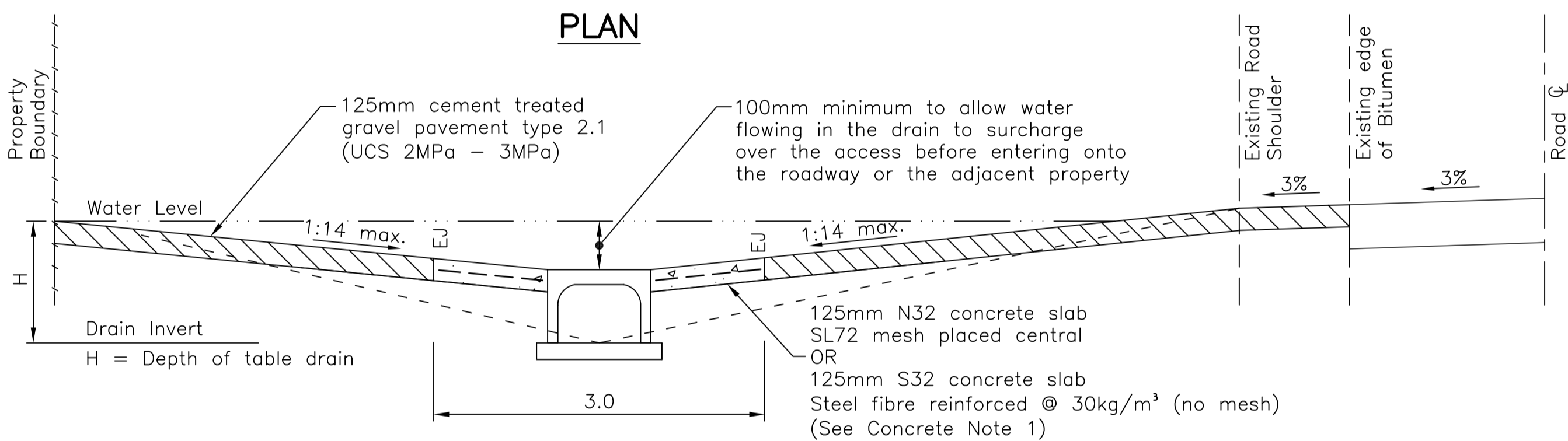
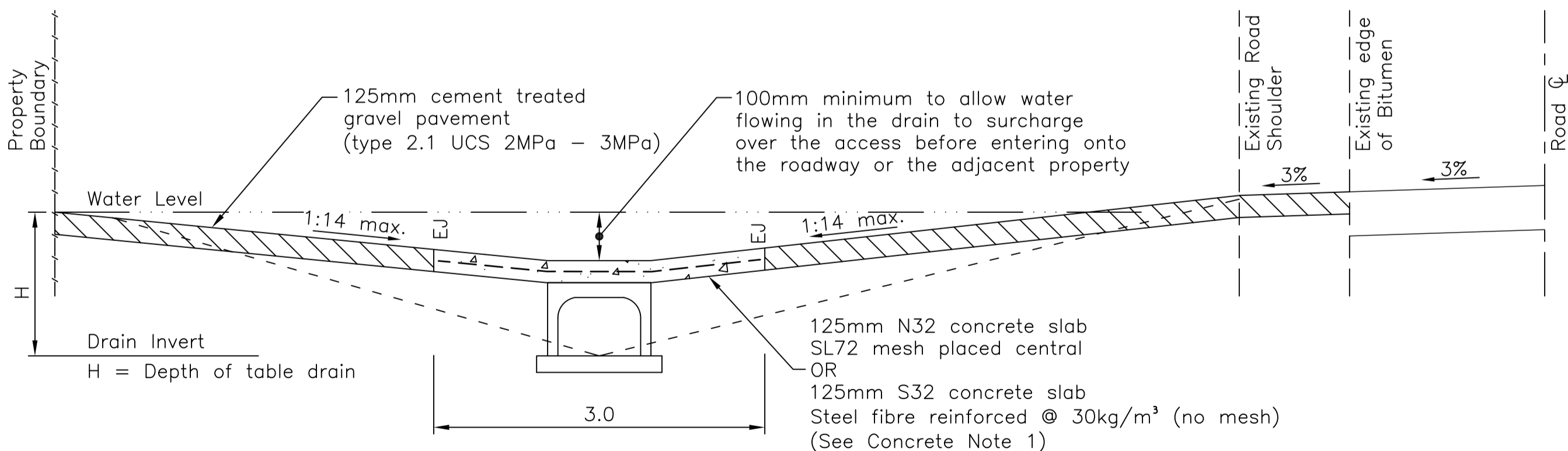


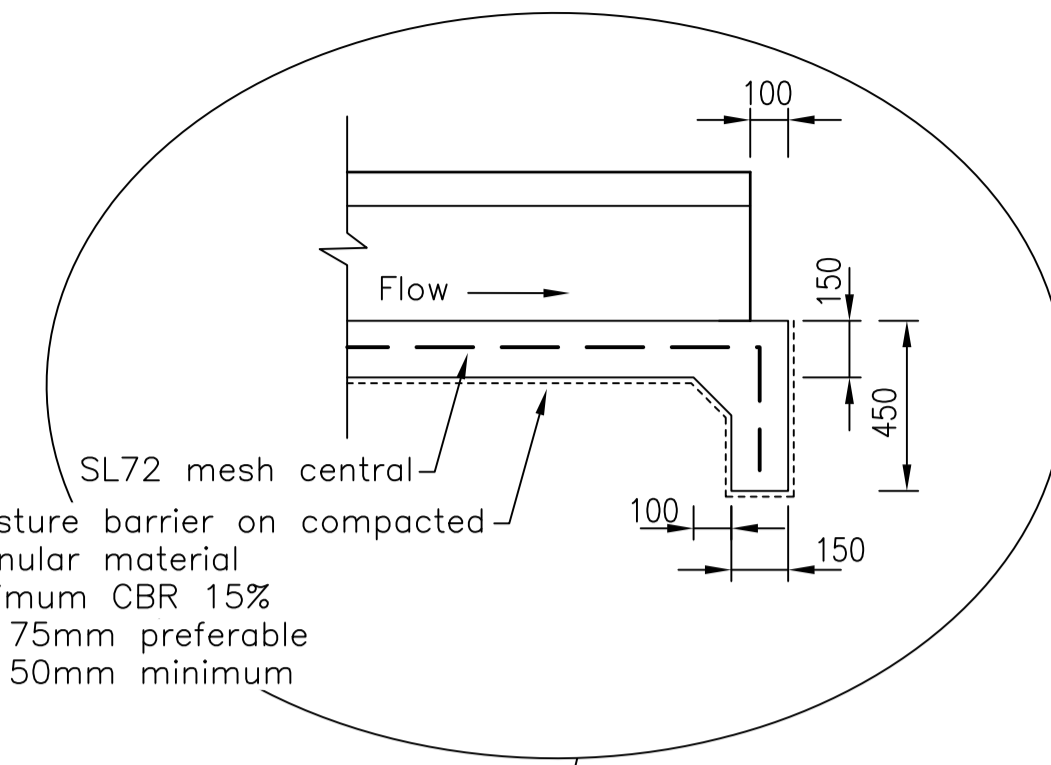
PLAN



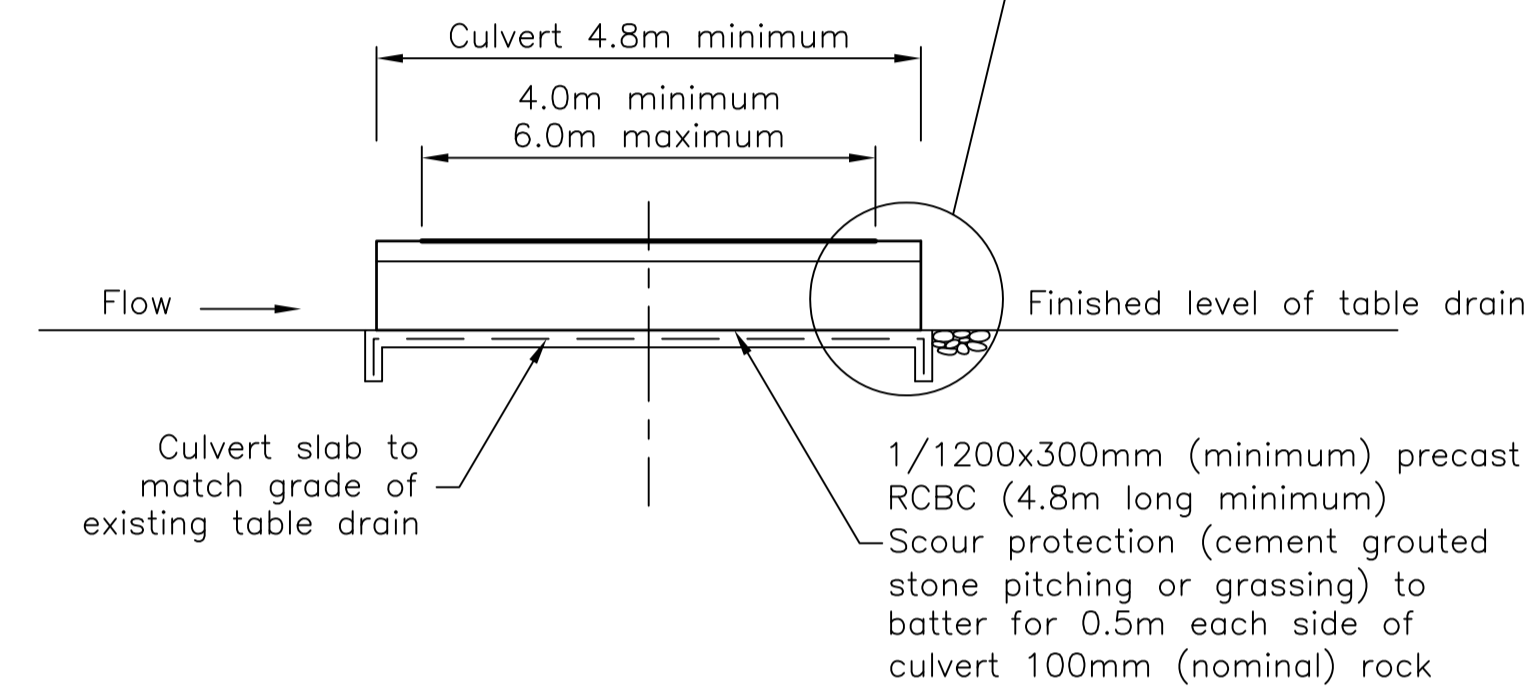
SECTION 1  
DRIVEWAY FLUSH WITH TOP OF CULVERT  
MINIMUM DEPTH OF DRAIN 585mm



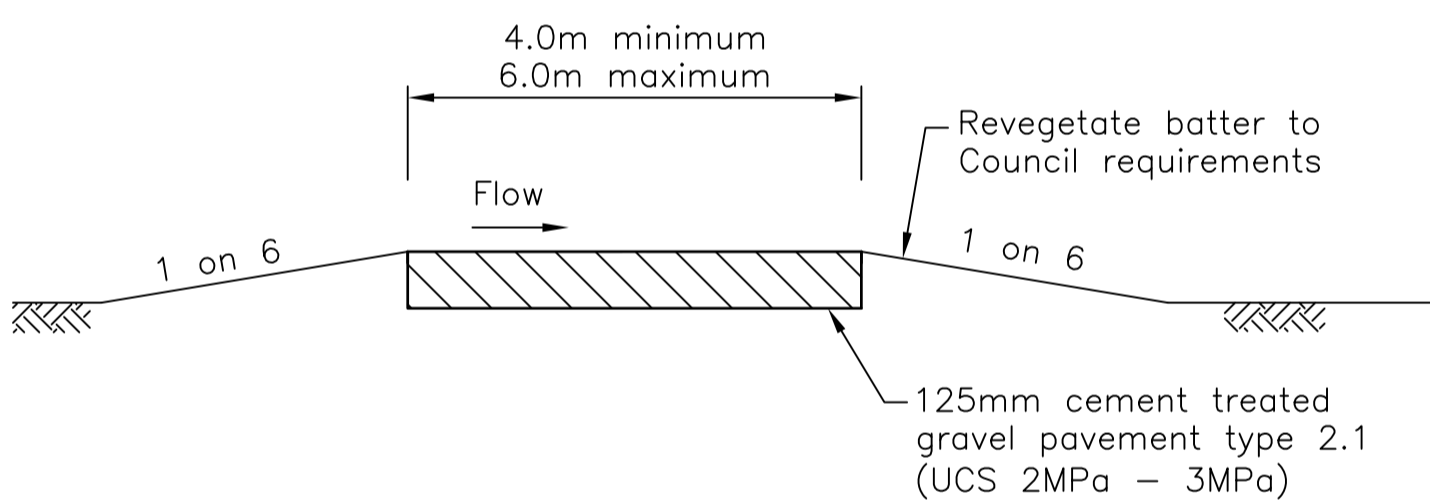
SECTION 1  
DRIVEWAY OVER CULVERT  
MINIMUM DEPTH OF DRAIN 735mm



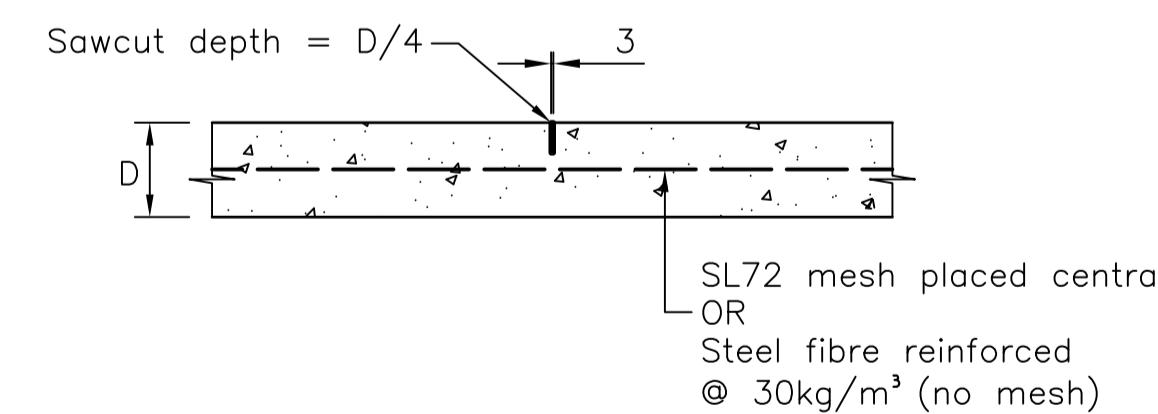
CULVERT DETAILS



SECTION 2  
CULVERT



SECTION 3  
CEMENT STABILISED GRAVEL



CONTRACTION JOINT - CJ

**NOTES**

**GENERAL**

- All driveways require a Road Work Permit, which must be obtained from Council prior to construction.
- Final location of access/es to be approved by Council's authorised person.
- Do not scale drawings, use figured dimensions. All dimensions are in millimetres unless noted otherwise.
- All workmanship and all materials shall be in accordance with Standards Australia specifications.
- Gravel shall conform with MRS 05 and MRS 08.
- Installation and maintenance of driveways are the responsibility of the property owner.

**CONCRETE**

- Concrete shall be Grade N32 (mesh reinforced) or S32 (fibre reinforced) minimum. Although not a mandatory requirement it is recommended to use 40MPa concrete grade in areas with exposure classification B2 and 50MPa concrete grade in areas with exposure classification C2.
- Where existing ground conditions appear to be highly plastic and have a high shrinkage, it is recommended to use a 150mm thick slab or seek advice from a Consulting Engineer.
- Reinforcement is to be in accordance with the latest Standards Australia specifications. Material is indicated by the following symbols:  
R Plain Bars  
N Structural Grade Deformed, Grade 500  
SL Mesh Grade 500
- Cover to reinforcement is as shown on the drawing and is to be maintained during pouring of concrete by the use of plastic chairs, at maximum 800mm centres in each direction. For work in contact with the ground, chairs are to be supported on sheet plates.
- Lap Bars 40 diameter at splices unless noted otherwise.
- Mesh is to comply with Standards Australia specifications and to have minimum lap splices as follows:  
Square Mesh - Wire spacing x2 times for wires in each direction.
- Welding reinforcement will not be permitted unless shown on the drawings.
- Provide contraction joints (CJ) at 6.0m maximum centres but not more than the width of the access, whichever is less.
- Compaction of concrete during placing shall be by mechanical vibrators.
- Curing of all concrete surfaces is to be carried out immediately after finishing as per AS3600 Section 4 for a minimum of 7 days.
- All driveways shall have a non-slip finish.
- Reinforcing fibres, if used, are to be a minimum length of 30mm and a maximum length of 55mm.

**INSPECTIONS**

- Council inspections are required for all driveways prior to construction, including concrete slab set-up and reinforcement.
- A final Council inspection is required following completion of construction, including back filling to edges and ensuring the new driveway will not cause a tripping hazard.
- Approved construction plans are to be available on site during inspections.

**SERVICES**

- Locations of existing underground services are to be confirmed by the owner/applicant/contractor who shall contact 'Dial Before You Dig' for information prior to any construction.
- Ensure 450mm minimum cover to all underground services.
- Re-establish any service markers damaged during construction.

**DRIVEWAY CLEARANCES**

- 1.0m minimum from all poles (eg. power, signs).
- 0.5m minimum from service pits (eg. Ergon, Telstra). Service pits shall not be incorporated into the driveway. All pit relocations shall be done with the approval of the relevant service authority and at the expense of the property owner.
- 0.6m minimum from stormwater inlet pits/manholes.
- 0.5m minimum from sewer manholes.
- 1.2m minimum from sewer house drain connections.
- 3.5m minimum from trees unless assessed and approved by Council's Horticulture/Arboriculture Officer.
- Water Fittings (e.g. SV, FH) are not to be located within concrete driveway unless assessed and approved by Townsville Water.

**FINSH**

- Driveways must be constructed using reinforced concrete or cement stabilised gravel.
- Accesses may be sealed with bitumen or asphalt surfacing. Spray rates and asphalt thickness as recommended by the bitumen/asphalt suppliers.

**PRECAST CULVERT**

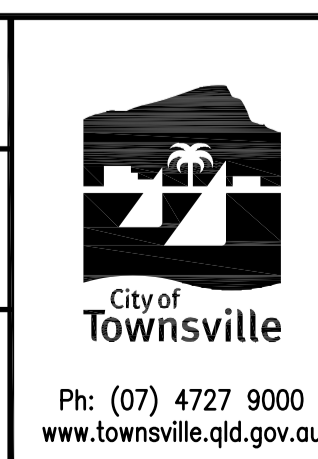
- The depth of any drain (H) must be at least 325mm where it is proposed to install a precast box culvert underneath an access. This depth must be measured from either the property boundary or the bitumen roadway whichever is lower.
- All box culverts shall be constructed in accordance with TCC Aus-Spec C222 Precast Box Culverts.
- The top surface of the precast box culvert may be level with the finished surface of the access.
- An alternative size precast box culvert may be used, however the size and number of culverts required shall be subject to final approval by the Council's authorised person.
- Reinforced concrete pipes must not be used unless the drain is AT LEAST 1.2m deep.
- Any non-standard culverts (either box or pipes) shall be designed for a ten (10) year Average Recurrence Interval storm allowing for surcharge over the access. The surcharge shall not enter onto the roadway or the adjacent property. These designs are to be certified by a Consulting Engineer and are to be supplied to Council for approval.

No.	DATE	DESCRIPTION	AP'D
B	07/04/2015	CONCRETE AND MESH DETAILS	
A	27/02/2014	ORIGINAL ISSUE	
REVISIONS			

NOTES :

Full Size A1  
Not to scale

DRAWN: DESIGN OFFICE  
CHECKED: WP  
Design Engineer Approved: Original signed by JORGE EL-KHOURI  
Date: 07/04/2015  
Manager Approved: Original signed by MARK WILKINSON  
Date: 09/04/2015



**DRIVEWAY ACCESS  
RURAL PROPERTIES  
TYPE 8 - GRAVEL ACCESS WITH CULVERT**  
535mm < H < 685mm

**STANDARD  
DRAWING  
ROADWORKS**  
SD-097 B