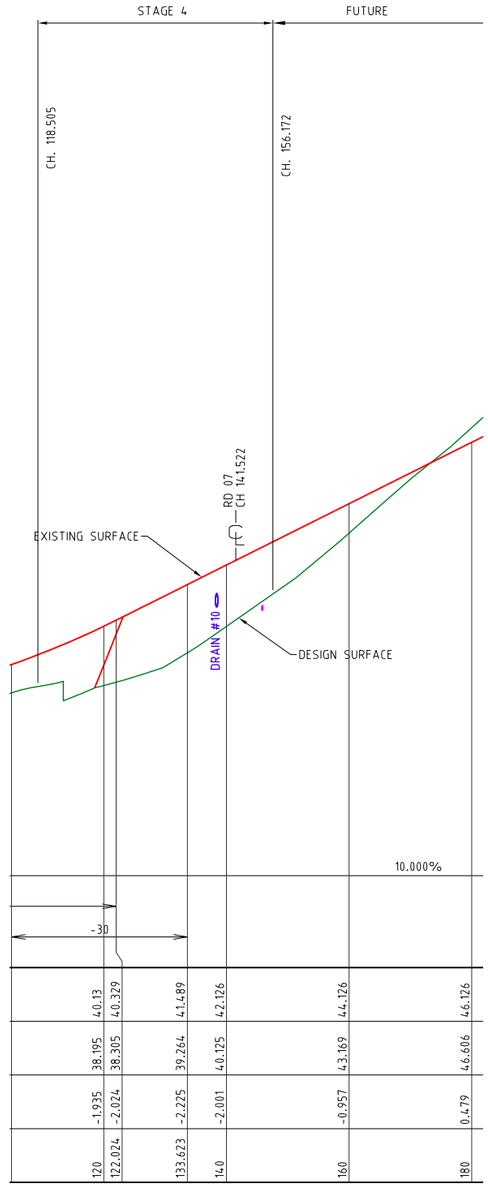
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APPROVED [signature] RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-200
REV A



CONTROL LINE LEVELS	56.655	56.475	51.532	51.379	51.312	50.9	50.051	49.468	47.55	47.272	44.772	42.272	41.189	40.403	40.266	40.173	40.176	40.205	40.241	40.313
EXISTING SURFACE	56.655	56.475	56.183	56.055	55.082	53.394	52.567	49.106	46.37	43.866	42.941	42.088	41.856	41.443	41.374	40.949	40.598	40.297		
DEPTH		4.944	4.805	4.743	4.182	3.343	3.099	1.834	1.598	1.594	1.752	1.685	1.589	1.27	1.199	0.744	0.357	-0.016		
CHAINAGE	0	3.277	8.374	10.464	20	33.074	40	57.774	60	80	100	108.662	117.179	120	124.917	125.697	130.54	133.54	136.54	

LONGITUDINAL SECTION ROAD 10



	40.13	40.329	41.489	42.126	44.126	46.126
	38.195	38.305	39.264	40.125	43.169	46.606
	-1.935	-2.024	-2.225	-2.001	-0.957	0.479
	120	122.024	133.623	140	160	180

LONGITUDINAL SECTION ROAD 11

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INIT
A	27-04-24	COUNCIL ISSUE	BL

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DRAWING TITLE

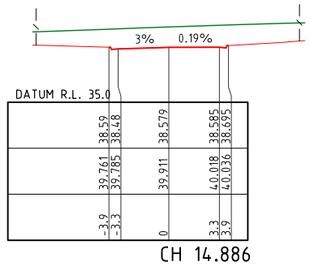
LONGITUDINAL SECTIONS
ROAD 10

MORTONS urbansolutions
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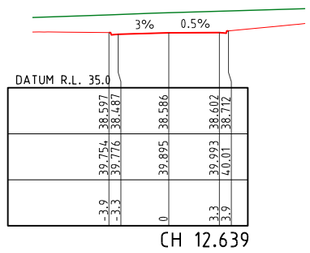
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APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-201
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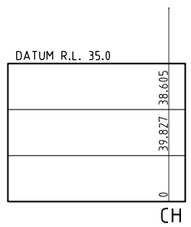
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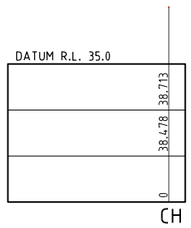
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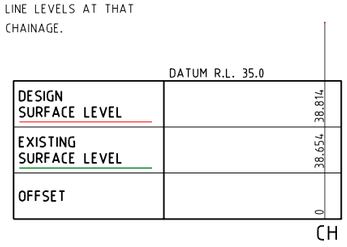
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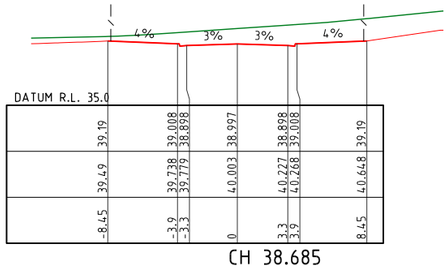
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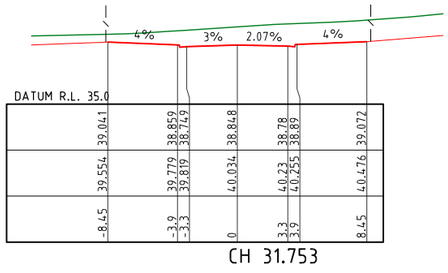
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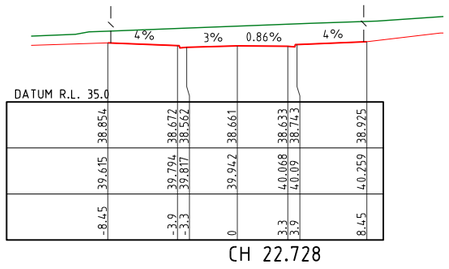
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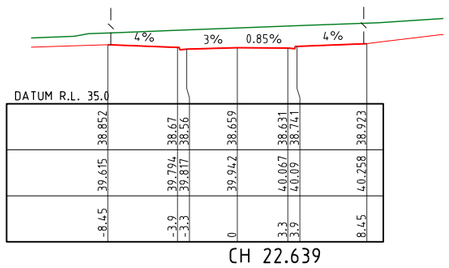
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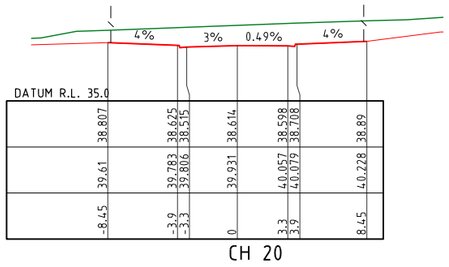
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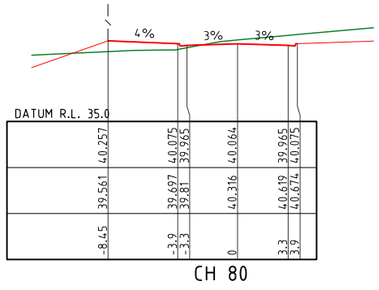
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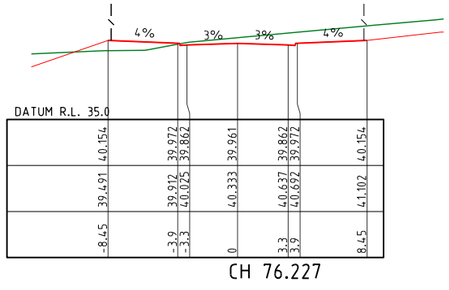
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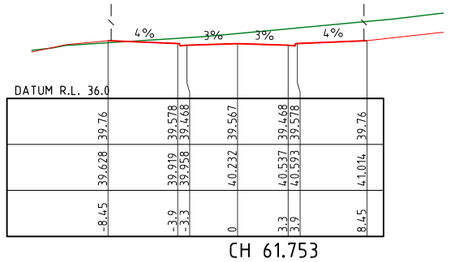
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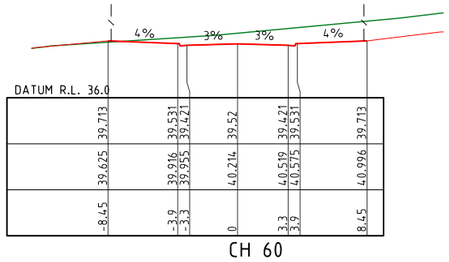
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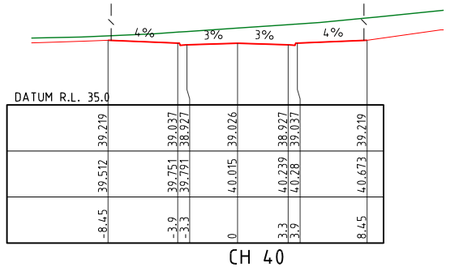
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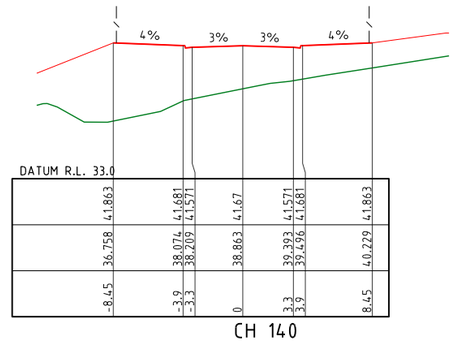
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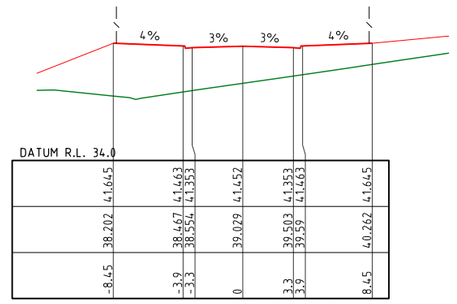
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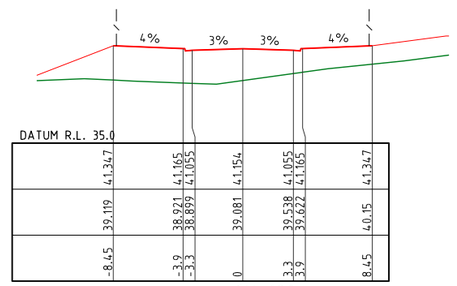
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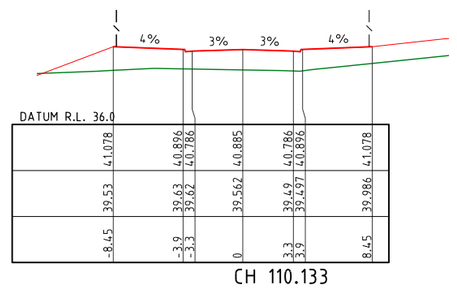
CH 140



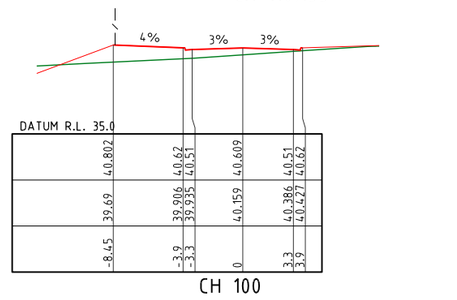
CH 130.929



CH 120



CH 110.133



CH 100

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.

2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.

ROAD 07

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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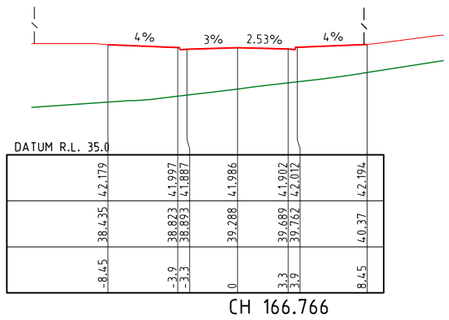
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CROSS SECTIONS
ROAD 07

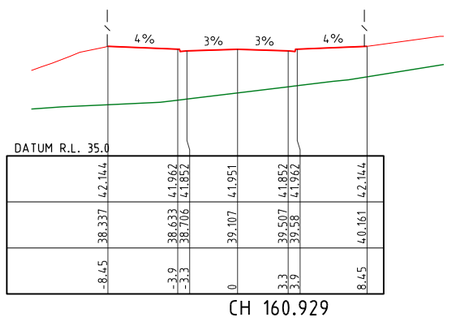
MORTONS urbansolutions
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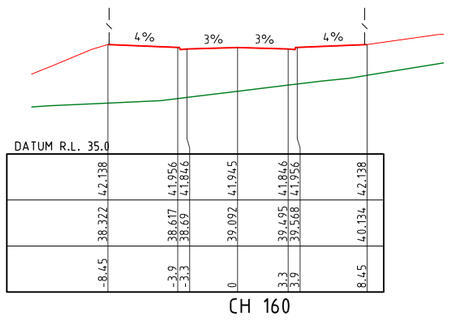
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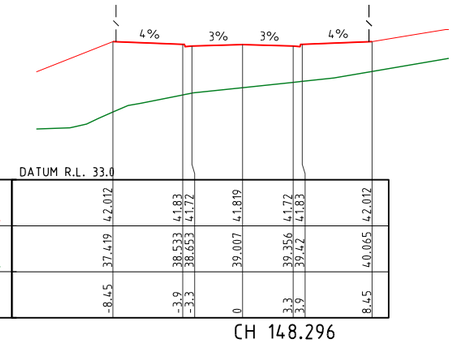
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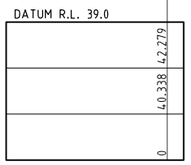
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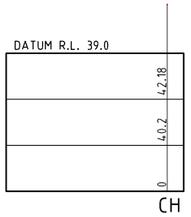
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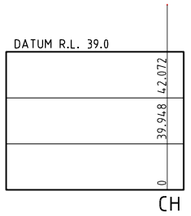
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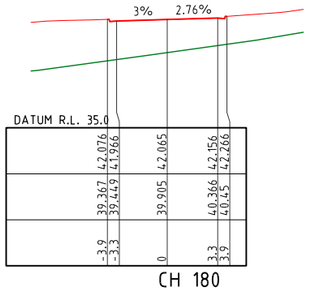
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CH 187.043

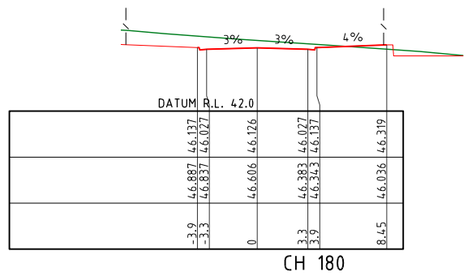


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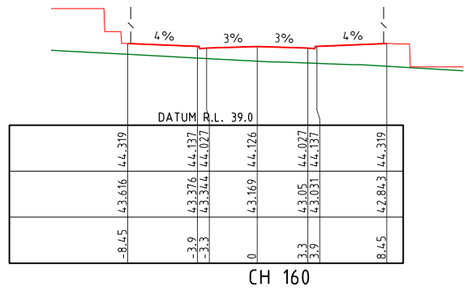


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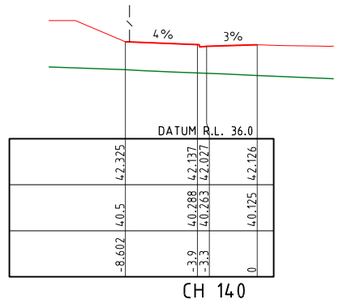
ROAD 07



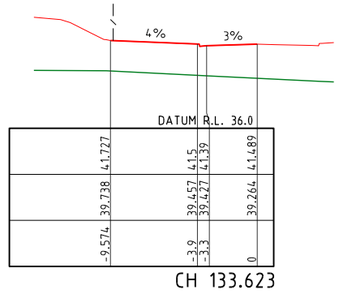
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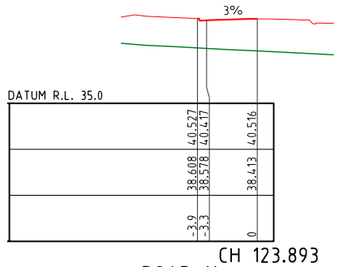
CH 160



CH 140



CH 133.623



CH 123.893

ROAD 11

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.

2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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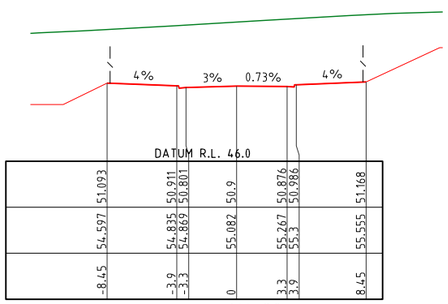
CROSS SECTIONS
ROAD 07 & ROAD 11

MORTONS urbansolutions
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MUS Pty Ltd T/As
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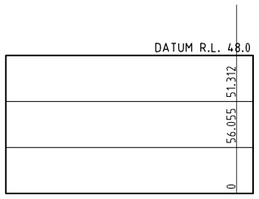
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APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-301
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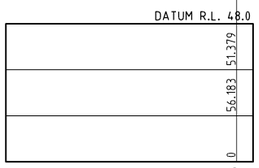
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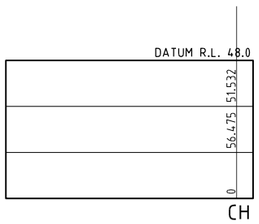
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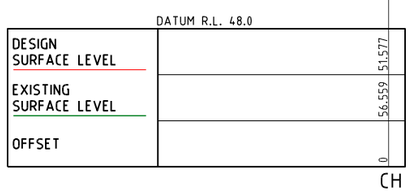
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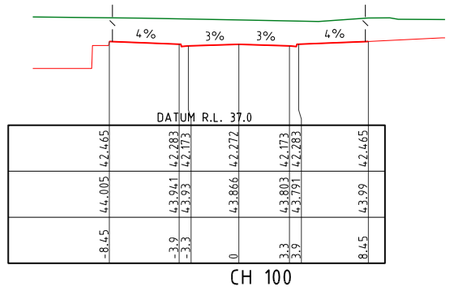
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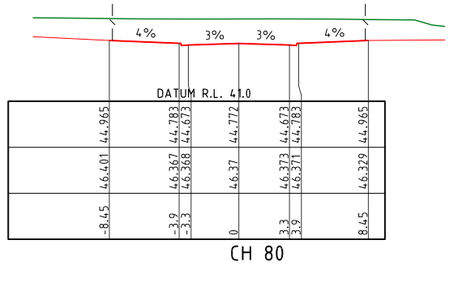
CH 3.277



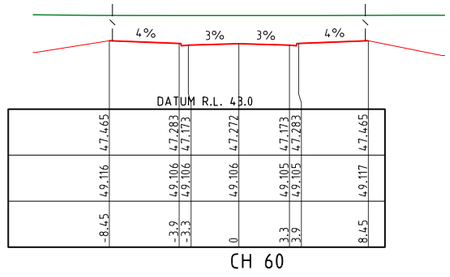
CH 1.75



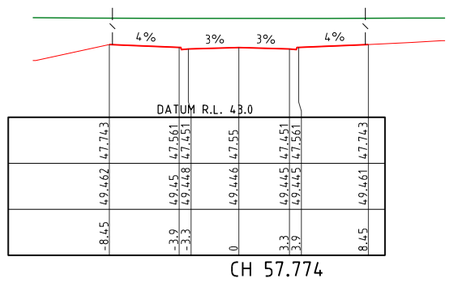
CH 100



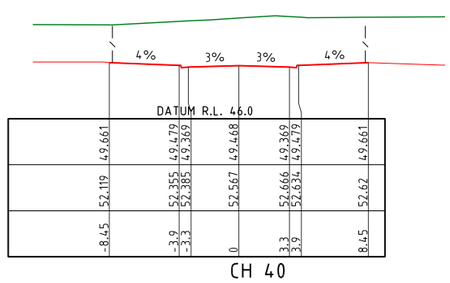
CH 80



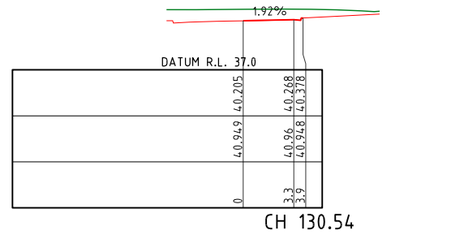
CH 60



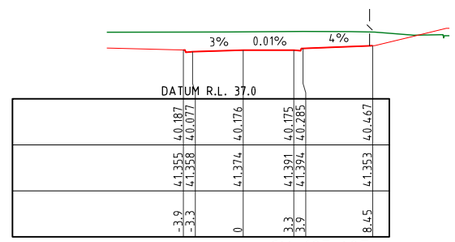
CH 57.774



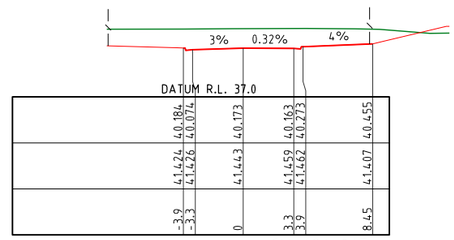
CH 40



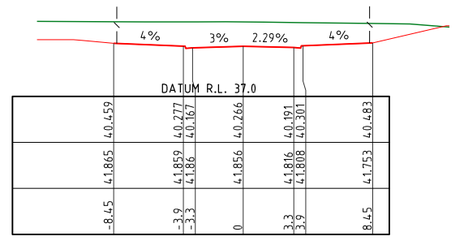
CH 130.54



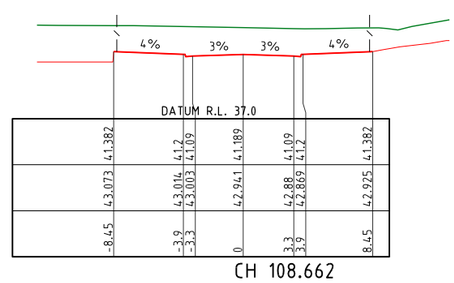
CH 125.697



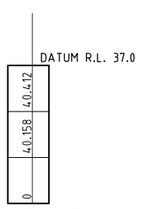
CH 124.917



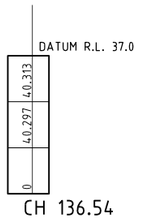
CH 120



CH 108.662



CH 139.84



CH 136.54

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.

2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.

ROAD 10

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INIT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

CROSS SECTIONS
ROAD 10

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination
MUS Pty Ltd T/As:
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Southport QLD 4215
Gold Coast Office
Suite 9, 19 Short St
Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-302
REV A

F:\Autocad Client\419 - HB Land\01 - Courtney Drive\Precinct-Stage 04\Engineering Drawings\Current\41901-04-300.dwg, SHEET 03, 8/08/2024 12:47:42 PM, 1:2

LEGEND

- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING FOOTPATH
- EXISTING PROPERTY LINE
- EXISTING CONTOURS (1.0)
- FUTURE KERB
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- FUTURE CONTOURS (1.0)
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SITE BOUNDARY
- STAGE BOUNDARY
- DESIGN CONTOURS (1.0)
- PROPOSED CONCRETE

24.0 _41.065 INTERSECTION CHAINAGE & LEVEL

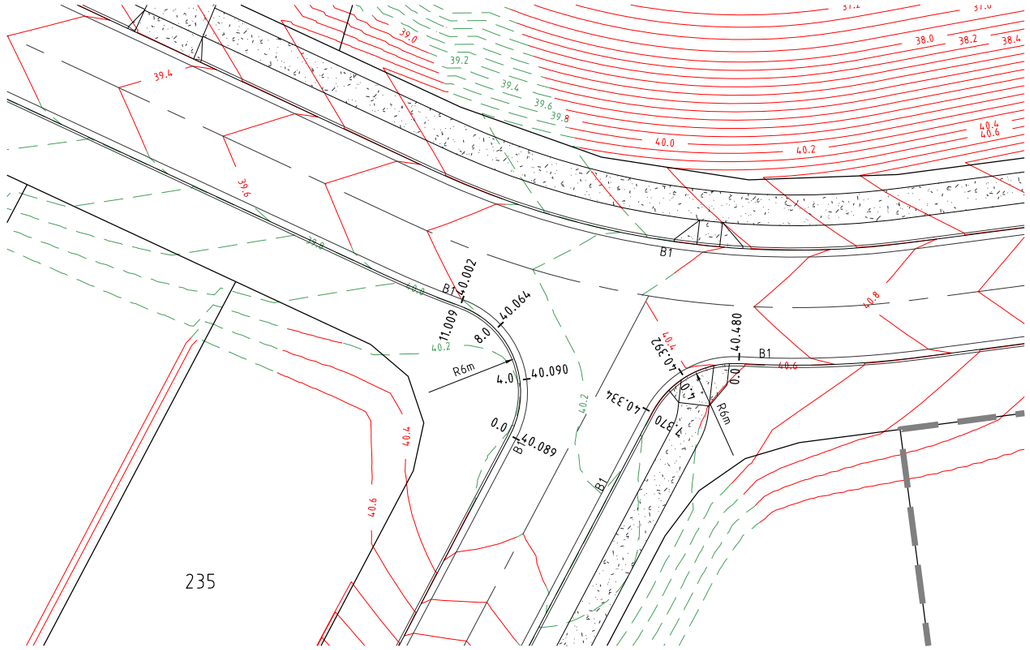
B1 BARRIER KERB & CHANNEL

REFER TO DRG. 120 FOR KERB TYPES

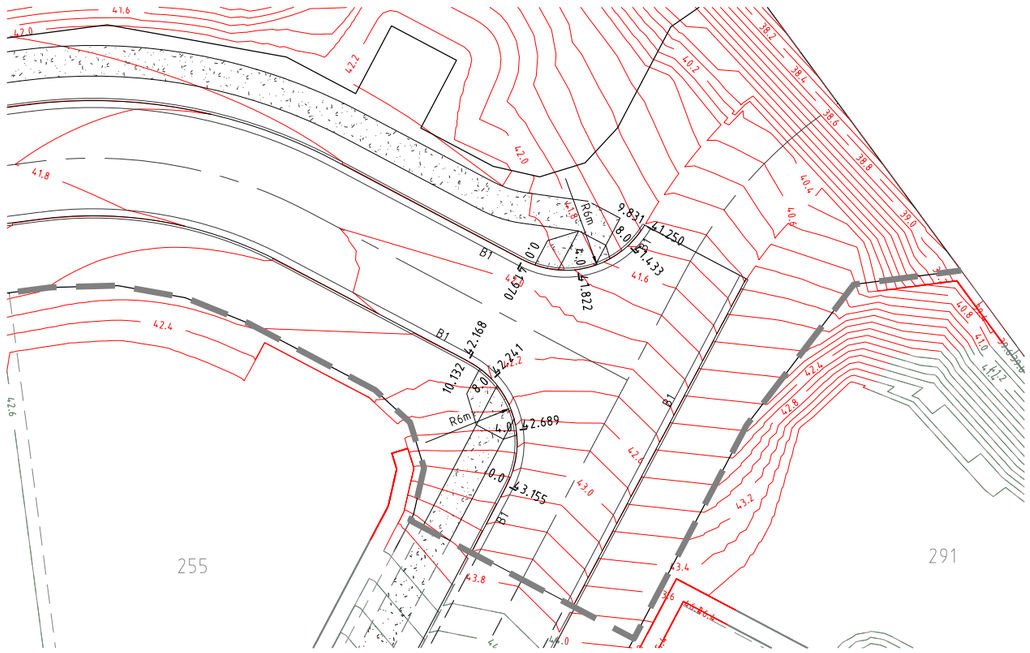
NOTES:

1. SETOUT POINT DENOTES LIP OF KERB WHERE LIP OF KERB, OR FACE OF KERB WHERE NO LIP.
2. FOR KERB TYPES REFER TO SCHEDULE OF KERB TYPES ON DWG. 120

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INTERSECTION
ROAD 07 & ROAD 10



INTERSECTION
ROAD 07 & ROAD 11

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

INTERSECTION
GRADING DETAILS
SHEET 01

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

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Gold Coast Office
Suite 9, 19 Short St
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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

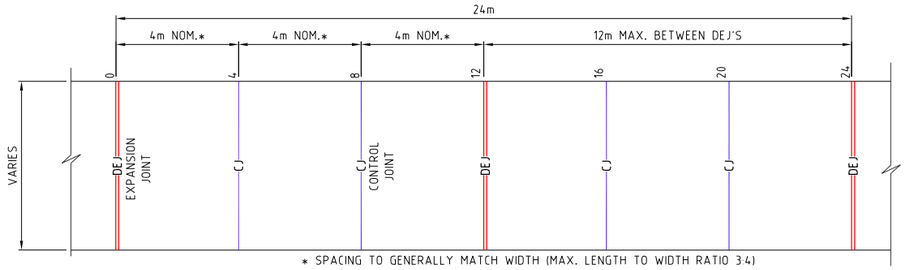
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REV: A

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CONCRETE PAVEMENT DRIVEWAY:

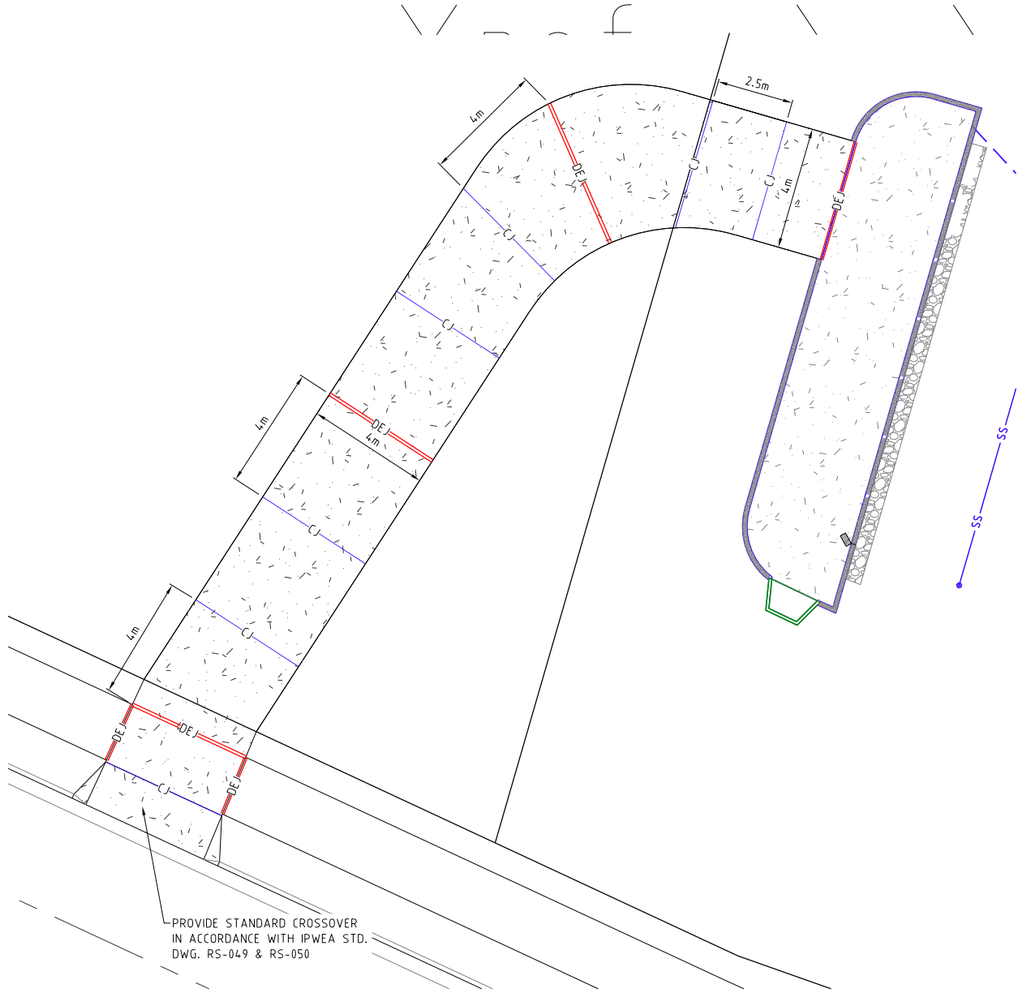
1. CONCRETE MIX
   THE CONCRETE SHALL HAVE A MINIMUM 28 DAY CHARACTERISTIC COMPRESSIVE STRENGTH AS SPECIFIED IN THE SCHEDULE OF CONCRETE PAVEMENTS TABLE, MAXIMUM WATER/CEMENT RATIO OF 0.45 & A MINIMUM CEMENT CONTENT OF 300kg/m³.
2. SUBGRADE PREPARATION
   THE SUBGRADE TO THE CONCRETE PAVEMENT AREAS SHALL BE PREPARED THE SAME AS CONVENTIONAL ROADS. REFER TO SCHEDULE OF CONCRETE PAVEMENTS TABLE.
3. TRAFFIC
   TRAFFIC SHALL NOT BE ALLOWED ON THE FINISHED CONCRETE PAVEMENT FOR AT LEAST 14 DAYS AFTER COMPLETION OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING MEASURES TO PREVENT UNAUTHORISED ACCESS.
4. JOINTS
   ALL JOINTS SHALL BE LOCATED GENERALLY PERPENDICULAR TO THE CENTRELINE. ALL CONTROL JOINTS TO BE COMPLETED AS SOON AS CONCRETE HAS CURED SUFFICIENTLY SO AS NOT TO DAMAGE THE SLAB SURFACE.
   ALL JOINTS ARE TO BE INSTALLED AS DETAILED ON IPWEAQ STD DWG RS-065.
5. GENERAL
   THE GRAVEL PAVEMENT SHALL BE NEATLY PROFILED & TRIMMED TO ENSURE CONSTANT CONCRETE DEPTHS & PROFILES. ACTUAL CONSTRUCTION REQUIREMENTS MAY VARY FROM THE DETAILS SHOWN & THEREFORE ALL CONSTRUCTION DETAILS SHOULD BE VERIFIED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION COMMENCING. PROVIDE ABLEFLEX BETWEEN KERB & DRIVEWAY.
6. COMPLIANCE ST&ARDS
   SLIP RESISTANCE OF SURFACE MATERIALS IN ACCORDANCE WITH AUSTRALIAN STANDARDS.
   AS/NZS 4586: 2013 SLIP RESISTANCE OF NEW PEDESTRIAN SURFACE MATERIALS.
   AS/NZS 4663: 2013 SLIP RESISTANCE MEASUREMENT OF EXISTING PEDESTRIAN SURFACES
   HB:A:A 197: 1999 "AN INTRODUCTORY GUIDE TO THE SLIP RESISTANCE OF PEDESTRIAN SURFACE MATERIALS"

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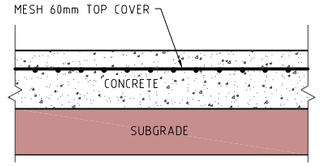
TYPICAL CONCRETE PAVEMENT DETAIL FOR DRIVEWAYS AND ROADS

SCALE 1:50 - A1 (1:100 - A3)



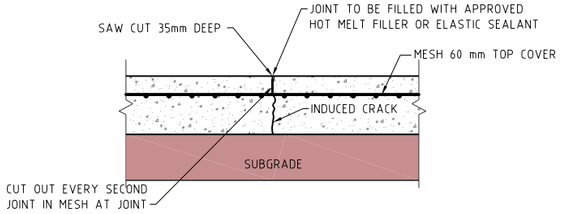
LEGEND

- EXISTING PROPERTY LINE
- EXISTING KERB
- FUTURE KERB
- FUTURE PROPERTY LINE
- PROPERTY LINE
- FACE OF KERB, FOOTPATHS
- LIP AND BACK OF KERB
- CONTROL LINE / CENTER OF ROAD
- SITE BOUNDARY
- STAGE BOUNDARY
- EJ — EXPANSION JOINT
- DEJ — DOWELED EXPANSION JOINT
- IJ — ISOLATION JOINT
- SJ — SAW JOINT
- CJ — CONTROL JOINT
- KJ — KEY JOINT
- 2xN12 BARS AROUND PENETRATIONS TYP.



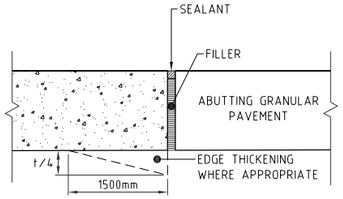
TYPICAL BROOM FINISHED CONCRETE PAVEMENT DETAIL

NOT TO SCALE



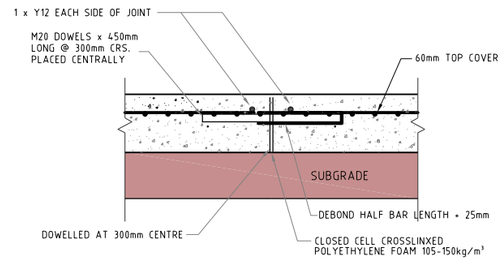
CONTROL JOINT (4m SPACING) (CJ)

NOT TO SCALE



ISOLATION JOINT (IJ)

NOT TO SCALE



DOWELLED EXPANSION JOINT DETAIL (24m SPACING) (DEJ)

NOT TO SCALE

SCHEDULE OF CONCRETE PAVEMENTS

FUNCTION	SURFACING	SUBGRADE PREPARATION	THICKNESS 'T'	STRENGTH	REINFORCING
FOOTPATH 2.0M WIDE	HEAVY BROOM FINISH	50mm SAND BLINDING LAYER	100mm	32 mPa	SL 72 MESH
DRIVEWAY STORMWATER BASIN	HEAVY BROOM FINISH	100mm (CBR 15)	175mm	32 mPa	SL 72 MESH

NOTE: FOOTPATH JOINTING TO BE IN ACCORDANCE WITH IPWEAQ DWG RS-065
SUPERINTENDENT TO CONFIRM SUBGRADE PREPARATION

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 1 2 3 4 5m
Scale 1:100 - A1 (1:200 - A3)

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

CONCRETE JOINTING DETAILS SHEET 01

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Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ	4706
DATE	27-04-24		

DRAWING NUMBER 41901-04-410
REV A

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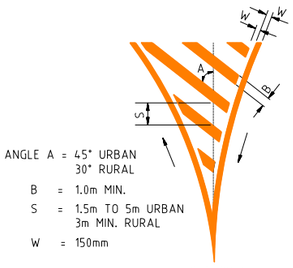
NOTES

1. LINEMARKING & SIGNAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL SIGNAGE SHOWN IS DIAGRAMMATIC ONLY, & MUST BE INSTALLED AT THE HEIGHT, ORIENTATION & WITH APPROPRIATE POLE SUPPORT AS SPECIFIED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL SIGN POSTS & SIGN RAILS TO BE GALVANISED UNLESS NOTED OTHERWISE.

PAVEMENT MARKING LEGEND

- EXISTING EDGE LINE - EL
- EXISTING EDGE LINE YELLOW - EL(Y)
- EXISTING CONTINUITY LINE - CL
- EXISTING TURN LINE - TL
- EXISTING BARRIER LINE - BL(B)
- EXISTING BARRIER LINE - BL
- EXISTING LANE LINE - LL
- EXISTING LANE LINE - LL(B)
- EXISTING GIVE WAY LINE - GWL
- EXISTING STOP LINE - SL
- EDGE LINE - EL
- EDGE LINE YELLOW - EL(Y)
- CONTINUITY LINE - CL
- TURN LINE - TL
- BARRIER LINE - BL(B)
- BARRIER LINE - BL
- LANE LINE - LL
- LANE LINE - LL(B)
- GIVE WAY LINE - GWL
- STOP LINE - SL

NOTE: REFER TO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ALL LINEMARKING AND SIGN STANDARDS



ANGLE A = 45° URBAN
30° RURAL

B = 1.0m MIN.

S = 1.5m TO 5m URBAN
3m MIN. RURAL

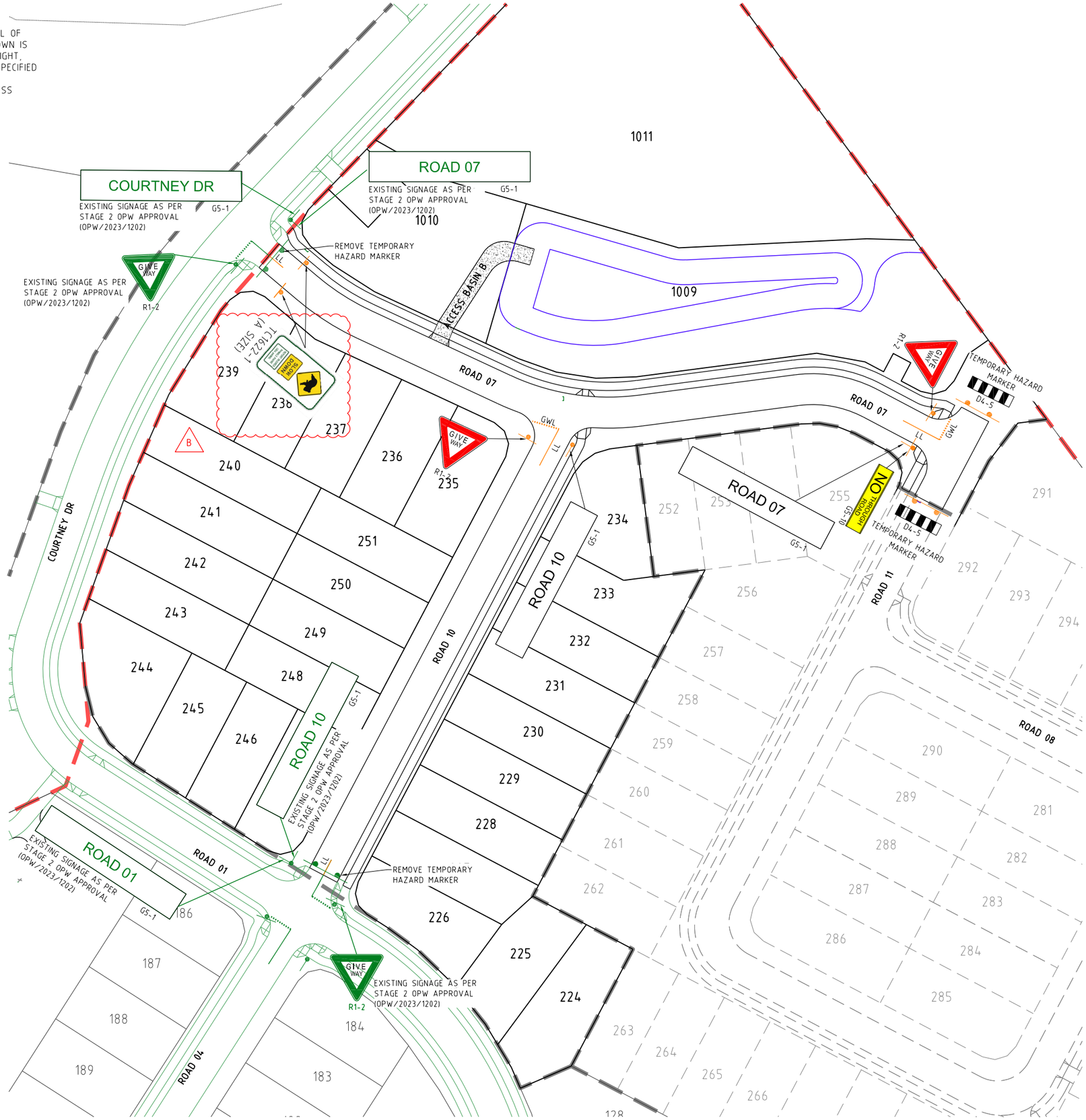
W = 150mm

CHEVRONS

LEGEND

- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- EXISTING FOOTPATH
- FUTURE KERB (INVERT)
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- PROPOSED KERB (INVERT)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SITE BOUNDARY
- STAGE BOUNDARY
- SIGN POST
- SIGN POST
- SIGN POST

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	SIGN SIZE AMENDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

LINEMARKING & SIGNAGE PLAN
SHEET 01

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Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER: 41901-04-420
REV: B

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SEQ CODE SEWER NOTES

SEQ CODE NOTES COPIED DIRECTLY FROM DRAWING SEQ-SEW-1101-3 (REV B).

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8 m BATTENS CLOSELY SPACED & ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION & REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL & SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
C. IF ACID SULPHATE SOILS EXIST IN THE WORKS AREA. THE CONTRACTOR MUST PREPARE A RISK ASSESSMENT BASED ON THE QUEENSLAND ACID SULPHATE SOIL TECHNICAL MANUAL & MANAGE THE ACID SULPHATE SOILS AS PER THE MANUAL.

CREEK CROSSINGS

A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
C. NO SOIL SHALL BE STOCKPILED WITHIN 5 m OF THE CREEK.

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES & COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

SAFETY

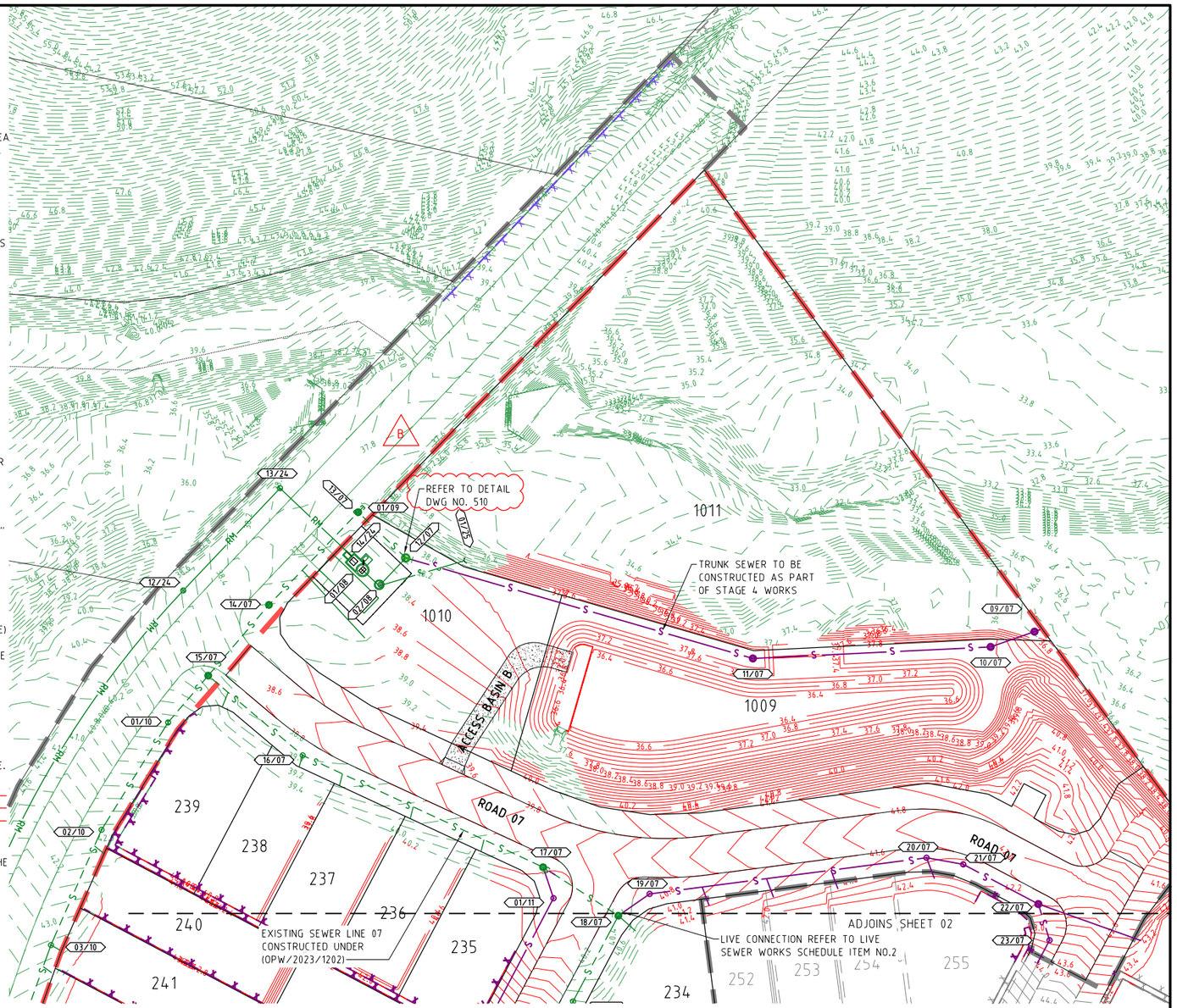
A. THE DESIGN & CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

GENERAL

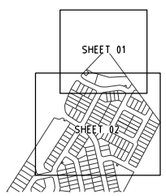
1. ALL WORK & MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS & WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE SYSTEM.
4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY DEVELOPER'S APPROVED CONTRACTOR UNDER THE SUPERVISION OF SEQ'S AGENT AT THE DEVELOPER'S COST.
5. ALL PIPES & MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS & MATERIALS" LIST.
6. EACH ALLOTMENT SHALL BE SERVED BY A DN100 PVC PROPERTY CONNECTION. FOR ALLOTMENTS OTHER THAN SINGLE RESIDENTIAL, A DN160 PE (OR DN150 PVC) PROPERTY CONNECTION SHALL BE PROVIDED.
7. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
8. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY A MINIMUM OF 300 mm AND A MAXIMUM OF 750 mm. UNITYWATER REQUIRES MINIMUM EXTENSION OF 500 mm INTO PROPERTY.
9. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300 mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEQ SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
10. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER,BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE.
11. THE CONTRACTOR SHALL VERIFY THE LOCATION & DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
12. SEWERS SHALL BE DISUSED /ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE.
13. BENCH MARK & LEVELS TO AHD.
14. ~~THE EXISTING DWELLING ON LOT 3, REFER SEQ-SEW-1100, SERVED BY A SEPTIC SYSTEM, SHALL BE CONNECTED TO THE NEW SEWER BY A LICENCED PLUMBER IN ACCORDANCE WITH THE RELEVANT STATUTORY & COUNCIL REQUIREMENTS. THE SEPTIC SYSTEM, INCLUDING TRENCHES,SHALL BE REMOVED AT THE DEVELOPER'S COST. ALL FIXTURES SHALL BE UPGRADED IF REQUIRED BY PLUMBING CODE.~~ STANDARD NOTE NOT APPLICABLE & THEREFORE DELETED.
15. EXISTING ALLOTMENTS REQUIRING A PROPERTY CONNECTION FROM EXISTING SEWERS SHALL BE PROVIDED BY THE SEQ SERVICE PROVIDER AT THE DEVELOPERS COST.

PROJECT SPECIFIC SEWER NOTES

a. ALL SEWER MAINS TO BE AS PER SEWER PIPE SPECIFICATIONS TABLE.
b. NOTWITHSTANDING THE STANDARD SEQ NOTES ABOVE, ALL MATERIALS & WORKS MUST BE IN ACCORDANCE WITH THE SERVICE PROVIDER'S APPROVAL CONDITIONS & THE SEQ WS&S D&C CODE.
c. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR SEWER RATES UNLESS SCHEDULED OTHERWISE WITHIN THE CONTRACT.
d. THE CONTRACTOR TO PROVIDE CALCAREOUS CONCRETE WHERE SPECIFIED IN THE SEQ CODE BY THE RELEVANT AUTHORITY.
e. WATER & ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE PRECISE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDENT'S INSTRUCTION
f. ALL BENDS TO BE LONG RADIUS BEND TO MEET MANUFACTURER'S MINIMUM RADIUS REQUIREMENTS U.N.O.
g. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF WORKS ON-SITE.
h. PROPERTY CONNECTIONS HAVE BEEN DESIGNED TO CONTROL THE REQUIRED SERVICE AREA OF EACH LOT AT A GRADE OF 1:60 & A MAXIMUM DEPTH OF PROPERTY CONNECTION AT 1.5m. UNLESS OTHERWISE STATED.
i. CONTRACTOR TO PAY ALL FEES & CHARGES ASSOCIATED WITH CONNECTIONS.



SHEET LAYOUT



SEWER PIPE SPECIFICATIONS

SEWER MAIN LOCATION	PIPE MATERIAL SPECIFICATION
GRAVITY VERGE	PVC-U SN8
GRAVITY ROAD CROSSING	PVC-U SN8
HOUSE CONNECTIONS	PVC-U SN10

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

LEGEND

- EXISTING SEWER
- EXISTING RISING MAIN
- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- EXISTING RETAINING WALL
- EXISTING CONTOURS
- FUTURE SEWER
- FUTURE RISING MAIN
- FUTURE KERB (INVERT)
- FUTURE PROPERTY LINE
- FUTURE RETAINING WALL
- FUTURE CONTOURS
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED KERB (INVERT)
- PROPOSED PROPERTY LINE
- PROPOSED RETAINING WALL
- DESIGN CONTOURS
- PROPOSED SEWER
- PROPOSED RISING MAIN

- 04/22 SEWER ID
- SEWER MANHOLE
- SEWER RODDING END
- SEWER BEND
- SEWER MAINTENANCE SHAFT
- SEWER END CAP
- SEWER PUMP STATION

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SERVICE PROVIDER AND CONSTRUCTOR LIVE SEWER WORKS SCHEDULE

No.	Description	Dia. Sewer	MH No.	MH/MS Type	Cover Type	Lot no	F.S.L	E.S.L	I.L	Depth to invert
1(A)	CIVIL CONTRACTOR TO MAKE APPLICATION TO GOLD COAST WATER & WASTE FOR THE LIVE CONNECTION TO DOWNSTREAM SEWER MANHOLE AT EACH LOCATION LINE 7	150	18/7	A	B	234	40.460	40.460	39.140	1.320
1(B)	0.5m FROM STUB END CAP, CONTRACTOR TO LAY NEW LINE7. AFTER CLEANSING, TESTING AND INSPECTING, NOTIFY GOLD COAST WATER & WASTE.									
1(C)	CIVIL CONTRACTOR TO REMOVE TEMPORARY END CAPS ON STUB & LINE7 AND MAKE LIVE CONNECTION AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.									
2(A)	CIVIL CONTRACTOR TO MAKE APPLICATION TO LOGAN WATER FOR THE LIVE CONNECTION TO DOWNSTREAM SEWER MANHOLE AT EACH LOCATION (LINE 11)	150	17/7	A	B	235	40.162	40.460	38.307	1.935
2(B)	0.5m FROM STUB END CAP, CONTRACTOR TO LAY NEW LINE11. AFTER CLEANSING, TESTING AND INSPECTING, NOTIFY GOLD COAST WATER & WASTE.									
2(C)	CIVIL CONTRACTOR TO REMOVE TEMPORARY END CAPS ON STUB & LINE 11 AND MAKE LIVE CONNECTION AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.									

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	NOTE ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

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DRAWING TITLE

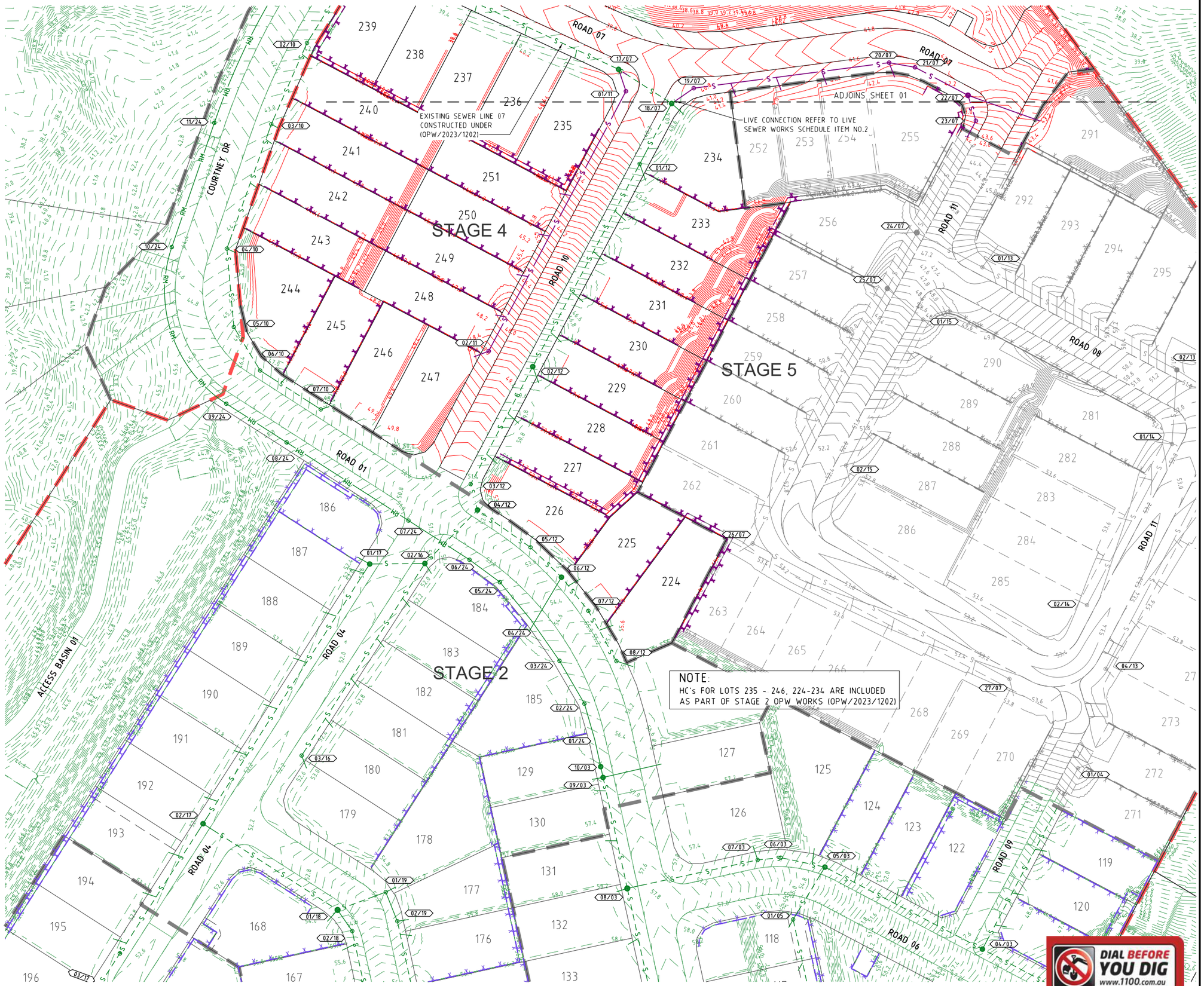
SEWER RETICULATION PLAN
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-500 REV B

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m

Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

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SEWER RETICULATION
PLAN
SHEET 02

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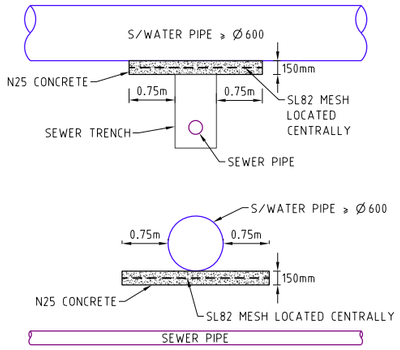
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Suite 9, 19 Short St
Southport QLD 4215

DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

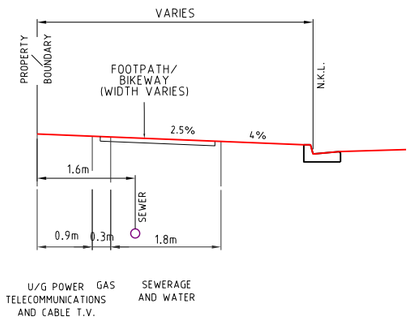
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REV: A

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BRIDGING DETAILS FOR STORMWATER PIPES > Ø600

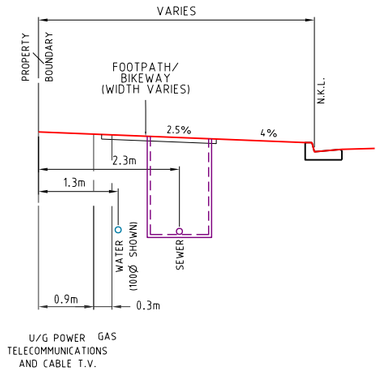
NOT TO SCALE



C.O.G.C. TYPICAL SERVICES SEWER RETICULATION ONLY

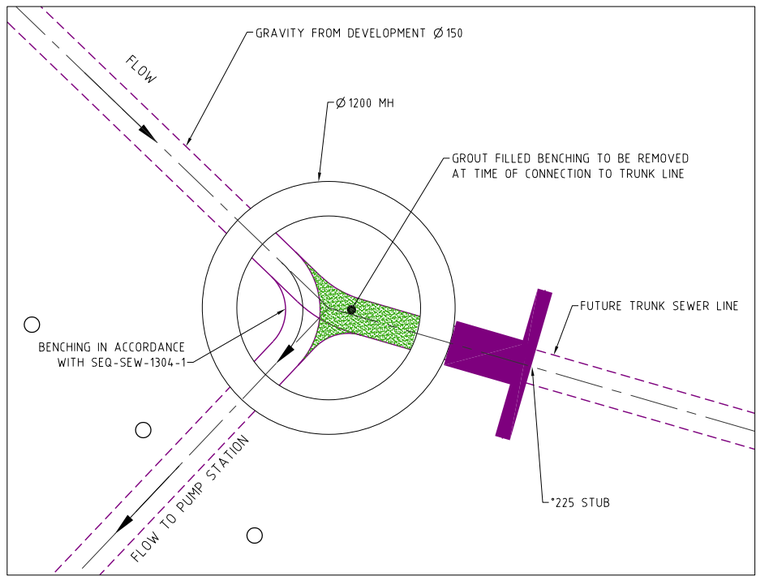
SCALE 1:50 - A1 (1:100 - A3)

1. PUBLIC UTILITIES ALLOCATIONS ARE MEASURED FROM THE REAL PROPERTY BOUNDARY.
2. LIGHT POLE, TREE ALLOCATIONS AND FOOTPATHS ARE MEASURED FROM THE NOMINAL KERB LINE.



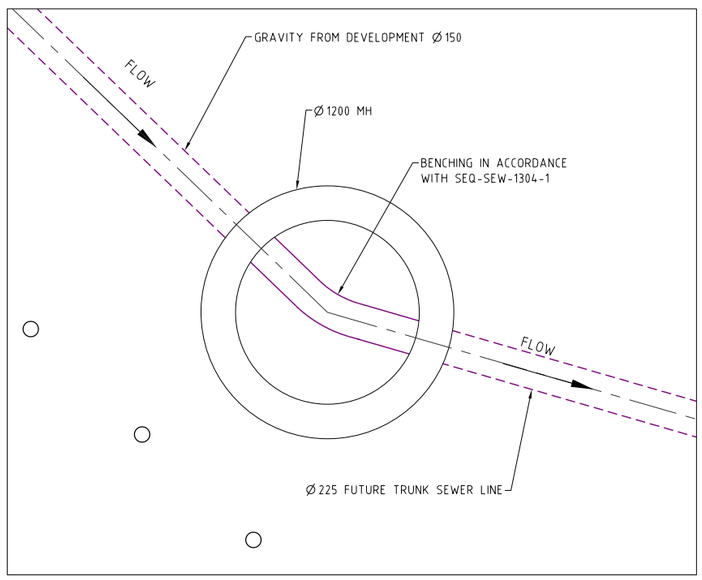
C.O.G.C. TYPICAL POTABLE WATER AND SEWER RETICULATION (SAME SIDE)

SCALE 1:50 - A1 (1:100 - A3)



MH12/7 DETAIL IF PUMP STATION IS OPPERATIONAL

SCALE 1:20 - A1 (1:40 - A3)



MH12/7 DETAIL IF PUMP STATION IS NOT OPPERATIONAL

SCALE 1:20 - A1 (1:40 - A3)

B

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

0 0.2 0.4 0.6 0.8 1.0m
Scale 1:20 - A1 (1:40 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	DETAILS ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

SEWER RETICULATION DETAILS SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER	REV
41901-04-510	B

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SEWER STRUCTURE LIDS

D	TRAFFICABLE LID
B	NON-TRAFFICABLE LID
M	'M' PREFIX DESIGNATES BOLT DOWN LID

RIGS STRUCTURE TYPES

P(x)	PRECAST CONCRETE SEWER MAINTENANCE STRUCTURE REFER TO SEQ STD DWG SEQ-SEW-1300-1
A	TYPE 'A' 1050mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
B	TYPE 'B' 1200mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
C	TYPE 'C' 1500mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
J1	TYPE 'J1' MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1314-2
BND	BEND REFER TO SEQ STD DWGS SEQ-SEW-1314-3
RE	RODDING END MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1314-1
END	PROPRIETORY END CAP
PS	SEWER PUMP STATION REFER TO RELEVANT SEQ STD DWGS
RCM	RECEIVING MAINTENANCE STRUCTURE REFER TO RELEVANT SEQ STD SEWER PUMP STATION DWGS
G6	TYPE 'G6' TERMINAL MAINTENANCE SHAFT REFER TO SEQ STD DWGS SEQ-SEW-1314-1

RIGS STRUCTURE DROPS

V	STRAIGHT THROUGH SEWER REFER TO SEQ STD DWG SEQ-SEW-1303-1
W	OBLIQUE BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1
X	INTERNAL BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1
Y	EXTERNAL BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1

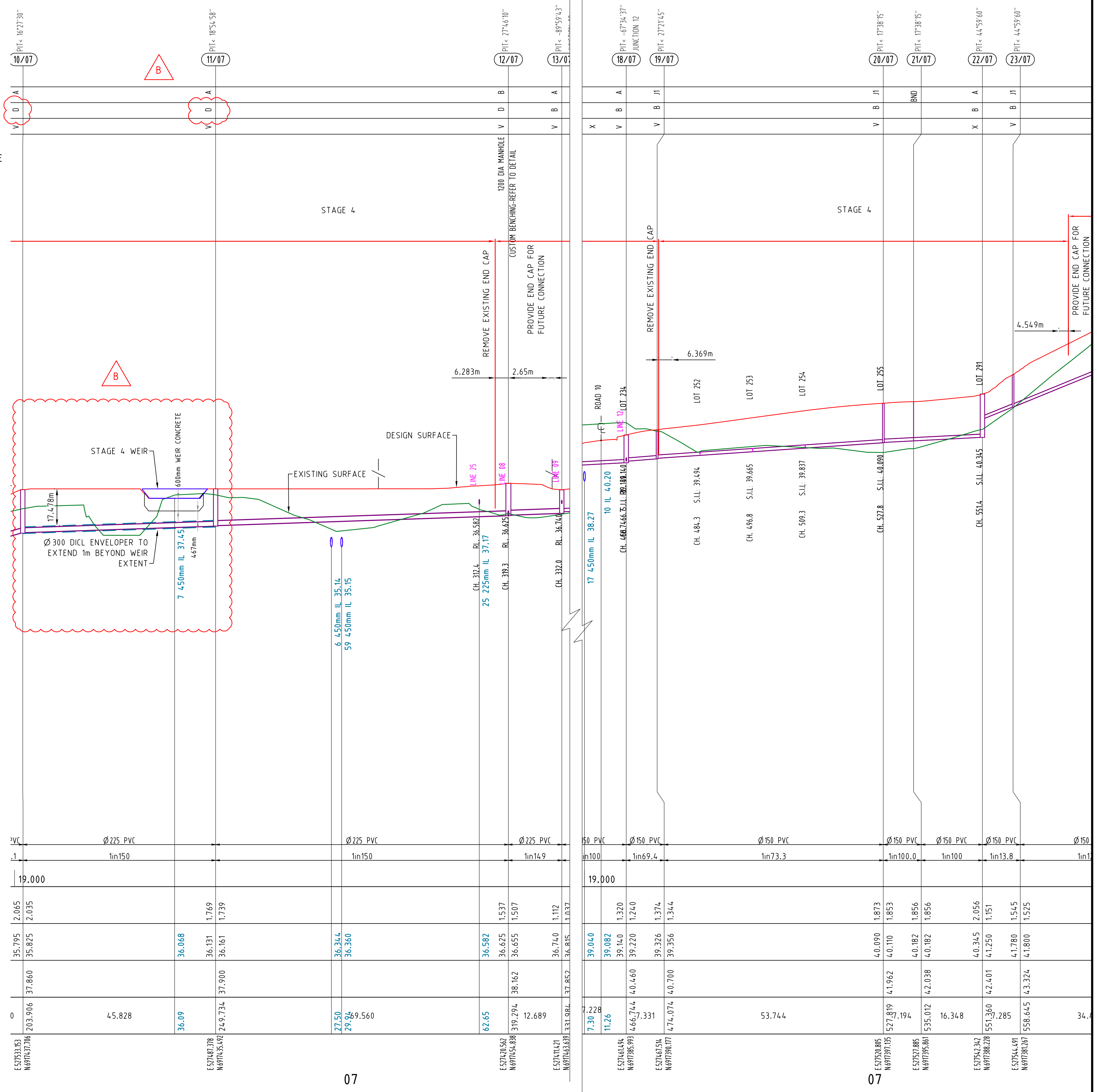
STRUCTURE TYPE
LID CLASS
DROP TYPE

* CONSTRUCT BRIDGING STRUCTURE SPANNING THE SEWER TRENCH REFER TYPICAL SECTIONS & DETAILS FOR BRIDGING STRUCTURE DETAILS TRENCHSTOPS, BULKHEADS & CONCRETE ENCASEMENTS TO BE INSTALLED IN ACCORDANCE WITH SEQ SEWER CODE

NOTES

1. IF SHOWN, WATER AND ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDENTS INSTRUCTION
2. ALL GRAVITY uPVC SEWER PIPE TO BE CLASS SN8 U.N.O.
3. ALL PRESSURE MAINS PE100 PN16 SDR11
4. ALL EMBEDMENT TYPE IS TO BE TYPE 3 U.N.O
5. ALL BENDS TO BE LONG RADIUS BEND, 1.2m RADIUS MIN.
6. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK
7. PROTECTIVE COATING IS TO BE INSTALLED TO MAINTENANCE STRUCTURES (WHERE REQUIRED) IN ACCORDANCE WITH CLAUSE 4.7.2 OF SEQ SEWERAGE CODE.
8. TRENCHSTOPS IN ACCORDANCE WITHSEQ-WAT-1209-1

PIPE DIAMETER (mm)
PIPE GRADE
DATUM R.L.
DEPTH TO INVERT
PIPE INVERT LEVELS
DESIGN SURFACE LEVELS
CHAINAGE
LINE NO.



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)
0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	PROFILE AMENDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

SEWER RETICULATION PROFILES SHEET 01

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DESIGNED RB	DRAWN BL
APPROVED	RPEQ 4706 / DATE 27-04-24
DRAWING NUMBER 41901-04-530	REV B

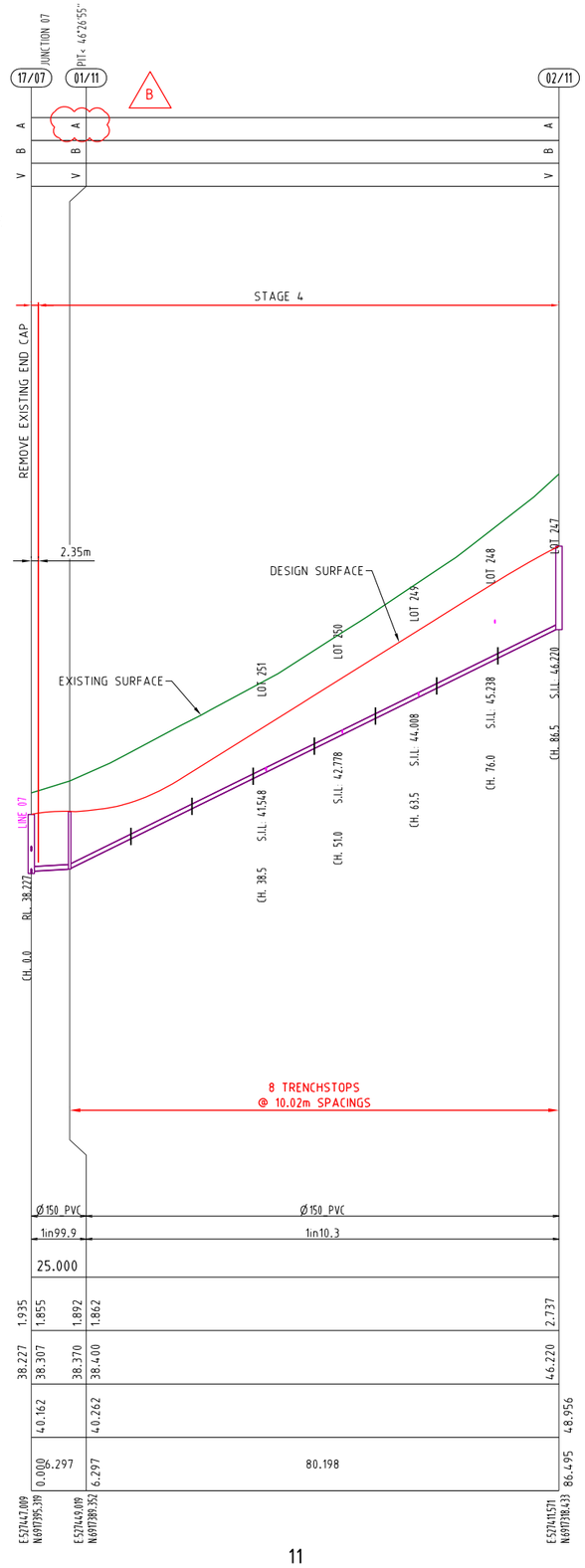
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STRUCTURE TYPE
LID CLASS
DROP TYPE

* CONSTRUCT BRIDGING STRUCTURE SPANNING THE SEWER TRENCH REFER TYPICAL SECTIONS & DETAILS FOR BRIDGING STRUCTURE DETAILS TRENCHSTOPS, BULKHEADS & CONCRETE ENCASEMENTS TO BE INSTALLED IN ACCORDANCE WITH SEQ SEWER CODE

NOTES

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3. ALL PRESSURE MAINS PE100 PN16 SDR11
4. ALL EMBEDMENT TYPE IS TO BE TYPE 3 U.N.O
5. ALL BENDS TO BE LONG RADIUS BEND, 1.2m RADIUS MIN.
6. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK
7. PROTECTIVE COATING IS TO BE INSTALLED TO MAINTENANCE STRUCTURES (WHERE REQUIRED) IN ACCORDANCE WITH CLAUSE 4.7.2 OF SEQ SEWERAGE CODE.
8. TRENCHSTOPS IN ACCORDANCE WITHSEQ-WAT-1209-1



PIPE DIAMETER (mm)

PIPE GRADE

DATUM R.L.

DEPTH TO INVERT
PIPE INVERT LEVELS
DESIGN SURFACE LEVELS
CHAINAGE

LINE NO. 11

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	STRUCTURE TYPE AMENDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
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DRAWING TITLE

SEWER RETICULATION
PROFILES
SHEET 02

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APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-531 REV B

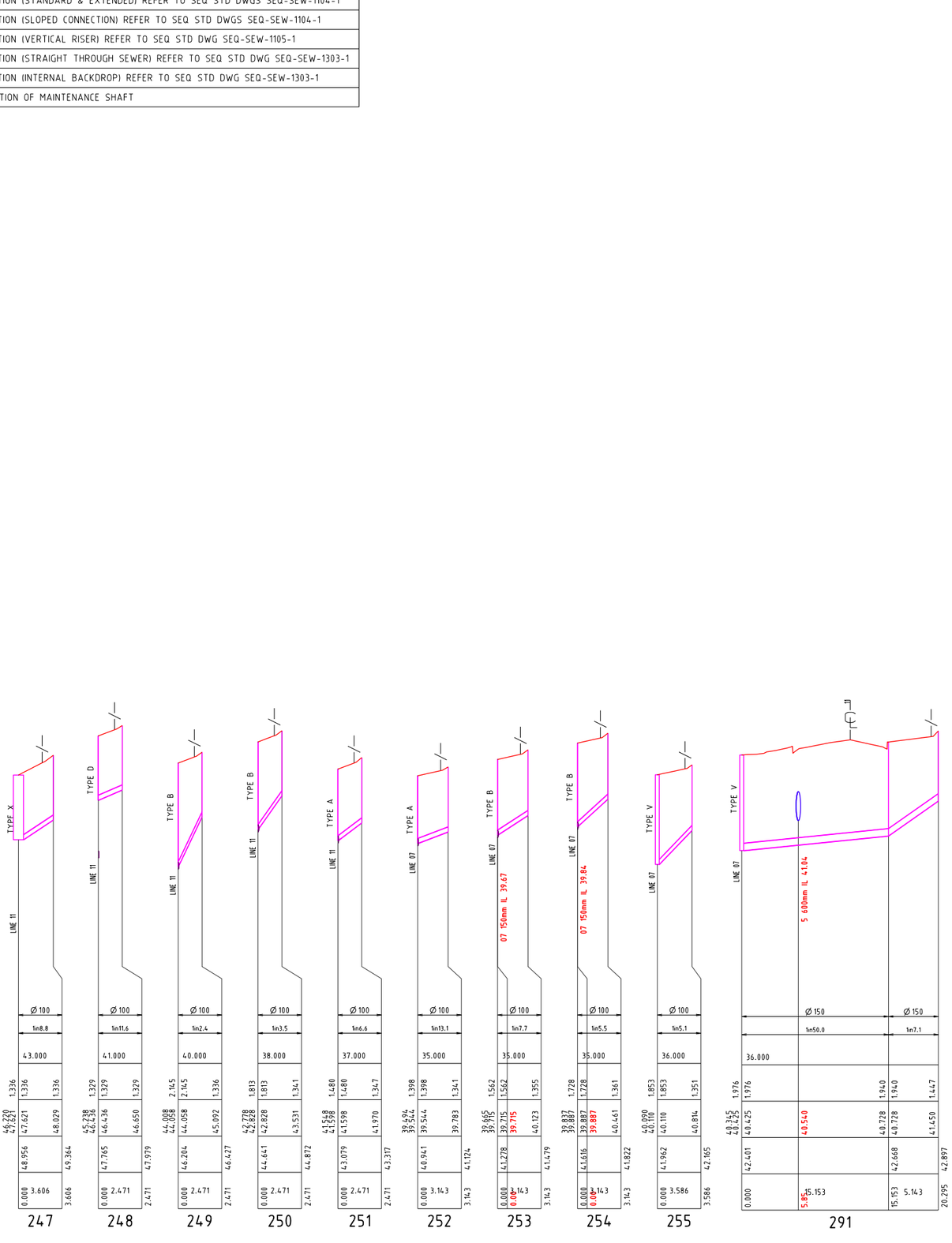
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RIGS STRUCTURE DROPS	
A	SEWER PROPERTY CONNECTION (STANDARD & EXTENDED) REFER TO SEQ STD DWGS SEQ-SEW-1104-1
B	SEWER PROPERTY CONNECTION (SLOPED CONNECTION) REFER TO SEQ STD DWGS SEQ-SEW-1104-1
D	SEWER PROPERTY CONNECTION (VERTICAL RISER) REFER TO SEQ STD DWG SEQ-SEW-1105-1
V	SEWER PROPERTY CONNECTION (STRAIGHT THROUGH SEWER) REFER TO SEQ STD DWG SEQ-SEW-1303-1
X	SEWER PROPERTY CONNECTION (INTERNAL BACKDROP) REFER TO SEQ STD DWG SEQ-SEW-1303-1
Z	RISER CONNECTION TO PORTION OF MAINTENANCE SHAFT

NOTES

1. WATER AND ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE PRECISE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE. SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDANTS INSTRUCTION.

2. ALL HOUSE CONNECTIONS TO BE 100Ø CLASS SN10 UNLESS NOTED OTHERWISE



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2.5 5 7.5 10 12.5m
Horiz. Scale 1:250 - A1 (1:500 - A3)

0 0.5 1.0 1.5 2.0 2.5m
Vert. Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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Robin Russell & ASSOCIATES PTY. LTD.
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DRAWING TITLE

SEWER RETICULATION
HOUSE CONNECTION
PROFILES
SHEET 01

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APPROVED	RPEQ 4706	DATE	27-04-24

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41901-04-550	A

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STORMWATER

1. ALL FIELD GULLIES SHALL CONTAIN A 150mm DIA STUB 600mm BELOW GRADE LEVEL FOR FUTURE ROOFWATER DRAINAGE.
2. MANHOLES TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING No DS-010, DS-015, DS-018, DS-019, DS-020, DS-021 OR STRUCTURAL DRAWINGS (STRUCTURAL DRAWINGS TAKE PRECEDENCE).
3. OUTLET HEADWALLS TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARD DRAWINGS.
4. ALL HEADWALLS WITH A FALL GREATER THAN 900mm HIGH REQUIRE INSTALLATION OF PEDESTRIAN SAFETY FENCES.
5. PIPE JOINT TYPES TO BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS.
6. ALL ALLOTMENTS TO BE GRADED SUCH THAT FUTURE ROOFWATER DRAINAGE DISCHARGES TO KERB OR TO PIPED DRAINAGE SYSTEM.
7. ALL PIPE 300mm DIA & GREATER SHALL BE CONSTRUCTED USING SRC OR FRC PIPES. CONTRACTOR MAY ELECT TO USE PVC PIPES WITHIN ALLOTMENTS FOR PIPES SMALLER THAN 300mm DIA.
8. FOR SETOUT DETAILS REFER TO 640 SERIES DRAWINGS (PROFILES & PIT DETAILS).
9. GULLY PITS TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING No DS-060, DS-061, DS-062, DS-063. WHERE PITS ARE CONSTRUCTED AS DRAINWAY PITS, TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWINGS No 05-068.
10. LOTS WHICH CAN DRAIN OVERLAND FLOW TO THE STREET SWALE / DRAINAGE WITHOUT FLOWING THROUGH ADJOINING PROPERTIES NEED TO PROVIDE FOR Q100 OVERLAND FLOW TO THE ROAD
11. LOT EARTHWORKS DURING BUILDING CONSTRUCTION MUST NOT CHANGE FLOW PATH DIRECTION UNLESS IT IS REPLACED WITH ANOTHER FLOW PATH DRAINING TO THE ROAD SWALE / DRAINAGE.
12. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR STORMWATER RATE.
13. PIPE CLASS - PIPE CLASSES/TRENCH BEDDING SHOWN ON THE DRAWINGS ARE SUBJECT TO THE CONTRACTORS PREFERRED INSTALLATION METHOD. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE APPROPRIATE PIPE CLASSES & BEDDING, & CONSIDERING CONSTRUCTION LOADING.
14. KERB ADAPTORS ARE TO BE INSTALLED TO AUTHORITIES REQUIREMENTS.
15. ALL RCBC SLABS ARE TO BE CAST INSITU.
16. ALL STORMWATER PITS ARE TO BE BENCHED TO ALLOW FREE DRAINING FLOW.
17. ALL PIPES TO BE LAID IN ACCORDANCE WITH LOCAL AUTHORITY STANDARDS.

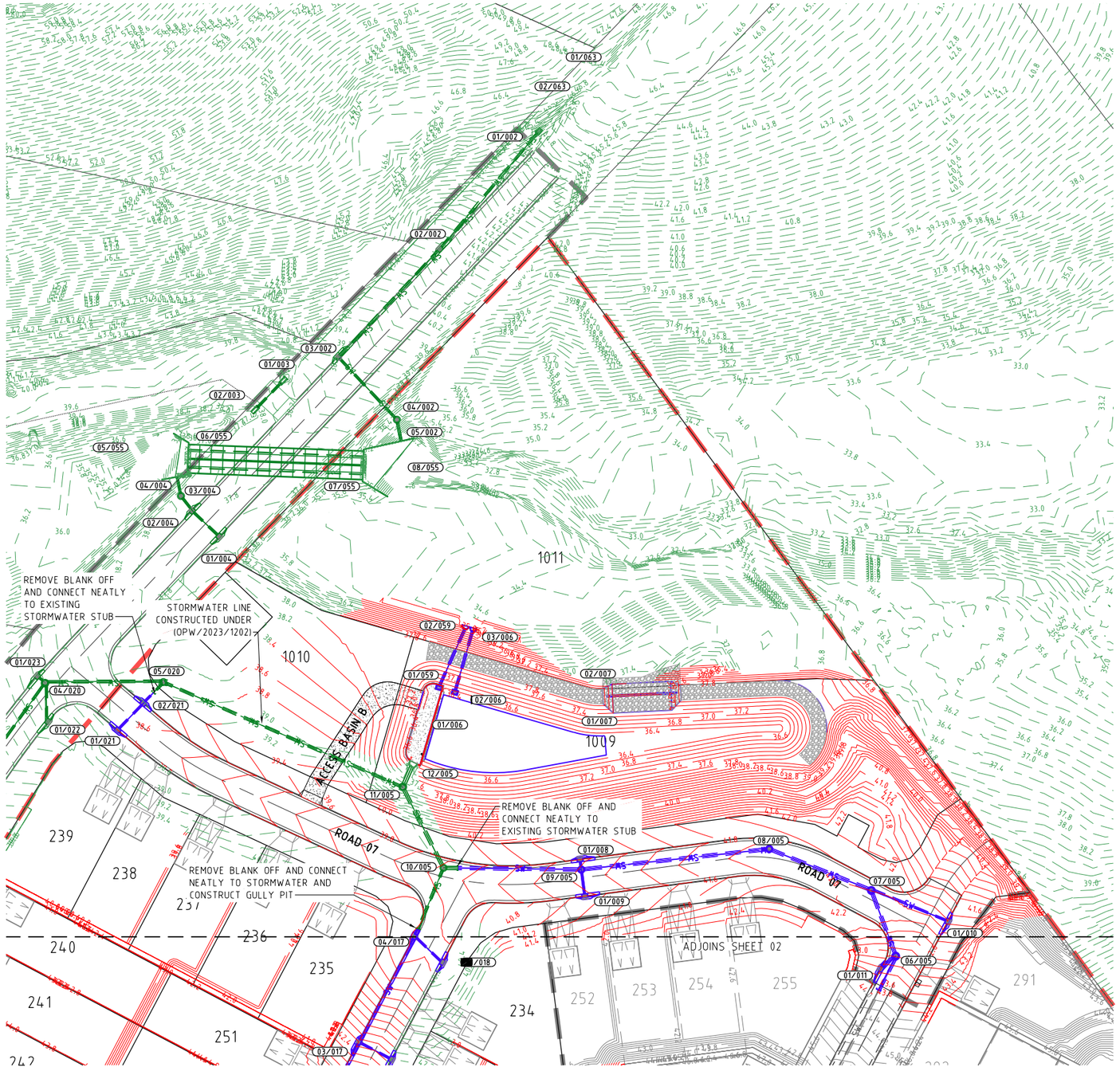
LEGEND

- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING PROPERTY LINE
- EXISTING RETAINING WALL
- EXISTING STORMWATER (SW)
- EXISTING ROOFWATER (RW)
- EXISTING SUBSOIL (SS)
- EXISTING CONTOURS (1.0)
- FUTURE KERB
- FUTURE PROPERTY LINE
- FUTURE RETAINING WALL
- FUTURE STORMWATER (SW)
- FUTURE ROOFWATER (RW)
- FUTURE SUBSOIL (SS)
- EXISTING CONTOURS (1.0)
- SITE BOUNDARY
- STAGE BOUNDARY
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED PROPERTY LINE
- PROPOSED RETAINING WALL
- DESIGN CONTOURS
- PROPOSED STORMWATER (SW)
- PROPOSED ROOFWATER (RW)
- PROPOSED SUBSOIL (SS)
- MANHOLE
- FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- STORMWATER ID (01/39)

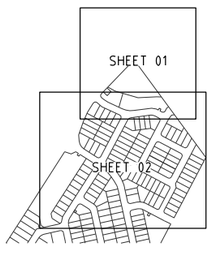
REFERENCE POINT LOCATION FOR DRAINAGE STRUCTURES

STRUCTURE TYPE	HORIZONTAL CONTROL (Reference Point Location)	VERTICAL CONTROL (Reference Level)
MANHOLE / GRATED PIT	CENTRE OF MANHOLE / PIT	FINISHED SURFACE LEVEL
GULLY PIT	LIP AT CENTRE OF PIT	FINISHED SURFACE LEVEL (LIP OF CHANNEL)
HEADWALL	INTERSECTION OF HEADWALL FACE & PIPE CENTRELINE	INVERT LEVEL

REFER TO DWG SERIES 640 FOR ALL DRAINAGE STRUCTURE SETOUT AND/OR CUSTOM DETAILS.



SHEET LAYOUT



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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m

Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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DRAWING TITLE

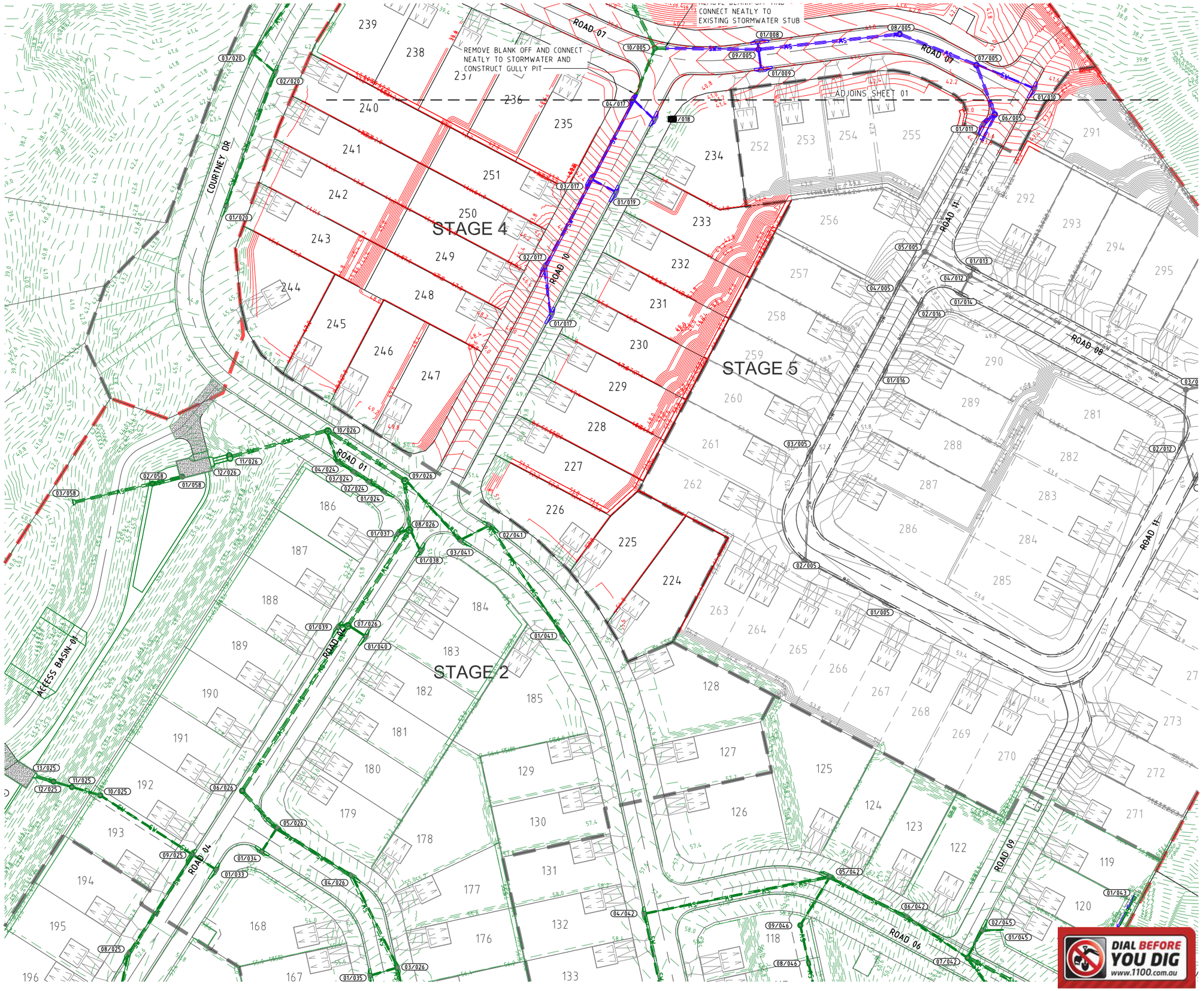
STORMWATER DRAINAGE PLAN SHEET 01

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APPROVED	RPEQ 4706	DATE	27-04-24

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
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DRAWING TITLE

STORMWATER
DRAINAGE
PLAN
SHEET 02

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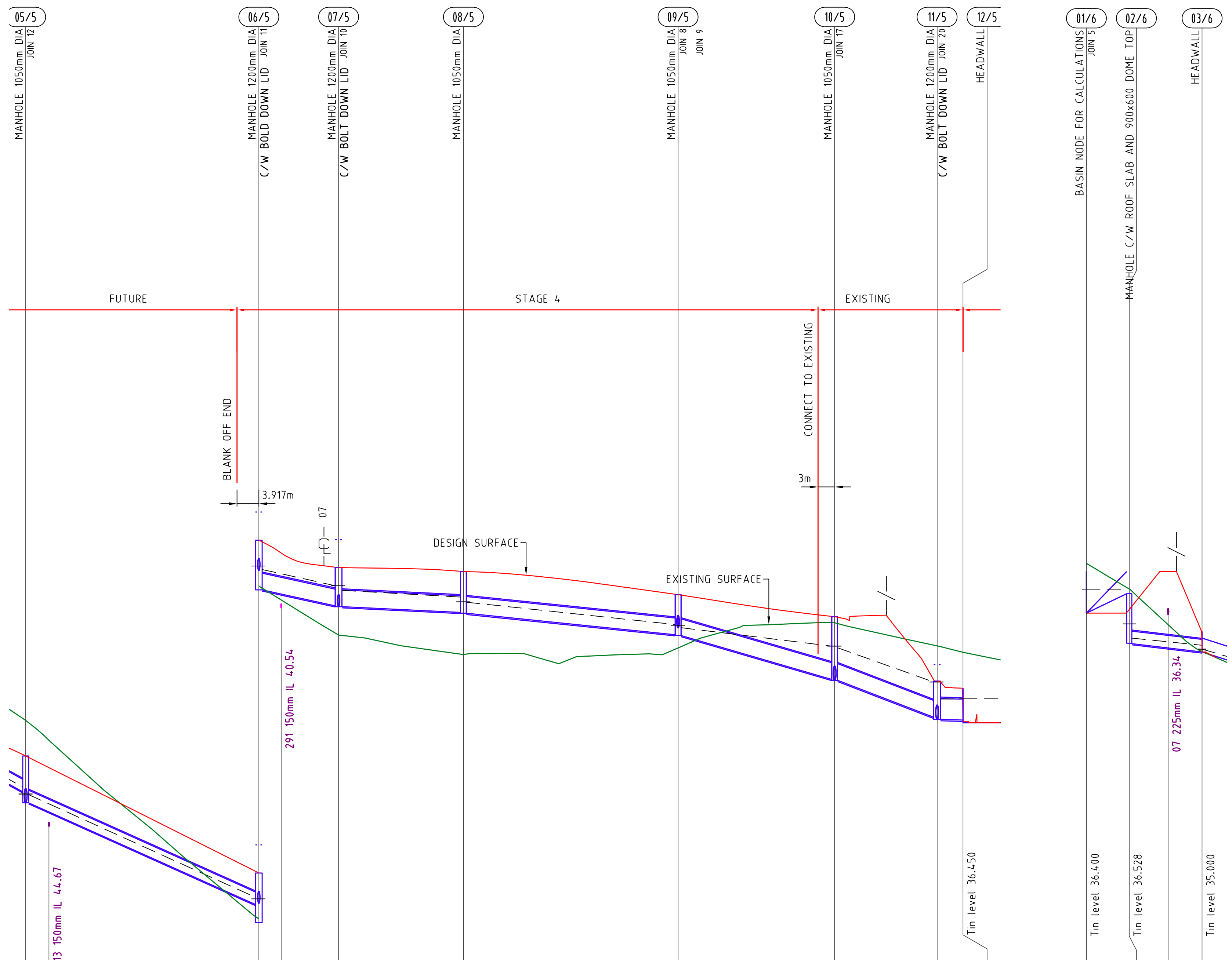
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APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER: 41901-04-601
REV: A

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STRUCTURE NAME

STRUCTURE DESCRIPTION



NOTES
1. WHERE STRUCTURE DEPTHS ARE 0m TO 3m REFER TO IPWEA STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS ARE 3m TO 5m REFER TO TMR STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS EXCEED 5m STRUCTURES ARE NON-STANDARD AND STRUCTURAL DESIGN IS REQUIRED.
2. STRUCTURAL DESIGN IS NOT PROVIDED AS PART OF THE TENDER DOCUMENTS, THE CONTRACTOR SHALL INCLUDE IN THEIR PRICE THE STRUCTURAL DESIGN AND CERTIFICATION OF THESE STRUCTURES.

Structure / Pipe	PIPE GRADE (%)	PIPE DIAMETER (mm)	VELOCITY (m/s)	PIPE FLOW (m3/s)	PIPE CLASS	DEPTH TO INVERT	HYDRAULIC GRADE LINE	PIPE INVERT LEVELS	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CHAINAGE	Coordinates
DRAINAGE LINE 5 (DATUM R.L. 22.000)												
05/5						1.294 / 1.688	45.830 / 45.810	45.911 / 45.516	47.204	48.484	116.598	E: 527530.144 N: 6917345.102
13								45.186			4.20	
05/5 – 06/5	8.736	450	6.530	0.697	3						42.003	
06/5						1.135 / 1.788	42.107 / 42.051 / 41.927	41.847 / 41.194	42.982	41.329	158.601	E: 527549.265 N: 6917382.500
291								41.045			4.02	
06/5 – 07/5	4.000	600	2.790	0.727	3						14.376	
07/5						1.377 / 1.407	41.341 / 41.175	40.619 / 40.589	41.996	39.564	172.977	E: 527544.200 N: 6917395.954
07/5 – 08/5	0.930	600	2.850	0.787	3						22.49	
08/5						1.473 / 1.503	40.933 / 40.759 / 40.748	40.380 / 40.350	41.853	38.860	195.467	E: 527523.344 N: 6917404.368
08/5 – 09/5	2.000	600	4.060	0.779	3						38.671	
09/5						1.444 / 1.474	39.943 / 39.899 / 39.829	39.576 / 39.546	41.020	39.097	234.138	E: 527484.901 N: 6917400.169
09/5 – 10/5	5.614	600	4.960	0.853	3						28.207	
10/5						2.264 / 2.294	39.165 / 39.105	37.963 / 37.933	40.227	40.008	262.345	E: 527456.696 N: 6917400.518
10/5 – 11/5	7.225	600	4.530	1.181	3						18.455	
11/5						1.301 / 1.376	37.871 / 37.254	36.599 / 36.524	37.900	39.174	280.800	E: 527448.381 N: 6917416.994
11/5 – 12/5	0.522	750	3.400	1.493	3						4.674	
12/5					REF	-0.050 / 0.050	37.263	36.500 / 36.400	37.645	38.941	285.474	E: 527450.578 N: 6917421.119
DRAINAGE LINE 6 (DATUM R.L. 18.000)												
01/6						0.000	37.263	36.400	37.900	38.194	0.000	E: 527458.674 N: 6917428.705
01/6 – 02/6	-19.439	1		0.329	REFERENCE						7.717	
02/6						-1.372 / 1.228	37.263 / 36.011 / 35.498	37.900 / 35.300	37.100	37.268	7.717	E: 527459.023 N: 6917436.414
07								35.145			7.00	
02/6 – 03/6	2.288	450	2.520	0.329	3						13.114	
03/6						0.000 / 0.000	35.241 / 35.099	35.000 / 35.000	35.740	35.017	20.830	E: 527462.660 N: 6917449.013

DRAINAGE LINE 5   6

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)
0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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STORMWATER PROFILES SHEET 01

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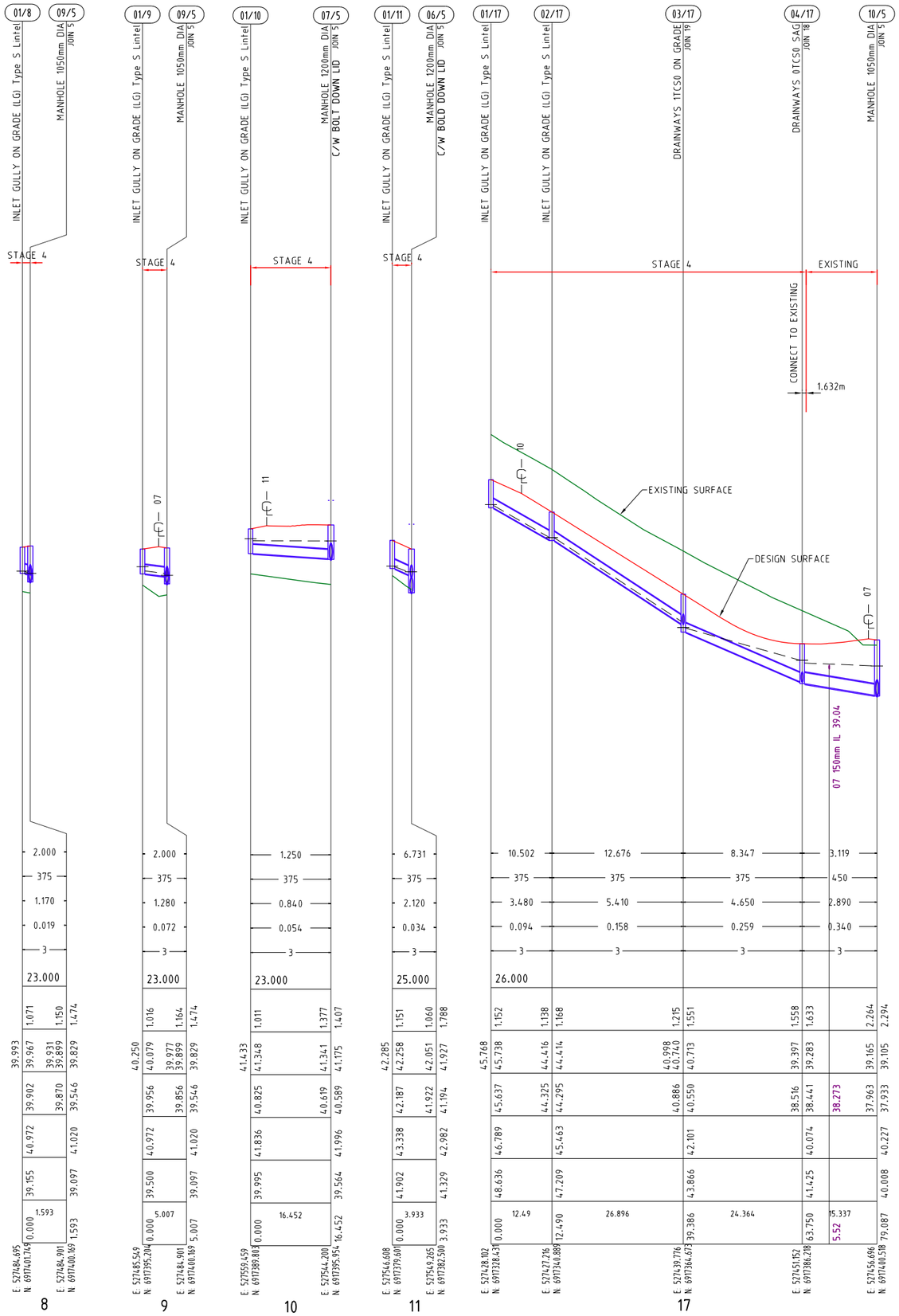
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STRUCTURE NAME

STRUCTURE DESCRIPTION



NOTES

1. WHERE STRUCTURE DEPTHS ARE 0m TO 3m REFER TO IPWEA STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS ARE 3m TO 5m REFER TO TMR STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS EXCEED 5m STRUCTURES ARE NON-STANDARD AND STRUCTURAL DESIGN IS REQUIRED.
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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
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DRAWING TITLE

STORMWATER PROFILES SHEET 02

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

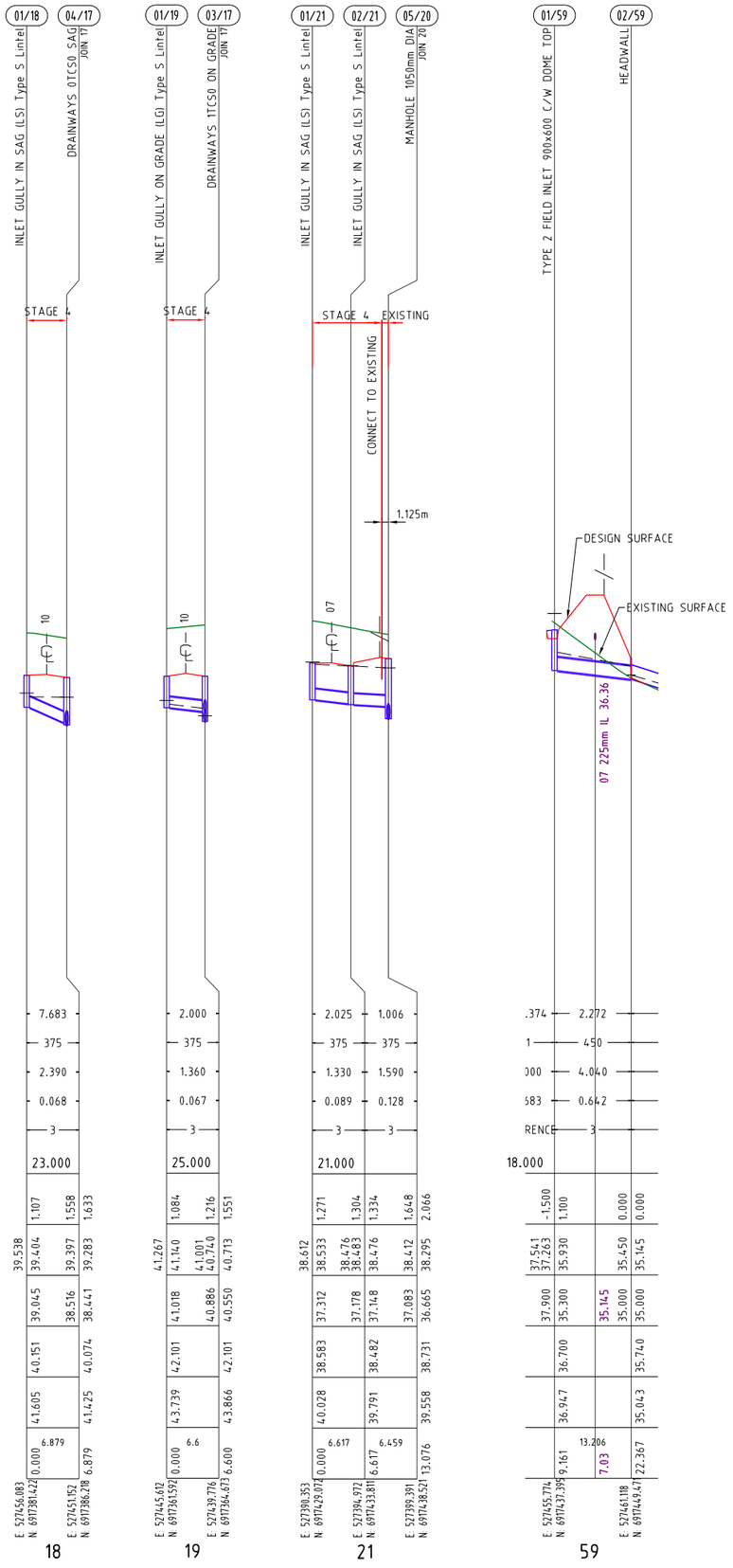
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STRUCTURE NAME

STRUCTURE DESCRIPTION



NOTES

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

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STORMWATER PROFILES SHEET 03

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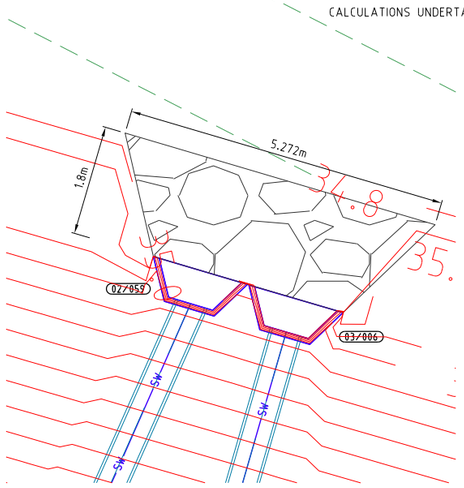
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APPROVED		RPEQ	4706
		DATE	27-04-24

DRAWING NUMBER 41901-04-622
REV A

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SCOUR PROTECTION DESIGN	
HW 02/059 & 03/006	SIZE 2x450mm
VELOCITY = 3.04m/s	
LENGTH = 5.272m	d50 300mm
SCOUR PROTECTION TYPE = RENO MATTRESS 170mm THICK	

CALCULATIONS UNDERTAKEN USING PROPRIETARY PRODUCT DATA

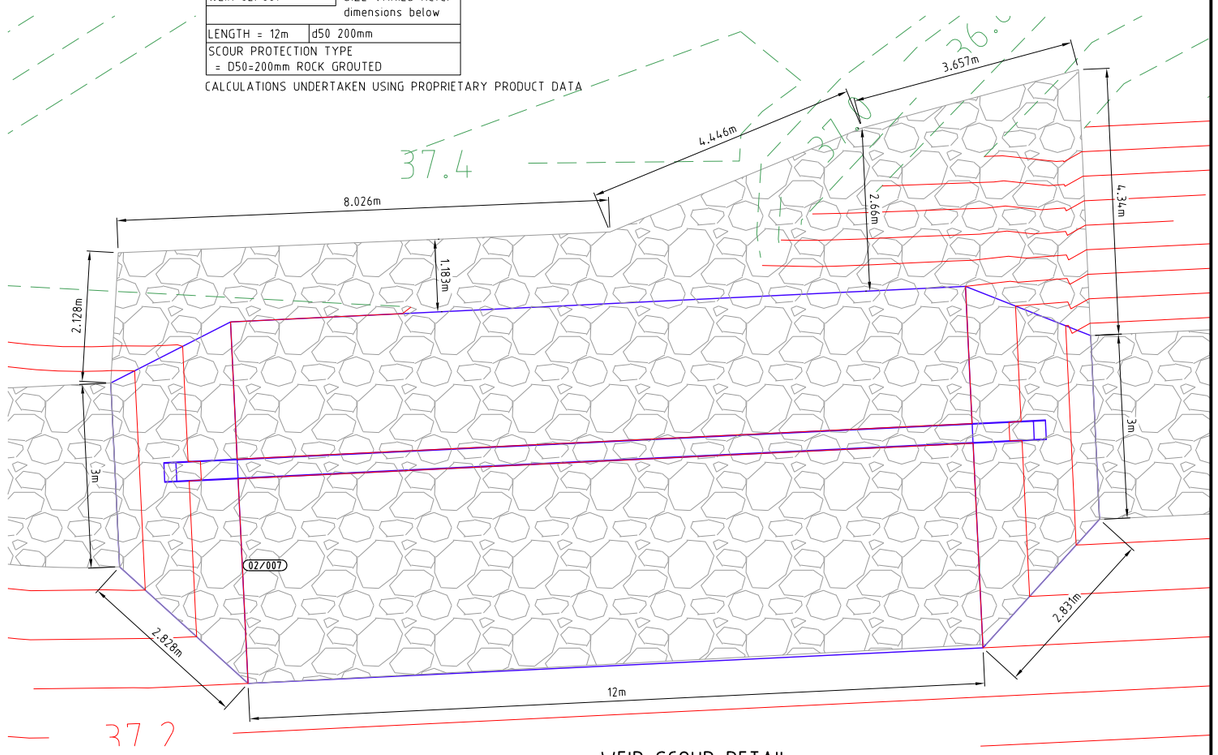


HEADWALL SCOUR DETAIL

SCALE 1 : 50 - A1 (1:100 - A3)

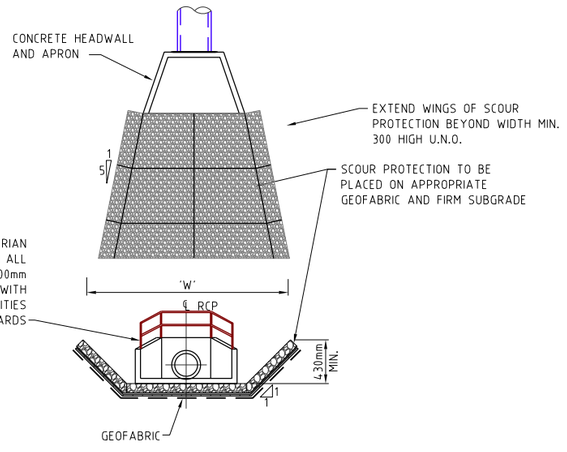
SCOUR PROTECTION DESIGN	
WEIR 02/007	SIZE VARIES-Refer dimensions below
LENGTH = 12m	d50 200mm
SCOUR PROTECTION TYPE = D50=200mm ROCK GROUTED	

CALCULATIONS UNDERTAKEN USING PROPRIETARY PRODUCT DATA



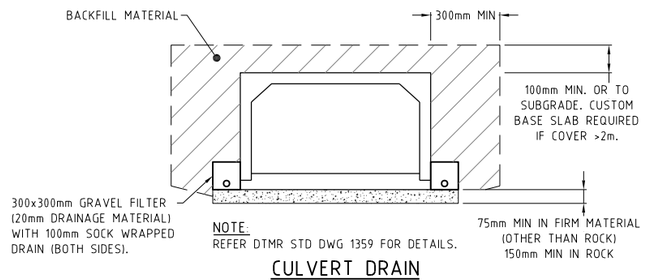
WEIR SCOUR DETAIL

SCALE 1 : 50 - A1 (1:100 - A3)



TYPICAL OUTLET AND SCOUR PROTECTION DETAIL

SCALE 1 : 100 - A1 (1:200 - A3)



CULVERT DRAIN

SCALE NTS

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 1 2 3 4 5m
Scale 1:100 - A1 (1:200 - A3)

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

STORMWATER
OUTLETS AND
TYPICAL DETAILS
SHEET 01

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Civil Engineering
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DESIGNED RB	DRAWN BL	
APPROVED	RPEQ 4706	DATE 27-04-24

DRAWING NUMBER	REV
41901-04-640	A

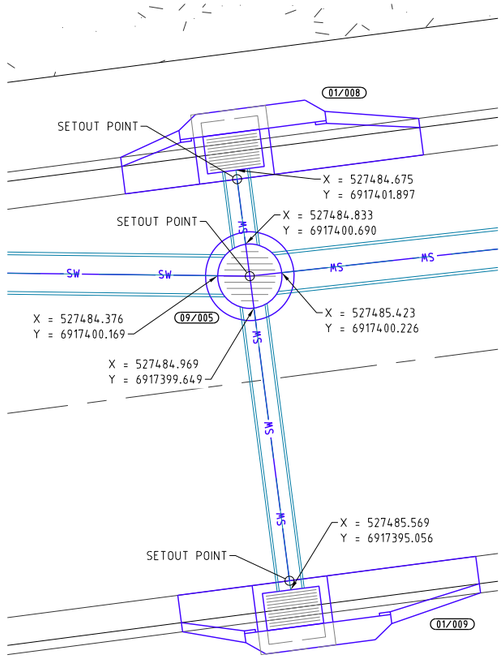
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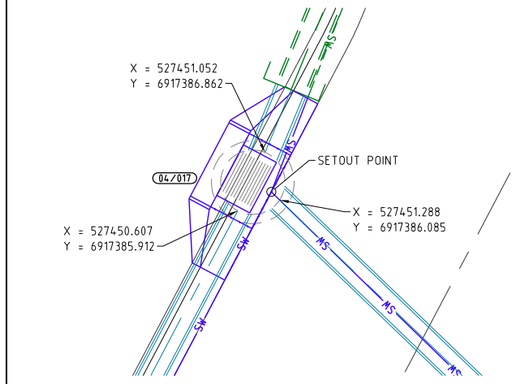
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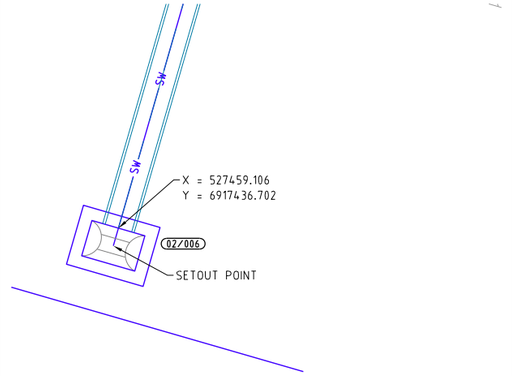
- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING FOOTPATH
- EXISTING PROPERTY LINE
- SW — SW — EXISTING STORMWATER
- RW — RW — EXISTING ROOFWATER
- EXISTING STORMWATER PIPES
- EXISTING ROOFWATER PIPES
- FUTURE KERB (INVERT)
- FUTURE KERB (LIP & BACK)
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- SW — FUTURE STORMWATER
- RW — FUTURE ROOFWATER
- FUTURE STORMWATER PIPES
- FUTURE ROOFWATER PIPES
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SW — PROPOSED STORMWATER
- RW — PROPOSED ROOFWATER
- PROPOSED STORMWATER PIPES
- PROPOSED ROOFWATER PIPES
- MANHOLE
- FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 10/001 DRAINAGE PIT & LINE NO.
- CONCRETE

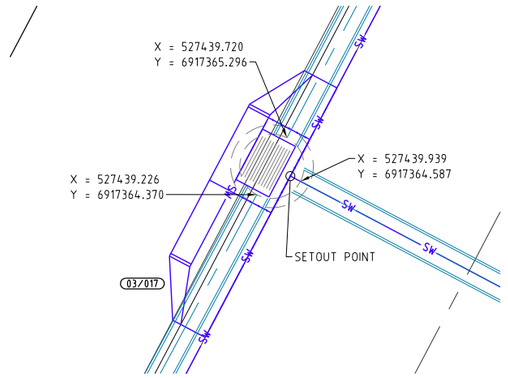
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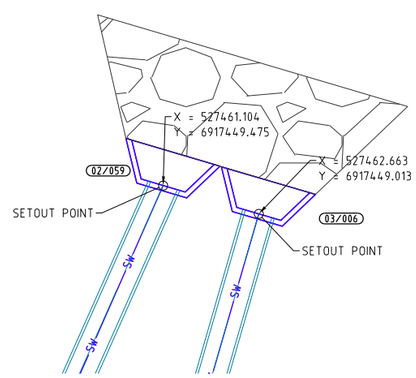
THE STORMWATER PIT IMAGE ARE DIAGRAMATIC ONLY & THE CONTRACTOR MUST ENSURE THEY MATCH NEATLY INTO THE WORKS

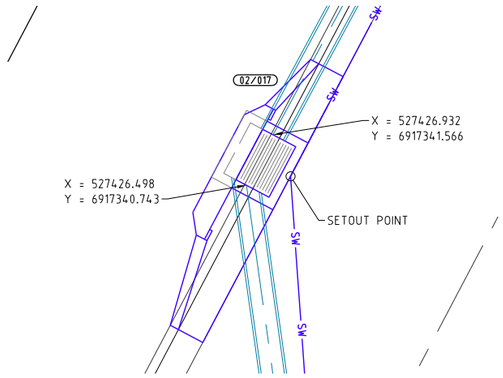


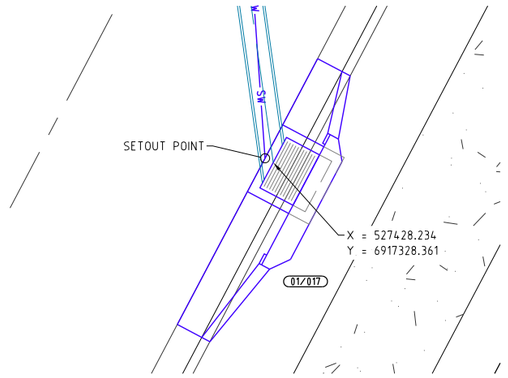


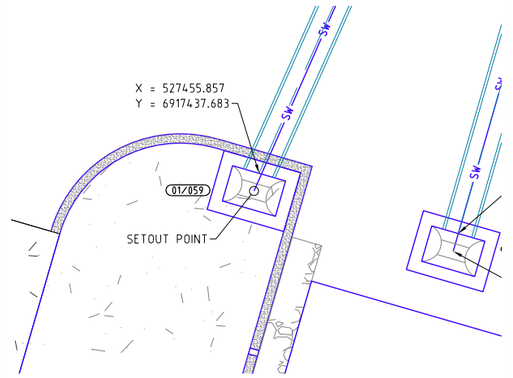


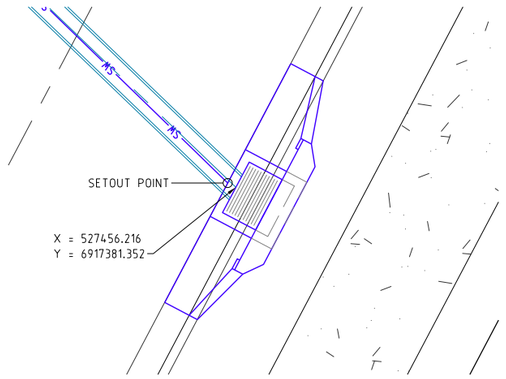


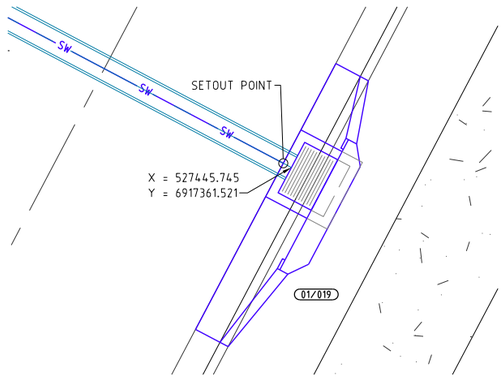


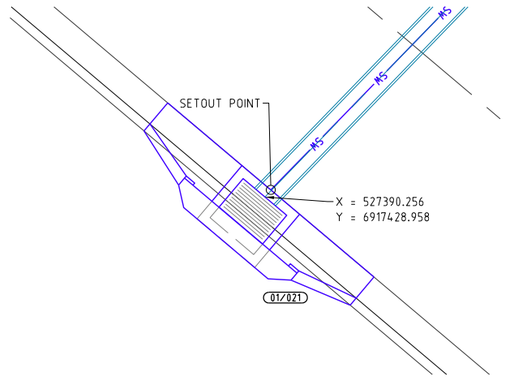


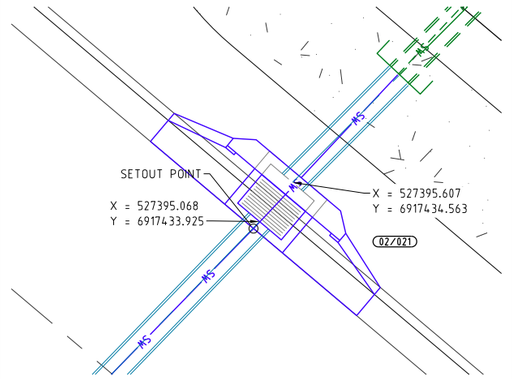












PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 0.5 1.0 1.5 2.0 2.5m

Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

STORMWATER
PIT DETAILS
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

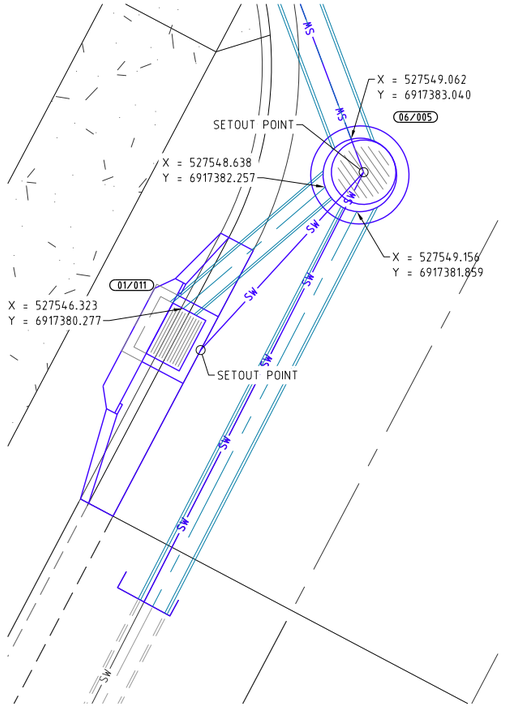
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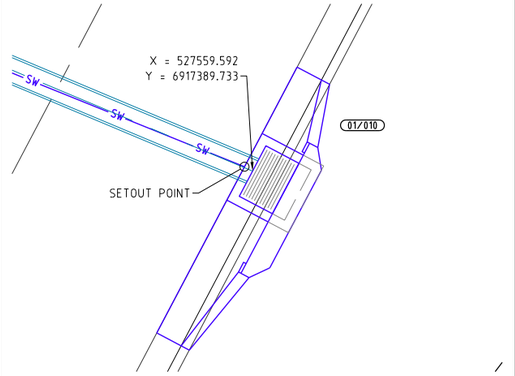
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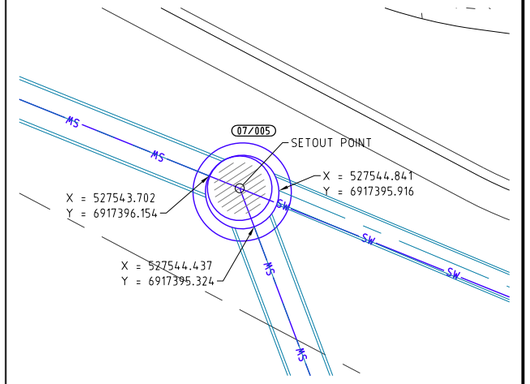
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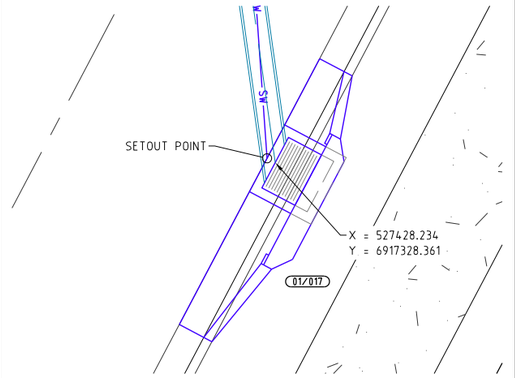
- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING FOOTPATH
- EXISTING PROPERTY LINE
- EXISTING STORMWATER
- EXISTING ROOFWATER
- EXISTING STORMWATER PIPES
- EXISTING ROOFWATER PIPES
- FUTURE KERB (INVERT)
- FUTURE KERB (LIP & BACK)
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- FUTURE STORMWATER
- FUTURE ROOFWATER
- FUTURE STORMWATER PIPES
- FUTURE ROOFWATER PIPES
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- PROPOSED STORMWATER
- PROPOSED ROOFWATER
- PROPOSED STORMWATER PIPES
- PROPOSED ROOFWATER PIPES
- MANHOLE
- FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 10/001 DRAINAGE PIT & LINE NO.
- CONCRETE

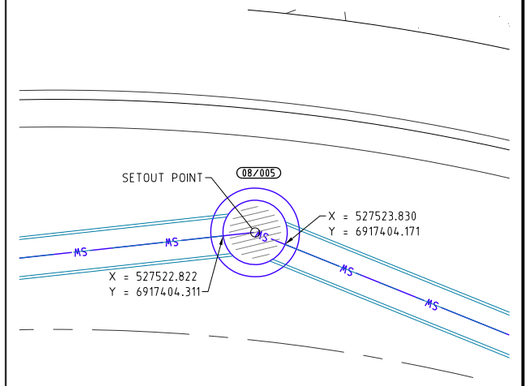
NOTE
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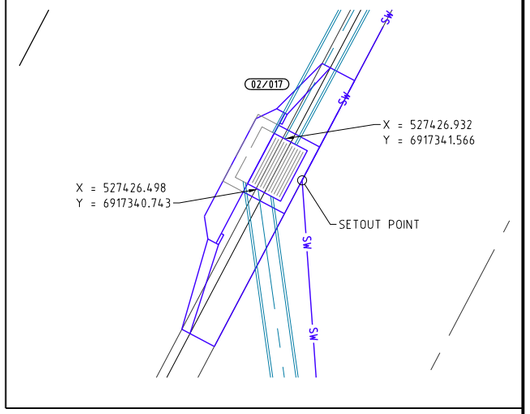












PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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Robin Russell & ASSOCIATES PTY. LTD.
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DRAWING TITLE

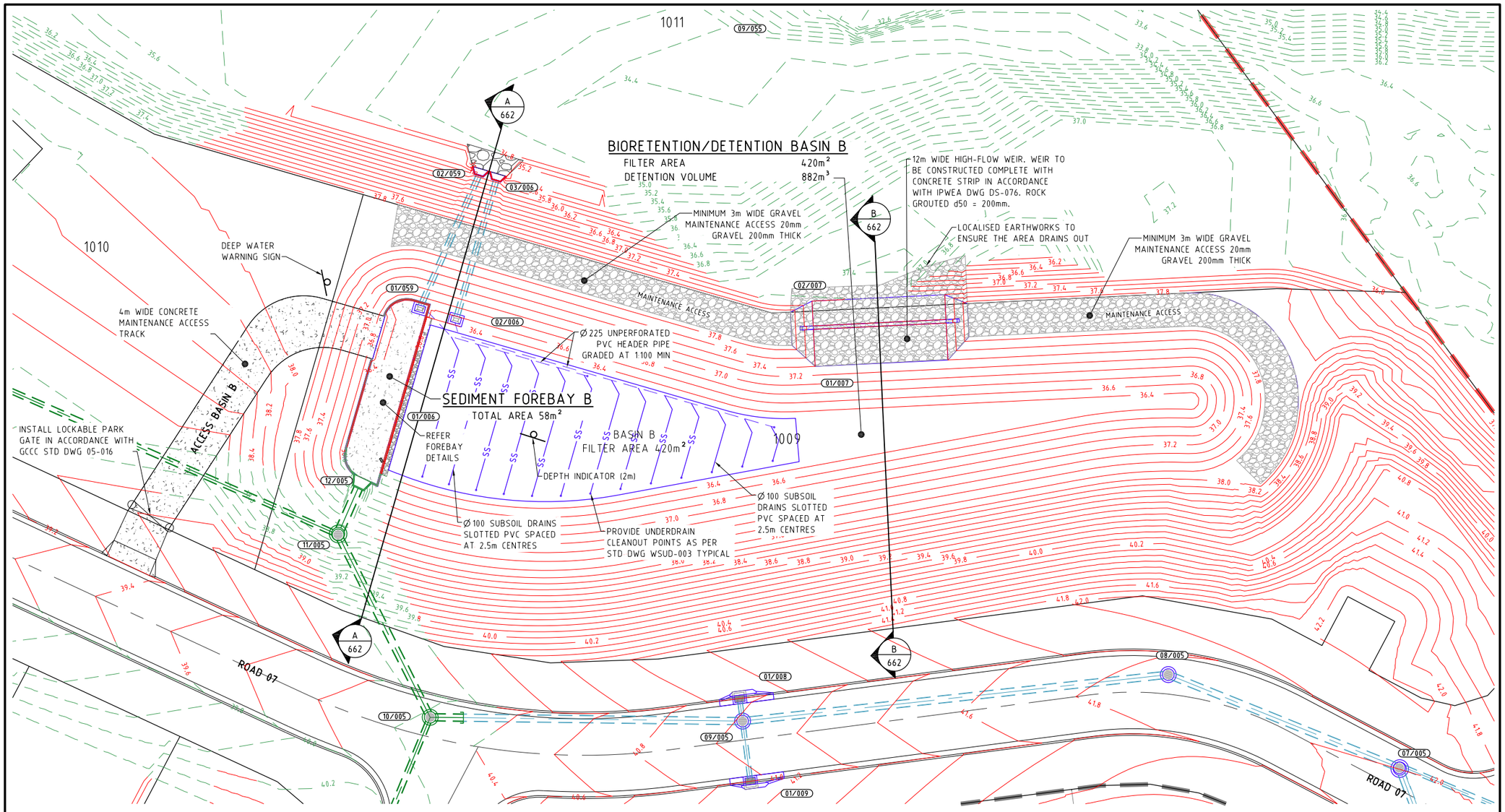
STORMWATER
PIT DETAILS
SHEET 02

MORTONS urbansolutions
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APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER: 41901-04-651
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BASIN PLAN
SCALE 1:200 - A1 (1:400 - A3)

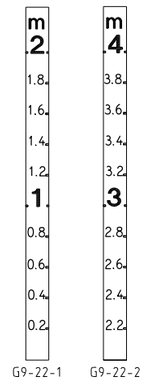
BASIN CONSTRUCTION

1. PRIOR TO COMMENCING CONSTRUCTION OF THE DETENTION BASIN THE DIVERSION OF SURFACE WATER FROM THE PROPOSED WORKS AREA, USING MEASURES SUCH AS OPEN DRAINS/SUMPS, ARE REQUIRED TO AID IN SITE DEWATERING.
2. FOR THE ENTIRE EMBANKMENT AREA STRIPPING OF VEGETATION & ANY HIGHLY ORGANIC TOP SOILS & ANY SOFT CLAYS TO DEPTHS OF APPROXIMATELY 0.3m IS REQUIRED.
3. THE STRIPPED SURFACE IS TO BE INSPECTED & TESTED BY A GEOTECHNICAL ENGINEER.
4. SUBJECT TO GEOTECHNICAL ENGINEER'S INSPECTION EXCAVATION OF A CUTOFF KEY ALONG THE EMBANKMENT CENTERLINE AT LEAST 0.5m - 1.0m INTO THE FOUNDATION MATERIALS SHALL BE REQUIRED.
5. THE CLAY FILLING FOR THE BASIN WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 200mm THICKNESS & COMPACTED TO A DENSITY RATIO WITHIN THE RANGE 98% - 102% STANDARD COMPACTION (AS 1289.5.1.1). PLACEMENT MOISTURE CONTENTS SHOULD BE WITHIN THE RANGE OMC -1% TO OMC +2% (WHERE OMC = OPTIMUM MOISTURE CONTENT FOR STANDARD COMPACTION).
6. IF THE CIVIL CONTRACTOR IS CONSTRUCTING THE BIO BASIN FILTER MEDIA AFTER THE CONSTRUCTION OF THE BASIN INLET & OUTLET STRUCTURES, THE CIVIL CONTRACTOR IS TO CONFIRM THE LEVELS OF THE INLET & OUTLET STRUCTURES PRIOR TO COMMENCING BASIN CONSTRUCTION.

WALL DETAILS CONTAINED WITH THIS SET ARE INDICATIVE ONLY.
ALL RETAINING WALLS AND FOOTINGS ARE SUBJECT TO DETAILED DESIGN AND CERTIFICATION BY AN APPROPRIATELY QUALIFIED R.P.E.Q CERTIFIED ENGINEER.

LEGEND

- EXISTING PROPERTY LINE
- 1.0 EXISTING CONTOURS
- SW EXISTING STORMWATER
- FUTURE PROPERTY LINE
- SW FUTURE STORMWATER
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPERTY LINE
- PROPOSED KERB
- 1.0 DESIGN CONTOURS
- SW PROPOSED STORMWATER
- MANHOLE
- FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 10/001 STORMWATER PIT & LINE NO.



FLOOD DEPTH INDICATORS
NOT TO SCALE



WARNING SIGN
NOT TO SCALE

BIO FILTRATION BASIN NOTES

- BIO FILTRATION BASIN TO BE EXCAVTED TO LEVEL BELOW FILTRATION MEDIA
- UNSUITABLE MATERIAL TO BE REMOVED OFF SITE AND BASIN TRIMMED TO FINAL PROFILE PRIOR TO PLACEMENT OF FILTER MEDIA AT 80% COMPLETION OF HOUSING

DIAL BEFORE YOU DIG www.1100.com.au

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)
0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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Robin Russell & ASSOCIATES PTY. LTD.
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DRAWING TITLE

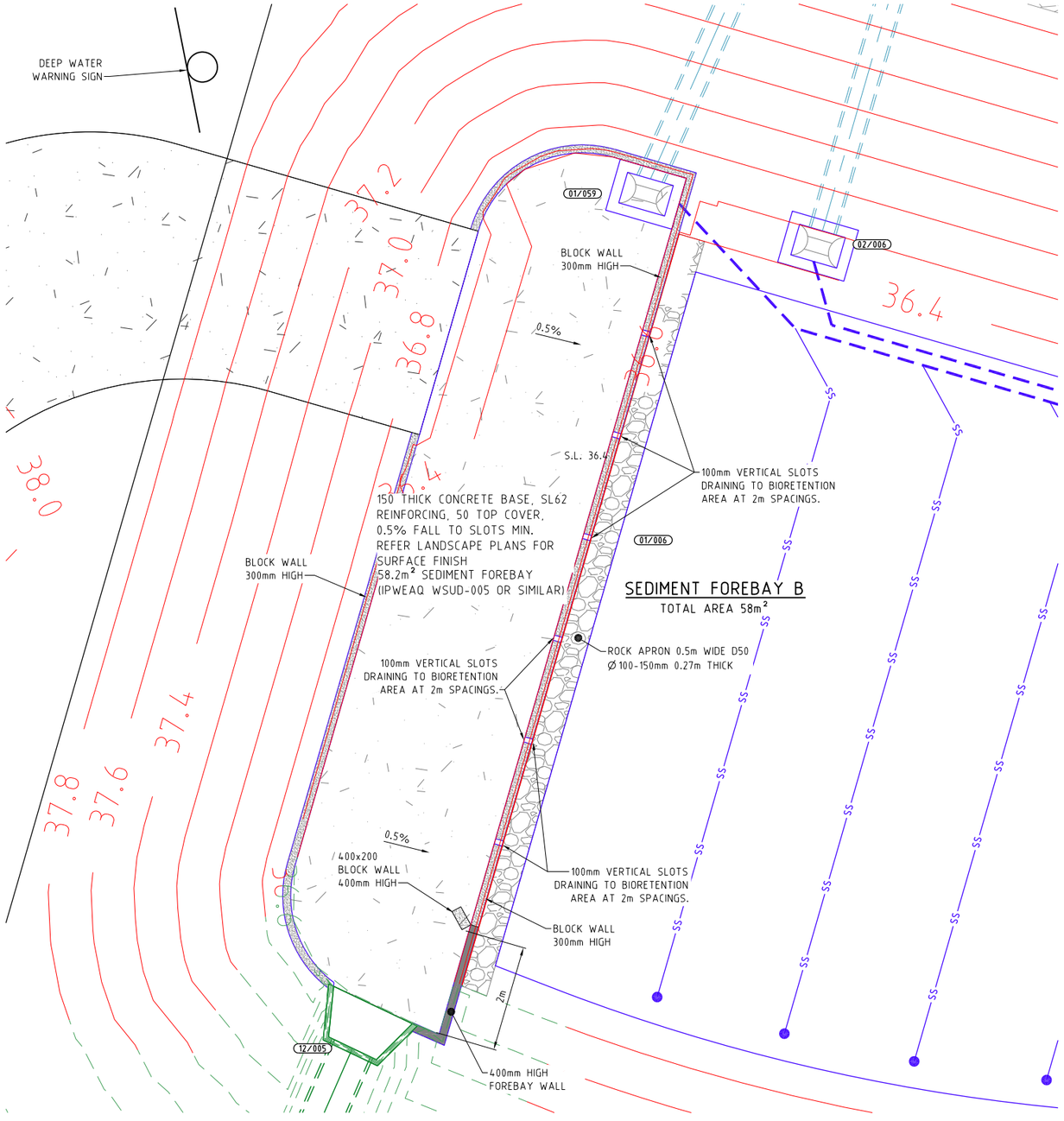
STORMWATER BASIN PLAN AND DETAILS SHEET 01

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APPROVED	RPEQ 4706	DATE	27-04-24

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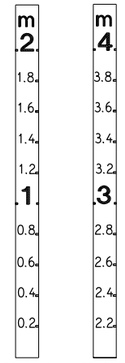
FOREBAY B DETAIL

SCALE 1:50 - A1 (1:100 - A3)

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LEGEND

- EXISTING PROPERTY LINE
- EXISTING CONTOURS
- EXISTING STORMWATER
- FUTURE PROPERTY LINE
- FUTURE STORMWATER
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPERTY LINE
- PROPOSED KERB
- DESIGN CONTOURS
- PROPOSED STORMWATER
- MANHOLE
- FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 10/001 STORMWATER PIT & LINE NO.



FLOOD DEPTH INDICATORS

NOT TO SCALE



WARNING SIGN

NOT TO SCALE

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 0.5 1.0 1.5 2.0 2.5m

Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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BIOME WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

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DRAWING TITLE

STORMWATER
BASIN
FOREBAY DETAILS
SHEET 01

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

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Southport QLD 4215

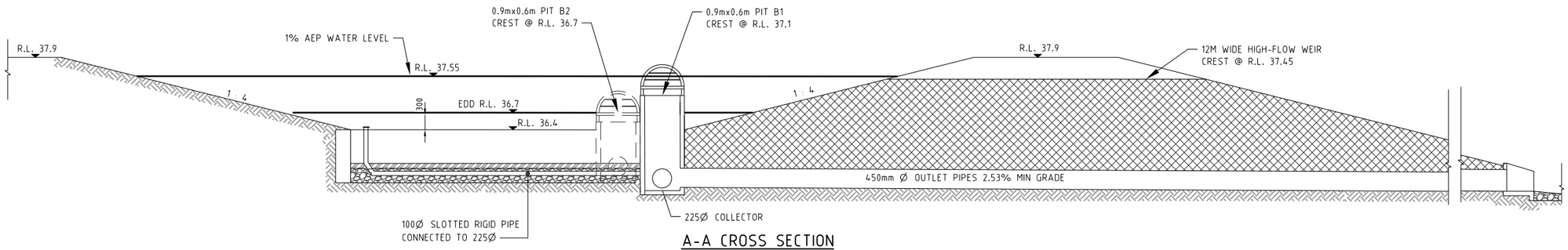
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Southport QLD 4215

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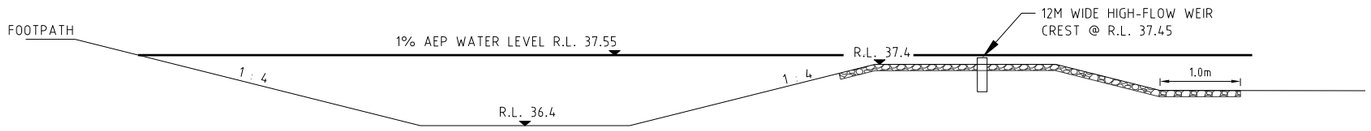
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A-A CROSS SECTION

N.T.S.



B-B CROSS SECTION

N.T.S.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
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DRAWING TITLE

STORMWATER
BASIN
SECTIONS
SHEET 01

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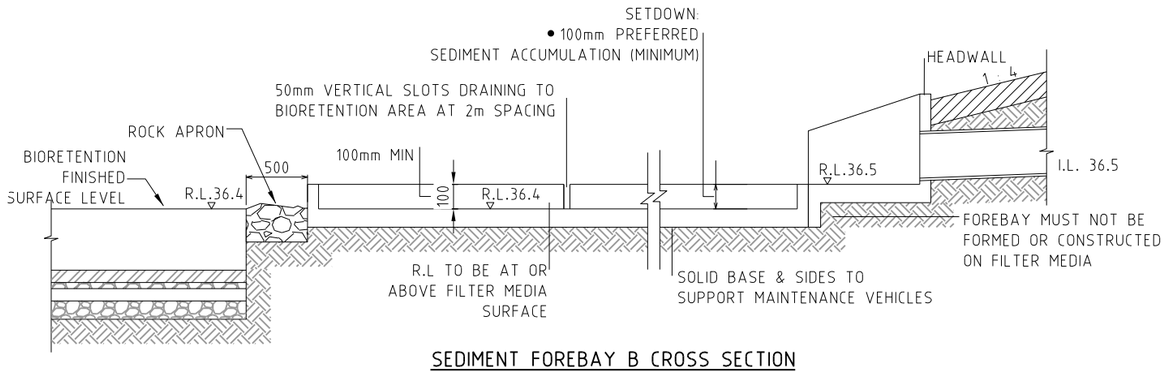
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Southport QLD 4215

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APPROVED	RPEQ 4706	DATE	27-04-24

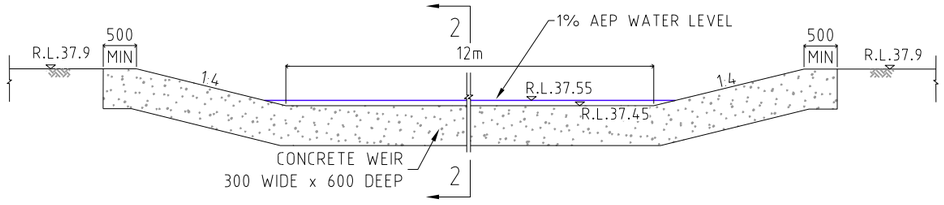
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41901-04-662	A

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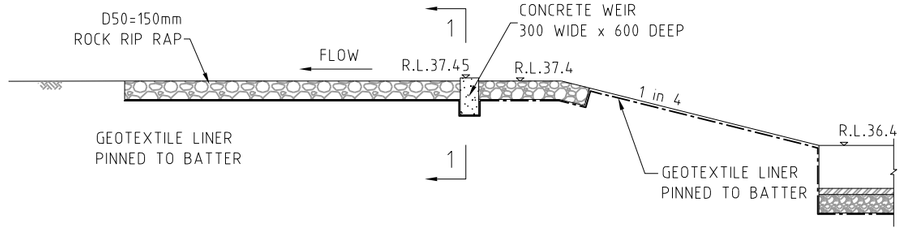
SEDIMENT FOREBAY B CROSS SECTION

N.T.S.



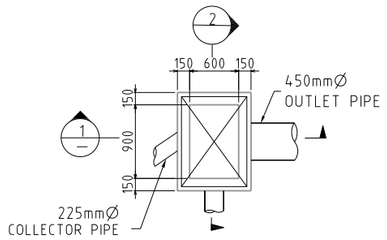
WEIR DETAIL SECTION 1-1

N.T.S.



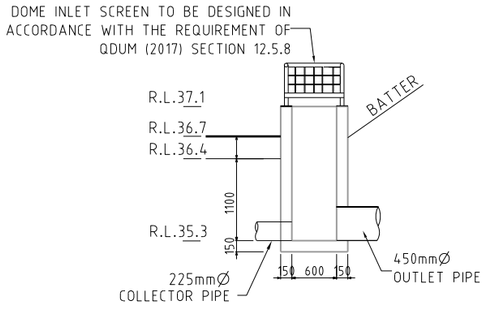
WEIR DETAIL SECTION 2-2

N.T.S.



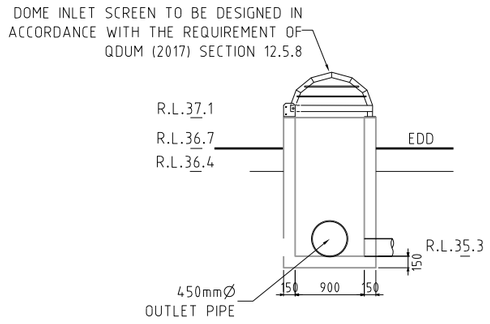
OVERFLOW STRUCTURE PLAN - 2/06

N.T.S.



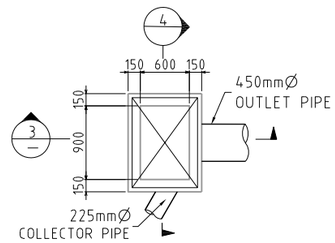
SECTION 1-1

N.T.S.



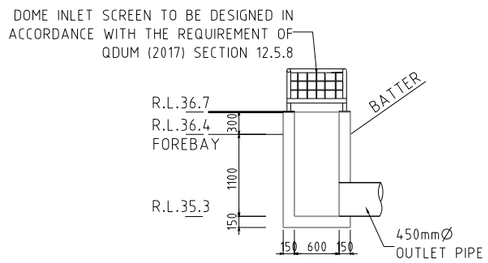
SECTION 2-2

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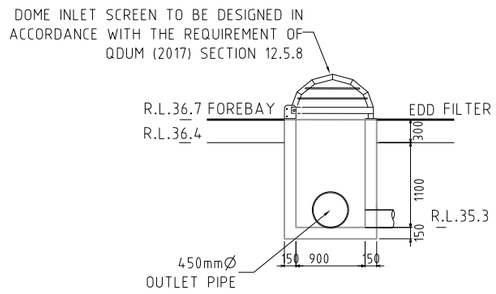
OVERFLOW STRUCTURE PLAN - PIT 1/59

N.T.S.



SECTION 3-3

N.T.S.



SECTION 4-4

N.T.S.

OUTLET DETAILS

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER
BASIN
SECTIONS
SHEET 01

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

MUS Pty Ltd T/As:
Mortons-Urban Solutions
ABN: 39 116 375 065

Postal Address
PO Box 2484
Southport QLD 4215

mortons@urbansolutions.net.au
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Tel 07 5571 1099

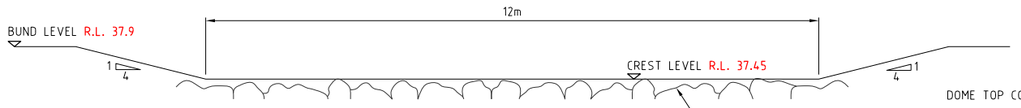
Gold Coast Office
Suite 9, 19 Short St
Southport QLD 4215

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APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER	REV
41901-04-663	A

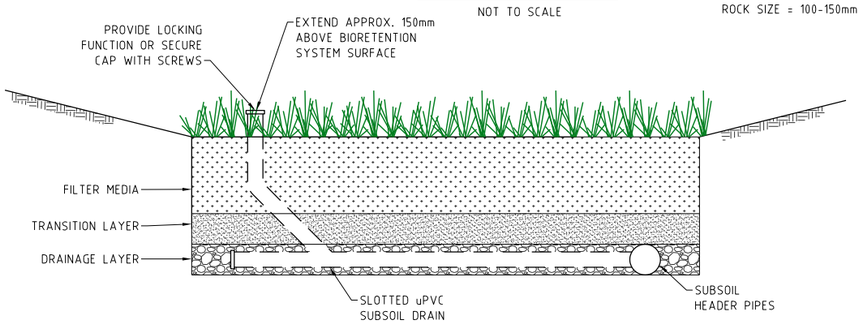
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NOTES:
1. STRUCTURAL STABILITY AND PERMEABILITY OF WATER RETENTION BUNDS TO BE DESIGNED BY GEOTECHNICAL ENGINEER.
2. CONSTRUCTION TIMING OF BIO-RETENTION MEDIA DETAILED IN CONTRACT. PLANTING OF MEDIA TO OCCUR AFTER 80% DWELLING COMPLETION.



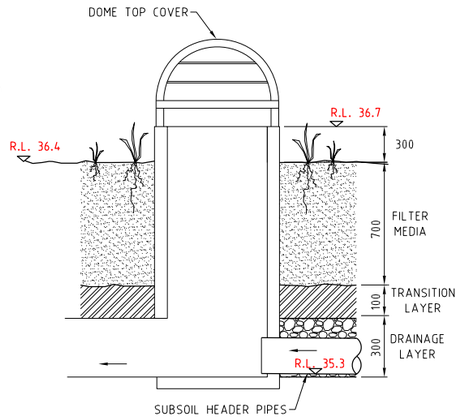
OUTLET WEIR DETAIL

NOT TO SCALE



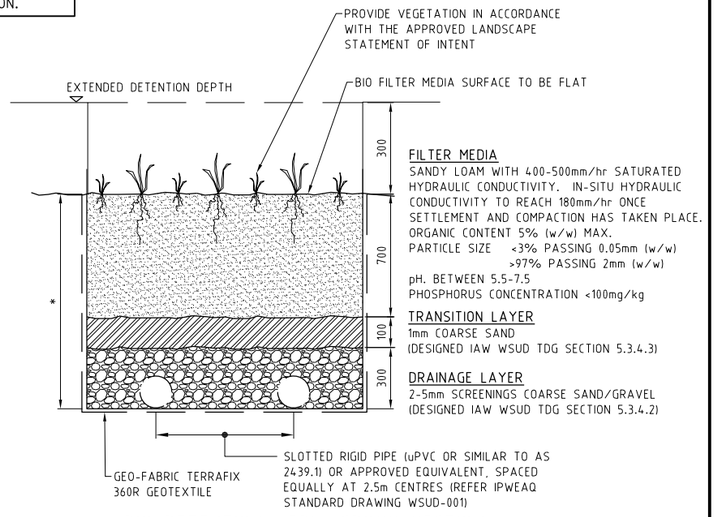
BIORETENTION FILTER TYPICAL SECTION

N.T.S.



HEADER PIPE CONNECTION DETAIL

N.T.S.



FILTER MEDIA
SANDY LOAM WITH 400-500mm/hr SATURATED HYDRAULIC CONDUCTIVITY. IN-SITU HYDRAULIC CONDUCTIVITY TO REACH 180mm/hr ONCE SETTLEMENT AND COMPACTION HAS TAKEN PLACE.
ORGANIC CONTENT 5% (w/w) MAX.
PARTICLE SIZE <3% PASSING 0.05mm (w/w)
>97% PASSING 2mm (w/w)
pH. BETWEEN 5.5-7.5
PHOSPHORUS CONCENTRATION <100mg/kg

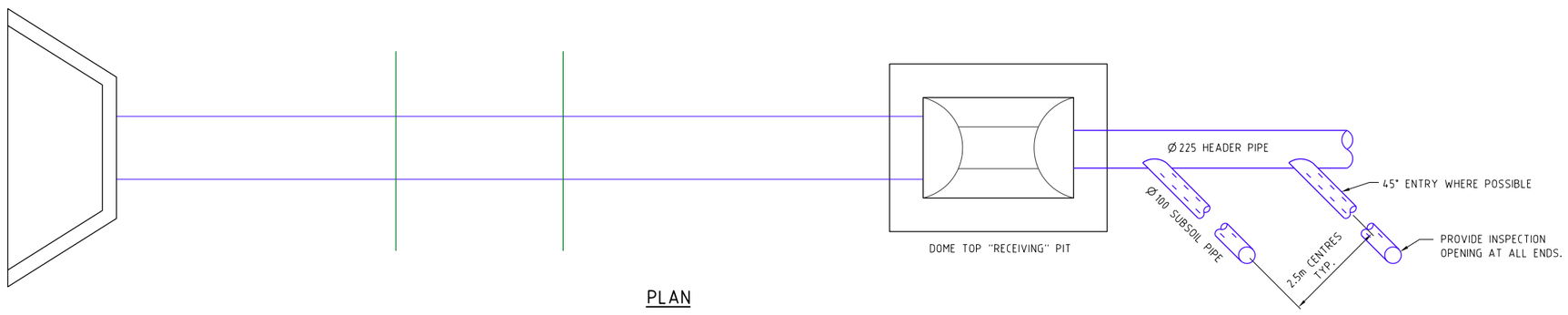
TRANSITION LAYER
1mm COARSE SAND
(DESIGNED IAW WSUD TDG SECTION 5.3.4.3)

DRAINAGE LAYER
2-5mm SCREENINGS COARSE SAND/GRAVEL
(DESIGNED IAW WSUD TDG SECTION 5.3.4.2)

BIO-RETENTION MEDIA CROSS SECTION

N.T.S.

* LAYER THICKNESSES AND MATERIAL SPECIFICATIONS ARE INDICATIVE ONLY, REFER TO APPROVED STORMWATER MANAGEMENT PLAN.



PLAN

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27/04/24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

STORMWATER BASIN DETAILS SHEET 01

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Civil Engineering
Project Coordination
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Southport QLD 4215

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APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-665

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LEGEND

- EXISTING STORMWATER
- EXISTING ROOFWATER
- EXISTING SUBSOIL
- EXISTING KERB (INVERT)
- EXISTING CONTOURS
- EXISTING PROPERTY LINE
- FUTURE STORMWATER
- FUTURE ROOFWATER
- FUTURE SUBSOIL
- FUTURE KERB (INVERT)
- FUTURE PROPERTY LINE
- FUTURE CONTOURS
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED KERB (INVERT)
- PROPOSED PROPERTY LINE
- DESIGN CONTOURS
- CATCHMENT BOUNDARY (MINOR)
- CATCHMENT BOUNDARY (MAJOR)
- OVERLAND FLOW
- PROPOSED STORMWATER
- PROPOSED ROOFWATER
- PROPOSED SUBSOIL
- MANHOLE
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 01/015 0.2552ha CATCHMENT NUMBER & AREA

19 RP807186
20 RP807186
198 RP173728
197 RP173728
196 RP173728
195 RP173728
194 RP173728
193 RP173728
186 RP173728
187 RP173728

02/002(3) 0.1438ha
01/63(3) 0.1327ha
01/002(3) 0.1411ha
03/002(3) 0.4319ha
02/002 0.0212ha
01/003(3) 0.1739ha
02/004 0.0480ha
03/002 0.0285ha
02/004 0.0705ha
01/004 0.1118ha
01/023 0.0211ha
113/059(3) 0.3159ha
02/021 0.0921ha
01/008 0.0561ha
01/021 0.2915ha
01/022 0.1088ha
04/017 0.0791ha
01/009 0.2083ha
01/010 0.1142ha
01/018 0.2078ha
02/020 0.1999ha
03/017 0.1112ha
01/011 0.1044ha
01/013 0.2728ha
03/020 0.0608ha
01/019 0.1772ha
01/020 0.2812ha
02/017 0.1969ha
04/005 0.2074ha
02/016 0.1090ha
01/014 0.1412ha
01/024 0.0136ha
04/024 0.0048ha
01/017 0.2544ha
01/015 0.1670ha
03/024 0.0042ha
02/024 0.0045ha
03/005 0.2047ha
01/016 0.2563ha
02/012 0.2301ha
01/037 0.0994ha
01/038 0.1243ha
02/005 0.1013ha
01/012 0.2786ha
02/041 0.3138ha
01/039 0.2558ha
03/041 0.1026ha
01/005 0.2221ha
14/025(3) 1.0157ha
01/040 0.1737ha
05/042 0.1726ha
06/042 0.0995ha
02/045 0.2239ha
05/026 0.0687ha
01/041 0.2387ha
09/025 0.1073ha
04/026 0.1883ha
01/043 0.0075ha
02/043 0.0091ha
01/034 0.1647ha
07/042 0.1133ha
04/043 0.1046ha
09/046 0.0413ha
08/025 0.1121ha
08/046 0.0374ha
01/045 0.0195ha
01/033 0.1433ha
04/042 0.1152ha
07/046 0.0374ha
03/043 0.0197ha
02/028 0.1827ha
03/028 0.0348ha
03/026 0.1733ha
06/046 0.0373ha
09/042(3) 0.2863ha

79 SP174234
80 SP174234
81 SP174234
82 SP174234
83 SP174234
84 SP174234
85 SP174234
86 SP174234
87 SP174234
88 SP174234
89 SP174234

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 10 20 30 40 50m

Scale 1:1000 - A1 (1:2000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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DRAWING TITLE

STORMWATER CATCHMENT PLAN SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER	REV
41901-04-670	A

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CALCULATION TABLES-MINOR 2YR ARI

0.5 ARI (Q2) MINOR FLOW - 12D DYNAMIC DRAINAGE RESULTS

* REFER TO IFD TABLE FOR MAXIMUM INTENSITY DURING STORM

NOTE: NEGATIVE FLOW VALUES INDICATE REVERSE FLOWS			CATCHMENT AREA			RAINFALL VOLUME*		RAINFALL Coef.	CATCHMENT FLOW				APPROACH FLOW				FLOW AT PIT				PIT		HGL			PIPE	HEADLOSSES						
NODE			A1	A2	A3	CRITICAL	INTENSITY		CURRENT	A1	A2	A3	CRITICAL	GRADE	FLOW			CAPTURED	BYPASS			GRADE	GRATE	PIT	PIPE		GRADE	FLOW	COEFFICIENT		HEADLOSS		CAPACITY	VELOCITY	NODE
FROM:	TO:	NODE TYPE	HA	HA	HA	STORM	MM/HR	10 YR	Storm	HA	HA	HA	ARI MIN.	%	L/S	WIDTH	DxV	L/S	L/S	DxV	NODE	%	RL	RL	U/S RL.	D/S RL.	%	M3/S	Ku	Kw	Ku	Kw	RATIO	M/S	
01/5	02/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.222			90	61.3	0.877	0.830	0.073			60	1.0	73	1.07	0.00	72	0	0.00	02/5	1.000	53.037	52.15	52.09	51.77	1.30	0.07	9.7	0.0	0.1	0.0	0.28	1.42	01/5
02/5	03/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.101			90	61.3	0.877	0.830	0.033			60	1.0	33	1.07	0.00	33	0	0.00	03/5	1.000	52.886	51.77	51.76	51.33	1.49	0.11	1.9	0.0	0.0	0.0	0.38	2.08	02/5
03/5	04/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.205			90	61.3	0.877	0.830	0.067			60	1.0	67	0.00	0.00	67	0	0.00	04/5	1.000	52.252	51.26	51.28	47.23	7.82	0.17	2.0	0.0	0.0	0.0	0.27	4.6	03/5
04/5	05/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.207			90	61.3	0.877	0.830	0.068			60	1.0	68	0.00	0.00	68	0	0.00	01/11	1.000	48.247	47.23	47.20	46.08	10.21	0.36	1.3	0.0	0.0	0.0	0.3	5.4	04/5
05/5	06/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	47.204	45.83	45.81	42.11	8.82	0.70	1.0	0.0	0.0	0.0	0.64	6.53	05/5
06/5	07/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	42.982	42.05	41.93	41.34	4.08	0.73	2.0	0.0	0.1	0.0	0.46	2.79	06/5
07/5	08/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	41.996	41.34	41.17	40.93	1.08	0.79	0.7	0.0	0.2	0.0	1.02	2.85	07/5
08/5	09/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.853	40.76	40.75	39.94	2.08	0.78	0.4	0.0	0.0	0.0	0.69	4.06	08/5
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90	39.83	39.17	2.35	0.85	0.3	0.0	0.1	0.0	0.45	4.96	09/5
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.17	39.11	37.87	6.69	1.18	1.1	0.0	0.4	0.0	0.54	4.53	10/5
11/5	12/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	37.900	37.87	37.25	37.26	-0.19	1.49	1.2	0.0	0.6	0.0	1.43	3.4	11/5
12/5	01/6	HEADWALL											25	1.0	0			0				1.000	37.645	37.26	37.26	37.26	0.00	1.49	0.0	0.0	0.0	0.0			12/5
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26											01/6
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26	37.26	37.26	0.00	0.33	0.0	0.0	0.0	0.0			01/6
02/6	03/6	MANHOLE C/W ROOF SLAB AND 900x600 DOME TOP											60	1.0	329	0.00	0.00	329	0	0.00	08/55	1.000	37.100	36.01	35.50	35.24	2.16	0.33	8.2	0.0	0.5	0.0	0.56	2.52	02/6
03/6	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.10	35.10	33.29	5.74	0.33	0.0	0.0	0.0	0.0	0.05	0.63	03/6
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26	37.45	37.45	0.00	0.00	0.0	0.0	0.0	0.0			01/6
01/7	02/7	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.45	37.45	37.45	0.00	0.00	0.0	0.0	0.0	0.0	0	0	01/7
02/7	08/55	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.45	37.45	33.29	9.17	0.00	0.0	0.0	0.0	0.0	0	0	02/7
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55
01/8	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.056			90	61.3	0.877	0.830	0.018			60	2.7	18	0.00	0.00	18	0	0.00	02/21	2.725	40.972	39.99	39.97	39.93	2.26	0.02	7.0	0.0	0.0	0.0	0.06	1.17	01/8
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90											09/5
01/9	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.208			90	61.3	0.877	0.830	0.069			60	2.7	69	0.00	0.00	69	0	0.00	04/17	2.725	40.972	40.25	40.08	39.98	2.04	0.07	9.7	0.0	0.2	0.0	0.22	1.28	01/9
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90											09/5
01/17	02/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.254			90	61.3	0.877	0.830	0.084			60	1.0	107	1.25	0.01	94	10	0.01	01/19	1.000	46.789	45.77	45.74	44.42	10.58	0.09	9.1	0.0	0.0	0.0	0.13	3.48	01/17
02/17	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.197			90	61.3	0.877	0.830	0.065			60	1.0	65	0.00	0.00	65	0	0.00	03/17	1.000	45.463	44.42	44.41	41.00	12.70	0.16	2.0	0.0	0.0	0.0	0.19	5.41	02/17
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			90	61.3	0.877	0.830	0.037			60	1.0	37	0.00	0.00	37	0	0.00	04/17	1.000	42.101	40.74	40.71	39.40	5.40	0.26	1.3	0.0	0.0	0.0	0.39	4.65	03/17
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			90	61.3	0.877	0.830	0.026			60	1.0	28	1.12	0.00	27	1	0.00	01/21	1.000	40.074	39.40	39.28	39.17	0.77	0.34	0.7	0.0	0.2	0.0	0.52	2.89	04/17
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.17											10/5
01/18	04/17	INLET GULLY IN SAG (LS) Type S Lintel	0.208			90	61.3	0.877	0.830	0.069			60	1.0	69	1.25	0.00	66	2	0.00	04/17	1.000	40.151	39.54	39.40	39.40	0.10	0.07	9.7	0.0	0.2	0.0	0.11	2.39	01/18
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			90	61.3	0.877	0.830	0.026			60	1.0	28	1.12	0.00	27	1	0.00	01/21	1.000	40.074	39.40											04/17
01/19	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.177			90	61.3	0.877	0.830	0.058			60	1.0	67	0.00	0.00	67	0	0.00	01/18	1.000	42.101	41.27	41.14	41.00	2.11	0.07	9.7	0.0	0.1	0.0	0.21	1.36	01/19
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			90	61.3	0.877	0.830	0.037			60	1.0	37	0.00	0.00	37	0	0.00	04/17	1.000	42.101	40.74											03/17
01/21	02/21	INLET GULLY IN SAG (LS) Type S Lintel	0.291			90	61.3	0.877	0.830	0.096			60	0.6	97	1.47	0.01	85	9	0.01	02/21	0.561	38.583	38.61	38.53	38.48	0.86	0.09	9.7	0.0	0.1	0.0	0.28	1.33	01/21
02/21	05/20	INLET GULLY IN SAG (LS) Type S Lintel	0.092			90	61.3	0.877	0.830	0.030			60	0.7	38	1.07	0.00	38	0	0.00	01/4	0.698	38.482	38.48	38.48	38.41	0.99	0.13	1.7	0.0	0.0	0.0	0.56	1.59	02/21
05/20	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	38.731	38.41											05/20
01/59	02/59	TYPE 2 FIELD INLET 900x600 C/W DOME TOP			0.316							0.066	60	1.0	642	0.00	0.00	642	0	0.00	08/55	1.000	36.700	37.26	35.93	35.45	3.63	0.64	1.9	0.0	1.3	0.0	1.15	4.04	01/59
02/59	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.29	5.85	0.64	0.0	0.0	0.0	0.0	0.09	1.69	02/59
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55

INTENSITY - FREQUENCY - DURATION (IFD) TABLE								
DURATION	ARI INTENSITY (YEAR)							
MINUTES	TREAT	1	2	5	10	20	50	100
5	59.5	119.0	151.0	186.0	206.0	234.0	270.0	298.0
6	55.5	111.0	141.0	174.0	193.0	219.0	253.0	279.0
10	45.5	91.0	116.0	143.0	159.0	181.0	209.0	231.0
20	33.4	66.8	85.1	106.0	117.0	134.0	155.0	171.0
30	27.3	54.5	69.4	86.4	96.2	110.0	127.0	141.0
60	18.4	36.7	46.8	58.6	65.5	74.8	87.1	96.5
120	11.7	23.4	30.0	37.8	42.4	48.6	56.9	63.2
180	8.9	17.7	22.7	28.8	32.4	37.3	43.7	48.6
360	5.5	10.9	14.0	18.0	20.3	23.5	27.7	30.9
720	3.4	6.9	8.9	11.4	13.0	15.0	17.8	20.0
1440	2.2	4.5	5.8	7.5	8.6	9.9	11.8	13.2
2880	1.5	2.9	3.8	4.9	5.6	6.5	7.7	8.7
4320	1.1	2.2	2.8	3.7	4.2	4.9	5.8	6.6

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NOTES:

1. THESE CALCULATIONS ARE BASED ON IISAX2 DYNAMIC DRAINAGE ANALYSIS USING 12D SOFTWARE ANALYSIS.
2. INDIVIDUAL TIMES OF CONCENTRATION ARE GENERATED FOR EACH NODE & CATCHMENT TYPE USING TEMPORAL PATTERNS DETERMINED FROM THE RELEVANT AUTHORITY.
3. "TREAT" IN THE IFD TABLE REFERS TO 0.5x1 YEAR ARI, USED TO DETERMINE WATER QUALITY TREATMENT FLOWS.
4. CATCHMENT 1 REFERS TO TYPICAL URBANISED CATCHMENTS WITH LOTS <1000m2. THE IMPERVIOUS PORTION OF THE CATCHMENT TIME OF CONCENTRATION (TC) IS TYPICALLY 5 MINUTES & THE PERVIOUS PORTION OF THE CATCHMENT TYPICALLY HAS AN 8 MINUTE TC.
5. CATCHMENT 2 IS TYPICALLY USED TO MODEL LOTS >1000m2, WITH INDIVIDUAL PERCENTAGES OF IMPERVIOUS SURFACE & TC'S.
6. CATCHMENT 3 IS TYPICALLY USED TO MODEL OPEN SPACE & RURAL CATCHMENTS WITH INDIVIDUAL PERCENTAGES OF IMPERVIOUS SURFACE & TC'S.

FLOW CAPACITY m3/s 7.5m RD (KERB AND CHANNEL)

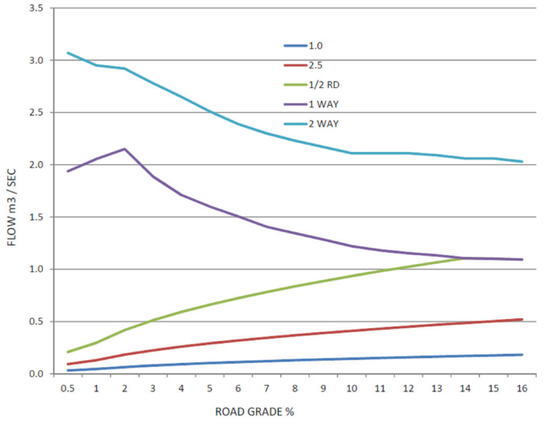
	KR	LANE	1/2 RD	1 WAY	2 WAY
MAX. WIDTH	1.0	2.5	3.75	11.175	14.8
MAX. AREA m2	0.021	0.101	0.219	1.421	2.104
Rd Grade %					
0.5	0.032	0.092	0.209	1.938	3.070
1	0.046	0.130	0.296	2.054	2.950
2	0.064	0.184	0.418	2.150	2.920
3	0.079	0.225	0.512	1.886	2.780
4	0.091	0.260	0.591	1.711	2.650
5	0.102	0.291	0.661	1.600	2.510
6	0.112	0.318	0.724	1.505	2.390
7	0.120	0.344	0.782	1.407	2.300
8	0.129	0.368	0.836	1.345	2.230
9	0.137	0.390	0.887	1.285	2.170
10	0.144	0.411	0.935	1.220	2.110
11	0.151	0.431	0.981	1.180	2.110
12	0.158	0.450	1.024	1.154	2.110
13	0.164	0.469	1.066	1.133	2.090
14	0.170	0.486	1.106	1.105	2.060
15	0.176	0.503	1.101	1.101	2.060
16	0.182	0.520	1.093	1.093	2.030

NOTES:

FLOW CONSTRAINED TO 0.4 DxV

FLOW CONSTRAINED TO 250mm DEEP MAX.

CAPACITY COMPOUND CROSS SECTION (ARR 1987 , 4.38) (n varies)



PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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BENNETT + BENNETT

DRAWING TITLE

STORMWATER
CALCULATION TABLES
MINOR STORM EVENT
SHEET 01

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DESIGNED RB	DRAWN BL
APPROVED	RPEQ 4706
DATE 27-04-24	

DRAWING NUMBER: 41901-04-680
REV: A

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CALCULATION TABLES-MAJOR 100YR ARI

0.01 ARI (Q100) Major FLOW - 12D DYNAMIC DRAINAGE RESULTS * REFER TO IFD TABLE FOR MAXIMUM INTENSITY DURING STORM

NOTE: NEGATIVE FLOW VALUES INDICATE REVERSE FLOWS			CATCHMENT AREA			RAINFALL VOLUME*		RAINFALL Coef.		CATCHMENT FLOW				APPROACH FLOW				FLOW AT PIT				PIT		HGL			PIPE	HEADLOSSES						
NODE			A1	A2	A3	CRITICAL	INTENSITY		CURRENT	A1	A2	A3	CRITICAL	GRADE	FLOW			CAPTURED	BYPASS			GRADE	GRATE	PIT	PIPE		GRADE	FLOW	COEFFICIENT		HEADLOSS		CAPACITY	VELOCITY	NODE
FROM:	TO:	NODE TYPE	HA	HA	HA	STORM	MM/HR	10 YR	Storm	HA	HA	HA	ARI MIN.	%	L/S	WIDTH	DxV	L/S	L/S	DxV	NODE	%	RL.	RL	U/S RL.	D/S RL.	%	M3/S	Ku	Kw	Ku	Kw	RATIO	M/S	
01/5	02/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.222			120	133.6	0.877	0.916	0.124			25	1.0	124	2.47	0.01	98	24	0.02	02/5	1.000	53.037	52.29	52.20	51.87	1.30	0.10	8.8	0.0	0.1	0.0	0.38	1.4	01/5
02/5	03/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.101			120	133.6	0.877	0.916	0.056			25	1.0	80	1.36	0.01	71	8	0.01	03/5	1.000	52.886	51.87	51.83	51.38	1.54	0.17	2.0	0.0	0.0	0.0	0.62	2.15	02/5
03/5	04/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.205			120	133.6	0.877	0.916	0.114			25	1.0	118	1.45	0.02	95	23	0.02	04/5	1.000	52.252	51.29	51.29	47.90	6.57	0.26	1.9	0.0	0.0	0.0	0.41	4.6	03/5
04/5	05/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.207			120	133.6	0.877	0.916	0.115			25	1.0	137	1.50	0.02	106	31	0.02	01/11	1.000	48.247	47.91	47.74	47.06	6.16	0.56	1.1	0.0	0.3	0.0	0.48	5.54	04/5
05/5	06/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	47.204	47.06	46.95	43.16	9.01	0.89	1.0	0.0	0.2	0.0	0.81	6.52	05/5
06/5	07/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	42.982	43.16	42.73	42.05	4.70	0.97	1.5	0.0	0.4	0.0	0.61	3.43	06/5
07/5	08/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	41.996	42.05	41.73	41.31	1.85	0.98	0.9	0.0	0.3	0.0	1.28	3.48	07/5
08/5	09/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.853	41.32	41.29	40.62	1.76	0.96	0.4	0.0	0.1	0.0	0.85	4.06	08/5
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62	40.45	39.99	1.62	1.04	0.2	0.0	0.2	0.0	0.55	4.88	09/5
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.99	39.75	38.29	7.88	1.45	1.1	0.0	0.5	0.0	0.66	5.14	10/5
11/5	12/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	37.900	38.30	37.61	37.54	1.56	1.81	1.0	0.0	0.9	0.0	1.73	4.09	11/5
12/5	01/6	HEADWALL											25	1.0	0			0				1.000	37.645	37.54	37.54	37.54	0.00	1.81	0.0	0.0	0.0	0.0			12/5
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54											01/6
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54	37.54	37.54	0.00	0.69	0.0	0.0	0.0	0.0			01/6
02/6	03/6	MANHOLE C/W ROOF SLAB AND 900x600 DOME TOP											60	1.0	693	0.00	0.00	693	0	0.00	08/55	1.000	37.100	37.54	35.96	35.45	4.31	0.69	1.9	0.0	1.6	0.0	1.18	4.35	02/6
03/6	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.56	5.06	0.69	0.0	0.0	0.0	0.0	0.1	0.67	03/6
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54	37.54	37.54	0.00	0.30	0.0	0.0	0.0	0.0			01/6
01/7	02/7	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.54	37.54	37.49	0.91	0.30	0.0	0.0	0.0	0.0	0.33	0.37	01/7
02/7	08/55	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.48	37.48	33.56	8.64	0.30	0.0	0.0	0.0	0.0	0.01	0.09	02/7
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55
01/8	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.056			120	133.6	0.877	0.916	0.031			25	2.7	31	0.00	0.00	31	0	0.00	02/21	2.725	40.972	40.63	40.62	40.62	0.19	0.03	7.0	0.0	0.0	0.0	0.1	1.48	01/8
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62											09/5
01/9	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.208			120	133.6	0.877	0.916	0.116			25	2.7	120	1.66	0.02	94	26	0.01	04/17	2.725	40.972	40.79	40.72	40.62	2.06	0.09	9.7	0.0	0.2	0.0	0.29	1.55	01/9
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62											09/5
01/17	02/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.254			120	133.6	0.877	0.916	0.142			25	1.0	213	1.74	0.05	142	69	0.05	01/19	1.000	46.789	45.81	45.76	44.44	10.61	0.14	6.7	0.0	0.0	0.0	0.19	3.66	01/17
02/17	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.197			120	133.6	0.877	0.916	0.110			25	1.0	110	1.36	0.02	90	20	0.02	03/17	1.000	45.463	44.44	44.44	41.88	9.50	0.23	1.9	0.0	0.0	0.0	0.28	5.74	02/17
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			120	133.6	0.877	0.916	0.062			25	1.0	81	1.25	0.01	72	8	0.00	04/17	1.000	42.101	41.88	41.70	40.23	6.04	0.42	1.3	0.0	0.6	0.0	0.64	4.68	03/17
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			120	133.6	0.877	0.916	0.044			25	1.0	177	3.48	0.13	-168	315	0.12	01/21	1.000	40.074	40.23	40.14	39.99	1.00	0.44	1.0	0.0	0.2	0.0	0.67	2.88	04/17
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.99											10/5
01/18	04/17	INLET GULLY IN SAG (LS) Type S Lintel	0.208			120	133.6	0.877	0.916	0.116			25	1.0	159	3.05	0.05	84	104	0.05	04/17	1.000	40.151	40.26	40.23	40.23	0.00	0.08	9.7	0.0	0.2	0.0	0.13	2.38	01/18
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			120	133.6	0.877	0.916	0.044			25	1.0	177	3.48	0.13	-168	315	0.12	01/21	1.000	40.074	40.23											04/17
01/19	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.177			120	133.6	0.877	0.916	0.099			25	1.0	166	1.64	0.03	120	46	0.02	01/18	1.000	42.101	42.14	42.02	41.88	2.11	0.12	8.7	0.0	0.3	0.0	0.37	1.53	01/19
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			120	133.6	0.877	0.916	0.062			25	1.0	81	1.25	0.01	72	8	0.00	04/17	1.000	42.101	41.88											03/17
01/21	02/21	INLET GULLY IN SAG (LS) Type S Lintel	0.291			120	133.6	0.877	0.916	0.162			60	0.6	490	3.90	0.15	102	395	0.15	02/21	0.561	38.583	38.77	38.72	38.69	0.47	0.10	9.7	0.0	0.1	0.0	0.3	1.35	01/21
02/21	05/20	INLET GULLY IN SAG (LS) Type S Lintel	0.092			120	133.6	0.877	0.916	0.051			60	0.7	438	4.57	0.18	-113	506	0.19	01/4	0.698	38.482	38.69	38.69	38.68	0.03	0.13	2.7	0.0	0.1	0.0	0.59	1.52	02/21
05/20	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	38.731	38.68											05/20
01/59	02/59	TYPE 2 FIELD INLET 900x600 C/W DOME TOP			0.316							0.141	60	1.0	683	0.00	0.00	683	0	0.00	08/55	1.000	36.700	37.54	36.00	35.45	4.20	0.68	1.9	0.0	1.5	0.0	1.22	4.3	01/59
02/59	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.56	5.02	0.68	0.0	0.0	0.0	0.0	0.1	1.54	02/59
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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DRAWING TITLE

STORMWATER
CALCULATION TABLES
MAJOR STORM EVENT
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER: 41901-04-681
REV: A

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SEQ CODE WATER NOTES

SEQ CODE NOTES COPIED DIRECTLY FROM DRAWING SEQ-WAT-1101-3 (REV A).

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED & ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION & REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL & SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
C. IF ACID SULPHATE SOILS EXIST IN THE WORKS AREA. THE CONTRACTOR MUST PREPARE A RISK ASSESSMENT BASED ON THE QUEENSLAND ACID SULPHATE SOIL TECHNICAL MANUAL & MANAGE THE ACID SULPHATE SOILS AS PER THE MANUAL.

CREEK CROSSINGS

A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
C. NO SOIL SHALL BE STOCKPILED WITHIN 5m OF THE CREEK.

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES & COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

GENERAL NOTES

1. ALL WORK & MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS & WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS PERMANENT LEVEL.
4. COVER ON MAINS FROM PERMANENT LEVEL TO BE AS SHOWN IN SEQ-WAT-1200-2.
5. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH THE STANDARD DRAWINGS.
6. A WATER METER SUPPLIED AT THE DEVELOPER'S COST, IS TO BE INSTALLED AT THE SERVICE POINT OF EACH LOT IN ACCORDANCE WITH THE STANDARD DRAWING FOR THE SEQ-SP.
7. ALL MATERIALS USED IN THE WORKS SHALL COMPLY WITH THE SEQ-SP's ACCEPTED PRODUCTS & MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED & DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED & IF APPROPRIATE, APPROVED BY THE SEQ-SP.
8. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS.
9. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING NO.SEQ-WAT-1410-1.
10. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

PROJECT SPECIFIC WATER NOTES

a. ALL PROPERTY CONNECTION ROAD CROSSINGS TO BE SLEEVED WITH DN100 uPVC FOR COGC CONDUIT.
b. ALL MATERIALS ARE TO BE SUPPLIED & CONSTRUCTED IN ACCORDANCE WITH SEQ CODE.
c. WATER METERS ARE TO BE SUPPLIED & INSTALLED AT ALL WATER SERVICE / CONNECTION POINTS IN ACCORDANCE WITH SEQ-WAT-1106-1
d. THRUST BLOCKS TO BE LOCATED & INSTALLED BY CONTRACTOR IN ACCORDANCE WITH SEQ CODE.
e. TRENCH STOPS & BULKHEADS TO BE IN ACCORDANCE WITH WATER AUTHORITY REQUIREMENTS.
f. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR WATER RATES UNLESS SCHEDULED OTHERWISE WITHIN THE CONTRACT.
g. FOOTPATHS SHOWN FOR INFORMATION PURPOSES ONLY.
h. ALL WATER CONSTRUCTION WORK UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE WORKPLACE HEALTH & SAFETY LEGISLATION.
i. MINIMUM WATERMAIN COVER TO BE IN ACCORDANCE WITH SECTION 7.4.2 TABLE 7.2 OF THE SEQ AMENDMENT TO WATER SUPPLY CODE OF AUSTRALIA.
j. CONTRACTOR TO PAY ALL FEES & CHARGES ASSOCIATED WITH CONNECTIONS.
k. END OF LINE ARRANGEMENTS (EG. CUL-DE-SAC HEADS) TO BE CONSTRUCTED IN ACCORDANCE WITH SEQ-WAT-1104-1.
l. TEMPORARY CONSTRUCTION HYDRANTS TO BE PROVIDED IN ACCORDANCE WITH SEQ-WAT-1303-1 AT ALL CONNECTIONS.
m. ALL LIVE CONNECTIONS ARE TO BE ORGANISED BY THE CIVIL CONTRACTOR & UNDERTAKEN BY COUNCIL AT THE DEVELOPERS EXPENSE.
n. MINIMUM CLEARANCES ARE TO BE MAINTAINED BETWEEN PROPOSED WATER & SEWER IN ACCORDANCE WITH TABLE 5.5 OF WSA03 WATER WUPPLY CODE AUSTRALIA.

B

LEGEND

- EXISTING 100Ø WATER MAIN
- EXISTING 150Ø WATER MAIN
- EXISTING 200Ø WATER MAIN
- EXISTING 225Ø WATER MAIN
- EXISTING 250Ø WATER MAIN
- EXISTING 300Ø WATER MAIN
- EXISTING FOOTPATH
- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- FUTURE 100Ø WATER MAIN
- FUTURE 150Ø WATER MAIN
- FUTURE 200Ø WATER MAIN
- FUTURE 225Ø WATER MAIN
- FUTURE 250Ø WATER MAIN
- FUTURE 300Ø WATER MAIN
- FUTURE KERB (INVERT)
- FUTURE PROPERTY LINE
- FUTURE FOOTPATH
- PROPOSED KERB (INVERT)
- PROPOSED PROPERTY LINE
- PROPOSED FOOTPATH
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED 100Ø WATER MAIN
- PROPOSED 150Ø WATER MAIN
- PROPOSED 200Ø WATER MAIN
- PROPOSED 225Ø WATER MAIN
- PROPOSED 250Ø WATER MAIN
- PROPOSED 300Ø WATER MAIN
- HYDRANT
- AIR VALVE
- TEE
- METER LOCATION
- REDUCER
- TRENCH STOP
- SLUICE VALVE
- SERVICE CONDUIT
- ENDCAP
- DICL ROAD CROSSING
- SCOUR VALVE

WATER PIPE SPECIFICATIONS

WATER MAIN LOCATION	PIPE MATERIAL SPECIFICATION
FOOTPATH VERGE	PVC-M SERIES 2 PN16
ROAD CROSSING	DICL PN35

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PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
B	07-08-24	NOTE ADDED	BL
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

WATER RETICULATION PLAN SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED	RPEQ 4706	DATE	27-04-24

DRAWING NUMBER 41901-04-700 | REV B

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THRUST BLOCK LENGTH

PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240kPa
100	90° BEND	19.8	400	1000	●	●	●	●
	60° BEND	14.0		700	●	●	●	●
	45° BEND	10.7		●	●	●	●	●
	22.5° BEND	5.5		●	●	●	●	●
	11.25° BEND	2.7		●	●	●	●	●
	TEE OR CLOSED END	14.0		700	●	●	●	●
150	90° BEND	41.7	450	1860	930	●	●	●
	60° BEND	29.5		1320	660	●	●	●
	45° BEND	22.6		1000	●	●	●	●
	22.5° BEND	11.5		●	●	●	●	●
	11.25° BEND	5.8		●	●	●	●	●
	TEE OR CLOSED END	29.5		1300	660	●	●	●
200	90° BEND	71.7	550	*	1300	870	650	●
	60° BEND	50.7		1850	920	●	●	●
	45° BEND	38.8		1410	700	●	●	●
	22.5° BEND	19.8		720	●	●	●	●
	11.25° BEND	9.9		●	●	●	●	●
	TEE OR CLOSED END	50.7		1850	920	●	●	●
225	90° BEND	89.4	600	*	1500	1000	750	●
	60° BEND	63.2		2110	1060	700	●	●
	45° BEND	48.4		1620	810	●	●	●
	22.5° BEND	24.6		830	●	●	●	●
	11.25° BEND	12.4		●	●	●	●	●
	TEE OR CLOSED END	63.2		210	1060	700	●	●
250	90° BEND	109.0	650	*	1700	1120	840	700
	60° BEND	77.1		2400	1200	800	●	●
	45° BEND	59.0		1820	910	●	●	●
	22.5° BEND	30.1		930	●	●	●	●
	11.25° BEND	15.1		●	●	●	●	●
	TEE OR CLOSED END	77.1		2400	1200	800	●	●
300	90° BEND	158.6	700	*	2270	1510	1140	950
	60° BEND	112.2		*	1600	1070	800	670
	45° BEND	85.9		2453	1230	820	●	●
	22.5° BEND	43.8		1250	630	●	●	●
	11.25° BEND	22.0		630	●	●	●	●
	TEE OR CLOSED END	112.2		*	1600	1070	800	750

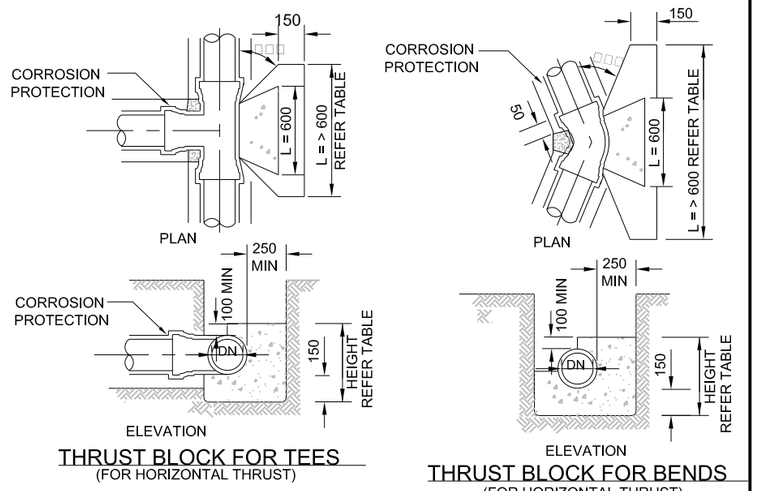
THRUST BLOCK LENGTH

PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240kPa
375	90° BEND	241.9	800	*	*	2220	1510	1260
	60° BEND	171.0		*	2140	1430	1070	890
	45° BEND	130.9		*	1640	1090	820	680
	22.5° BEND	66.7		1670	840	●	●	●
	11.25° BEND	33.5		840	●	●	●	●
	TEE OR CLOSED END	171.0		*	2140	1430	1070	890
450	90° BEND	342.6	900	*	*	2540	1900	1590
	60° BEND	242.3		*	2690	1800	1350	1120
	45° BEND	185.4		*	2060	1375	1030	860
	22.5° BEND	94.5		2100	1050	700	●	●
	11.25° BEND	47.5		1060	●	●	●	●
	TEE OR CLOSED END	242.3		*	2690	1800	1350	1120
500	90° BEND	418	1000	*	*	2790	2090	1740
	60° BEND	295.6		*	*	1970	1480	1230
	45° BEND	226.2		*	2260	1510	1130	940
	22.5° BEND	115.3		2310	1150	770	●	●
	11.25° BEND	58.0		1160	●	●	●	●
	TEE OR CLOSED END	295.5		*	*	1970	1480	1230
600	90° BEND	593	1100	*	*	*	2700	2250
	60° BEND	419		*	*	2540	1910	1590
	45° BEND	320		*	2920	1950	1460	1220
	22.5° BEND	164		2980	1490	990	750	620
	11.25° BEND	82.2		1500	750	●	●	●
	TEE OR CLOSED END	419		*	*	2540	1910	1590
750	90° BEND	909	1300	*	*	*	*	2920
	60° BEND	643		*	*	*	2480	2060
	45° BEND	492		*	*	2530	1890	1580
	22.5° BEND	251		*	1930	1290	970	810
	11.25° BEND	126.1		1940	970	650	●	●
	TEE OR CLOSED END	643		*	*	*	2480	2060
900 (Ø960 MSCL)	90° BEND	1.228	1500	*	*	*	*	3420
	60° BEND	868		*	*	*	2900	2420
	45° BEND	664		*	*	2960	2220	1850
	22.5° BEND	339		*	2260	1510	1130	940
	11.25° BEND	170		2270	1140	760	●	●
	TEE OR CLOSED END	868		*	*	*	3300	2650

THRUST BLOCK DIMENSIONS - 1200kPa

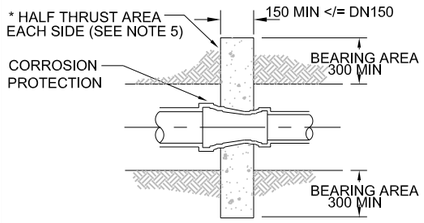
● INDICATES BLOCK LENGTH OF 600

* = SPECIAL DESIGN

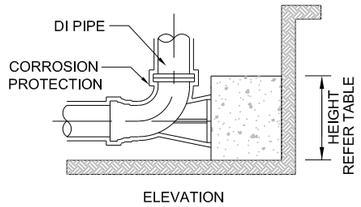


THRUST BLOCK FOR TEES
(FOR HORIZONTAL THRUST)

THRUST BLOCK FOR BENDS
(FOR HORIZONTAL THRUST)



TAPER THRUST BLOCK
(FOR HORIZONTAL THRUST)



FLUSHING/WASHOUT BEND THRUST BLOCK
(FOR HORIZONTAL THRUST) (MINIMUM REQUIRED THRUST AREA AS PER TEE OR CLOSED END)

NOTES

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. SOIL CLASSIFICATIONS USED ON THIS DRAWING ARE EXPLAINED IN SEQ-WAT-12110-1. DO NOT USE STANDARD THRUST BLOCKS AS SPECIFIED IN THIS DRAWING IN SOILS WITH < 5OkPa BEARING CAPACITY EG;
   – VERY SOFT, SOFT OR FIRM CLAY.
   – LOOSE CLEAN SAND.
   – UNCOMPACTED FILL OR REFUSE.
   A GEOTECHNICAL ASSESSMENT AND INDIVIDUAL DESIGN IS REQUIRED FOR THESE SOILS.
3. THRUST BLOCKS NOT TO INTERFERE WITH OTHER SERVICES OR BE LOCATED OUTSIDE THE WATER MAIN ALLOCATION WITHOUT WATER AGENCY APPROVAL.
4. ALL CONCRETE GRADE N20. TABLE OF DIMENSIONS BASED ON REQUIRED TEST PRESSURE OF 1200kPa AND ACTUAL DICL PIPE DIAMETERS.
5. THE MINIMUM THRUST AREA FOR TAPER THRUST BLOCKS TO BE EQUAL TO THE DIFFERENCE BETWEEN THE THRUST AREAS FOR TEES OR CLOSED ENDS OF EQUIVALENT DIAMETER TO THOSE EACH SIDE OF TAPER. THE DETAIL SHOWN IS FOR < OR = DN150 MAINS. FOR LARGER MAINS, THE TAPER THRUST BLOCK SHALL BE REINFORCED AND OF A SIZE AS SHOWN IN SEQ-WAT-1206-1.
6. FOR DOWNWARD VERTICAL THRUST, THE ALLOWABLE BEARING PRESSURE FOR VARIOUS SOILS MAY BE TAKEN AS TWICE THAT FOR HORIZONTAL THRUST SHOWN.
7. WHEN POURING CONCRETE AGAINST FITTINGS PLACE A MEMBRANE OF POLYETHYLENE, PVC OR FELT BETWEEN THE FITTING AND CONCRETE TO PREVENT DAMAGE TO THE FITTING. PIPE JOINTS TO BE CLEAR OF CONCRETE.
   CONCRETE THRUST BLOCK ANCHORS FOR VALVES TO BE AS DETAILED ON SEQ-WAT-1206-1.

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

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ASSOCIATED CONSULTANTS

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Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

WATER RETICULATION DETAILS

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-710 REV A

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