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## Pavement Legend

Asphaltic Concrete Pavement Type 1\*
To be confirmed as part of detailed design

Concrete Pavement Type 2\*
Concrete Pavement with Finish Treatment to
Architects details. To be confirmed as part of
detailed design.

Concrete Driveway Type 3
To be confirmed as part of detailed

To be confirmed as part of detailed design.

Concrete Footpath Type 4
To be confirmed as part of detailed design.

Deeplift Pavement\*
To be confirmed as part of detailed design

To Camden City Council standards.

Driveway Access Pavement

\* The pavements shown are indicative only based on assumed CBR 3% and are subject to Geotechnical / Structural testing, investigation and

## Siteworks Notes

- SN1 Datum: Australian Height Datum (AHD)
  Origin of levels: S.S.M.175350 RL 100.79 & S.S.M.175276 RL 91.90
  Origin of co-ordinates: Local
  Survey prepared by: J.D.M. Consulting
- SN2 The contractor must verify all dimensions and existing levels on site prior to commencement of work, and report any discrepancies to the superintendent.
- SN3 All existing services (including any not shown on the plans) must be accurately located in position and level prior to any excavation. Any discrepancies shall be reported to the superintendent. minimum service clearances shall be maintained from the relevant service authority.
- SN4 The contractor shall arrange for all setting out by a registered surveyor.
- SN5 The contractor shall obtain all regulatory authority approvals at their own expense.
- SN6 Where new works abut existing, the contractor must ensure that a smooth and even profile, free from abrupt changes is obtained.
- SN7 All disturbed areas shall be restored to their original condition, unless specified otherwise.
- SN8 Excavated trenches shall be compacted to the same density as the adjacent natural material. Any subsidence's during the period to be rectified as directed by the superintendent.
- SN9 Any existing trees which form part of the final landscaping plan will be protected from construction activities in accordance with the landscape architect's details and / or by -

Protecting them with barrier fencing or similar materials installed outside the drip line, ensuring that nothing is nailed to them, prohibiting paving, grading, sediment wash or placing of stockpiles within the drip line except under the following conditions 
Encroachment only occurs on one side and no closer to the

Encroachment only occurs on one side and no closer to the trunk than either 1.5m or half the distance between the outer edge of the drip line and the trunk, which ever is the greater, a drainage system that allows air and water to circulate through the root zone (eg a gravel bed) is placed under all fill layers of more than 300mm care is taken not to cut roots unnecessarily nor to compact the soil around them.

SN10 Receptors for concrete and mortar slurries, paints, acid washings, light-weight waste materials and litter are to be emptied as necessary. Disposal of waste shall be in a manner approved by the superintendent or as specified in the works contract.

## General Notes

- GN1 All workmanship and materials shall comply with the National Construction Code of Australia and the relevant current Australian Standards.
- GN2 Any discrepancies, omissions or errors shall be reported to the Superintendent for clarification before proceeding with the work.
- GN3 Do NOT scale measurements from the drawings.
- GN4 All compaction works for footpaths and pavements shall be done without the use of any form of vibrating machines or plant.

## **Earthworks Notes**

- EW1 All work shall comply with AS3798 (2007) Guidelines on earthworks for commercial and residential developments.
- EW2 All work shall comply with the project geotechnical report Douglas Partners
  Project 40740.33

May 2009

- EW3 Strip topsoil to expose naturally occurring engineering material and stockpile on site for reuse as directed by the superintendent.
- EW4 All soft, wet or unsuitable material to be removed as directed by the superintendent and replaced with approved fill material.
- EW5 All fill material shall be from a source approved by the superintendent and shall comply with the following a) free from organic and perishable matter,
  b) maximum particle size 75mm,
  c) plasticity index between 2% and 15%.
- EW6 All fill material shall be placed in maximum 200mm thick layers and compacted at optimum moisture content (+ or 2%) to achieve a dry density determined in accordance with AS1289.5.1.1 2003 methods of testing soils for engineering purposes of not less than the following standard minimum dry density -

locationstandard dry densityunder building slabs98%vehicular paved areas100%non-vehicular paved areas98%landscaped areas95%

- EW7 The contractor shall program the earthworks operation so that the working areas are adequately drained during the period of construction. The surface shall be graded and sealed off to remove depressions, roller marks and similar which would allow water to pond and penetrate the underlying material. any damage resulting from the contractor not observing these requirements shall be rectified by the contractor at their own
- EW8 Testing of the fill material shall be carried out by an approved NATA registered laboratory at the contractors expense.
- EW9 Where the subgrade is unable to support construction equipment, or it is not possible to compact overlying pavement layers, only because of the subgrade moisture content, then the contractor shall condition or replace the material at the contractors discretion and expense.
- EW10 Earthworks calculations are volumetric only and do not allow for bulking of excavated material. It is the contractors responsibility to make allowances for these items as part of the tender / works.
- EW11 No allowance has been made for footings or foundations, retaining walls or trenching. It is the contractors responsibility to make allowances for these items as part of the tender / works.

# **Existing Services Notes**

- ES1 Existing services have been plotted from supplied data and as such their accuracy cannot be guaranteed. It is the responsibility of the contractor to establish the location and level of all existing services prior to the commencement of any work. Any discrepancies shall be reported to the superintendent.
- ES2 The contractor shall allow for the capping off, excavation and removal if required of all redundant existing services in areas affected by works within the contract area, as shown on the drawings unless directed otherwise by the superintendent.
- ES3 The contractor shall ensure that at all times services to all buildings not affected by the works are not disrupted.
- ES4 If required, the contractor shall construct temporary services to maintain existing supply to buildings remaining in operation during works to the satisfaction and approval of the superintendent. Once diversion is complete and commissioned the contractor shall remove all such temporary services and make good to the satisfaction of the superintendent and the relevant service authority.
- ES5 Interruption to supply of existing services shall be done so as not to cause any inconvenience to the principal. The contractor is to gain approval from the superintendent for time of interruption the contractor is responsible for all liaison.
- ES6 All branch gas and water services under driveways and brick paving shall be located in Ø80mm uPVC sewer grade conduits extending a minimum of 500mm beyond the edge of paving.
- ES7 Clearance and cover requirements shall be obtained from the relevant service authority before commencement of works and shall be adhered to at all times.
- ES8 Care is to be taken when excavating near existing services. No mechanical excavations are to be undertaken over telecom or electrical services. Hand excavate in these areas only.

### Stormwater Notes

- SW1 For residential subdivisions and public roads -
  - All Ø375mm to Ø600mm drainage pipes shall be class 4 approved spigot and socket reinforced concrete pipes with rubber ring joints (UNO). All Ø675mm or larger drainage pipes shall be class 3 approved spigot and socket reinforced concrete pipes with rubber ring joints (UNO).
- All uPVC drainage pipes in footways or accessways shall be DWV grade class SN8 in accordance with AS/NZS 1260:2009 PVC-u pipes and fittings for drain, waste and vent application. heavy duty uPVC pipes to be in accordance with AS/NZS 1254: 2010 PVC pipes and fittings for storm and surface water applications may be used within allotments.
- SW2 Equivalent strength fibrous reinforced concrete (F.R.C.) and / or High density polyethylene (H.D.P.E.) may be used subject to approval by the superintendent.
- SW3 All pipe junctions up to and including Ø450mm and tapers, shall
- SW4 Minimum grade to stormwater lines to be 1% (UNO).

be via purpose made fittings (UNO).

- SW5 Contractor to supply and install all fittings and specials including various pipe adaptors to ensure proper connection between dissimilar pipework.
- SW6 All connections to existing drainage pits shall be made in a tradesman-like manner and the internal wall of the pit at the point of entry shall be cement rendered to ensure a smooth finish with no protrusions.
- SW7 All in-situ concrete pits to be 32Mpa minimum at 28 days.
- SW8 Pits and pipes in areas of salinity hazard shall have increased cover to any reinforcement.
- SW9 Precast concrete pits may be installed in lieu of cast in-situ pits, when pipe junctions are accommodated within the overall dimensions of the pit, and approved by the superintendent.
- SW10 Pits deeper than 1000mm shall have step irons installed in accordance with the local or statutory authority requirements.
- SW11Bedding shall be type H2 (UNO) for pipes not under pavements, and type HS2 for pipes under pavements in accordance with AS/NZS 3725: 2007 design for installation of buried concrete pipes.
- SW12 Backfill trench with sand or approved granular backfill to 300mm (min) above the pipe. Where the pipe is under pavements backfill remainder of trench to pavement subgrade with sand or approved gravel sub-base compacted in 150mm layers to 98% standard maximum dry density. The contractor is to ensure compaction equipment is appropriate for the pipe class used.
- SW13 Where stormwater lines pass under floor slabs DWV grade uPVC rubber ring joints are to be used (UNO).
- SW14 Where subsoil drainage lines pass under floor slabs and vehicular pavements, unslotted uPVC DWV grade class SN8 pipe shall be used.
- SW15 Provide 3m length of Ø100mm subsoil drainage line or 200 'Nylex' strip drain surrounded with 150mm of 20mm blue metal or gravel, and wrapped in 'Bidum' A24 geotextile filter fabric or approved equivalent, at invert of incoming upstream pipe on each pit.

### **Concrete Notes**

### General

- CN1 Use "AS3972 2010 General purpose and blended cements Type GP" cement (UNO).
- CN2 All concrete shall be subject to project control sample and testing to AS3600 2009 concrete structures.
- CN3 Consolidate all concrete, including footings and slabs on ground with mechanical vibrators.
- CN4 Cure all concrete as follows keep surfaces continuously wet for 3 days, then
  prevent moisture loss for the next 4 days using polythene sheeting or wet hessian protected from wind and traffic, and then allow drying out.
  curing compounds may be used provided that they comply with AS3799 and they do not affect floor finishes.
- CN5 Fix reinforcement as shown on drawings. The type and grade is indicated by a symbol as shown below -

- PVA-based curing compounds are NOT acceptable.

N hot rolled deformed bar, grade 500 R plain round bar, grade 250 SL / RL hard drawn wire fabric square or rectangular

following this symbol a numeral indicates the specified diameter.

CN6 Provide bar supports or spacers to provide concrete cover as detailed to all reinforcement.

### Concrete Pavements

- CN7 Concrete mix parameters maximum aggregate size 20mm
  flexural strength at 28 days = 3.5 MPa, F'c= 32 MPa, (UNO)
  flexural strength at 90 days = 3.85 MPa
  max water/cement ratio = 0.55
  max shrinkage limit = 650 micron strains (AS1012.13-1992)
  min cement content = 300kg/m³
  cement to be type "SL" (normal cement) to AS3972-2010
  slump = 80mm
- CN8 Early age saw cutting ('softcut') or similar shall be used for initial saw cut. It is to be performed as soon as the concrete has hardened sufficiently, to prevent excessive chipping, spalling, or tearing regardless of time or weather conditions.
- CN9 Joint layout shall be as detailed on the plans.

all dowels to be hot dip galvanised,

- CN10 Provide 10mm wide expansion joints between all buildings, other structures and pavements.
- CN11 Bond breaker to be two (2) uniform coats of bitumen emulsion all over the exposed surface and on end.
- CN12 Dowels and tie bars to meet strength requirements of structural grade steel in accordance with AS ISO 1302 2005 geometrical product specifications.

  Dowels and tie bars shall be straight,
  to length specified,
- sawn to length not cropped.

  CN13 Dimensions of sealant reservoir dependant on the sealant type adopted. Superintendent approval to be obtained for sealant and reservoir dimensions and detail proposed by the contractor.
- CN14 Prior to the placement of concrete in the adjacent slab, 'Ableflex' filler shall be adhered to the already cast and cleaned concrete face using an approved waterproof adhesive. Adhesive shall be liberally applied to the full face of the concrete slab to be covered by the filler, and on the full face of the filler to be adhered.

Refer to plans for typical arrangement and sealant.

- CN15 The base course shall be kept moist (not wet) by sprinkling with water immediately prior to pouring the concrete.
- CN16 All work to be finished to satisfy its intended use as shown on the plans, and / or in accordance with the specification.

## Kerbing Notes

- CN17 All concrete kerbs to have a minimum characteristic compressive strength F'c=25MPa (UNO).
- base course.(UNO on the Drawings)

  CN19 Kerb expansion joints shall be formed from 10mm 'Ableflex' (or

CN18 All kerbs, dish drains, etc. to be constructed on 75mm minimum

- approved equivalent) for the full depth of the section.

  CN20 Expansion joints shall be located at drainage pits, tangent points
- of curves and elsewhere at 12m maximum spacing (UNO).

  CN21 Tooled joints shall be min 3mm wide and located at maximum.
- CN21 Tooled joints shall be min 3mm wide and located at maximum 3m spacing.
- CN22 Integral kerb joints shall match the location of the pavement jointing.

Key to symbols

Notes

 02
 15.04.15
 ADS
 Issued for DA Approval
 GC
 CJA

 01
 10.02.15
 ADS
 Re-issued for Tender
 GC
 CJA

 0
 19.12.14
 AMP
 Issued for Tender
 GC
 CJA

 P3
 23.07.14
 DW
 Issued for DA
 GC
 X

 P2
 14.07.14
 ADS
 Re-issued for information
 GC
 X

 P1
 02.06.14
 AMP
 Issued for information
 GC
 X

 Rev
 Date
 Drawn
 Description
 Ch'k'd
 App'd



Reference drawings

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Oran Park - Anglicare Chesalon Infrastructure Package Stage 3 Civil Works Notes and Legends Sheet 1

Designed G Collins . Eng check J Toth .

Drawn A Paciben . Coordination J Gilligan .

Dwg check G Collins . Approved C Avis .

Scale at A1 Status Rev

NTS APR 02

Drawing Number

MMD-335517-C-DR-00-XX-1101

Issued for DA approval

# Asphaltic Concrete Notes

### General

- AC1 Asphaltic concrete mix design, manufacture, placing and compaction shall be in accordance with RMS Specification R116-Asphalt (dense graded and open graded) and AS2150-2005 Hot Mix Asphalt A Guide To Good Practice. Annexure R116/1 to be completed by subcontractor and submitted for approval by superintendent 7 days prior to AC works.
- AC2 Mineral filler to comply with AS2150 2005 Hot Mix Asphalt A Guide to Good Practice.

### Mix proportions

- AC3 Job mix 7mm nominal size aggregate. Minimum bitumen content (%) by (mass of total mass) 5.1%.
- AC4 Mix stability between 16kn and 36kn as determined by RMS test method T601 Compaction of test specimens of dense grade bituminous mixtures and T603 Stability of dense grade bituminous mixtures.
- AC5 Air voids in compacted mix between 4% of volume and 7% of the mix. Voids filled in binder. 65-80% of air voids in the total mineral aggregate filled by binder in accordance with RMS test method T601 Compaction of test specimens of dense grade bituminous mixtures, T605 Maximum density of bituminous plant mix and T606 Bulk density of compacted dense graded bituminous mixtures.

### Pavement preparation

- AC6 The existing surface to be sealed, shall be dry and broomed before commencement of work to ensure complete removal of all superficial foreign and loose matter.
- AC7 All depressions or uneven areas are to be tack-coated and brought up to general level of pavement with asphaltic concrete before laying of main course.

### Tack coat

AC8 The whole of the area to be sheeted with asphaltic concrete shall be lightly and evenly coated with rapid setting bitumen. Application rate for residual bitumen shall be 0.15 to 0.30 litres/square metre. Application shall be by means of a mechanical sprayer with spray bar.

### Spreadi

- AC9 All asphaltic concrete shall be spread with a self propelled paving machine.
- AC10 The asphaltic concrete shall be laid at a mix temperature as shown below -

road surface temp in shade (°c)	mix temperatures (°c)
5 - 10	not permitted
10 - 15	150
15 - 25	145
25+	140

- AC11 Asphaltic concrete shall not be laid when the road surface is wet or when cold winds chill the mix to adversely affect temperature of mix during spreading and compaction operations.
- AC12 The minimum compacted thickness is 50 mm in two (2) layers.

## lointe

- AC13 The number of joints both longitudinal and transverse shall be kept to a minimum.
- AC14 The density and surface finish at joints shall be similar to those of the remainder of the layer.

## Compaction

- AC15 All compaction shall be undertaken using self propelled rollers.
- AC16 Initial rolling shall be completed before the mix temperature falls below 105°c.
- AC17 Secondary rolling shall be completed before the mix temperature falls below 60°c.
- AC18 Minimum characteristic value of relative compaction of a lot when tested in accordance with AS2150 2005 Hot mix asphalt a guide to good practice shall be 95%.

## Finished pavement properties

AC19 Finished surfaces shall be smooth, dense and true to shape and shall not vary more than 10mm from the specified plan level at any point and shall not deviate from the bottom of a 3m straight edge laid in any direction by more than 5mm.

## Linemarking Notes

- LM1 All linemarking works to be in accordance with either the current Australian standard AS1742.2-2009-Manual Uniform Traffic Control Devices, or as shown on the plans or as directed by the superintendent.
- LM2 The scope of work shall include all pavement markings to roads and carparks.
- LM3 The work carried out and testing performed shall comply with the current, relevant Australian standards and RMS standards where necessary.
- LM4 All markings shall be spotted out and verified by the contractors representative prior to application.
- LM5 Paint shall be applied at a wet thickness of between 0.35mm -
- LM6 Paint shall only be applied to clean and dry surfaces.
- LM7 All longitudinal lines shall be applied by a self-propelled machine.
- LM8 Linemarking removal shall be carried out by grinding or sandblasting. Removal by burning will not be permitted.
- LM9 The extent of linemarking to be eradicated shall be confirmed on site prior to removal. Any markings incorrectly removed shall be reinstated at the contractor's expense.
- LM10 All markings shall be completed in a workmanlike manner and be straight, smooth and with even curves. Any non-conforming work, shall be removed and reinstated at the direction of the superintendent at the contractor's expense.
- LM11 Linemarking on AC pavements to be provided no sooner than 7-10 days once the asphalt has set.

Key to symbols Reference drawings 02 | 15.04.15 | ADS | Issued for DA Approval GC CJA 01 | 10.02.15 | ADS | Re-issued for Tender GC CJA 19.12.14 | AMP | Issued for Tender GC CJA GC X P3 | 23.07.14 | DW | Issued for DA P2 | 14.07.14 | ADS | Re-issued for information GC X P1 02.06.14 AMP Issued for information GC X Ch'k'd App'd Drawn Description Rev Date Level 10, 383 Kent Street Sydney NSW 2000 Australia PO Box Q1678 QVB Sydney NSW 1230 **T** +61 (0)2 9098 6800 w www.mottmac.com.au

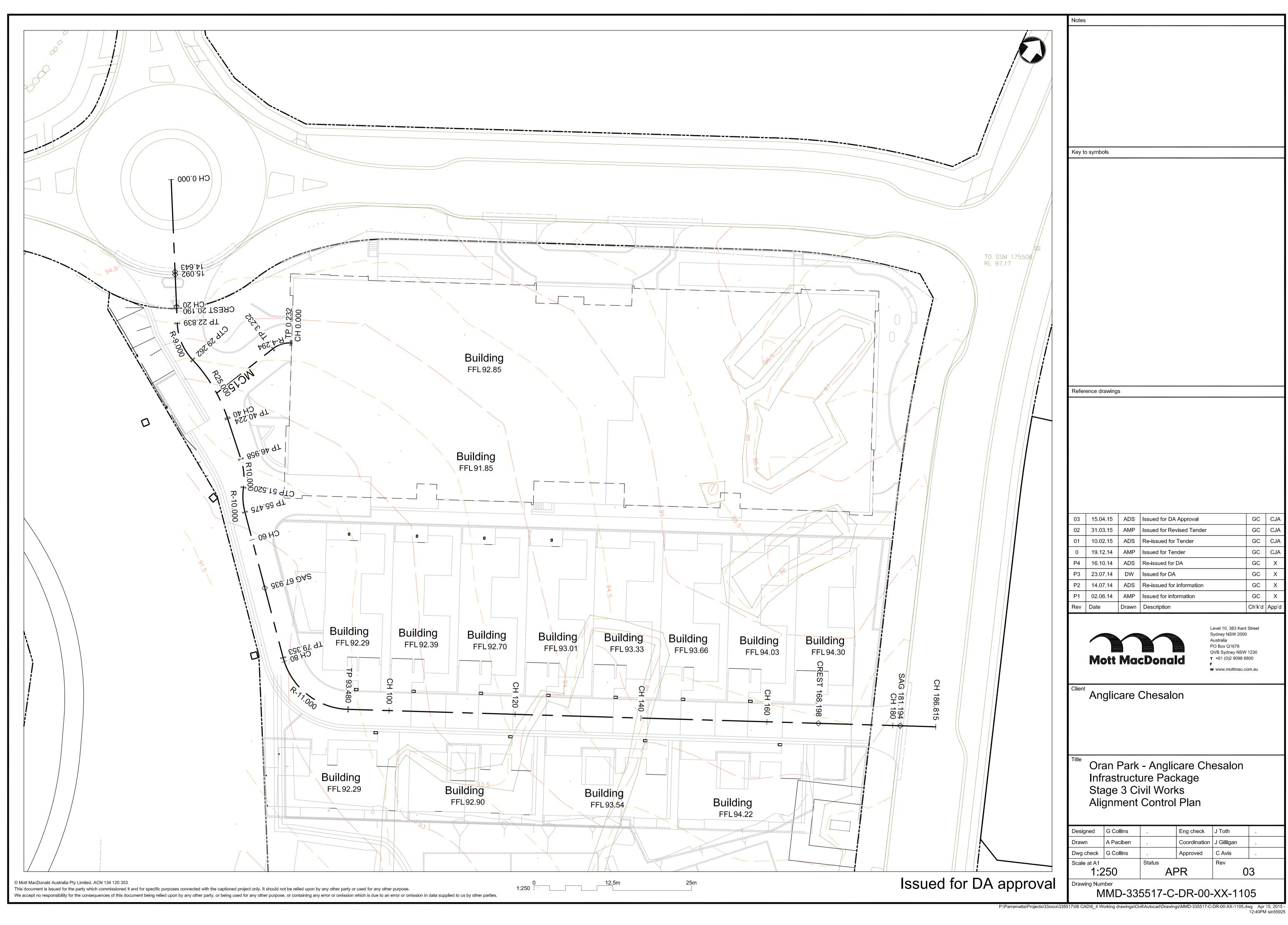
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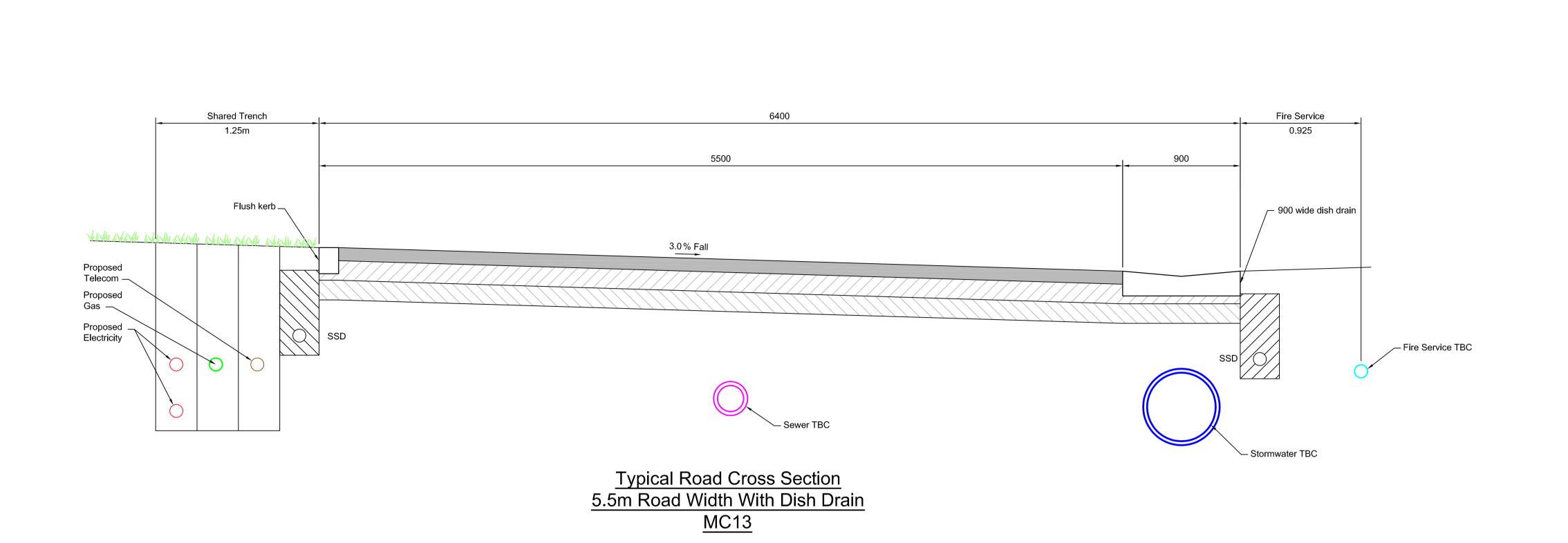
Oran Park - Anglicare Chesalon Infrastructure Package Stage 3 Civil Works Notes and Legends Sheet 2

NTS		APR		02		
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Dwg check	G Collins	•	Approved	C Avis	•	
Drawn	A Paciben	•	Coordination	J Gilligan		
Designed	G Collins	•	Eng check	J Toth		

MMD-335517-C-DR-00-XX-1102

Issued for DA approval Drawing Number

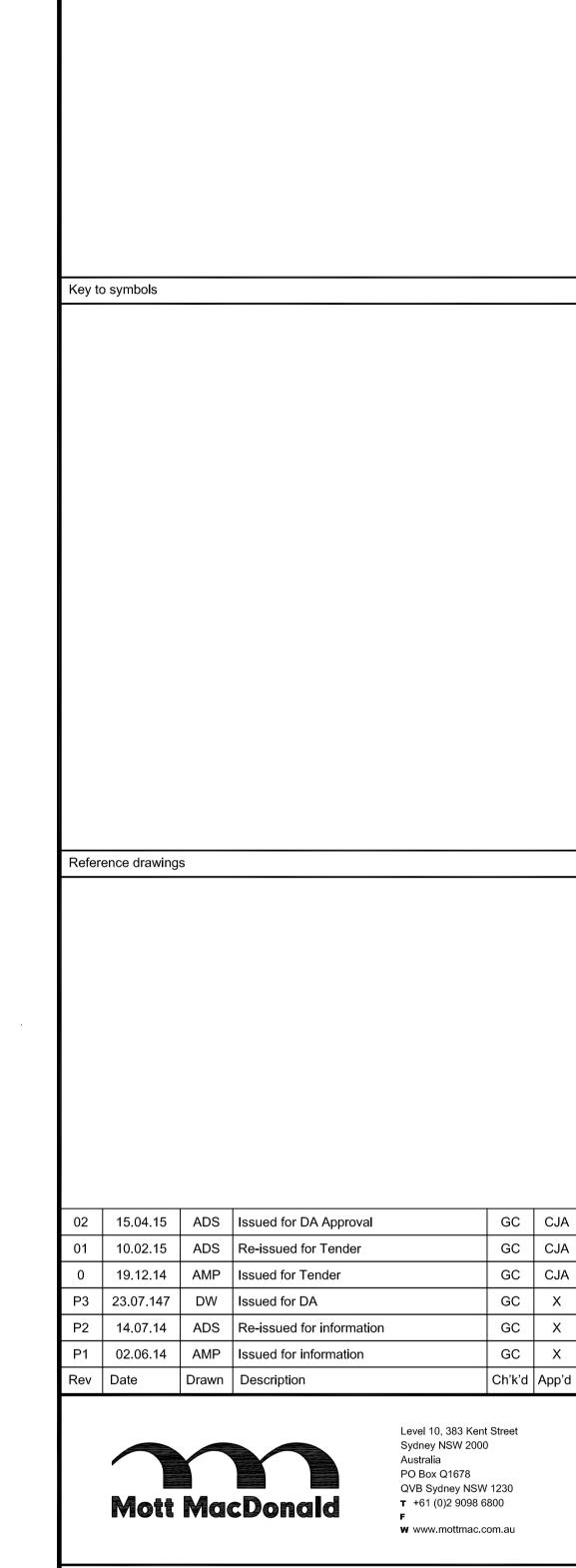




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GC CJA

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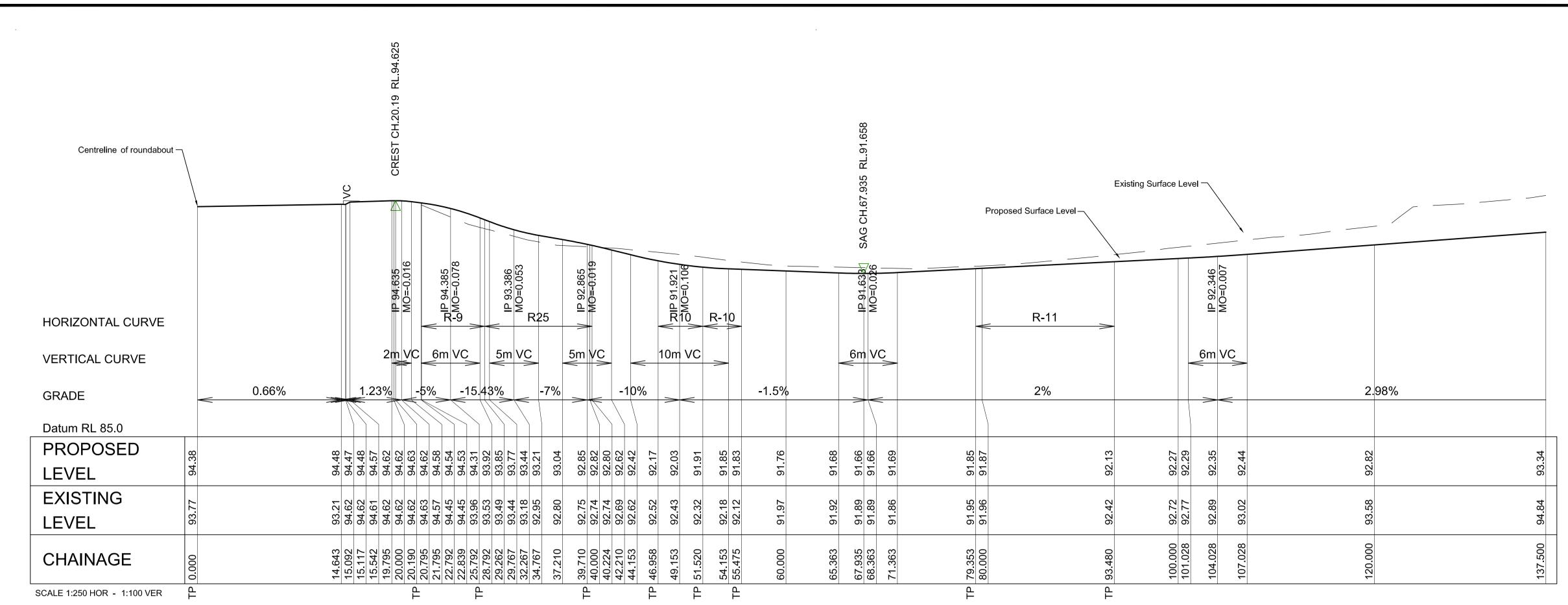
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Oran Park - Anglicare Chesalon Infrastructure Package Stage 3 Civil Works Typical Road Coss Sections

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Dwg check	G Collins	•	Approved	C Avis			
Drawn	A Paciben	•	Coordination	J Gilligan	•		
Designed	G Collins	•	Eng check	J Toth	•		

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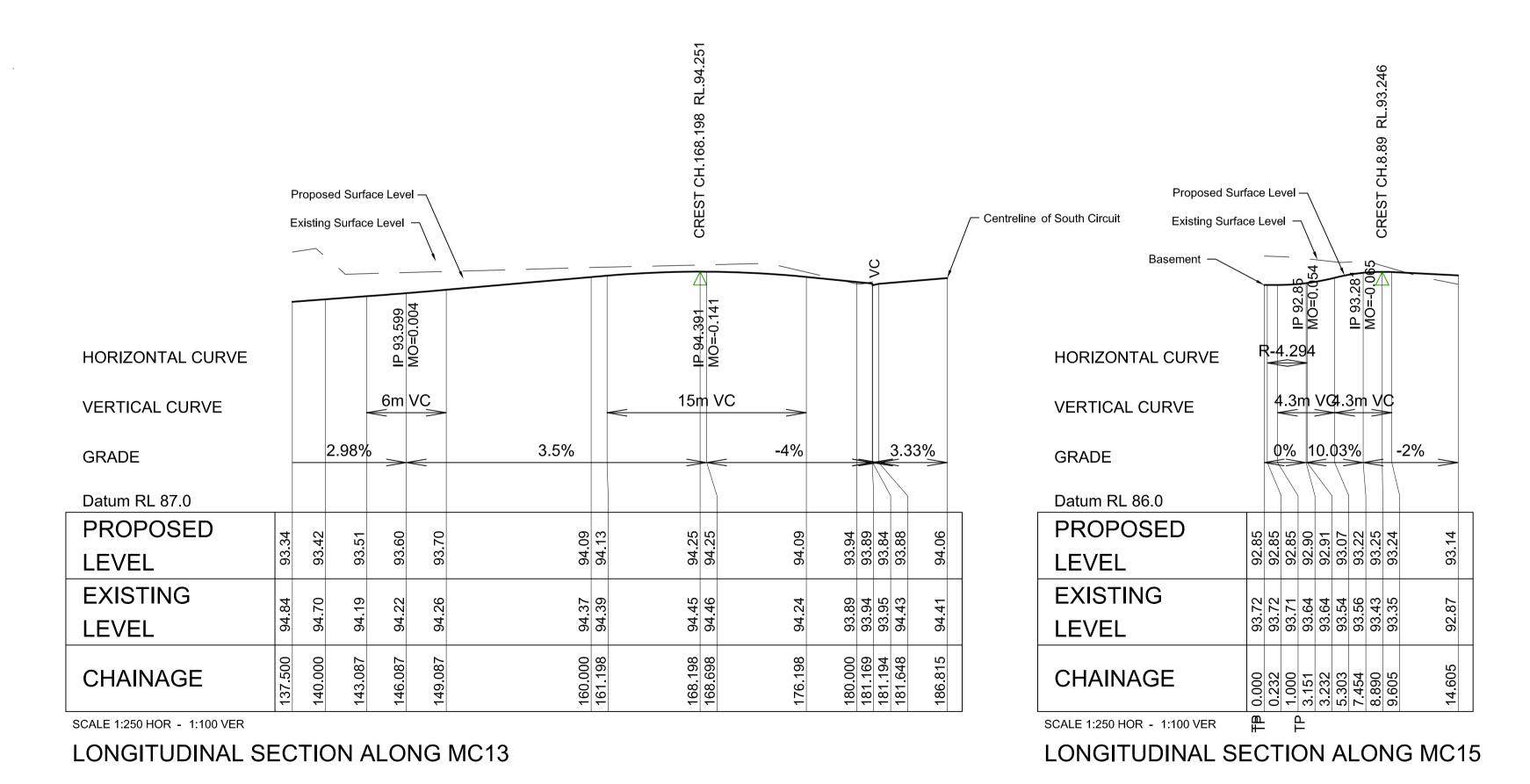


LONGITUDINAL SECTION ALONG MC13

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03	15.04.15	ADS	Issued for DA Approval	GC	CJA
02	31.03.15	AMP	Issued for Revised Tender	GC	CJA
01	10.02.15	ADS	Re-issued for Tender	GC	CJA
0	19.12.14	AMP	Issued for Tender	GC	CJA
P4	23.07.14	DW	Issued for DA	GC	Х
P3	14.07.14	ADS	Re-issued for information	GC	Х
P2	03.06.14	AMP	Re-issued for information	GC	Х
P1	02.06.14	AMP	Issued for information	GC	Х
Rev	Date	Drawn	Description	Ch'k'd	App'd



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Oran Park - Anglicare Chesalon Infrastructure Package Stage 3 Civil Works Road Longitudinal Section Sheet 1

Drawing Number						
As Shown		APR		03		
Scale at A1		Status		Rev		
Dwg check	G Collins	•	Approved	C Avis	•	
Drawn	A Paciben	•	Coordination	J Gilligan	•	
Designed	G Collins		Eng check	J Toth	-	

MMD-335517-C-DR-00-XX-1145

(PR06.11) (PR12.03) (PR06.09) (PR12.04) (PR06.10) PR06.08 For continuation refer to Stage 4 Allow to connect to drainage at boundary of stage 4 0.107 0.155 0.206 0.220 0.002 0.034 0.053 0.014 0.108 Flow (m3/s) 0.19 0.95 1.02 0.02 0.33 1.51 1.52 1.41 0.49 Velocity (m/s) Ø375-RCP Ø525-RCP Ø525-RCP Ø450-RCP Ø300-RCP Class 3 Ø300-RCP Class 3 Ø300-RCP Class 3 Ø300-RCP Ø300-RCP Class 3 Pipe Size Class 2 Class 3 Class 3 Class 2 Class 3 2.10% 1.00% 1.00% 1.70% 1.00% 1.00% 1.00% 1.00% 1.00% Grade (%) Datum R.L 73.00 75.00 DEPTH TO INVERT 90.09 90.10 90.04 89.94 89.97 89.82 92.77 92.68 92.67 91.65 91.66 91.63 90.63 90.33 90.23 90.69 90.68 90.43 H.G.L.LEVELS 89.79 89.77 89.75 89.70 INVERT R.L. APPROX. F.S.L. PIPE CHAINAGE

> LINE PR06 LINE PR12

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Stage 3 Civil Works
Stormwater Longitudinal Sections Sheet 1

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Drawn	A Paciben	•	Coordination	J Gilligan	•	
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| Drawing Number | MMD-335517-C-DR-00-XX-1150